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RCRA FACILITY INVESTIGATION REPORT FOR SWMU 9

NAVAL STATION ROOSEVELT ROADS
RCRA/HSWA PERMIT NO. PR2170027203
CEIBA, PUERTO RICO

APPENDICES - VOLUME II OF II

CONTRACT TASK ORDER 0099

MARCH 10, 2000

Prepared for:

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES
ENGINEERING COMMAND
Norfolk, Virginia

Under the:

LANTDIV CLEAN Program
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CH2M Hill
Herndon, Virginia

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Coraopolis, Pennsylvania

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APPENDIX A
GEOPHYSICAL INVESTIGATION REPORT

Geophex, Ltd.
605 Mercury Street
Raleigh, North Carolina 27603-2343
(919) 839-8515

May 9, 1996

Baker Environmental, Inc.
Mr. Thomas C. Fuller, P.G. (412) 269-6000; FAX (412) 269-2002
Airport Office Park - Building 3
420 Rouser Road
Coraopolis, PA 15108

Ref: Geophysical Surveys in Support of a Subsurface Investigation at Tow Way Fuel Farm, Roosevelt Roads Naval Station, Puerto Rico.

Dear Mr Fuller:

Attached are 1) a summary statement of the geophysical survey activities conducted between March 25 and April 3, 1996 at the subject site and 2) analysis of the collected data.

Ms. Lynn Sutton, Mssrs. Ed Rostosky, James Dukes and George Fields conducted ground-probing radar (GPR) and electromagnetic (EM) terrain conductivity surveys at the Tow Way Fuel Farm (Solid Waste Management Unit [SWMU] -8) and SWMU -9, areas A, B, and C (Figures 1, 2, 3, and 4). The geophysical survey was conducted to identify former fuel disposal sludge pits resulting from the cleaning of individual fuel tanks. The fuel sludge disposal areas were reportedly near their underground storage tank sources.

Geophex personnel conducted a GPR survey over the two SWMUs. The original delivery order requested GPR profiling to a maximum of 150 feet from the edges of the fuel tanks. Dense vegetative growth adjacent to the maintained fuel storage facilities prohibited the extensive aquisition of GPR data. We collected GPR profile data within the mowed areas of the SWMUs and along some transects cut into the vegetation by Baker personnel. We collected GPR data via two different systems: 1) GSSI SIR-2 digital system using a 500 MHz monostatic (transmitter and receiver housed together) antenna , and 2) Sensors & Software's pulseEKKO IV digital system using a 100 MHz bistatic (transmitter and receiver separate) antenna.

The GSSI SIR-2 system collects a continuous reflection profile of the subsurface. The 500 MHz antenna can resolve sufficiently large targets or geologic discontinuities, depending on subsurface conductivity, to a typical depth of 8-10 feet. We collected profile data using the SIR-2 system in reconnaissance mode to determine the average depth of penetration of the radar signal. The radar pulse was severely attenuated by the surface and subsurface materials (a mixture of volcanic and alluvial silts and clays). This attenuation resulted in poor penetration of the radar signal. Often we were unable to penetrate deeper than 30 inches. Figure 5 shows a typical radar profile record.

We collected 54 GPR profile lines (6,660 linear feet) using our SIR-2 digital monostatic GPR system.

The Sensors & Software pulseEKKO IV system also collects a continuous reflection profile of the subsurface. The bistatic nature of the transmitter and receiver increases the reflectivity of planar targets that are typically visible in the geologic environment. We collected profile data using the pulseEKKO system and a 100 MHz antenna. We collected a velocity profile west of Tank 1088 and calculated an average velocity for the subsurface material of 0.40 ft/nsec. The depth of penetration increased two fold from the GSSI system; however, the resolving power of near surface targets decreased. We collected GPR profile data over two known pipe locations. Pipe 1 is 8 inches in diameter and 3.75 feet below ground surface (bgs), pipe 2 is 12 inches in diameter and 5.5 feet bgs. Figure 6 shows the GPR record traces with interpreted section and known pipe locations. Neither pipe is discernable in the GPR record. We collected 30 GPR profile lines (1,750 linear feet) using our pulseEKKO IV digital bistatic GPR system.

Figures 7 through 11 show the collected GPR profile line locations for both radar systems at the individual areas. Information supplied to Geophex personnel indicated the top of the disposal pits were within four feet of the surface. Because we were unable to identify the locations of two pipes at a known depth and horizontal location we systematically profiled the remaining sites at a greater distance between GPR profiles. This reconnaissance type survey characterized the depth of GPR penetration over a broad area.

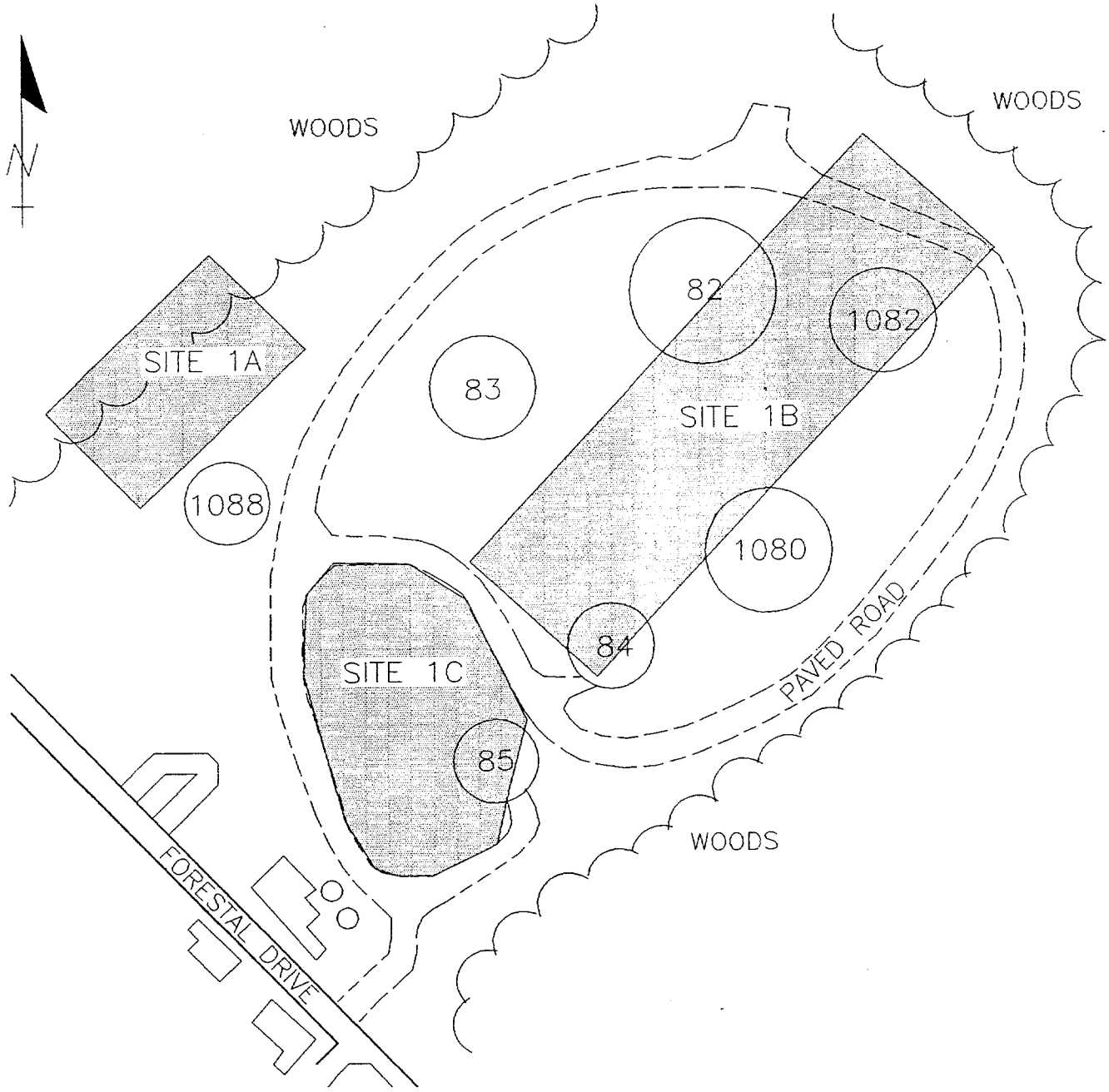
Due to the lack of resolvable GPR profile data, we utilized our multi-frequency EM induction sensor, the GEM-2, at 1,530 Hz and 7,290 Hz. We collected EM profile data within the mowed areas of the SWMUs and along transects cut into the vegetation by Baker personnel. Figures 7 through 11 also show the EM data collection locations. Figures 12 through 31 show the color contoured EM data. All anomalous features in the contour maps were correlated in the field to a surficial feature or known location of underground piping or conduit. We collected EM and GPR profile data at SWMU-9c (Areas 3A & B) (Figures 32 through 34) due to space constraints and abundance of cultural features. The high frequency EM anomalies were correlated to known surface features. The conductivity data for SWMU-9c (Site 3a) is plotted at two different vertical scales to express the data relief attributable to the site's cultural features. Conductivity data at SWMU-9c (Site 3b) exhibits less noise, however, the data quality is adversely affected by the proximity of the cultural features. GPR profile data were collected coincident with GEM-2 profile lines 1, 2. and 3. Again, radar signal penetration was minimal.

Detailed site maps of each area were unavailable at the time of this report. No fuel sludge disposal sites were identified within the survey areas for either method. Both methods were applicable techniques for determining the location of the suspected disposal pits. Physical site conditions (e.g., volcanic detritus, and alluvial silts and clays) attenuated GPR signal penetration, cultural site conditions (e.g., underground piping, aboveground vaults and manways, and electrical works associated with the tank systems) degraded the ability to discern anomalous data from the influence of cultural features.

We thank you and your Baker colleagues for working with us and successfully completing this phase of the project. We are open to suggestions for improving and, if necessary, revising the report.

Sincerely yours,

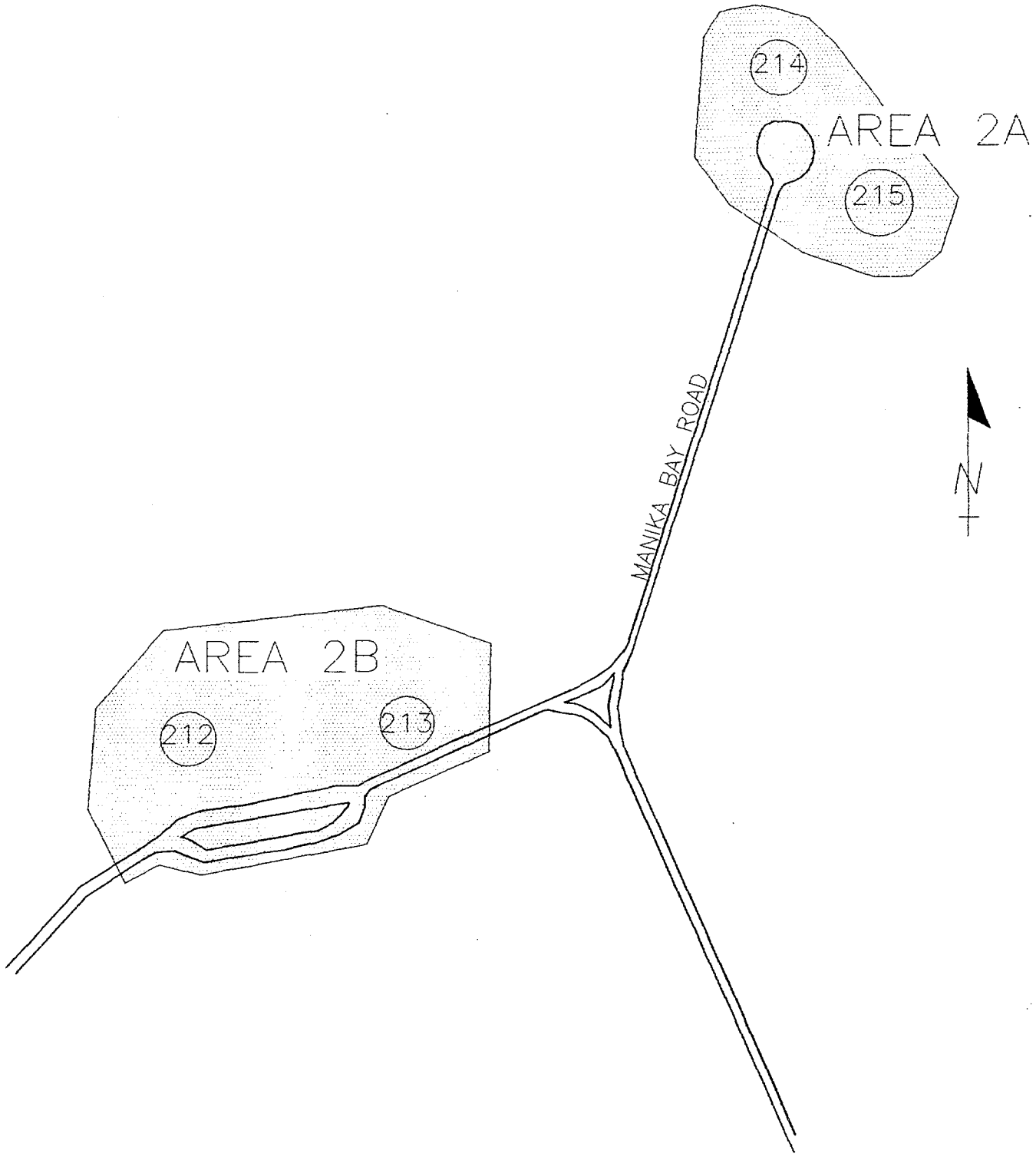
George R.A. Fields, PG
Deputy Program Manager
Environmental Sciences Division



Not to Scale

Geophex

Figure 1. Location of survey areas within SWMU-8a, Naval Station, Roosevelt Roads, Puerto Rico.



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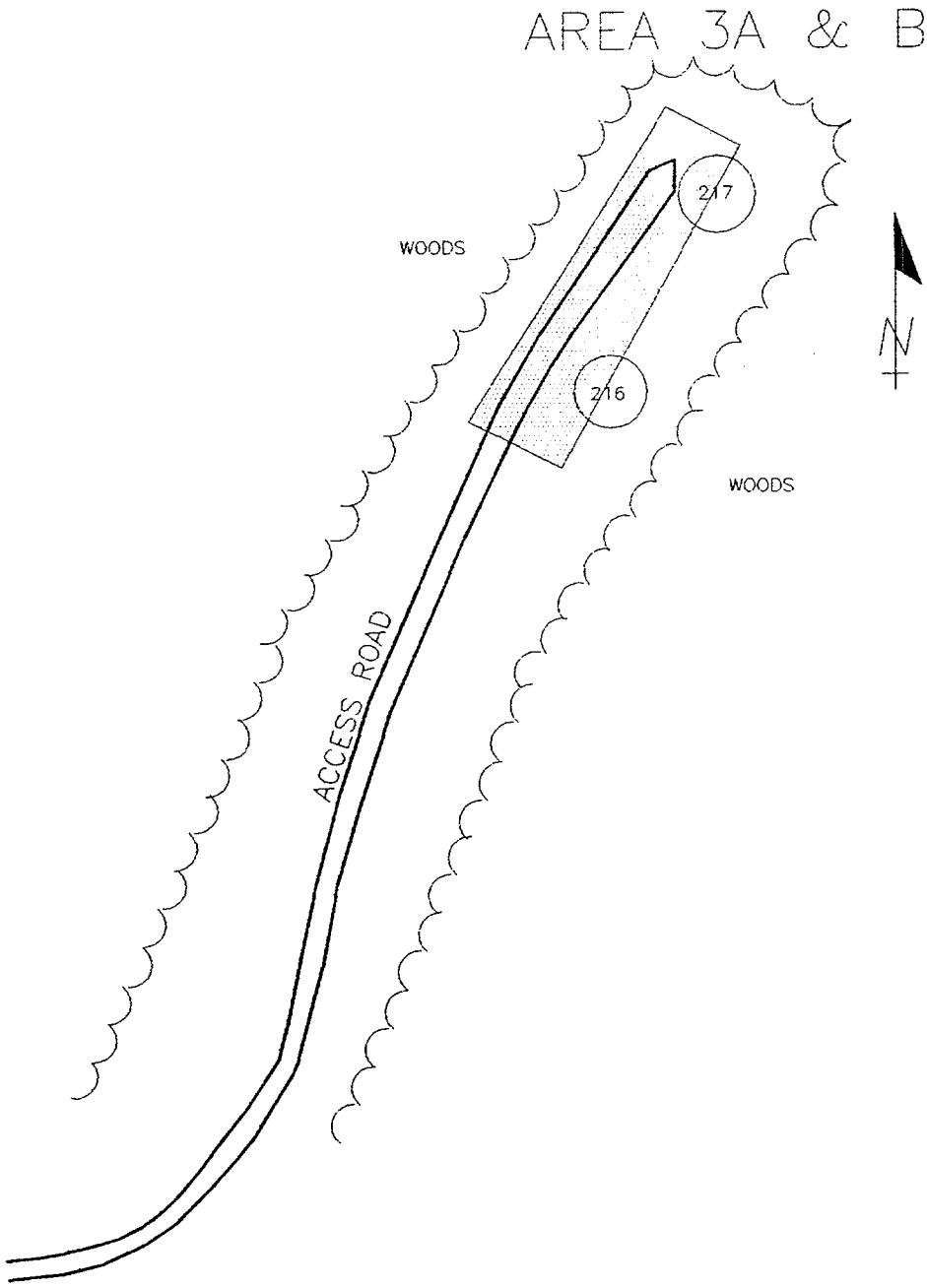
Geophex

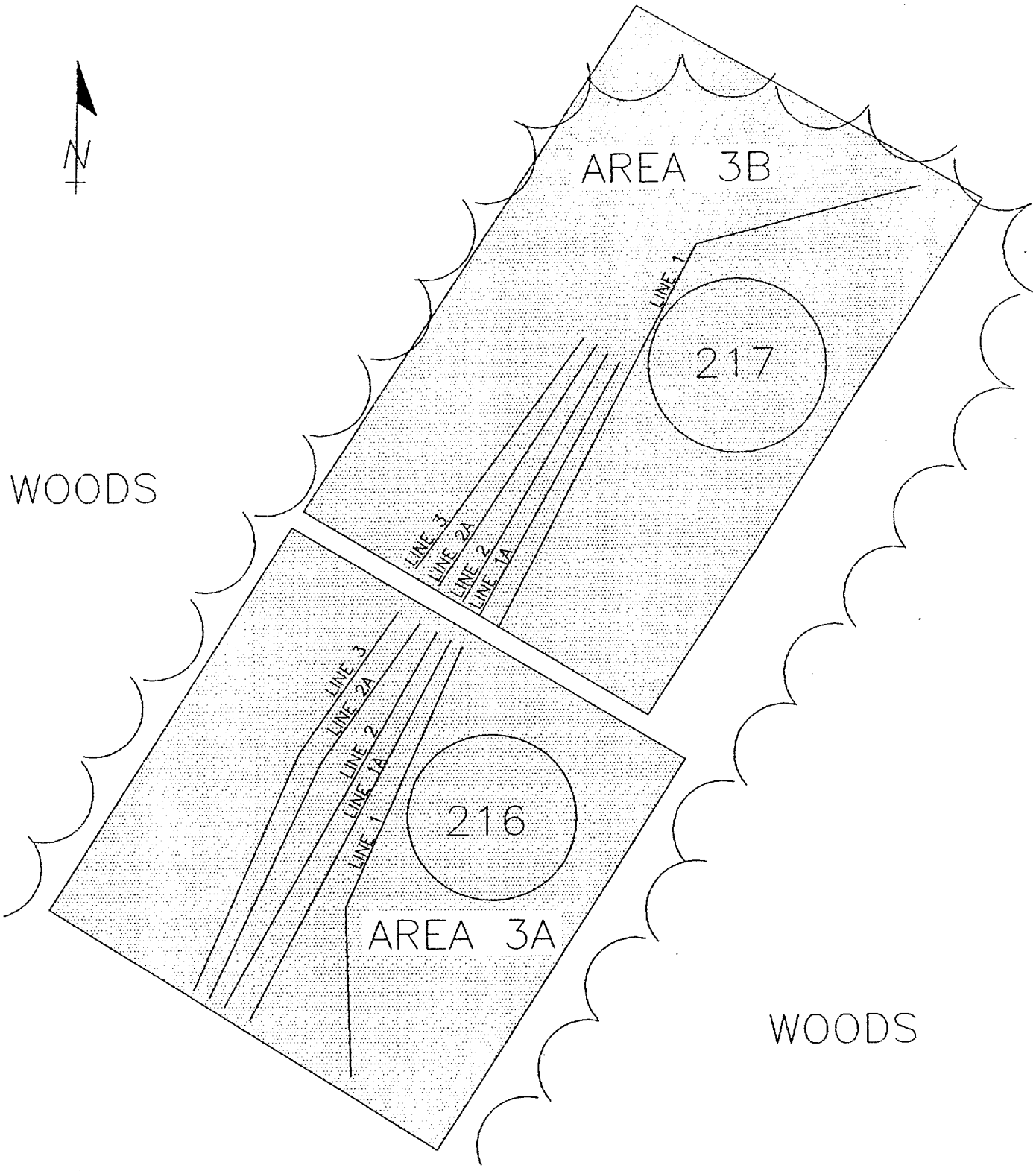
Figure 2. Location of survey areas within SWMU-9a and b, Naval Station Roosevelt Roads, Puerto Rico.



Not to Scale

Geophex

Figure 3. Location of survey area within SWMU-9c, Naval Station Roosevelt Roads, Puerto Rico.



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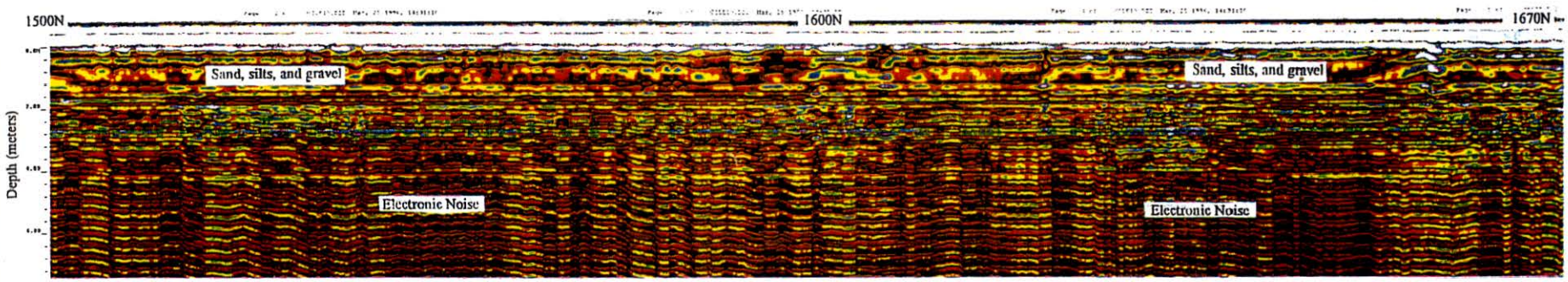
Geophex

Figure 4. Location of survey areas within SWMU-9c, Naval Station Roosevelt Roads, Puerto Rico.

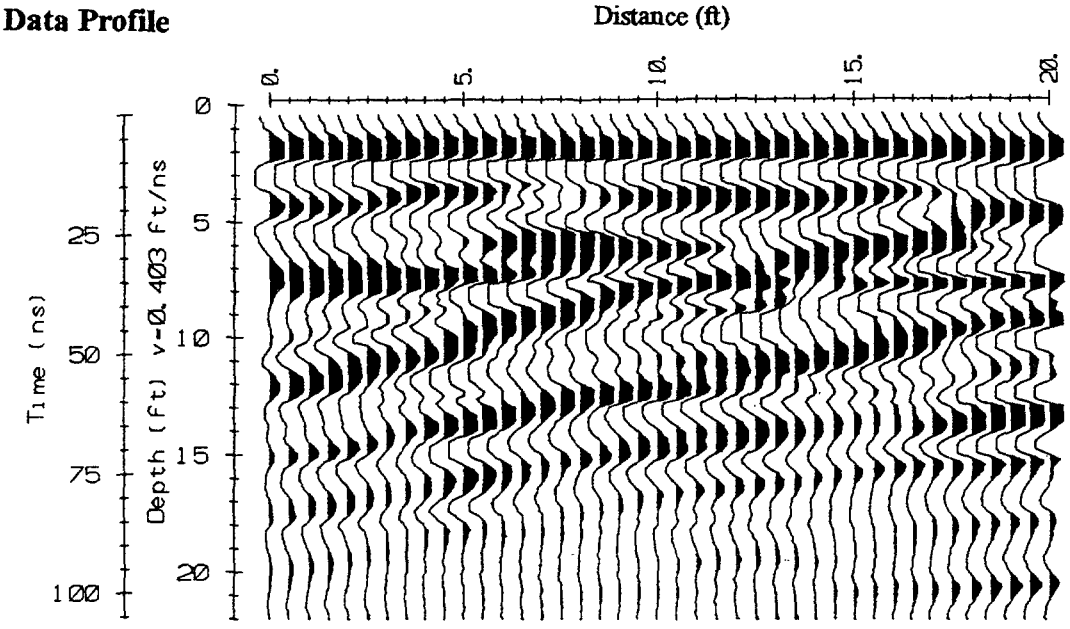


Geophex

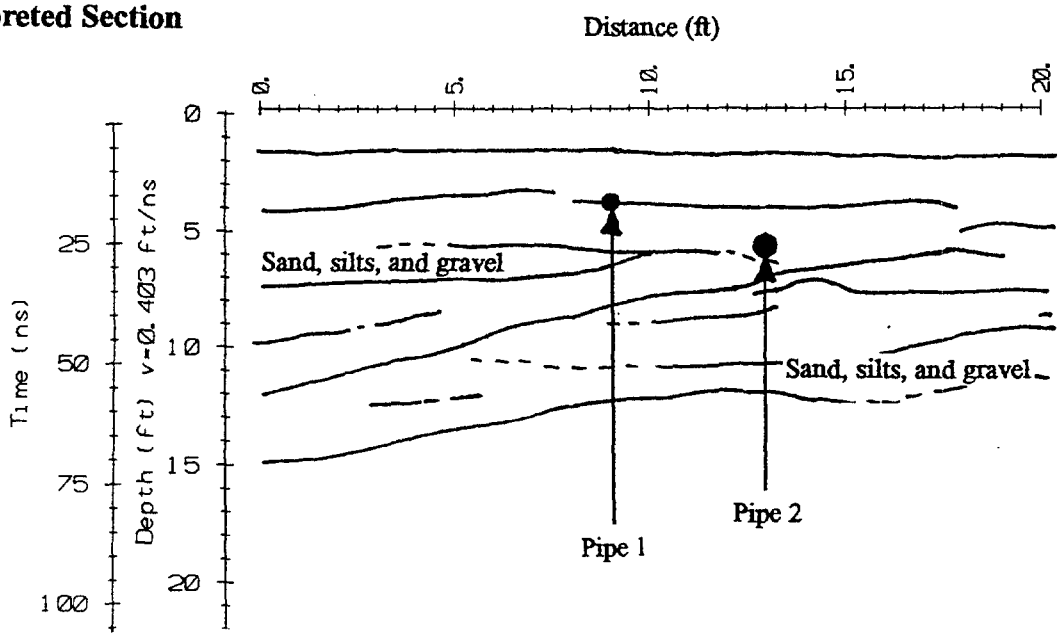
Figure 5. A typical radar profile record from the GSSI SIR-2 radar system. The profile is from SWMU-8a (Area 1b) from 1500N to 1670N along the 1000E grid coordinate.

00780 B01Y

Raw Data Profile

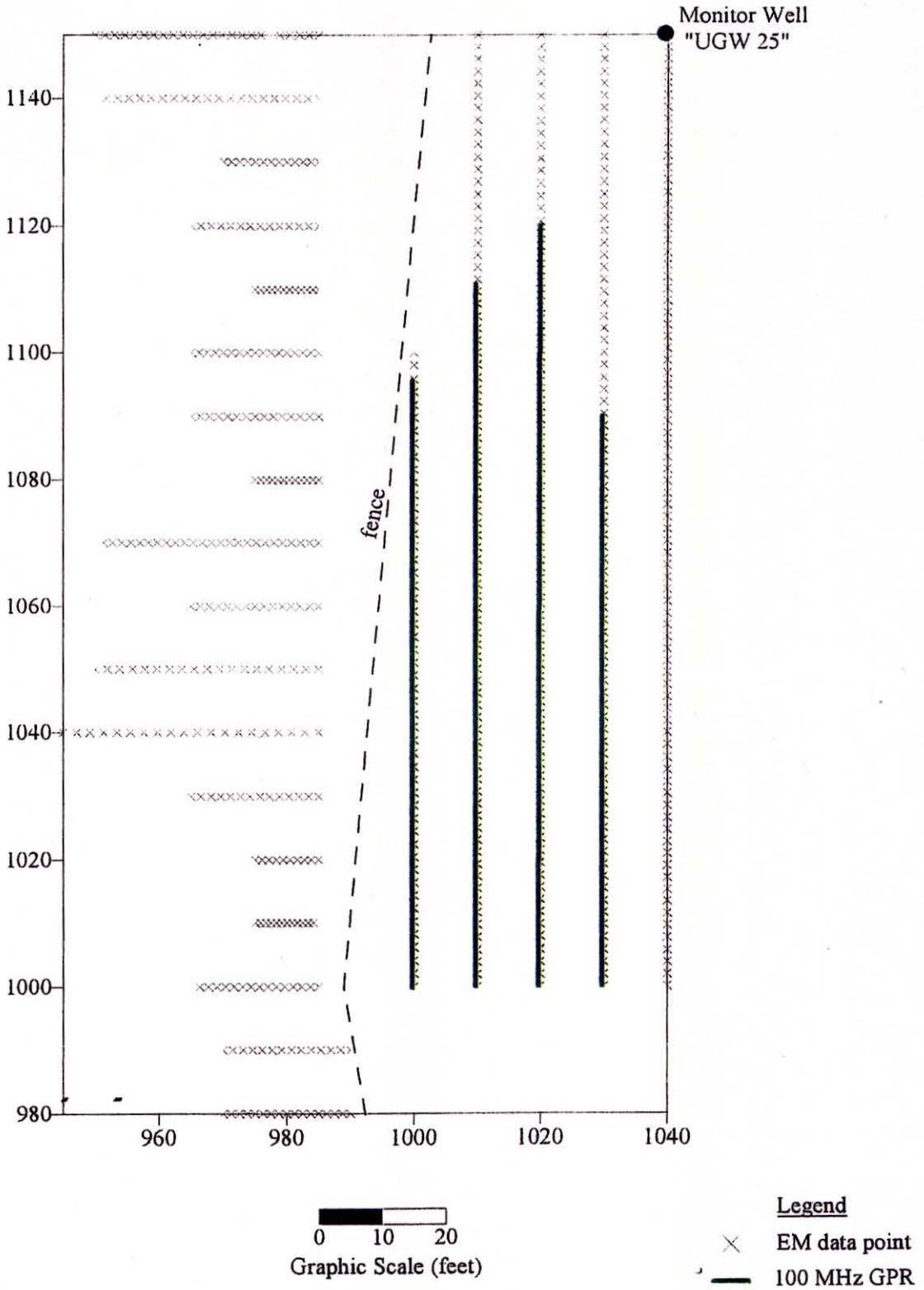


Interpreted Section



Geophex

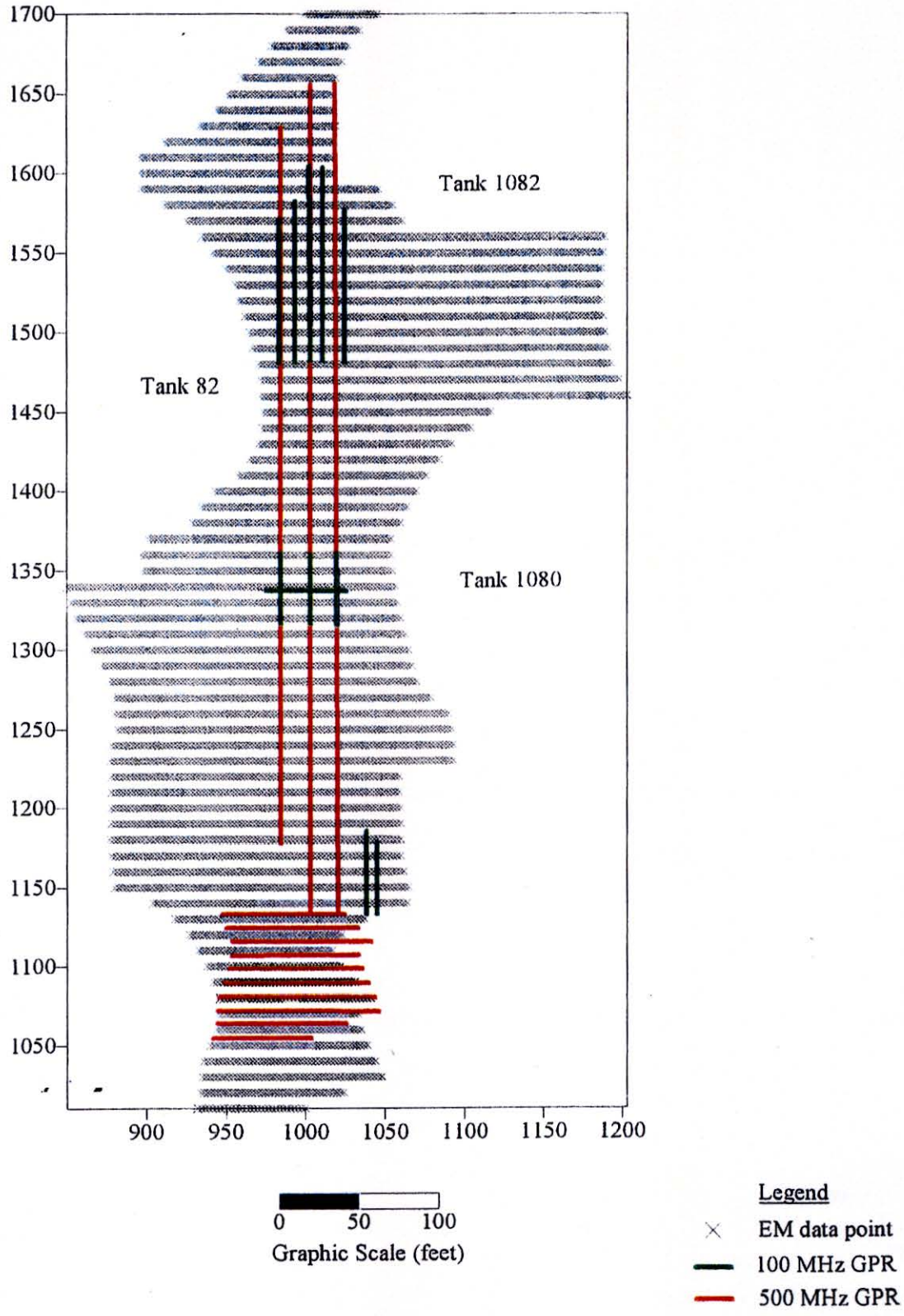
Figure 6. A typical radar profile record from the Sensor's and Software pulseEKKO IV radar system. The profile is from SWMU-8 (Area 1b) west of Tank 83.



Geophex

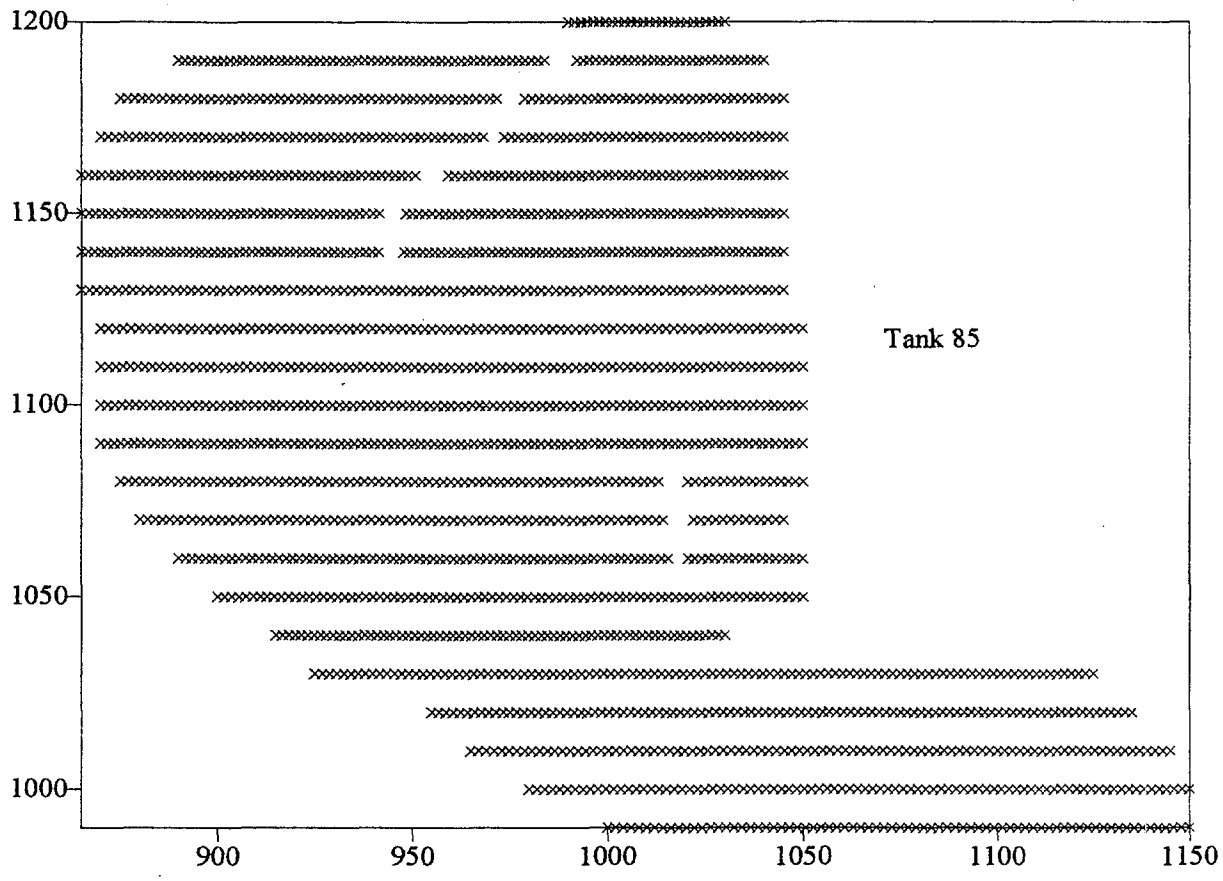
Figure 7. Site 1a data coverage map.

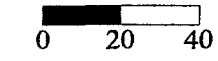
00780BB2Y



Geophex

Figure 8. Site 1b data coverage map.





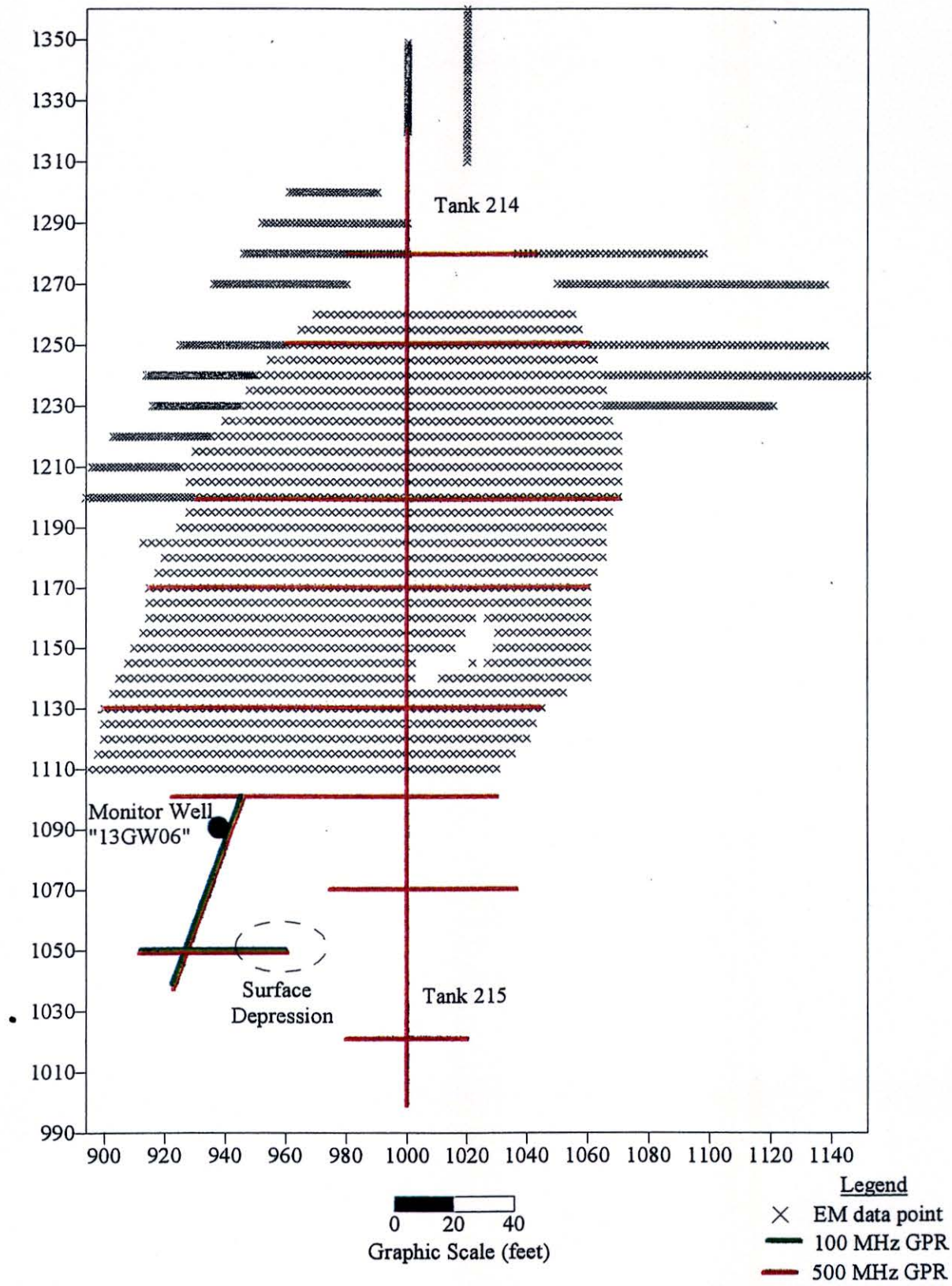
Graphic Scale (feet)

Legend

× EM data point

Geophex

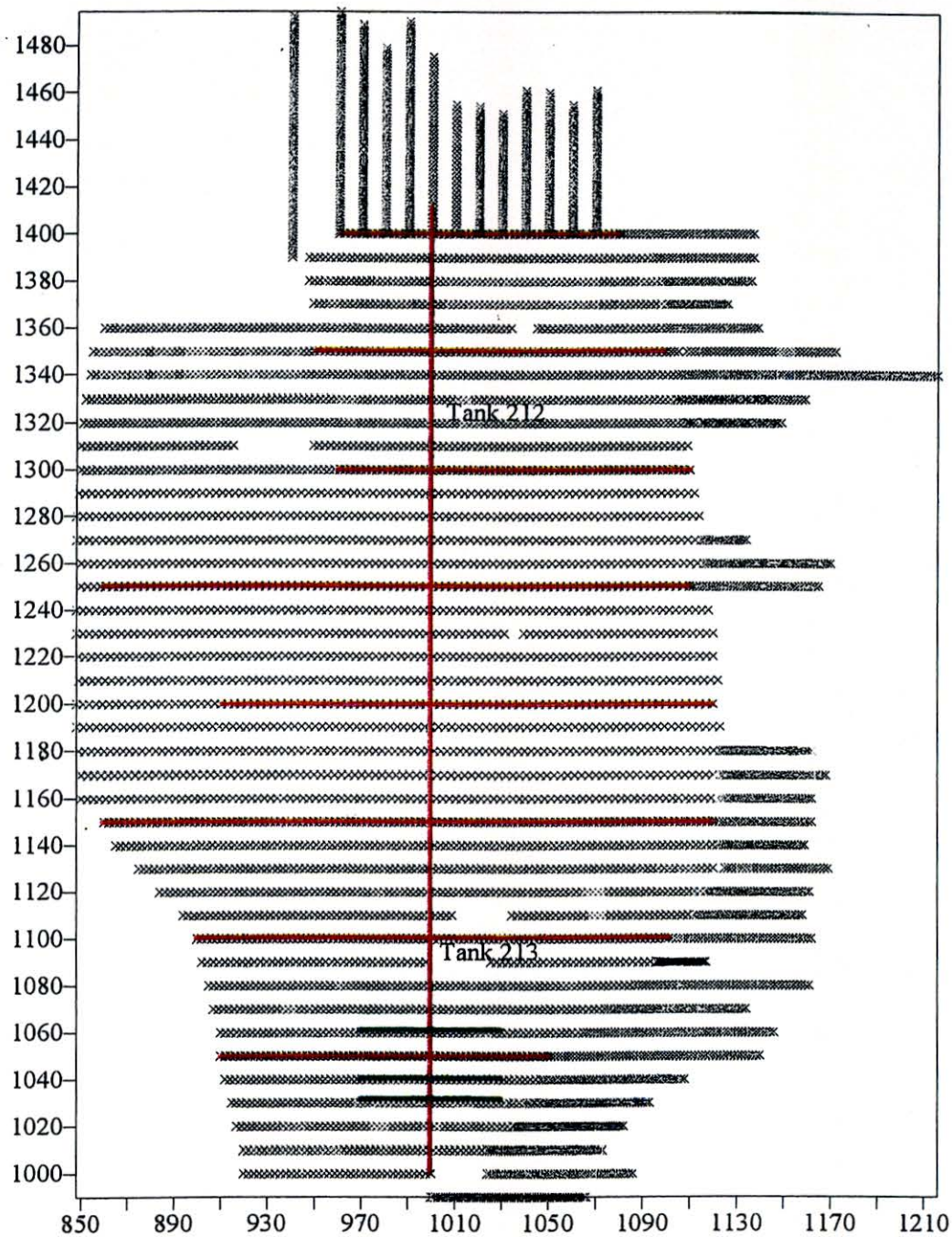
Figure 9. Site 1c data coverage map.



Geophex

Figure 10. Site 2a data coverage map.

00780BB3Y

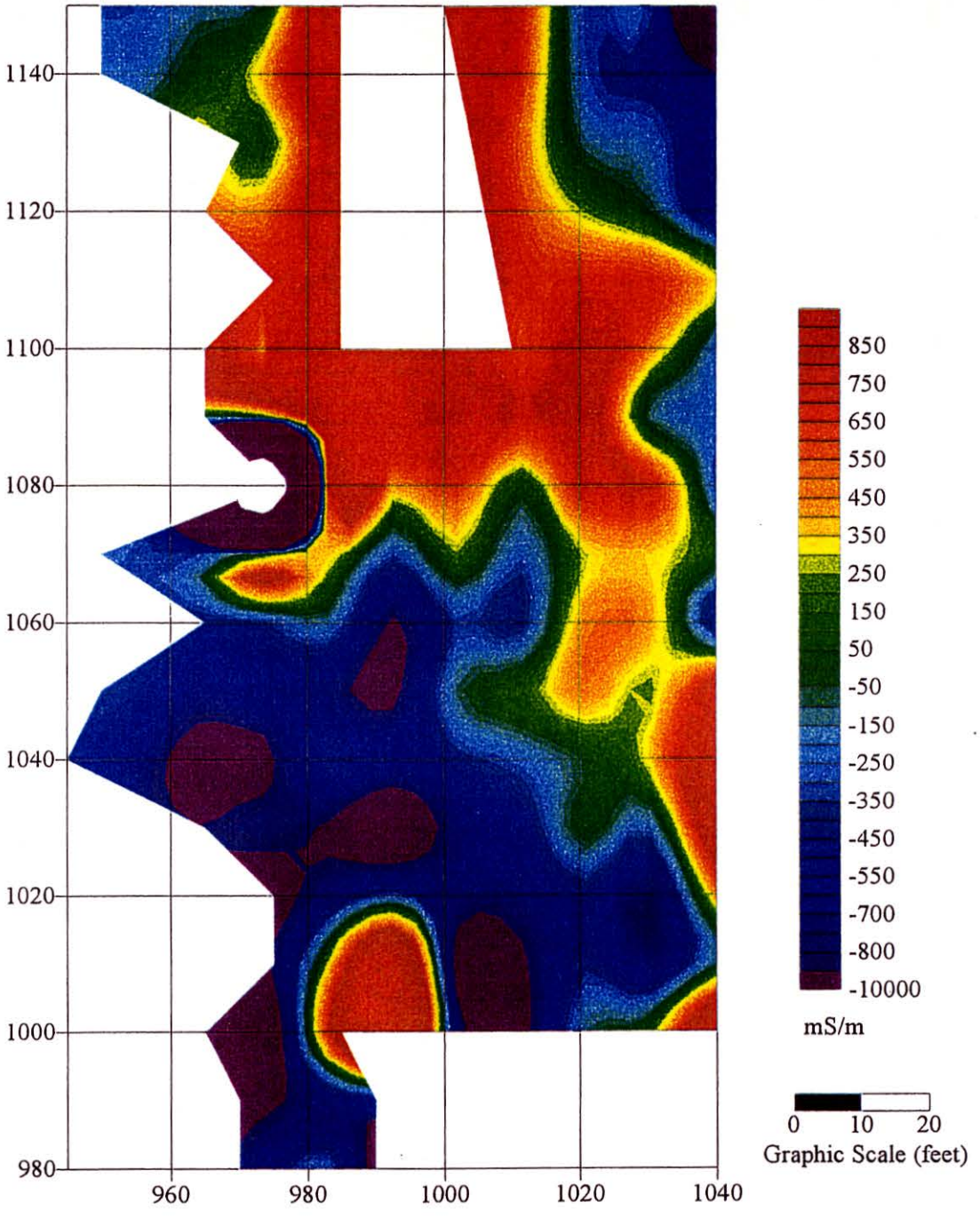


0 20 40
Graphic Scale (feet)

Legend
× EM data point
100 MHz GPR
500 MHz GPR

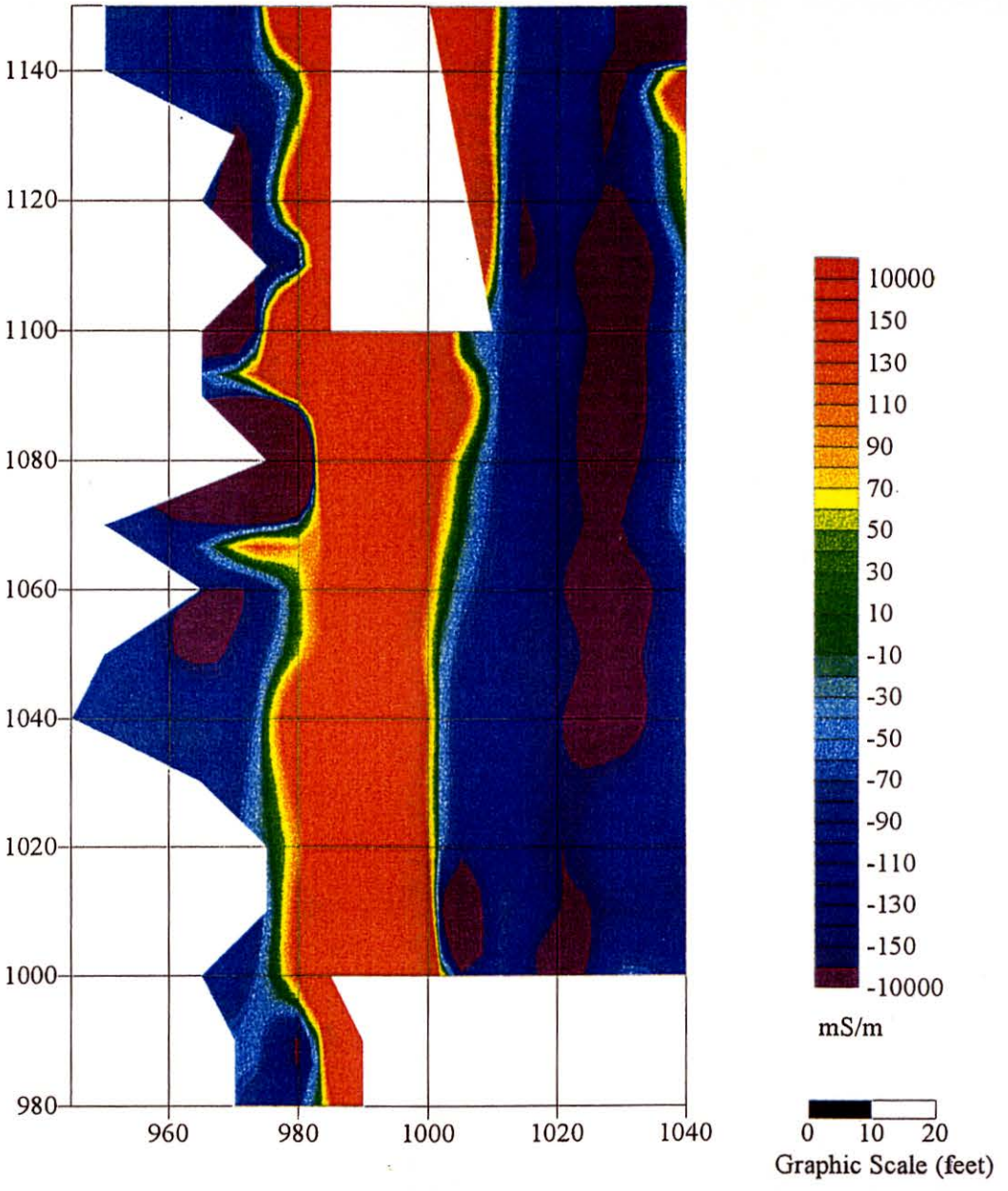
Geophex

Figure 11. Site 2b data coverage map.



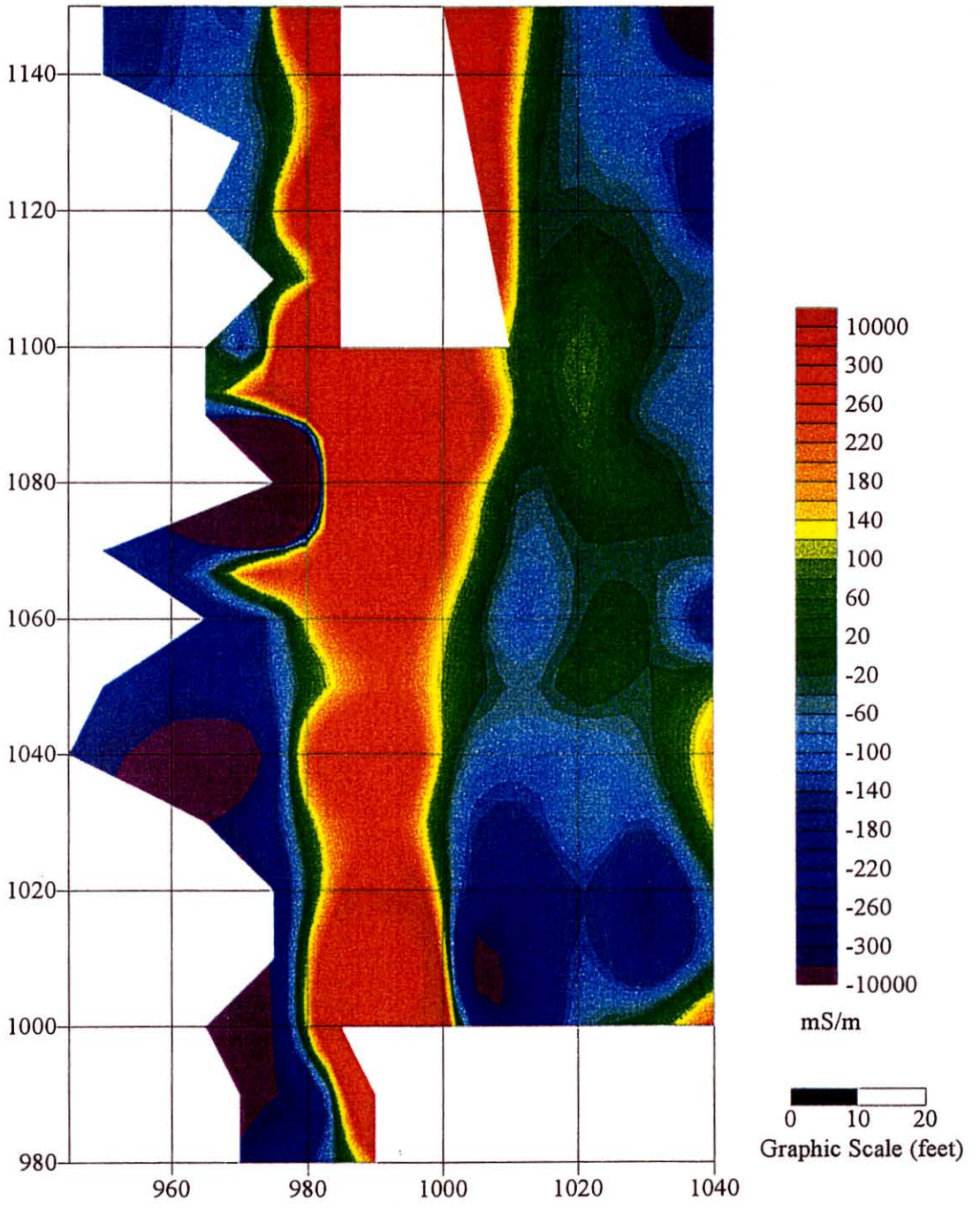
Geophex

Figure 12. Site 1a GEM-2 conductivity map, 1,530 Hz in-phase component.



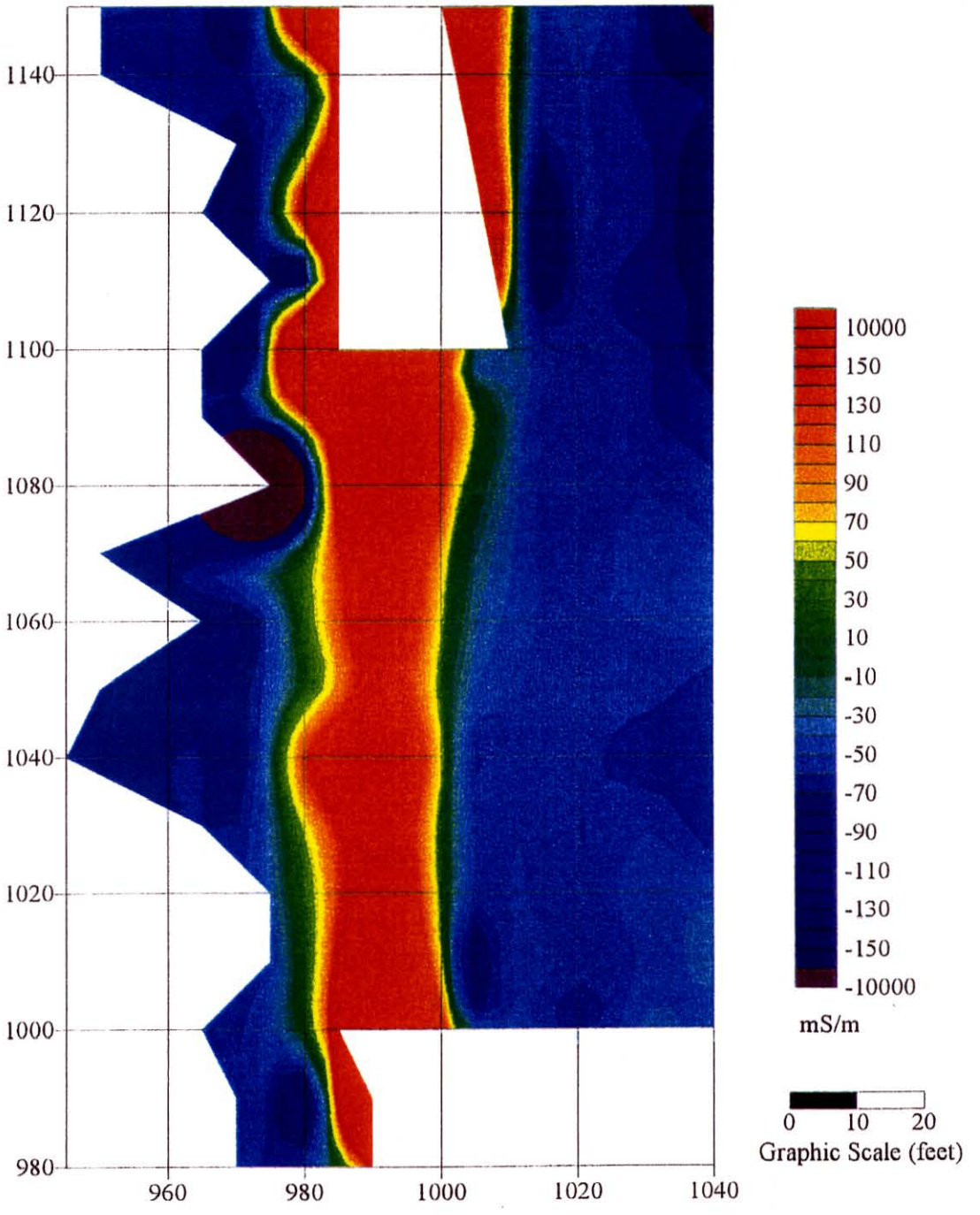
Geophex

Figure 13. Site 1a GEM-2 conductivity map, 1,530 Hz quadrature component.



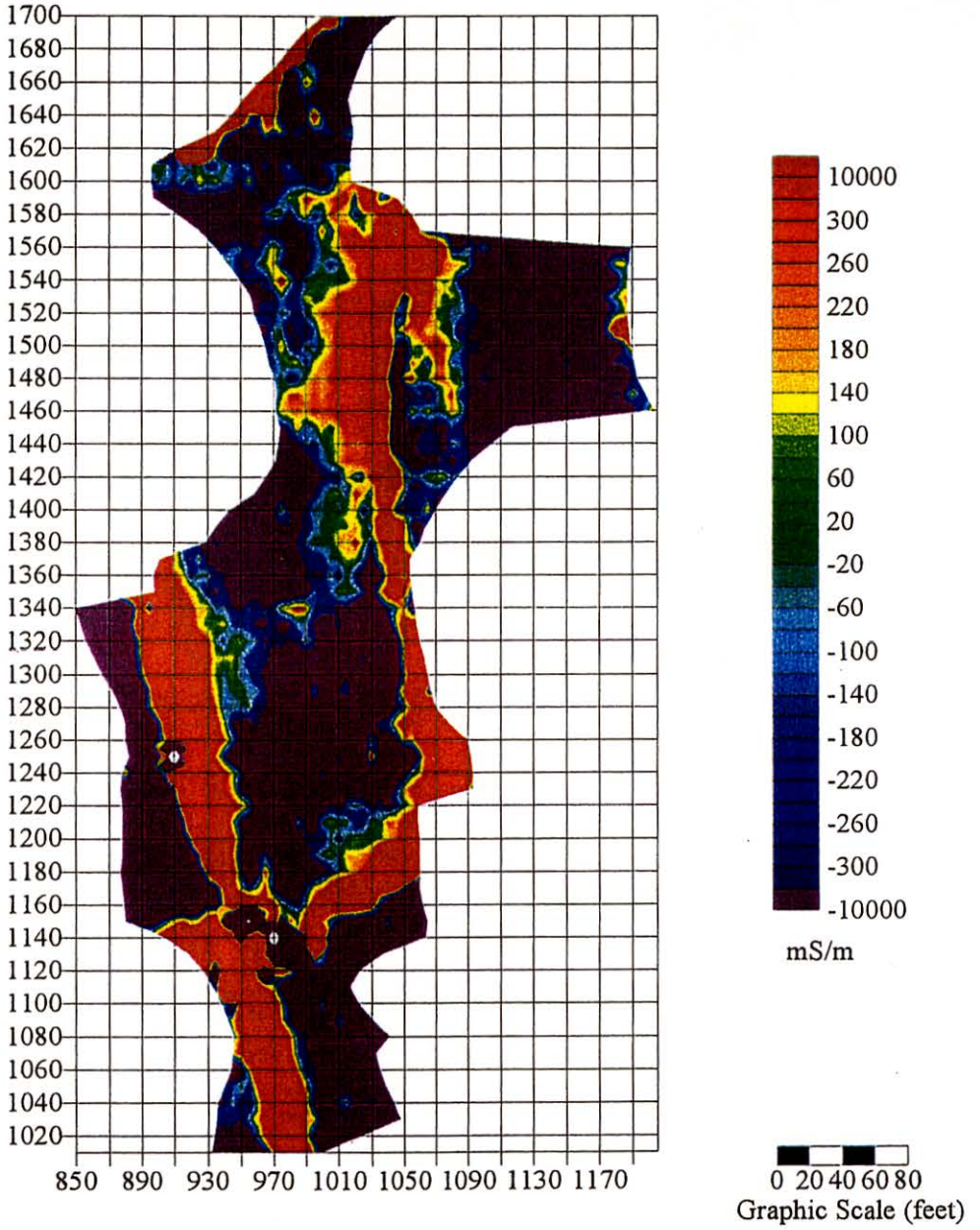
Geophex

Figure 14. Site 1a GEM-2 conductivity map, 7,290 Hz in-phase component.



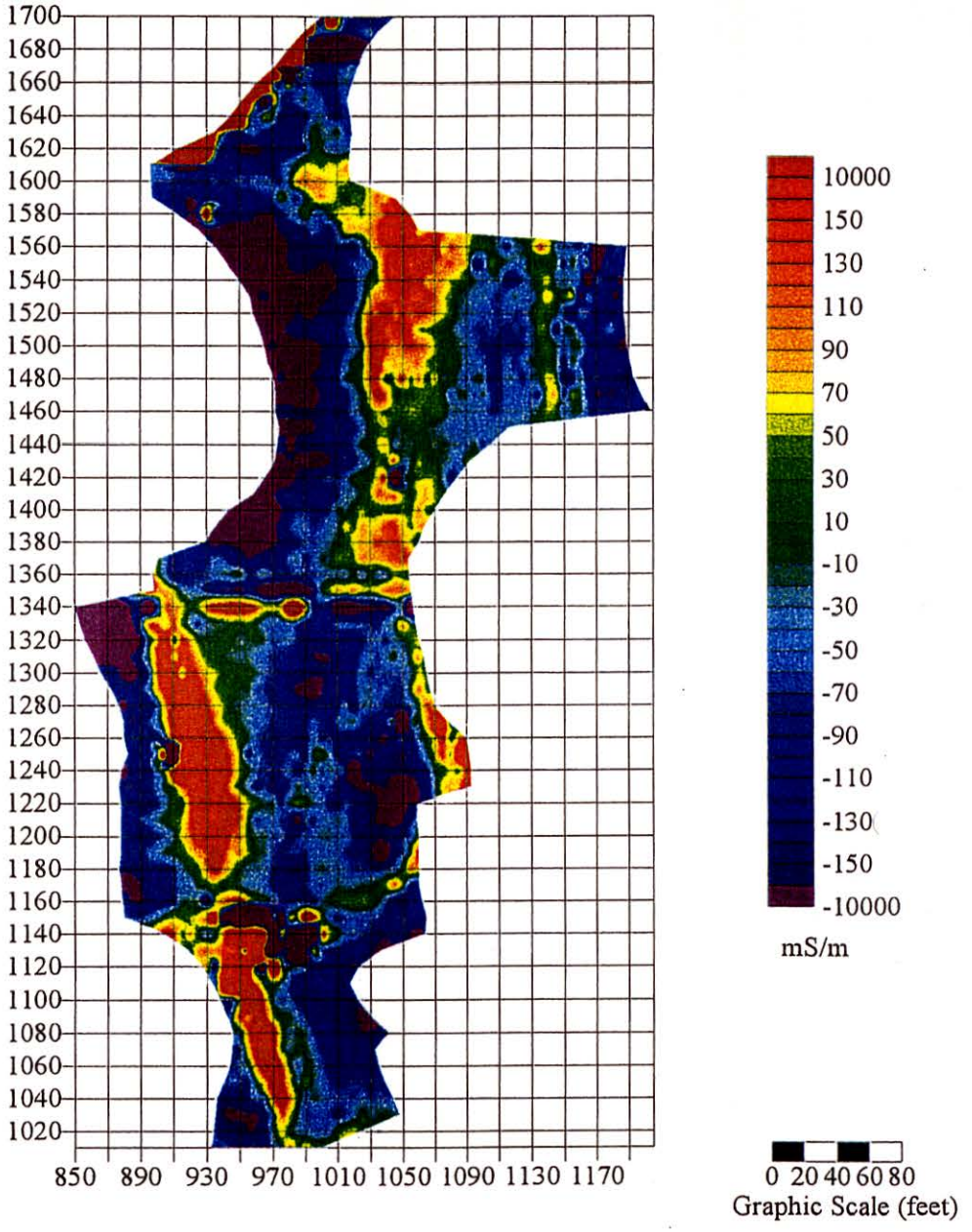
Geophex

Figure 15. Site 1a GEM-2 conductivity map, 7,290 Hz quadrature component.



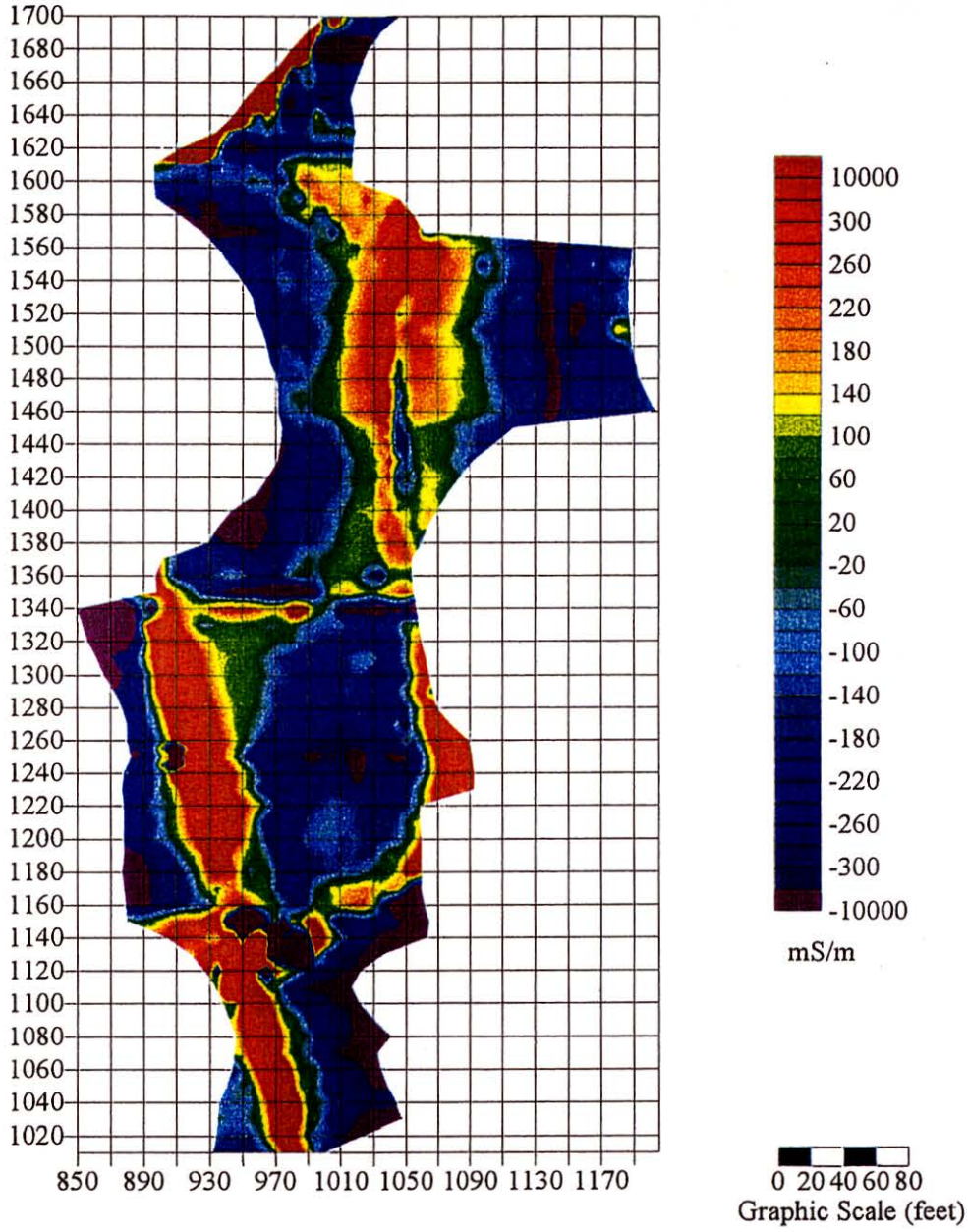
Geophex

Figure 16. Site 1b GEM-2 conductivity map, 1,530 Hz in-phase component.



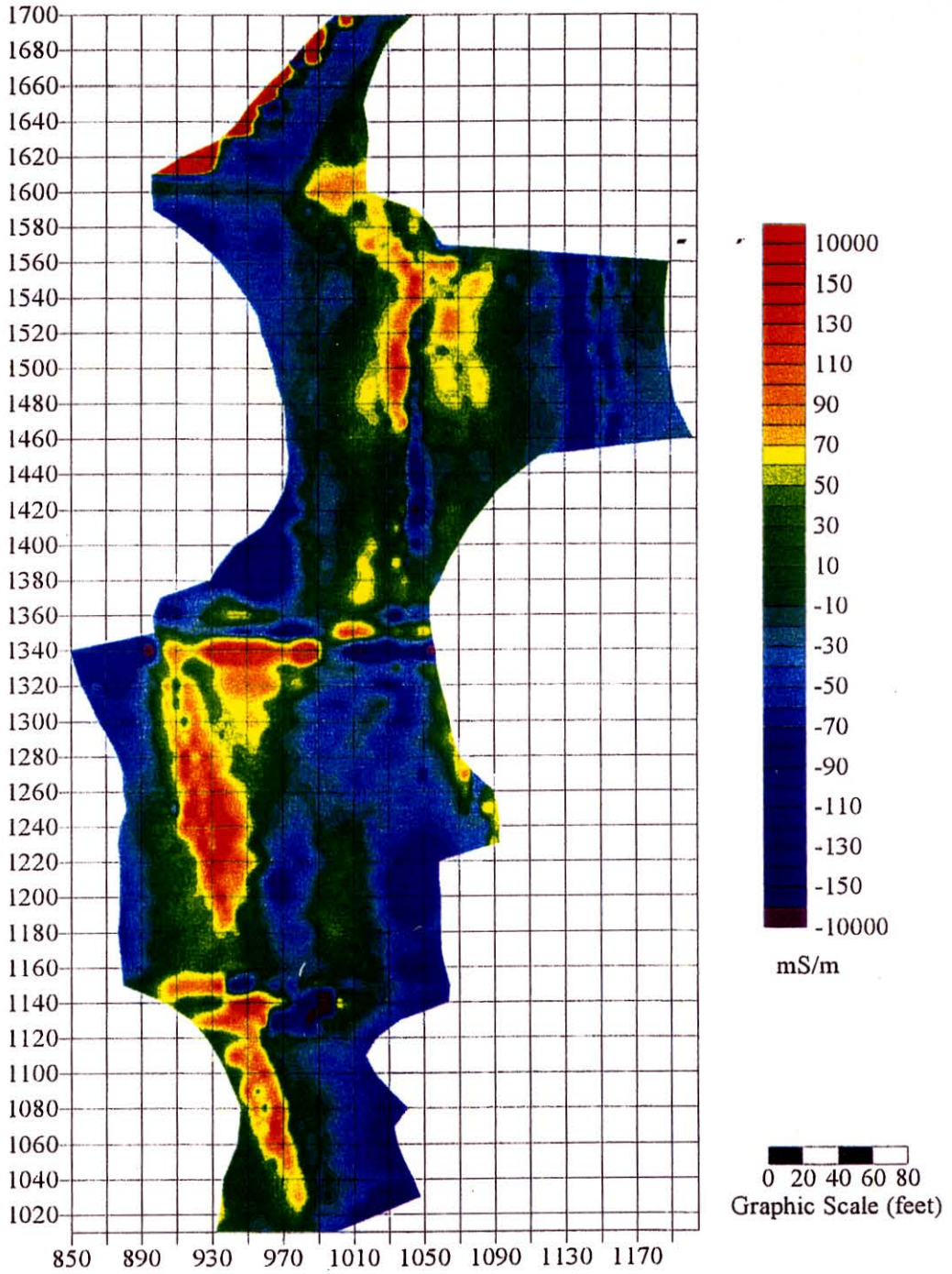
Geophex

Figure 17. Site 1b GEM-2 conductivity map, 1,530 Hz quadrature component.



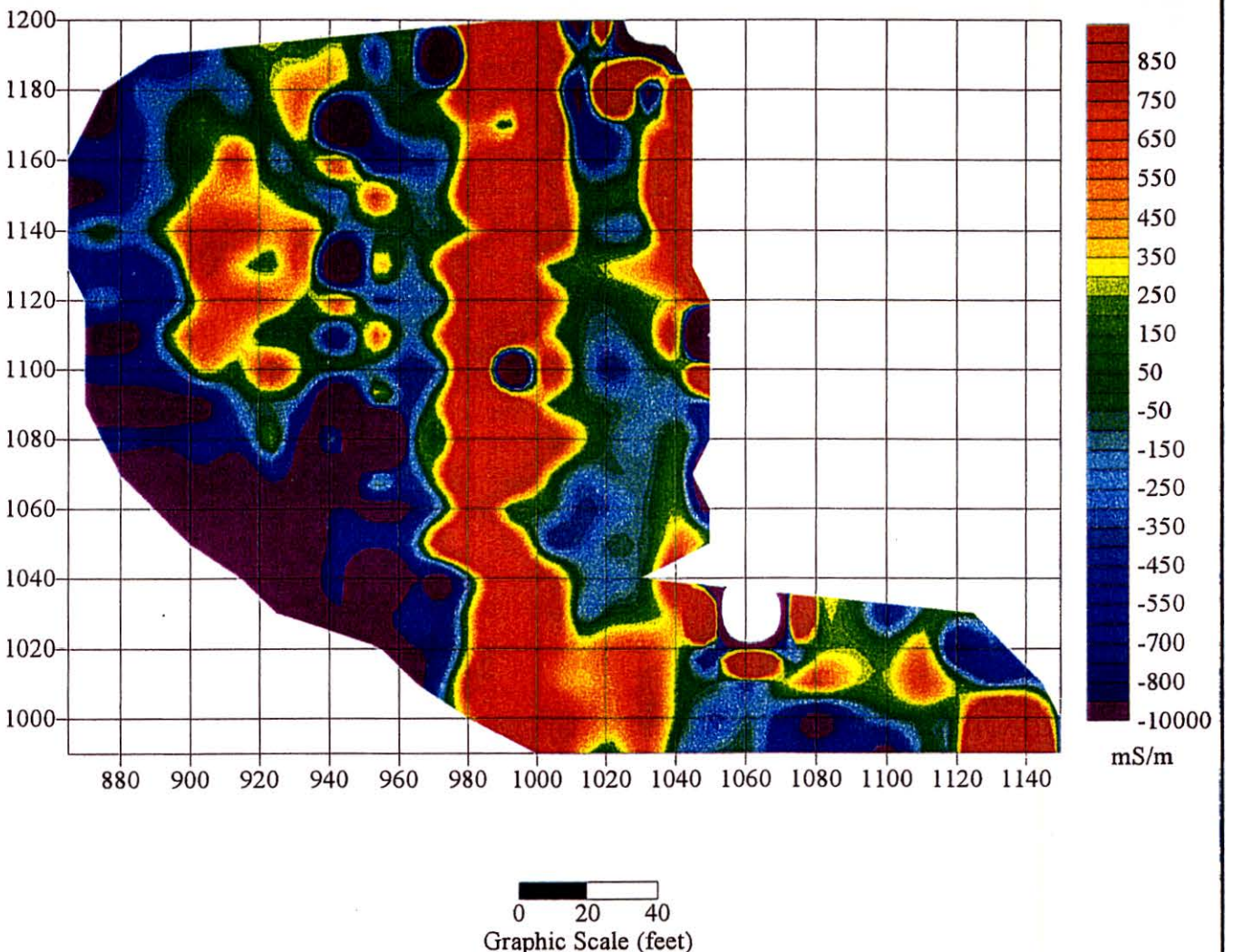
Geophex

Figure 18. Site 1b GEM-2 conductivity map, 7,290 Hz in-phase component.



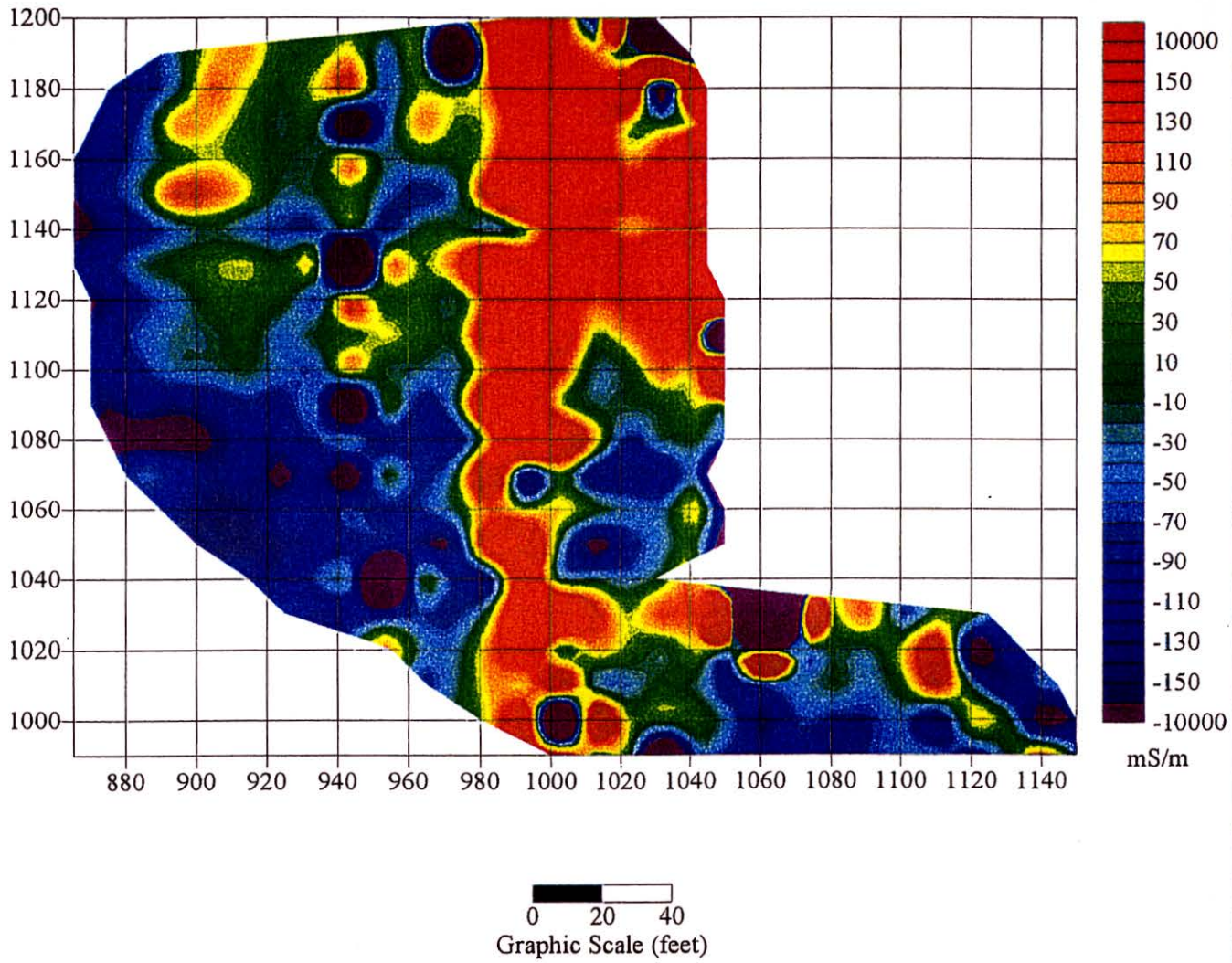
Geophex

Figure 19. Site 1b GEM-2 conductivity map, 7,290 Hz quadrature component.



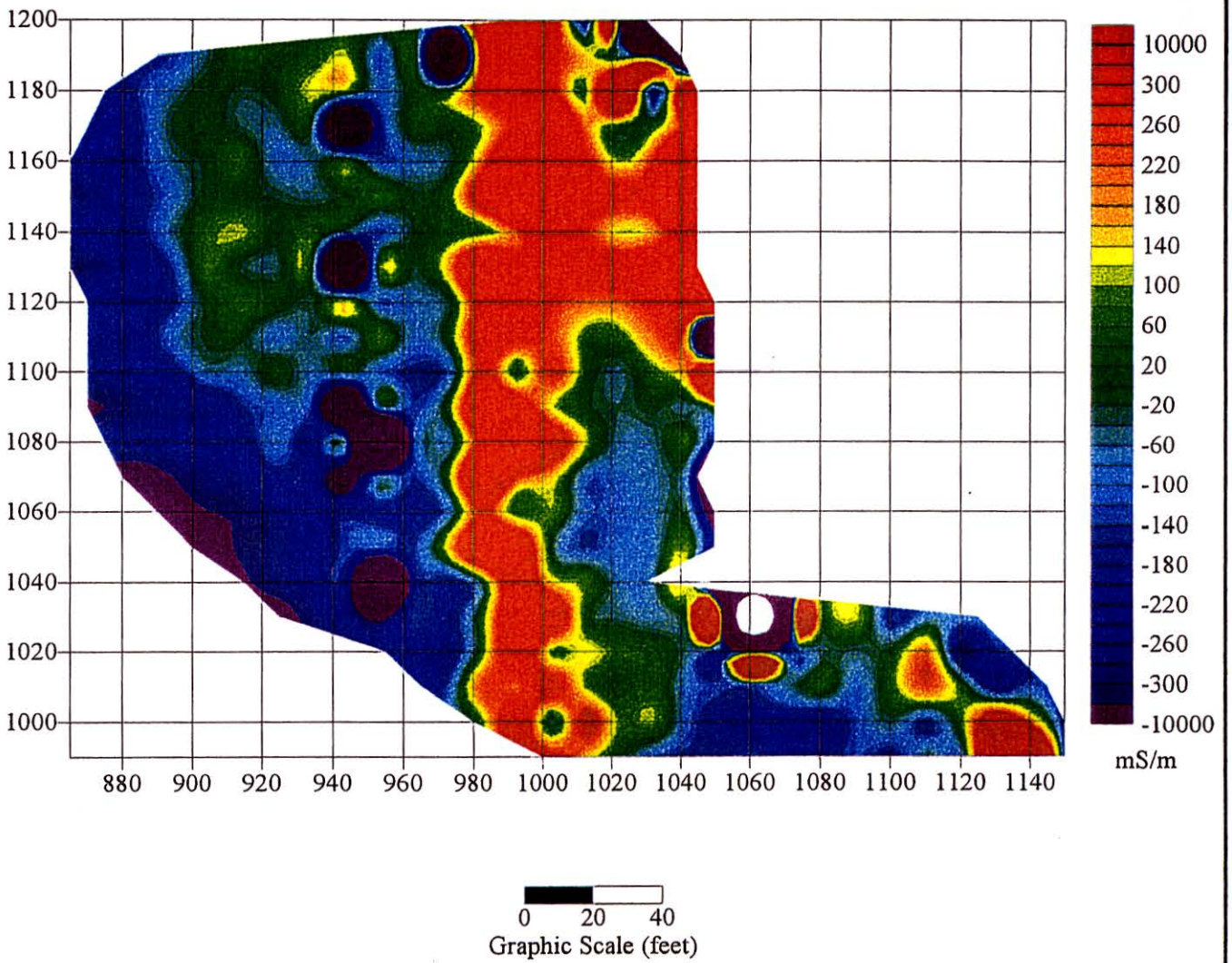
Geophex

Figure 20. Site 1c GEM-2 conductivity map, 1,530 Hz in-phase component.



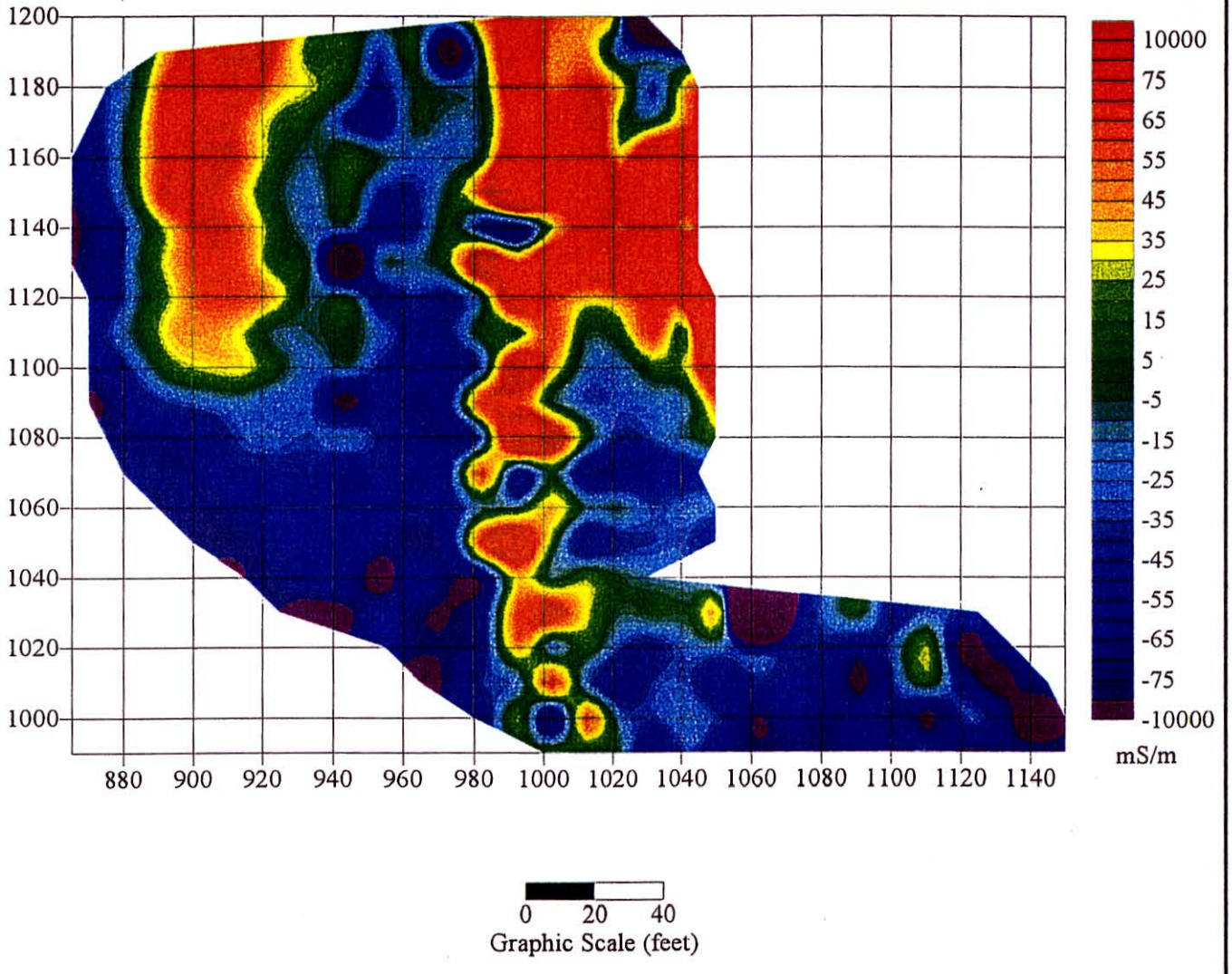
Geophex

Figure 21. Site 1c GEM-2 conductivity map, 1,530 Hz quadrature component.



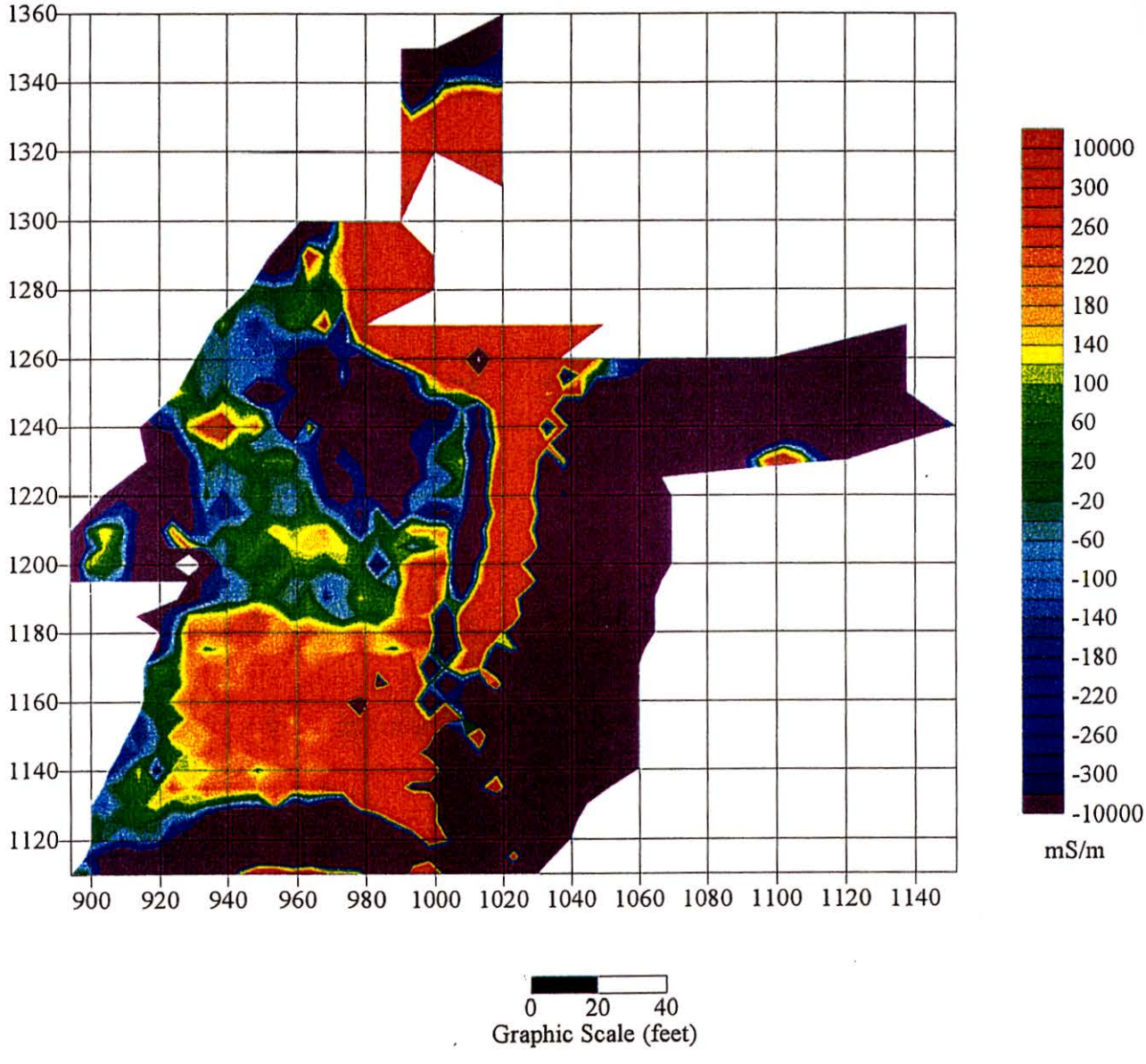
Geophex

Figure 22. Site 1c GEM-2 conductivity map, 7,290 Hz in-phase component.



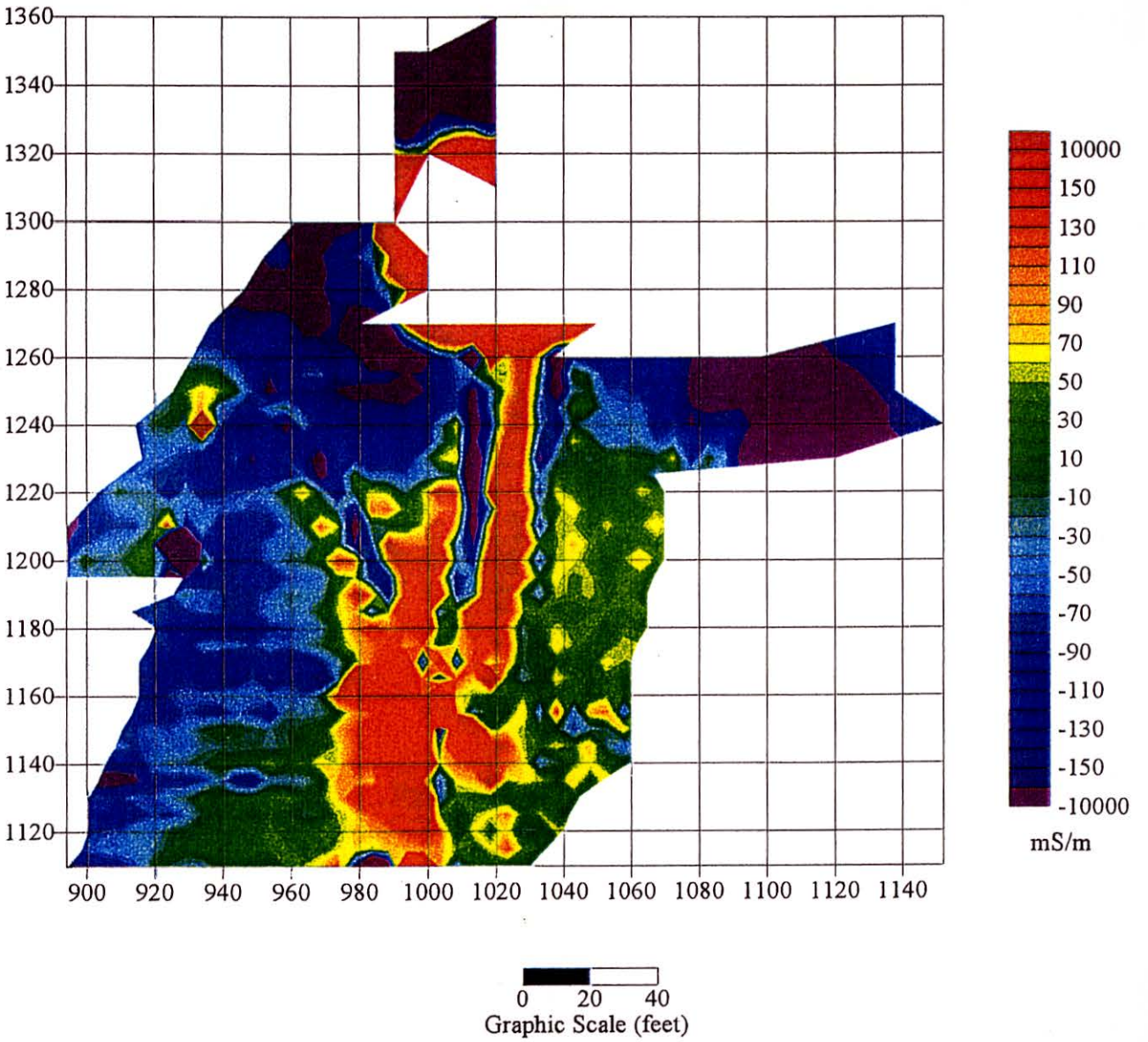
Geophex

Figure 23. Site 1c GEM-2 conductivity map, 7,290 Hz quadrature component.



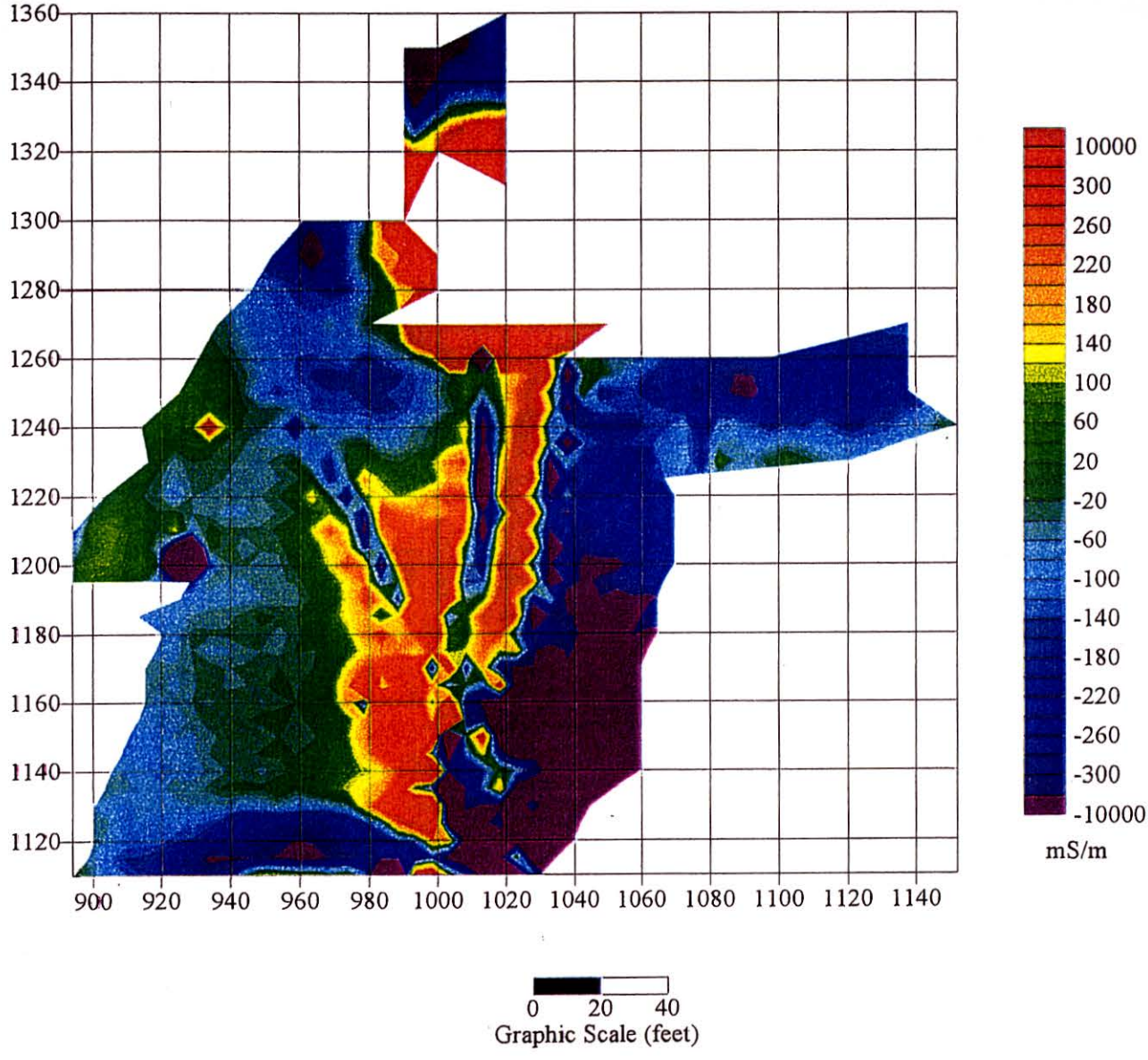
Geophex

Figure 24. Site 2a GEM-2 conductivity map, 1,530 Hz in-phase component.



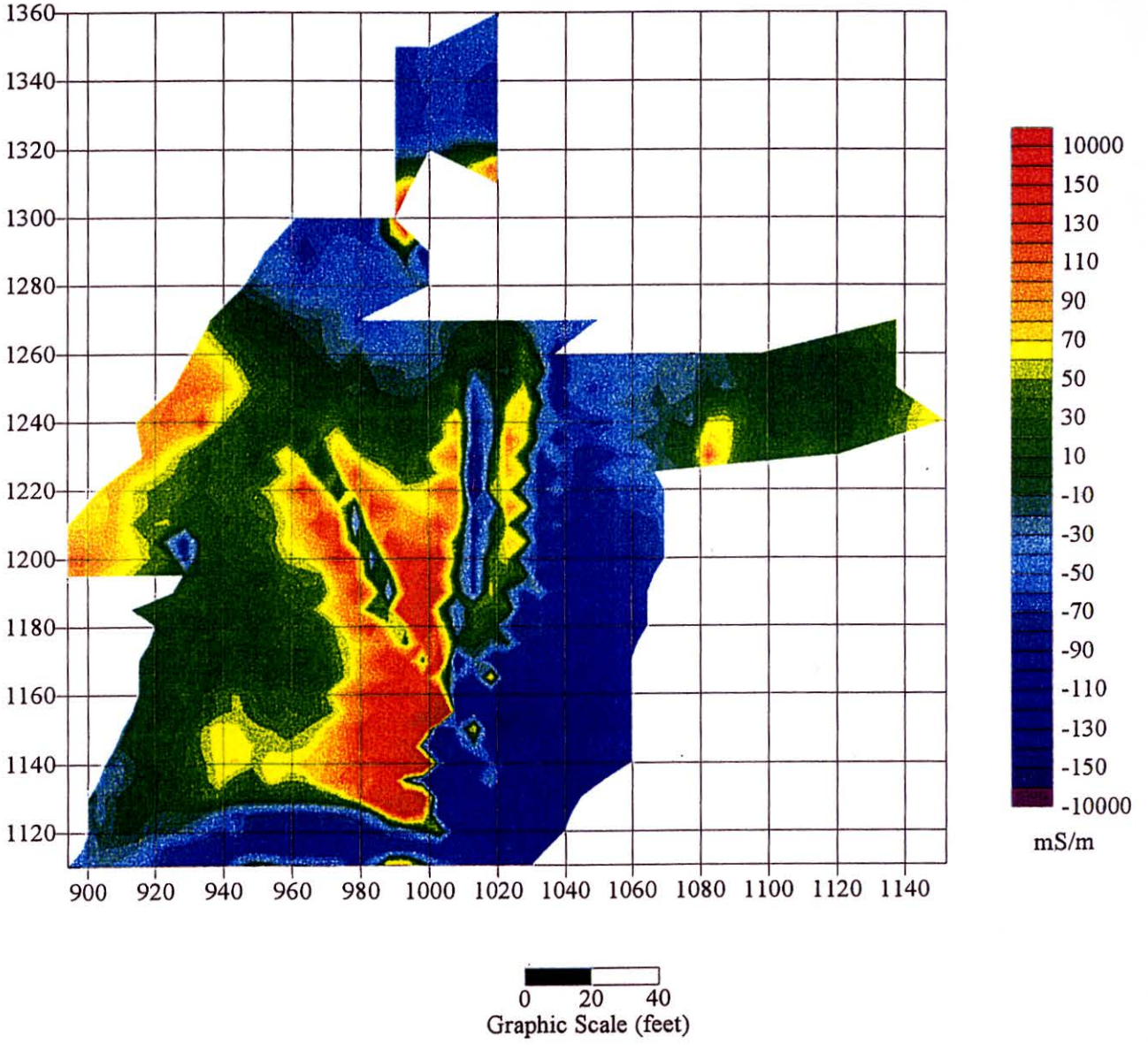
Geophex

Figure 25. Site 2a GEM-2 conductivity map, 1,530 Hz quadrature component.



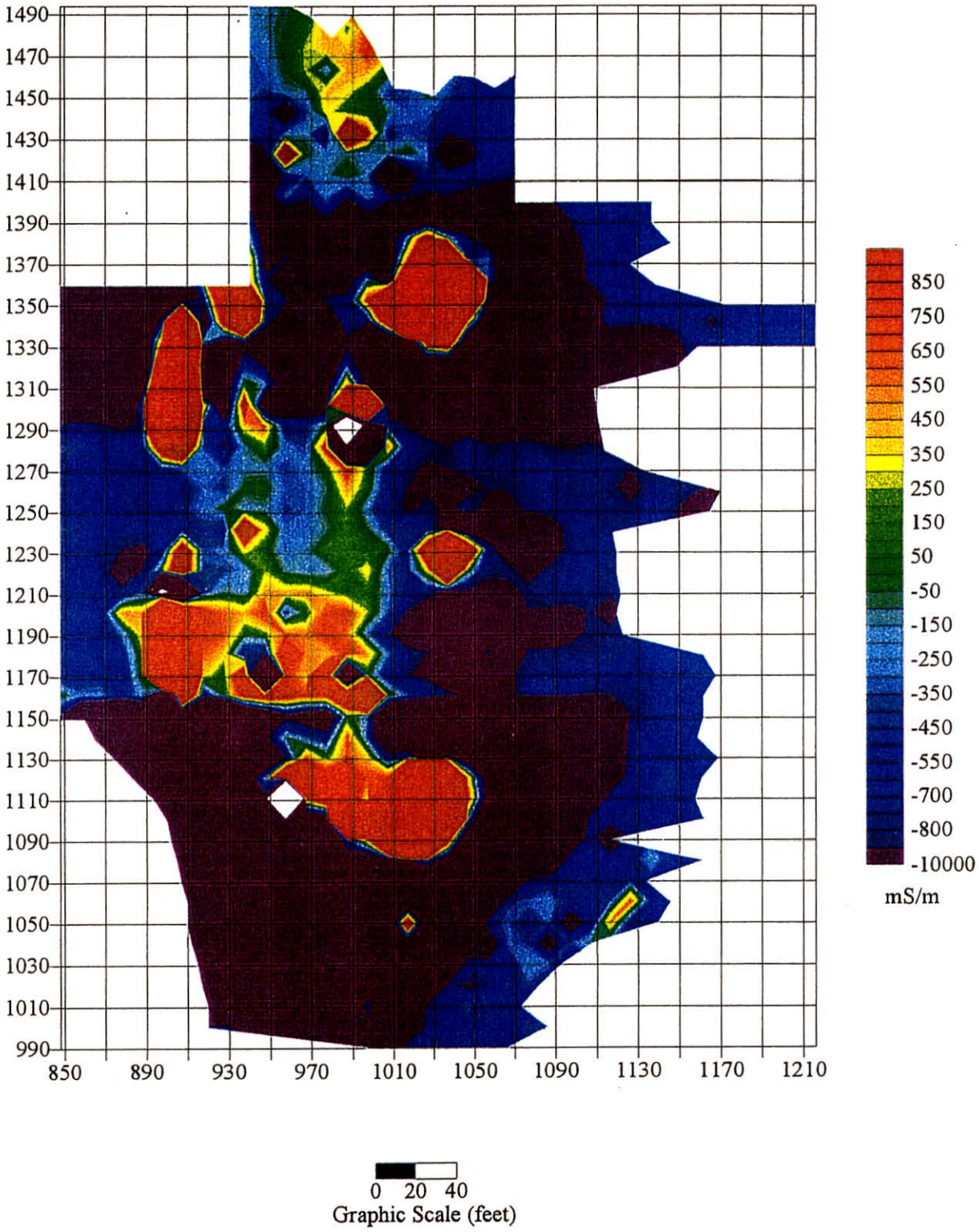
Geophex

Figure 26. Site 2a GEM-2 conductivity map, 7,290 Hz in-phase component.



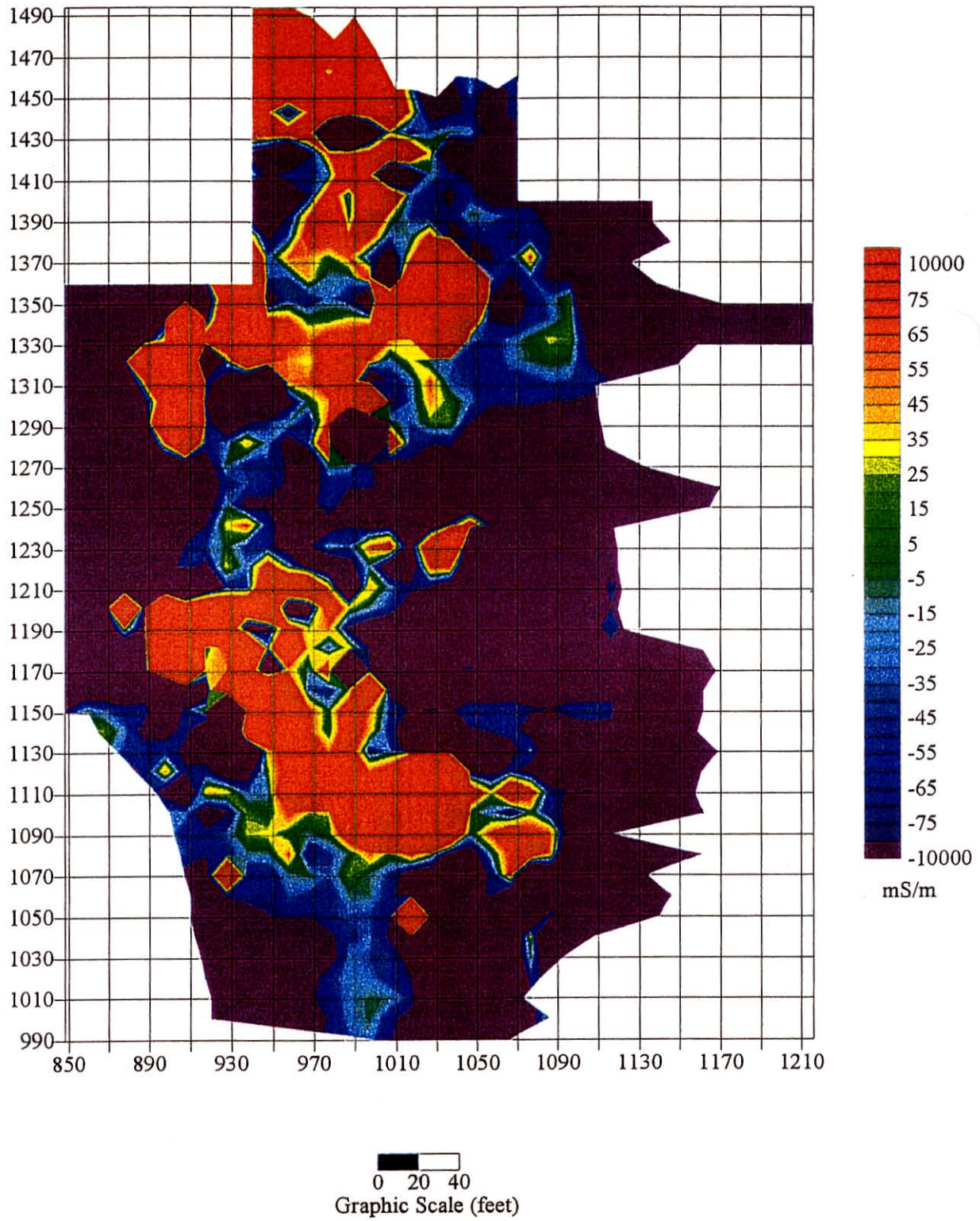
Geophex

Figure 27. Site 2a GEM-2 conductivity map, 7,290 Hz quadrature component.



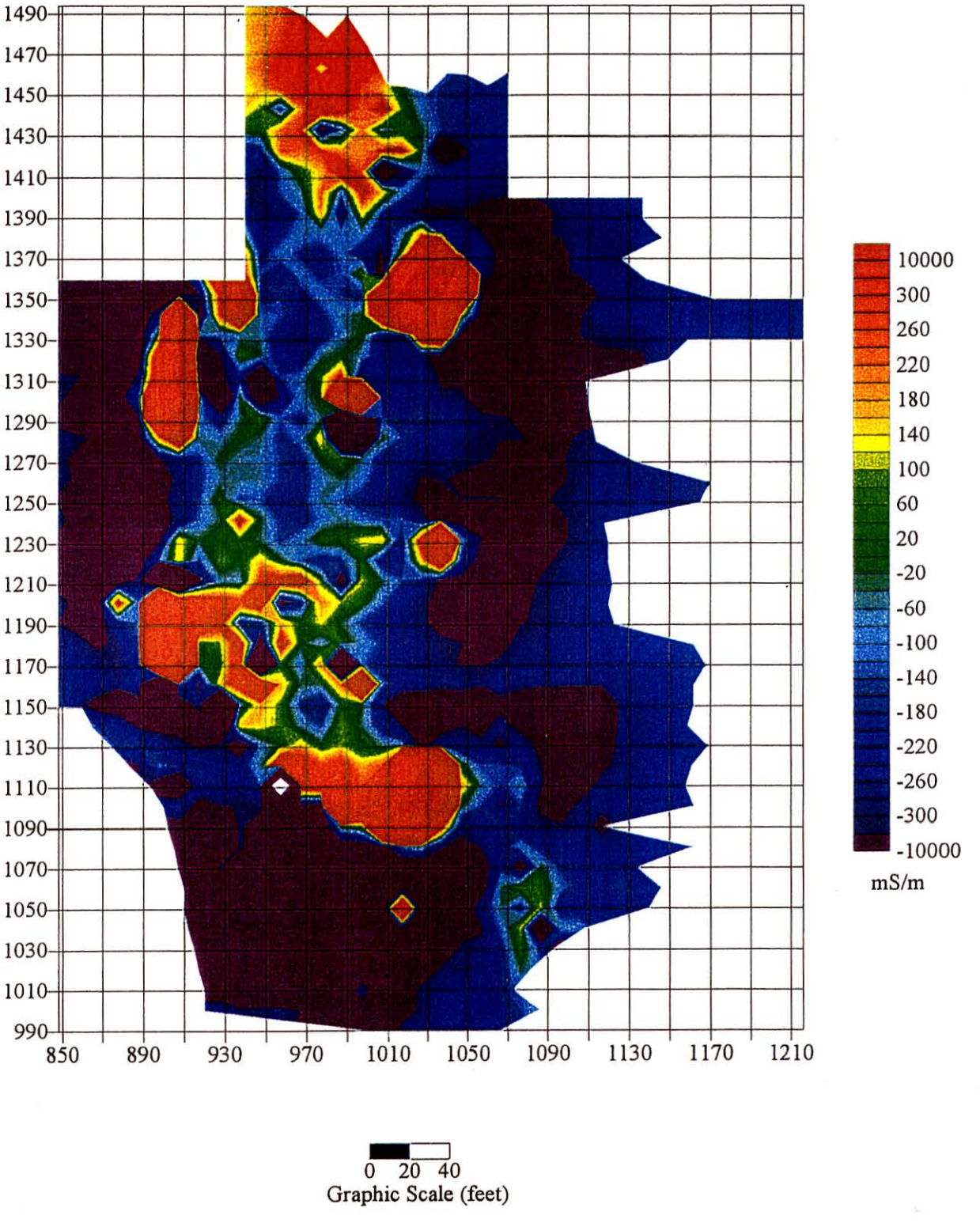
Geophex

Figure 28. Site 2b GEM-2 conductivity map, 1,530 Hz in-phase component.



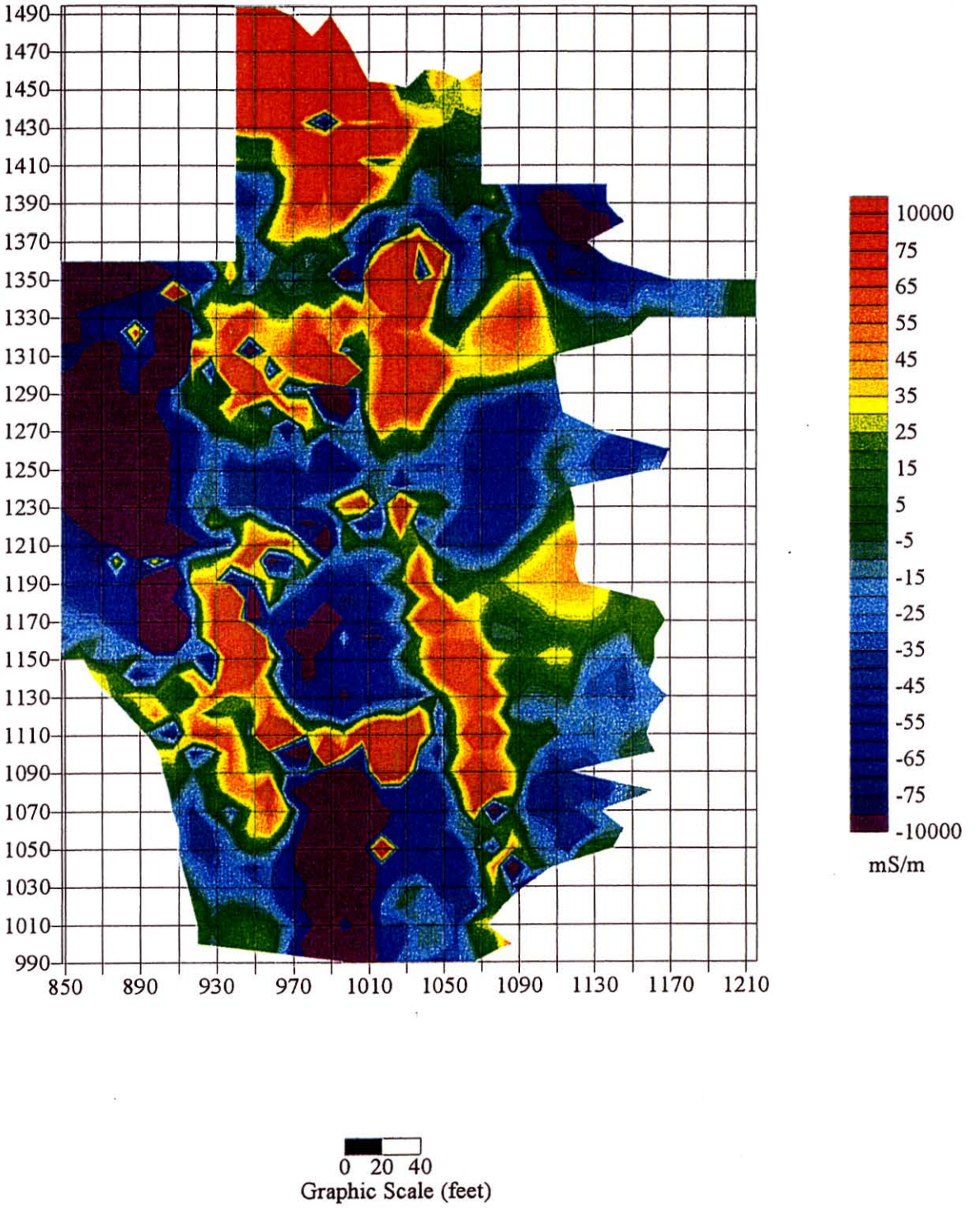
Geophex

Figure 29. Site 2b GEM-2 conductivity map, 1,530 Hz quadrature component.



Geophex

Figure 30. Site 2b GEM-2 conductivity map, 7,290 Hz in-phase component.



Geophex

Figure 31. Site 2b GEM-2 conductivity map, 7,290 Hz quadrature component.

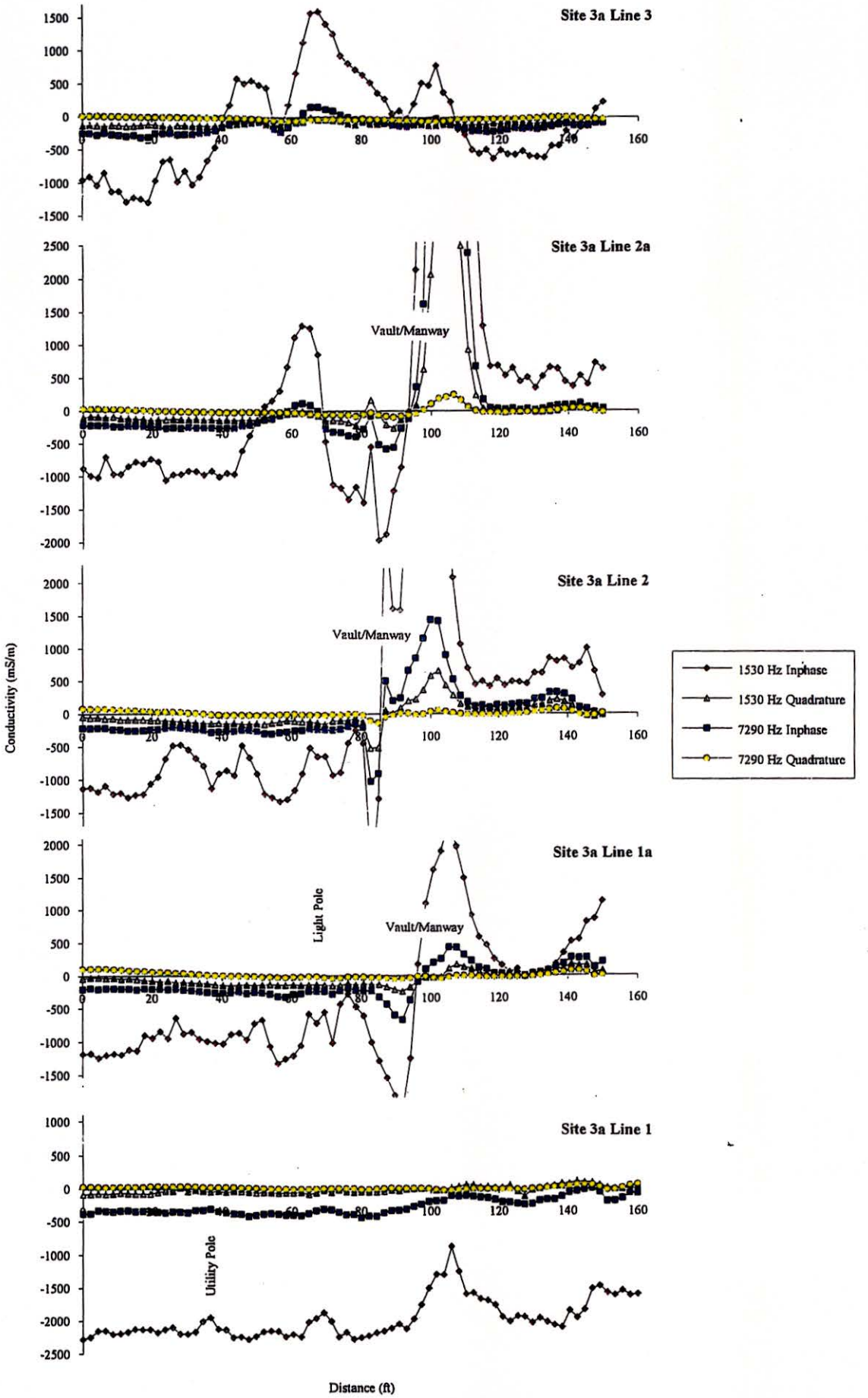


Figure 32. Site 3a GEM-2 conductivity profile data at a vertical scale of 1 inch = 2230 mS/m.

Geophex

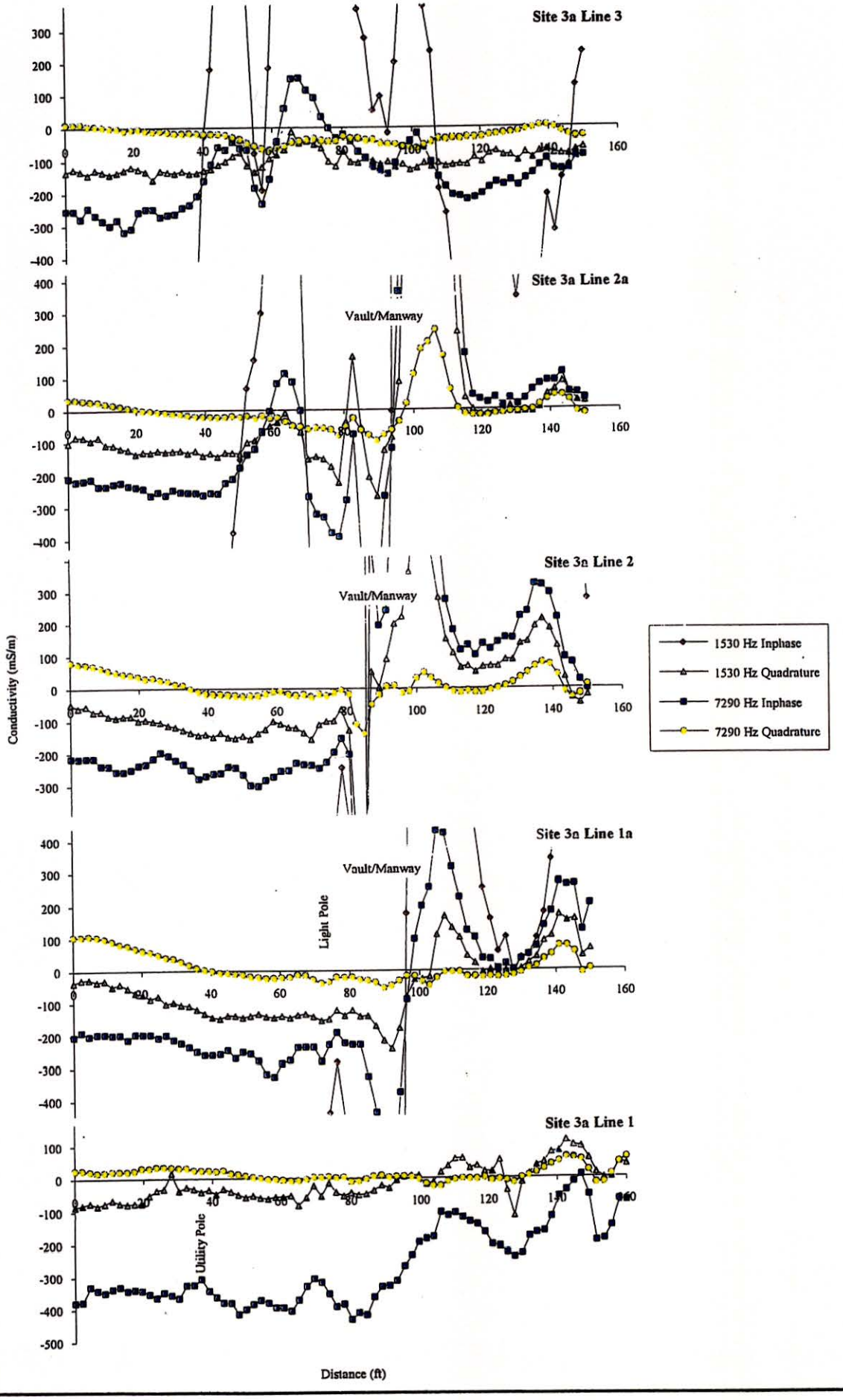


Figure 33. Site 3a GEM-2 conductivity profile data at a vertical scale of 1 inch = 447 mS/m.

Geophex

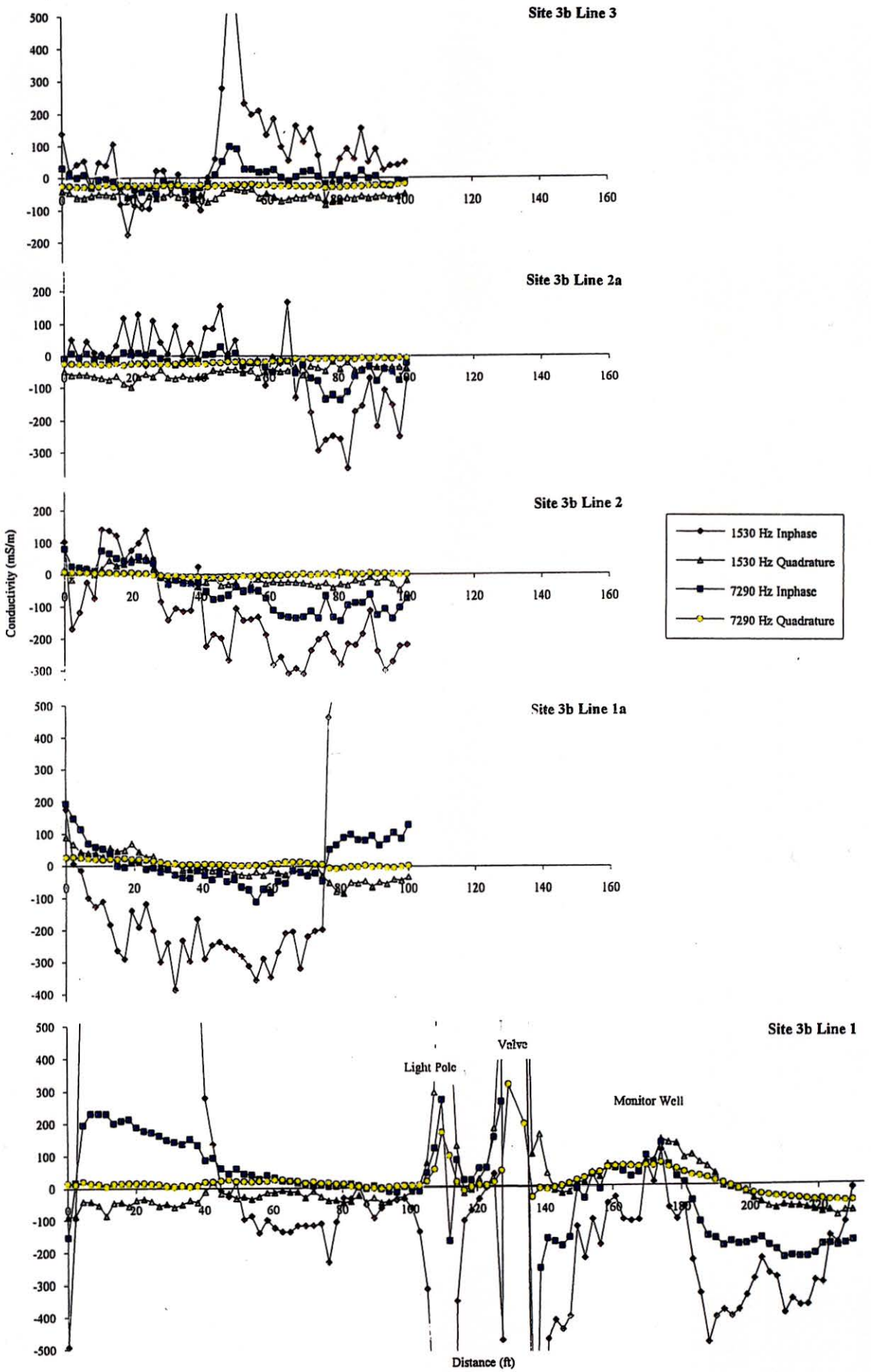


Figure 34. Site 3b GEM-2 conductivity profile data at a vertical scale of 1 inch = 447 mS/m.

Geophex

APPENDIX B
TEST PIT RECORDS

APPENDIX B.1
TEST PIT RECORDS - PHASE I

TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP01	Date:	4/1/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	PAM/KAT

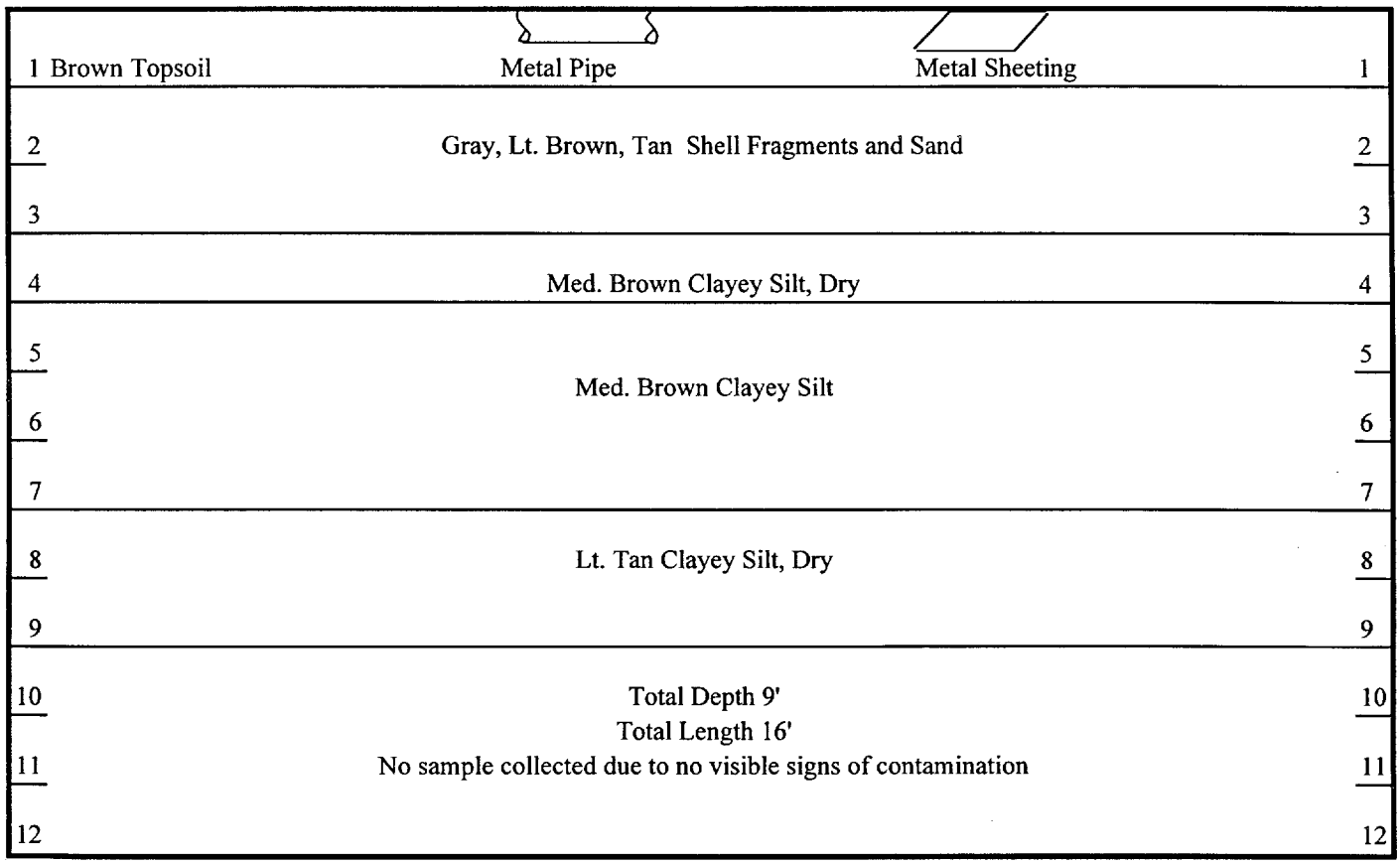
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9			CTO No.:	277
Test Pit No.:	9TP02	Date:	4/1/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	PAM/KAT

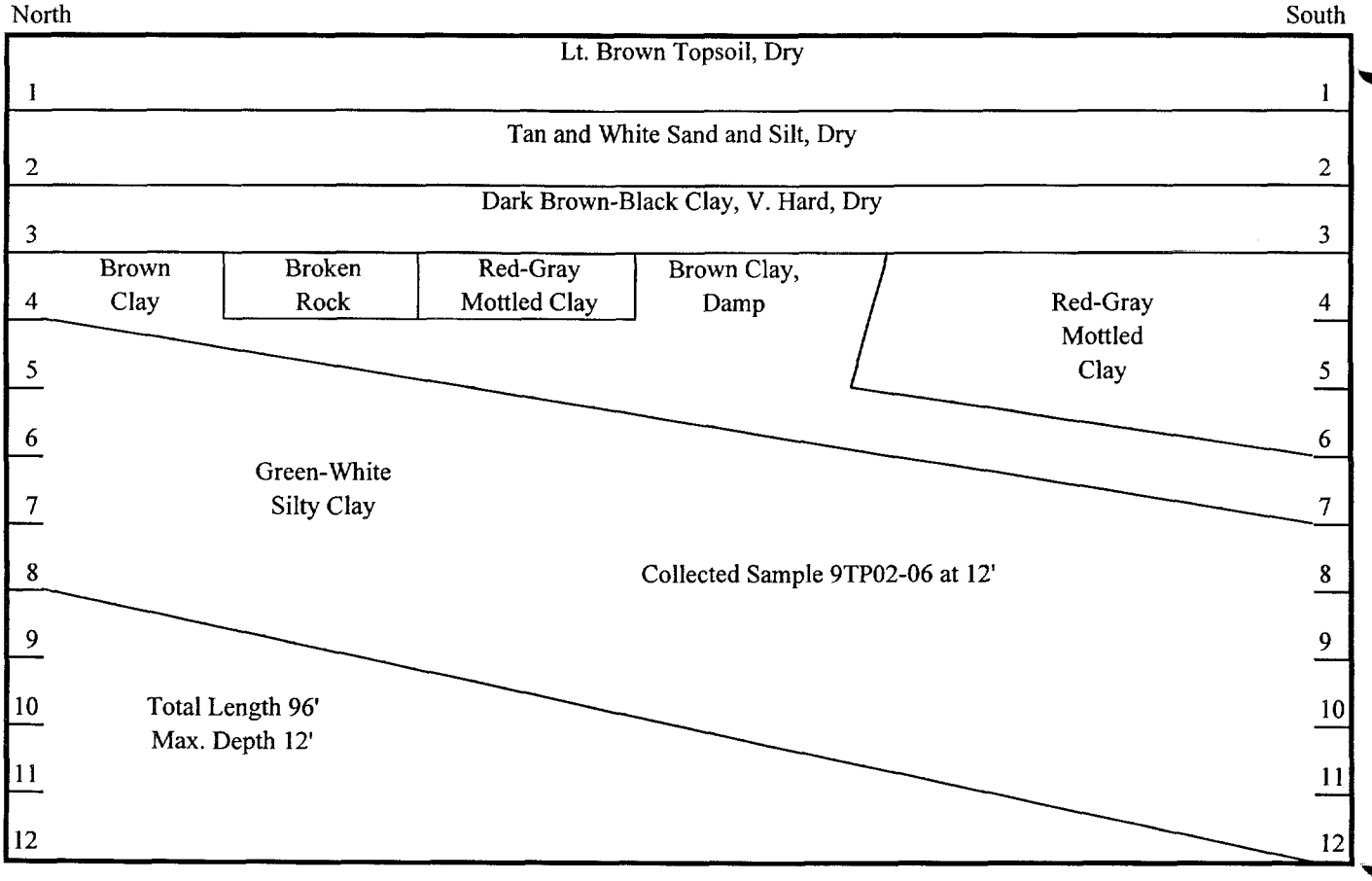
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP03	Date:	4/6/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

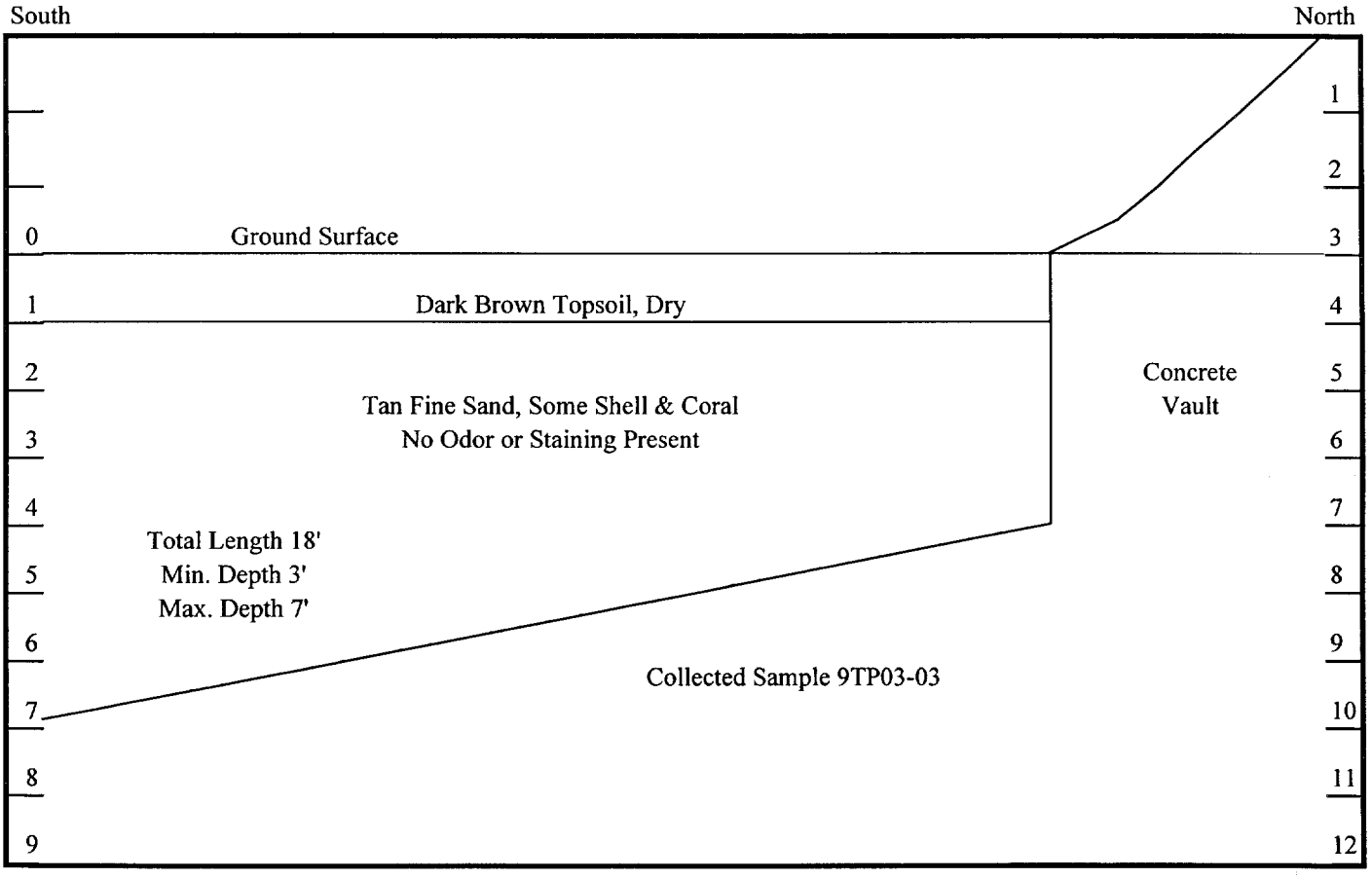
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP04	Date:	4/6/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION

Northwest — Southeast

Brown Topsoil, Dry

Brown Medium Sand, Little Clay, Shells & Coral, Dry

Lt. Brown Medium Sand, Dry

No odor or visible staining

Total Length 19'
Max. Depth 9'

Confirmatory Sample 9TP04-04 Collected at 9'

TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP05	Date:	4/6/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

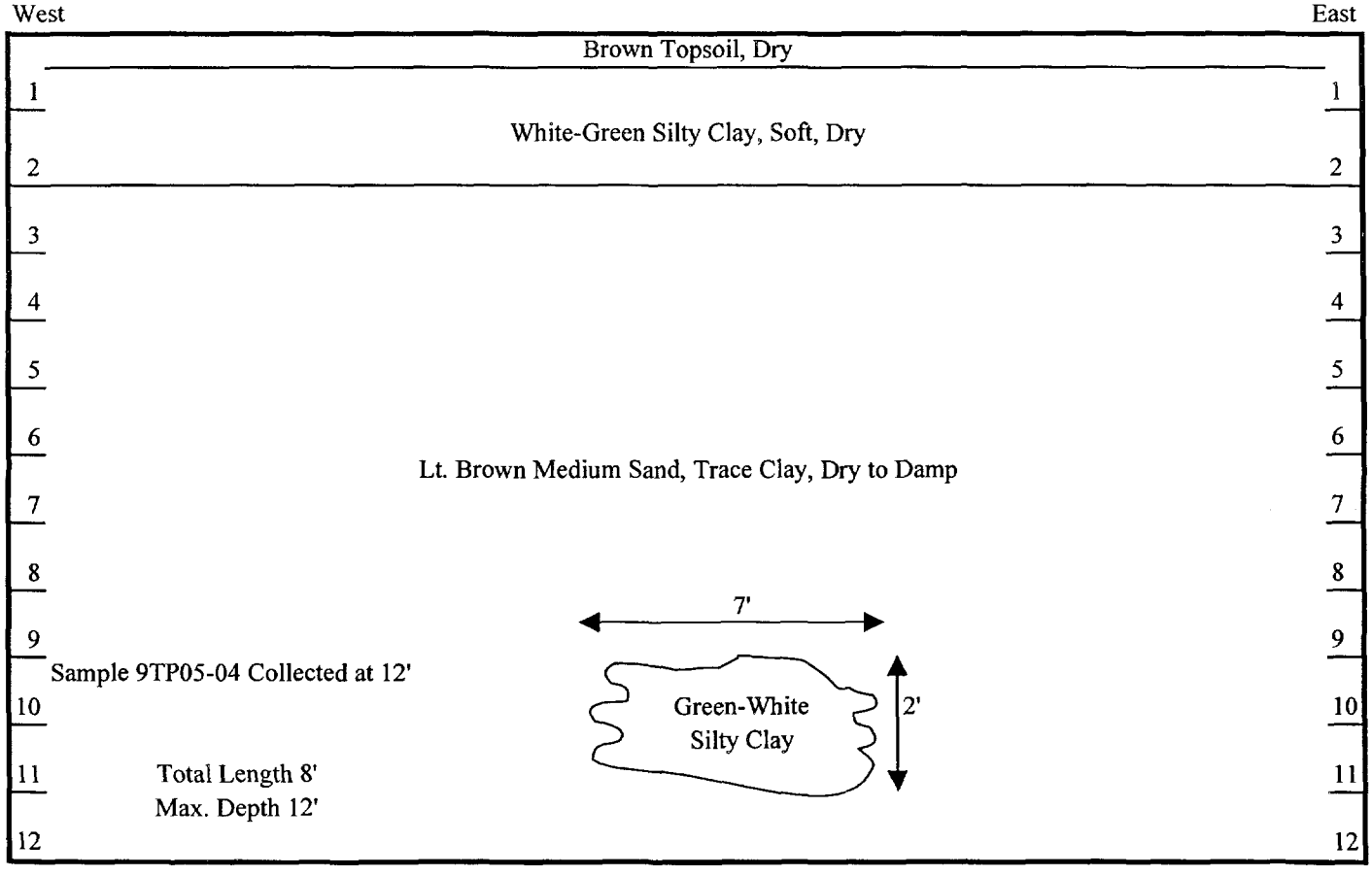
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP06	Date:	4/6/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

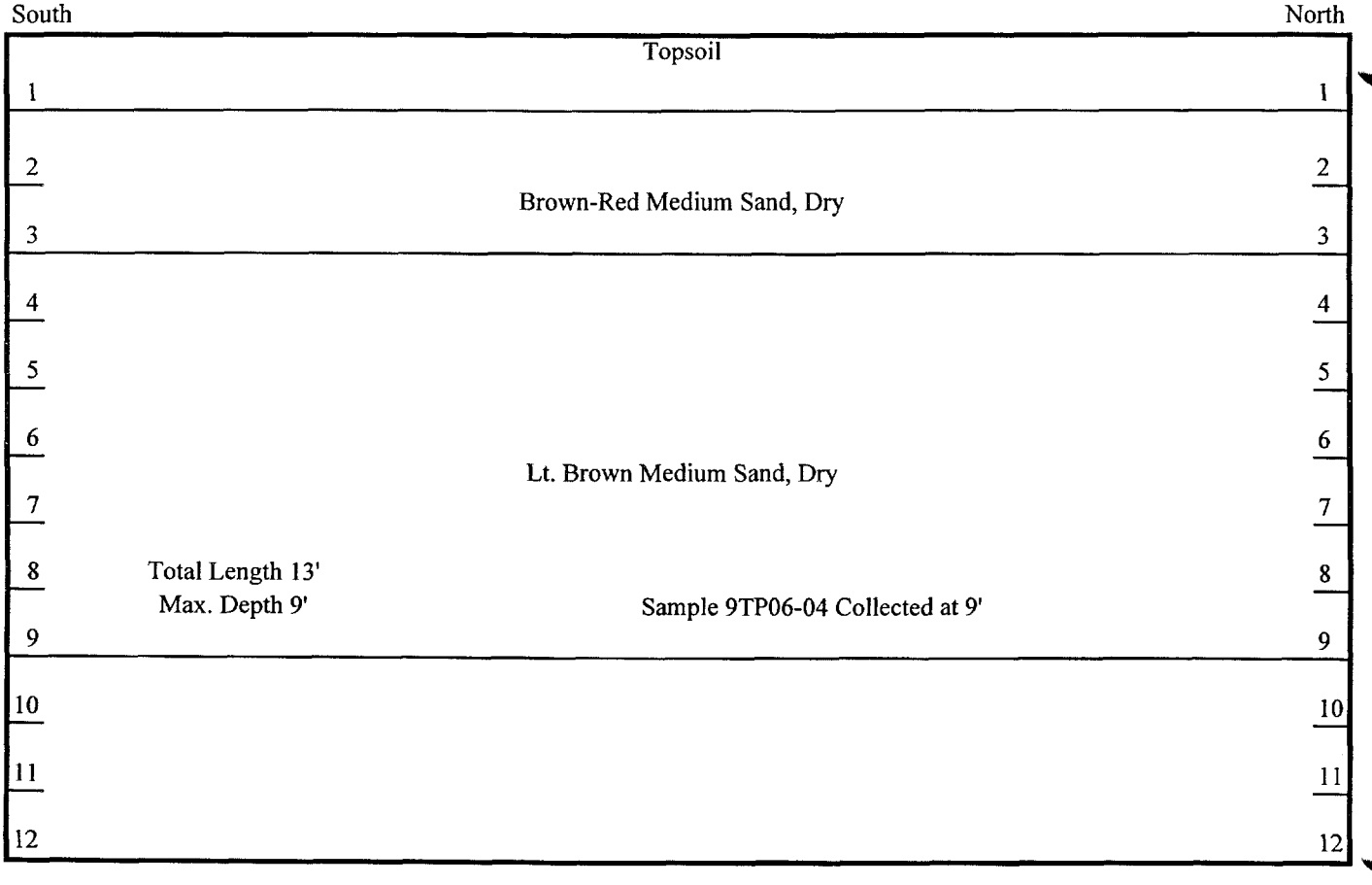
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP07	Date:	4/8/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

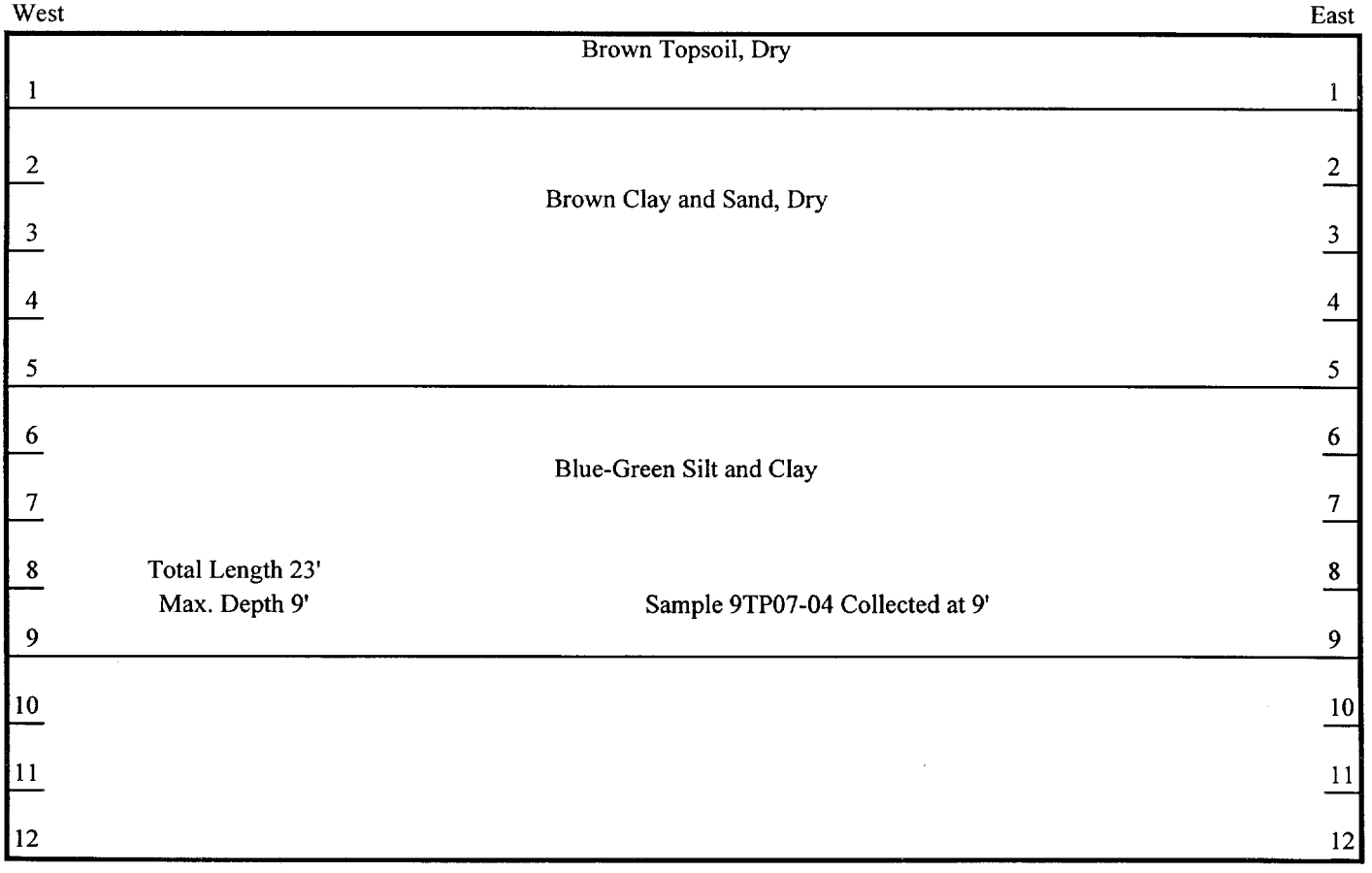
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP08	Date:	4/8/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

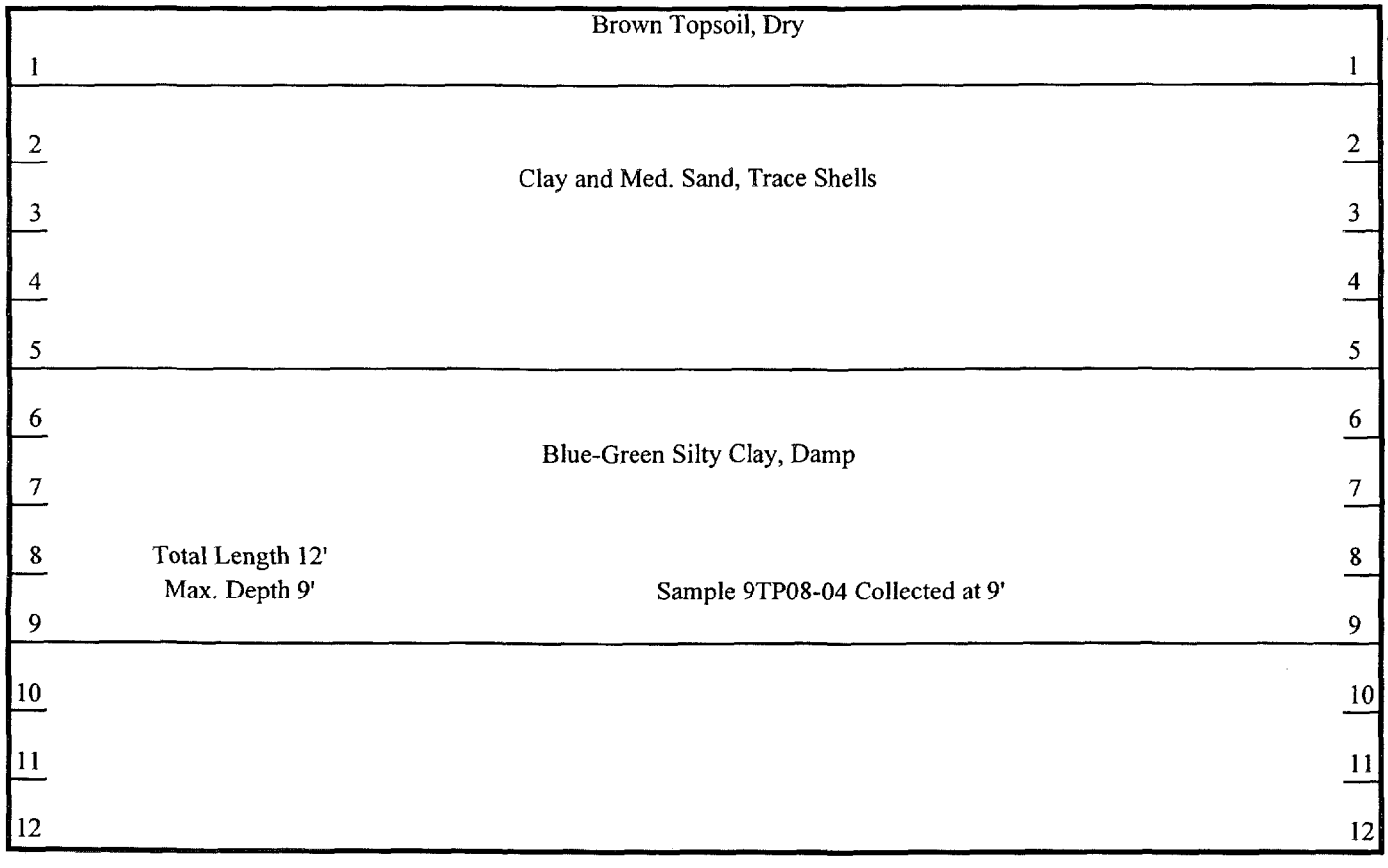
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP09	Date:	4/8/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

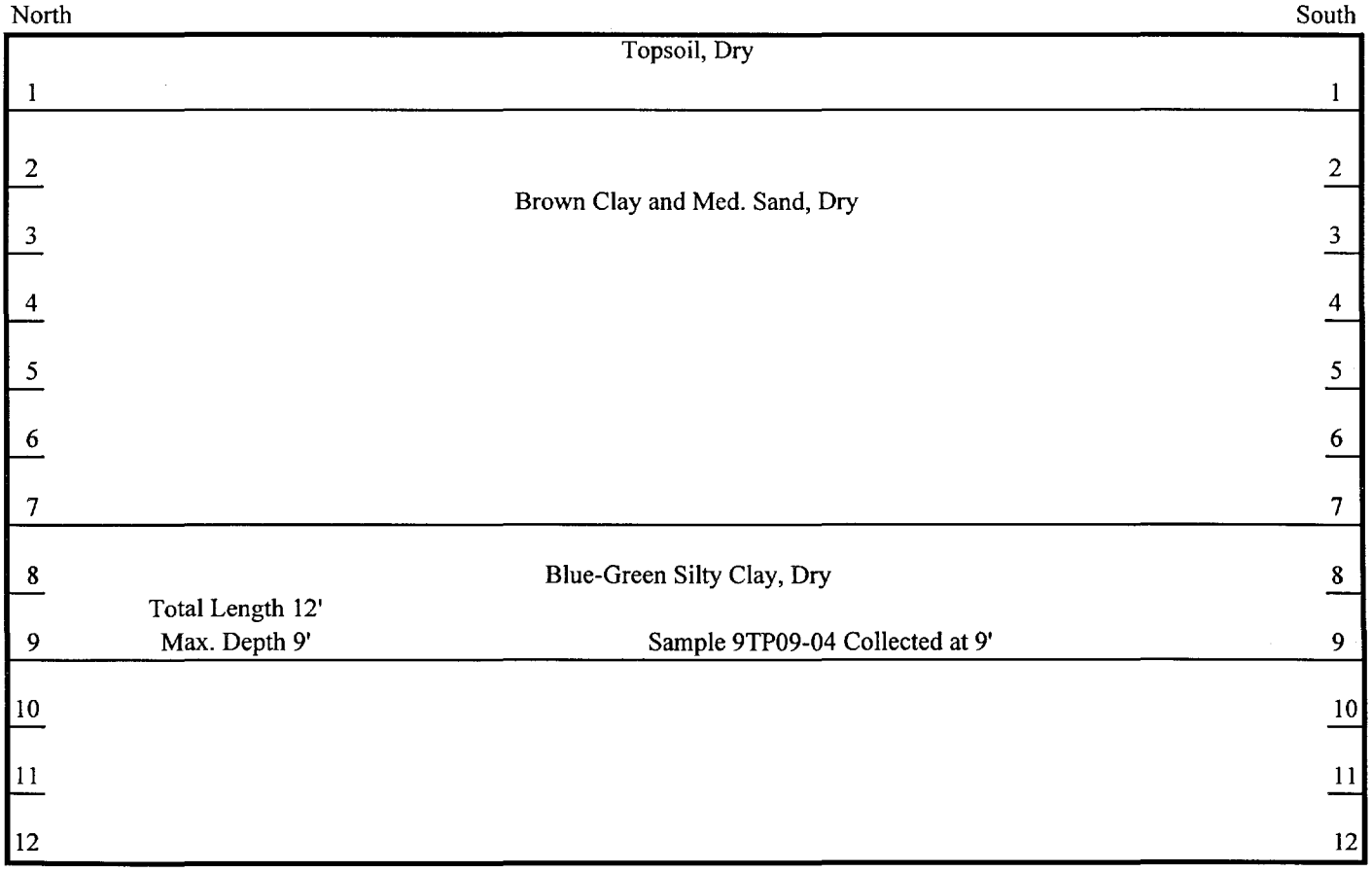
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP10	Date:	4/8/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

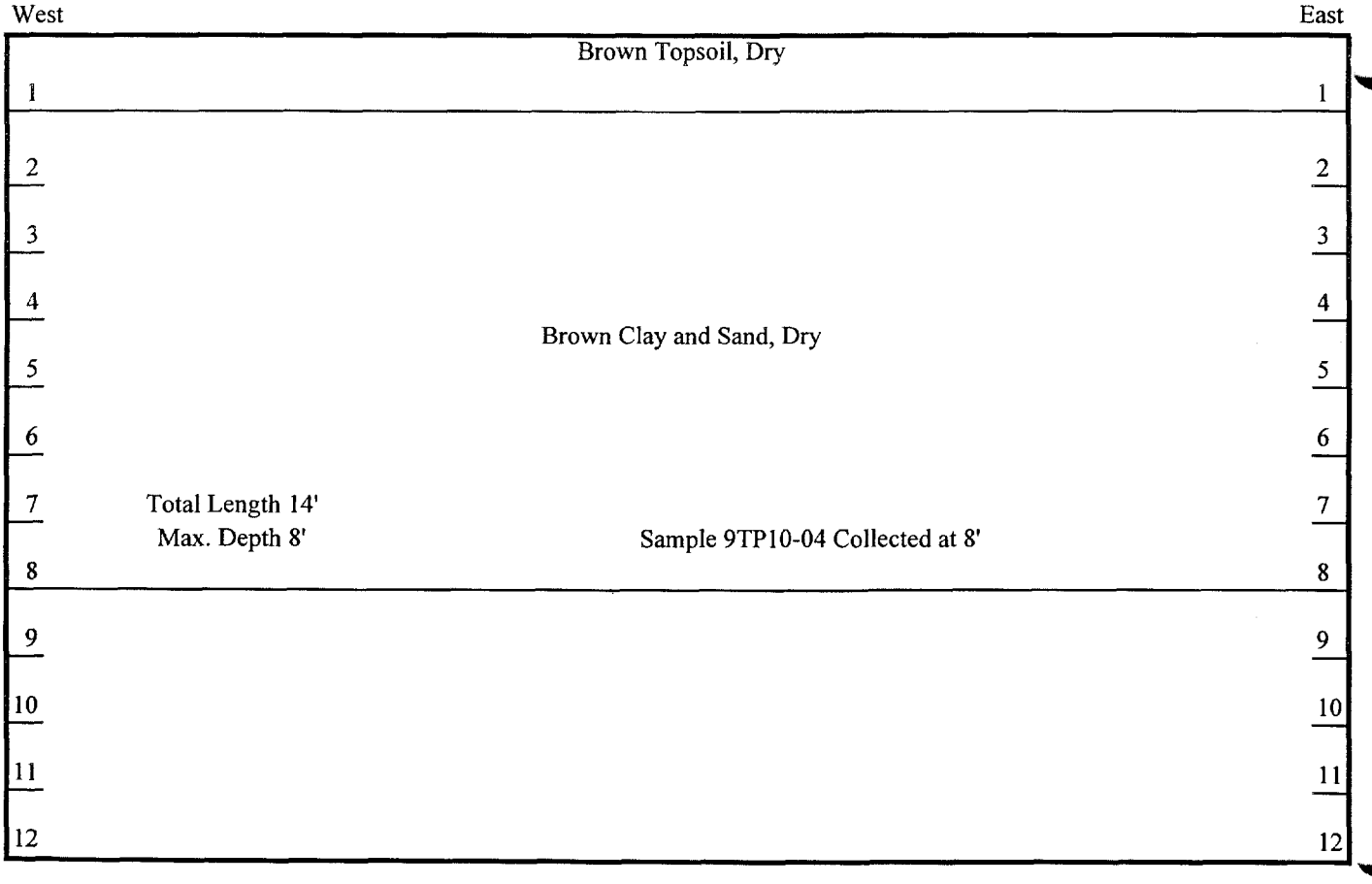
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP11	Date:	4/13/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

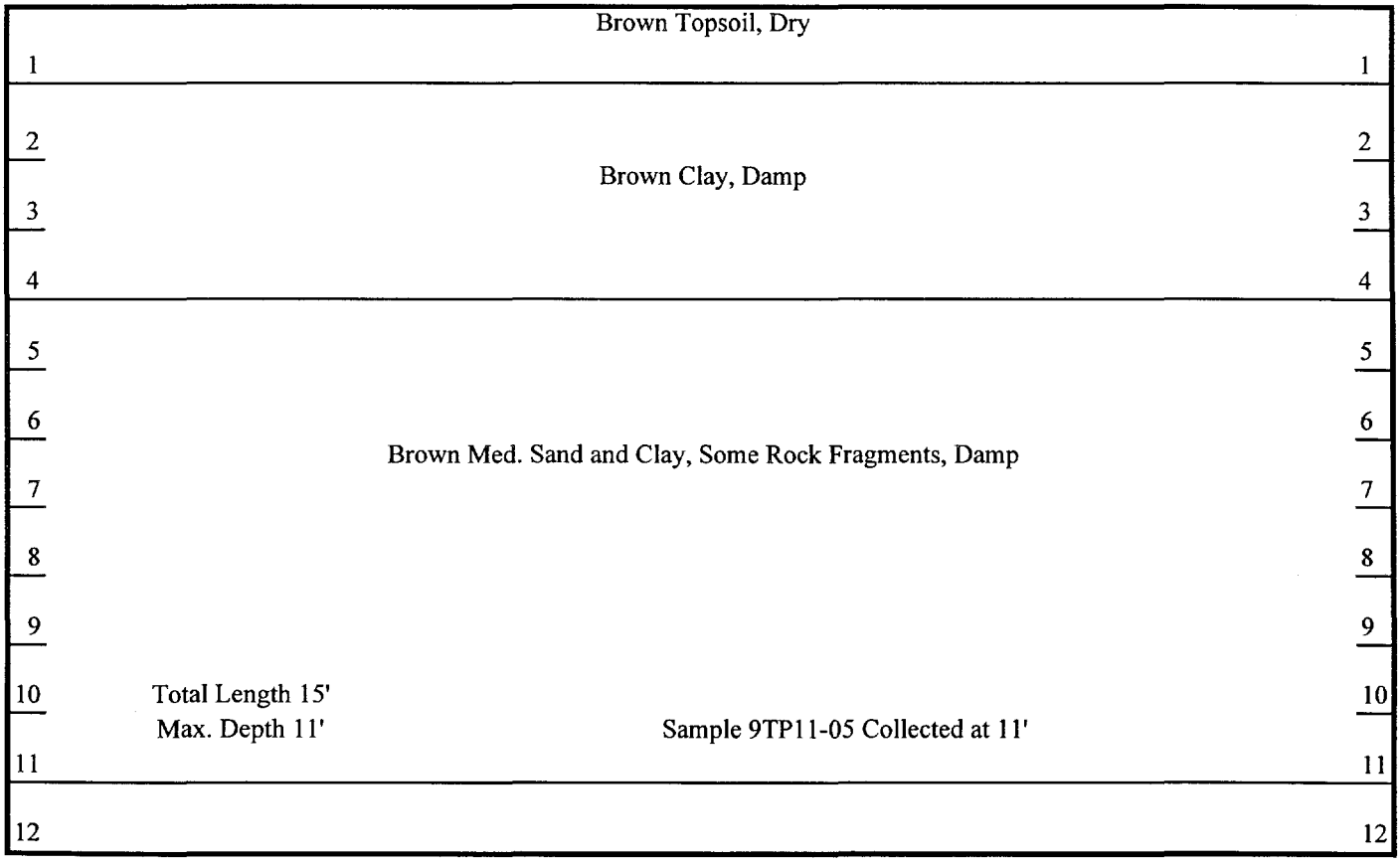
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP12	Date:	4/13/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION

Dark Brown Topsoil, Dry

1

2 Brown Med. Sand and Clay, Some Rock Fragments, Dry
Brown Clay, Damp

3

Bedrock

4

5 Total Length 11'
Max. Depth 4'

No environmental sample collected. No visible staining.

6

7

8

9

10

11

12

TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP13	Date:	4/13/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

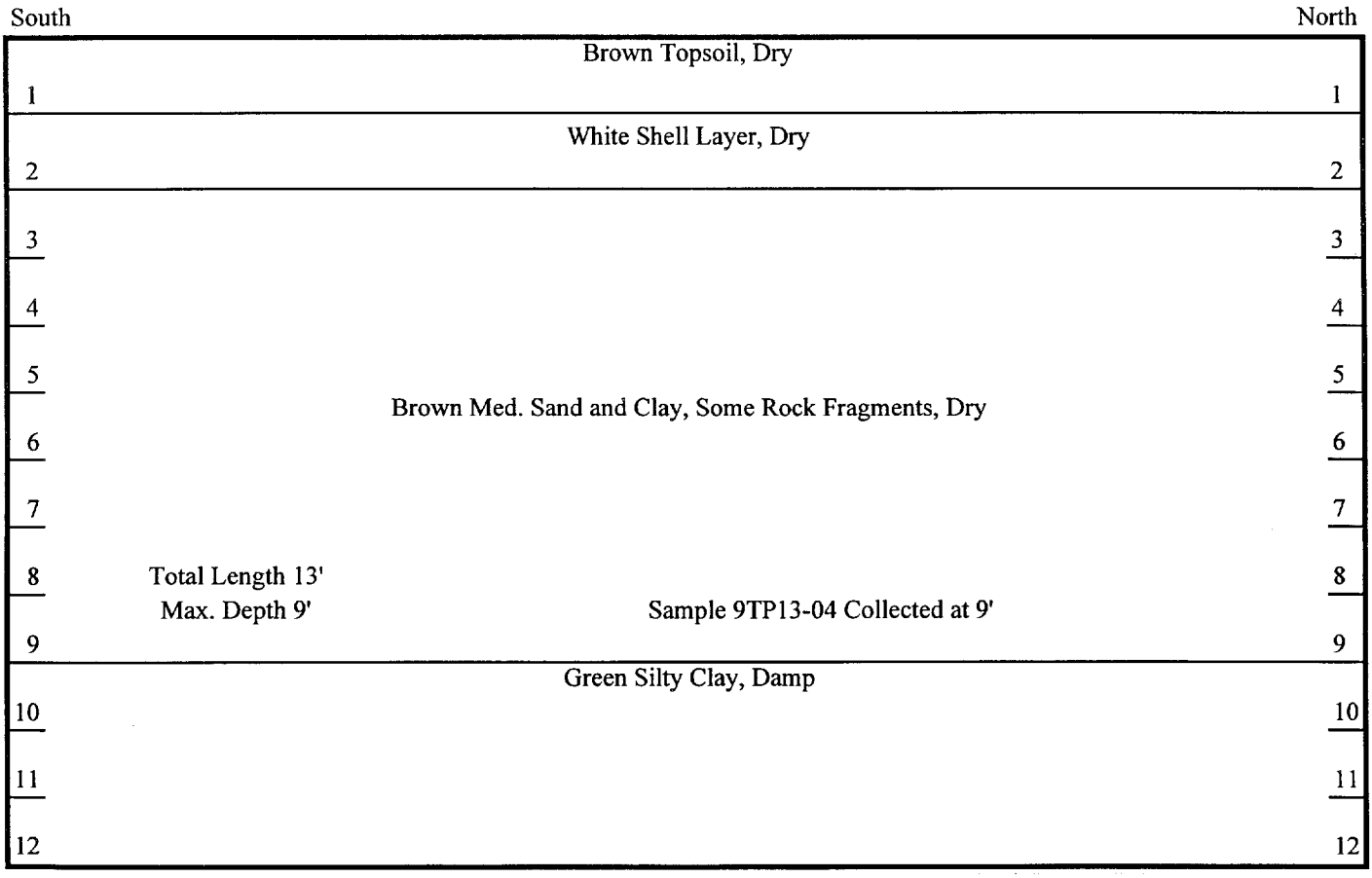
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9			CTO No.:	277
Test Pit No.:	9TP14	Date:	4/13/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

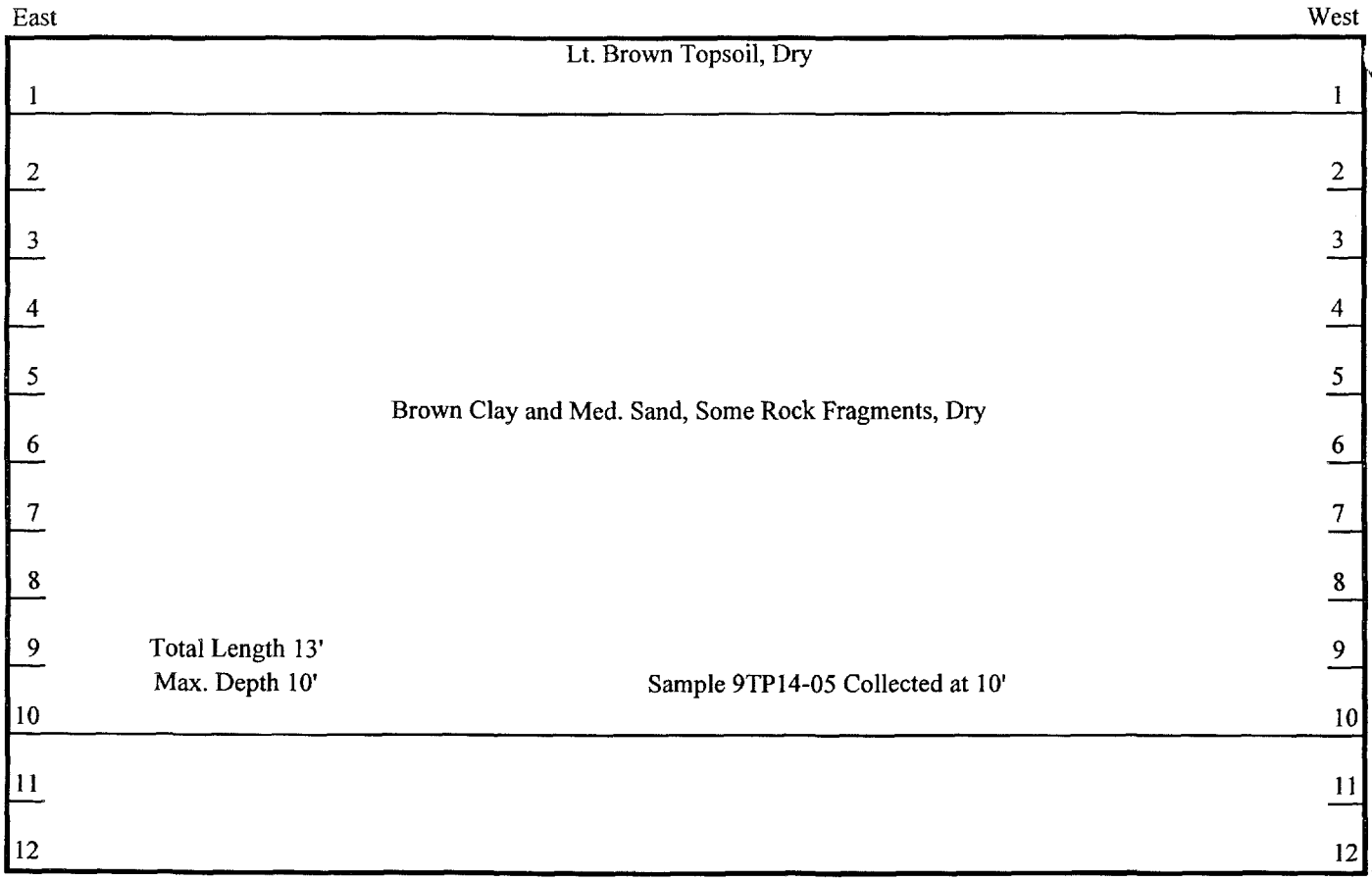
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP15	Date:	4/13/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

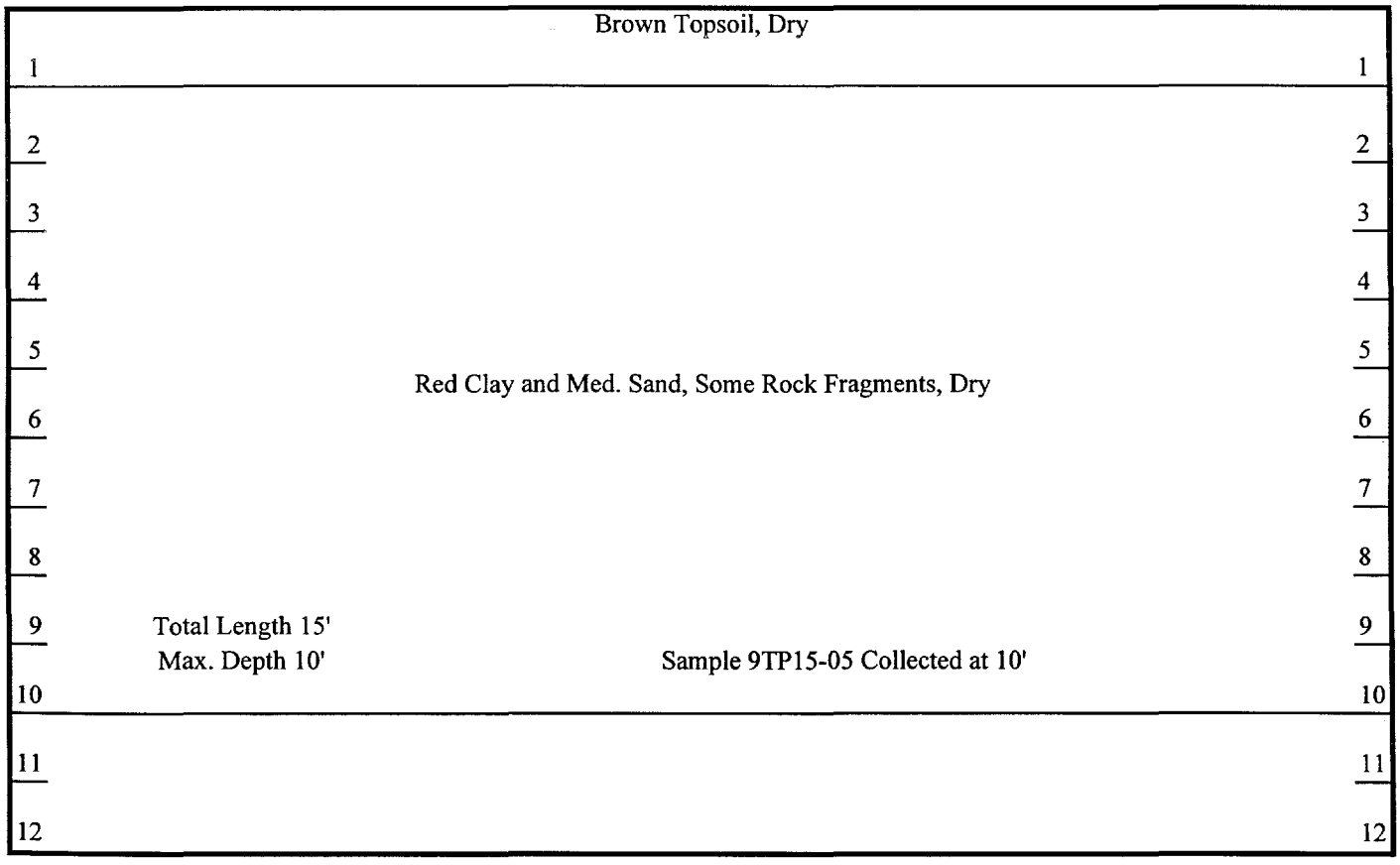
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP16	Date:	4/13/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

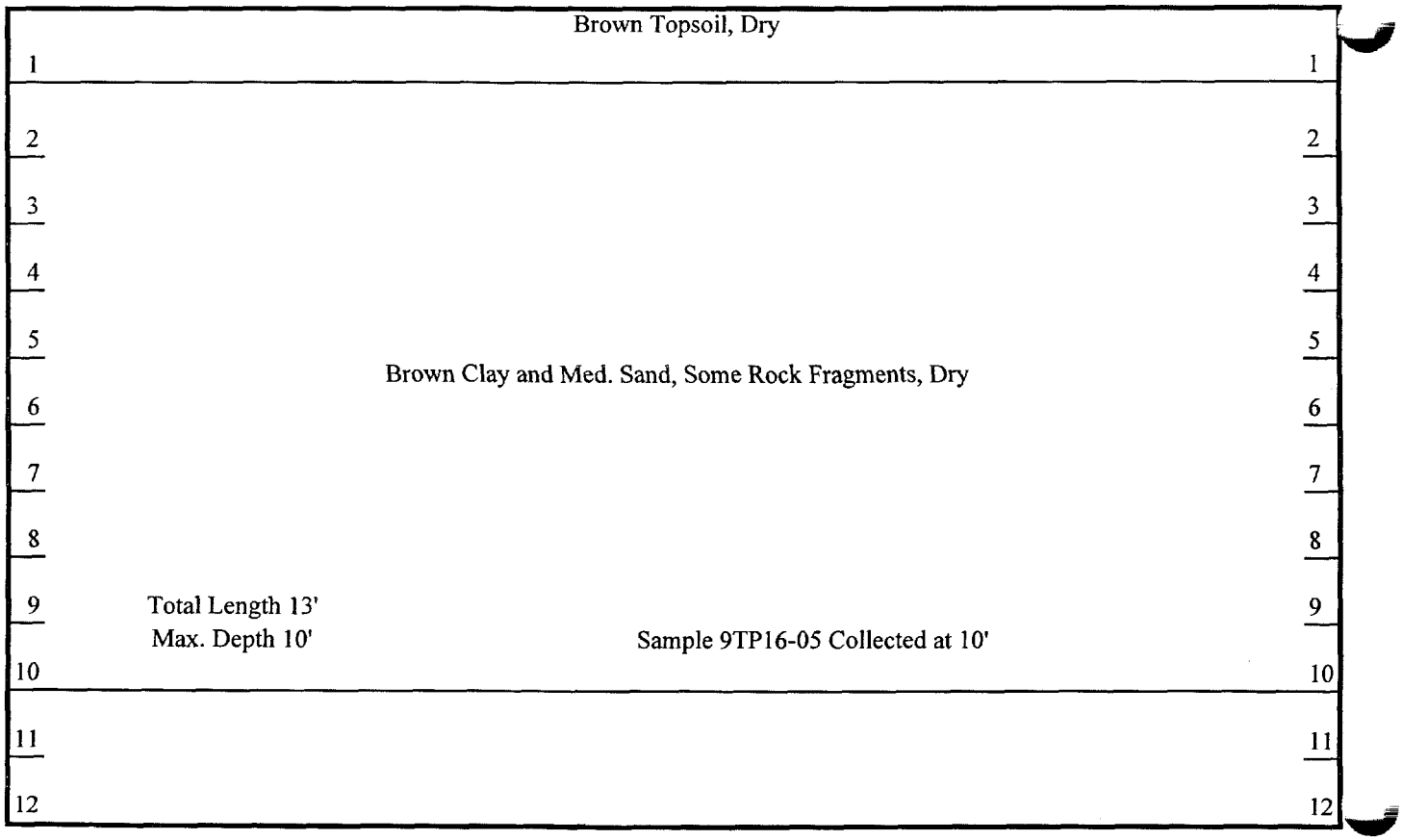
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP17	Date:	4/14/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

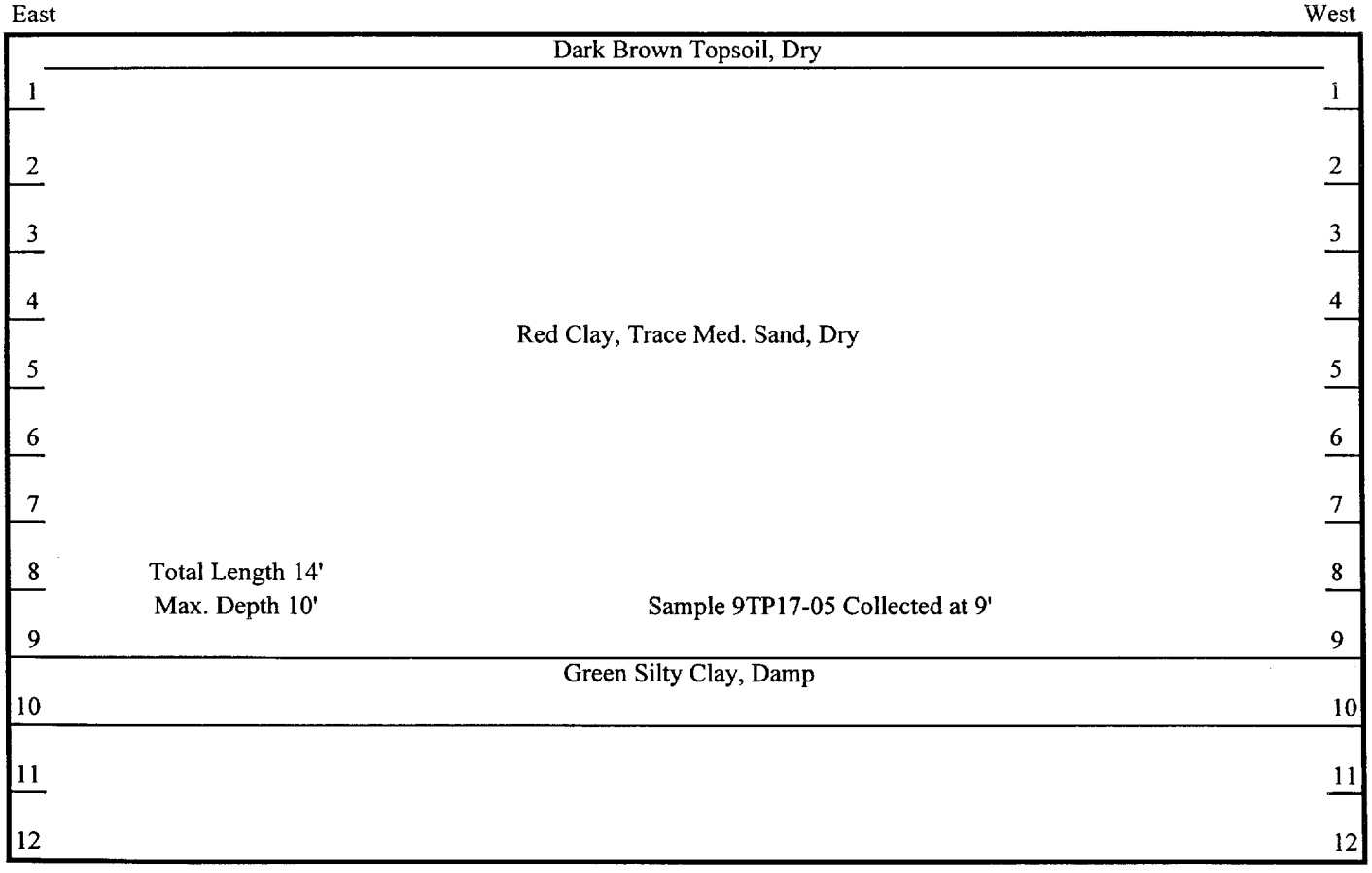
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



TEST PIT RECORD

Project:	NSRR-OU2-SWMU 9		CTO No.:	277	
Test Pit No.:	9TP18	Date:	4/14/96	Weather:	Sunny 80's
Endpoint Coordinates:		North:		North:	
		East:		East:	
		Elevation:		Elevation:	
Contractor:	Soil Tech	Equipment:	Ford 555D	Baker Rep.:	KAT/APS

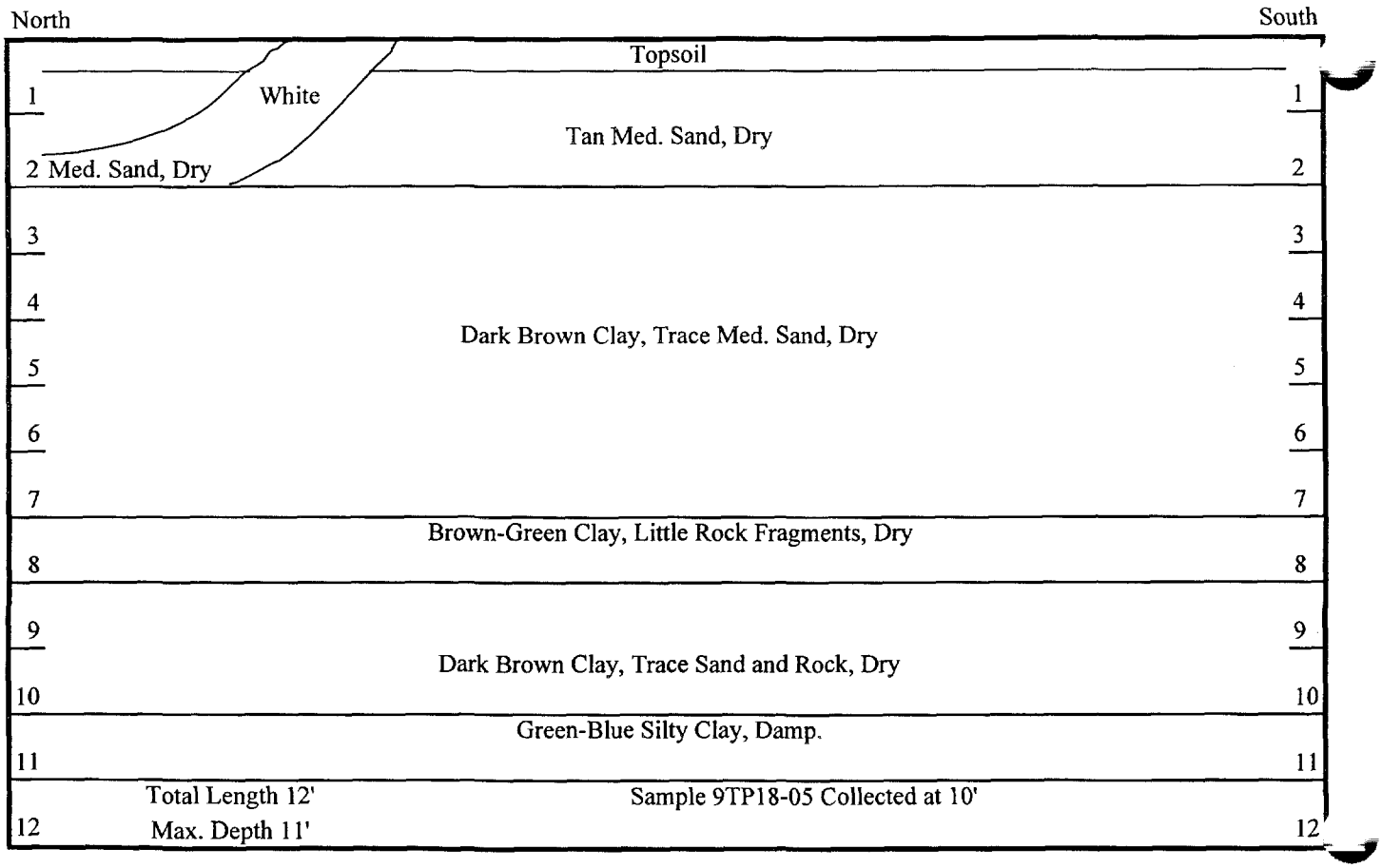
AIR MONITORING

Time	PID (PS/BG)	FID (PS/BG)	Source

Definitions

PID=Photo Ionization Detector
FID=Flame Ionization Detector
PS=Point Source (in ppm)
BG=Background (in ppm)

TEST PIT CROSS SECTION



APPENDIX B.2
TEST PIT RECORDS - PHASE II

Baker

Baker Environmental, Inc.

TEST PIT RECORD

PROJECT: SWMU 9, NSRR, Puerto Rico **TEST PIT NO.:** 9TP01A
CTO NO.: 62470-277
DIRECTION: Northeast/Southwest **DATE:** 10/1/97
WEATHER: Partly Sunny, humid - Approx. 90 degrees F

REMARKS: Clay layer near bottom of pit. HNU = Photoionization Detector Reading = Background (1.0 to 1.2 meter units)

Depth (ft.)	Visual Description of Test Pit (Principal Constituents, Gradation, Color, Moisture Content, Organic Content, and Other Observations)
1	1-2 inch top soil
2	2" to 4' tan fine sand
3	Subsurface soil sample 9TP01A-01 collected from the 2.0 to 4.0 depth from the southwest end
4	
5	
6	
	Orange and brown clay and silt
7	
8	
9	Subsurface soil sample 9TP01A-02 collected from the 8.0 to 10.0 depth from the northeast end
10	
11	11.0
	Brown, clay, some silt, damp (Native soils).
12	12.0
13	EXCAVATION TERMINATED AT 12.0 FEET Two samples were collected from this test pit.
14	
15	
16	
17	
18	

SUBCONTRACTOR: Soil Tech Corp. **BAKER REP.:** Mark Kimes/Ron Krivan

EQUIPMENT: Ford Backhoe, HNu (10.2 Ip) **TEST PIT NO.:** 9TP01A SHEET 1 OF 1

SWMU 9 - AREA B
Naval Station Roosevelt Roads, Puerto Rico

October 1, 1997 - 9TP01A Excavated in a Northeast-Southwast direction; the dimension of this test pit was 22 ft x 3 ft x 12 ft. A fine sand was encountered to a depth of 4.0. An orange/brown clay was observed from 4.0 to 12.0 ft.

October 1, 1997 - 9TP01A Facing northeast. Two subsurface soil samples were collected. The stockpile is visible in the photograph. No evidence of the fuel disposal was encountered.

Baker

Baker Environmental, Inc.

TEST PIT RECORD

PROJECT: SWMU 9, NSRR, Puerto Rico **TEST PIT NO.:** 9TP02A
CTO NO.: 62470-277
DIRECTION: Northwest/Southeast **DATE:** 10/1/97
WEATHER: Partly Sunny, humid - Approx. 90 degrees F

REMARKS: Clay layer near bottom of pit. HNU = Photoionization Detector Reading = Background (0.2 meter units)

Depth (ft.)	Visual Description of Test Pit (Principal Constituents, Gradation, Color, Moisture Content, Organic Content, and Other Observations)
1	1-2 inch top soil
2	Brown sand/silt soil
3	
4	
5	Subsurface soil sample 9TP02A-01(NW) dark gray clay-like material sampled from 4.0 to 6.0 depth.
6	
7	Orange and brown clay and silt
8	
9	Soil sample 9TP02A-02 (SE) was collected from the 8.0 to 10.0 depth.
10	
11	11.0
12	Brown, clay, some silt, damp (Native soils). 12.0
13	EXCAVATION TERMINATED AT 12.0 FEET Two samples were collected from this test pit.
14	
15	
16	
17	
18	

SUBCONTRACTOR: Soil Tech Corp. **BAKER REP.:** Mark Kimes/Ron Krivan

EQUIPMENT: Ford Backhoe, HNu (10.2 Ip) **TEST PIT NO.:** 9TP02A SHEET 1 OF 1

SWMU 9 - AREA B
Naval Station Roosevelt Roads, Puerto Rico

October 1, 1997 - 9TP02A Excavated in a Northwest-Southeast direction; the dimension of this test pit was 23 ft x 3 ft x 12 ft. A brown sand/silt soil was evident through the initial 5 feet. An orange/brown clay was observed from 5.0 to 12.0 ft.

October 1, 1997 - 9TP02A spoil pile is visible in the photograph. No evidence of the fuel disposal was encountered. Dark gray clay collected in one of the samples is visible in the stockpile.

Baker

Baker Environmental, Inc.

TEST PIT RECORD

PROJECT: SWMU 9, NSRR, Puerto Rico **TEST PIT NO.:** 9TP07A
CTO NO.: 62470-277
DIRECTION: West/East **DATE:** 10/1/97
WEATHER: Partly Sunny, humid - Approx. 90 degrees F

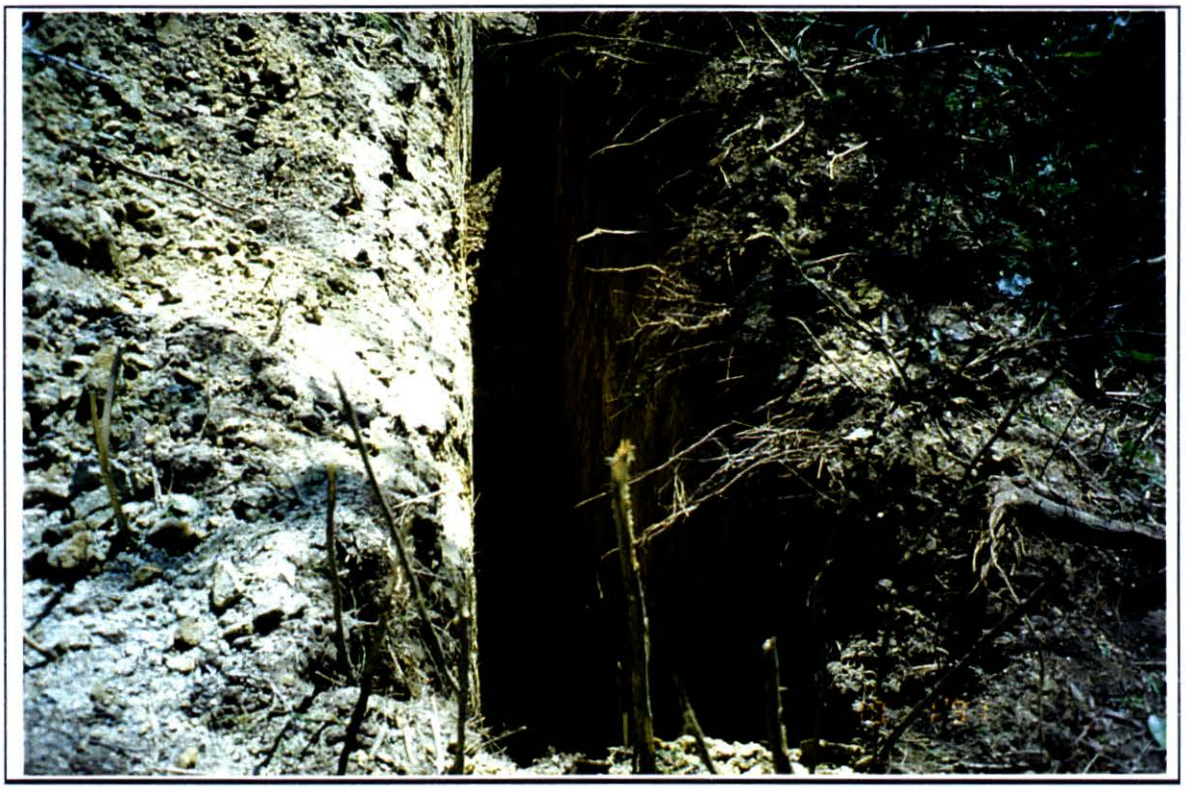
REMARKS: Clay layer near bottom of pit. HNU = Photoionization Detector Reading = peak at 100 meter units (mu), consistant readings of 10 to 15 mu.

Depth (ft.)	Visual Description of Test Pit (Principal Constituents, Gradation, Color, Moisture Content, Organic Content, and Other Observations)	
1	1-2 inch top soil	
2	Brown sand/silt soil	
3	Subsurface soil sample 9TP07A-01(NW) was collected from 2.0 to 4.0 depth.	
4		
5		
6		
7	Orange and brown clay and silt	
8	Encountered petroleum odor and discolored soil (mottled gray, white, and orange) HNu readings varied between 10 and 100 mu.	
9	Odor encountered to bottom of test pit.	
10	Subsurface soil sample 9TP07A-02 (SE) were collected from the 8.0 to 10.0 depth.	
11	11.0	
12	Brown, clay, some silt, damp (Native soils). 12.0	
13	EXCAVATION TERMINATED AT 12.0 FEET Two samples were collected from this test pit.	
14		
15		
16		
17		
18		

SUBCONTRACTOR: Soil Tech Corp. **BAKER REP :** Mark Kimes/Ron Krivan

EQUIPMENT: Ford Backhoe, HNu (10.2 Ip) **TEST PIT NO.:** 9TP07A SHEET 1 OF 1

SWMU 9 - AREA A
Naval Station Roosevelt Roads, Puerto Rico



October 1, 1997 - 9TP07A Excavated in a West-East direction; the dimension of this test pit was 25.5 ft x 3 ft x 12 ft. A brown sand/silt rocky soil was evident through the initial 4 feet. A brown clay/silt was observed from 4.0 to 12.0 ft.

October 1, 1997 - 9TP07A stockpile is visible in the photograph. A petroleum odor was noticed and discolored soil was visible. Photo ioization readings peaked at 100 meter units. Two subsurface soil samples were collected from this test pit.

Baker

Baker Environmental, Inc.

TEST PIT RECORD

PROJECT: SWMU 9, NSRR, Puerto Rico **TEST PIT NO.:** 9TP07B
CTO NO.: 62470-277
DIRECTION: North/South **DATE:** 10/1/97
WEATHER: Partly Sunny, humid - Approx. 90 degrees F

REMARKS: Clay layer near bottom of pit HNU = Photoionization Detector Reading = Background (0.2 meter units)

Depth (ft.)	Visual Description of Test Pit (Principal Constituents, Gradation, Color, Moisture Content, Organic Content, and Other Observations)
1	0 - 10" inch top soil
2	various clay, light grainy soil and rock
3	
4	
5	Subsurface soil sample 9TP07B-01(west side) from the 4.0 to 6.0 depth.
6	
7	Orange and brown clay and silt
8	
9	Subsurface soil sample 9TP07B-02 (east side) were collected from the 8.0 to 10 0 depth.
10	
11	11.0
12	Brown, clay, some silt, damp (Native soils). 12.0
13	EXCAVATION TERMINATED AT 12.0 FEET Two samples were collected from this test pit
14	
15	
16	
17	
18	

SUBCONTRACTOR: Soil Tech Corp. **BAKER REP.:** Mark Kimes/Ron Krivan

EQUIPMENT: Ford Backhoe, HNu (10.2 Ip) **TEST PIT NO.:** 9TP07B SHEET 1 OF 1

SWMU 9 - AREA A
Naval Station Roosevelt Roads, Puerto Rico

October 1, 1997 - 9TP07B Excavated in a North-South direction; the dimension of this test pit was 25 ft x 3 ft x 12 ft. Various clay, light grainy soil and rock was evident throughout the test pit. An orange brown clay/silt was observed from 3.0 to 12.0 ft.

October 1, 1997 - 9TP07B stockpile is visible in the photograph. Two subsurface soil samples were collected. No evidence of the fuel disposal was encountered.

Baker

Baker Environmental, Inc.

TEST PIT RECORD

PROJECT: SWMU 9, NSRR, Puerto Rico **TEST PIT NO** : 9TP09A
CTO NO.. 62470-277
DIRECTION: North/South **DATE**: 10/1/97
WEATHER· Partly Sunny, humid - Approx. 90 degrees F

REMARKS: Clay layer near bottom of pit. HNU = Photo ionization Detector Reading = Background (0.2 meter units)

Depth (ft.)	Visual Description of Test Pit (Principal Constituents, Gradation, Color, Moisture Content, Organic Content, and Other Observations)
1	0 - 10" inch top soil
2	various clay, light grainy soil and rock
3	
4	
5	Subsurface soil sample 9TP09A-01(west side) collected from the 4.0 to 6.0 depth.
6	
7	Orange and brown clay and silt
8	
9	Subsurface soil sample 9TP09A-02 (east side) were collected from the 8.0 to 10.0 depth.
10	
11	11.0
12	Brown, clay, some silt, damp (Native soils). 12.0
13	EXCAVATION TERMINATED AT 12.0 FEET Two samples were collected from this test pit Also collected duplicate, matrix spike, and matrix spike duplicate from 9TP09A-01.
14	
15	
16	
17	
18	

SUBCONTRACTOR: Soil Tech Corp. **BAKER REP.:** Mark Kimes/Ron Krivan

EQUIPMENT: Ford Backhoe, HNu (10.2 Ip) **TEST PIT NO.:** 9TP09A SHEET 1 OF 1

SWMU 9 - AREA A
Naval Station Roosevelt Roads, Puerto Rico

October 1, 1997 - 9TP07B Excavated in a North-South direction; the dimension of this test pit was 22 ft x 3 ft x 12 ft. Various clay, light grainy soil and rock was evident throughout the test pit. An orange brown clay/silt was observed from 2.0 to 12.0 ft. The stockpile is visible in the photograph.

October 1, 1997 - 9TP09A View of the test pit bottom and sides. Two subsurface soil samples were collected. No evidence of the fuel disposal was encountered.

APPENDIX C
TEST BORING AND WELL CONSTRUCTION RECORDS

APPENDIX C.1
TEST BORING AND WELL CONSTRUCTION RECORDS - PHASE I

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: NBRR-OU2-DXMW9
CTO NO.: 0277 BORING NO.: 9MW01
COORDINATES: EAST: NORTH:
ELEVATION: SURFACE: TOP OF PVC CASING:

RIG:	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
SIZE (DIAM.)	2"		3.25"/6.25"	I.D.	4-10-96	45.5'	Sunny ~85°F	32.0'	
LENGTH	2'		5'						
TYPE	Std.		H.S.A.						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: PHOTOIONIZATION DETECTOR WAS NOT AVAILABLE

SAMPLE TYPE

S = Split Spoon
T = Shelby Tube
R = Air Rotary
D = Denison
A = Auger
W = Wash
C = Core
P = Piston
N = No Sample

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
SCH 40	2"	PVC - RISER	+2.5	-25.0
0.010 SLOT SCH 40	2"	PVC - SCREEN	-25.0	-45.0

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1	A-N				Med dense to dense		
2							
3		1.8/2.0	9 13 17	—	LT. Brown/Grey, CLAY AND SILT, trace rock fragments, trace roots, Dry		
4	S-1	90%	20				
5		2.0/2.0	11 17 17	—	NOTE: trace green glauconite		
6	S-2	100%	22		5.8 Dense		
7		2.0/2.0	9 18 22	—	LT. Brown to brown, SILT, Some clay, Trace rock fragments, trace sand, trace glauconite, Dry, No odor - Staining (Mg/Fe)		
8	S-3	100%	25		8.2		
9		1.9/2.0	11 21 22	Dense —	LT Brown and Gray, CLAY AND SILT, trace sand, Dry		
10	S-4	95%	26		Match to Sheet 2		

DRILLING CO.: SOIL TECH BAKER REP.: J. CULP
DRILLER: JOSÉ MORALES BORING NO.: 9MW01 SHEET 1 OF 3

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: NSRR-OU2-BWMW9
CTO NO.: 0277
BORING NO.: 9MW01

SAMPLE TYPE

S = Split Spoon
T = Shelby Tube
R = Air Rotary
D = Denison
A = Auger
W = Wash
C = Core
P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
PID (ppm) = Results recorded with Hnu or OVA in ppm

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab Class. or Pen. Rate	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
						Continued from Sheet		
11		2.0 / 2.0	12 23 20		-	LT Brown to brown, SILT, Some Clay, trace Sand, Dry, black staining - no odor (Mg/Fe).		
12	S-5	100%	22					
13		2.0 / 2.0	12 22 21		-			
14	S-6	100%	29			SAME As Above		
15		1.9 / 2.0	10 14 29		-			
16	S-7	95%	24			SAME As Above		
17		2.0 / 2.0	9 10 16		-			17.0
18	S-8	100%	22			18.0 LT. Brown to brown, SILT, LITTLE CLAY, trace glauconite, Dry, black staining (Mg/Fe).		
19		2.0 / 2.0	12 24 34		-			
20	S-9	100%	50/4"					
21		1.5 / 1.5	24 33 50/5"		-			
22	S-10	100%				NOTE. Trace Clay, Little Rock Fragments		21.5
23		2.0 / 2.0	24 30 34		-	SAME As Above		
24	S-11	100%	32					
25		2.0 / 2.0	8 16 21		-	NOTE: Damp		25.0
26	S-12	100%	26			Brown and gray, CLAY AND SILT, Trace Rock Fragments, Damp, BLACK Mg/Fe Staining, No Odor		
27		2.0 / 2.0	8 13 15		-			
28	S-13	100%	22					
29		2.0 / 2.0	10 14 19		-	NOTE: No Rock Fragments		
30	S-14	100%	31					

DRILLING CO.: SOIL TECH
BAKER REP.: J. CULP
DRILLER: JOSE MORALES
BORING NO.: 9MW01
SHEET 2 OF

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: NTRR-OU2-9MW09
CTO NO.: 0277 BORING NO.: 9MW01

SAMPLE TYPE

S = Split Spoon
T = Shelby Tube
R = Air Rotary
D = Denison
A = Auger
W = Wash
C = Core
P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
PID (ppm) = Results recorded with Hnu or OVA in ppm

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab Class. or Pen. Rate	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
						Continued from Sheet 2		
31		2.0 / 2.0	8 / 15 / 24		—	LT BROWN, CLAY AND SILT, TRACE glauconite, trace Black staining (Mg/Fe) No Odor, DRY		
32	S-15	100%	33					
33		2.0 / 2.0	16 / 20 / 35		—	Note: Groundwater @ 32.0'		
34	S-16	100%	50/6"					
35		1.0 / 1.0	27 / 50/6"		—			
36	S-17	100%						
37						37.0 Brown, Sand and Gravel (Basalt), trace to little Clay, Wet, Iron staining		
38	A-N							
39								
40								
41	S-18	0.6/1.0 60%	10 / 50/6"		—			
42	N							
43						43.5		
44	A-N					Weathered SILTSTONE, L. Sand, WET.		
45	S-19	0.5/0.5 100%	50/6"		—			
46								
47								
48						TERMINATION DEPTH = 47.0'		
49								
50								

DRILLING CO.: SOIL TECH BAKER REP.: J. COLP
DRILLER: JOSE MORALES BORING NO.: 9MW01 SHEET 3 OF

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: NERR-OU2-9MMW9
CTO NO.: 0277 BORING NO.: 9MW02
COORDINATES: EAST: NORTH:
ELEVATION: SURFACE: TOP OF PVC CASING:

RIG:	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
SIZE (DIAM.)	2"		3.25"/6.25" I.D.		4-11-96				
LENGTH	2'		5'						
TYPE	Std.		H.S.A.						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: DUE TO IONIZATION METER NOT AVAILABLE

SAMPLE TYPE

S = Split Spoon
T = Shelby Tube
R = Air Rotary
D = Denison
A = Auger
W = Wash
C = Core
P = Piston
N = No Sample

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
SCH 40	2"	PVC - RISER	+2.5	-24.0
.010 SLOT Sch 40	2"	PVC - SCREEN	-24.0	-44.0

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1	A-N				LT BROWN, SILT AND GRAVEL, L. SAND, T. ROOTS, DRY 0.8		
2					REDDISH ORANGE, CLAY AND SILT, trace Rock Fragments, Dry		
3		1.75/2.0	25 23 22 26	–			
4	S-1	85%			NOTE: MOTLED CLAY, RED, orange, bluish gray, Some Rock fragments.		
5		2.0/2.0	12 16 18 20	–			
6	S-2	100%					
7		1.9/2.0	8 13 18 21	–	Same as above - NOTICABLE DIESEL-LIKE ODORS.		
8	S-3	95%					
9		2.0/2.0			SAME AS ABOVE - Stronger ODORS		
10	S-4	100%					

Match to Sheet 2

DRILLING CO.: SOIL TECH BAKER REP.: J. CULP
DRILLER: JOSE MORALES BORING NO.: 9MW02 SHEET 1 OF 3

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: NSRR-OU2-JWMA-9
CTO NO.: 0277
BORING NO.: 9MW02

SAMPLE TYPE

S = Split Spoon
T = Shelby Tube
R = Air Rotary
D = Denison
A = Auger
W = Wash
C = Core
P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
PID (ppm) = Results recorded with Hnu or OVA in ppm

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab Class. or Pen. Rate	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11		2.0/2.0	-		-	Continued from Sheet 1		
12	S-5	100%				White, yellow, orange and red mottled Clay and Silt, trace to Some rock fragments		
13		2.0/2.0	—		-			
14	S-6	100%				NOTE: Changed to primarily White in color - Solvent like odors		
15		2.0/2.0	—		—			
16	S-7	100%						
17		2.0/2.0	-		—	NOTE: Odors non-existant beyond 17.0'		
18	S-8	100%						
19		2.0/2.0	—		—	NOTE: Moist		
20	S-9	100%						20.0
21		2.0/2.0	—		—	NOTE: Ground water @ 21.5'		
22	S-10	100%						22.0
23								
24	A-N							24.0
25								
26		2.0/2.0	—		-	NOTE: Purple color included in mottling		
27	S-11	100%						
28								
29	A-N							
30								

DRILLING CO.: SOIL TECH
BAKER REP.: J. Pulp
DRILLER: JOSÉ MORALES
BORING NO.: 9MW02
SHEET 2 OF

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: NERR-OU2-[illegible]
CTO NO.: 0277 BORING NO.: 9MW02

SAMPLE TYPE

S = Split Spoon
T = Shelby Tube
R = Air Rotary
D = Denison
A = Auger
W = Wash
C = Core
P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
PID (ppm) = Results recorded with Hnu or OVA in ppm

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab Class. or Pen. Rate	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
						Continued from Sheet 2		
31–32	S-12	2.0/2.0 100%	–		–	Same as above		
33–35	A-N							
36–37	S-13	2.0/2.0 100%	–		–	Same as above		
38–40	A-N							
41–42	S-14	2.0/2.0 100%	–		–	NOTE: Black organic staining (Fe/Mg), No odor		
43–44	A-N							44.0
45–47	S-15	2.0/2.0 100%	–		–	Light gray mottled Clay, little to some silt, little Rock Fragments, Damp		
48–50						TERMINATION DEPTH 45.0'		

DRILLING CO.: SOIL TECH BAKER REP.: J. CULP
DRILLER: JOSE MORALES BORING NO.: 9MW02 SHEET 3 OF

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: NERR-OU2-IWIMU 9
CTO NO.: 0277 BORING NO.: 9MW03
COORDINATES: EAST: NORTH:
ELEVATION: SURFACE: TOP OF PVC CASING:

RIG:	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
SIZE (DIAM.)	2"		3.25"/6.25" I.D.		4-15-96	47.0	Sunny, 75°F		
LENGTH	2'		5'						
TYPE	Std.		H.S.A.						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: PHOTOIONIZATION DETECTOR WAS NOT AVAILABLE

SAMPLE TYPE

S = Split Spoon
T = Shelby Tube
R = Air Rotary
D = Denison
A = Auger
W = Wash
C = Core
P = Piston
N = No Sample

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
SCH. 40	2"	PVC - RISER	+2.5	-23.0
0.010 slot Sch 40	2"	PVC - Screen	-23.0	-43.0

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1	A-N						
2					RED AND Brown mottled, Clay, little SILT, trace rock fragments, trace roots, dry		
3		1.6/2.0	-	-			
4	S-1	80%			WHITE, light brown, orange mottled, Clay, little SILT, damp		
5		1.4/2.0	-	-			
6	S-2	70%			Same as above		
7		1.65/2.0	-	-			
8	S-3	82.5%					
9		1.8/2.0	-	-	NOTE: Trace black (Mg/Fe) staining - no odors		
10	S-4	90%					

Match to Sheet 2

DRILLING CO.: SOIL TECH BAKER REP.: J. CULP
DRILLER: JOSE MORALES BORING NO.: 9MW03 SHEET 1 OF 2

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: NCRR-OU2-[illegible]
CTO NO.: 0277 BORING NO.: 9MW03

SAMPLE TYPE

S = Split Spoon
T = Shelby Tube
R = Air Rotary
D = Denison
A = Auger
W = Wash
C = Core
P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
PID (ppm) = Results recorded with Hnu or OVA in ppm

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab Class. or Pen. Rate	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
						Continued from Sheet		
11		2.0/2.0	—		—	White, Light brown, orange mottled, Clay, Some Silt, Little rock fragments, Damp		
12	S-5	100%						
13		2.0/2.0	—		—			
14	S-6	100%				SAME AS ABOVE		
15		1.6/2.0	—		—	15.4'		
16	S-7	80%				Light brown, SILT, Little Clay (Grey), Damp to dry, black staining (Fe/Mg) - No odor		
17		1.8/2.0	—		—			16.5
18	S-8	90%				NOTE: CLAY Content decreased, orange/brn mottled.		
19		1.9/2.0	—		—	NOTE: GROUNDWATER @ 19.0'		18.5
20	S-9	45%	10 50/6"			19.8' dense		
21		1.5/2.0	11 17		—	WHITE AND BROWN MOTTLED, CLAY AND SILT, WET, BLACK (MG/Fe) staining		
22	S-10	87.5%	22 27					
23								23.0
24								
25						NOTE: SILT CONTENT DECREASING, TRACE ROCK FRAGMENTS		
26		2.0/2.0	—		—			
27	S-11	100%						
28								
29								
30								

DRILLING CO.: SOILTECH BAKER REP.: J. CULP
DRILLER: JOSE MORALES BORING NO.: 9MW03 SHEET 2 OF 3

Baker

Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: [illegible]

CTO NO.: 0277 BORING NO.: 9MW03

SAMPLE TYPE

S = Split Spoon
T = Shelby Tube
R = Air Rotary
D = Denison
A = Auger
W = Wash
C = Core
P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
PID (ppm) = Results recorded with Hnu or OVA in ppm

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab Class. or Pen. Rate	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
						Continued from Sheet 2		
31		0.5/1.0	26 50/6"		—	WHITE AND BROWN, ~~CLAY AND~~ SILT, trace ROCK Fragments, WET, BLACK Staining (Mg/Fe).		
32	S-12	50%						
33								
34								
35	A-N							
36		1.65/2.0	15 35 43		—	NOTE: Rock Fragments And Sand Content increasing		
37	S-13	67.5%	50/5"					
38						38.5		
39	A-N							
40								
41		0.3/0.5	50/4"		—	Brown, SILT, Some Sand, Little weathered rock, Wet.		
42	S-14	60%						
43						43.5		43.0
44	A-N							
45								
46		1.0/1.0	31 50/4"		—	BROWN, SILT and Clay, Trace Rock fragments, Damp to Moist		
47	S-15	100%						
48						TERMINATION DEPTH 47.0'		
49								
50								

DRILLING CO.: SOIL TECH BAKER REP.: J. COLP

DRILLER: JOSÉ MORALES BORING NO.: 9MW03 SHEET 3 OF

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: NCRR-OU2-SWMU9
CTO NO.: 0277 BORING NO.: 9MW04
COORDINATES: EAST: NORTH:
ELEVATION: SURFACE: TOP OF PVC CASING:

RIG:	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
SIZE (DIAM.)	2"		3.25"/6.25" I.D.		4/19/96	37.0'	Sunny ~85°F	13.0	—
LENGTH	2'		5'						
TYPE	Std.		H.S.A.						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: PHOTOIONIZATION DETECTOR NOT AVAILABLE

SAMPLE TYPE

S = Split Spoon
T = Shelby Tube
R = Air Rotary
D = Denison
A = Auger
W = Wash
C = Core
P = Piston
N = No Sample

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1	A-N						
2					Stiff Brown, CLAY, little silt, trace rock fragments, trace roots, Dry, Fe/Mg staining		
3		1.6/2.0	3 4 4 5				
4	S-1	80%			4.5		
5		1.3/2.0	8 16 12 29		Medium dense to dense Brown, SILT, trace sand, Dry, Fe/Mg staining.		
6	S-2	65%			NOTE: Vertical Soil Fractures filled w/ Grey Clay.		
7		0.85/1.0	32 50/4"		NOTE Trace Rock Fragments		
8	S-3	85%			8.0		
9		0.85/1.0	42 50/6"	USCS CLASS. GC	ROCK FRAGMENTS, SOME SILTY SAND, TRACE CLAY, BROWN, V. DENSE, DRY		
10	S-4	85%			Match to Sheet 2		

DRILLING CO.: SOIL TECH BAKER REP.: J. CULP / K. TUA
DRILLER: JOSÉ MORALES BORING NO.: 9MW04 SHEET 1 OF 3

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: NSRR-OU2-JWMU9
CTO NO.: 0277 BORING NO.: 9MW04

SAMPLE TYPE

S = Split Spoon
T = Shelby Tube
R = Air Rotary
D = Denison
A = Auger
W = Wash
C = Core
P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
PID (ppm) = Results recorded with Hnu or OVA in ppm

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab Class. or Pen. Rate	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11		2.0 / 2.0	22 33 29 50/6"		–	Continued from Sheet 1 Medium dense - coarse, brown, SILT, little rock fragments, trace sand, dry:		
12	S-5	100%						
13		1.1 / 1.5	35 42 50/6"		–	NOTE: Groundwater at 13.0' bgs		
14	S-6	73%						
15		0.5 / 0.5	50/5"		–			
16	S-7	100%						
17		0.85 / 1.00	41 50/3"		–			
18	S-8	85%				NOTE: Moisture decreasing to damp		
19	A-N							
20								
21		0.4 / 0.5	50/6"		–	NOTE: Moist to damp. Increasing percentage		
22	S-9	80%						
23								
24	A-N							
25								
26		0.3 / 0.5	50/3"			SAME AS ABOVE		
27	S-10	60%						
28								
29	A-N							
30								

DRILLING CO.: SOIL TECH BAKER REP.: J. CULP
DRILLER: JOSE MORALES BORING NO.: 9MW04 SHEET 2 OF:

Baker

Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: NORK-OU2-SMWM9

CTO NO.: 0237 BORING NO.: 9MW04

SAMPLE TYPE

S = Split Spoon
T = Shelby Tube
R = Air Rotary
D = Denison
A = Auger
W = Wash
C = Core
P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
PID (ppm) = Results recorded with Hnu or OVA in ppm

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab Class. or Pen. Rate	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31		1.0 / 1.0	39 50/5"		–	Continued from Sheet Dense to V. Dense, brown Silt, Some Sand, little Rock Fragments, moist to wet, Dense Mg Sto mng.		
32	S-11	100%						
33								
34	A-N							
35								
36		0.5 / 0.5	50/6"		—	NOTE: Dry		
37	S-12	100%						
38						TERMINATION Depth 37.0'		
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								

DRILLING CO.: SOIL TECH BAKER REP.: J. CULP

DRILLER: JOSÉ MORALES BORING NO.: 9MW04 SHEET 3 OF

APPENDIX C.2
TEST BORING AND WELL CONSTRUCTION RECORDS - PHASE II

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	Roosevelt Roads SWMU 9 - Tanks 212 - 217			
CTO NO.:	62470-277		BORING NO.:	9-MW02N
COORDINATES:	EAST:	779470.71	NORTH:	7151139.58
ELEVATION:	SURFACE:	109.90	TOP OF PVC CASING:	111.89

RIG: Mobile B-90 Truck Mounted	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	3"		3.25"		9/21/97	22	Clear Hi 80's	10.0
Length	2.0'		5.0'					
Type	STD		HSA					
Hammer Wt.	140 lb.							
Fall	30"							

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
PVC	2"	-2.5	10.0
PVC 0.010	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1, 2	S-1	1.3 / 2.0	4, 7, 9, 11		0.2/0.2	Fill material. Rxs. F.G. sand. Some clay. Lt. Brn. Dry.		
3, 4	S-2	0.9 / 2.0	11, 15, 17, 19		0.2/0.2	Lt. Brn. clay. Little pieces of Rx. Damp.		
5, 6	S-3	0.8 / 2.0	14, 17, 15, 17		0.2/0.2	Lt. Brn. clay. Trace Rx. Damp.	6.0	103.90
7, 8	S-4	1.1 / 2.0	10, 16, 16, 16		0.2/0.2	Mottled Lt. Reddish Brn. and Gray clay moist.	8.0	101.90
9, 10	S-5		11, 14, 16, 15	05		Mottled Lt. Reddish Brn. & Gray clay moist wet @ end. Water @ 10.0' some blk.	10.0	99.90
						Match to Sheet 2		

DRILLING CO.:	Soil Tech	BAKER REP.:	J. Tepsic
DRILLER:	Jorge' Diaz	BORING NO.:	9-MW02N SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Roosevelt Roads SWMU 9 - Tanks 212 - 217

CTO NO.: 62470-277 BORING NO.: 9-MW02N

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
		2.0	17			Continued from Sheet 1		
11	S-6	2.0	18			Lt. Brn. mottled gray/green		
	1428		17			moist.		
12		100%	20					
13								
	A-N							
14								
15								
		2.0	2			Lt. Brn. mottled Gray clay.		
16	S-7	2.0	4			Little silt. Moist.		
	1453		8					
17		100%	10					
18								
	A-N							
19								
20							20.0	89.90
		2.0	3			Lt. Brn. clay & silt. Blk. staining		
21	S-8	2.0	5			along water paths. (Fe/mg)		
	1518		8			Relict Features Pres. Moist.		
22		100%	14				22.0	87.90
23						TD= 22'		
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Soil Tech BAKER REP.: J. Tepsic

DRILLER: Jorge' Diaz BORING NO.: 9-MW02N SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	Roosevelt Roads	SWMU 9 - Tanks 212 - 217		
CTO NO.:	62470-277		BORING NO.:	9-MW02R
COORDINATES:	EAST:	779290.15	NORTH:	9150691.89
ELEVATION:	SURFACE:	109.81	TOP OF PVC CASING:	111.68

RIG: Mobile B-90 Truck Mounted								
	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	3"		3.25		9/21/97	17	Clear Hi 80's	
Length	2.0		5.0'		9/22/97	22		
Type	STD		H.S.A.					
Hammer Wt.	140 lb.							
Fall	30"							

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
PVC	2"	-2.5	10.0
PVC 0.010	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1 1555				0.2/0.2	Fill Mat. F.G. Sand w/ Rxs. Dry.		
2								
3	S-2 1600				0.2/0.2	Fill Mat. same as above. At btm. of sample. Red/Brn clay (Nat. Mat.) Fill is about 3.5' to 4.0' thick Dry.		
4								
5	S-3 1618				0.2/0.2	Reddish Brn. clay & Silt Dry.		
6							6.0	103.81
7	S-4 1635				0.2/0.2	Mottled Reddish Brn. gray yellow clay & silt Damp.		
8							8.0	101.81
9	S-5 1649			05	75	Mottled Reddish Brn. gray clay & silt Damp to moist slt.Petrol. odor.		
10							10.0	99.81
						Match to Sheet 2		

DRILLING CO.:	Soil Tech	BAKER REP.:	J. Tepsic	
DRILLER:	Jorge' Diaz	BORING NO.:	9-MW02R	SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Roosevelt Roads SWMU 9 - Tanks 212 - 217

CTO NO.: 62470-277 BORING NO.: 9-MW02R

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
		1.6	22			Continued from Sheet 1		
11		2.0	24			Can smell Petroleum odor from		
	S-6		29		100	borehole- 100 ppm from borehole		
12	1704	80%	24					
						10'-12'		
13					100	Mottled Reddish Brn. gray clay		
						& silt. Moist Pet. odor (old		
14				06		gasoline???)		
15								
		1.5	6					
16	S-7	2.0	9		100	Same descrip. as above odor is		
	1716		13			more that of solvent than		
17		75%	16			petroleum.		
18								
						HNU readings on soil cuttings		
19						20-50 ppm.		
20							20.0	89.81
		2.0	2					
21	S-8	2.0	6		20-50	Mottled Reddish Brn. clay little		
	0810		6			to some silt. moist.		
22		100%	9				22.0	87.81
23						TD = 22'		
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Soil Tech BAKER REP.: J. Tepsic

DRILLER: Jorge' Diaz BORING NO.: 9-MW02R SHEET 2 OF 2

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	Roosevelt Roads SWMU 9 - Tanks 212 - 217		
CTO NO.:	62470-277	BORING NO.:	9-MW02S
COORDINATES:	EAST: 779468.40	NORTH:	8150269.05
ELEVATION:	SURFACE: 109.76	TOP OF PVC CASING:	112.42

RIG: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	3"		3.25		9/21/97	0-20	90's Humid	Dry
Length	2'		5'		9/21/97	--	90's Humid	11.8
Type	SS		HS					
Hammer Wt.	140 lb.							
Fall	30"							

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
PVC Threaded	2"	-2.5	11.0
PVC Slotted 0.010	2"	11.0	21.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	S-1	2.0 / 2.0	10 29 24 22		0	Gravel, some silt, slightly weathered Basalt, dry, dense.			
2									
3	S-2	2.0 / 2.0	17 24 34 28		0	Gravel, some silt, slightly weathered to fresh Basalt, dry, dense.			
4									
5	S-3	1.2 / 2.0	19 31 21 13		0	Gravel, some silt, slightly weathered to fresh Basalt, dry to damp, dense.	Top of Bentonite	5.0	104.76
6									
7	S-4	1.0 / 2.0	16 15 14 21		0	Silt and clay, brown, black, grey, red, damp, stiff, little gravel Basalt fragments, mottled.	Top of Sand	7.5	102.26
8									
9	S-5	1.5 / 2.0	6 7 9 10	05	0	Clay, some silt, moist, mottled, brown, red, grey, medium stiff.			
10									
						Match to Sheet 2			

DRILLING CO.:	Soil Tech	BAKER REP.:	Brian E. Davis
DRILLER:	Jorge' Diaz	BORING NO.:	9-MW02S

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Roosevelt Roads SWMU 9 - Tanks 212 - 217

CTO NO.: 62470-277 BORING NO.: 9-MW02S

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
			6			Continued from Sheet 1		
11	S-6	2.0	4		0	Clay, some silt, mottled,	11.0	98.76
		2.0	4			brown, grey, red, moist to wet,		
12			2			medium stiff to soft.		
			2			Clay, some silt, mottled, brown,		
13	S-7	2.0	6		0	red, grey, little decomposed		
		2.0	8			Basalt, stiff to soft, wet zone		
14			14			12.5-13.0 FT.		
			6					
15	S-8	2.0	11			Clay, little silt, mottled, brown,		
		2.0	12			red, grey, little decomposed		
16			21			Basalt stiff, moist.		
17								
18	A-N							
19								
20								
			5			Clay, little silt, mottled, brown,		
21	S-9	2.0	5			red, grey, trace decomposed	21.0	88.76
		2.0	8			Basalt, stiff wet.		
22			8				22.0	87.76
23						End of boring @ 20.0		
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Soil Tech BAKER REP.: Brian E. Davis

DRILLER: Jorge' Diaz BORING NO.: 9-MW02S SHEET 2 OF 2

APPENDIX C.3
TEST BORING AND WELL CONSTRUCTION RECORDS – PHASE III

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III RFI, Naval Station Roosevelt Roads
CTO NO.: 26007-099 BORING NO.: 9-02R-HP10

SAMPLE TYPE
S = Macro Core Sampler A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
11		D-N	--	--	--	--				
12	12.0						12.0		12.0	90.85
							BOH @ 12.0 feet			
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

DRILLING CO.: Inland Pollution Services Inc. BAKER REP.: Dave Schilling
DRILLER: Pedro J. Perez Quintero BORING NO.: 9-02R-HP10 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III RFI, Naval Station Roosevelt Roads		
CTO NO.:	26007-099	BORING NO.:	9-02R-HP10
COORDINATES:	EAST: 779,487.6131	NORTH:	150,662.9720
ELEVATION:	SURFACE: 102.85	TOP OF PVC CASING:	None

Rig: Geoprobe	Sm Core Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	--	--	--	6/26/1999	0.0 - 12.0 ft.	Sunny and hot	2.6
Length	2-ft.	--	--	--				
Type	Geoprobe	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks: Sample prefix is 9-02R-HP10

SAMPLE TYPE

S = Macro Core Sampler S1 = Large Core Sampler
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Sch 40 PVC Riser	1"	0	2.0
Sch 40 PVC, 10-Slot Screen	1"	2.0	12.0

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1										
2		S-1	4.0 100%	--	01	0	CLAY, some sand; damp; brown with orange staining		2.0	100.85
3										
4	4.0						3.4			99.45
5										
6		S-2	4.0 100%	--		0	CLAY; lt brown becoming brown w/ orange staining; moist to wet			
7										
8	8.0									
9		D-N	--	--	--	--				
10							Match to Sheet 2			

DRILLING CO.:	Inland Pollution Services Inc.	BAKER REP.:	Dave Schilling
DRILLER:	Pedro J. Perez Quintero	BORING NO.:	9-02R-HP10 SHEET 1 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III RFI, Naval Station Roosevelt Roads
CTO NO.: 26007-099 BORING NO.: 9-02R-HP11
COORDINATES: EAST: 779,131.1554 NORTH: 150,813.2869
ELEVATION: SURFACE: 107.48 TOP OF PVC CASING: None

Rig: Geoprobe	Sm Core Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	--	--	--	6/26/1999	0.0 - 18.0 ft.	Sunny and hot	8.4
Length	2-ft.	--	--	--				
Type	Geoprobe	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks: Sample prefix is 9-02R-HP11

SAMPLE TYPE
S = Macro Core Sampler A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Sch 40 PVC Riser	1"	0	8.0
Sch 40 PVC, 10-Slot Screen	1"	8.0	18.0

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1							CLAY, some fine sand; brown; damp		
							1.5		105.98
2		S-1	4.0 100%	--		0			
3									
4	4.0								
5									
6		S-2	4.0 100%	--		0	CLAY; mottled orangish-brown & gray; damp		
7									
8	8.0							8.0	99.48
9		S-3	4.0 100%	--		0			
10							Match to Sheet 2		

DRILLING CO.: Inland Pollution Services Inc. BAKER REP.: Dave Schilling
DRILLER: Pedro J. Perez Quintero BORING NO.: 9-02R-HP11 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III RFI, Naval Station Roosevelt Roads

CTO NO.: 26007-099 BORING NO.: 9-02R-HP11

SAMPLE TYPE

S = Macro Core Sampler A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11							Continued from Sheet 1 11.0		96.48
12	12.0								
13									
14		S-4	2.4 60%		01	0	CLAY, some gravel; brown; moist		
15									
16	16.0								
17		D-N	--	--	--	--			
18	18.0						18.0	18.0	89.48
19							BOH @ 18.0 feet		
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

DRILLING CO.: Inland Pollution Services Inc. BAKER REP.: Dave Schilling

DRILLER: Pedro J. Perez Quintero BORING NO.: 9-02R-HP11 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III RFI, Naval Station Roosevelt Roads
CTO NO.: 26007-099 BORING NO.: 9-02R-HP12
COORDINATES: EAST: 779,160.0346 NORTH: 150,541.3569
ELEVATION: SURFACE: 105.63 TOP OF PVC CASING: None

Rig: Geoprobe	Sm Core Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	--	--	--	6/26/1999	0.0 - 18.0 ft.	Sunny and hot	7.32
Length	2-ft.	--	--	--				
Type	Geoprobe	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE
S = Large Core Sampler A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Sch 40 PVC Riser	1"	0	8.0
Sch 40 PVC, 10-Slot Screen	1"	8.0	18.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 2.0	S-1	2.0 100%			0	CLAY; lt gray w/ orangsih brown staining; damp		
3 – 4.0	S-2	2.0 100%			0			
5 – 6.0	S-3	1.4 70%			0			
7 – 8.0	S-4	2.0 100%			0		8.0	97.63
9 – 10.0	S-5	2.0 100%			0	moist		
						Match to Sheet 2		

DRILLING CO.: Inland Pollution Services Inc. BAKER REP.: Dave Schilling
DRILLER: Pedro J. Perez Quintero BORING NO.: 9-02R-HP12 SHEET 1 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III RFI, Naval Station Roosevelt Roads
CTO NO.: 26007-099 BORING NO.: 9-02R-HP12

SAMPLE TYPE
S = Large Core Sampler A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
11		S-6	2.0 100%			0	Continued from Sheet 1 damp			
12	12.0									
13		S-7	2.0 100%			0				
14	14.0									
15		S-8	2.0 100%			0				
16	16.0									
17		S-9	2.0 100%			0	Wet, water at 16'			
18	18.0						18.0		18.0	87.63
19							BOH @ 18.0 feet			
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

DRILLING CO.: Inland Pollution Services Inc. BAKER REP.: Dave Schilling
DRILLER: Pedro J. Perez Quintero BORING NO.: 9-02R-HP12 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation		
CTO NO.:	26007-099	BORING NO.:	9-A02-HP01
COORDINATES:	EAST: 778,691.8448	NORTH:	150,745.4469
ELEVATION:	SURFACE: 112.46	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/22/1999	0.0 - 18.0	M. Sunny, High 80s	>18.0
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	8.0
Schedule 40 PVC 10-Slot Screen	1-in.	8.0	18.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4 / 4.0	N-D	NA					
5				CL	Sandy clay. Hard. Light brown, green \black flecks. Dry; no odor.		
6 / 6.0	D	2.0 100.0%					
7							
8							
9			—				
10 / 10.0	N-D	NA					
					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-A02-HP01 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02-HP01

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11		D	2.0 100.0%			Same. Color change to green\white at 11.25 ft.		
12	12.0							
13				—				
14	14.0	N-D	NA					
15			2.0 100.0%	—	CL	Color change to brown\white at 14.25 ft.		
16	16.0	D						
17			2 100.0%			Moist at 18.0 ft.		
18	18.0	D					18.0	
19						End of boring = 18.0 ft.		
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02-HP01 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation		
CTO NO.:	26007-099	BORING NO.:	9-A02-HP02
COORDINATES:	EAST: 778,639.2205	NORTH:	150,692.2488
ELEVATION:	SURFACE: 109.76	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/22/1999	0.0 - 18.0	M. Sunny, High 80s	16.9
Length	4-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Macro Sampler P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	5.5
Schedule 40 PVC 10-Slot Screen	1-in.	5.5	15.5

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0					Top soil; roots, plant material from 0.0 to 0.167'.		
1				CL	Silty to sandy clay. Hard. Brown with white; dry.		
2							
3							
4 / 4.0	D	4.0 100.0%	--				
5				CL	Sandy clay. Hard. Green/white; dry to 7.8'. Moist from 7.8' to 8.0'. Petroleum odor present from 7.8' to 8.0'.		
6							
7							
8 / 8.0	D	4.0 100.0%					
9			—				
10					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-A02-HP02 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02-HP02

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11					Dry; no odor		
	D	3.5		CL			
12	12.0	87.5%					
13			—		Dry; no odor to 13 ft. Moist with petroleum odor from 13 to 14.1 ft.		
14							
15	D	2.0	—	CL		15.5	
		50.0%					
16	16.0						
17	D				Dry; no odor. Brown/white; green\white.		
		2			Fine sand. Dry; no odor. Brown\white from 17.8 to 18.0 ft.		
18	18.0	100.0%					
					End of boring = 18.0 ft.		
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02-HP02 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation		
CTO NO.:	26007-099	BORING NO.:	9-A02-HP03
COORDINATES:	EAST: 778.696.9937	NORTH:	150,849.5054
ELEVATION:	SURFACE: 108.71	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/25/1999	0.0 - 18.0	M. Sunny, High 80s	9.63
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	8.0
Schedule 40 PVC 10-Slot Screen	1-in.	8.0	18.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4							
5							
6	6.0	N-D	NA				
7				CL	Clay, little black sand sized minerals. Clay is brown/white, dry, no odor.		
8	8.0	D	1.6 80.0%				
9			—				
10					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-A02-HP03 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02-HP03

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11								
12	12.0	N-D	NA					
13				—	CL	Sandy clay, some coarse sand. Dry; no odor.		
14	14.0	D	2.0 100.0%					
15				—				
16	16.0	N-D	NA					
17								
18	18.0	D	1.6 80.0%					
19						End of boring = 18.0 ft.		
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02-HP03 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation		
CTO NO.:	26007-099	BORING NO.:	9-A02-HP04
COORDINATES:	EAST: 778,585.2131	NORTH:	150,815.8872
ELEVATION:	SURFACE: 106.94	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/25/1999	0.0 - 16.0	M. Sunny, High 80s	7.78
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	10.5
Schedule 40 PVC 10-Slot Screen	1-in.	10.5	15.5

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4 4.0	N-D	NA					
5				CL	Sandy clay. Firm. Brown\white some black coarse sand sized fragments. Dry; no odor.		
6 6.0	D	2.0 100.0%					
7							
8							
9			—				
10 10.0	N-D	NA					
					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-A02-HP04 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02-HP04

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Sandy clay, little gravel. White, green.		
			2.0		CL	Moist; no odor.		
12	12.0	D	100.0%					
13				—				
14	14.0	N-D	NA					
15				—		Clayey sand, little gravel. Wet; no odor.		
			2.0		SC			
16	16.0	D	100.0%					
17						End of boring = 16.0 ft.		
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02-HP04 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation
CTO NO.: 26007-099 BORING NO.: 9-A02-HP05
COORDINATES: EAST: 778,541.0454 NORTH: 150,682.4069
ELEVATION: SURFACE: 105.74 TOP OF PVC CASING: NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/25/1999	0.0 - 12.0	M. Sunny, High 80s	6.90 ft.
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	0.0
Schedule 40 PVC 10-Slot Screen	1-in.	0.0	10.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4 4.0	N-D	NA					
5				CL	Clay and sand. Soft. Brown with black fragments. Iron staining surrounding fragments. No odor.		
6 6.0	D	1.0 50.0%					
7							
8							
9			—				
10 10.0	N-D	NA					
					Match to Sheet 2		

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney
DRILLER: Domingo BORING NO.: 9-A02-HP05 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02-HP05

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Strong petroleum odor from 10 - 11 ft.		
			2.0		CL	Saturated from 10 to 12 ft.		
12	12.0	D	100.0%			Borehole collapsed to 10 ft. at completion.		
						End of boring = 12.0 ft.		
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02-HP05 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation		
CTO NO.:	26007-099	BORING NO.:	9-A02R-HP01
COORDINATES:	EAST: 779,262.2470	NORTH:	150,736.9874
ELEVATION:	SURFACE: 109.18	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/22/1999	0.0 - 12.0	M. Sunny, High 80s	>12.0
Length	2-ft.	--	--	--	06/23/1999	12.0 - 13.0	M. Sunny, High 80s	>13.0
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	8.0
Schedule 40 PVC 10-Slot Screen	1-in.	8.0	13.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4	4.0	N-D	NA				
5				CL	Silty clay. Firm. Dry; no odor. Brown with red staining, blue green patches.		
6	6.0	D	2.0 100.0%				
7							
8							
9			—				
10	10.0	N-D	NA				
					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-A02R-HP01 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02R-HP01

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11		D	2.0 100.0%		CL	Same. Stiff. Collected sample for lab analysis from 10 to 12 ft. (9-02R-HP01)		
12	12.0							
13	13.0	N-D	NA					
						End of boring = 13.0 ft		
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02R-HP01 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation			
CTO NO.:	26007-099		BORING NO.:	9-A02R-HP02
COORDINATES:	EAST:	779,337.6594	NORTH:	150,674.5623
ELEVATION:	SURFACE:	105.97	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/23/1999	0.0 - 12.0	M. Sunny, High 80s	8.79 ft.
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	2.0
Schedule 40 PVC 10-Slot Screen	1-in.	2.0	12.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4							
5							
6 6.0	N-D	NA					
7					Clay. Plastic. Firm. White, brown with orange staining. Black spots with iron staining. Dry; no odor.		
8 8.0	D	2.0 100.0%		CH			
9			—				
10 10.0	N-D	NA					
					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-A02R-HP02 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02R-HP02

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Collect sample 9-02R-HP02, dup,		
			2.0		CH	MS/MSD, here.		
12	12.0	D	100.0%					
						End of boring = 12.0 ft		
13				—				
14								
15				—				
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02R-HP02 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation		
CTO NO.:	26007-099	BORING NO.:	9-A02R-HP03
COORDINATES:	EAST: 779,281.1892	NORTH:	150,643.0177
ELEVATION:	SURFACE: 109.26	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/22/1999	0.0 - 12.0	M. Sunny, High 80s	>12.0
Length	2-ft.	--	--	--	06/23/1999	12.0 - 14.0	M. Sunny, High 80s	>14.0
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	9.0
Schedule 40 PVC 10-Slot Screen	1-in.	9.0	14.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4							
5							
6							
7 7.0	N-D	NA					
8				CH	Clay. Highly plastic. Soft. White with iron staining.		
9 9.0	D	2.0 100.0%					
10 10.0	N-D	NA					
					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-A02R-HP03 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02R-HP03

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11			2.0		CH	Same. Color reddish brown with white patches.		
12	12.0	D	100.0%			Collect sample 9-02R-HP03 here.		
13				—				
14	14.0	N-D	NA					
15				—		End of boring = 14.0 ft		
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02R-HP03 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation
CTO NO.: 26007-099 BORING NO.: 9-A02R-HP04
COORDINATES: EAST: 779,361,8655 NORTH: 150,73.4876
ELEVATION: SURFACE: 106.5 TOP OF PVC CASING: NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/23/1999	0.0 - 12.0	M. Sunny, High 80s	11.99 ft.
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	7.0
Schedule 40 PVC 10-Slot Screen	1-in.	7.0	12.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4	4.0	N-D	NA				
5				CL	Clay. Firm. White with red/brown spots. Dry; no odor.		
6	6.0	D	2.0 100.0%				
7							
8							
9			—				
10	10.0	N-D	NA				
					Match to Sheet 2		

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney
DRILLER: Domingo BORING NO.: 9-A02R-HP04 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02R-HP04

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11					Collect sample 9-02R-HP04 here.		
12	12.0 D	2.0 100.0%		CL			
					End of boring = 12.0 ft		
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02R-HP04 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation
CTO NO.: 26007-099 BORING NO.: 9-A02R-HP05
COORDINATES: EAST: 779,354.4203 NORTH: 150,608.8998
ELEVATION: SURFACE: 104.67 TOP OF PVC CASING: NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/23/1999	0.0 - 12.0	M. Sunny, High 80s	9.53
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	2.0
Schedule 40 PVC 10-Slot Screen	1-in.	2.0	12.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4	4.0	N-D	NA				
5				CL	Clay. Firm. White with red/brown spots. Dry; no odor.		
6	6.0	D	2.0 100.0%				
7							
8							
9			—				
10	10.0	N-D	NA				
					Match to Sheet 2		

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney
DRILLER: Domingo BORING NO.: 9-A02R-HP05 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02R-HP05

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11					Collect sample 9-02R-HP05 here.		
		2.0		CL			
12	12.0 D	100.0%					
					End of boring = 12.0 ft		
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02R-HP05 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation		
CTO NO.:	26007-099	BORING NO.:	9-A02R-HP06
COORDINATES: EAST:	779,190.0920	NORTH:	150,686.1523
ELEVATION: SURFACE:	109.83	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/23/1999	0.0 - 12.0	M. Sunny, High 80s	dry
Length	2-ft.	--	--	--	6/25/1999	12.0 - 18.0	M. Sunny, High 80s	17.56
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	8.0
Schedule 40 PVC 10-Slot Screen	1-in.	8.0	18.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4	4.0	N-D	NA				
5				CL	Clay. Soft. White with re/brown spots. Dry; no odor.		
6	6.0	D	2.0 100.0%				
7							
8							
9			—				
10	10.0	N-D	NA				
					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-A02R-HP06 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02R-HP06

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Collect sample 9-02R-HP06 here.		
			2.0		CL			
12	12.0	D	100.0%					
13				—				
14								
15				—				
16								
17								
18	18.0	N-D	NA					
						End of boring = 18.0 ft		
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02R-HP06 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation		
CTO NO.:	26007-099	BORING NO.:	9-A02R-HP07
COORDINATES: EAST:	779,376.0790	NORTH:	150,883.2623
ELEVATION: SURFACE:	106.13	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/23/1999	0.0 - 16.0	M. Sunny, High 80s	7.02 ft.
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	6.0
Schedule 40 PVC 10-Slot Screen	1-in.	6.0	16.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4	4.0	N-D	NA				
5				CL	Clay. Soft. White with red/brown spots (iron staining). Moist; no odors.		
6	6.0	D	2.0 100.0%				
7							
8							
9							
10	10.0	N-D	NA				
					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-A02R-HP07 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02R-HP07

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Collect sample 9-02R-HP07 here.		
			2.0		CL			
12	12.0	D	100.0%					
13								
14								
15								
16	16.0	N-D	NA					
						End of boring = 16.0 ft		
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02R-HP07 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation
CTO NO.: 26007-099 BORING NO.: 9-A02R-HP08
COORDINATES: EAST: 779,358.1537 NORTH: 150,508.9418
ELEVATION: SURFACE: 109.47 TOP OF PVC CASING: NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/23/1999	0.0 - 12.0	M. Sunny, High 80s	
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing			
Schedule 40 PVC 10-Slot Screen			

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4	4.0	N-D	NA				
5				CL	Clay, little fine gravel. Soft. Brown with red spots (iron staining). Dry; no odor.		
6	6.0	D	2.0 100.0%				
7							
8							
9							
10	10.0	N-D	NA				
					Match to Sheet 2		

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney
DRILLER: Domingo BORING NO.: 9-A02R-HP08 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02R-HP08

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11					Same. Grey. Moist to wet. No iron staining. Collected sample 9-02R-HP08 here. Could not set well screen or casing due to borehole collapse.		
12	12.0	D	1.0 50.0%	CL			
13					End of borehole = 12.0 ft.		
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02R-HP08 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation			
CTO NO.:	26007-099		BORING NO.:	9-A02R-HP09
COORDINATES:	EAST:	779,099.6837	NORTH:	150,651.2800
ELEVATION:	SURFACE:	110.62	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/23/1999	0.0 - 18.0	M. Sunny, High 80s	16.27 ft.
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	8.0
Schedule 40 PVC 10-Slot Screen	1-in.	8.0	18.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4 / 4.0	N-D	NA					
5				CL	Clay. Firm. Brown with black spots. Dry; no odor.		
6 / 6.0	D	2.0 100.0%					
7							
8							
9			—				
10 / 10.0	N-D	NA					
					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-A02R-HP09 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-A02R-HP09

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Same. Soft.		
			2.0		CL			
12	12.0	D	100.0%					
13				—				
14	14.0	N-D	NA					
15				—	CL	Same. Moist at 15.0 ft. Collect sample 9-02R-HP09 here.		
			2.0					
16	16.0	D	100.0%					
17					SC	Sandy clay and pebbles. Brown. Wet at 17.0 ft.		
			2.0					
18	18.0	D	100.0%					
19						End of boring = 18.0 ft.		
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-A02R-HP09 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III RFI, Naval Station Roosevelt Roads

CTO NO.: 26007-099 BORING NO.: 9-B05-HP01

COORDINATES: EAST: 779,474.9006 NORTH: 151,644.5240

ELEVATION: SURFACE: 107.55 TOP OF PVC CASING: None

Rig: Geoprobe	Sm Core Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	--	--	--	6/24/1999	0.0 - 12.0 ft.	Sunny and hot	6.86
Length	2-ft.	--	--	--				
Type	Geoprobe	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks: Sample prefix is 9-B05-HP01

SAMPLE TYPE

S = Large Core Sampler A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Sch 40 PVC Riser	1"	0	2.0
Sch 40 PVC, 10-Slot Screen	1"	2.0	12.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	2.0 100%		01	0	CLAY, some fine sand, trace fine gravel; brown; damp		
2 2.0							2.0	105.55
3	D-N	--	--	--	--			
4 4.0								
5	S-2	2.0 100%			0	5.0		102.55
6 6.0						COARSE SAND, some gravel; greenish-brown; damp; petro. odor		
7	D-N	--	--	--	--			
8 8.0						8.0		99.55
9	S-3	2.0 100%		02	0	FINE SAND, some clay; brown; damp 9.0		98.55
10 10.0						COARSE SAND, some gravel; greenish-brown; damp; petro. odor Match to Sheet 2		

DRILLING CO.: Inland Pollution Services Inc. BAKER REP.: Dave Schilling

DRILLER: Pedro J. Perez Quintero BORING NO.: 9-B05-HP01 SHEET 1 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III RFI, Naval Station Roosevelt Roads
CTO NO.: 26007-099 BORING NO.: 9-B05-HP01

SAMPLE TYPE
S = Large Core Sampler A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continued from Sheet 1		
12 12.0	D-N	--	--	--	--	12.0	12.0	95.55
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services Inc. BAKER REP.: Dave Schilling
DRILLER: Pedro J. Perez Quintero BORING NO.: 9-B05-HP01 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III RFI, Naval Station Roosevelt Roads
CTO NO.: 26007-099 BORING NO.: 9-B05-HP02
COORDINATES: EAST: 779,531.3978 NORTH: 151,628.2062
ELEVATION: SURFACE: 112.13 TOP OF PVC CASING: NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	--	--	--	6/24/1999	0.0 - 20.0	M. Sunny, Low 90s	12.0
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE
S = Large Core Sampler A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	11.0
Schedule 40 PVC 10-Slot Screen	1-in.	11.0	16.0

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	Lab ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1								
2								
3		D-N	--	--	--			
4								
5								
6	6.0							
7		S-1	1.5 75%	--	--	SILT, trace clay; brown, tan & white; damp; blue-gray/green staining & petro. odor from 7.5 - 8.0 ft.		
8	8.0							
9		S-2	0.8 40%	340.0 / 5.0	--	As above, but entirely stained w/ strong odor		
10	10.0							

Match to Sheet 2

DRILLING CO.: Inland Pollution Services BAKER REP.: Mark DeJohn/Dave Schilling
DRILLER: Domingo Gonzales BORING NO.: 9-B05-HP02 SHEET 1 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III RFI, Naval Station Roosevelt Roads
CTO NO.: 26007-099 BORING NO.: 9-B05-HP02

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	Lab ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continued from Sheet 1		
12	12.0	S-3	1.4 70%	--	--	As above, stained w/ odor, little f/c sand @ 11.5 ft; wet at 12 ft.		
13								
14		D-N	--	--	--			
15							15.0	
16	16.0							
17		S-6	1.7 85%	0.0 0.0	--	C SAND, semi-cemeted; mottled white & black; stiff; damp		
18	18.0							
19		S-7	1.7 85%	0.0 0.0	--	As above, but wet		
20	20.0						20.0	
21						BOH @ 20 ft.		
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Mark DeJohn/Dave Schilling
DRILLER: Domingo Gonzales BORING NO.: 9-B05-HP02 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation
CTO NO.: 26007-099 BORING NO.: 9-B05-HP03
COORDINATES: EAST: 779,395.6765 NORTH: 151,627.1978
ELEVATION: SURFACE: 105.87 TOP OF PVC CASING: NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/25/1999	0.0 - 12.0	M. Sunny, High 80s	9.94
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	2.0
Schedule 40 PVC 10-Slot Screen	1-in.	2.0	12.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4							
5							
6 / 6.0	N-D	NA					
7				CL	Clay, blue/grey. Petroleum odor.		
8 / 8.0	D	0.5 25.0%	45.0 NA				
9			—				
10 / 10.0	N-D	NA					
					Match to Sheet 2		

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney
DRILLER: Domingo BORING NO.: 9-B05-HP03 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-B05-HP03

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11				45/NA	CL	Clay, blue/gray to green/gray. Soft to		
			2.0	10 to		firm. Petroleum odor from 10 to 10.75		
12	12.0	D	100.0%	10.75		ft.		
						End of boring = 12.0 ft.		
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-B05-HP03 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III RFI, Naval Station Roosevelt Roads		
CTO NO.:	26007-099	BORING NO.:	9-B05-HP04
COORDINATES:	EAST: 779,506.3194	NORTH:	151,679.2881
ELEVATION:	SURFACE: 104.21	TOP OF PVC CASING:	None

Rig: Geoprobe	Sm Core Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1"	--	--	--	6/24/1999	0.0 - 8.0 ft.	Sunny and hot	4.08
Length	2'	--	--	--				
Type	Geoprobe	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks: Sample Prefix is 9-B05-HP04

SAMPLE TYPE

S = Large Core Sampler A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Sch 40 PVC Riser	1"	0	8.0
Sch 40 PVC, 10-Slot Screen	1"	18.0	18.0

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1		S-1	2.0 100%		01	0	FINE SAND; brown to greenish-brown; dry			
2	2.0									
3		D-N	--	--	--	--			3.0	101.21
4	4.0									
5		S-2	2.0 100%		02	26	wet			
6	6.0									
7		D-N	--	--	--	--				
8	8.0								8.0	96.21
9										
10										

DRILLING CO.:	Inland Pollution Services Inc.	BAKER REP.:	Dave Schilling
DRILLER:	Pedro J. Perez Quintero	BORING NO.:	9-B05-HP04 SHEET 1 OF 1

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III RFI, Naval Station Roosevelt Roads			
CTO NO.:	26007-099		BORING NO.:	9-B06-HP01
COORDINATES:	EAST:	779,724.8	NORTH:	151,346.7
ELEVATION:	SURFACE:	106.31	TOP OF PVC CASING:	NM

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	--	--	--	6/24/99	0.0 - 16.0	M. Sunny, High 70s	14.0
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Small Core Sampler A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	11.0
Schedule 40 PVC 10-Slot Screen	1-in.	11.0	16.0

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	Lab ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1								
2								
3								
4		D-N	--	--	--			
5								
6								
7								
8	8.0							
9		S-1	1.0 50%	60.0 3.0	--	SILT, trace f sand & clay; red-brown; dry to damp; sl. Petroleum odor (Saprolite)		
10	10.0							
						Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Mark DeJohn
DRILLER:	Domingo	BORING NO.:	9-B06-HP01 SHEET 1 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III RFI, Naval Station Roosevelt Roads
CTO NO.: 26007-099 BORING NO.: 9-B06-HP01

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	Lab ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continued from Sheet 1		
		D-N	--	--	--			
12	12.0							
13		S-2	1.0 50%	3.0 3.0	--	As above w/ white speckles; damp, but wet at 14 ft.		
14	14.0							
15		S-3	1.0 50%	400.0 3.0	--	As above w/ wet zone on top of sample; strong petroleum odor		
16	16.0						16.0	
17						BOH @ 16 ft.		
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Mark DeJohn
DRILLER: Domingo BORING NO.: 9-B06-HP01 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III RFI, Naval Station Roosevelt Roads		
CTO NO.:	26007-099	BORING NO.:	9-B06-HP02
COORDINATES:	EAST: 779,694.4	NORTH:	151,298.0
ELEVATION:	SURFACE: 108.36	TOP OF PVC CASING:	NM

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	--	--	--	6/24/99	0.0 - 26.0	M. Sunny, High 70s	25.8
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Large Core Sampler A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	21.0
Schedule 40 PVC 10-Slot Screen	1-in.	21.0	26.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	Lab ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1, 2, 3, 4 (4.0)	D-N	--	--	--			
5, 6 (6.0)	S-1	0.6 30%	3.0 / 3.0	--	SILT, little rock frag, trace f sand & clay; tan & brown; damp		
7, 8 (8.0)	S-2	0.8 40%	6.0 / 4.0	--	SILT, little clay, trace f sand; brown w/ white speckles; damp (saprolite)		
9, 10 (10.0)	S-3	1.2 60%	3.0 / 3.0	--	As above w/ green-gray zones		
					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Mark DeJohn
DRILLER:	Domingo	BORING NO.:	9-B06-HP02 SHEET 1 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III RFI, Naval Station Roosevelt Roads
CTO NO.: 26007-099 BORING NO.: 9-B06-HP02

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	Lab ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continued from Sheet 1		
		S-4	1.2	4.0	--	As above w/ green-gray zones		
12	12.0		60%	3.0				
13		S-5	1.9	2.0	--	As above w/ green-gray zones		
			95%	2.0				
14	14.0							
15		D-N	--	--	--			
16	16.0							
17		S-6	1.7	2.0	--	As above, but higher clay content		
			85%	2.0				
18	18.0							
19		D-N	--	--	--			
20	20.0							
							21.0	
21		S-7	1.4	--	--	As above		
			70%					
22	22.0							
23		D-N	--	--	--			
24	24.0							
25		S-8	1.9	--	--	As above, but w/ angular gravel @ 25.8 ft; wet		
			95%					
26	26.0						26.0	
						BOH @ 26 ft.		
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Mark DeJohn
DRILLER: Domingo BORING NO.: 9-B06-HP02 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III RFI, Naval Station Roosevelt Roads		
CTO NO.:	26007-099	BORING NO.:	9-B06-HP03
COORDINATES:	EAST: 779,663.1	NORTH:	151,199.0
ELEVATION:	SURFACE: 106.86	TOP OF PVC CASING:	NM

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	--	--	--	6/24/99	0.0 - 12.0	M. Sunny, High 70s	10.0
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Large Core Sampler A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	7.0
Schedule 40 PVC 10-Slot Screen	1-in.	7.0	12.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	Lab ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1, 2, 3, 4 (4.0)	D-N	--	--	--			
5, 6 (6.0)	S-1	2.0 100%	4.0 / 4.0	--	CLAY, little silt, trace f sand; mottled tan & rust-red; damp		
7, 8, 9, 10 (10.0)	D-N	--	--	--		7.0	
					10.0		

Match to Sheet 2

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Mark DeJohn
DRILLER:	Domingo	BORING NO.:	9-B06-HP03 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III RFI, Naval Station Roosevelt Roads

CTO NO.: 26007-099 BORING NO.: 9-B06-HP03

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	Lab ID	Visual Description		Well Installation Detail	Elevation (Ft. MSL)
11						Continued from Sheet 1			
		S-2	1.0	4.0	--	SILT, some f sand, trace clay;	11.5		
12	12.0		50%	4.0		gray; wet	12.0	12.0	
13						CLAY, some silt, little shell frag; brown & tan; moist			
						BOH @ 12 ft.			
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

DRILLING CO.: Inland Pollution Services BAKER REP.: Mark DeJohn

DRILLER: Domingo BORING NO.: 9-B06-HP03 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III RFI, Naval Station Roosevelt Roads		
CTO NO.:	26007-099	BORING NO.:	9-B06-HP04
COORDINATES:	EAST: 779,567.4845	NORTH:	151,294.1358
ELEVATION:	SURFACE: 113.62	TOP OF PVC CASING:	None

Rig: Geoprobe	Sm Core Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1"	--	--	--	6/25/1999	0.0 - 20.0 ft.	Sunny and hot	13.55
Length	2'	--	--	--				
Type	Geoprobe	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks: Sample prefix is 9-B06-HP04

SAMPLE TYPE

S = Macro Core Sampler S1 = Large Core Sampler
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Sch 40 PVC Riser	1"	0	9.5
Sch 40 PVC, 10-Slot Screen	1"	9.5	19.5

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1, 2, 3, 4 (4.0)	S-1	2.6 65%	--		0	FINE SAND, some shell frag; near white; dry		
5, 6, 7, 8 (8.0)	S-2	4.0 100%	--		0	no shells; brown (6.0); FINE SAND, some clay; greenish brown to orangish brown;dry; petro odor		107.62
9, 10	S1-3	0.1 5%	--		110		9.5	104.12
						10.0		103.62

Match to Sheet 2

DRILLING CO.:	Inland Pollution Services Inc.	BAKER REP.:	Dave Schilling
DRILLER:	Pedro J. Perez Quintero	BORING NO.:	9-B06-HP04 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III RFI, Naval Station Roosevelt Roads

CTO NO.: 26007-099 BORING NO.: 9-B06-HP04

SAMPLE TYPE

S = Macro Core Sampler A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Well Installation Detail		Elevation (Ft. MSL)
11							Continued from Sheet 1				
		S1-4	0.5 25%	--		0	FINE SAND; brown; dry				
12	12.0										
13		S1-5	2.0 100%	--	01	165	greenish-brown; strong petro odor				
14	14.0										
15		S1-6	2.0 100%	--		110	orangish-brown to brownish green				
16	16.0										
17		S1-7	1.3 63%	--	02	3	COARSE SAND; lt tan; wet - water at 16.5'				
18	18.0										
19		S1-8	2.0 100%	--		0					
							FINE SAND, some clay;	19.5		19.5	94.12
20	20.0						orangish-brown; wet	20.0		20.0	93.62
							BOH @ 20.0 feet				
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

DRILLING CO.: Inland Pollution Services Inc. BAKER REP.: Dave Schilling

DRILLER: Pedro J. Perez Quintero BORING NO.: 9-B06-HP04 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation
CTO NO.: 26007-099 BORING NO.: 9-B06-HP05
COORDINATES: EAST: 779543.2674 NORTH: 151278.5402
ELEVATION: SURFACE: 111.12 TOP OF PVC CASING: NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/26/1999	0.0 - 30.0	M. Sunny, High 80s	12.20
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	15.0
Schedule 40 PVC 10-Slot Screen	1-in.	15.0	30.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
					Match to Sheet 2		

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney
DRILLER: Domingo BORING NO.: 9-B06-HP05 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-B06-HP05

SAMPLE TYPE	DEFINITIONS
S = Split Spoon A = Auger	SPT = Standard Penetration Test (ASTM D1586)
T = Shelby Tube W = Wash	PID = Photo Ionization Detector Measurement
R = Air Rotary C = Core	MSL = Mean Sea Level
D = Direct Push P = Piston N = No Sample	ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30	30.0	N-D	NA				
					End of boring = 30 ft.		

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-B06-HP05 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation		
CTO NO.:	26007-099	BORING NO.:	9-BG-SB01
COORDINATES:	EAST: 779,311.6037	NORTH:	151,373.2890
ELEVATION:	SURFACE: 111.22	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/26/1999	0.0 - 16	M. Sunny, High 80s	11.50
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	6.0
Schedule 40 PVC 10-Slot Screen	1-in.	6.0	16.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4							
5							
6							
7							
8							
9			—				
10	10.0	N-D	NA				
					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-BG-SB01 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-BG-SB01

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11					CL	Clay. Stiff. Brown, white, green.		
			1.7			Collected sample 9-BG-SB01 here.		
12	12.0	D	85.0%					
13				—				
14								
15				—				
16	16.0	N-D	NA					
						End of boring = 16.0 ft		
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-BG-SB01 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation		
CTO NO.:	26007-099	BORING NO.:	9-BG-SB02
COORDINATES:	EAST: 779,294.9920	NORTH:	150,179.8510
ELEVATION:	SURFACE: 106.36	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/26/1999	0.0 - 16	M. Sunny, High 80s	15.10
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	6.0
Schedule 40 PVC 10-Slot Screen	1-in.	6.0	16.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4							
5							
6							
7							
8 / 8.0	N-D	NA					
9			—	CL	Clay. Very stiff. White with iron stained minerals throughout. Collected sample 9-BG-SB02 here.		
10 / 10.0	D	2.0 100.0%					
					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-BG-SB02 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-BG-SB02

SAMPLE TYPE	DEFINITIONS
S = Split Spoon A = Auger	SPT = Standard Penetration Test (ASTM D1586)
T = Shelby Tube W = Wash	PID = Photo Ionization Detector Measurement
R = Air Rotary C = Core	MSL = Mean Sea Level
D = Direct Push P = Piston N = No Sample	ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11							
12							
13							
14							
15							
16	16.0	N-D	NA				
					End of boring = 16.0 ft		
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-BG-SB02 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation		
CTO NO.:	26007-099	BORING NO.:	9-BG-SB03
COORDINATES:	EAST: 778,747.7892	NORTH:	150,246.0472
ELEVATION:	SURFACE: 104.66	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/26/1999	0.0 - 16	M. Sunny, High 80s	6.50
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	6.0
Schedule 40 PVC 10-Slot Screen	1-in.	6.0	16.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4							
5							
6							
7							
8 / 8.0	N-D	NA					
9			—	CL	Clay. Stiff. White with iron stained minerals throughout. Collected sample 9-BG-SB03 here.		
10 / 10.0	D	2.0 100.0%			Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-BG-SB03 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-BG-SB03

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11							
12							
13							
14							
15							
16	16.0	N-D	NA				
					End of boring = 16.0 ft		
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-BG-SB03 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation		
CTO NO.:	26007-099	BORING NO.:	9-BG-SB04
COORDINATES:	EAST: 778,503.6902	NORTH:	150,318.0585
ELEVATION:	SURFACE: 107.73	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/26/1999	0.0 - 14	M. Sunny, High 80s	12.50
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	4.0
Schedule 40 PVC 10-Slot Screen	1-in.	4.0	14.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
10.0	N-D	NA					
					Match to Sheet 2		

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-BG-SB04 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-BG-SB04

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Clay. Soft. Greenish black. Collected sample 9-BG-SB04 here.		
			1.0		CL			
12	12.0	D	50.0%					
13				—				
14	14.0	N-D	NA					
						End of boring = 14.0 ft.		
15				—				
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-BG-SB04 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 9 Phase III Investigation		
CTO NO.:	26007-099	BORING NO.:	9-BG-SB05
COORDINATES:	EAST: 783,238.97	NORTH:	149,272.59
ELEVATION:	SURFACE: 128.67	TOP OF PVC CASING:	NA

Rig: Geoprobe	Sampler	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2-in.	--	--	--	6/27/1999	0.0 - 23	M. Sunny, High 80s	Dry
Length	2-ft.	--	--	--				
Type	Stainless	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push, Large Bore Sampler
P = Push N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	1-in.	0	13.0
Schedule 40 PVC 10-Slot Screen	1-in.	13.0	23.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
0.0							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Match to Sheet 2

DRILLING CO.:	Inland Pollution Services	BAKER REP.:	Matt Maloney
DRILLER:	Domingo	BORING NO.:	9-BG-SB05 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 9 Phase III Investigation

CTO NO.: 26007-099 BORING NO.: 9-BG-SB05

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	PID (ppm) ps/bg	USCS ID	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11							
12							
13							
14							
15							
16				CL	Clay. Firm. Brown. Moist; no odor. Sample 9-BG-SB05-15-17 collected here.		
17	17.0	D	1.8 90.0%				
18							
19							
20							
21							
22					Weathered bedrock, granodiorite. Sample 9-BG-SB05-21-23 collected here.		
23	23.0	D	1.8 90.0%				
24					End of boring = 23.0 ft.		
25							
26							
27							
28							
29							
30							

DRILLING CO.: Inland Pollution Services BAKER REP.: Matt Maloney

DRILLER: Domingo BORING NO.: 9-BG-SB05 SHEET 2 OF 2

APPENDIX D
CHAIN OF CUSTODY RECORDS

APPENDIX D.1
CHAIN OF CUSTODY RECORDS – PHASE I

27788 COOLER 1.

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 2

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date: 4/16/96
Work Order #: 62470.277
Project Contact/Phone #: JOHN ANDY (412) 269-6044
AD Project Manager: T FULLER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC: VOA	BNA	Pest/PCB	Herb	TPH GAS	TPH DIESEL		INORG: Metal	CN
	955Ø1			S	3/20/96	1330	X	X			X	X		X	
	955Ø1D	X	X			1330	X	X			X	X		X	
	955Ø2					1340	X	X			X	X		X	
	955Ø3					1350	X	X			X	X		X	
	955Ø4					1400	X	X			X	X		X	
	955Ø5					1410	X	X			X	X		X	
	955Ø6					1420	X	X			X	X		X	
	9MWØ1-ØØ					1430	X	X			X	X		X	
	9MWØ2-ØØ					1440	X	X			X	X		X	
	9MWØ3-ØØ			S	3/20	1450	X	X			X	X		X	

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
SAMPLES 955Ø1 → 955Ø6 &
9MWØ1-ØØ → 9MWØ4-ØØ
RCRA METALS
ALL OTHER SAMPLES APP. IX METALS

FEDEX AIR BILL #400-6250-2226

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Chris Boso		3/21/96	1225

Relinquished by	Received by	Date	Time

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

277ØØ1 COOLER 1

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER
Est. Final Proj. Sampling Date: 4/16/96
Work Order #: 62470-277
Project Contact/Phone #: JANDY (412) 269-6044
AD Project Manager: TOM FULLER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
Wi - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC: VOA	BNA	Pest/PCB	Herb	TPH GAS	TPH DIESEL	OP PEST	INORG: Metal	CN	SULFIDE
	9MWØ4-ØØ			S	3/20	1500	X	X			X	X		X		
	6SSØ1				3/19	1230	X	X	X	X			X	X	X	X
	6SSØ1D	X	X			1230	X	X	X	X			X	X	X	X
	6SSØ2					1240	X	X	X	X			X	X	X	X
	6SBØ1-ØØ					1250	X	X	X	X			X	X	X	X
	6SBØ2-ØØ					1300	X	X	X	X			X	X	X	X
	6SBØ3-ØØ				3/19	1310	X	X	X	X			X	X	X	X
	6SBØ1-Ø1				3/21	0800	X	X	X	X			X	X	X	X
	6SBØ1-Ø2				3/21	0817	X	X	X	X			X	X	X	X

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
SAMPLES 9SSØ1 → 9SSØ6 & 9MWØ1-ØØ THRU 9MWØ4-ØØ RCRA METALS
ALL OTHER SAMPLES APP. IX METALS

FEDEX AIR BILL # 400-6250-2226

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
Chris Boso		3/21/96	1233

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

RFW 21-2 (A-7/91) ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Page 1 of 1

Client: BAKER
Est. Final Proj. Sampling Date: 4/16/96
Work Order #: 62470-277
Project Contact/Phone #: J. ANDY 412-269-6044
AD Project Manager: TOM FULKER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb				INORG Total Metal	CN	Ass metals	Sulfide				
								WESTON Analytics Use Only														
												O/P Pest	TPH Diesel									
S - Soil		FB01			W	3/26/96	0710		X	X	X	X	X		X	X	X	X				
SE - Sediment																						
SO - Solid																						
SL - Sludge																						
W - Water																						
O - Oil																						
A - Air																						
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
WI - Wipe																						
X - Other																						
F - Fish																						

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

AIRBILL # 400-4072-1015.

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

Relinquished by	Received by	Date	Time
Debra Montalvo	[illegible]	3/26/96	1400

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

277-p

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Page ____ of ____

Client: Baker
Est. Final Proj. Sampling Date: 4/16/96
Work Order #: 62470-277
Project Contact/Phone #: J. Andy 412-268-6044
AD Project Manager: Tom Fuller
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

ORGANIC				INORG			
VOA	BNA	Pest/PCB	Herb	Total Metal	CN	U.S. METALS	Sulfide

WESTON Analytics Use Only

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected					Oil Pest TPH Diesel									
	FB02			W	3/26/96	0800														

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

AIRBILL #
400-4072-1015

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	3/26/96	1600

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

RFW 21-2... 4-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

Baker COC #27 020

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 2

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date: 4-16-96
Work Order #:
Project Contact/Phone #: John Andy 412-269-6000
AD Project Manager: D. Woltman
QC: Del: TAT:
Date Rec'd: Date Due:
Account #:

Refrigerator #																	
#/Type Container	Liquid																
	Solid																
Volume	Liquid																
	Solid																
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb	TPH (DRO)	TPH (GRO)		Metal	CN							
		WESTON Analytics Use Only															
									KKA								

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	TPH (DRO)	TPH (GRO)		Metal	CN						
	8-TP04-03			S	4-3-96	1140	X	X			X	X		X							
	8-TP03-01			S	4-3-96	0920	X	X			X	X		X							
	8-TP03-02			S	4-3-96	0950	X	X			X	X		X							
	8-TP03-00			S	4-3-96	0920	X	X			X	X		X							
	8-TP02-01			S	4-2-96	1450	X	X			X	X		X							
	8-TP02-01D			S	4-2-96	1450	X	X			X	X		X							
	8-TP02-02			S	4-2-96	1620	X	X			X	X		X							
	8-TP02-06			S	4-2-96	1600	X	X			X	X		X							
	8-TP01-04			S	4-2-96	1107	X	X			X	X		X							
	9-TP02-06			S	4-2-96	1600	X	X			X	X		X							

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # _____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# _____ Cooler# _____ 381-596a

277Ø21

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client: BAKER
Est. Final Proj. Sampling Date: 4/16/96
Work Order #: 62470-277
Project Contact/Phone #: J. ANDY (412) 269-6044
AD Project Manager: TOM FULLER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

ORGANIC							INORG	
VOA	BNA	Pest/PCB	Herb	TPH GAS	TPH DIESEL		Metal	CN
							RCRA	

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	TPH GAS	TPH DIESEL		Metal	CN
	7MWØ4-Ø7			S	4/4	0721	X	X			X	X		X	
	7MWØ4-Ø7D			S	4/4	0721	X	X			X	X		X	
	7MWØ4-11			S	4/4	0811	X	X			X	X		X	
	TB1Ø			W			X								
	TB11			W			X								
	8RSØ1			W	4/3	1755	X	X			X	X		X	
	8-TPØ6-Ø4MS/MSD		✓	S	4/3	1700	X	X			X	X		X	
	8-TPØ6-Ø1			S	4/3	1655	X	X			X	X		X	
	8-TPØ6-Ø4			S	4/3	1700	X	X			X	X		X	
	8-TPØ6-Ø4D			S	4/3	1700	X	X			X	X		X	

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
TB1Ø WAS TO BE SENT WITH COC 277Ø20 (4/3/96) TB1Ø ACCOMPANIED SAMPLES THRU OUT ACTIVITY.
TB11 ACCOMPANIED SAMPLES INCLUDE THIS COC (277Ø21).

FED EX AIR BILL # 4ØØ-625Ø-22Ø4

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Relinquished by	Received by	Date	Time
Chris Boep	FED-EX	4/4/96	1345

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

RFW 2 01/A-7/91 ____ L372 ____ L373 ____ L? ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

277Ø2

WESTC .alytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client BAKER ENVIRONMENTAL, INC
Est. Final Proj. Sampling Date 4/16/96
Work Order # 62470-277
Project Contact/Phone # J. ANDY (412) 269-6044
AD Project Manager DENISE WOLTMAN
QC _____ Del _____ TAT _____
Date Rec'd _____ Date Due _____
Account # _____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives
ANALYSES REQUESTED →

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	TPH GAS	TPH DIESEL		INORG Metal	CN	RCRA
	~~9TB~~ CB 9TPØ7-Ø4			S	4/8	0825	X	X			X	X		X		
	9TPØ7-Ø4D	✓	✓	S	4/8	0825	X	X			X	X		X		
	9TPØ8-Ø4			S	4/8	0910	X	X			X	X		X		
	9TPIØ-Ø4			S	4/8	0945	X	X			X	X		X		
	9TPØ9-Ø4			S	4/8	0945	X	X			X	X		X		
	TB 12			W			X									
	9RBØ1			W	4/8	1230	X	X			X	X		X		
	9TPØ3-Ø3			S	4/6	0900	X	X			X	X		X		
	9TPØ4-Ø4			S	4/6	1120	X	X			X	X		X		
	9TPØ5-Ø4			S	4/6	1340	X	X			X	X		X		

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
9RBØ1: 3-1.2 AMBER BOTTLES FILLED; 2-BNA, 1-TPH DIESEL

FED EX AIR BILL # 400-6250-2230

DATE/REVISIONS:
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Chris Boep		4/8/96	1230				

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___ Airbill # _____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# _____ Cooler# _____ 381-596a

277ØLL

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER
Est. Final Proj. Sampling Date: 4/16/96
Work Order #: 62470-277
Project Contact/Phone #: J. ANDY (412) 269-6044
AD Project Manager: DENISE WOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

	ORGANIC							INORG	
	VOA	BNA	Pest/PCB	Herb	TPH GAS	TPH DIESEL		Metal	CN
#/Type Container: Solid								RCRA	
Preservatives								RCRA	

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	TPH GAS	TPH DIESEL		Metal	CN
	9TPØ6-Ø4			S	4/6	1425	X	X			X	X		X	

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FED EX AIR BILL # 400-6250-2230

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Chris Boss		4/8/96	1230

Relinquished by	Received by	Date	Time

WESTON Analytics Use Only

Z 1Ø23

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date: 4/21/96
Work Order #: 62470-277
Project Contact/Phone #: J. ANDY (412) 269-6044
AD Project Manager: DENISE WOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected 1996	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	TPH GAS	TPH DIESEL		INORG Metal	CN	RCRA
	9MWØ1-Ø8			S	4/10	0926	X	X			X	X		X		
	9MWØ1-15			S	4/10	1101	X	X			X	X		X		
	J.T. ~~7MWØ2-11~~ 7MWØ2-11			S	4/9	0840	X	X			X	X		X		
	7MWØ2-11D			S	4/9	0840	X	X			X	X		X		
	7MWØ2-17			S	4/9	1143	X	X			X	X		X		
	7MWØ3-Ø4			S	4/8	1030	X	X			X	X		X		
	7MWØ3-Ø4D	✓	✓	S	4/8	1030	X	X			X	X		X		
	7MWØ3-Ø6			S	4/8	1052	X	X			X	X		X		
	TB13			W			X									

WESTON Analytics Use Only

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

FEDEX AIR BILL #400-6250-~~2285~~ 2241 J.T.

Relinquished by	Received by	Date	Time
Chris Bobo	FED-EX	4/10/96	1230

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

WESTON Analytics Use Only

277024

Custody Transfer Record/Lab Work Request

WESTON

Client: Baker Environmental
Est. Final Proj. Sampling Date: 4/26/96
Work Order #: 62A70-277
Project Contact/Phone #: J. ANDY (412) 269-6020
AD Project Manager: DENISE WOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	TPH 8015 Mod			INORG RCRA Metal	CN
	9TP11-Ø5			SOIL	4-13-96	1145	✓	✓			✓			✓	
	9TP13-Ø4			Soil	4-13-96	1420	✓	✓			✓			✓	
	9TP13-Ø4D			Soil	4-13-96	1420	✓	✓			✓			✓	
	9TP13-Ø4 MS	✓	✓	Soil	4-13-96	1420	✓	✓			✓			✓	
	9TP14-Ø5			Soil	4-13-96	1410	✓	✓			✓			✓	
	~~9TP15~~ 9TP14-Ø5D			Soil	4-13-96	1410	✓	✓			✓			✓	
	9TP14-Ø5 MS	✓	✓	Soil	4-13-96	1410	✓	✓			✓			✓	
	9TP15-Ø5			Soil	4-13-96	1610	✓	✓			✓			✓	
	9TP16-Ø5			Soil	4-13-96	1700	✓	✓			✓			✓	
	TB14			W			✓								

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FEDEX AIR BILL # 400-1913-7580

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Chris Boep		4/15/96	1142				

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

L372 L373 L375 L377 ____ L378 Ref# ____ Cooler# ____

381-596a

#277Ø25

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page ____ of ____

Client: Baker Environmental
Est. Final Proj. Sampling Date: 4/26/96
Work Order #: 62470-277
Project Contact/Phone #: J. Andy (412) 269-6044
AD Project Manager: DENISE WOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #																			
#/Type Container	Liquid																		
	Solid																		
Volume	Liquid																		
	Solid																		
Preservatives																			
ANALYSES REQUESTED →		ORGANIC							INORG										
		VOA	BNA	Pest/PCB	Herb	PCB	OP PEST	DIOXIN	TX Metal	CN	SULFIDE	TPH 8015							
		WESTON Analytics Use Only																	

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected															
	BG MWØ3			AQ	4-16-96	0900	✓	✓	✓	✓		✓	✓	✓	✓	✓					
	9 MWØ2			AQ	4-16-96	1030	✓	✓	✓								✓				
	TB15			AQ																	

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE SEND DIOXIN (BGMWØ3) TO LIONVILLE, PA. LAB

BgMWØ3 - TPH enclosed. use for additional volume.

FED EX AIR BILL # 400-6007-2751

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Chris Bock	400-6007-2751 FEDEX	4/16/96	1232				

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

277024

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER
Est. Final Proj. Sampling Date: 4/26/96
Work Order #: 62470-277
Project Contact/Phone #: J. ANDY (412) 269-6044
AD Project Manager: DENISE KIOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	TPH GAS	TPH DIESEL	OP PEST	Metal (RCRA)	CN	DIOXIN	APPIX METALS	SULFIDE	~~CYANIDE~~	PCB
	9MW02-04			S	4-12-96	1345	X	X			X	X		X						
	9MW02-06			S	4-12-96	1353	X	X			X	X		X						
	9MW02-10			S	4-12-96	1413	X	X			X	X		X						
	BGMW03-03			S	4-12-96	1342	X	X	X	X			X		X	X	X	X		
	BGMW03-~~03~~ 04			S	4/12/96	1355	X	X	X	X			X		X	X	X	X		
	BGMW03-04D	✓	✓	S	4/12	1355	X	X	X	X			X		X	X	X	X		
	9MW01			W	4/13	0940	X	X			X	X		~~X~~ SB						X
	9MW03-04			S	4/15	0814	X	X			X	X		X						
	9MW03-04D	✓	✓	S	4/15	0814	X	X			X	X		X						
	9MW03-09				4/15	0842	X	X			X	X		X						

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE SEND DIOXIN SAMPLES: ~~9~~ CB
BGMW03-03, -04, & -04D TO LIONVILLE, PA. LAB

FED EX AIR BILL #400-1913-7580

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Relinquished by	Received by	Date	Time
Chris Boes		4/15/96	1142

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Page 1 of 1

Client: Baker Environmental
Est. Final Proj. Sampling Date: 5/5/96
Work Order #: 62470-277
Project Contact/Phone #: John Andy (412) 269-60
AD Project Manager: DENISE WOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	PEST	OP PEST	Dioxin	INORG Metal	CN	Sulfide	TPH	RCRA Metals			
								WESTON Analytics Use Only														
S - Soil		FB Ø3			W	4-17-96	1300	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓				
SE - Sediment		9RBØ2			W	4-17-96	1400	✓	✓			✓						✓	✓			
SO - Solid		TB16			W			✓				CO										
SL - Sludge																						
W - Water																						
O - Oil																						
A - Air																						
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
WI - Wipe																						
X - Other																						
F - Fish																						

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE SEND DIOXIN SAMPLE FBØ3 TO LIONVILLE, PA LAB

Air Bill No.: 400-6007-2762

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Chris Boos	FED EX	4/18/96	1255				

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

277Ø27

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of ____

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date: 5/6/96
Work Order #: 62470-277
Project Contact/Phone #: J. ANDY (412) 269-6044
AD Project Manager: DENISE WOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	TPH 8015 Mod.			INORG Metal	CN	TOC	BOD	COD	Humic Content
	TB17			W			X												
	7GWØ4			W	4/19	0915	X	X						X					
	CTO 357																		
	CCSMWØ1-Ø2			S	4/18	1810	X	X	X					X					
	CCSMWØ1-Ø1			S	4/18	1800	X	X	X					X					
	CCSMWØ1-Ø1 D			S	4/18	1800	X	X	X					X					
	9MWØ4-Ø3			S	4/19	1053	X	X			X			X					
	9MWØ4-Ø5			S	4/19	1115	X	X			X			X					
	9MWØ4-Ø4			S	4/19	1105										X	X	X	X

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
NOTE: TB17 & 7GWØ1 ARE FOR CTO 277
CCMWØ1-Ø1, Ø1D & Ø2 ARE FOR CTO 357 & ARE 7DAY TURN

FEDEX AIRBILL NO. 400-~~377~~ 1913 7591

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Chris Boeb	FEDEX	4/19/96	1250

Relinquished by	Received by	Date	Time

REV 91-91-1 7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 481-596a

WESTON Analytics Use Only

2770 CB

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client: BAKER ENVIRONMENTAL, INC.
Est. Final Proj. Sampling Date: 5/10/96
Work Order #: 62470-277
Project Contact/Phone #: J. ANDY (412) 269-6024
AD Project Manager: DENISE WOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	TPH GAS	TPH DIESEL	PCB	INORG Metal	CN
	9MW03			W	4/20	0830	X	X			X	X	X	X	
	9MW03D			W	4/20	0830	X	X			X	X	X	X	
	9MW02			W	4/21	1505								X	
	TB18			W			X								
	9MW01				4/22	0940								X	
	CTO 357														
	CCSMW01			W	4/21	0915	X	X	X					X	

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
ORGANIC ANALYSES FOR 9MW02 & 9MW03 SHIPPED ON 4/16 AND 4/15, RESPECTIVELY.

NOTE: SAMPLE CCSMW01 BILLED TO 62470-357. ALSO, 7-DAY TURN ON SAMPLE.

FEDEX AIR BILL # 400-6007-2832

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

Relinquished by	Received by	Date	Time
Chris Boeso	FEDEX	4/22/96	1147

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

WESTON Analytics Use Only

COC # 277029

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: Baker Environmental, Inc.
Est. Final Proj. Sampling Date:
Work Order #:
Project Contact/Phone #: D. Wittman/C. Naw
AD Project Manager: C. Bose/J. Andy 412-269-6000
QC: Del: TAT:
Date Rec'd: Date Due:
Account #:

Refrigerator #:
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives:

ANALYSES REQUESTED →

Matrix Codes	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected 1996	Time Collected	VOA	BNA	Pest/PCB	Herb	Pest	O/P Pest	Herb 5.T.	Metal	CN	TSS, Tot. COD	TPH Gas/Diesel	APP. IX Metals	Sulfide	Dioxin	No. of bottles	
								ORGANIC							INORG								
								WESTON Analytics Use Only															
		ACBMW01			W	4/23	1345										X					2	(2)
		7MW03			W	4/23	1420	X	X						X							5	
		9MW04			W	4/24	1330	X	X	X					X			X				12	
		7MW02	X	X	W	4/23	1100	X	X						X							10	
		7MW02D			W	4/23	1100	X	X						X							5	
		BGMW01-06			S	4/23	1626	X	X	X	X	X	X			X			X	X	X	3	(1)
		BGMW01-04			S	4/23	1615	X	X	X	X	X	X			X			X	X	X	3	(1)
		BGMW02-08			S	4/22	1615	X	X	X	X	X	X			X			X	X	X	3	(1)
		BGMW02-05			S	4/22	1545	X	X	X	X	X	X			X			X	X	X	3	(1)
		TB19			W	3/14	1100	X														2	

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Notes: (1) Please Send Dioxin Samples To Lionville, PA Lab
(2) AC3MW01 Not preserved w/ H_2SO_4 (Needs Preserved @ lab pls.)

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[illegible]	FED-EX	4/24/96	1800				

___ L372 ___ L373 ___ L37[illegible] ___ L377 ___ L378 Ref# ___ Cooler# ___

381-596a

2770 D

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client: BAKER
Est. Final Proj. Sampling Date: 5/10/96
Work Order #: 62470-277
Project Contact/Phone #: J. ANDY (412) 269-6044
AD Project Manager: DENISE WOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

ORGANIC							INORG						
VOA	BNA	Pest/PCB	Herb			OIL & GREASE	Metal	CN	TOC	COD	NH_3	PHOSPHOROUS	TSS	BOD

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OIL & GREASE	Metal	CN	TOC	COD	NH_3	PHOSPHOROUS	TSS	BOD
	9MW04			W	4/25	1050	X			X	X	X	X	X	X

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
9MW04 - BOTTLES FOR OIL & GREASE, TOC, COD, NH_3 & PHOS. NOT PRESERVED

FED EX AIR BILL # 400-6007-2773

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	FEDEX	4/26/96	1708

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

WESTON Analytics Use Only

277Ø3Ø

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date: 5/10/96
Work Order #: 62470-277
Project Contact/Phone #: J. ANDY (412) 269-6044
AD Project Manager: DENISE WOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

MATRIX CODES: S - Soil, SE - Sediment, SO - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, L - EP/TCLP Leachate, WI - Wipe, X - Other, F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC: VOA	BNA	Pest/PCB	Herb	TPH GAS	TPH DIESEL	OP PEST	INORG: Metal (RCRA)	CN	APP IX METALS	SULFIDE	DIOX #1	FFS	BOD
		TB 20			W			X													
		7RBØ3			W	4/25	1245	X	X			X	X		X						
		7RBØ4			W	4/25	1300	X	X			X	X		X						
		7SBØ3-Ø8			~~W~~ S	4/25	1334	X	X			X	X		X						
		7SBØ3-Ø6			S	4/25	1147	X	X			X	X		X						
		BGMWØ4-ØZ			S	4/24	1627	X	X	X	X			X		X	X	X	X		
		BGMWØ4-Ø4			S	4/24	1639	X	X	X	X			X		X	X	X	X		
		~~9MWØ4~~			~~W~~	~~4/25~~	~~1050~~	CDB													

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE SEND DIOXIN SAMPLES BGMWØ4-ØZ & -Ø4 TO LIONVILLE, PA. LAB

FED EX AIR BILL # 400-6057-2773

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

Relinquished by	Received by	Date	Time
Chris Bob	FEDEX	4/26/96	1652

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

RFW: 001/A-7/91 ____ L372 ____ L373 ____ L ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

WESTON Analytics Use Only

27-31

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date: 5/10/96
Work Order #: 62470-277
Project Contact/Phone #: J. ANDY (412) 269-6044
AD Project Manager: DENISE WOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

ORGANIC							INORG		
VOA	BNA	Pest/PCB	Herb	OP PEST	Dioxin		Metal	CN	SULFIDE
							APP. IX		

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	OP PEST	Dioxin		Metal	CN	SULFIDE					
	TB21			W			X	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~		~~X~~	~~X~~	~~X~~	CB				
	BGMW01			W	4/27	1005	X	X	X	X	X	X		X	X	X					
	BGMW04			W	4/27	0820	X	X	X	X	X	X		X	X	X					
	BGMW02			W	4/27	0915	X	X	X	X	X	X		X	X	X					

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE SEND DIOXIN SAMPLES TO LIONVILLE, PA. LAB.

FED EX AIR BILL # 400-6007 2821

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

Relinquished by	Received by	Date	Time
Chris Boyd	FEDEX	4/29/96	1228

Relinquished by	Received by	Date	Time

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____

WESTON Analytics Use Only

277Ø32

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date: 5/10/96
Work Order #: 62470.277
Project Contact/Phone #: J. ANDY (412) 269-6044
AD Project Manager: DENISE WOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives
ANALYSES REQUESTED →

	ORGANIC							INORG	
	VOA	BNA	Pest/PCB	Herb				RCRA Metal	CN

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb				RCRA Metal	CN
	TB22			W			X								
	~~7MW01A CDB~~			~~W~~	~~5/4~~										
	7MW01A			W	5/5	1130	X	X						X	

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE FILTER & PRESERVE METALS CONTAINER FOR 7MW01A; ANALYZE FOR DISSOLVED RCRA METALS.

FEDEX AIRBILL # 400-6007-2810

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Chris Boeo	FEDEX	5/6/96	1242				

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec'd Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

REV 21-2 A-7/91 ____ L372 ____ L373 ____ L37 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

WESTON Analytics Use Only

2770

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: BAKER ENVIRONMENTAL, INC
Est. Final Proj. Sampling Date: 5/9/96
Work Order #: 62470-277-
Project Contact/Phone #: J. ANDY (412) 269-6044
AD Project Manager: DENISE WOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	BTEX			INORG Metal	CN	SULFIDE REACTIVE	IGNITABILITY	CORROSIVITY			
								WESTON Analytics Use Only														
		IDW-AQ			W	5/9	1132					X				X	X	X	X			
		~~IDW-S~~										~~X~~	CB									
		IDW-S			S	5/9	1120					X										
		TB23						X														

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FEDEX AIR BILL #400-6007-2784

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Chris Boso	FEDEX	5/9/96	1226				

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

APPENDIX D.2
CHAIN OF CUSTODY RECORDS – PHASE II

1-06

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: BAKER
Est. Final Proj. Sampling Date:
Project #:
Project Contact/Phone #: SUSAN JOHNSON 412 269-2014
RECRA Project Manager:
QC: Del: TAT: 28 DAY
Date Rec'd: Date Due:
Account #:

Refrigerator #																	
#/Type Container	Liquid																
	Solid																
Volume	Liquid																
	Solid																
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		App IX VOA	~~Acid~~ BNA	Pest/ PCB	Herb	App IX Metals	RCRA Metals	Full App IX	Metal	CN	TPH DRO	TPH GRO	Explosives	ASBESTOS	BTEX		
		RECRA LabNet Use Only															

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	App IX VOA	~~Acid~~ BNA	Pest/ PCB	Herb	App IX Metals	RCRA Metals	Full App IX	Metal	CN	TPH DRO	TPH GRO	Explosives	ASBESTOS	BTEX
	FB-01			W	9/19	1100	X				X	X	X			X	X	X	X	X
	TB-01			W																
	11-ER01			W	9/18	1730	X	X	X		X					X	X			
	11-ER02			W	9/18	1745	X	X	X		X					X	X			
	13-ER02			W	9/18	0735	X													
	3-SD16			S	9/19	0930	X													
	3-SD17			S	9/19	0945	X													
	11-SD01	X	X	S	9/19	1030	X													
	11-SD01D			S	9/19	1030	X													
	~~11-SB14-01~~			~~S~~	~~9/19~~	~~1040~~	~~X~~													

*FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FED-EX AIRBILL No.
400-4071-8716
*13-ER02 WAS LEFT OUT OF YESTERDAYS SHIPMENT

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

RECRA LabNet Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Lables and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
[signature]		9/19	1500

Relinquished by	Received by	Date	Time

SWMU-9-0

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: LANTDIV
Est. Final Proj. Sampling Date: 10/5/97
Project #: CTO-0277
Project Contact/Phone #: SUSAN JOHNSTON
RECRA Project Manager: BOSCO RAMIREZ
QC: D Del: D TAT: 28 DAYS
Date Rec'd: _____ Date Due: _____
Account #: _____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC: VOA	BNA	Pest/PCB	Herb	BTEX	TPH GRO	TPH DRO	INORG: Metal	CN	RCRA METALS
	9-MW02S-05			S	9/21	1010					X	X	X			X
	9-MW02N-05			S	9/21	1415					X	X	X			X
	9-MW02R-05			S	9/21	1649					X	X	X			X
	9-MW02R-06			S	9/21	1716					X	X	X			X

RECRA LabNet Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
FED-EX AIRBILL No.:
400-4071-8702

DATE/REVISIONS:
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

RECRA LabNet Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # _____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Lables and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Mad E. Kow		9/22	1500

Relinquished by	Received by	Date	Time

51 9-02

RECHA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: LANDIU
Est. Final Proj. Sampling Date: 10/5/97
Project #: CTO-0277
Project Contact/Phone #: SUSAN JOHNSTON
RECRA Project Manager: BOSLO RAMIREZ
QC: D Del: D TAT: 28 DAYS
Date Rec'd: _____ Date Due: _____
Account #: _____

Refrigerator #																	
#/Type Container	Liquid																
	Solid																
Volume	Liquid																
	Solid																
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/ PCB	Herb	BTEX	TPH DRO	TPH GRO	Metal	CN	RCRA METAL TOTAL	RCRA METAL DISSOLVED					
		↓ RECRA LabNet Use Only ↓															

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	BTEX	TPH DRO	TPH GRO	RCRA METAL TOTAL	RCRA METAL DISSOLVED
	9-GW02N			W	9/30	1430	X	X	X	X	X
	9-GW02R			W	9/30	1530	X	X	X	X	X
	9-GW02S			W	9/30	1740	X	X	X	X	X
	9-TP02A-01			S	9/30	1600	X	X	X	X	
	9-TP02A-02			S	9/30	1630	X	X	X	X	
	9-TP01A-01			S	10/1	0815	X	X	X	X	
	9-TP01A-02			S	10/1	0840	X	X	X	X	
	9-TP07A-01			S	10/1	1010	X	X	X	X	
	9-TP07A-02			S	10/1	1045	X	X	X	X	

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FED-EX AIRBILL No.:
400-4071-8742

DATE/REVISIONS:
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

RECRA LabNet Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # _____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Lables and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Mark E. [illegible]		10/1	1500

Relinquished by	Received by	Date	Time

SWMU 9 - Ø3

RECRA LabNet

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

Client: LANTDIV
Est. Final Proj. Sampling Date: 10/5/97
Project #: CTO-0277
Project Contact/Phone #: SUSAN JOHNSTON
RECRA Project Manager: BOSCO RAMIREZ
QC: D Del: D TAT: 28 DAY
Date Rec'd: _____ Date Due: _____
Account #: _____

Refrigerator #																
#/Type Container	Liquid															
	Solid															
Volume	Liquid															
	Solid															
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	~~Pest/~~ PCB	Herb	ARSENIC	BERYLLIUM	BTEX	RCRA Metal TOTAL	CN	TPH DRO	TPH GRO				
		RECRA LabNet Use Only														

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	PCB	Herb	ARSENIC	BERYLLIUM	BTEX	RCRA Metal TOTAL	CN	TPH DRO	TPH GRO			
	~~[illegible]~~			~~[illegible]~~				~~X~~			~~X~~									
	9-ERØ1			W	10/2	1010							X	X		X	X			
	9-ERØ2			W	10/2	1050							X	X		X	X			
	9-TP07B-01			S	10/1	1310							X	X		X	X			
	9-TP09A-02			S	10/1	1520							X	X		X	X			
	9-TP09A-01	X	X	S	10/1	1455							X	X		X	X			
	9-TP07B-02			S	10/1	1330							X	X		X	X			
	9-TP09A-01			S	10/1	1455							X	X		X	X			
	9-TP09A-01D			S	10/1	1455							X	X		X	X			

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FED-EX AIRBILL NO.:
400-4071-8790

DATE/REVISIONS:
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

RECRA LabNet Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # _____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Lables and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
[illegible]		10/2	1500

Relinquished by	Received by	Date	Time

APPENDIX D.3
CHAIN OF CUSTODY RECORDS – PHASE III

Serial Number 146671

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

☑ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SWMU9-06

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
Naval Sta Roos Roads	CTO-099	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
PR	Mark Kimes	(787) 717-0669	(412) 269-2002

CLIENT NAME	CLIENT PROJECT MANAGER
Baker Env.	Tom Fuller

CLIENT ADDRESS (CITY, STATE, ZIP): Coraopolis 15108

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES — PAGE 1 OF 2

☒ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	SVOCs	NPIX Inorganics	BTEX	VOCs	PRESERVATIVE							REMARKS
6/29			9SW01 ✓	X				X	X		X								
6/29			9SW01D ✓	X				~~X~~	~~X~~		X								
6/29			9SW01MS ✓	X				~~X~~	~~X~~		X								
6/29			9SW01MSD ✓	X				X	X		X								
6/29			9SW02 ✓	X				X	X		X								
6/27			9-BDS-HP01 ✓	X						X									
6/27			7-TCE-CS ✓	X							X								
6/26			7-TCE-1S ✓	X							X								
6/29			7-TCE-2D ✓	X							X								
6/29			7-TCE-1D ✓	X							X								
6/29			7-TCE-3D ✓	X							X								
6/29			9SD01 ✓		X			X	X		X	X							
6/29			9SD01MS/MSD ✓		X			X	X		X	X							

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Mark E. Kimes	6/29	1400			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Mark E. Kimes	6/21	1900						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			☐ YES ☐ NO			

CLIENTS FIELD COPY

Serial Number 146670

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

☑ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SWMU 9 - 06

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE / FAX

CLIENT NAME	CLIENT PROJECT MANAGER

CLIENT ADDRESS (CITY, STATE, ZIP)

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES: VOCs / SVOCs / NPL IX Inorganics / BTEX

PAGE 2 OF 2

☒ STANDARD REPORT DELIVERY

☐ EXPEDITED REPORT DELIVERY (surcharge)

Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	VOCs	SVOCs	NPL IX Inorganics	BTEX								REMARKS
~~6/29~~			~~9SW03~~	X				X	X	X									
~~6/29~~			~~9SW04~~	X				X	X	X									
~~6/29~~			~~9SW05~~	X				X	X	X									
~~6/29~~			~~9SW06~~	X				X	X	X									
~~6/29~~			~~9SW07~~	X				X	X	X									
6/29			9TB - 04 ✓	X				X											
6/27			~~9/TB~~ 9-BD5-HP02 ✓	X							X								
6/27			9-AD2-HP02 ✓	X							X								
6/27			9-D2R-GW03 ✓	X							X								
6/27			9-D2R-GW02 ✓	X							X								
6/27			9-BD5-HP03 ✓	X							X								
6/27			9-AD2-HP01 ✓	X							X								
6/27			9-BD5-HP03D ✓	X							X								

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			[signature]	6/29	1400			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[signature] EMPTY CONTAINERS	6/21	1900						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			☐ YES ☐ NO			

CLIENTS FIELD COPY

Serial Number 146610

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☒ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

SWH49.07

PROJECT REFERENCE: Naval Stk. Rear Road
PROJECT NO.: CTO-099
P.O. NUMBER:
PROJECT LOC. (State): PR
SAMPLER(s) NAME: Mark Kimes
PHONE: (717) 717-0669
FAX: (412) 269-2002
CLIENT NAME: Baker Env
CLIENT PROJECT MANAGER: Tom Fullen
CLIENT ADDRESS (CITY, STATE, ZIP): Coraopolis PA, 15108

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES: VOC / SVOC / Appix metals / Cyanide / Sulfide / App. IX total metals / Dissolve App 9 metals

PAGE 1 OF 1

☒ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: _____

PRESERVATIVE

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	VOC	SVOC	Appix metals	Cyanide	Sulfide	App. IX total metals	Dissolve App 9 metals					REMARKS
6/29			9-SW-06 ✓	X				X	X	X	X	X							
6/29			9-SW-07 ✓	X				X	X	X	X	X							
6/29			9-SD-06 ✓		X			X	X	X	X	X							
6/29			9-SD-07 ✓		X			X	X	X	X	X							
6/29			9TB-05 ✓	X				X											
6/29			9-BG-GW01 ✓	X									X	X					
6/29			9-BG-GW03 ✓	X							X	X	X	X					
6			9-BG-GW02 ✓	X										X					
			9-BG-GW01 MS ✓	X					X										

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS	6/16/99							

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			☐ YES ☐ NO			

CLIENTS FIELD COPY

Serial Number 146672

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☑ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

SWMU9-0B

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
Khvn/ Sta Roos. Roads	CTO-099	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE / FAX
PR	Mark Kimes	PHONE (787) 717-0669 FAX (412) 269-2002

CLIENT NAME	CLIENT PROJECT MANAGER
Baker Env	Tom Fuller

CLIENT ADDRESS (CITY, STATE, ZIP): Coraopolis, PA 15108

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES — PAGE 1 OF 1

☒ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	SVOCs	Sulfide	Cyanide	Total Met. IX Metals	Dissolve Met. IX Metals							REMARKS
								PRESERVATIVE											
6/29			9 SW Q1 D ✓	X				X	X										
6/29			9 SW Q1 MS ✓	X				X	X										
~~6/29~~			~~9 SW Q5~~	~~X~~				~~X~~	~~X~~	~~MS~~									
~~6/29~~			~~9 SW Q6~~	~~X~~				~~X~~	~~X~~	~~MS~~									
~~6/29~~			~~9 SW Q7~~	~~X~~				~~X~~	~~X~~	~~MS~~									
			~~7 TCC CS~~																
			~~7 TCC IS~~																
6/29			9-SD-Q1 D ✓					X	X										
			9-BG-GW Q3 MSD									X							
6/29			9-BG-GW Q3 D ✓									X	X						Filter Dissolve
6/29			9-BG-GW Q3 MS ✓									X	X						Filter Dissolve
6/29			9-BG-GW Q2 ✓									X							

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Mark E. Kimes	6/29	1400			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
~~EMPTY CONTAINERS~~ Mark E. Kimes	6/21	1900						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			☐ YES ☐ NO			

CLIENTS FIELD COPY

Serial Number 146611

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☒ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

SWM49-09

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
Naval Stk. Loos Road	CTO-099	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE / FAX
PA	Mark Kimes	PHONE (717) 7170669 FAX (717) 269-2002

CLIENT NAME	CLIENT PROJECT MANAGER
Baker Env.	Tom Fuller

CLIENT ADDRESS (CITY, STATE, ZIP): Coraopolis, PA 15108

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES — PAGE 1 OF 1

☒ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	H2O & Alk 1:17 ODWL	SM/Colorimetric Field	VOCs	Cd	SVOCs						REMARKS
			PRESERVATIVE															
6/29			13GW-11	X				X	X	X	X							
6/29			9-MW-04	X				X	X	X		X						
6/29			9-MW-02R	X				X	X	X								
			~~9-MW-02R~~															
6/29			9TB-06	X							X							
6/29			13GW-10	X				X	X	X			X					
6/29			13GW-10D										X					
6/29			13GW-10MS										X					
6/29			13GW-10MSD										X					

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
S. Campbell	6/16/99			6/29/99	1400			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			☐ YES ☑ NO			

CLIENTS FIELD COPY

Serial Number 146540

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

- [x] 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
- [ ] 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
- [ ] 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
- [ ] 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
- [ ] 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SWMU 9-10

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
Naval Station Roosevelt Roads	CTO-049	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE / FAX
PR	Mark Kimes	PHONE (787) 717-0669 / FAX (412) 269-2002

CLIENT NAME	CLIENT PROJECT MANAGER
Baker Env.	Tom Fuller

CLIENT ADDRESS (CITY, STATE, ZIP): Coraopolis, PA 15108

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES: VOCs / Cyanide / Sulfide

PRESERVATIVE

PAGE 1 OF 1

[X] STANDARD REPORT DELIVERY

[ ] EXPEDITED REPORT DELIVERY (surcharge)

Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (oil, solvent, etc)	VOCs	Cyanide	Sulfide									REMARKS
			~~9-BGS-HP01~~																
6/29			7-TCE-40-	X				X											
6/29			9-BG-GW01 ✓	X					X	X									
6/29			9-BG-GW01D ✓	X					X	X									
6/29			9-BG-GW01MS ✓	X					X	X									
6/29			9-BG-GW01MSD ✓	X					X	X									
6/29			9-BG-GW02 ✓	X						X									

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
S. Campbell	6/27/99		[signature]	6/29/99	1500			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[signature]								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			[ ] YES [ ] NO			

CLIENTS FIELD COPY

Serial Number 146613

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

- ☑ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
- ☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
- ☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
- ☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
- ☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

SWMU 9-11

PROJECT REFERENCE: Naval Sta Roos. Roads
PROJECT NO.: CTO-099
P.O. NUMBER:
PAGE 1 OF 2

PROJECT LOC. (State): PR
SAMPLER(s) NAME: Mark Kimes
PHONE: (787)717-0669
FAX: (412)269-2002

CLIENT NAME: Baker Env
CLIENT PROJECT MANAGER: Tom Fuller

CLIENT ADDRESS (CITY, STATE, ZIP): Coraopolis, PA, 15108

☒ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: _____

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES / PRESERVATIVE: VOCs, SVOCs, RCRA metals, cyanide, sulfide

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (oil, solvent, etc)	VOCs	SVOCs	RCRA metals	cyanide	sulfide						REMARKS
6/29			9-SD02 ✓		X			X	X	X	X	X						
6/29			9-SD03 ✓		X			X	X	X	X	X						
6/29			9-SD04 ✓		X			X										
6/29			9-SD05 ✓		X			X										
6/29			9-SW02 ✓	X				X	X	X	X	X						
6/29			9-SW03 ✓	X				X	X	X	X	X						
6/29			9-SW04 ✓	X				X										
6/29			9-SW05 ✓	X				X										
6/30			9-TB-07 ✓	X				X										
6/30			7TCE-Cd ✓	X				X										
6/30			7TCE-Esd ✓	X				X										
6/30			7TCE-Bd ✓	X				X										
6/30			7TCE-Es ✓	X				X										

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS	6/16/99			6/30	1400			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS	6/21							

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			☐ YES ☐ NO			

CLIENTS FIELD COPY

Serial Number 146612

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

- [x] 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
- [ ] 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
- [ ] 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
- [ ] 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
- [ ] 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

SWMU 9 - 12

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
NAVAL Sta. Roos Roads	CTO - 099	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
PR	MARK Kimes	(787) 717-0669	(412) 269-2002

CLIENT NAME	CLIENT PROJECT MANAGER
BAREN ENV.	~~MA~~ TOM Fuller

CLIENT ADDRESS (CITY, STATE, ZIP): Corsopolis, PA 15108

PAGE ___ OF ___

STANDARD REPORT DELIVERY [X]

EXPEDITED REPORT DELIVERY (surcharge) [ ]

Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	MATRIX: AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (oil, solvent, etc)	SVOCs Total Dist IX Metals	Sulfide	Cyanide	Dissolved Metals PPP-IX						REMARKS
			PRESERVATIVE														
6/29			9-SD04		X			X	X	X	X						
6/29			9-SD05		X			X	X	X	X						
6/29			9-SW04	X	X			X	X	X	X						
6/29			9-SW05	X	X			X	X	X	X						
6/28			9-BG-GW02	X						X							
6/28			9-BG-GW04	X							X	X					
			9-BG-GW03MSD	X								X					

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
M. Campbell	6/29		Mark E. [illegible]	6/30	1400			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[illegible] & CONTAINERS	/							

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			[ ] YES [ ] NO			

CLIENTS FIELD COPY

Serial Number 146664

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☑ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

SAAMU 31-01

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE / FAX

CLIENT NAME	CLIENT PROJECT MANAGER

CLIENT ADDRESS (CITY, STATE, ZIP)

MATRIX TYPE — REQUIRED ANALYSES — PAGE 2 OF 2

☒ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (oil, solvent, etc)	Dioxins (8290)	SVOCs	PRESERVATIVE								REMARKS
6/27			31-SSFD ✓		X		X											
6/27			31-SSG ✓		X		X											
6/26			31-SSAA ✓		X		X											
6/27			31-SSBB ✓		X		X											
6/27			31-SSCC ✓		X		X											
6/27			31-SSDD ✓		X		X											
6/27			31-SSEE ✓		X		X											
6/27			31-SSFF ✓		X		X											
6/28			9-BG-GW03 ✓					X										
6/28			9-BG-GW02 ✓					X										

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS								
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			☐ YES ☐ NO			

CLIENTS FIELD COPY

Serial Number 146542

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

- [x] 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
- [ ] 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
- [ ] 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
- [ ] 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
- [ ] 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
Naval Sta Roos Roads	CTO-099	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
PR	Mark Kimes	(787) 717-0664	(412) 264-8002

CLIENT NAME	CLIENT PROJECT MANAGER
Baker Env.	Tom Fuller

CLIENT ADDRESS (CITY, STATE, ZIP): Coraopolis, PA 15108

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES: Dioxin, PCB/SVOCs, DRO, Metals, Appix Metals

PAGE 1 OF 1

- [x] STANDARD REPORT DELIVERY
- [ ] EXPEDITED REPORT DELIVERY (surcharge)

Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	Dioxin	PCB/SVOCs	DRO	Metals	Appix Metals						REMARKS
6/30			~~FB~~ 99FR-02	X				X	X	X	X	X						

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
D. Campbell	6/23/99		[illegible]	6/30	1700			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[illegible]	6/30	[illegible]						

EMPTY CONTAINERS

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			[ ] YES [ ] NO			

CLIENTS FIELD COPY

Serial Number 146646

SL *SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.*

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☒ 5102 LaRoche Avenue, Savannah, GA 31404 Phone: (912) 354-7858 Fax: (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 Phone: (904) 878-3994 Fax: (904) 878-9504
☐ 900 Lakeside Drive, Mobile, AL 36693 Phone: (334) 666-6633 Fax: (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 Phone: (813) 885-7427 Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 Phone: (504) 764-1100 Fax: (504) 725-1163

PROJECT REFERENCE: NAVN Stn Roos Roads
PROJECT NO.: CTO-099
P.O. NUMBER:
PAGE 1 OF 1

PROJECT LOC. (State): PR
SAMPLER(s) NAME: Mark Kings
PHONE: (787) 917-0664
FAX: (410) 269-2002

CLIENT NAME: ~~Mark Kings~~ BAKER
CLIENT PROJECT MANAGER: Tom Fuller

CLIENT ADDRESS (CITY, STATE, ZIP): Consobolis, PA 15108

☒ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (oil, solvent, etc)	Dioxin	SVOC/RCP	DRO	Cyanide	Sulfide	Antimony	Appix	Metals			REMARKS
				MATRIX TYPE				REQUIRED ANALYSES										
				PRESERVATIVE														
				NUMBER OF CONTAINERS SUBMITTED														
6/30			~~ET~~ 99 ER 01				X	X	X	X	X	X	X	X	X			

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			[signature]	6/30/99	1400			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
~~EMPTY CONTAINERS~~	6/21	1900						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			☐ YES ☐ NO			

CLIENTS FIELD COPY

Serial Number 146615

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☒ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

SWMU

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
Naval Sta Roos. Roads	GO-099	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
PR	MARK Kimes	(787) 717-0669	(412) 269-2002

CLIENT NAME	CLIENT PROJECT MANAGER
Baker Env	Tom Tullen

CLIENT ADDRESS (CITY, STATE, ZIP): Coraopolis, PA 15108

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES — PAGE 1 OF 1

PRESERVATIVE

STANDARD REPORT DELIVERY ☒

EXPEDITED REPORT DELIVERY (surcharge) ☐

Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	DRO	Dioxin	Silica	Sulfide	Cyanide	Asp. Toxicity					REMARKS
6/30			99-ER02	X				X	X	X	X	X	X					
6/30			99-ER04	X						X	X	X	X					

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS	6/1/99		[signature]	6/30/99	1400			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS	6/1	1800						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			☐ YES ☐ NO			

CLIENTS FIELD COPY

Serial Number 146645

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☒ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

PROJECT REFERENCE: Naval Sta Roos Roads
PROJECT NO.: CTO-099
P.O. NUMBER:
PROJECT LOC. (State): PR
SAMPLER(s) NAME: Mark Kimes
PHONE: (787) 717-0669
FAX: (912) 269-0002
CLIENT NAME: Baker Env.
CLIENT PROJECT MANAGER: Tom Fuller
CLIENT ADDRESS (CITY, STATE, ZIP): Coraopolis, PA 15108

PAGE 1 OF 1

☒ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	MATRIX TYPE: AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (oil, solvent, etc)	DIOXIN	SVOC/PCB	DRO	Antimony	Mercury						REMARKS
								REQUIRED ANALYSES										
								PRESERVATIVE										
								NUMBER OF CONTAINERS SUBMITTED										
6/30			99 FB01					X	X	X	X	X						

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			[signature]	6/30	1100			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
[signature] EMPTY CONTAINERS	6/21	1100						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			☐ YES ☐ NO			

CLIENTS FIELD COPY

Serial Number 146614

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☑ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

SWMU

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
Naval Sta. Roos. Roads	GO-099	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
PR	MARK KIMES	(787) 717-0069	(412) 269-2002

CLIENT NAME	CLIENT PROJECT MANAGER
Bolden Env.	Tom Fullen

CLIENT ADDRESS (CITY, STATE, ZIP): Coraopolis, PA 15108

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES: VOCs / BTEX (8260) / GRO / Chloride / Sulfide / Air IX Inorganics / TPO / SVOCs

PAGE ___ OF ___

☒ STANDARD REPORT DELIVERY

☐ EXPEDITED REPORT DELIVERY (surcharge)

Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	VOCs	BTEX (8260)	GRO	Chloride	Sulfide	Air IX Inorganics	TPO	SVOCs	REMARKS
6/30			99-ER-01	X			X		X							
6/30			99-ER-02	X			X		X							
6/30			99-ER-03				X		X	X	X	X	X	X		
6/30			99-ER-04	X			X									
6/30			99-FB-01	X			X	X								
6/30			99-FB-02	X			X	X								

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS	6/21		[signature]	6/30	1400			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[signature]	6/21	1900						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			☐ YES ☐ NO			

CLIENTS FIELD COPY

Serial Number 146657

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☒ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

SWMU 9-01

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
NAV. STA. RUGS. ROADS	CTO-099	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
PR	MARK KIMES	717-0069	412 269-2002

CLIENT NAME	CLIENT PROJECT MANAGER
BAKER ENV.	TOM FULLER

CLIENT ADDRESS (CITY, STATE, ZIP): CORAOPOLIS, PA 15108

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES: BTEX / GRO / DRO

PRESERVATIVE

PAGE 1 OF 1

☒ STANDARD REPORT DELIVERY

☐ EXPEDITED REPORT DELIVERY (surcharge)

Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	BTEX	GRO	DRO									REMARKS
6/22			9-Ø2R-HPØ1 ✓		X			X	X	X									
6/23			9-Ø2R-HPØ2 ✓		X			X	X	X									
6/23			9-Ø2R-HPØ2D ✓		X			X	X	X									
6/23			9-Ø2R-HPØ2 MS/MSD ✓		X			X	X	X									
6/22			9-Ø2R-HPØ3 ✓		X			X	X	X									
6/23			9-Ø2R-HPØ4 ✓		X			X	X	X									
6/23			9-Ø2R-HPØ5 ✓		X			X	X	X									
6/23			9-Ø2R-HPØ6 ✓		X			X	X	X									
6/23			9-Ø2R-HPØ7 ✓		X			X	X	X									
6/23			9-Ø2R-HPØ8 ✓		X			X	X	X									
6/23			9-Ø2R-HPØ9 ✓		X			X	X	X									
6/24			9TBØ1 ✓	X				X	X										

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			[signature]	6/24	1500			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[signature] EMPTY CONTAINERS	6/21	1900						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS:
			☐ YES ☐ NO			

CLIENTS FIELD COPY

Serial Number 146665

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

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☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

SWMU 9-04

PROJECT REFERENCE: NAVAL STA. ROOS. ROADS
PROJECT NO.: CTO-079
P.O. NUMBER:
PROJECT LOC. (State): PR
SAMPLER(s) NAME: MARK KIMES
PHONE: (787) 717-0669
FAX: (412) 269-2002
CLIENT NAME: BAKER ENV. INC.
CLIENT PROJECT MANAGER: TOM FULVER
CLIENT ADDRESS (CITY, STATE, ZIP): CORAOPOLIS PA 15108

PAGE 2 OF 2

☒ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: _____

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES / PRESERVATIVE / NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	BTEX	GRO	DRO	CYANIDE	SULFIDE	App. IX METALS							REMARKS
6/26			9-02R-HP10-01 ✓	X				X	X	X										
6/26			9-02R-HP11-01 ✓	X				X	X	X										
6/26			9-02R-HP11-01D ✓	X				X	X	X										
6/26			9-02R-HP12-01 ✓	X				X	X	X										
6/26			9-BG-SS01 ✓	X							X	X	X							
6/26			9-BG-SB-01-10-12 ✓	X							X	X	X							
6/26			9-BG-SS01D	X							X	X	X							
6/26			9-BG-SS01 MS/MSD ✓	X							X	X	X							
6/26			9-BG-SS02 ✓	X							X	X	X							
6/26			9-BG-SB02-8-10' ✓	X							X	X	X							
6/26			9-BG-SS03 ✓	X							X	X	X							
6/26			9-BG-SB03-8-10' ✓	X							X	X	X							
6/26			9-BG-SB04-10-12' ✓	X							X	X	X							

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			[signature]	9/28	1400			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS	9/21	1400						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			☐ YES ☐ NO			

CLIENTS FIELD COPY

Serial Number 146674

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

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- [ ] 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
- [ ] 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax: (334) 666-6696
- [ ] 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
- [ ] 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

SWMU 9-04

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
Naval Sta. Roos Roads	CTO-099	

PROJECT LOC. (State): PR
SAMPLER(s) NAME: Mark Kimes
PHONE: (787) 717-0669
FAX: (412) 269-2002
CLIENT NAME: Baker Env.
CLIENT PROJECT MANAGER: Tom Fuller
CLIENT ADDRESS (CITY, STATE, ZIP): Coraopolis, PA 15108

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES — PAGE 2 OF 3

STANDARD REPORT DELIVERY [x]
EXPEDITED REPORT DELIVERY (surcharge) [ ]
Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (oil, solvent, etc)	BTEX	GRO	Cyanide	Sulfide	Appl IX metals	ADDL	H2O Qual. metals	Spill Wash/TDS	FCL	VOCs	SVOCs	REMARKS
6/26			~~SB~~ 9-BG-SS04		X				X	X	X								
6/27			9-BG-SS05		X				X	X	X								
6/27			9-BG-SB05-15-17'		X				X	X	X								
6/27			9-BG-SB05-21'-23'		X				X	X	X								
6/28			13GW02	X								X	X	X					
6/28			13GW05	X								X	X	X					
6/28			13GW06	X								X	X	X					
6/28			9BG-GW01	X											X				
6/28			9BG-GW01D	X											X				
6/28			9BG-GW01MS	X											X				
6/28			9BG-GW01MSD	X											X				
6/28			9BG-GW02	X											X				
6/28			9BG-GW03	X											X				

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS								

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS
			[ ] YES [ ] NO			

CLIENTS FIELD COPY

Serial Number 146669

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

Check.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

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☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
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SWMU-04

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE / FAX

CLIENT NAME	CLIENT PROJECT MANAGER

CLIENT ADDRESS (CITY, STATE, ZIP)

MATRIX TYPE — REQUIRED ANALYSES — PAGE 3 OF 3

☒ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (oil, solvent, etc)	VOCs	SVOCs										REMARKS
								PRESERVATIVE											
6/28			9-BG-GW04	X				X											
6/28			9-TR03																
6/28			7-TCE-YS	X				X											

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS								
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS:
			☐ YES ☐ NO			

CLIENTS FIELD COPY

APPENDIX E
WELL DEVELOPMENT RECORDS

APPENDIX E.1
WELL DEVELOPMENT RECORDS - PHASE I

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: MERR OU2 BACKGROUND

CTO NO.: 277 WELL NO.: BGMW01

DATE: 4/25-26/96

GEOLOGIST/ENGINEER: KAT/APS

TIME START	0925
TIME FINISH	1044
INITIAL WATER LEVEL (FT)	14.14
TOTAL WELL DEPTH (TD)	32.55
WELL DIAMETER (INCHES)	2"
CALCULATED WELL VOLUME	3G
BOREHOLE DIAMETER (INCHES)	12"
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILER
PUMP TYPE	
TOTAL TIME (A)	
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	54G
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
4/25 1626	0	5.58	26.1	3530	27.8	REDDISH BROWN TURBID
1638	4	5.26	26.2	2961	27.1	
1644	7	5.10	25.8	2986	26.9	
4/26 0925	21	4.33	26.9	3060		
0934	24	4.70	26.9	2947		
0939	27	4.49	26.7	3064		
0948	30	4.44	26.8	3075		
0955	33	4.34	26.8	3073		
1001	36	4.26	26.8	3106		
1007	39	4.37	26.8	3106		
1014	42	4.47	26.8	3096		
1019	45	4.33	26.7	3076		
1029	48	4.18	26.7	3130		
1037	51	4.18	26.9	3147		
1044	54	4.14	26.8	3154		

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NERR OUZ BACKGROUND

CTO NO.: 277 WELL NO.: BGMW02

DATE: 4/26/96

GEOLOGIST/ENGINEER: LAT/APC

TIME START: 0808

TIME FINISH: 0902

INITIAL WATER LEVEL (FT): 18.58

TOTAL WELL DEPTH (TD): 37.12

WELL DIAMETER (INCHES): 2

CALCULATED WELL VOLUME: 3G

BOREHOLE DIAMETER (INCHES): 12"

BOREHOLE VOLUME:

AMOUNT OF WATER ADDED DURING DRILLING:

DEVELOPMENT METHOD: BAILER

PUMP TYPE:

TOTAL TIME (A):

AVERAGE FLOW (GPM)(B):

TOTAL ESTIMATED WITHDRAWAL AxB = 24G

HNU/OVA READING:

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0808	0	5.69	26.4	3274		
0814	3	4.99	26.6	3274		
0820	6	5.02	26.6	3309		
0825	9	5.20	26.6	3331		
0831	12	5.21	26.5	3319		
0836	15	5.34	26.4	3318		
0844	18	5.53	26.4	3335		
0852	21	5.56	26.3	3377		
0902	24	5.75	26.2	3417		

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR-OU2-BACKGROUND

CTO NO.: 277 WELL NO.: BGMW03

DATE: 1/16/96

GEOLOGIST/ENGINEER: JSC/APE

TIME START	1027
TIME FINISH	1041
INITIAL WATER LEVEL (FT)	16.59
TOTAL WELL DEPTH (TD)	30.30
WELL DIAMETER (INCHES)	2"
CALCULATED WELL VOLUME	2.25
BOREHOLE DIAMETER (INCHES)	12"
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILER
PUMP TYPE	
TOTAL TIME (A)	
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	8.8G.
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1027	0	6.56	27.2	4512	26.9	
1030	2.2	6.22	27.3	4101	27.2	
1033	4.4	6.25	26.9	4217	26.8	
1036	6.6	6.31	26.9	4184	27.2	
1041	8.8	6.38	26.9	4136	26.8	

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR OU2 BACKGROUND

CTO NO.: 277 WELL NO.: BG1MW104

DATE: 4/26/96

GEOLOGIST/ENGINEER: KAT/APS

TIME START	1454
TIME FINISH	1612
INITIAL WATER LEVEL (FT)	9.78
TOTAL WELL DEPTH (TD)	32.05
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	3.6
BOREHOLE DIAMETER (INCHES)	12"
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILER
PUMP TYPE	
TOTAL TIME (A)	
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	35
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1454	0	6.98	27.1	2602		
1502	3.5	7.02	27.2	2541		
1508	7.0	7.00	26.9	2527		
1513	10.5	7.00	27.2	2493		
1520	14.0	7.13	27.1	2566		
1528	17.5	7.24	27.0	2607		
1541	21	7.29	27.1	2647		
1548	24.5	7.31	26.5	2613		
1557	28	7.36	26.8	2639		
1605	31.5	7.41	27.0	2673		
1612	35	7.43	26.6	2661		

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NERR OU2 SWMU 9

CTO NO.: 277 WELL NO.: 13GW01

DATE: 3/24/96

GEOLOGIST/ENGINEER: PAM/APE

	DEVELOPMENT DATA						
	TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
	1043	0	6.87	28.0	2414	29.9	
	1045	1.3	6.85	28.1	2372	30.2	
	1049	2.6	6.88	28.0	2469	30.1	
	1051	3.9	6.92	28.0	2436	30.1	

TIME START

TIME FINISH

INITIAL WATER LEVEL (FT)

TOTAL WELL DEPTH (TD)

WELL DIAMETER (INCHES)

CALCULATED WELL VOLUME

BOREHOLE DIAMETER (INCHES)

BOREHOLE VOLUME

AMOUNT OF WATER ADDED DURING DRILLING

DEVELOPMENT METHOD

PUMP TYPE

TOTAL TIME (A)

AVERAGE FLOW (GPM)(B)

TOTAL ESTIMATED WITHDRAWAL AxB=

HNU/OVA READING

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NERR OU2 IWIMW9

CTO NO.: 277 WELL NO.: 13GW02

DATE: 3/24/96

GEOLOGIST/ENGINEER: PHM/MPE

TIME START	0950
TIME FINISH	1024
INITIAL WATER LEVEL (FT)	17.05
TOTAL WELL DEPTH (TD)	27.76
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1.7G
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	
PUMP TYPE	
TOTAL TIME (A)	
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	2.5G
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0956	0	6.90	23.4	5.97	29.1	
1001	1.7	6.99	28.0	6.30	29.3	
1024	2.5	7.11	27.5	6.40	28.9	

OBSERVATIONS/NOTES

VISIBLE SHEEN ON PURGE WATER

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR OU2 SWMU 9

CTO NO.: 277 WELL NO.: 13GW103

DATE: 3/24/96

GEOLOGIST/ENGINEER: PAM/APC

TIME START	0932
TIME FINISH	0943
INITIAL WATER LEVEL (FT)	15.38
TOTAL WELL DEPTH (TD)	25.31
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1.6 G
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	
PUMP TYPE	
TOTAL TIME (A)	
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	4.8G
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0932	0	6.99	18.6	3168	28.8	
0935	1.6	6.95	15.5	2910	28.7	
0940	3.2	6.94	16.6	2901	28.7	
0943	4.8	6.95	16.4	2921	28.7	

OBSERVATIONS/NOTES

VISIBLE SHEEN ON PURGE WATER

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NERR OU2 SWMU9

CTO NO.: 277 WELL NO.: 13GW104

DATE: 3/22/96

GEOLOGIST/ENGINEER: JPT/KFC

TIME START	1500
TIME FINISH	~1510
INITIAL WATER LEVEL (FT)	19.35
TOTAL WELL DEPTH (TD)	22.86
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	0.5
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILER
PUMP TYPE	
TOTAL TIME (A)	
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB =	1
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1500	0	6.27	25.6	27.17	28.8	BAILED DRY @ 1 GAL

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR OU2 SWMU9

CTO NO.: 277 WELL NO.: 13GW105

DATE: 3/24/96

GEOLOGIST/ENGINEER: PAM

TIME START: 0840

TIME FINISH: 0848

INITIAL WATER LEVEL (FT): 20.78

TOTAL WELL DEPTH (TD): 25.24

WELL DIAMETER (INCHES): 2

CALCULATED WELL VOLUME: 0.7G

BOREHOLE DIAMETER (INCHES):

BOREHOLE VOLUME:

AMOUNT OF WATER ADDED DURING DRILLING:

DEVELOPMENT METHOD:

PUMP TYPE:

TOTAL TIME (A):

AVERAGE FLOW (GPM)(B):

TOTAL ESTIMATED WITHDRAWAL AxB= 2.1G

HNU/OVA READING:

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0840	0	6.94	20.0	5.46	[illegible]	
0842	0.7	6.94	22.3	5.26	28.6	
0845	1.4	6.99	22.1	5.24	28.7	
0848	2.5	7.11	22.8	5.23	28.4	BAILED DRY

OBSERVATIONS/NOTES

WELL BAILED DRY AT 2.5 VOL'S; 2.1G

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR OU2 IWMU9

CTO NO.: 277 WELL NO.: 13GW06

DATE: 3/24/96

GEOLOGIST/ENGINEER: PAM/APE

TIME START	0902
TIME FINISH	0918
INITIAL WATER LEVEL (FT)	12.74
TOTAL WELL DEPTH (TD)	22.20
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1.5G
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	
PUMP TYPE	
TOTAL TIME (A)	
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	6G.
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0902	0	6.21	18.3	50.1	28.3	
0906	1.5	6.30	22.0	44.24	28.3	
0910	3.0	6.06	25.2	54.1	28.2	
0913	4.5	5.97	21.6	56.8	28.1	
0918	6.0	5.89	21.1	58.8	28.2	

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: MCRR OU2 SAMPLING

CTO NO.: 277 WELL NO.: 13GW107

DATE: 3/23/96

GEOLOGIST/ENGINEER: JPT/APC

TIME START	1408
TIME FINISH	1422
INITIAL WATER LEVEL (FT)	20.63
TOTAL WELL DEPTH (TD)	32.91
WELL DIAMETER (INCHES)	2"
CALCULATED WELL VOLUME	2
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILER
PUMP TYPE	
TOTAL TIME (A)	
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	6
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1408	0	6.59	23.5	15.6	30.2	Lt. Brown Cloudy
1411	2	6.71	23.4	15.28	29.5	"
1413	4	6.76	26.5	15.35	29.6	"
1422	6	6.85	25.0	15.35	29.3	"

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NERR OU2 Summary

CTO NO.: 277 WELL NO.: 13GW108

DATE: 3/22/96

GEOLOGIST/ENGINEER: JPT/APS

TIME START: 1304

TIME FINISH: 1345

INITIAL WATER LEVEL (FT): 19.22

TOTAL WELL DEPTH (TD): 40.16

WELL DIAMETER (INCHES): 2

CALCULATED WELL VOLUME: 3.5

BOREHOLE DIAMETER (INCHES):

BOREHOLE VOLUME:

AMOUNT OF WATER ADDED DURING DRILLING:

DEVELOPMENT METHOD:

PUMP TYPE:

TOTAL TIME (A):

AVERAGE FLOW (GPM)(B):

TOTAL ESTIMATED WITHDRAWAL AxB = 24.5

HNU/OVA READING:

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1304	0	7.15	11.4	2865	28.6	CLOUDY - TURBID
1310	3.5	7.19	12.1	2361	28.5	"
1314	7	7.31	12.2	2765	28.4	"
1319	10.5	7.28	10.7	3063	28.2	"
1328	14	7.21	10.3	3599	29.0	"
1336	17.5	7.26	17.3	3804	28.3	"
1340	21	7.20	16.7	4111	28.1	"
1345	24.5	7.17	21.4	4228	28.1	"

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR OU2 SWMU9

CTO NO.: 277 WELL NO.: 13GW009

DATE: 3/22/96

GEOLOGIST/ENGINEER: JPT/RPE

TIME START	1243
TIME FINISH	1251
INITIAL WATER LEVEL (FT)	19.45
TOTAL WELL DEPTH (TD)	26.18
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1.1
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILER
PUMP TYPE	
TOTAL TIME (A)	
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	4
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1243	0	7.02	16.1	5.64	28.3	LT. GRAY CLOUDY
1244	1	7.07	13.3	5.57	27.9	"
1246	2	7.10	12.6	5.55	27.8	"
1249	3	7.08	11.1	5.55	28.0	"
1251	4	7.13	17.7	5.49	27.7	"

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: LCRR OU2 [illegible]

CTO NO.: 277 WELL NO.: 13GW10

DATE: 3/23/96

GEOLOGIST/ENGINEER: JPT/NPS

TIME START	1216
TIME FINISH	1221
INITIAL WATER LEVEL (FT)	15.46
TOTAL WELL DEPTH (TD)	17.60
WELL DIAMETER (INCHES)	2"
CALCULATED WELL VOLUME	0.3
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	
PUMP TYPE	
TOTAL TIME (A)	
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	1.5
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1216	0	7.11	15.0	4652	28.6	Lt. Gray
1218	.5	7.16	19.5	4375	27.9	"
1219	1	7.21	17.4	4328	27.8	"
1221	1.5	7.22	20.5	4315	27.8	"

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR OU2 SWMU9

CTO NO.: 377 WELL NO.: 9MW01

DATE: 4/12/96

GEOLOGIST/ENGINEER: JSC/APS

TIME START: 1713

TIME FINISH: 1801

INITIAL WATER LEVEL (FT): 16.52

TOTAL WELL DEPTH (TD): 46.48

WELL DIAMETER (INCHES): 2

CALCULATED WELL VOLUME: 4.8 → 5.0

BOREHOLE DIAMETER (INCHES): 12"

BOREHOLE VOLUME:

AMOUNT OF WATER ADDED DURING DRILLING:

DEVELOPMENT METHOD: BAILER

PUMP TYPE:

TOTAL TIME (A):

AVERAGE FLOW (GPM)(B):

TOTAL ESTIMATED WITHDRAWAL AxB = 25 GAL

HNU/OVA READING:

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1713	0	6.50	30.6	28.02	31.1	
1722	5	6.17	28.7	29.67	27.9	
1728	10	6.08	28.8	33.16	28.0	
1735	15	6.09	28.4	35.17	27.4	
1750	20	6.14	28.2	36.29	28.1	
1801	25	6.11	28.2	37.20	28.4	

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR OU2 SKIMU9

CTO NO.: 277 WELL NO.: 9MW02

DATE: 4/14/96

GEOLOGIST/ENGINEER: JSC/KPS

TIME START: 1138

TIME FINISH: 1221

INITIAL WATER LEVEL (FT): 13.21

TOTAL WELL DEPTH (TD): 47.26

WELL DIAMETER (INCHES): 2"

CALCULATED WELL VOLUME: 12"

BOREHOLE DIAMETER (INCHES):

BOREHOLE VOLUME: 5.5

AMOUNT OF WATER ADDED DURING DRILLING:

DEVELOPMENT METHOD: BAILER

PUMP TYPE:

TOTAL TIME (A):

AVERAGE FLOW (GPM)(B):

TOTAL ESTIMATED WITHDRAWAL AxB= 22 gal

HNU/OVA READING:

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1138	0	5.30	30.0	42.80	30.4	
1153	5.5	4.62	28.9	35.80	30.6	
1159	11	4.63	29.1	35.77	30.5	
1212	16.5	4.71	28.7	36.90	29.8	
1221	22	4.65	29.2	30.71	30.6	

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR-OU2 JMMM9

CTO NO.: 277 WELL NO.: 9MW03

DATE: 4/19/96

GEOLOGIST/ENGINEER: KAT/NPE

TIME START	0947
TIME FINISH	1118
INITIAL WATER LEVEL (FT)	12.36
TOTAL WELL DEPTH (TD)	44.38
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	5.2 G
BOREHOLE DIAMETER (INCHES)	12"
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILER
PUMP TYPE	
TOTAL TIME (A)	
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	40 G
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0947	0	6.08	31.4	66.2		
1000	5	6.14	33.4	70.6		
1011	10	6.09	30.7	66.5		
1024	15	6.10	30.1	65.8		
1035	20	6.15	30.2	65.2		
1048	25	6.10	29.4	65.0		
1057	30	6.18	29.6	64.5		
1109	35	6.16	30.6	65.5		
1118	40	6.10	29.8	64.2		

OBSERVATIONS/NOTES

FIGURE A.3

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR OU2 SWMU9

CTO NO.: 277 WELL NO.: 9MW04

DATE: 4/23/96

GEOLOGIST/ENGINEER: JFT/CDB

TIME START: 1606

TIME FINISH: 1723

INITIAL WATER LEVEL (FT): 8.65

TOTAL WELL DEPTH (TD): 37.00

WELL DIAMETER (INCHES): 2

CALCULATED WELL VOLUME: 5

BOREHOLE DIAMETER (INCHES):

BOREHOLE VOLUME:

AMOUNT OF WATER ADDED DURING DRILLING:

DEVELOPMENT METHOD: BAILER

PUMP TYPE:

TOTAL TIME (A):

AVERAGE FLOW (GPM)(B):

TOTAL ESTIMATED WITHDRAWAL AxB= 40

HNU/OVA READING:

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1606	0	6.31	28.5	32.84	28.2	BROWN-TURBID
1617	2.5	6.31	27.1	34.29	27.2	"
1624	5	6.35	25.9	34.49	27.0	"
1632	7.5	6.39	25.7	31.45	27.0	"
1637	10	6.43	25.6	31.01	26.9	"
1644	12.5	6.45	25.5	31.08	27.0	"
1649	15	6.33	25.7	37.79	27.0	"
1659	17.5	6.45	25.6	32.67	26.9	"
1704	20	6.44	25.5	34.64	26.8	"
1710	22.5	6.37	25.5	41.53	26.8	"
1715	25	6.36	25.3	47.28	26.8	"
1719	27.5	6.49	25.5	36.36	26.8	"
1723	30	6.41	25.6	41.50	26.9	"
1728	32.5	6.48	25.5	37.67	26.8	"
1733	35	6.34	25.4	49.19	26.8	"
1737	37.5	6.44	25.5	43.59	26.8	"
1740	40	6.43	25.4	44.63	26.7	"

OBSERVATIONS/NOTES

APPENDIX E.2
WELL DEVELOPMENT RECORDS - PHASE II

Baker

Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: SWMU 9

CTO NO.: 257 WELL NO.: 9-MW02R

DATE: 9/24/97 - 9/25/97

GEOLOGIST/ENGINEER: B. Davis

TIME START	4:30 9/24
TIME FINISH	8:00 9/25
WATER LEVEL (FT)	16.30
TOTAL WELL DEPTH (TD)	20.00
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	.60
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	Bailing
PUMP TYPE	
TOTAL TIME (A)	15 hrs. 30 min.
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB =	
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (uohms)	TEMP (°C)	COLOR AND TURBIDITY
	4	4.9	30	2.34		High Turbidity Dry
	5	5.43	30	2.00		High Turbidity Dry
	9	5.8	30	2.34		High Turbidity Dry

OBSERVATIONS/NOTES

Baker

Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: SWMU 9

CTO NO.: 277 WELL NO.: 9-MW02S

DATE: 9/24 - 9/25

GEOLOGIST/ENGINEER: B. DAVIS

TIME START	5:10 9/24
TIME FINISH	8:15 9/25
WATER LEVEL (FT)	15.0
TOTAL WELL DEPTH (TD)	20.0
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	.82
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILING
PUMP TYPE	
TOTAL TIME (A)	15 hrs. 5 min.
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB =	
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (uohms)	TEMP (°C)	COLOR AND TURBIDITY
	3.5	5.84	29	57.7		High Turbidity Dry
	3.5	6.09	28	58.8		High Turbidity Dry

OBSERVATIONS/NOTES

Baker

Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: SWMU 9

CTO NO.: 277 WELL NO.: 9MW02N

DATE: 9/24/97 - 9/25/97

GEOLOGIST/ENGINEER: B. Davis

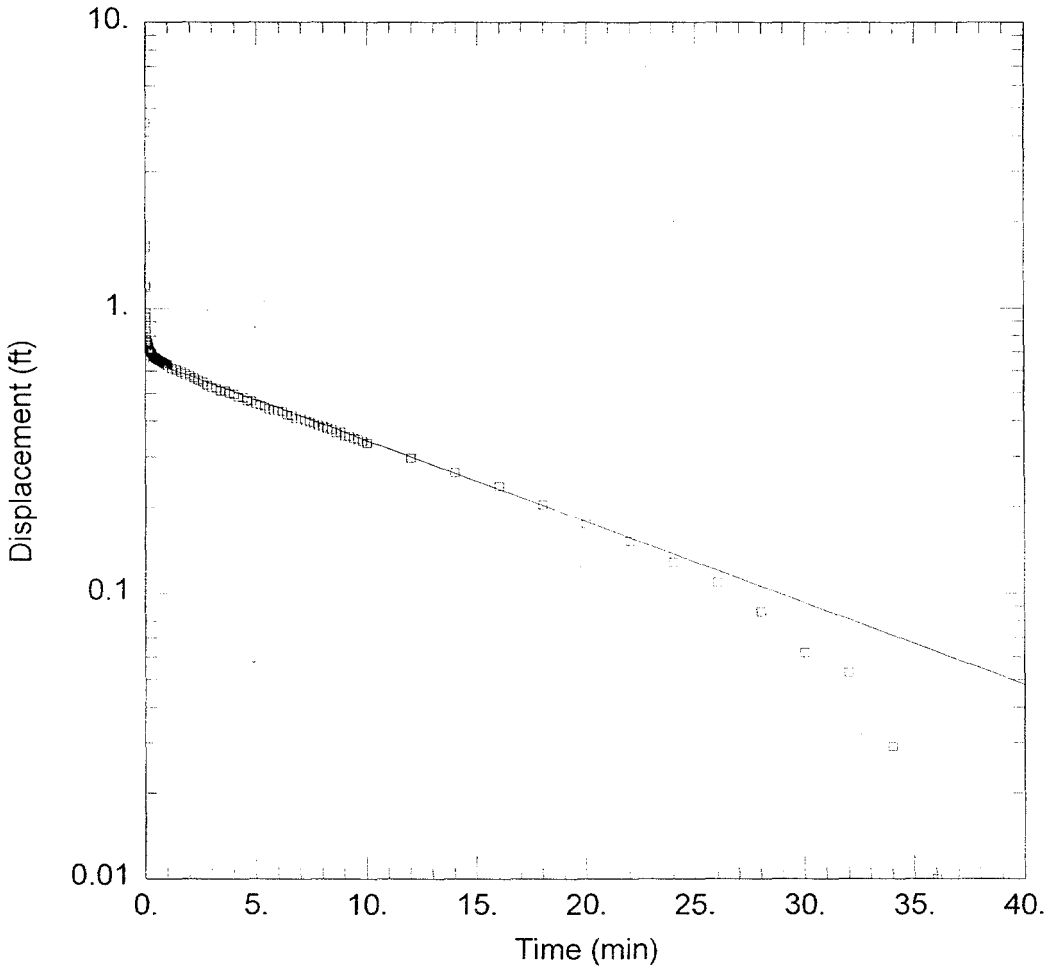
TIME START	4:00 9/24
TIME FINISH	7:35 9/25
WATER LEVEL (FT)	11.85
TOTAL WELL DEPTH (TD)	20.0
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1.33
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILING
PUMP TYPE	
TOTAL TIME (A)	15 hrs. 35 min.
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB =	
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (uohms)	TEMP (°C)	COLOR AND TURBIDITY
	8	4.59	29	29.8		High Turbidity
	11	4.83	29 Deg	30.25		High Turbidity
	13	5.43	29 Deg	31.9		High Turbidity
	21	5.46	29 Deg	31.7		High Turbidity

OBSERVATIONS/NOTES

APPENDIX F
WELLHEAD TEST DATA (SLUG TESTS)



9-MW02N RISING HEAD TEST

Data Set: C:\PROJECTS\NAVYCL~1\ROOSEV~1\AQTESOLV\MW02NR.AQT
Date: 02/10/00 Time: 13:35:39

PROJECT INFORMATION

Company: Baker Environmental, Inc.
Client: LANTDIV
Project: CTO-277
Test Location: SWMU 9 - Roosevelt Roads
Test Date: Oct. 2, 1997

AQUIFER DATA

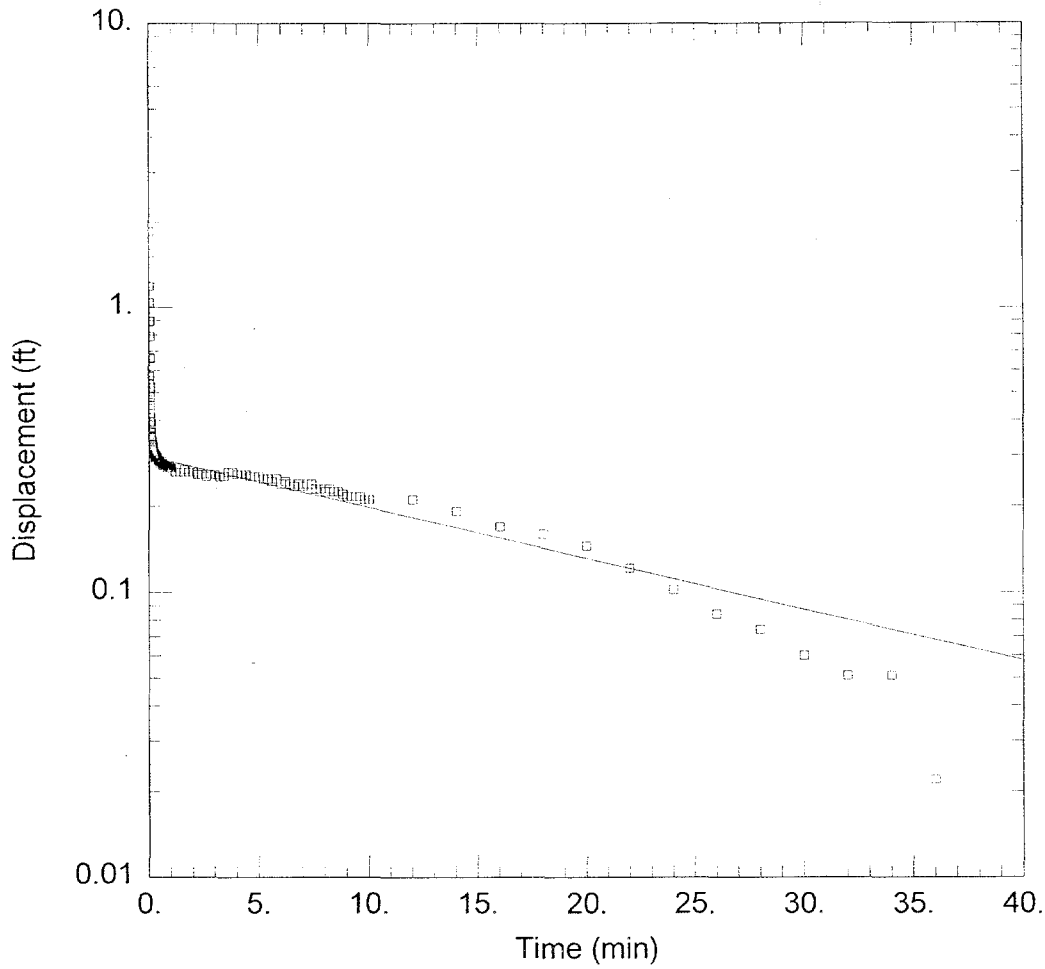
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 4.45 ft
Casing Radius: 0.083 ft
Screen Length: 10. ft
Water Column Height: 10. ft
Wellbore Radius: 0.46 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 0.7375 ft/day



9-MW02R RISING HEAD TEST

Data Set: C:\PROJECTS\NAVYCL~1\ROOSEV~1\AQTESOLV\MW02RR.AQT
Date: 02/10/00 Time: 13:30:20

PROJECT INFORMATION

Company: Baker Environmental, Inc.
Client: LANTDIV
Project: CTO-277
Test Location: SWMU 9 - Roosevelt Roads
Test Date: Oct. 2, 1997

AQUIFER DATA

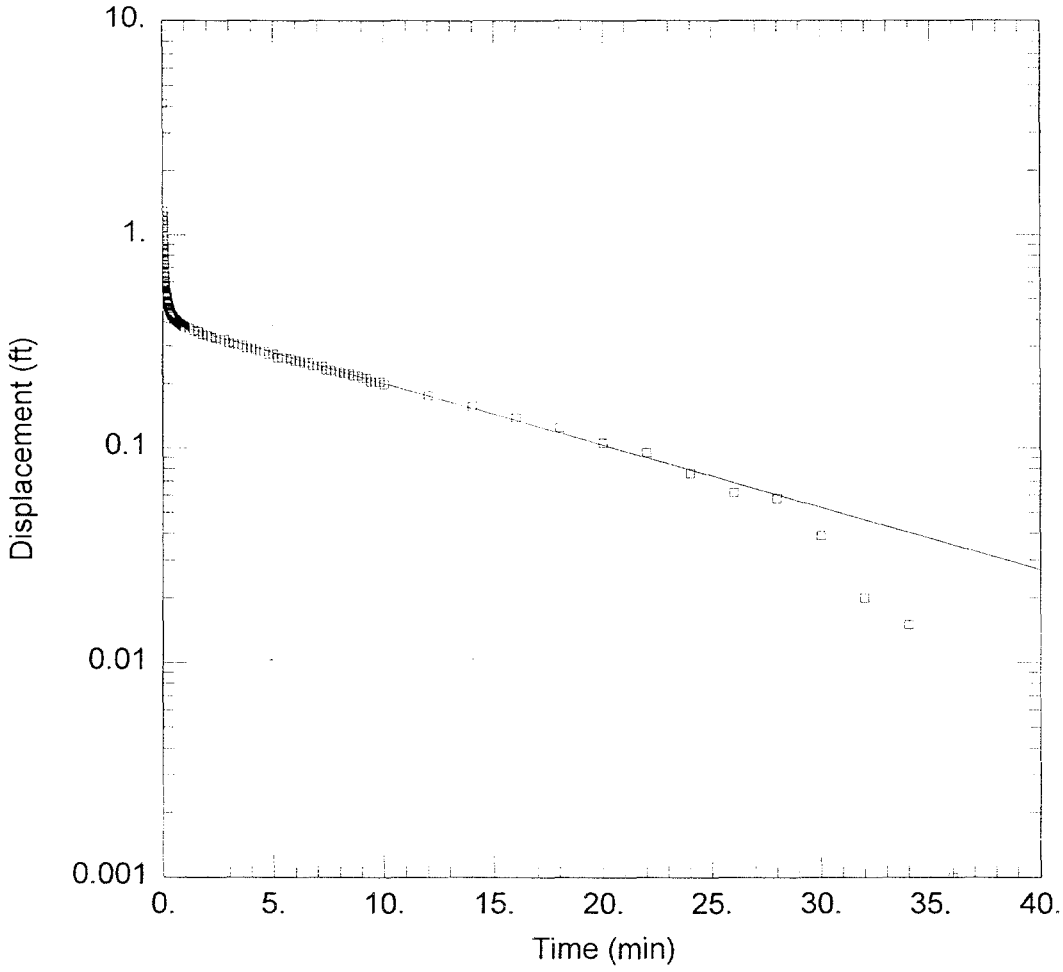
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.853 ft
Water Column Height: 10. ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.46 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 0.4627 ft/day



9-MW02S RISING HEAD TEST

Data Set: C:\PROJECTS\NAVYCL~1\ROOSEV~1\AQTESOLV\MW02RS.AQT
Date: 02/10/00 Time: 13:34:10

PROJECT INFORMATION

Company: Baker Environmental, Inc.
Client: LANTDIV
Project: CTO-277
Test Location: SWMU 9 - Roosevelt Roads
Test Date: Oct. 2, 1997

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

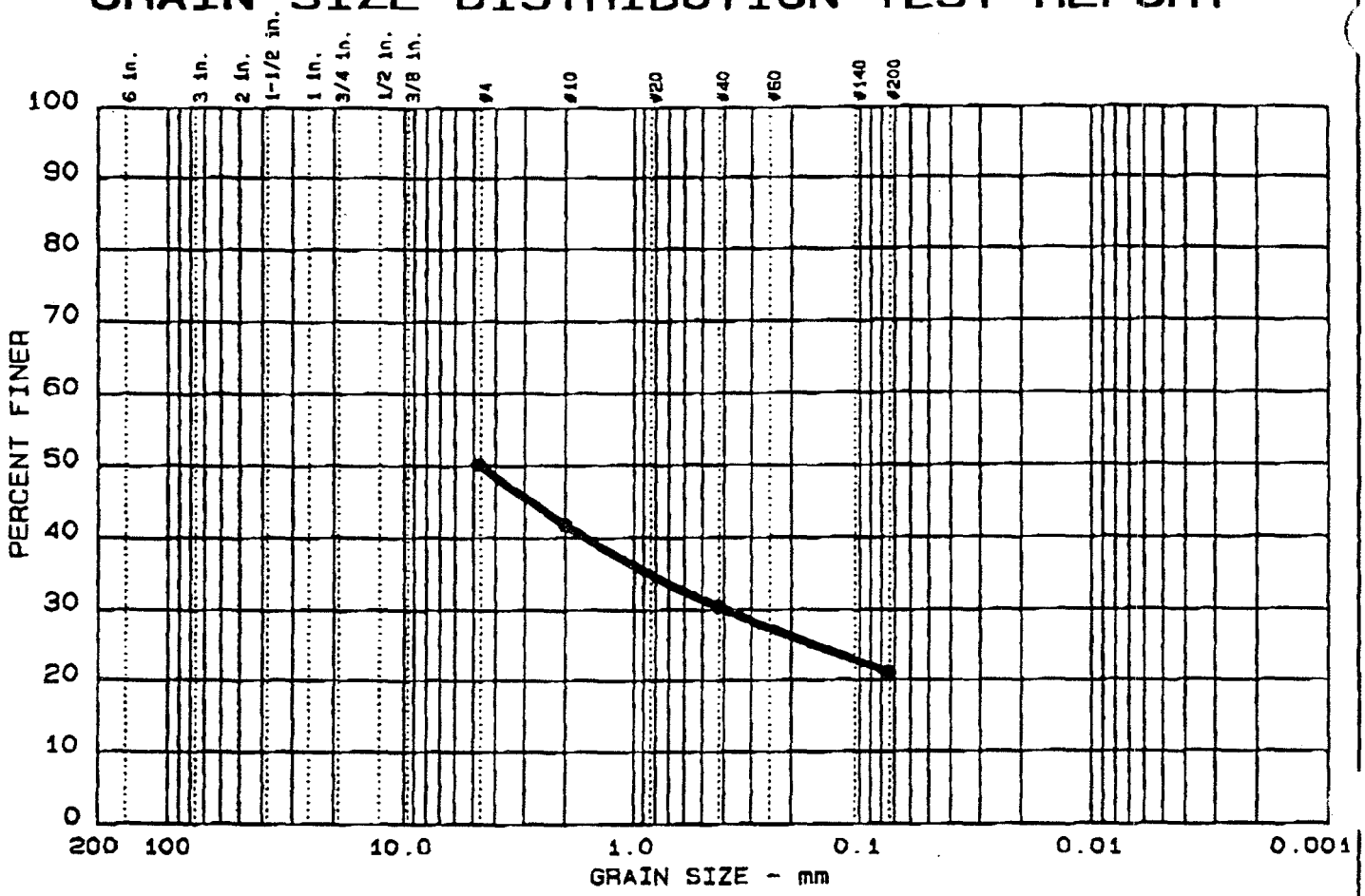
Initial Displacement: 4.123 ft
Casing Radius: 0.083 ft
Screen Length: 10. ft
Water Column Height: 10. ft
Wellbore Radius: 0.46 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 0.7524 ft/day

APPENDIX G
GEOTECHNICAL TEST RESULTS

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	1	0.0	49.9	29.0	21.1	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	36.7	17.3	4.76	4.76	4.65	0.396				

MATERIAL DESCRIPTION	USCS	AASHTO
● ROCK FRAG., LITTLE TO SOME SANDY SILT, YELL. BROWN	GC	A-2-6 (0.4)

Project No.: 96008
Project: BAKER NSRA
● Location: BORING 9 MW 04, FROM 8 TO 10 FT.

Date: 6-5-96

Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

SOIL TECH

Figure No. 1

SOIL TECH

BORING LOG

JOB NO. : 96008 WELL NO. : 9 MW-04

PROJECT : BASE NAVAL ROOSEVELT ROAD

LOCATION : CEIBA, P.R.

CLIENT : BAKER ENVIRONMENTAL

TOTAL DEPTH : 36.0 ft.
SURFACE ELEV. : N/A
WATER LEVEL : 7.5 ft.
ELAPSED TIME : N/A

DRILL RIG : AD-II
DRILL METHOD : 3.25" TO 6.25" HOLLOW-STEM AUGER
SAMPLER : 1-3/8" ID X 2" O.D. X 2'L SS
HAMMER WEIGHT : 140 LBS

DRILLER : J. L. MORALES
LOGGED BY : JOSE A. MEDERO
DATE STARTED : 04/19/96
DATE ENDED : 04/19/96

DEPTH (FEET)	SAMPLES	BLOWS (per 6 in.)	N VALUE * WATER CONTENT ---- • ---- GRAPH	GRAPHIC LOG	DESCRIPTION	N	Q_u (tsf)	PEN (tsf)	WATER CONTENT (%)
0									
5					NO SAMPLING				
7.5	MW-04-4	42-50/6			ROCK FRAGMENTS, LITTLE TO SOME FINE SANDY SILT, YELLOWISH BROWN	50/6			13.1
10									
15					NO SAMPLING				
20									
25									
30									
35									
36					END OF BORING AT 36.0 FEET				
40									

0 10 20 30 40 50

NOTE : All depths referred to existing grade

COMMENTS : P.H.=8

GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 1

Date: 6-5-96
Project No.: 96008
Project: BAKER NSRR

Sample Data

Location of Sample: BORING 9 MW 04, FROM 8 TO 10 FT.
Sample Description: ROCK FRAG., LITTLE TO SOME SANDY SILT, YELL. BROWN
USCS Class: GC Liquid limit: 36.7
AASHTO Class: A-2-6(0.4) Plasticity index: 17.3

Notes

Remarks:

Fig. No.: 1

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	349.70	277.00
Tare =	0.00	0.00
Dry sample weight =	349.70	277.00
Minus #200 from wash=	20.8 %	

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
# 4	174.38	0.00	50.1
# 10	29.42	0.00	41.7
# 40	39.88	0.00	30.3
# 200	32.20	0.00	21.1

Fractional Components

% + 75mm. = 0.0 % GRAVEL = 49.9 % SAND = 29.0
% FINES = 21.1

D85= 4.76 D60= 4.760 D50= 4.652
D30= 0.3959

APPENDIX H
ANALYTICAL LABORATORY RESULTS

Data Qualifiers:

B – Not detected substantially above the level reported in laboratory or field blanks.
U – Not detected. The associated number indicates the approximate sample concentration necessary to be detected.
UJ – Not detected, quantitation limit may be inaccurate or imprecise.
J – Analyte present. Reported value may not be accurate or precise.
R – Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

Notes:

NA – Not analyzed.
ND – Not detected.
ft – feet
bgs – below ground surface.
mg/kg – milligrams per kilogram
mg/L – milligrams per liter.
PCU – primary color units.
ppt – parts per trillion.
TON – threshold odor number.
ug/kg – micrograms per kilogram.
ug/L – micrograms per liter.

APPENDIX H.1
BACKGROUND, SURFACE SOIL - INORGANICS

APPENDIX H.1

SUMMARY OF BACKGROUND ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-BG-SS01	9-BG-SS01D	9-BG-SS02	9-BG-SS03	9-BG-SS04	9-BG-SS05
Sample Date	06/26/99	06/26/99	06/26/99	06/26/99	06/26/99	06/27/99
Depth Range (ft bgs)	0.00-0.50	0.00-0.50	0.00-0.50	0.00-0.50	0.00-0.50	0.00-0.50
Inorganics (mg/kg)						
Antimony	0.33 R	0.33 R	0.66 R	0.32 R	0.3 R	0.33 R
Arsenic	2.2 J	0.8 J	2.5 J	2.3 J	2.1 J	0.21 J
Barium	91	75	53	110	62	66
Beryllium	0.36 J	0.34 J	0.17 J	0.18 J	0.15 J	0.32 J
Cadmium	0.061 U	0.062 U	0.92 J	0.059 U	0.18 J	0.061 U
Chromium	9.6	9.5	17	10	27	34
Cobalt	64	48	29	25	16	33
Copper	78 J	78 J	67 J	100 J	67 J	66 J
Cyanide	1.2 U	1.2 U	1.2 U	1.2 U	1.1 U	1.2 U
Lead	3.9 J	3 J	8.3 J	3.5 J	16 J	21 J
Mercury	0.058 J	0.037 J	0.12 J	0.032 J	0.03 J	0.071 J
Nickel	5.5	5.3	4.6 J	6.6	15	17
Selenium	2.1 UJ	2.1 UJ	0.41 UJ	1 UJ	0.86 UJ	1 UJ
Silver	0.073 U	0.074 U	0.15 U	0.071 U	0.067 U	0.073 U
Sulfide	30 U	31 U	30 U	29 U	39	44
Thallium	0.22 UJ	0.22 UJ	0.22 UJ	0.21 UJ	0.36 UJ	0.22 UJ
Tin	1.9 J	2.3 J	1.4 J	2.1 J	2 J	2.3 J
Vanadium	250	270	230	180	120	180
Zinc	36 J	36 J	49 J	67 J	50 J	61 J

APPENDIX H.2
BACKGROUND, SUBSURFACE SOIL - INORGANICS

APPENDIX H.2

SUMMARY OF BACKGROUND ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 9 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-BG-SB01	9-BG-SB02	9-BG-SB03	9-BG-SB04	9-BG-SB05-15-17	9-BG-SB05-21-23
Sample Date	06/26/99	06/26/99	06/26/99	06/26/99	06/27/99	06/27/99
Depth Range (ft bgs)	10.00-12.00	8.00-10.00	8.00-10.00	10.00-12.00	15.00-17.00	21.00-23.00
Inorganics (mg/kg)						
Antimony	0.33 R	0.36 R	0.67 R	0.43 R	0.28 R	0.28 R
Arsenic	0.54 J	0.53 J	0.85 J	1.5 J	0.28 J	0.15 UJ
Barium	54	9.3	150	53	82	45
Beryllium	0.077 J	0.21 J	0.93	0.1 J	0.38 J	0.35 J
Cadmium	0.061 U	0.066 U	0.12 U	0.079 U	0.099 J	0.33 J
Chromium	3.9	10	6	8.7	24	28
Cobalt	78	2.5	8.9	6.5	23	25
Copper	160 J	130 J	260 J	89 J	200 J	210 J
Cyanide	1.2 U	1.3 U	1.2 U	1.6 U	1.1 U	1.1 U
Lead	0.27 J	3 J	4.5 J	2.7 J	2 J	1.9 J
Mercury	0.0055 UJ	0.006 UJ	0.0051 UJ	0.024 J	0.0052 UJ	0.0057 UJ
Nickel	5.9	1.1 J	2.1 J	2.4 J	17	18
Selenium	0.94 UJ	0.22 UJ	3.8 J	1.8 J	0.98 UJ	0.98 J
Silver	0.073 U	0.079 U	0.074 U	0.095 U	0.063 U	0.063 U
Sulfide	30 U	33 U	31 U	40 U	37	29 U
Thallium	0.2 UJ	0.24 UJ	0.2 UJ	0.29 J	0.21 J	0.21 UJ
Tin	2.2 J	2.6 J	2.4 J	2.2 J	2.5 J	3.6 J
Vanadium	200	360	410	110	160	190
Zinc	52 J	27 U	98 J	40 J	76 J	83 J

APPENDIX H.3
BACKGROUND, GROUNDWATER - ORGANICS

APPENDIX H.3

SUMMARY OF BACKGROUND ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-BG-GW01	9-BG-GW01D	9-BG-GW02	9-BG-GW03	9-BG-GW04
Sample Date	6/29/99	6/29/99	6/29/99	06/28/99	6/29/99
Volatiles (ug/L)					
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U
2-Butanone	25 U	25 U	25 U	25 U	25 U
2-Hexanone	25 U	25 U	25 U	25 U	25 U
4-Methyl-2-pentanone	25 U	25 U	25 U	25 U	25 U
Acetone	50 U	50 U	50 U	50 U	26 J
Benzene	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U
Bromoform	5 U	5 U	5 U	5 U	5 U
Bromomethane	10 U	10 U	10 U	10 U	10 U
Carbon disulfide	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U
Chloroethane	10 U	10 U	10 U	10 U	10 U
Chloroform	5 U	5 U	5 U	5 U	5 U
Chloromethane	10 U	10 U	10 U	10 U	10 U
cis-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U
Methylene chloride	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U
Toluene	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U
Vinyl chloride	10 U	10 U	10 U	10 U	10 U
Xylene (total)	10 U	10 U	10 U	10 U	10 U
Semivolatiles (ug/L)					
1,2,4-Trichlorobenzene	NA	NA	10 U	10 U	NA
1,2-Dichlorobenzene	NA	NA	10 U	10 U	NA
1,3-Dichlorobenzene	NA	NA	10 U	10 U	NA
1,4-Dichlorobenzene	NA	NA	10 U	10 U	NA
2,2'-Oxybis(1-Chloropropane)	NA	NA	10 UJ	10 UJ	NA
2,4,5-Trichlorophenol	NA	NA	10 U	10 U	NA
2,4,6-Trichlorophenol	NA	NA	10 U	10 U	NA
2,4-Dichlorophenol	NA	NA	10 U	10 U	NA
2,4-Dimethylphenol	NA	NA	10 U	10 U	NA

APPENDIX H.3 (continued)

SUMMARY OF BACKGROUND ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-BG-GW01	9-BG-GW01D	9-BG-GW02	9-BG-GW03	9-BG-GW04
Sample Date	6/29/99	6/29/99	6/29/99	06/28/99	6/29/99
Semivolatiles (ug/L) (cont.)					
2,4-Dinitrophenol	NA	NA	50 U	50 U	NA
2,4-Dinitrotoluene	NA	NA	10 U	10 U	NA
2,6-Dinitrotoluene	NA	NA	10 U	10 U	NA
2-Chloronaphthalene	NA	NA	10 U	10 U	NA
2-Chlorophenol	NA	NA	10 U	10 U	NA
2-Methylnaphthalene	NA	NA	10 U	10 U	NA
2-Nitroaniline	NA	NA	50 U	50 U	NA
2-Nitrophenol	NA	NA	10 U	10 U	NA
3,3'-Dichlorobenzidine	NA	NA	20 U	20 U	NA
3-Nitroaniline	NA	NA	50 UJ	50 UJ	NA
4,6-Dinitro-2-methylphenol	NA	NA	50 U	50 U	NA
4-Chloro-3-methylphenol	NA	NA	10 U	10 U	NA
4-Chloroaniline	NA	NA	20 U	20 U	NA
4-Chlorophenyl phenyl ether	NA	NA	10 U	10 U	NA
4-Nitroaniline	NA	NA	50 UJ	50 UJ	NA
4-Nitrophenol	NA	NA	50 U	50 U	NA
Acenaphthene	NA	NA	10 U	10 U	NA
Acenaphthylene	NA	NA	10 U	10 U	NA
Anthracene	NA	NA	10 U	10 U	NA
Benzidine	NA	NA	80 U	80 U	NA
Benzo(a)anthracene	NA	NA	10 U	10 U	NA
Benzo(a)pyrene	NA	NA	10 U	10 U	NA
Benzo(b)fluoranthene	NA	NA	10 U	10 U	NA
Benzo(g,h,i)perylene	NA	NA	10 U	10 U	NA
Benzo(k)fluoranthene	NA	NA	10 U	10 U	NA
Benzoic acid	NA	NA	50 U	50 U	NA
Benzyl alcohol	NA	NA	10 U	10 U	NA
Bis(2-chloroethoxy)methane	NA	NA	10 U	10 U	NA
Bis(2-chloroethyl)ether	NA	NA	10 UJ	10 UJ	NA
Bis(2-ethylhexyl)phthalate	NA	NA	10 U	10 U	NA
Bromodiphenyl ether, p-	NA	NA	10 U	10 U	NA
Butylbenzylphthalate	NA	NA	10 U	10 U	NA
Chrysene	NA	NA	10 U	10 U	NA
Dibenzo(a,h)anthracene	NA	NA	10 U	10 U	NA
Dibenzofuran	NA	NA	10 U	10 U	NA
Diethylphthalate	NA	NA	10 U	10 U	NA
Dimethylphthalate	NA	NA	10 U	10 U	NA
Di-n-butylphthalate	NA	NA	10 U	10 U	NA
Di-n-octylphthalate	NA	NA	10 U	10 U	NA
Diphenylamine	NA	NA	10 U	10 U	NA
Fluoranthene	NA	NA	10 U	10 U	NA
Fluorene	NA	NA	10 U	10 U	NA
Hexachlorobenzene	NA	NA	10 U	10 U	NA
Hexachlorobutadiene	NA	NA	10 U	10 U	NA

APPENDIX H.3 (continued)

SUMMARY OF BACKGROUND ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-BG-GW01	9-BG-GW01D	9-BG-GW02	9-BG-GW03	9-BG-GW04
Sample Date	6/29/99	6/29/99	6/29/99	06/28/99	6/29/99
Semivolatiles (ug/L) (cont.)					
Hexachlorocyclopentadiene	NA	NA	10 U	10 U	NA
Hexachloroethane	NA	NA	10 U	10 U	NA
Indeno(1,2,3-cd)pyrene	NA	NA	10 U	10 U	NA
Isophorone	NA	NA	10 U	10 U	NA
m-Cresol	NA	NA	10 UJ	10 UJ	NA
Naphthalene	NA	NA	10 U	10 U	NA
Nitrobenzene	NA	NA	10 U	10 U	NA
N-Nitrosodimethylamine	NA	NA	10 UJ	10 UJ	NA
N-Nitroso-di-n-propylamine	NA	NA	10 U	10 U	NA
o-Cresol	NA	NA	10 UJ	10 UJ	NA
Pentachlorophenol	NA	NA	50 U	50 U	NA
Phenanthrene	NA	NA	10 U	10 U	NA
Phenol	NA	NA	10 U	10 U	NA
Pyrene	NA	NA	10 U	10 U	NA

APPENDIX H.4
BACKGROUND, GROUNDWATER – TOTAL INORGANICS

APPENDIX H.4

SUMMARY OF BACKGROUND ANALYTICAL RESULTS, GROUNDWATER - TOTAL INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-BG-GW01	9-BG-GW01D	9-BG-GW02	9-BG-GW03	9-BG-GW03D	9-BG-GW04
Sample Date	06/29/99	06/29/99	06/29/99	06/29/99	06/29/99	6/29/99
Total Inorganics (ug/L)						
Antimony	14.2 J	NA	13.5 R	5.7 U	13.5 R	NA
Arsenic	5.8 J	NA	2.6 UJ	22.4 J	13.3 J	NA
Barium	156 J	NA	315 J	1870 J	191 J	NA
Beryllium	0.83 J	NA	1.3 J	7.8	0.99 J	NA
Cadmium	2.5 U	NA	14.8 J	53.1	32.4	NA
Chromium	4 U	NA	6.9 J	112	4 U	NA
Cobalt	11.1 J	NA	507	778	428	NA
Copper	52.5 J	NA	200	2700	223	NA
Cyanide	10 U	10 U	10 U	10 U	NA	10 U
Lead	0.9 U	NA	0.9 U	32.5 J	0.9 U	NA
Mercury	0.1 U	NA	0.12 J	0.21	0.1 U	NA
Nickel	12.6 J	NA	79.7 J	158	44 J	NA
Selenium	17 U	NA	42.7 J	17 UJ	8.5 U	NA
Silver	3 U	NA	3 U	30.1	3 U	NA
Sulfide	100 U	100 U	100 U	100 U	NA	NA
Thallium	1.8 R	NA	1.8 R	180 R	1.8 R	NA
Tin	10.9 J	NA	8.5 U	15.5 J	8.5 U	NA
Vanadium	73.3	NA	218	3000	70.8	NA
Zinc	24.9 U	NA	695	2410	299	NA

APPENDIX H.5
BACKGROUND, GROUNDWATER – DISSOLVED INORGANICS

APPENDIX H.5

SUMMARY OF BACKGROUND ANALYTICAL RESULTS, GROUNDWATER - DISSOLVED INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-BG-GW01	9-BG-GW02	9-BG-GW03	9-BG-GW03D
Sample Date	06/29/99	06/29/99	06/29/99	06/29/99
Dissolved Inorganics (ug/L)				
Antimony	2.7 U	13.5 U	2.7 U	3.8 J
Arsenic	9.3 J	2.6 UJ	17.7 J	8.7 J
Barium	114	271	146	236
Beryllium	0.1 U	0.5 U	0.1 J	1.1 J
Cadmium	1.7 J	15.4 J	36	33.6
Chromium	0.8 U	4 U	1.3 J	8 J
Cobalt	6.6 J	501	591	533
Copper	6.2 J	84.8 J	373	496 J
Cyanide	0.01 U	0.01 U	0.01 U	NA
Lead	0.9 UJ	0.9 J	0.9 UJ	0.9 UJ
Mercury	0.13 J	0.11 J	0.1 U	0.2 J
Nickel	2.6 J	80.1 J	52.2	57.7
Selenium	17 U	27.3 J	18.2 J	13 J
Silver	1.8 J	3 U	1.9 J	1.7 J
Thallium	1.8 R	1.8 R	1.8 R	1.8 R
Tin	1.7 U	8.5 U	1.7 U	2 J
Vanadium	29.3 J	3 U	1.2 U	265
Zinc	2.4 U	582	253	492

APPENDIX H.6
BACKGROUND, SURFACE WATER – TOTAL INORGANICS

APPENDIX H.6

SUMMARY OF BACKGROUND ANALYTICAL RESULTS, SURFACE WATER - TOTAL INORGANICS
SWMU 9 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SW05
Sample Date	06/29/99
Total Inorganics (ug/L)	
Antimony	2.7 U
Arsenic	35.1 J
Barium	55.9
Beryllium	0.1 U
Cadmium	0.5 U
Chromium	9.1 J
Cobalt	3.2 J
Copper	42.3 U
Cyanide	10 U
Lead	4.5 UJ
Mercury	0.1 U
Nickel	1.4 U
Selenium	17 UJ
Silver	0.6 U
Sulfide	100 U
Thallium	180 R
Tin	2.7 J
Vanadium	48.4 J
Zinc	11.9 J

APPENDIX H.7
BACKGROUND, SEDIMENT – ORGANICS

APPENDIX H.7

SUMMARY OF BACKGROUND ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 9 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD05
Sample Date	36340
Depth Range (ft bgs)	0.00-0.50
Volatiles (ug/kg)	
1,1,1-Trichloroethane	12 U
1,1,2,2-Tetrachloroethane	12 U
1,1,2-Trichloroethane	12 U
1,1-Dichloroethane	12 U
1,1-Dichloroethene	12 U
1,2-Dichloroethane	12 U
1,2-Dichloropropane	12 U
2-Butanone	61 U
2-Hexanone	61 U
4-Methyl-2-pentanone	61 U
Acetone	140
Benzene	12 U
Bromodichloromethane	12 U
Bromoform	12 U
Bromomethane	24 U
Carbon disulfide	12 U
Carbon tetrachloride	12 U
Chlorobenzene	12 U
Chloroethane	24 U
Chloroform	12 U
Chloromethane	24 U
cis-1,2-Dichloroethene	12 U
cis-1,3-Dichloropropene	12 U
Dibromochloromethane	12 U
Ethylbenzene	12 U
Methylene chloride	12 U
Styrene	12 U
Tetrachloroethene	12 U
Toluene	12 U
trans-1,2-Dichloroethene	12 U
trans-1,3-Dichloropropene	12 U
Trichloroethene	12 U
Vinyl chloride	24 U
Xylene (total)	24 U
Semivolatiles (ug/kg)	
1,2,4-Trichlorobenzene	800 U
1,2-Dichlorobenzene	800 U
1,3-Dichlorobenzene	800 U
1,4-Dichlorobenzene	800 U
2,2'-Oxybis(1-Chloropropane)	800 U
2,4,5-Trichlorophenol	800 U
2,4,6-Trichlorophenol	800 U
2,4-Dichlorophenol	800 U

APPENDIX H.7 (continued)

SUMMARY OF BACKGROUND ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 9 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD05
Sample Date	36340
Depth Range (ft bgs)	0.00-0.50
Semivolatiles (ug/kg) (cont.)	
2,4-Dimethylphenol	800 U
2,4-Dinitrophenol	4100 U
2,4-Dinitrotoluene	800 U
2,6-Dinitrotoluene	800 U
2-Chloronaphthalene	800 U
2-Chlorophenol	800 U
2-Methylnaphthalene	800 U
2-Nitroaniline	4100 U
2-Nitrophenol	800 U
3,3'-Dichlorobenzidine	1600 U
3-Nitroaniline	4100 U
4,6-Dinitro-2-methylphenol	4100 U
4-Chloro-3-methylphenol	800 U
4-Chloroaniline	1600 U
4-Chlorophenyl phenyl ether	800 U
4-Nitroaniline	4100 U
4-Nitrophenol	4100 U
Acenaphthene	800 U
Acenaphthylene	800 U
Anthracene	800 U
Benzidine	6600 U
Benzo(a)anthracene	800 U
Benzo(a)pyrene	800 U
Benzo(b)fluoranthene	800 U
Benzo(g,h,i)perylene	800 U
Benzo(k)fluoranthene	800 U
Benzoic acid	4100 U
Benzyl alcohol	800 U
Bis(2-chloroethoxy)methane	800 U
Bis(2-chloroethyl)ether	800 U
Bis(2-ethylhexyl)phthalate	800 U
Bromodiphenyl ether, p-	800 U
Butylbenzylphthalate	800 U
Chrysene	800 U
Dibenzo(a,h)anthracene	800 U
Dibenzofuran	800 U
Diethylphthalate	800 U
Dimethylphthalate	800 U
Di-n-butylphthalate	800 U
Di-n-octylphthalate	800 U
Diphenylamine	800 U
Fluoranthene	800 U
Fluorene	800 U

APPENDIX H.7 (continued)

SUMMARY OF BACKGROUND ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 9 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD05
Sample Date	36340
Depth Range (ft bgs)	0.00-0.50
Semivolatiles (ug/kg) (cont.)	
Hexachlorobenzene	800 U
Hexachlorobutadiene	800 U
Hexachlorocyclopentadiene	800 U
Hexachloroethane	800 U
Indeno(1,2,3-cd)pyrene	800 U
Isophorone	800 U
m-Cresol	800 U
Naphthalene	800 U
Nitrobenzene	800 U
N-Nitrosodimethylamine	800 U
N-Nitroso-di-n-propylamine	800 U
o-Cresol	800 U
Pentachlorophenol	4100 U
Phenanthrene	800 U
Phenol	800 U
Pyrene	800 U

APPENDIX H.8
BACKGROUND, SEDIMENT – INORGANICS

APPENDIX H.8

SUMMARY OF BACKGROUND ANALYTICAL RESULTS, SEDIMENT - INORGANICS
SWMU 9 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD05
Sample Date	06/29/99
Depth Range (ft bgs)	0.00-0.50
Inorganics (mg/kg)	
Antimony	0.66 UJ
Arsenic	1.3 J
Barium	8.1
Beryllium	0.047 J
Cadmium	0.12 U
Chromium	16
Cobalt	4.7
Copper	58 J
Cyanide	2.4 U
Lead	4.6 J
Mercury	0.041 J
Nickel	4.8 J
Selenium	0.75 UJ
Silver	0.15 U
Sulfide	61 U
Thallium	0.4 UJ
Tin	4.2 J
Vanadium	110
Zinc	29 U

APPENDIX H.9
AREA A, SURFACE SOIL – ORGANICS

APPENDIX H.9

SUMMARY OF AREA A ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS01	9SS02	9MW01-00	9MW02-00
Sample Date	03/20/96	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Volatiles (ug/kg)				
1,1,1,2-Tetrachloroethane	11 U	11 U	12 U	11 U
1,1,1-Trichloroethane	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	6 U	6 U	6 U	6 U
1,1-Dichloroethane	6 U	6 U	6 U	6 U
1,1-Dichloroethene	6 U	6 U	6 U	6 U
1,2,3-Trichloropropane	11 U	11 U	12 U	11 U
1,2-Dibromo-3-chloropropane	23 U	23 U	25 U	22 U
1,2-Dibromoethane	23 U	23 U	25 U	22 U
1,2-Dichloroethane	6 U	6 UJ	6 UJ	6 UJ
1,2-Dichloroethene (Total)	6 U	6 U	6 U	6 U
1,2-Dichloropropane	6 U	6 U	6 U	6 U
2-Butanone	11 UJ	11 U	12 U	11 U
2-Chloro-1,3-butadiene	110 U	110 U	120 U	110 U
2-Hexanone	11 UJ	11 U	12 U	11 U
3-Chloropropene	23 U	23 U	25 U	22 U
4-Methyl-2-pentanone	11 UJ	11 U	12 U	11 U
Acetone	11 UJ	12 J	12 UJ	11 UJ
Acetonitrile	110 U	110 U	120 U	110 U
Acrolein	570 UJ	570 U	620 U	560 U
Acrylonitrile	110 U	110 U	120 U	110 U
Benzene	6 U	6 U	6 U	6 U
Bromodichloromethane	6 U	6 U	6 U	6 U
Bromoform	6 U	6 U	6 U	6 U
Bromomethane	11 U	11 U	12 U	11 U
Carbon disulfide	6 U	6 U	6 U	6 U
Carbon tetrachloride	6 U	6 UJ	6 UJ	6 UJ
Chlorobenzene	6 U	6 U	6 U	6 U
Chloroethane	11 U	11 U	12 U	11 U
Chloroform	6 U	6 U	6 U	6 U
Chloromethane	11 U	11 UJ	12 UJ	11 UJ
cis-1,3-Dichloropropene	6 U	6 U	6 U	6 U
Dibromochloromethane	6 U	6 U	6 U	6 U
Dibromomethane	11 U	11 U	12 U	11 U
Dichlorodifluoromethane	23 UJ	23 UJ	25 UJ	22 UJ
Ethylbenzene	6 U	6 U	6 U	6 U
Ethylmethacrylate	23 U	23 U	25 U	22 U
Iodomethane	11 U	11 U	12 U	11 U
Isobutanol	2300 R	2300 R	2500 R	2200 R
Methacrylonitrile	23 U	23 U	25 U	22 U
Methylene chloride	6 U	6 UJ	6 UJ	6 UJ
Pentachloroethane	23 U	23 U	25 U	22 U
Propionitrile (Ethyl Cyanide)	57 UJ	57 R	62 R	56 R
Styrene	6 U	6 U	6 U	6 U

APPENDIX H.9 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS01	9SS02	9MW01-00	9MW02-00
Sample Date	03/20/96	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Volatiles (ug/kg) (cont.)				
Tetrachloroethene	6 U	6 U	6 U	6 U
Toluene	6 U	6 U	6 U	6 U
trans-1,3-Dichloropropene	6 U	6 U	6 U	6 U
trans-1,4-Dichloro-2-butene	23 U	23 U	25 U	22 U
Trichloroethene	6 U	6 U	6 U	6 U
Trichlorofluoromethane	11 UJ	11 U	12 U	11 U
Vinyl Acetate	11 U	11 U	12 U	11 U
Vinyl chloride	11 U	11 UJ	12 UJ	11 UJ
Xylene (total)	6 U	6 U	6 U	6 U
Semivolatiles (ug/kg)				
1,2,4,5-Tetrachlorobenzene	370 R	380 U	410 R	370 R
1,2,4-Trichlorobenzene	370 U	380 U	410 U	370 U
1,2-Dichlorobenzene	370 U	380 U	410 U	370 U
1,2-Diphenylhydrazine	370 U	380 U	410 U	370 U
1,3-Dichlorobenzene	370 U	380 U	410 U	370 U
1,4-Dichlorobenzene	370 U	380 U	410 U	370 U
1,4-Dioxane	740 U	750 U	820 U	730 U
1,4-Naphthoquinone	1900 UJ	1900 UJ	2100 UJ	1800 UJ
1-Naphthylamine	740 U	750 U	820 U	730 U
2,2'-Oxybis(1-Chloropropane)	370 U	380 U	410 U	370 U
2,3,4,6-Tetrachlorophenol	370 U	380 UJ	410 U	370 U
2,4,5-Trichlorophenol	1900 U	1900 U	2100 U	1800 U
2,4,6-Trichlorophenol	370 U	380 U	410 U	370 U
2,4-Dichlorophenol	370 U	380 U	410 U	370 U
2,4-Dimethylphenol	370 U	380 U	410 U	370 U
2,4-Dinitrophenol	1900 UJ	1900 UJ	2100 UJ	1800 U
2,4-Dinitrotoluene	370 U	380 U	410 U	370 U
2,6-Dichlorophenol	370 U	380 U	410 U	370 UJ
2,6-Dinitrotoluene	370 U	380 U	410 U	370 U
2-Acetylaminofluorene	740 U	750 U	820 U	730 U
2-Chloronaphthalene	370 U	380 U	410 U	370 U
2-Chlorophenol	370 U	380 U	410 U	370 U
2-Methylnaphthalene	370 UJ	380 U	410 UJ	370 UJ
2-Naphthylamine	930 U	940 UJ	1000 U	920 U
2-Nitroaniline	1900 U	1900 U	2100 U	1800 U
2-Nitrophenol	370 U	380 U	410 U	370 U
2-Picoline	370 U	380 UJ	410 U	370 U
2-sec-butyl-4,6-dinitrophenol	740 U	750 UJ	820 U	730 U
3,3'-Dichlorobenzidine	740 U	750 U	820 U	730 U
3,3'-Dimethylbenzidine	1900 U	1900 U	2100 U	1800 U
3-Methylcholanthrene	370 U	380 UJ	410 U	370 U
3-Nitroaniline	1900 U	1900 U	2100 U	1800 U
4,6-Dinitro-2-methylphenol	1900 UJ	1900 U	2100 UJ	1800 U
4-Aminobiphenyl	740 U	750 U	820 U	730 U

APPENDIX H.9 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS01	9SS02	9MW01-00	9MW02-00
Sample Date	03/20/96	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Semivolatiles (ug/kg) (cont.)				
4-bromophenyl-phenylether	370 U	380 U	410 U	370 UJ
4-Chloro-3-methylphenol	740 U	750 U	820 U	730 U
4-Chloroaniline	740 U	750 U	820 U	730 U
4-Chlorophenyl-phenylether	370 U	380 U	410 U	370 U
4-Nitroaniline	1900 U	1900 U	2100 U	1800 U
4-Nitrophenol	1900 U	1900 U	2100 U	1800 U
4-Nitroquinoline-1-oxide	1900 UJ	1900 UJ	2100 UJ	1800 R
5-Nitro-o-toluidine	740 UJ	750 U	820 UJ	730 U
7,12-Dimethylbenz(a)anthracene	740 U	750 UJ	820 U	730 U
a,a-Dimethylphenethylamine	1900 U	1900 UJ	2100 U	1800 UJ
Acenaphthene	370 U	380 U	410 U	370 U
Acenaphthylene	370 U	380 U	410 U	370 U
Acetophenone	370 U	380 U	410 U	370 U
Aniline	1900 U	1900 UJ	2100 U	1800 U
Anthracene	370 U	380 U	410 U	370 U
Aramite	740 R	750 UJ	820 R	730 U
Benzidine	3700 UJ	3800 UJ	4100 UJ	3700 UJ
Benzo(a)anthracene	370 U	380 U	410 U	370 U
Benzo(a)pyrene	370 U	380 U	410 U	370 U
Benzo(b)fluoranthene	370 U	380 U	410 U	370 U
Benzo(g,h,i)perylene	370 U	380 U	410 U	370 U
Benzo(k)fluoranthene	370 U	380 U	410 U	370 U
Benzoic acid	1900 UJ	1900 U	2100 UJ	1800 UJ
Benzyl alcohol	370 UJ	380 U	440 J	370 UJ
Bis(2-chloroethoxy)methane	370 U	380 U	410 U	370 U
Bis(2-chloroethyl)ether	370 U	380 U	410 U	370 U
Bis(2-ethylhexyl)phthalate	370 U	380 U	410 U	370 U
Butylbenzylphthalate	370 U	380 U	410 U	370 U
Carbazole	370 U	380 U	410 U	370 U
Chlorobenzilate	370 U	380 UJ	410 U	370 U
Chrysene	370 U	380 U	410 U	370 U
Diallate	370 UJ	380 U	410 UJ	370 U
Dibenzo(a,h)anthracene	370 U	380 U	410 U	370 U
Dibenzofuran	370 U	380 U	410 U	370 U
Diethylphthalate	370 U	380 U	410 U	40 J
Dimethylphthalate	370 U	380 U	410 U	370 U
Di-n-butylphthalate	370 U	380 U	410 U	370 U
Di-n-octylphthalate	370 U	380 U	410 U	370 U
Diphenylamine	370 U	380 U	410 U	370 U
Ethyl methanesulfonate	370 U	380 U	410 U	370 U
Fluoranthene	370 U	380 U	410 U	370 U
Fluorene	370 U	380 U	410 U	370 U
Hexachlorobenzene	370 U	380 U	410 U	370 U
Hexachlorobutadiene	370 U	380 U	410 U	370 U

APPENDIX H.9 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS01	9SS02	9MW01-00	9MW02-00
Sample Date	03/20/96	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Semivolatiles (ug/kg) (cont.)				
Hexachlorocyclopentadiene	370 U	380 U	410 U	370 U
Hexachloroethane	370 U	380 U	410 U	370 U
Hexachlorophene	3700 R	3800 R	4100 R	3700 R
Hexachloropropene	1900 U	1900 U	2100 U	1800 U
Indeno(1,2,3-cd)pyrene	370 U	380 U	410 U	370 U
Isophorone	370 U	380 U	410 U	370 U
Isosafrole	370 U	380 U	410 U	370 U
m,p-Cresol	370 U	380 U	410 U	370 U
m-Dinitrobenzene	740 U	750 U	820 U	730 U
Methapyrilene	930 UJ	940 UJ	1000 UJ	920 UJ
Methyl methanesulfonate	370 U	380 U	410 U	370 U
Naphthalene	370 U	380 U	410 U	370 U
Nitrobenzene	370 U	380 U	410 U	370 U
N-Nitrosodiethylamine	370 U	380 U	410 U	370 U
N-Nitrosodimethylamine	370 UJ	380 UJ	410 UJ	370 U
N-Nitroso-di-n-butylamine	370 U	380 U	410 U	370 U
N-Nitroso-di-n-propylamine	370 U	380 U	410 U	370 U
N-Nitrosodiphenylamine (1)	370 U	380 U	410 U	370 U
N-Nitrosomethylethylamine	370 U	380 U	410 U	370 U
N-Nitrosomorpholine	740 U	750 U	820 U	730 U
N-Nitrosopiperidine	370 UJ	380 U	410 UJ	370 U
N-Nitrosopyrrolidine	1900 U	1900 U	2100 U	1800 U
o-Cresol	370 U	380 U	410 U	370 U
o-Toluidine	370 U	380 R	410 U	370 U
p-Dimethylaminoazobenzene	740 UJ	750 U	820 UJ	730 U
Pentachlorobenzene	370 U	380 U	410 U	370 U
Pentachloronitrobenzene	370 U	380 U	410 U	370 R
Pentachlorophenol	1900 U	1900 U	2100 U	1800 U
Phenacetin	370 U	380 U	410 U	370 U
Phenanthrene	370 U	380 U	410 U	370 U
Phenol	370 U	380 U	410 U	370 U
p-Phenylenediamine	740 UJ	750 UJ	820 UJ	730 U
Pronamide	370 U	380 U	410 U	370 U
Pyrene	370 U	380 U	410 U	370 U
Pyridine	740 U	750 U	820 U	730 UJ
Safrole	370 U	380 U	410 U	370 U
sym-Trinitrobenzene	3700 UJ	3800 U	4100 UJ	3700 U
TPH (ug/kg)				
Diesel Range Organics	4700 U	4700 U	5200 U	4600 U
Gasoline Range Organics	34 U	34 U	37 U	33 U

APPENDIX H.10
AREA A, SURFACE SOIL – INORGANICS

APPENDIX H.10

SUMMARY OF AREA A ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS01	9SS02	9MW01-00	9MW02-00
Sample Date	03/20/96	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
RCRA METALS (mg/kg)				
Arsenic, Total	1.6	1.1	0.93	3.7
Barium, Total	93.1	81.6	66.2	232
Cadmium, Total	0.2 U	0.24 U	0.26 U	0.19 U
Chromium, Total	17.6 J	7.7 J	7.6 J	29.7 J
Lead, Total	15.6	6.0	4.2	10.7
Mercury, Total	0.06 U	0.04 U	0.05 U	0.05 U
Selenium, Total	0.18 UJ	0.18 UJ	0.87 J	1.6 J
Silver, Total	0.28 U	0.33 U	0.37 U	0.35

APPENDIX H.11
AREA A, SUBSURFACE SOIL – ORGANICS

APPENDIX H.11

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW01-08	9MW01-15	9MW02-04	9MW02-06	9MW02-10	9TP07-04	9TP08-04	9TP09-04	9TP10-04	9TP18-05
Sample Date	04/10/96	04/10/96	04/12/96	04/12/96	04/12/96	04/08/96	04/08/96	04/08/96	04/08/96	04/14/96
Depth Range (ft bgs)	16.00-18.00	30.00-32.00	8.00-10.00	12.00-14.00	20.00-22.00	9.00	9.00	9.00	8.00	10.00
Volatiles (ug/kg)										
1,1,1,2-Tetrachloroethane	14 U	13 U	77 U	70 U	14 UJ	130 U	56 UJ	12 U	12 U	13 UJ
1,1,1-Trichloroethane	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
1,1,2-Trichloroethane	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
1,1-Dichloroethane	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
1,1-Dichloroethene	7 U	7 U	39 U	35 U	7 UJ	63 UJ	28 UJ	6 UJ	6 UJ	6 UJ
1,2,3-Trichloropropane	14 U	13 U	77 U	70 U	14 UJ	130 U	56 UJ	12 U	12 U	13 UJ
1,2-Dibromo-3-chloropropane	28 U	27 U	150 U	140 U	29 UJ	250 UJ	110 UJ	24 UJ	25 UJ	25 UJ
1,2-Dibromoethane	28 U	27 U	150 U	140 U	29 U	250 U	110 UJ	24 U	25 U	25 U
1,2-Dichloroethane	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
1,2-Dichloroethene (Total)	7 U	7 UJ	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
1,2-Dichloropropane	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
2-Butanone	14 UJ	13 U	160 J	70 UJ	14 U	130 UJ	56 UJ	12 UJ	12 UJ	13 U
2-Chloro-1,3-butadiene	140 U	130 U	770 U	700 U	140 U	1300 U	560 UJ	120 U	120 U	130 U
2-Hexanone	14 U	13 U	77 UJ	70 UJ	14 UJ	130 UJ	56 UJ	12 UJ	12 UJ	13 UJ
3-Chloropropene	28 U	27 U	150 U	140 U	29 U	250 U	110 UJ	24 U	25 U	25 U
4-Methyl-2-pentanone	14 UJ	13 U	77 U	70 U	14 U	130 UJ	56 UJ	12 UJ	12 UJ	13 U
Acetone	14 UJ	13 U	670 J	70 UJ	14 U	1200	620 J	12 U	12 U	87 J
Acetonitrile	140 U	130 U	770 U	700 U	140 U	1300 U	560 UJ	120 U	120 U	130 U
Acrolein	700 U	670 U	3900 U	3500 U	720 UJ	6300 U	2800 UJ	610 U	620 U	640 UJ
Acrylonitrile	140 U	130 UJ	770 UJ	700 UJ	140 UJ	1300 U	560 UJ	120 U	120 U	130 UJ
Benzene	7 U	7 U	39 U	960 J	180	63 U	28 UJ	6 U	6 U	6 U
Bromodichloromethane	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
Bromoform	7 U	7 U	39 U	35 U	7 UJ	63 U	28 UJ	6 U	6 U	6 UJ
Bromomethane	14 U	13 U	77 U	70 U	14 U	130 U	56 UJ	12 U	12 U	13 U
Carbon disulfide	7 UJ	7 UJ	39 UJ	35 UJ	7 U	63 UJ	28 UJ	6 UJ	6 UJ	6 U
Carbon tetrachloride	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
Chlorobenzene	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
Chloroethane	14 U	13 U	77 U	70 U	14 U	130 U	56 UJ	12 U	12 U	13 U

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW01-08	9MW01-15	9MW02-04	9MW02-06	9MW02-10	9TP07-04	9TP08-04	9TP09-04	9TP10-04	9TP18-05
Sample Date	04/10/96	04/10/96	04/12/96	04/12/96	04/12/96	04/08/96	04/08/96	04/08/96	04/08/96	04/14/96
Depth Range (ft bgs)	16.00-18.00	30.00-32.00	8.00-10.00	12.00-14.00	20.00-22.00	9.00	9.00	9.00	8.00	10.00
Volatiles (ug/kg) (cont.)										
Chloroform	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
Chloromethane	14 UJ	13 U	77 UJ	70 UJ	14 U	130 U	56 UJ	12 U	12 U	13 U
cis-1,3-Dichloropropene	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
Dibromochloromethane	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
Dibromomethane	14 U	13 U	77 U	70 U	14 UJ	130 U	56 UJ	12 U	12 U	13 UJ
Dichlorodifluoromethane	28 U	27 U	150 UJ	140 UJ	29 UJ	250 UJ	110 UJ	24 UJ	25 UJ	25 UJ
Ethylbenzene	7 U	7 U	39 U	1300 J	7 U	51 J	240 J	6 U	6 U	6 U
Ethylmethacrylate	28 U	27 U	150 U	140 U	29 U	250 U	110 UJ	24 U	25 U	25 U
Iodomethane	14 U	13 U	77 U	70 U	14 UJ	130 U	56 UJ	12 U	12 U	13 UJ
Isobutanol	2800 R	2700 R	15000 R	14000 R	2900 R	25000 R	11000 R	2400 R	2500 R	2500 R
Methacrylonitrile	28 UJ	27 U	150 U	140 U	29 U	250 UJ	110 UJ	24 UJ	25 UJ	25 U
Methylene chloride	7 U	7 U	39 UJ	35 UJ	7 UJ	63 U	28 UJ	6 U	6 U	6 UJ
Pentachloroethane	28 U	27 U	150 UJ	140 UJ	29 UJ	250 U	110 UJ	24 U	25 U	25 UJ
Propionitrile (Ethyl Cyanide)	70 R	67 U	390 R	350 R	72 R	630 R	280 UJ	61 R	62 R	64 R
Styrene	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
Tetrachloroethene	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
Toluene	7 U	7 U	39 U	5300 J	5 J	63 U	28 UJ	6 U	6 U	6 U
trans-1,3-Dichloropropene	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
trans-1,4-Dichloro-2-butene	28 U	27 U	150 U	140 U	29 UJ	250 U	110 UJ	24 U	25 U	25 UJ
Trichloroethene	7 U	7 U	39 U	35 U	7 U	63 U	28 UJ	6 U	6 U	6 U
Trichlorofluoromethane	14 UJ	13 U	77 U	70 U	14 U	130 R	56 UJ	12 R	12 R	13 U
Vinyl Acetate	14 U	13 UJ	77 UJ	70 UJ	14 U	130 U	56 UJ	12 U	12 U	13 U
Vinyl chloride	14 U	13 U	77 U	70 U	14 U	130 U	56 UJ	12 U	12 U	13 U
Xylene (total)	7 U	7 U	39 U	4700 J	5 J	91	220 J	6 U	6 U	6 U
Semivolatiles (ug/kg)										
1,2,4,5-Tetrachlorobenzene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
1,2,4-Trichlorobenzene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
1,2-Dichlorobenzene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
1,2-Diphenylhydrazine	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW01-08	9MW01-15	9MW02-04	9MW02-06	9MW02-10	9TP07-04	9TP08-04	9TP09-04	9TP10-04	9TP18-05
Sample Date	04/10/96	04/10/96	04/12/96	04/12/96	04/12/96	04/08/96	04/08/96	04/08/96	04/08/96	04/14/96
Depth Range (ft bgs)	16.00-18.00	30.00-32.00	8.00-10.00	12.00-14.00	20.00-22.00	9.00	9.00	9.00	8.00	10.00
Semivolatiles (ug/kg) (cont.)										
1,3,5-Trinitrobenzene	5400 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
1,4-Dichlorobenzene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
1,4-Dioxane	920 U	880 U	1000 U	920 U	940 U	840 UJ	740 UJ	790 UJ	810 UJ	830 U
1,4-Naphthoquinone	2300 UJ	2200 UJ	2500 UJ	2300 UJ	2400 UJ	2100 UJ	1800 UJ	2000 UJ	2000 UJ	2100 UJ
1-Naphthylamine	920 U	880 U	1000 U	920 U	940 U	420 U	370 U	400 U	410 U	830 U
2,2'-Oxybis(1-Chloropropane)	460 U	440 U	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
2,3,4,6-Tetrachlorophenol	460 U	440 U	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
2,4,5-Trichlorophenol	2300 U	2200 U	2500 U	2300 U	2400 U	2100 U	1800 U	2000 U	2000 U	2100 U
2,4,6-Trichlorophenol	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
2,4-Dichlorophenol	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
2,4-Dimethylphenol	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
2,4-Dinitrophenol	2300 U	2200 U	2500 U	2300 U	2400 U	2100 U	1800 U	2000 U	2000 U	2100 U
2,4-Dinitrotoluene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
2,6-Dichlorophenol	460 U	440 U	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
2,6-Dinitrotoluene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
2-Acetylaminofluorene	920 U	880 U	1000 U	920 U	940 U	840 U	740 U	790 U	810 U	830 U
2-Chloronaphthalene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
2-Chlorophenol	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
2-Methylnaphthalene	460 U	440 U	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
2-Naphthylamine	1200 U	1100 U	1200 U	1100 U	1200 U	420 UJ	370 UJ	400 UJ	410 UJ	1000 U
2-Nitroaniline	2300 U	2200 U	2500 U	2300 U	2400 U	2100 UJ	1800 UJ	2000 UJ	2000 UJ	2100 U
2-Nitrophenol	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
2-Picoline	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
2-sec-butyl-4,6-dinitrophenol	920 UJ	880 UJ	1000 U	920 U	940 U	840 UJ	740 UJ	790 UJ	810 UJ	830 U
3,3'-Dichlorobenzidine	920 U	880 U	1000 U	920 U	940 U	840 U	740 U	790 U	810 U	830 U
3,3'-Dimethylbenzidine	2300 U	2200 U	2500 R	2300 R	2400 R	840 UJ	740 UJ	790 UJ	810 UJ	2100 R
3-Methylcholanthrene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
3-Nitroaniline	2300 U	2200 U	2500 U	2300 U	2400 U	2100 U	1800 U	2000 U	2000 U	2100 U

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW01-08	9MW01-15	9MW02-04	9MW02-06	9MW02-10	9TP07-04	9TP08-04	9TP09-04	9TP10-04	9TP18-05
Sample Date	04/10/96	04/10/96	04/12/96	04/12/96	04/12/96	04/08/96	04/08/96	04/08/96	04/08/96	04/14/96
Depth Range (ft bgs)	16.00-18.00	30.00-32.00	8.00-10.00	12.00-14.00	20.00-22.00	9.00	9.00	9.00	8.00	10.00
Semivolatiles (ug/kg) (cont.)										
4,6-Dinitro-2-methylphenol	2300 UJ	2200 UJ	2500 U	2300 U	2400 U	2100 U	1800 U	2000 U	2000 U	2100 U
4-Aminobiphenyl	920 U	880 U	1000 U	920 U	940 U	420 U	370 U	400 U	410 U	830 U
4-bromophenyl-phenylether	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
4-Chloro-3-methylphenol	920 U	880 U	1000 U	920 U	940 U	840 U	740 U	790 U	810 U	830 U
4-Chloroaniline	920 U	880 U	1000 U	920 U	940 U	840 U	740 U	790 U	810 U	830 U
4-Chlorophenyl-phenylether	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
4-Nitroaniline	2300 U	2200 U	2500 U	2300 U	2400 U	2100 U	1800 U	2000 U	2000 U	2100 U
4-Nitrophenol	2300 UJ	2200 UJ	2500 U	2300 U	2400 U	2100 UJ	1800 UJ	2000 UJ	2000 UJ	2100 U
4-Nitroquinoline-1-oxide	2300 R	2200 R	2500 R	2300 R	2400 R	2100 R	1800 R	2000 R	2000 R	2100 R
5-Nitro-o-toluidine	920 U	880 U	1000 U	920 U	940 U	840 U	740 U	790 U	810 U	830 U
7,12-Dimethybenz(a)anthracen	1100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	920 U	880 U	1000 U	920 U	940 U	840 U	740 U	790 U	810 U	830 U
a,a-Dimethylphenethylamine	2300 UJ	2200 UJ	2500 UJ	2300 UJ	2400 UJ	2100 UJ	1800 UJ	2000 UJ	2000 UJ	2100 UJ
Acenaphthene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Acenaphthylene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Acetophenone	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Aniline	2300 UJ	2200 UJ	2500 U	2300 U	2400 U	2100 UJ	1800 UJ	2000 UJ	2000 UJ	2100 U
Anthracene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Aramite	920 U	880 U	1000 U	920 U	940 U	840 UJ	740 UJ	790 UJ	810 UJ	830 U
Benzidine	4600 UJ	4400 UJ	5000 UJ	4600 UJ	4700 UJ	4200 UJ	3700 UJ	4000 UJ	4100 UJ	4100 UJ
Benzo(a)anthracene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Benzo(a)pyrene	460 UJ	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Benzo(b)fluoranthene	460 UJ	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Benzo(g,h,i)perylene	460 UJ	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Benzo(k)fluoranthene	460 UJ	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Benzoic acid	2300 U	2200 U	2500 U	2300 U	2400 U	2100 U	1800 U	2000 U	2000 U	2100 U
Benzyl alcohol	460 U	440 U	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
Bis(2-chloroethoxy)methane	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Bis(2-chloroethyl)ether	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW01-08	9MW01-15	9MW02-04	9MW02-06	9MW02-10	9TP07-04	9TP08-04	9TP09-04	9TP10-04	9TP18-05
Sample Date	04/10/96	04/10/96	04/12/96	04/12/96	04/12/96	04/08/96	04/08/96	04/08/96	04/08/96	04/14/96
Depth Range (ft bgs)	16.00-18.00	30.00-32.00	8.00-10.00	12.00-14.00	20.00-22.00	9.00	9.00	9.00	8.00	10.00
Semivolatiles (ug/kg) (cont.)										
Bis(2-ethylhexyl)phthalate	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Butylbenzylphthalate	460 U	440 U	500 U	460 U	470 U	420 U	370 U	100 J	410 U	410 U
Carbazole	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Chlorobenzilate	460 U	440 U	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
Chrysene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Diallate	460 UJ	440 UJ	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
Dibenzo(a,h)anthracene	460 UJ	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Dibenzofuran	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Diethylphthalate	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Dimethylphthalate	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Di-n-butylphthalate	460 U	440 U	500 U	460 U	470 U	420 U	370 U	870	410 U	410 U
Di-n-octylphthalate	460 UJ	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Diphenylamine	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Ethyl methanesulfonate	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Fluoranthene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Fluorene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Hexachlorobenzene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Hexachlorobutadiene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Hexachlorocyclopentadiene	460 U	440 U	500 UJ	460 UJ	470 UJ	420 U	370 U	400 U	410 U	410 UJ
Hexachloroethane	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Hexachlorophene	4600 UJ	4400 UJ	5000 U	4600 U	4700 U	4200 UJ	3700 UJ	4000 UJ	4100 UJ	4100 U
Hexachloropropene	2300 U	2200 U	2500 U	2300 U	2400 U	840 R	740 R	790 R	810 R	2100 U
Indeno(1,2,3-cd)pyrene	460 UJ	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Isophorone	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Isosafrole	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
m,p-Cresol	460 U	440 U	500 U	460 U	470 U	54 J	370 U	400 U	410 U	410 U
m-Dinitrobenzene	920 U	880 U	1000 U	920 U	940 U	840 U	740 U	790 U	810 U	830 U
Methapyrilene	1200 UJ	1100 UJ	1200 U	1100 U	1200 U	1000 U	920 U	990 U	1000 U	1000 U
Methyl methanesulfonate	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW01-08	9MW01-15	9MW02-04	9MW02-06	9MW02-10	9TP07-04	9TP08-04	9TP09-04	9TP10-04	9TP18-05
Sample Date	04/10/96	04/10/96	04/12/96	04/12/96	04/12/96	04/08/96	04/08/96	04/08/96	04/08/96	04/14/96
Depth Range (ft bgs)	16.00-18.00	30.00-32.00	8.00-10.00	12.00-14.00	20.00-22.00	9.00	9.00	9.00	8.00	10.00
Semivolatiles (ug/kg) (cont.)										
Naphthalene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Nitrobenzene	460 U	440 U	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
N-Nitrosodiethylamine	460 U	440 U	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
N-Nitrosodimethylamine	460 U	440 U	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
N-Nitroso-di-n-butylamine	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
N-Nitroso-di-n-propylamine	460 U	440 U	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
N-Nitrosodiphenylamine (1)	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
N-Nitrosomethylethylamine	460 U	440 U	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
N-Nitrosomorpholine	920 U	880 U	1000 U	920 U	940 U	840 U	740 U	790 U	810 U	830 U
N-Nitrosopiperidine	460 U	440 U	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
N-Nitrosopyrrolidine	2300 U	2200 U	2500 U	2300 U	2400 U	2100 U	1800 U	2000 U	2000 U	2100 U
o-Cresol	460 U	440 U	500 U	460 U	470 U	61 J	370 U	400 U	410 U	410 U
o-Toluidine	460 UJ	440 UJ	500 U	460 U	470 U	420 R	370 R	400 R	410 R	410 U
p-Dimethylaminoazobenzene	920 U	880 U	1000 U	920 U	940 U	840 U	740 U	790 U	810 U	830 U
Pentachlorobenzene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Pentachloronitrobenzene	460 R	440 R	500 R	460 R	470 R	420 U	370 U	400 U	410 U	410 R
Pentachlorophenol	2300 U	2200 U	2500 U	2300 U	2400 U	2100 U	1800 U	2000 U	2000 U	2100 U
Phenacetin	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Phenanthrene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Phenol	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
p-Phenylenediamine	920 R	880 R	1000 UJ	920 UJ	940 UJ	840 R	740 R	790 R	810 R	830 UJ
Pronamide	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Pyrene	460 U	440 U	500 U	460 U	470 U	420 U	370 U	400 U	410 U	410 U
Pyridine	920 U	880 U	1000 U	920 U	940 U	840 UJ	740 UJ	790 UJ	810 UJ	830 U
Safrole	460 U	440 U	500 U	460 U	470 U	420 UJ	370 UJ	400 UJ	410 UJ	410 U
sym-Trinitrobenzene	4600 UJ	4400 UJ	5000 U	4600 U	4700 U	4200 U	3700 U	4000 U	4100 U	4100 U
TPH (ug/kg)										
Hydrocarbons as DRO	5800 U	5500 U	6300 UJ	5800 UJ	5900 UJ	6200	14000	5000 U	5100 U	5300 U
Hydrocarbons as GRO	42 U	40 U	400 J	57000 J	180	8900 J	15000	36 U	37 U	41

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW01-08	9MW01-15	9MW02-04	9MW02-06	9MW02-10	9TP07-04	9TP08-04	9TP09-04	9TP10-04	9TP18-05
Sample Date	04/10/96	04/10/96	04/12/96	04/12/96	04/12/96	04/08/96	04/08/96	04/08/96	04/08/96	04/14/96
Depth Range (ft bgs)	16.00-18.00	30.00-32.00	8.00-10.00	12.00-14.00	20.00-22.00	9.00	9.00	9.00	8.00	10.00
BTEX (ug/kg)										
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW02N-05	9MW02R-05	9MW02R-06	9MW02S-05	9TP07A-01	9TP07A-02	9TP07B-01	9TP07B-02	9TP09A-01
Sample Date	09/21/97	09/21/97	09/21/97	09/21/97	10/01/97	10/01/97	10/01/97	10/01/97	10/01/97
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	10.00-12.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00
Volatiles (ug/kg)									
1,1,1,2-Tetrachloroethane	NA	NA							
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (Total)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Chloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW02N-05	9MW02R-05	9MW02R-06	9MW02S-05	9TP07A-01	9TP07A-02	9TP07B-01	9TP07B-02	9TP09A-01
Sample Date	09/21/97	09/21/97	09/21/97	09/21/97	10/01/97	10/01/97	10/01/97	10/01/97	10/01/97
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	10.00-12.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00
Volatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylmethacrylate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isobutanol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile (Ethyl Cyanide)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatiles (ug/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW02N-05	9MW02R-05	9MW02R-06	9MW02S-05	9TP07A-01	9TP07A-02	9TP07B-01	9TP07B-02	9TP09A-01
Sample Date	09/21/97	09/21/97	09/21/97	09/21/97	10/01/97	10/01/97	10/01/97	10/01/97	10/01/97
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	10.00-12.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00
Semivolatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Picoline	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-sec-butyl-4,6-dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW02N-05	9MW02R-05	9MW02R-06	9MW02S-05	9TP07A-01	9TP07A-02	9TP07B-01	9TP07B-02	9TP09A-01
Sample Date	09/21/97	09/21/97	09/21/97	09/21/97	10/01/97	10/01/97	10/01/97	10/01/97	10/01/97
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	10.00-12.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00
Semivolatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-bromophenyl-phenylether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethybenz(a)anthracen	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aramite	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW02N-05	9MW02R-05	9MW02R-06	9MW02S-05	9TP07A-01	9TP07A-02	9TP07B-01	9TP07B-02	9TP09A-01
Sample Date	09/21/97	09/21/97	09/21/97	09/21/97	10/01/97	10/01/97	10/01/97	10/01/97	10/01/97
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	10.00-12.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00
Semivolatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorophene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isosafrole	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA
m-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW02N-05	9MW02R-05	9MW02R-06	9MW02S-05	9TP07A-01	9TP07A-02	9TP07B-01	9TP07B-02	9TP09A-01
Sample Date	09/21/97	09/21/97	09/21/97	09/21/97	10/01/97	10/01/97	10/01/97	10/01/97	10/01/97
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	10.00-12.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00
Semivolatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenacetin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Phenylenediamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pronamide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyridine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Safrole	NA	NA	NA	NA	NA	NA	NA	NA	NA
sym-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH (ug/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbons as DRO	8000 U	8000 U	8200 U	8400 U	8200 U	7500 U	8600 U	7200 U	7100 U
Hydrocarbons as GRO	33 J	52000	31000	69 U	530	740	70 U	58 U	58 U

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW02N-05	9MW02R-05	9MW02R-06	9MW02S-05	9TP07A-01	9TP07A-02	9TP07B-01	9TP07B-02	9TP09A-01
Sample Date	09/21/97	09/21/97	09/21/97	09/21/97	10/01/97	10/01/97	10/01/97	10/01/97	10/01/97
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	10.00-12.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00
BTEX (ug/kg)									
Benzene	1.3 U	18	21	1.4 U	2.4	1.2 U	1.4 U	1.2 U	1.2 U
Toluene	1.3 U	6.6 U	52	1.4 U	11	3.1	1.4 U	1.2 U	1.2 U
Ethylbenzene	1.3 U	11	0.68 J	1.4 U	2.9	0.72 J	1.4 U	1.2 U	1.2 U
Xylene (total)	1.3 U	140	29	1.4 U	4.5	11	1.4 U	1.2 U	1.2 U

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP09A-02	9-02R-HP01	9-02R-HP02	9-02R-HP02D	9-02R-HP03	9-02R-HP04	9-02R-HP05	9-02R-HP06	9-02R-HP07
Sample Date	10/01/97	06/22/99	06/23/99	06/23/99	6/22/99	06/23/99	06/23/99	06/23/99	06/23/99
Depth Range (ft bgs)	8.00-10.00	11.00-12.00	11.00-12.00	11.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00
Volatiles (ug/kg)									
1,1,1,2-Tetrachloroethane									
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (Total)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Chloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP09A-02	9-02R-HP01	9-02R-HP02	9-02R-HP02D	9-02R-HP03	9-02R-HP04	9-02R-HP05	9-02R-HP06	9-02R-HP07
Sample Date	10/01/97	06/22/99	06/23/99	06/23/99	6/22/99	06/23/99	06/23/99	06/23/99	06/23/99
Depth Range (ft bgs)	8.00-10.00	11.00-12.00	11.00-12.00	11.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00
Volatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylmethacrylate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isobutanol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile (Ethyl Cyanide)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatiles (ug/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP09A-02	9-02R-HP01	9-02R-HP02	9-02R-HP02D	9-02R-HP03	9-02R-HP04	9-02R-HP05	9-02R-HP06	9-02R-HP07
Sample Date	10/01/97	06/22/99	06/23/99	06/23/99	6/22/99	06/23/99	06/23/99	06/23/99	06/23/99
Depth Range (ft bgs)	8.00-10.00	11.00-12.00	11.00-12.00	11.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00
Semivolatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Picoline	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-sec-butyl-4,6-dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP09A-02	9-02R-HP01	9-02R-HP02	9-02R-HP02D	9-02R-HP03	9-02R-HP04	9-02R-HP05	9-02R-HP06	9-02R-HP07
Sample Date	10/01/97	06/22/99	06/23/99	06/23/99	6/22/99	06/23/99	06/23/99	06/23/99	06/23/99
Depth Range (ft bgs)	8.00-10.00	11.00-12.00	11.00-12.00	11.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00
Semivolatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-bromophenyl-phenylether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethybenz(a)anthracen	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aramite	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP09A-02	9-02R-HP01	9-02R-HP02	9-02R-HP02D	9-02R-HP03	9-02R-HP04	9-02R-HP05	9-02R-HP06	9-02R-HP07
Sample Date	10/01/97	06/22/99	06/23/99	06/23/99	6/22/99	06/23/99	06/23/99	06/23/99	06/23/99
Depth Range (ft bgs)	8.00-10.00	11.00-12.00	11.00-12.00	11.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00
Semivolatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorophene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isosafrole	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA
m-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP09A-02	9-02R-HP01	9-02R-HP02	9-02R-HP02D	9-02R-HP03	9-02R-HP04	9-02R-HP05	9-02R-HP06	9-02R-HP07
Sample Date	10/01/97	06/22/99	06/23/99	06/23/99	6/22/99	06/23/99	06/23/99	06/23/99	06/23/99
Depth Range (ft bgs)	8.00-10.00	11.00-12.00	11.00-12.00	11.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00
Semivolatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenacetin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Phenylenediamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pronamide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyridine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Safrole	NA	NA	NA	NA	NA	NA	NA	NA	NA
sym-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH (ug/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbons as DRO	8100 U	2700 J	1400 J	4600 U	4600 U	4500 U	4400 U	4300 U	1300 J
Hydrocarbons as GRO	950	130000 J	16000	77000	350 U	340 U	340 U	270 J	370 U

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP09A-02	9-02R-HP01	9-02R-HP02	9-02R-HP02D	9-02R-HP03	9-02R-HP04	9-02R-HP05	9-02R-HP06	9-02R-HP07
Sample Date	10/01/97	06/22/99	06/23/99	06/23/99	6/22/99	06/23/99	06/23/99	06/23/99	06/23/99
Depth Range (ft bgs)	8.00-10.00	11.00-12.00	11.00-12.00	11.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00
BTEX (ug/kg)									
Benzene	1.3 U	6.9 U	7 U	7 U	6.9 U	6.8 U	6.8 U	6.7 U	7.4 U
Toluene	1.3 U	6.9 U	7 U	7 U	6.9 U	6.8 U	6.8 U	6.7 U	7.4 U
Ethylbenzene	1.4	6.9 U	7 U	7 U	6.9 U	6.8 U	6.8 U	6.7 U	7.4 U
Xylene (total)	23	14 U	7.3 J	14 U	14 U	14 U	14 U	13 U	15 U

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-02R-HP08	9-02R-HP09	9-02R-HP10-01	9-02R-HP11-01	9-02R-HP11-01D	9-02R-HP12-01
Sample Date	06/23/99	06/23/99	06/26/99	06/26/99	06/26/99	06/26/99
Depth Range (ft bgs)	10.00-12.00	14.00-16.00	0.00-4.00	12.00-16.00	12.00-16.00	5.00-6.00
Volatiles (ug/kg)						
1,1,1,2-Tetrachloroethane						
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA
1,2-Dichloroethene (Total)	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	NA
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA
3-Chloropropene	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA
Acetonitrile	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-02R-HP08	9-02R-HP09	9-02R-HP10-01	9-02R-HP11-01	9-02R-HP11-01D	9-02R-HP12-01
Sample Date	06/23/99	06/23/99	06/26/99	06/26/99	06/26/99	06/26/99
Depth Range (ft bgs)	10.00-12.00	14.00-16.00	0.00-4.00	12.00-16.00	12.00-16.00	5.00-6.00
Volatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA
Dibromomethane	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA
Ethylmethacrylate	NA	NA	NA	NA	NA	NA
Iodomethane	NA	NA	NA	NA	NA	NA
Isobutanol	NA	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	NA
Propionitrile (Ethyl Cyanide)	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA
Vinyl Acetate	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	NA	NA
Xylene (total)	NA	NA	NA	NA	NA	NA
Semivolatiles (ug/kg)	NA	NA	NA	NA	NA	NA
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-02R-HP08	9-02R-HP09	9-02R-HP10-01	9-02R-HP11-01	9-02R-HP11-01D	9-02R-HP12-01
Sample Date	06/23/99	06/23/99	06/26/99	06/26/99	06/26/99	06/26/99
Depth Range (ft bgs)	10.00-12.00	14.00-16.00	0.00-4.00	12.00-16.00	12.00-16.00	5.00-6.00
Semivolatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2-Naphthylamine	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA
2-Picoline	NA	NA	NA	NA	NA	NA
2-sec-butyl-4,6-dinitrophenol	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-02R-HP08	9-02R-HP09	9-02R-HP10-01	9-02R-HP11-01	9-02R-HP11-01D	9-02R-HP12-01
Sample Date	06/23/99	06/23/99	06/26/99	06/26/99	06/26/99	06/26/99
Depth Range (ft bgs)	10.00-12.00	14.00-16.00	0.00-4.00	12.00-16.00	12.00-16.00	5.00-6.00
Semivolatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA
4-bromophenyl-phenylether	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	NA
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA
7,12-Dimethybenz(a)anthracen	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA
Acetophenone	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA
Aramite	NA	NA	NA	NA	NA	NA
Benzidine	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA
Benzoic acid	NA	NA	NA	NA	NA	NA
Benzyl alcohol	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-02R-HP08	9-02R-HP09	9-02R-HP10-01	9-02R-HP11-01	9-02R-HP11-01D	9-02R-HP12-01
Sample Date	06/23/99	06/23/99	06/26/99	06/26/99	06/26/99	06/26/99
Depth Range (ft bgs)	10.00-12.00	14.00-16.00	0.00-4.00	12.00-16.00	12.00-16.00	5.00-6.00
Semivolatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA
Diethylphthalate	NA	NA	NA	NA	NA	NA
Dimethylphthalate	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA
Diphenylamine	NA	NA	NA	NA	NA	NA
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	NA
Hexachlorophene	NA	NA	NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA	NA
Isosafrole	NA	NA	NA	NA	NA	NA
m,p-Cresol	NA	NA	NA	NA	NA	NA
m-Dinitrobenzene	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-02R-HP08	9-02R-HP09	9-02R-HP10-01	9-02R-HP11-01	9-02R-HP11-01D	9-02R-HP12-01
Sample Date	06/23/99	06/23/99	06/26/99	06/26/99	06/26/99	06/26/99
Depth Range (ft bgs)	10.00-12.00	14.00-16.00	0.00-4.00	12.00-16.00	12.00-16.00	5.00-6.00
Semivolatiles (ug/kg) (cont.)	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	NA
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine (1)	NA	NA	NA	NA	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA
o-Cresol	NA	NA	NA	NA	NA	NA
o-Toluidine	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA	NA
Phenacetin	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA
p-Phenylenediamine	NA	NA	NA	NA	NA	NA
Pronamide	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA
Pyridine	NA	NA	NA	NA	NA	NA
Safrole	NA	NA	NA	NA	NA	NA
sym-Trinitrobenzene	NA	NA	NA	NA	NA	NA
TPH (ug/kg)	NA	NA	NA	NA	NA	NA
Hydrocarbons as DRO	6500	1400 J	4600 U	3900 U	4300 U	4800 U
Hydrocarbons as GRO	400 U	340 U	350 U	300 U	330 U	370 U

APPENDIX H.11 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-02R-HP08	9-02R-HP09	9-02R-HP10-01	9-02R-HP11-01	9-02R-HP11-01D	9-02R-HP12-01
Sample Date	06/23/99	06/23/99	06/26/99	06/26/99	06/26/99	06/26/99
Depth Range (ft bgs)	10.00-12.00	14.00-16.00	0.00-4.00	12.00-16.00	12.00-16.00	5.00-6.00
BTEX (ug/kg)						
Benzene	8.3 U	6.8 U	7.2 U	6.1 U	7.2 U	7.1 U
Toluene	8.3 U	6.8 U	7.2 U	6.1 U	7.2 U	7.1 U
Ethylbenzene	8.3 U	6.8 U	7.2 U	6.1 U	7.2 U	7.1 U
Xylene (total)	16 U	14 U	14 U	12 U	14 U	14 U

APPENDIX H.12
AREA A, SUBSURFACE SOIL – INORGANICS

APPENDIX H.12

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW01-08	9MW01-15	9MW02-04	9MW02-06	9MW02-10	9TP07-04	9TP08-04	9TP09-04	9TP10-04	9TP18-05
Sample Date	04/10/96	04/10/96	04/12/96	04/12/96	04/12/96	04/08/96	04/08/96	04/08/96	04/08/96	04/14/96
Depth Range (ft bgs)	16.00-18.00	30.00-32.00	8.00-10.00	12.00-14.00	20.00-22.00	9.00	9.00	9.00	8.00	10.00
RCRA METALS (mg/kg)										
Lead, Total	1 J	0.69 J	1.7 J	1.7 J	0.88 J	6 J	5.9 J	0.83 J	19.3 J	4.1 J
Mercury, Total	0.05 U	0.06 U	0.06 UJ	0.05 UJ	0.07 UJ	0.05 U	0.06 U	0.04 U	0.05 U	0.06 UJ
Silver, Total	0.54 U	0.67	0.51 U	0.42 U	0.42 U	0.38 U	0.37 U	0.48	0.4 U	0.41 U
Arsenic, Total	0.23 J	0.12 UJ	0.14 UJ	0.71 UJ	0.19 J	0.15 J	5 J	0.1 UJ	0.47 J	0.5 J
Barium, Total	36.7	9	11.6	40	77.2	119	45.7	46.9	103	62.7
Cadmium, Total	0.39 U	0.29 U	0.37 UJ	0.31 UJ	0.31 UJ	0.28 U	0.27 U	0.29 U	0.29 U	0.3 UJ
Chromium, Total	5.3 J	3.2 J	2.8 R	2.8 R	6.9 R	50.8 J	5 J	2.7 J	7.2 J	5.2 R
Selenium, Total	0.19 UJ	0.14 UJ	0.32 UJ	0.33 UJ	0.33 UJ	0.16 UJ	0.13 U	0.16 UJ	0.15 UJ	0.29 UJ

APPENDIX H.12 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW02R-05	9MW02R-06	9MW02S-05	9MW02N-05	9TP07A-01	9TP07A-02	9TP07B-01	9TP07B-02	9TP09A-01	9TP09A-02
Sample Date	09/21/97	09/21/97	09/21/97	09/21/97	10/01/97	10/01/97	10/01/97	10/01/97	10/01/97	10/01/97
Depth Range (ft bgs)	8.00-10.00	10.00-12.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00
RCRA METALS (mg/kg)										
Lead, Total	3.1	1.1	1.6	1.8	0.79	3.7	0.18 U	0.15 U	0.35	1.2
Mercury, Total	0.03 U	0.03 U	0.1	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.03 U
Silver, Total	0.08 J	0.06 U	0.08 U	0.07 J	0.4 J	0.3 J	0.28 J	0.3 J	0.25 J	0.22 J
Arsenic, Total	0.78 U	0.72 U	1.2 J	2.4 J	0.28 UJ	0.29 J	0.31 UJ	0.24 UJ	0.44 J	0.28 J
Barium, Total	13.5 J	16.7 J	14.7 J	9.7 J	156 J	51.4 J	32.2 J	42.8 J	131 J	240 J
Cadmium, Total	0.04 U	0.18 U	0.05 U	0.23 U	1.3	1.6	1.3	0.99	1.5	1.6
Chromium, Total	4	7	8.2	28.9	11.3 J	2.4 J	6.3 J	4.1 J	8.3 J	11.3 J
Selenium, Total	0.39 J	0.2 U	1.8	0.26 U	1.6 J	0.67 J	0.84 J	1 J	0.49 J	1 J

APPENDIX H.13
AREA A, GROUNDWATER – ORGANICS

APPENDIX H.13

SUMMARY OF AREA A ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW01	13GW02	13GW03	9MW01	9MW02	9GW02R	9GW02S	9GW02N	9-02R-GW03	9-A02-HP02
Sample Date	03/24/96	03/24/96	03/24/96	4/15/96	04/16/96	09/30/97	09/30/97	09/30/97	06/27/99	06/27/99
Volatiles (ug/L)										
1,1,1,2-Tetrachloroethane	1000 U	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
1,1-Dichloroethane	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
1,1-Dichloroethene	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	1000 U	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	2000 U	20 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
1,2-Dibromoethane	2000 U	20 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
1,2-Dichloroethane	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
1,2-Dichloroethene (Total)	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
1,2-Dichloropropane	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
2-Butanone	1000 U	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
2-Chloro-1,3-butadiene	10000 U	100 U	100 U	100 U	100 U	NA	NA	NA	NA	NA
2-Hexanone	1000 UJ	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
3-Chloropropene	2000 U	20 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	1000 U	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Acetone	1000 R	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Acetonitrile	10000 UJ	100 U	100 U	100 U	100 U	NA	NA	NA	NA	NA
Acrolein	50000 U	500 U	500 U	500 U	500 U	NA	NA	NA	NA	NA
Acrylonitrile	10000 UJ	100 U	100 U	100 U	100 U	NA	NA	NA	NA	NA
Benzene	500 U	130	5 U	5 U	1600 J	NA	NA	NA	NA	NA
Bromodichloromethane	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
Bromoform	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
Bromomethane	1000 U	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Carbon disulfide	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
Carbon tetrachloride	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
Chlorobenzene	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
Chloroethane	1000 U	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA

APPENDIX H.13 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW01	13GW02	13GW03	9MW01	9MW02	9GW02R	9GW02S	9GW02N	9-02R-GW03	9-A02-HP02
Sample Date	03/24/96	03/24/96	03/24/96	4/15/96	04/16/96	09/30/97	09/30/97	09/30/97	06/27/99	06/27/99
Volatiles (ug/L) (cont.)										
Chloroform	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
Chloromethane	1000 U	10 UJ	10 UJ	10 U	10 U	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
Dibromochloromethane	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
Dibromomethane	1000 U	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Dichlorodifluoromethane	2000 UJ	20 UJ	20 UJ	20 UJ	20 UJ	NA	NA	NA	NA	NA
Ethylbenzene	500 U	160	5 U	5 U	27	NA	NA	NA	NA	NA
Ethylmethacrylate	2000 U	20 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
Iodomethane	1000 U	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Isobutanol	200000 U	2000 R	2000 R	2000 R	2000 R	NA	NA	NA	NA	NA
Methacrylonitrile	2000 UJ	20 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
Methylene chloride	500 U	5 U	5 U	5 U	7	NA	NA	NA	NA	NA
Pentachloroethane	2000 U	20 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
Propionitrile (Ethyl Cyanide)	5000 R	50 R	50 R	50 R	50 R	NA	NA	NA	NA	NA
Styrene	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
Tetrachloroethene	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
Toluene	500 U	5 U	5 U	5 U	180 J	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	2000 U	20 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
Trichloroethene	500 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
Trichlorofluoromethane	1000 U	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Vinyl Acetate	1000 U	10 U	10 U	10 UJ	10 UJ	NA	NA	NA	NA	NA
Vinyl chloride	1000 U	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Xylene (total)	500 U	28	5 U	5 U	82	NA	NA	NA	NA	NA
Semivolatiles (ug/L)										
1,2,4,5-Tetrachlorobenzene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA

APPENDIX H.13 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW01	13GW02	13GW03	9MW01	9MW02	9GW02R	9GW02S	9GW02N	9-02R-GW03	9-A02-HP02
Sample Date	03/24/96	03/24/96	03/24/96	4/15/96	04/16/96	09/30/97	09/30/97	09/30/97	06/27/99	06/27/99
Semivolatiles (ug/L) (cont.)										
1,3-Dichlorobenzene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
1,4-Dioxane	21 U	22 U	20 U	20 U	20 UJ	NA	NA	NA	NA	NA
1,4-Naphthoquinone	53 U	56 U	50 U	50 UJ	50 UJ	NA	NA	NA	NA	NA
1-Naphthylamine	21 U	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	53 U	56 UJ	50 UJ	50 U	50 U	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
2,4-Dichlorophenol	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
2,4-Dimethylphenol	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
2,4-Dinitrophenol	53 UJ	56 UJ	50 UJ	50 U	50 UJ	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
2,6-Dichlorophenol	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
2-Acetylaminofluorene	21 U	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
2-Chloronaphthalene	11 U	11 U	10 U	10 U	20 U	NA	NA	NA	NA	NA
2-Chlorophenol	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
2-Methylnaphthalene	11 U	23 J	10 UJ	10 U	10 U	NA	NA	NA	NA	NA
2-Naphthylamine	26 U	28 U	25 U	25 U	25 U	NA	NA	NA	NA	NA
2-Nitroaniline	53 U	56 U	50 U	50 U	50 U	NA	NA	NA	NA	NA
2-Nitrophenol	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
2-Picoline	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
2-sec-butyl-4,6-dinitrophenol	21 U	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	21 U	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
3,3'-Dimethylbenzidine	53 U	56 U	50 U	50 R	50 R	NA	NA	NA	NA	NA
3-Methylcholanthrene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
3-Nitroaniline	53 U	56 U	50 U	50 U	50 U	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	53 UJ	56 UJ	50 UJ	50 U	50 UJ	NA	NA	NA	NA	NA

APPENDIX H.13 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW01	13GW02	13GW03	9MW01	9MW02	9GW02R	9GW02S	9GW02N	9-02R-GW03	9-A02-HP02
Sample Date	03/24/96	03/24/96	03/24/96	4/15/96	04/16/96	09/30/97	09/30/97	09/30/97	06/27/99	06/27/99
Semivolatiles (ug/L) (cont.)										
4-Aminobiphenyl	21 U	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
4-bromophenyl-phenylether	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	21 U	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
4-Chloroaniline	21 U	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
4-Nitroaniline	53 UJ	56 U	50 U	50 U	50 U	NA	NA	NA	NA	NA
4-Nitrophenol	53 U	56 U	50 U	50 U	50 U	NA	NA	NA	NA	NA
4-Nitroquinoline-1-oxide	53 U	56 U	50 U	50 R	50 R	NA	NA	NA	NA	NA
5-Nitro-o-toluidine	21 U	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	21 U	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
Acenaphthene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Acenaphthylene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Acetophenone	11 U	11 U	10 U	1 J	10 U	NA	NA	NA	NA	NA
alpha, alpha-Dimethylphenethylamine	53 U	56 U	50 U	50 UJ	50 UJ	NA	NA	NA	NA	NA
Aniline	53 UJ	56 U	50 U	50 U	50 UJ	NA	NA	NA	NA	NA
Anthracene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Aramite	21 U	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
Benzidine	110 U	110 UJ	100 UJ	100 UJ	100 UJ	NA	NA	NA	NA	NA
Benzo(a)anthracene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Benzo(a)pyrene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Benzoic acid	53 U	56 U	50 U	19 J	50 U	NA	NA	NA	NA	NA
Benzyl alcohol	11 UJ	11 U	10 U	10 U	3 J	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	5 J	5 J	4 J	10 U	3 J	NA	NA	NA	NA	NA
Butylbenzylphthalate	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA

APPENDIX H.13 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW01	13GW02	13GW03	9MW01	9MW02	9GW02R	9GW02S	9GW02N	9-02R-GW03	9-A02-HP02
Sample Date	03/24/96	03/24/96	03/24/96	4/15/96	04/16/96	09/30/97	09/30/97	09/30/97	06/27/99	06/27/99
Semivolatiles (ug/L) (cont.)										
Carbazole	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Chlorobenzilate	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Chrysene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Diallate	11 U	11 U	10 U	10 U	10 UJ	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Dibenzofuran	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Diethylphthalate	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Dimethylphthalate	11 U	11 U	10 U	2 J	10 U	NA	NA	NA	NA	NA
Di-n-butylphthalate	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Di-n-octylphthalate	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Diphenylamine	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Ethyl methanesulfonate	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Fluoranthene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Fluorene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Hexachlorobenzene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Hexachlorobutadiene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	11 U	11 U	10 U	10 UJ	10 U	NA	NA	NA	NA	NA
Hexachloroethane	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Hexachlorophene	110 U	110 U	100 U	100 U	100 UJ	NA	NA	NA	NA	NA
Hexachloropropene	53 U	56 U	50 U	50 U	50 U	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Isophorone	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Isosafrole	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
m,p-Cresol	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
m-Dinitrobenzene	21 U	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
Methapyrilene	27 U	28 U	25 U	25 U	25 U	NA	NA	NA	NA	NA
Methyl methanesulfonate	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Naphthalene	11 U	26	10 U	10 U	10 U	NA	NA	NA	NA	NA
Nitrobenzene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA

APPENDIX H.13 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW01	13GW02	13GW03	9MW01	9MW02	9GW02R	9GW02S	9GW02N	9-02R-GW03	9-A02-HP02
Sample Date	03/24/96	03/24/96	03/24/96	4/15/96	04/16/96	09/30/97	09/30/97	09/30/97	06/27/99	06/27/99
Semivolatiles (ug/L) (cont.)										
N-Nitrosodiethylamine	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	11 UJ	11 UJ	10 UJ	10 U	10 U	NA	NA	NA	NA	NA
N-Nitroso-di-n-butylamine	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine (1)	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
N-Nitrosomethylethylamine	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
N-Nitrosomorpholine	21 U	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
N-Nitrosopiperidine	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	53 U	56 U	50 U	50 U	50 U	NA	NA	NA	NA	NA
o-Cresol	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
o-Toluidine	11 U	11 U	10 U	10 U	10 UJ	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	21 U	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
Pentachlorobenzene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Pentachloronitrobenzene	11 U	11 U	10 U	10 R	10 U	NA	NA	NA	NA	NA
Pentachlorophenol	53 U	56 U	50 U	50 U	50 U	NA	NA	NA	NA	NA
Phenacetin	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Phenanthrene	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Phenol	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
p-Phenylenediamine	21 U	22 U	20 U	20 UJ	20 R	NA	NA	NA	NA	NA
Pronamide	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Pyrene	11 U	11 U	10 U	10 U	10 UJ	NA	NA	NA	NA	NA
Pyridine	21 UJ	22 U	20 U	20 U	20 U	NA	NA	NA	NA	NA
Safrole	11 U	11 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
sym-Trinitrobenzene	110 U	110 U	100 U	100 U	100 U	NA	NA	NA	NA	NA

APPENDIX H.13 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW01	13GW02	13GW03	9MW01	9MW02	9GW02R	9GW02S	9GW02N	9-02R-GW03	9-A02-HP02
Sample Date	03/24/96	03/24/96	03/24/96	4/15/96	04/16/96	09/30/97	09/30/97	09/30/97	06/27/99	06/27/99
PCBS (ug/L)										
Aroclor-1260	1 U	1 U	1 U	1 U	0.99 U	NA	NA	NA	NA	NA
Aroclor-1254	1 U	1 U	1 U	1 U	0.99 U	NA	NA	NA	NA	NA
Aroclor-1221	0.52 U	0.52 U	0.52 U	0.5 U	0.5 U	NA	NA	NA	NA	NA
Aroclor-1232	0.52 U	0.52 U	0.52 U	0.5 U	0.5 U	NA	NA	NA	NA	NA
Aroclor-1248	0.52 U	0.52 U	0.52 U	0.5 U	0.5 U	NA	NA	NA	NA	NA
Aroclor-1016	0.52 U	0.52 U	0.52 U	0.5 U	0.5 U	NA	NA	NA	NA	NA
Aroclor-1242	0.52 U	0.52 U	0.52 U	0.5 U	0.5 U	NA	NA	NA	NA	NA
BTEX (ug/L)										
Benzene	NA	NA	NA	NA	NA	4900	1.7	1 U	230	8.7
Toluene	NA	NA	NA	NA	NA	4100	3	1 U	240	5 U
Ethylbenzene	NA	NA	NA	NA	NA	220	0.52 J	1 U	6.9	110
Xylene (total)	NA	NA	NA	NA	NA	840	2.4	1 U	8.7 J	25
TPH (ug/L)										
Diesel Range Organics	140 UJ	2300 J	120 UJ	NA	130 U	1700	130 U	140 U	NA	NA
Gasoline Range Organics	750 U	9000	100 J	30 U	770	15000	50 U	50 U	NA	NA

APPENDIX H.14
AREA A, GROUNDWATER – TOTAL INORGANICS

APPENDIX H.14

SUMMARY OF AREA A ANALYTICAL RESULTS, GROUNDWATER - TOTAL INORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW01	9MW02	9GW02R	9GW02S	9GW02N
Sample Date	4/15/96	4/16/96	09/30/97	09/30/97	09/30/97
RCRA Metals (ug/L)					
Arsenic, Total	6 U	6 U	2.5 U	29.2 J	14.1
Barium, Total	264	353	207	571 J	325
Cadmium, Total	12.9	29	4.3 J	8.9 J	3.5 J
Chromium, Total	2.6 U	11.2 J	7.3 J	193	39.4
Lead, Total	1.7 R	5.5 R	4.5	10.4 J	1.9 J
Mercury, Total	0.1 UJ	0.33 J	0.1 U	0.1 U	0.1 U
Selenium, Total	28 R	28 R	8.8	11 U	11 U
Silver, Total	4 U	4 U	2.6 J	3 U	1.5 J

APPENDIX H.15
AREA A, GROUNDWATER – DISSOLVED INORGANICS

APPENDIX H.15

SUMMARY OF AREA A ANALYTICAL RESULTS, GROUNDWATER - DISSOLVED INORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW01	9MW02	9GW02R	9GW02S	9GW02N
Sample Date	4/15/96	4/16/96	09/30/97	09/30/97	09/30/97
RCRA Metals (ug/L)					
Arsenic, Soluble	6 U	6 U	2.5 U	12.8 J	2.5 U
Barium, Soluble	241	277	170 J	304 J	158 J
Cadmium, Soluble	6.3	30.4	5.5	14 J	2.9 J
Chromium, Soluble	2.6 U	2.6 U	3.2 J	3.5 U	0.7 U
Lead, Soluble	1.2 UJ	2.9 R	1.9 J	7.5 U	7.5 U
Mercury, Soluble	0.1 UJ	0.31 J	0.1 U	0.1 U	0.1 U
Selenium, Soluble	28 R	28 R	8.5	11 U	2.9 J
Silver, Soluble	4 U	4 U	2.5 J	3 U	0.8 J

APPENDIX H.16
AREA A, GROUNDWATER – WATER QUALITY

APPENDIX H.16

SUMMARY OF AREA A ANALYTICAL RESULTS, GROUNDWATER - WATER QUALITY
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9-MW02R	13GW02
Sample Date	06/29/99	06/28/99
Water Quality		
Alkalinity (as CaCO3) (mg/L)	295	2,070
Aluminum (mg/L)	0.59 J	9.22 J
Chloride (mg/L)	500	3,000
Color (PCU)	100	100
Copper (mg/L)	0.014 B	0.0311
Fluoride (mg/L)	1.5	0.2 U
Iron (mg/L)	8.18	37.4
Manganese (mg/L)	1.33	26.3
Odor (TON)	16	2
Salinity (ppt)	2.0 U	4.1
Silver (mg/L)	0.0006 U	0.00064 B
Sulfate (mg/L)	5 U	120
Total Dissolved Solids (mg/L)	2,000	6,600
Zinc (mg/L)	0.0082 B	0.126

APPENDIX H.17
AREA A, SURFACE WATER – ORGANICS

APPENDIX H.17

SUMMARY OF AREA A ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SW02
Sample Date	6/29/99
Volatiles (ug/L)	
1,1,1-Trichloroethane	5 U
1,1,2,2-Tetrachloroethane	5 U
1,1,2-Trichloroethane	5 U
1,1-Dichloroethane	5 U
1,1-Dichloroethene	5 U
1,2,4-Trichlorobenzene	10 U
1,2-Dichloropropane	5 U
1,3-Dichlorobenzene	10 U
2-Butanone	25 U
2-Hexanone	25 U
4-Methyl-2-pentanone	25 U
Acetone	50 U
Benzene	5 U
Bromodichloromethane	5 U
Bromoform	5 U
Bromomethane	10 U
Carbon disulfide	5 U
Carbon tetrachloride	5 U
Chlorobenzene	5 U
Chloroethane	10 U
Chloroform	5 U
Chloromethane	10 U
cis-1,2-Dichloroethene	5 U
cis-1,3-Dichloropropene	5 U
Dibromochloromethane	5 U
Ethylbenzene	5 U
Methylene chloride	5 U
Styrene	5 U
Tetrachloroethene	5 U
Toluene	5 U
trans-1,2-Dichloroethene	5 U
trans-1,3-Dichloropropene	5 U
Trichloroethene	5 U
Vinyl chloride	10 U
Xylene (total)	10 U
Semivolatiles (ug/L)	
1,2-Dichlorobenzene	10 U
1,2-Dichloroethane	5 U
1,4-Dichlorobenzene	10 U
2,2'-Oxybis(1-Chloropropane)	10 U
2,4,5-Trichlorophenol	10 U
2,4,6-Trichlorophenol	10 U
2,4-Dichlorophenol	10 U
2,4-Dimethylphenol	10 U
2,4-Dinitrophenol	50 U

APPENDIX H.17 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SW02
Sample Date	6/29/99
Semivolatiles (ug/L) (cont.)	
2,4-Dinitrotoluene	10 U
2,6-Dinitrotoluene	10 U
2-Chloronaphthalene	10 U
2-Chlorophenol	10 U
2-Methylnaphthalene	10 U
2-Nitroaniline	50 U
2-Nitrophenol	10 U
3,3'-Dichlorobenzidine	20 U
3-Nitroaniline	50 U
4,6-Dinitro-2-methylphenol	50 U
4-Chloro-3-methylphenol	10 U
4-Chloroaniline	20 U
4-Chlorophenyl phenyl ether	10 U
4-Nitroaniline	50 U
4-Nitrophenol	50 U
Acenaphthene	10 U
Acenaphthylene	10 U
Anthracene	10 U
Benzidine	80 U
Benzo(a)anthracene	10 U
Benzo(a)pyrene	10 U
Benzo(b)fluoranthene	10 U
Benzo(g,h,i)perylene	10 U
Benzo(k)fluoranthene	10 U
Benzoic acid	50 U
Benzyl alcohol	10 U
Bis(2-chloroethoxy)methane	10 U
Bis(2-chloroethyl)ether	10 U
Bis(2-ethylhexyl)phthalate	10 U
Bromodiphenyl ether, p-	10 U
Butylbenzylphthalate	10 U
Chrysene	10 U
Dibenzo(a,h)anthracene	10 U
Dibenzofuran	10 U
Diethylphthalate	10 U
Dimethylphthalate	10 U
Di-n-butylphthalate	10 U
Di-n-octylphthalate	10 U
Diphenylamine	10 U
Fluoranthene	10 U
Fluorene	10 U
Hexachlorobenzene	10 U
Hexachlorobutadiene	10 U
Hexachlorocyclopentadiene	10 U
Hexachloroethane	10 U

APPENDIX H.17 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SW02
Sample Date	6/29/99
Semivolatiles (ug/L) (cont.)	
Indeno(1,2,3-cd)pyrene	10 U
Isophorone	10 U
m-Cresol	10 U
Naphthalene	10 U
Nitrobenzene	10 U
N-Nitrosodimethylamine	10 U
N-Nitroso-di-n-propylamine	10 U
o-Cresol	10 U
Pentachlorophenol	50 U
Phenanthrene	10 U
Phenol	10 U
Pyrene	10 U

APPENDIX H.18
AREA A, SURFACE WATER – TOTAL INORGANICS

APPENDIX H.18

SUMMARY OF AREA A ANALYTICAL RESULTS, SURFACE WATER - TOTAL INORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SW02
Sample Date	06/29/99
Total Metals (ug/L)	
Antimony	2.7 U
Arsenic	38.3 J
Barium	50.5
Beryllium	0.1 U
Cadmium	0.7 J
Chromium	2.7 U
Cobalt	0.96 J
Copper	25.6 U
Cyanide	10 U
Lead	4.5 UJ
Mercury	0.1 U
Nickel	2.7 U
Selenium	22.3 J
Silver	0.6 U
Sulfide	100 U
Thallium	900 R
Tin	2.7 J
Vanadium	88.5
Zinc	6.3 J

APPENDIX H.19
AREA A, SEDIMENT – ORGANICS

APPENDIX H.19

SUMMARY OF AREA A ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD02
Sample Date	6/29/99
Depth Range (ft bgs)	0.00-0.50
Volatiles (ug/kg)	
1,1,1-Trichloroethane	15 U
1,1,2,2-Tetrachloroethane	15 U
1,1,2-Trichloroethane	15 U
1,1-Dichloroethane	15 U
1,1-Dichloroethene	15 U
1,2-Dichloroethane	15 U
1,2-Dichloropropane	15 U
2-Butanone	74 U
2-Hexanone	74 U
4-Methyl-2-pentanone	74 U
Acetone	130 J
Benzene	15 U
Bromodichloromethane	15 U
Bromoform	15 U
Bromomethane	29 U
Carbon disulfide	15 U
Carbon tetrachloride	15 U
Chlorobenzene	15 U
Chloroethane	29 U
Chloroform	15 U
Chloromethane	29 U
cis-1,2-Dichloroethene	15 U
cis-1,3-Dichloropropene	15 U
Dibromochloromethane	15 U
Ethylbenzene	15 U
Methylene chloride	15 U
Styrene	15 U
Tetrachloroethene	15 U
Toluene	15 U
trans-1,2-Dichloroethene	15 U
trans-1,3-Dichloropropene	15 U
Trichloroethene	15 U
Vinyl chloride	29 U
Xylene (total)	29 U
Semivolatiles (ug/kg)	
Phenol	970 U
Bis(2-chloroethyl)ether	970 U
2-Chlorophenol	970 U
1,4-Dichlorobenzene	970 U
Benzyl alcohol	970 U
1,2-Dichlorobenzene	970 U
o-Cresol	970 U
2,2'-Oxybis(1-Chloropropane)	970 U

APPENDIX H.19 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD02
Sample Date	6/29/99
Depth Range (ft bgs)	0.00-0.50
Semivolatiles (ug/kg) (cont.)	
m-Cresol	970 U
Hexachloroethane	970 U
Nitrobenzene	970 U
Isophorone	970 U
2-Nitrophenol	970 U
2,4-Dimethylphenol	970 U
Benzoic acid	5000 U
Bis(2-chloroethoxy)methane	970 U
2,4-Dichlorophenol	970 U
1,2,4-Trichlorobenzene	970 U
Naphthalene	970 U
4-Chloroaniline	1900 U
Hexachlorobutadiene	970 U
4-Chloro-3-methylphenol	970 U
2-Methylnaphthalene	970 U
Hexachlorocyclopentadiene	970 U
2,4,6-Trichlorophenol	970 U
2,4,5-Trichlorophenol	970 U
2-Chloronaphthalene	970 U
2-Nitroaniline	5000 U
Dimethylphthalate	970 U
Acenaphthylene	970 U
2,6-Dinitrotoluene	970 U
3-Nitroaniline	5000 U
Acenaphthene	970 U
2,4-Dinitrophenol	5000 U
4-Nitrophenol	5000 U
Dibenzofuran	970 U
2,4-Dinitrotoluene	970 U
Diethylphthalate	970 U
4-Chlorophenyl phenyl ether	970 U
Fluorene	970 U
4-Nitroaniline	5000 U
4,6-Dinitro-2-methylphenol	5000 U
Hexachlorobenzene	970 U
Pentachlorophenol	5000 U
Phenanthrene	970 U
Anthracene	970 U
Di-n-butylphthalate	970 U
Fluoranthene	970 U
Pyrene	970 U
Bromodiphenyl ether, p-	970 U
Butylbenzylphthalate	970 U

APPENDIX H.19 (continued)

SUMMARY OF AREA A ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD02
Sample Date	6/29/99
Depth Range (ft bgs)	0.00-0.50
Semivolatiles (ug/kg) (cont.)	
3,3'-Dichlorobenzidine	1900 U
Benzidine	7900 U
Benzo(a)anthracene	970 U
Chrysene	970 U
Bis(2-ethylhexyl)phthalate	970 U
Di-n-octylphthalate	970 U
Benzo(b)fluoranthene	970 U
Benzo(k)fluoranthene	970 U
Benzo(a)pyrene	970 U
Indeno(1,2,3-cd)pyrene	970 U
Dibenzo(a,h)anthracene	970 U
Benzo(g,h,i)perylene	970 U
N-Nitroso-di-n-propylamine	970 U
N-Nitrosodimethylamine	970 U
1,3-Dichlorobenzene	970 U
Diphenylamine	970 U

APPENDIX H.20
AREA A, SEDIMENT – INORGANICS

APPENDIX H.20

SUMMARY OF AREA A ANALYTICAL RESULTS, SEDIMENT - INORGANICS
SWMU 09 (TANKS 212-213)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD02
Sample Date	06/29/99
Depth Range (ft bgs)	0.00-0.50
Inorganics (mg/kg)	
Antimony	0.72 R
Arsenic	1.8 J
Barium	14
Beryllium	0.29 J
Cadmium	0.13 U
Chromium	21
Cobalt	6.9
Copper	63 J
Cyanide	2.9 U
Lead	12 J
Mercury	0.078 J
Nickel	6.6 J
Selenium	2.3 UJ
Silver	0.16 U
Sulfide	74 U
Thallium	0.48 UJ
Tin	4.3 J
Vanadium	180
Zinc	64 J

APPENDIX H.21
AREA B, SURFACE SOIL – ORGANICS

APPENDIX H.21

SUMMARY OF AREA B ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS03	9SS04	9MW03-00
Saample Date	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00
Volatiles (ug/kg)			
1,1,1,2-Tetrachloroethane	12 U	11 U	11 U
1,1,1-Trichloroethane	6 U	6 U	5 U
1,1,2,2-Tetrachloroethane	6 U	6 U	5 U
1,1,2-Trichloroethane	6 U	6 U	5 U
1,1-Dichloroethane	6 U	6 U	5 U
1,1-Dichloroethene	6 U	6 U	5 U
1,2,3-Trichloropropane	12 U	11 U	11 U
1,2-Dibromo-3-chloropropane	23 U	22 U	21 U
1,2-Dibromoethane	23 U	22 U	21 U
1,2-Dichloroethane	6 U	6 U	5 UJ
1,2-Dichloroethene (Total)	6 U	6 U	5 U
1,2-Dichloropropane	6 U	6 U	5 U
2-Butanone	12 UJ	11 UJ	11 U
2-Chloro-1,3-butadiene	120 U	110 U	110 U
2-Hexanone	12 UJ	11 UJ	11 U
3-Chloropropene	23 U	22 U	21 U
4-Methyl-2-pentanone	12 UJ	11 UJ	11 U
Acetone	22 J	11 UJ	14 J
Acetonitrile	120 U	110 U	110 U
Acrolein	580 UJ	550 UJ	530 U
Acrylonitrile	120 U	110 U	110 U
Benzene	6 U	6 U	5 U
Bromodichloromethane	6 U	6 U	5 U
Bromoform	6 U	6 U	5 U
Bromomethane	12 U	11 U	11 U
Carbon disulfide	6 U	6 U	5 U
Carbon tetrachloride	6 U	6 U	5 UJ
Chlorobenzene	6 U	6 U	5 U
Chloroethane	12 U	11 U	11 U
Chloroform	6 U	6 U	5 U
Chloromethane	12 U	11 U	11 UJ
cis-1,3-Dichloropropene	6 U	6 U	5 U
Dibromochloromethane	6 U	6 U	5 U
Dibromomethane	12 U	11 U	11 U
Dichlorodifluoromethane	23 UJ	22 UJ	21 UJ
Ethylbenzene	6 U	6 U	5 U
Ethylmethacrylate	23 U	22 U	21 U
Iodomethane	12 U	11 U	11 U
Isobutanol	2300 R	2200 R	2100 R
Methacrylonitrile	23 U	22 U	21 U
Methylene chloride	6 U	6 U	5 UJ
Pentachloroethane	23 U	22 U	21 U
Propionitrile (Ethyl Cyanide)	58 UJ	55 UJ	53 R
Styrene	6 U	6 U	5 U

APPENDIX H.21 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS03	9SS04	9MW03-00
Saample Date	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00
Volatiles (ug/kg) (cont.)			
Tetrachloroethene	6 U	6 U	5 U
Toluene	6 U	6 U	5 U
trans-1,3-Dichloropropene	6 U	6 U	5 U
trans-1,4-Dichloro-2-butene	23 U	22 U	21 U
Trichloroethene	6 U	6 U	5 U
Trichlorofluoromethane	12 UJ	11 UJ	11 U
Vinyl Acetate	12 U	11 U	11 U
Vinyl chloride	12 U	11 U	11 UJ
Xylene (total)	6 U	6 U	5 U
Semivolatiles (ug/kg)			
1,2,4,5-Tetrachlorobenzene	380 R	360 U	350 R
1,2,4-Trichlorobenzene	380 U	360 U	350 U
1,2-Dichlorobenzene	380 U	360 U	350 U
1,2-Diphenylhydrazine	380 U	360 U	350 U
1,3-Dichlorobenzene	380 U	360 U	350 U
1,4-Dichlorobenzene	380 U	360 U	350 U
1,4-Dioxane	760 U	730 U	700 U
1,4-Naphthoquinone	1900 UJ	1800 UJ	1700 UJ
1-Naphthylamine	760 U	730 U	700 U
2,2'-Oxybis(1-Chloropropane)	380 U	360 U	350 U
2,3,4,6-Tetrachlorophenol	380 U	360 UJ	350 U
2,4,5-Trichlorophenol	1900 U	1800 U	1700 U
2,4,6-Trichlorophenol	380 U	360 U	350 U
2,4-Dichlorophenol	380 U	360 U	350 U
2,4-Dimethylphenol	380 U	360 U	350 U
2,4-Dinitrophenol	1900 UJ	1800 UJ	1700 U
2,4-Dinitrotoluene	380 U	360 U	350 U
2,6-Dichlorophenol	380 U	360 U	350 UJ
2,6-Dinitrotoluene	380 U	360 U	350 U
2-Acetylaminofluorene	760 U	730 U	700 U
2-Chloronaphthalene	380 U	360 U	350 U
2-Chlorophenol	380 U	360 U	350 U
2-Methylnaphthalene	380 UJ	360 U	350 UJ
2-Naphthylamine	960 U	910 UJ	870 U
2-Nitroaniline	1900 U	1800 U	1700 U
2-Nitrophenol	380 U	360 U	350 U
2-Picoline	380 U	360 UJ	350 U
2-sec-butyl-4,6-dinitrophenol	760 U	730 UJ	700 U
3,3'-Dichlorobenzidine	760 U	730 U	700 U
3,3'-Dimethylbenzidine	1900 U	1800 U	1700 U
3-Methylcholanthrene	380 U	360 UJ	350 U
3-Nitroaniline	1900 U	1800 U	1700 U
4,6-Dinitro-2-methylphenol	1900 UJ	1800 U	1700 U
4-Aminobiphenyl	760 U	730 U	700 U

APPENDIX H.21 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS03	9SS04	9MW03-00
Saample Date	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00
Semivolatiles (ug/kg) (cont.)			
4-bromophenyl-phenylether	380 U	360 U	350 UJ
4-Chloro-3-methylphenol	760 U	730 U	700 U
4-Chloroaniline	760 U	730 U	700 U
4-Chlorophenyl-phenylether	380 U	360 U	350 U
4-Nitroaniline	1900 U	1800 U	1700 U
4-Nitrophenol	1900 U	1800 U	1700 U
4-Nitroquinoline-1-oxide	1900 UJ	1800 R	1700 R
5-Nitro-o-toluidine	760 UJ	730 U	700 U
7,12-Dimethylbenz(a)anthracene	760 U	730 UJ	700 U
a,a-Dimethylphenethylamine	1900 U	1800 UJ	1700 UJ
Acenaphthene	380 U	360 U	350 U
Acenaphthylene	380 U	360 U	350 U
Acetophenone	380 U	360 U	350 U
Aniline	1900 U	1800 UJ	1700 U
Anthracene	380 U	360 U	350 U
Aramite	760 R	730 UJ	700 U
Benzidine	3800 UJ	3600 UJ	3500 UJ
Benzo(a)anthracene	380 U	360 U	350 U
Benzo(a)pyrene	380 U	360 U	350 U
Benzo(b)fluoranthene	380 U	360 U	350 U
Benzo(g,h,i)perylene	380 U	360 U	350 U
Benzo(k)fluoranthene	380 U	360 U	350 U
Benzoic acid	1900 UJ	1800 U	1700 UJ
Benzyl alcohol	380 UJ	360 U	350 UJ
Bis(2-chloroethoxy)methane	380 U	360 U	350 U
Bis(2-chloroethyl)ether	380 U	360 U	350 U
Bis(2-ethylhexyl)phthalate	380 U	360 U	350 U
Butylbenzylphthalate	380 U	360 U	350 U
Carbazole	380 U	360 U	350 U
Chlorobenzilate	380 U	360 UJ	350 U
Chrysene	380 U	360 U	350 U
Diallate	380 UJ	360 U	350 U
Dibenzo(a,h)anthracene	380 U	360 U	350 U
Dibenzofuran	380 U	360 U	350 U
Diethylphthalate	380 U	360 U	350 U
Dimethylphthalate	380 U	360 U	350 U
Di-n-butylphthalate	40 J	360 U	350 U
Di-n-octylphthalate	380 U	360 U	350 U
Diphenylamine	380 U	360 U	350 U
Ethyl methanesulfonate	380 U	360 U	350 U
Fluoranthene	380 U	360 U	350 U
Fluorene	380 U	360 U	350 U
Hexachlorobenzene	380 U	360 U	350 U
Hexachlorobutadiene	380 U	360 U	350 U

APPENDIX H.21 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS03	9SS04	9MW03-00
Saample Date	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00
Semivolatiles (ug/kg) (cont.)			
Hexachlorocyclopentadiene	380 U	360 U	350 U
Hexachloroethane	380 U	360 U	350 U
Hexachlorophene	3800 R	3600 R	3500 R
Hexachloropropene	1900 U	1800 U	1700 U
Indeno(1,2,3-cd)pyrene	380 U	360 U	350 U
Isophorone	380 U	360 U	350 U
Isosafrole	380 U	360 U	350 U
m,p-Cresol	380 U	360 U	350 U
m-Dinitrobenzene	760 U	730 U	700 U
Methapyrilene	960 UJ	910 UJ	870 UJ
Methyl methanesulfonate	380 U	360 U	350 U
Naphthalene	380 U	360 U	350 U
Nitrobenzene	380 U	360 U	350 U
N-Nitrosodiethylamine	380 U	360 U	350 U
N-Nitrosodimethylamine	380 UJ	360 UJ	350 U
N-Nitroso-di-n-butylamine	380 U	360 U	350 U
N-Nitroso-di-n-propylamine	380 U	360 U	350 U
N-Nitrosodiphenylamine (1)	380 U	360 U	350 U
N-Nitrosomethylethylamine	380 U	360 U	350 U
N-Nitrosomorpholine	760 U	730 U	700 U
N-Nitrosopiperidine	380 UJ	360 U	350 U
N-Nitrosopyrrolidine	1900 U	1800 U	1700 U
o-Cresol	380 U	360 U	350 U
o-Toluidine	380 U	360 R	350 U
p-Dimethylaminoazobenzene	760 UJ	730 U	700 U
Pentachlorobenzene	380 U	360 U	350 U
Pentachloronitrobenzene	380 U	360 U	350 R
Pentachlorophenol	1900 U	1800 U	1700 U
Phenacetin	380 U	360 U	350 U
Phenanthrene	380 U	360 U	350 U
Phenol	380 U	360 U	350 U
p-Phenylenediamine	760 UJ	730 UJ	700 U
Pronamide	380 U	360 U	350 U
Pyrene	380 U	360 U	350 U
Pyridine	760 U	730 U	700 UJ
Safrole	380 U	360 U	350 U
sym-Trinitrobenzene	3800 UJ	3600 U	3500 U
TPH (ug/kg)			
Diesel Range Organics	4800 U	4600 U	4400 U
Gasoline Range Organics	35 U	33 U	32 U

APPENDIX H.22
AREA B, SURFACE SOIL – INORGANICS

APPENDIX H.22

SUMMARY OF AREA B ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS03	9SS04	9MW03-00
Sample Date	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00
RCRA Metals (mg/kg)			
Arsenic, Total	2	1.7 J	1.3
Barium, Total	115	84.7	56.5
Cadmium, Total	0.2 U	0.22 U	0.42
Chromium, Total	9.3 J	9.5 J	13.2 J
Lead, Total	30	258	15.1
Mercury, Total	0.04 U	0.06 U	0.05 U
Selenium, Total	1.1 J	0.88 U	0.62 J
Silver, Total	0.28 U	0.3 U	0.26 U

APPENDIX H.23
AREA B, SUBSURFACE SOIL – ORGANICS

APPENDIX H.23

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW03-04	9MW03-09	9TP02-06	9TP03-03	9TP04-04	9TP05-04	9TP06-04
Sample Date	04/15/96	04/15/96	4/1/96	04/06/96	04/06/96	04/06/96	04/06/96
Depth Range (ft bgs)	8.00-10.00	18.00-20.00	11.50-12.00	7.00	9.00	12.00	9.00
Volatiles (ug/kg)							
1,1,1,2-Tetrachloroethane	14 U	13 U	1000 U	12 U	12 U	12 U	15 U
1,1,1-Trichloroethane	7 U	7 U	4200 U	6 U	6 U	6 U	7 U
1,1,2,2-Tetrachloroethane	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
1,1,2-Trichloroethane	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
1,1-Dichloroethane	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
1,1-Dichloroethene	7 UJ	7 U	1000 U	6 UJ	6 UJ	6 UJ	7 UJ
1,2,3-Trichloropropane	14 U	13 U	2100 U	12 U	12 U	12 U	15 U
1,2-Dibromo-3-chloropropane	28 UJ	26 U	4200 U	25 UJ	24 UJ	25 UJ	30 UJ
1,2-Dibromoethane	28 U	26 U	2100 U	25 U	24 U	25 U	30 U
1,2-Dichloroethane	7 U	7 U	2100 U	6 U	6 U	6 U	7 U
1,2-Dichloroethene (Total)	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
1,2-Dichloropropane	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
2-Butanone	14 U	13 U	2100 U	12 UJ	12 UJ	12 UJ	15 UJ
2-Chloro-1,3-butadiene	140 U	130 U	21000 U	120 U	120 U	120 U	150 U
2-Hexanone	14 U	13 U	2100 U	12 UJ	12 UJ	12 UJ	15 UJ
3-Chloropropene	28 U	26 U	10000 UJ	25 U	24 U	25 U	30 U
4-Methyl-2-pentanone	14 U	13 U	1000 U	12 UJ	12 UJ	12 UJ	15 UJ
Acetone	14 U	13 U	2100 UJ	12 U	12 U	12 U	15 U
Acetonitrile	140 U	130 U	1000 U	120 U	120 U	120 U	150 U
Acrolein	690 UJ	660 UJ	100000 U	620 U	610 U	630 U	740 U
Acrylonitrile	140 U	130 U	21000 UJ	120 U	120 U	120 U	150 U
Benzene	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
Bromodichloromethane	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
Bromoform	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
Bromomethane	14 U	13 U	2100 U	12 U	12 U	12 U	15 U
Carbon disulfide	7 U	7 U	1000 U	6 UJ	6 UJ	6 UJ	7 UJ
Carbon tetrachloride	7 UJ	7 U	1000 U	6 U	6 U	6 U	7 U
Chlorobenzene	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
Chloroethane	14 U	13 U	2100 U	12 U	12 U	12 U	15 U

APPENDIX H.23 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW03-04	9MW03-09	9TP02-06	9TP03-03	9TP04-04	9TP05-04	9TP06-04
Sample Date	04/15/96	04/15/96	4/1/96	04/06/96	04/06/96	04/06/96	04/06/96
Depth Range (ft bgs)	8.00-10.00	18.00-20.00	11.50-12.00	7.00	9.00	12.00	9.00
Volatiles (ug/kg) (cont.)							
Chloroform	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
Chloromethane	14 U	13 U	2100 U	12 U	12 U	12 U	15 U
cis-1,3-Dichloropropene	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
Dibromochloromethane	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
Dibromomethane	14 UJ	13 U	4200 U	12 U	12 U	12 U	15 U
Dichlorodifluoromethane	28 UJ	26 U	4200 UJ	25 UJ	24 UJ	25 UJ	30 UJ
Ethylbenzene	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
Ethylmethacrylate	28 U	26 U	4200 U	25 U	24 U	25 U	30 U
Iodomethane	14 UJ	13 U	4200 U	12 U	12 U	12 U	15 U
Isobutanol	2800 R	2600 R	1100 U	2500 R	2400 R	2500 R	3000 R
Methacrylonitrile	28 U	26 U	2100 U	25 UJ	24 UJ	25 UJ	30 UJ
Methylene chloride	7 U	7 UJ	1000 U	6 U	6 U	6 U	7 U
Pentachloroethane	28 U	26 U	4200 U	25 U	24 U	25 U	30 U
Propionitrile (Ethyl Cyanide)	69 R	66 R	21000 U	62 R	61 R	63 R	74 R
Styrene	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
Tetrachloroethene	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
Toluene	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	7 U	7 U	2100 U	6 U	6 U	6 U	7 U
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	28 U	26 U	1000 U	25 U	24 U	25 U	30 U
Trichloroethene	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
Trichlorofluoromethane	14 U	13 U	2100 UJ	12 R	12 R	12 R	15 R
Vinyl Acetate	14 U	13 U	2100 U	12 U	12 U	12 U	15 U
Vinyl chloride	14 U	13 U	2100 U	12 U	12 U	12 U	15 U
Xylene (total)	7 U	7 U	1000 U	6 U	6 U	6 U	7 U
1,2,4,5-Tetrachlorobenzene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
1,2,4-Trichlorobenzene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
1,2-Dichlorobenzene	460 U	440 U	540 U	400 U	400 U	410 U	480 U

APPENDIX H.23 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW03-04	9MW03-09	9TP02-06	9TP03-03	9TP04-04	9TP05-04	9TP06-04
Sample Date	04/15/96	04/15/96	4/1/96	04/06/96	04/06/96	04/06/96	04/06/96
Depth Range (ft bgs)	8.00-10.00	18.00-20.00	11.50-12.00	7.00	9.00	12.00	9.00
Semivolatiles (ug/kg)							
1,2-Diphenylhydrazine	460 U	440 U	540 U	400 U	400 U	410 U	480 U
1,3-Dichlorobenzene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
1,4-Dichlorobenzene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
1,4-Dioxane	920 UJ	870 U	1100 U	800 UJ	810 UJ	820 UJ	960 UJ
1,4-Naphthoquinone	2300 U	2200 UJ	2700 UJ	2000 UJ	2000 UJ	2000 UJ	2400 UJ
1-Naphthylamine	920 U	870 U	1100 U	400 U	400 U	410 U	480 U
2,2'-Oxybis(1-Chloropropane)	460 U	440 U	540 U	400 UJ	400 UJ	410 UJ	480 UJ
2,3,4,6-Tetrachlorophenol	460 U	440 U	540 U	400 UJ	400 UJ	410 UJ	480 UJ
2,4,5-Trichlorophenol	2300 U	2200 U	2700 U	2000 U	2000 U	2000 U	2400 U
2,4,6-Trichlorophenol	460 U	440 U	5540 U	400 U	400 U	410 U	480 U
2,4-Dichlorophenol	460 U	440 U	540 U	400 U	400 U	410 U	480 U
2,4-Dimethylphenol	460 U	440 U	540 U	400 U	400 U	410 U	480 U
2,4-Dinitrophenol	2300 UJ	2200 R	2700 U	2000 U	2000 U	2000 U	2400 U
2,4-Dinitrotoluene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
2,6-Dichlorophenol	460 U	440 U	540 UJ	400 UJ	400 UJ	410 UJ	480 UJ
2,6-Dinitrotoluene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
2-Acetylaminofluorene	920 U	870 U	1100 U	800 U	810 U	820 U	960 U
2-Chloronaphthalene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
2-Chlorophenol	460 U	440 U	540 U	400 U	400 U	410 U	480 U
2-Methylnaphthalene	460 U	440 U	540 UJ	400 UJ	400 UJ	410 UJ	480 UJ
2-Naphthylamine	1100 U	1100 U	1400 UJ	400 UJ	400 UJ	410 UJ	480 UJ
2-Nitroaniline	2300 U	2200 U	2700 U	2000 UJ	2000 UJ	2000 UJ	2400 UJ
2-Nitrophenol	460 U	440 U	540 U	400 U	400 U	410 U	480 U
2-Picoline	460 U	440 U	540 UJ	400 U	400 U	410 U	480 U
2-sec-butyl-4,6-dinitrophenol	920 U	870 U	1100 UJ	800 UJ	810 UJ	820 UJ	960 UJ
3,3'-Dichlorobenzidine	920 U	870 U	1100 U	800 U	810 U	820 U	960 U
3,3'-Dimethylbenzidine	2300 R	2200 R	540 U	800 UJ	810 UJ	820 UJ	960 UJ
3-Methylcholanthrene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
3-Nitroaniline	2300 U	2200 U	2700 U	2000 U	2000 U	2000 U	2400 U

APPENDIX H.23 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW03-04	9MW03-09	9TP02-06	9TP03-03	9TP04-04	9TP05-04	9TP06-04
Sample Date	04/15/96	04/15/96	4/1/96	04/06/96	04/06/96	04/06/96	04/06/96
Depth Range (ft bgs)	8.00-10.00	18.00-20.00	11.50-12.00	7.00	9.00	12.00	9.00
Semivolatiles (ug/kg) (cont.)							
4,6-Dinitro-2-methylphenol	2300 UJ	2200 UJ	2700 UJ	2000 U	2000 U	2000 U	2400 U
4-Aminobiphenyl	920 U	870 U	1100 U	400 U	400 U	410 U	480 U
4-bromophenyl-phenylether	460 U	440 U	540 U	400 U	400 U	410 U	480 U
4-Chloro-3-methylphenol	920 U	870 U	1100 U	800 U	810 U	820 U	960 U
4-Chloroaniline	920 U	870 U	1100 U	800 U	810 U	820 U	960 U
4-Chlorophenyl-phenylether	460 U	440 U	540 U	400 U	400 U	410 U	480 U
4-Nitroaniline	2300 U	2200 U	2700 U	2000 U	2000 U	2000 U	2400 U
4-Nitrophenol	2300 U	2200 UJ	2700 U	2000 UJ	2000 UJ	2000 UJ	2400 UJ
4-Nitroquinoline-1-oxide	2300 R	2200 R	2700 R	2000 R	2000 R	2000 R	2400 R
5-Nitro-o-toluidine	920 U	870 U	1100 UJ	800 U	810 U	820 U	960 U
7,12-Dimethylbenz(a)anthracene	920 U	870 U	1100 U	800 U	810 U	820 U	960 U
a,a-Dimethylphenethylamine	2300 UJ	2200 UJ	2700 UJ	2000 UJ	2000 UJ	2000 UJ	2400 UJ
Acenaphthene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Acenaphthylene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Acetophenone	460 U	440 U	540 UJ	400 U	400 U	410 U	480 U
Aniline	2300 UJ	2200 UJ	2700 UJ	2000 UJ	2000 UJ	2000 UJ	2400 UJ
Anthracene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Aramite	920 U	870 U	1100 UJ	800 UJ	810 UJ	820 UJ	960 UJ
Benzidine	4600 UJ	4400 U	5400 U	4000 UJ	4000 UJ	4100 UJ	4800 UJ
Benzo(a)anthracene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Benzo(a)pyrene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Benzo(b)fluoranthene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Benzo(g,h,i)perylene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Benzo(k)fluoranthene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Benzoic acid	2300 U	2200 U	2700 U	2000 U	2000 U	2000 U	2400 U
Benzyl alcohol	460 UJ	440 UJ	540 U	400 UJ	400 UJ	410 UJ	480 UJ
Bis(2-chloroethoxy)methane	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Bis(2-chloroethyl)ether	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Bis(2-ethylhexyl)phthalate	460 U	440 U	540 U	400 U	400 U	410 U	480 U

APPENDIX H.23 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW03-04	9MW03-09	9TP02-06	9TP03-03	9TP04-04	9TP05-04	9TP06-04
Sample Date	04/15/96	04/15/96	4/1/96	04/06/96	04/06/96	04/06/96	04/06/96
Depth Range (ft bgs)	8.00-10.00	18.00-20.00	11.50-12.00	7.00	9.00	12.00	9.00
Semivolatiles (ug/kg) (cont.)							
Butylbenzylphthalate	460 U	440 U	540 U	400 U	400 U	410 U	68 J
Carbazole	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Chlorobenzilate	460 U	440 U	540 U	400 UJ	400 UJ	410 UJ	480 UJ
Chrysene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Diallate	460 UJ	440 UJ	540 U	400 UJ	400 UJ	410 UJ	480 UJ
Dibenzo(a,h)anthracene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Dibenzofuran	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Diethylphthalate	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Dimethylphthalate	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Di-n-butylphthalate	460 U	440 U	540 U	400 U	400 U	410 U	800
Di-n-octylphthalate	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Diphenylamine	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Ethyl methanesulfonate	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Fluoranthene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Fluorene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Hexachlorobenzene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Hexachlorobutadiene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Hexachlorocyclopentadiene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Hexachloroethane	460 U	440 U	540 UJ	400 U	400 U	410 U	480 U
Hexachlorophene	4600 UJ	4400 UJ	5400 R	4000 UJ	4000 UJ	4100 UJ	4800 UJ
Hexachloropropene	2300 U	2200 U	2700 U	800 R	810 R	820 R	960 R
Indeno(1,2,3-cd)pyrene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Isophorone	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Isosafrole	460 U	440 U	540 U	400 U	400 U	410 U	480 U
m,p-Cresol	460 U	440 U	540 U	400 U	400 U	410 U	480 U
m-Dinitrobenzene	920 U	870 U	540 U	800 U	810 U	820 U	960 U
Methapyrilene	1100 U	1100 UJ	1400 U	1000 U	1000 U	1000 U	1200 U
Methyl methanesulfonate	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Naphthalene	460 U	440 U	540 U	400 U	400 U	410 U	480 U

APPENDIX H.23 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW03-04	9MW03-09	9TP02-06	9TP03-03	9TP04-04	9TP05-04	9TP06-04
Sample Date	04/15/96	04/15/96	4/1/96	04/06/96	04/06/96	04/06/96	04/06/96
Depth Range (ft bgs)	8.00-10.00	18.00-20.00	11.50-12.00	7.00	9.00	12.00	9.00
Semivolatiles (ug/kg) (cont.)							
Nitrobenzene	460 U	440 U	540 U	400 UJ	400 UJ	410 UJ	480 UJ
N-Nitrosodiethylamine	460 U	440 U	540 U	400 UJ	400 UJ	410 UJ	480 UJ
N-Nitrosodimethylamine	460 U	440 U	540 U	400 UJ	400 UJ	410 UJ	480 UJ
N-Nitroso-di-n-butylamine	460 U	440 U	540 UJ	400 U	400 U	410 U	480 U
N-Nitroso-di-n-propylamine	460 U	440 U	540 U	400 UJ	400 UJ	410 UJ	480 UJ
N-Nitrosodiphenylamine (1)	460 U	440 U	540 U	400 U	400 U	410 U	480 U
N-Nitrosomethylethylamine	460 U	440 U	540 U	400 UJ	400 UJ	410 UJ	480 UJ
N-Nitrosomorpholine	920 U	870 U	1100 UJ	800 U	810 U	820 U	960 U
N-Nitrosopiperidine	460 U	440 U	540 U	400 UJ	400 UJ	410 UJ	480 UJ
N-Nitrosopyrrolidine	2300 U	2200 U	2700 U	2000 U	2000 U	2000 U	2400 U
o-Cresol	460 U	440 U	540 U	400 U	400 U	410 U	480 U
o-Toluidine	460 UJ	440 UJ	540 R	400 R	400 R	410 R	480 R
p-Dimethylaminoazobenzene	920 U	870 U	1100 UJ	800 U	810 U	820 U	960 U
Pentachlorobenzene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Pentachloronitrobenzene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Pentachlorophenol	2300 U	2200 U	2700 U	2000 U	2000 U	2000 U	2400 U
Phenacetin	460 U	440 U	540 UJ	400 U	400 U	410 U	480 U
Phenanthrene	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Phenol	460 U	440 U	540 U	400 U	400 U	410 U	480 U
p-Phenylenediamine	920 R	870 R	1100 R	800 R	810 R	820 R	960 R
Pronamide	460 U	440 U	540 U	400 U	400 U	410 U	480 U
Pyrene	460 UJ	440 U	540 U	400 U	400 U	410 U	480 U
Pyridine	920 U	870 U	1100 U	800 UJ	810 UJ	820 UJ	960 UJ
Safrole	460 U	440 U	540 U	400 UJ	400 UJ	410 UJ	480 UJ
sym-Trinitrobenzene	4600 U	4400 UJ	540 U	4000 U	4000 U	4100 U	4800 U
TPH (ug/kg)							
Diesel Range Organics	5700 U	5500 U	6800 U	5100 U	5000 U	15000	6100 U
Gasoline Range Organics	42 U	40 U	6400	37 U	37 U	38 U	44 U

APPENDIX H.23 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW03-04	9MW03-09	9TP02-06	9TP03-03	9TP04-04	9TP05-04	9TP06-04
Sample Date	04/15/96	04/15/96	4/1/96	04/06/96	04/06/96	04/06/96	04/06/96
Depth Range (ft bgs)	8.00-10.00	18.00-20.00	11.50-12.00	7.00	9.00	12.00	9.00
BTEX (ug/kg)							
Benzene	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	NA	NA	NA	NA	NA	NA	NA

APPENDIX H.23 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP01A-01	9TP01A-02	9TP02A-01	9TP02A-02	9-B06HP04-01	9-B06HP04-02
Sample Date	10/01/97	10/01/97	10/1/97	10/1/97	06/25/99	06/25/99
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	12.00-14.00	16.00-17.00
Volatiles (ug/kg)						
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	NA	NA	NA	NA	230 U	250 U
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	230 U	250 U
1,1,2-Trichloroethane	NA	NA	NA	NA	230 U	250 U
1,1-Dichloroethane	NA	NA	NA	NA	230 U	250 U
1,1-Dichloroethene	NA	NA	NA	NA	230 U	250 U
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	230 U	250 U
1,2-Dichloroethene (Total)	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	230 U	250 U
2-Butanone	NA	NA	NA	NA	1200 U	1200 U
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	1200 U	1200 U
3-Chloropropene	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NA	NA	NA	NA	1200 U	1200 U
Acetone	NA	NA	NA	NA	2300 U	2500 U
Acetonitrile	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	230 U	250 U
Bromodichloromethane	NA	NA	NA	NA	230 U	250 U
Bromoform	NA	NA	NA	NA	230 U	250 U
Bromomethane	NA	NA	NA	NA	460 U	490 U
Carbon disulfide	NA	NA	NA	NA	230 U	250 U
Carbon tetrachloride	NA	NA	NA	NA	230 U	250 U
Chlorobenzene	NA	NA	NA	NA	230 U	250 U
Chloroethane	NA	NA	NA	NA	460 U	490 U

APPENDIX H.23 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP01A-01	9TP01A-02	9TP02A-01	9TP02A-02	9-B06HP04-01	9-B06HP04-02
Sample Date	10/01/97	10/01/97	10/1/97	10/1/97	06/25/99	06/25/99
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	12.00-14.00	16.00-17.00
Volatiles (ug/kg) (cont.)						
Chloroform	NA	NA	NA	NA	230 U	250 U
Chloromethane	NA	NA	NA	NA	460 U	490 U
cis-1,3-Dichloropropene	NA	NA	NA	NA	230 U	250 U
Dibromochloromethane	NA	NA	NA	NA	230 U	250 U
Dibromomethane	NA	NA	NA	NA	230 U	250 U
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	230 U	250 U
Ethylmethacrylate	NA	NA	NA	NA	NA	NA
Iodomethane	NA	NA	NA	NA	NA	NA
Isobutanol	NA	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	230 U	250 U
Pentachloroethane	NA	NA	NA	NA	NA	NA
Propionitrile (Ethyl Cyanide)	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	230 U	250 U
Tetrachloroethene	NA	NA	NA	NA	230 U	250 U
Toluene	NA	NA	NA	NA	230 U	250 U
trans-1,2-Dichloroethene	NA	NA	NA	NA	230 U	250 U
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	230 U	250 U
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	230 U	250 U
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA
Vinyl Acetate	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	460 U	490 U
Xylene (total)	NA	NA	NA	NA	460 U	490 U
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA

APPENDIX H.23 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP01A-01	9TP01A-02	9TP02A-01	9TP02A-02	9-B06HP04-01	9-B06HP04-02
Sample Date	10/01/97	10/01/97	10/1/97	10/1/97	06/25/99	06/25/99
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	12.00-14.00	16.00-17.00
Semivolatiles (ug/kg)						
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2-Naphthylamine	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA
2-Picoline	NA	NA	NA	NA	NA	NA
2-sec-butyl-4,6-dinitrophenol	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	NA

APPENDIX H.23 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP01A-01	9TP01A-02	9TP02A-01	9TP02A-02	9-B06HP04-01	9-B06HP04-02
Sample Date	10/01/97	10/01/97	10/1/97	10/1/97	06/25/99	06/25/99
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	12.00-14.00	16.00-17.00
Semivolatiles (ug/kg) (cont.)						
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA
4-bromophenyl-phenylether	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	NA
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA
Acetophenone	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA
Aramite	NA	NA	NA	NA	NA	NA
Benzidine	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA
Benzoic acid	NA	NA	NA	NA	NA	NA
Benzyl alcohol	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA

APPENDIX H.23 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP01A-01	9TP01A-02	9TP02A-01	9TP02A-02	9-B06HP04-01	9-B06HP04-02
Sample Date	10/01/97	10/01/97	10/1/97	10/1/97	06/25/99	06/25/99
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	12.00-14.00	16.00-17.00
Semivolatiles (ug/kg) (cont.)						
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA
Diethylphthalate	NA	NA	NA	NA	NA	NA
Dimethylphthalate	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA
Diphenylamine	NA	NA	NA	NA	NA	NA
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	NA
Hexachlorophene	NA	NA	NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA	NA
Isosafrole	NA	NA	NA	NA	NA	NA
m,p-Cresol	NA	NA	NA	NA	NA	NA
m-Dinitrobenzene	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA

APPENDIX H.23 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP01A-01	9TP01A-02	9TP02A-01	9TP02A-02	9-B06HP04-01	9-B06HP04-02
Sample Date	10/01/97	10/01/97	10/1/97	10/1/97	06/25/99	06/25/99
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	12.00-14.00	16.00-17.00
Semivolatiles (ug/kg) (cont.)						
Nitrobenzene	NA	NA	NA	NA	NA	NA
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine (1)	NA	NA	NA	NA	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA
o-Cresol	NA	NA	NA	NA	NA	NA
o-Toluidine	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA	NA
Phenacetin	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA
p-Phenylenediamine	NA	NA	NA	NA	NA	NA
Pronamide	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA
Pyridine	NA	NA	NA	NA	NA	NA
Safrole	NA	NA	NA	NA	NA	NA
sym-Trinitrobenzene	NA	NA	NA	NA	NA	NA
TPH (ug/kg)						
Diesel Range Organics	7600 U	8100 U	10000 U	9200 U	NA	NA
Gasoline Range Organics	63 U	66 U	87 U	76 U	NA	NA

APPENDIX H.23 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP01A-01	9TP01A-02	9TP02A-01	9TP02A-02	9-B06HP04-01	9-B06HP04-02
Sample Date	10/01/97	10/01/97	10/1/97	10/1/97	06/25/99	06/25/99
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	12.00-14.00	16.00-17.00
BTEX (ug/kg)						
Benzene	1.2 U	1.3 U	1.7 U	1.5 U	NA	NA
Toluene	1.2 U	1.3 U	1.7 U	1.5 U	NA	NA
Ethylbenzene	1.2 U	1.3 U	1.7 U	1.5 U	NA	NA
Xylene (total)	1.2 U	1.3 U	1.7 U	1.5 U	NA	NA

APPENDIX H.24
AREA B, SUBSURFACE SOIL – INORGANICS

APPENDIX H.24

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW03-04	9MW03-09	9TP02-06	9TP03-03	9TP04-04	9TP05-04	9TP06-04
Sample Date	04/15/96	04/15/96	04/01/96	04/06/96	04/06/96	04/06/96	04/06/96
Depth Range (ft bgs)	8.00-10.00	12.00-14.00	11.50-12.00	7.00	9.00	12.00	9.00
RCRA Metals (mg/kg)							
Arsenic, Total	0.6 U	0.13 UJ	0.0015	2 J	0.27 J	0.1 UJ	0.45 J
Barium, Total	40.4	24	0.0524 J	18.8	43	28.2	85.6
Cadmium, Total	0.33 U	0.3 U	0.00037 U	0.27 U	0.29 U	0.29 U	0.33 U
Chromium, Total	7.1	8.3	0.011 J	5.1 J	3.4 J	3 J	5.6 J
Lead, Total	0.77	0.54	0.004	34.2 J	0.28 J	1.5 J	0.61 J
Mercury, Total	0.05 U	0.06 U	0.00006 U	0.06 U	0.06 U	0.05 U	0.05 U
Selenium, Total	0.14 UJ	0.16 UJ	0.00079 J	0.29 UJ	0.16 UJ	0.16 UJ	0.29 J
Silver, Total	0.46 U	1.1	0.00052 U	0.37 U	0.41 U	0.4 U	0.46 U

APPENDIX H.24 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TP01A-01	9TP01A-02	9TP02A-01	9TP02A-02
Sample Date	10/01/97	10/01/97	10/01/97	10/01/97
Depth Range (ft bgs)	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00
RCRA Metals (mg/kg)				
Arsenic, Total	1.2 J	1 J	0.69 J	0.34 UJ
Barium, Total	130 J	182 J	143 J	69.8 UJ
Cadmium, Total	1.7	2.3	0.83	1.3
Chromium, Total	9.9 J	14.4 J	7 J	5.7 J
Lead, Total	2	0.17 U	0.54	0.21 U
Mercury, Total	0.03 U	0.02 U	0.04 U	0.03 U
Selenium, Total	2 J	0.49 J	1.2 J	1.1 J
Silver, Total	0.21 J	0.25 J	0.11 U	0.12 J

APPENDIX H.25
AREA B, GROUNDWATER – ORGANICS

APPENDIX H.25

SUMMARY OF AREA B ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW04	13GW05	13GW06	9MW03	9-B05-HP02
Sample Date	3/24/96	03/24/96	03/24/96	04/20/96	06/27/99
Volatiles (ug/L)					
1,1,1,2-Tetrachloroethane	10 U	10 U	10 U	10 U	NA
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	NA
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	NA
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	NA
1,1-Dichloroethane	5 U	5 U	5 U	5 U	NA
1,1-Dichloroethene	5 U	5 U	5 U	5 UJ	NA
1,2,3-Trichloropropane	10 U	10 U	10 U	10 U	NA
1,2-Dibromo-3-chloropropane	20 U	20 U	20 U	20 U	NA
1,2-Dibromoethane	20 U	20 U	20 U	20 U	NA
1,2-Dichloroethane	5 U	5 U	5 U	5 U	NA
1,2-Dichloroethene (Total)	5 U	5 U	5 U	5 U	NA
1,2-Dichloropropane	5 U	5 U	5 U	5 U	NA
2-Butanone	10 U	10 U	10 U	10 U	NA
2-Chloro-1,3-butadiene	100 U	100 U	100 U	100 U	NA
2-Hexanone	10 U	10 U	10 U	10 U	NA
3-Chloropropene	20 U	20 U	20 U	20 U	NA
4-Methyl-2-pentanone	10 U	10 U	10 U	10 U	NA
Acetone	10 U	10 UJ	10 U	10 U	NA
Acetonitrile	100 U	100 UJ	100 U	100 U	NA
Acrolein	500 U	500 U	500 U	500 UJ	NA
Acrylonitrile	100 U	100 U	100 U	100 U	NA
Benzene	5 U	140	5 U	5 U	NA
Bromodichloromethane	5 U	5 U	460	5 U	NA
Bromoform	5 U	5 U	360	5 U	NA
Bromomethane	10 U	10 U	10 U	10 U	NA
Carbon disulfide	5 U	5 U	5 U	5 U	NA
Carbon tetrachloride	5 U	5 U	5 U	5 U	NA
Chlorobenzene	5 U	5 U	5 U	5 U	NA
Chloroethane	10 U	10 U	10 U	10 U	NA
Chloroform	5 U	5 U	1100	5 J	NA
Chloromethane	10 UJ	10 U	10 U	10 UJ	NA
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	NA
Dibromochloromethane	5 U	5 U	300	5 U	NA
Dibromomethane	10 U	10 U	10 U	10 U	NA
Dichlorodifluoromethane	20 UJ	20 U	20 U	20 UJ	NA
Ethylbenzene	5 U	8	5 U	5 U	NA
Ethylmethacrylate	20 U	20 U	20 U	20 U	NA
Iodomethane	10 U	10 U	10 U	10 U	NA
Isobutanol	2000 R	2000 R	2000 U	2000 R	NA
Methacrylonitrile	20 U	20 U	20 U	20 U	NA
Methylene chloride	5 U	5 U	11	5 U	NA
Pentachloroethane	20 U	20 U	20 U	20 U	NA
Propionitrile (Ethyl Cyanide)	50 R	50 R	50 U	50 R	NA

APPENDIX H.25 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW04	13GW05	13GW06	9MW03	9-B05-HP02
Sample Date	03/23/96	03/24/96	03/24/96	04/20/96	06/27/99
Volatiles (ug/L) (cont.)					
Styrene	5 U	5 U	5 U	5 U	NA
Tetrachloroethene	5 U	5 U	5 U	5 U	NA
Toluene	5 U	5 U	5 U	5 U	NA
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	NA
trans-1,4-Dichloro-2-butene	20 U	20 U	20 U	20 U	NA
Trichloroethene	5 U	5 U	5 U	5 U	NA
Trichlorofluoromethane	10 U	10 U	10 U	10 U	NA
Vinyl Acetate	10 U	10 U	10 U	10 UJ	NA
Vinyl chloride	10 U	10 U	10 U	10 UJ	NA
Xylene (total)	5 U	5 U	5 U	5 U	NA
Semivolatiles (ug/L)					
1,2,4,5-Tetrachlorobenzene	11 U	10 U	10 U	11 U	NA
1,2,4-Trichlorobenzene	11 U	10 U	10 U	11 U	NA
1,2-Dichlorobenzene	11 U	10 U	10 U	11 U	NA
1,2-Diphenylhydrazine	11 U	10 U	10 U	11 U	NA
1,3-Dichlorobenzene	11 U	10 U	10 U	11 U	NA
1,4-Dichlorobenzene	11 U	10 U	10 U	11 U	NA
1,4-Dioxane	22 U	21 U	20 U	22 U	NA
1,4-Naphthoquinone	54 U	53 U	49 U	56 U	NA
1-Naphthylamine	22 U	21 U	20 U	22 U	NA
2,2'-Oxybis(1-Chloropropane)	11 U	10 U	10 U	11 U	NA
2,3,4,6-Tetrachlorophenol	11 U	10 U	10 U	11 U	NA
2,4,5-Trichlorophenol	54 UJ	53 UJ	49 U	56 U	NA
2,4,6-Trichlorophenol	11 U	10 U	10 U	11 U	NA
2,4-Dichlorophenol	11 U	10 U	10 U	11 U	NA
2,4-Dimethylphenol	11 U	10 U	10 U	11 U	NA
2,4-Dinitrophenol	54 UJ	53 UJ	49 UJ	56 U	NA
2,4-Dinitrotoluene	11 U	10 U	10 U	11 U	NA
2,6-Dichlorophenol	11 U	10 U	10 U	11 U	NA
2,6-Dinitrotoluene	11 U	10 U	10 U	11 U	NA
2-Acetylaminofluorene	22 U	21 U	20 U	22 U	NA
2-Chloronaphthalene	11 U	10 U	10 U	11 U	NA
2-Chlorophenol	11 U	10 U	10 U	11 U	NA
2-Methylnaphthalene	11 UJ	10 UJ	10 UJ	11 U	NA
2-Naphthylamine	27 U	26 U	24 U	28 U	NA
2-Nitroaniline	54 U	53 U	49 U	56 U	NA
2-Nitrophenol	11 U	10 U	10 U	11 U	NA
2-Picoline	11 U	10 U	10 U	11 UJ	NA
2-sec-butyl-4,6-dinitrophenol	22 U	21 U	20 U	22 U	NA
3,3'-Dichlorobenzidine	22 U	21 U	20 U	22 U	NA
3,3'-Dimethylbenzidine	54 U	53 U	49 U	56 UJ	NA
3-Methylcholanthrene	11 U	10 U	10 U	11 U	NA
3-Nitroaniline	54 U	53 U	49 U	56 U	NA

APPENDIX H.25 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW04	13GW05	13GW06	9MW03	9-B05-HP02
Sample Date	03/23/96	03/24/96	03/24/96	04/20/96	06/27/99
Semivolatiles (ug/L) (cont.)					
4- Chlorophenyl-phenylether	11 U	10 U	10 U	11 U	NA
4,6-Dinitro-2-methylphenol	54 UJ	53 UJ	49 UJ	56 U	NA
4-Aminobiphenyl	22 U	21 U	20 U	22 U	NA
4-bromophenyl-phenylether	11 U	10 U	10 U	11 U	NA
4-Chloro-3-methylphenol	22 U	21 U	20 U	22 U	NA
4-Chloroaniline	22 U	21 U	20 U	22 U	NA
4-Nitroaniline	54 U	53 U	49 U	56 U	NA
4-Nitrophenol	54 U	53 U	49 U	56 UJ	NA
4-Nitroquinoline-1-oxide	54 U	53 U	49 U	56 R	NA
5-Nitro-o-toluidine	22 U	21 U	20 U	22 U	NA
7,12-Dimethylbenz(a)anthracene	22 U	21 U	20 U	22 U	NA
a,a-Dimethylphenethylamine	54 U	53 U	49 U	56 UJ	NA
Acenaphthene	11 U	10 U	10 U	11 U	NA
Acenaphthylene	11 U	10 U	10 U	11 U	NA
Acetophenone	11 U	10 U	10 U	11 U	NA
Aniline	54 U	53 U	49 UJ	56 UJ	NA
Anthracene	11 U	10 U	10 U	11 U	NA
Aramite	22 U	21 U	20 U	22 U	NA
Benzidine	110 UJ	100 UJ	98 UJ	110 U	NA
Benzo(a)anthracene	11 U	10 U	10 U	11 U	NA
Benzo(a)pyrene	11 U	10 U	10 U	11 U	NA
Benzo(b)fluoranthene	11 U	10 U	10 U	11 U	NA
Benzo(g,h,i)perylene	11 U	10 U	10 U	11 U	NA
Benzo(k)fluoranthene	11 U	10 U	10 U	11 U	NA
Benzoic acid	54 U	53 U	49 U	19 J	NA
Benzyl alcohol	11 U	10 U	10 UJ	11 U	NA
Bis(2-chloroethoxy)methane	11 U	10 U	10 U	11 U	NA
Bis(2-chloroethyl)ether	11 U	10 U	10 U	11 U	NA
Bis(2-ethylhexyl)phthalate	7 J	2 J	10 U	11 U	NA
Butylbenzylphthalate	11 U	10 U	10 U	11 U	NA
Carbazole	11 U	10 U	10 U	11 U	NA
Chlorobenzilate	11 U	10 U	10 U	11 UJ	NA
Chrysene	11 U	10 U	10 U	11 U	NA
Diallate	11 U	10 U	10 U	11 U	NA
Dibenzo(a,h)anthracene	11 U	10 U	10 U	11 U	NA
Dibenzofuran	11 U	10 U	10 U	11 U	NA
Diethylphthalate	11 U	1 J	10 U	11 U	NA
Dimethylphthalate	11 U	10 U	10 U	11 U	NA
Di-n-butylphthalate	11 U	10 U	10 U	11 U	NA
Di-n-octylphthalate	11 U	10 U	10 U	11 U	NA
Diphenylamine	11 U	10 U	10 U	11 U	NA
Ethyl methanesulfonate	11 U	10 U	10 U	11 U	NA
Fluoranthene	11 U	10 U	10 U	11 U	NA

APPENDIX H.25 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW04	13GW05	13GW06	9MW03	9-B05-HP02
Sample Date	03/23/96	03/24/96	03/24/96	04/20/96	06/27/99
Semivolatiles (ug/L) (cont.)					
Fluorene	11 U	10 U	10 U	11 U	NA
Hexachlorobenzene	11 U	10 U	10 U	11 U	NA
Hexachlorobutadiene	11 U	10 U	10 U	11 U	NA
Hexachlorocyclopentadiene	11 U	10 U	10 U	11 U	NA
Hexachloroethane	11 U	10 U	10 U	11 U	NA
Hexachlorophene	110 U	100 U	98 U	110 UJ	NA
Hexachloropropene	54 U	53 U	49 U	56 U	NA
Indeno(1,2,3-cd)pyrene	11 U	10 U	10 U	11 U	NA
Isophorone	11 U	10 U	10 U	11 U	NA
Isosafrole	11 U	10 U	10 U	11 U	NA
m,p-Cresol	11 U	10 U	10 U	11 UJ	NA
m-Dinitrobenzene	22 U	21 U	20 U	22 U	NA
Methapyrilene	27 U	26 U	24 U	28 U	NA
Methyl methanesulfonate	11 U	10 U	10 U	11 U	NA
Naphthalene	11 U	10 U	10 U	11 U	NA
Nitrobenzene	11 U	10 U	10 U	11 U	NA
N-Nitrosodiethylamine	11 U	10 U	10 U	11 U	NA
N-Nitrosodimethylamine	11 UJ	10 UJ	10 U	11 U	NA
N-Nitroso-di-n-butylamine	11 U	10 U	10 U	11 U	NA
N-Nitroso-di-n-propylamine	11 U	10 U	10 U	11 U	NA
N-Nitrosodiphenylamine (1)	11 U	10 U	10 U	11 U	NA
N-Nitrosomethylethylamine	11 U	10 U	10 U	11 U	NA
N-Nitrosomorpholine	22 U	21 U	20 U	22 U	NA
N-Nitrosopiperidine	11 U	10 U	10 U	11 U	NA
N-Nitrosopyrrolidine	54 U	53 U	49 U	56 U	NA
o-Cresol	11 U	10 U	10 U	11 U	NA
o-Toluidine	11 U	10 U	10 U	11 UJ	NA
p-Dimethylaminoazobenzene	22 U	21 U	20 U	22 U	NA
Pentachlorobenzene	11 U	10 U	10 U	11 U	NA
Pentachloronitrobenzene	11 U	10 U	10 U	11 R	NA
Pentachlorophenol	54 U	53 U	49 U	56 U	NA
Phenacetin	11 U	10 U	10 U	11 U	NA
Phenanthrene	11 U	10 U	10 U	11 U	NA
Phenol	11 U	10 U	10 U	11 U	NA
p-Phenylenediamine	22 U	21 U	20 U	22 R	NA
Pronamide	11 U	10 U	10 U	11 U	NA
Pyrene	11 U	10 U	10 U	11 U	NA
Pyridine	22 U	21 U	20 U	22 UJ	NA
Safrole	11 U	10 U	10 U	11 U	NA
sym-Trinitrobenzene	110 U	100 U	98 U	110 U	NA

APPENDIX H.25 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW04	13GW05	13GW06	9MW03	9-B05-HP02
Sample Date	03/23/96	03/24/96	03/24/96	04/20/96	06/27/99
PCBS (ug/L)					
Aroclor-1260	1 U	0.95 U	0.99 U	1 U	NA
Aroclor-1254	1 U	0.95 U	0.99 U	1 U	NA
Aroclor-1221	0.52 U	0.48 U	0.5 U	0.5 U	NA
Aroclor-1232	0.52 U	0.48 U	0.5 U	0.5 U	NA
Aroclor-1248	0.52 U	0.48 U	0.5 U	0.5 U	NA
Aroclor-1016	0.52 U	0.48 U	0.5 U	0.5 U	NA
Aroclor-1242	0.52 U	0.48 U	0.5 U	0.5 U	NA
TPH (ug/L)					
Diesel Range Organics	140 UJ	130 U	140 U	130 UJ	NA
Gasoline Range Organics	4200	160 J	30 U	30 U	NA
BTEX (ug/L)					
Benzene	NA	NA	NA	NA	1200
Ethylbenzene	NA	NA	NA	NA	230
Toluene	NA	NA	NA	NA	50 U
Xylene (total)	NA	NA	NA	NA	200

APPENDIX H.26
AREA B, GROUNDWATER – TOTAL INORGANICS

APPENDIX H.26

SUMMARY OF AREA B ANALYTICAL RESULTS, GROUNDWATER - TOTAL INORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW03
Sample Date	04/20/96
RCRA METALS (ug/L)	
Arsenic, Total	6 U
Barium, Total	182
Cadmium, Total	26.4
Chromium, Total	2.6 U
Lead, Total	6 UJ
Mercury, Total	0.16 J
Selenium, Total	28 R
Silver, Total	4 U

APPENDIX H.27
AREA B, GROUNDWATER – DISSOLVED INORGANICS

APPENDIX H.27

SUMMARY OF AREA B ANALYTICAL RESULTS, GROUNDWATER - DISSOLVED INORGANICS
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW03
Sample Date	04/20/96
RCRA METALS (ug/L)	
Arsenic, Soluble	6 U
Barium, Soluble	170
Cadmium, Soluble	25.1
Chromium, Soluble	2.6 U
Lead, Soluble	6 UJ
Mercury, Soluble	0.1 UJ
Selenium, Soluble	28 R
Silver, Soluble	4 U

APPENDIX H.28
AREA B, GROUNDWATER – WATER QUALITY

APPENDIX H.28

SUMMARY OF AREA B ANALYTICAL RESULTS, GROUNDWATER - WATER QUALITY
SWMU 09 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW05	13GW06
Sample Date	06/28/99	06/28/99
WATER QUALITY		
Silver (mg/L)	0.0006 U	0.0237
Copper (mg/L)	0.0081 B	0.008 B
Zinc (mg/L)	0.0019 B	0.334
Aluminum (mg/L)	0.344 J	4.51 J
Iron (mg/L)	2.09	0.0899 B
Manganese (mg/L)	0.512	13.8
Alkalinity (as CaCO3) (mg/L)	184	11,100
Salinity (ppt)	2.90	39
Sulfate (mg/L)	170	1,300
Chloride (mg/L)	620	22,000
Fluoride (mg/L)	0.50	0.75
Color (PCU)	35	20
Odor (TON)	2.00	2.00
Total dissolved solids (mg/L)	3,700	45,000

APPENDIX H.29
AREA B, SURFACE WATER – ORGANICS

APPENDIX H.29

SUMMARY OF AREA B ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 9 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SW01	9SW01D	9SW03	9SW04
Sample Date	6/29/99	6/29/99	6/29/99	6/29/99
Volatiles (ug/L)				
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U
2-Butanone	25 U	25 U	25 U	25 U
2-Hexanone	25 U	25 U	25 U	25 U
4-Methyl-2-pentanone	25 U	25 U	25 U	25 U
Acetone	50 U	50 U	50 U	50 U
Benzene	5 U	5 U	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U
Bromoform	5 U	5 U	5 U	5 U
Bromomethane	10 U	10 U	10 U	10 U
Carbon disulfide	5 U	5 U	5 U	5 U
Carbon tetrachloride	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U
Chloroethane	10 U	10 U	10 U	10 U
Chloroform	5 U	5 U	5 U	5 U
Chloromethane	10 U	10 U	10 U	10 U
cis-1,2-Dichloroethene	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U
Methylene chloride	5 U	2.7 J	5 U	5 U
Styrene	5 U	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U	5 U
Toluene	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U
Trichloroethene	5 U	5 U	5 U	5 U
Vinyl chloride	10 U	10 U	10 U	10 U
Xylene (total)	10 U	10 U	10 U	10 U
Semivolatiles (ug/L)				
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U
2,2'-Oxybis(1-Chloropropane)	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U

APPENDIX H.29 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 9 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SW01	9SW01D	9SW03	9SW04
Sample Date	6/29/99	6/29/99	6/29/99	6/29/99
Semivolatiles (ug/L) (cont.)				
2,4-Dichlorophenol	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50 U	50 U	50 U	50 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U
2-Nitroaniline	50 U	50 U	50 U	50 U
2-Nitrophenol	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U
3-Nitroaniline	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U	50 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U
4-Chloroaniline	20 U	20 U	20 U	20 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	50 U	50 U
4-Nitrophenol	50 U	50 U	50 U	50 U
Acenaphthene	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U
Benzidine	80 U	80 U	80 U	80 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U
Benzoic acid	50 U	50 U	50 U	50 U
Benzyl alcohol	10 U	10 U	10 U	10 U
Bis(2-chloroethoxy)methane	10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10 U	10 U	10 U	10 U
Bromodiphenyl ether, p-	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U	10 U
Dimethylphthalate	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10 U	10 U	10 U	10 U
Diphenylamine	10 U	10 U	10 U	10 U

APPENDIX H.29 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 9 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SW01	9SW01D	9SW03	9SW04
Sample Date	6/29/99	6/29/99	6/29/99	6/29/99
Semivolatiles (ug/L) (cont.)				
Fluoranthene	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U
m-Cresol	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U
N-Nitrosodimethylamine	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U
o-Cresol	10 U	10 U	10 U	10 U
Pentachlorophenol	50 U	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U

APPENDIX H.30
AREA B, SURFACE WATER – TOTAL INORGANICS

APPENDIX H.30

SUMMARY OF AREA B ANALYTICAL RESULTS, SURFACE WATER - TOTAL INORGANICS
SWMU 9 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SW01	9SW01D	9SW03	9SW04
Sample Date	06/29/99	06/29/99	06/29/99	06/29/99
TOTAL METALS (ug/L)				
Antimony	13.5 U	16.5	2.7 U	2.7 U
Arsenic	17.8 J	10 J	33.5 J	39.7 J
Barium	54.2	51.7	54.9	61.1
Beryllium	0.73	0.57	0.1 U	0.12 J
Cadmium	2.5 U	2.5 U	0.94 J	1.5 J
Chromium	8.5	5 U	8 J	7.7 U
Cobalt	4.1	3.5	3.6 J	4.4 J
Copper	50.4	35.7	41.4 U	55.6 J
Cyanide	6.1	10 U	10 U	10 U
Lead	4.5 U	4.5 U	4.5 U	5.4 J
Mercury	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	10.1	9.7	4.5 J	4.4 J
Selenium	17 U	17 U	17 U	17 UJ
Silver	3 U	3 U	0.6 U	0.6 U
Sulfide	100 U	100 U	100 U	100 U
Thallium	180 R	180 R	900 R	900 R
Tin	8.5 U	9.2	5 J	3.8 J
Vanadium	70.9	49.6	134	72.3
Zinc	27.4	18.7	14.5 J	19.9 J

APPENDIX H.31
AREA B, SEDIMENT – ORGANICS

APPENDIX H.31

SUMMARY OF AREA B ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 9 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD01	9SD01D	9SD03	9SD04
Sample Date	06/29/99	06/29/99	06/29/99	06/29/99
Depth Range (ft bgs)	0.00-0.50	0.00-0.50	0.00-0.50	0.00-0.50
Volatiles (ug/kg)				
1,1,1-Trichloroethane	12 U	12 U	10 U	12 U
1,1,2,2-Tetrachloroethane	12 U	12 UJ	10 UJ	12 UJ
1,1,2-Trichloroethane	12 U	12 U	10 U	12 U
1,1-Dichloroethane	12 U	12 U	10 U	12 U
1,1-Dichloroethene	12 U	12 U	10 U	12 U
1,2-Dichloroethane	12 U	12 U	10 U	12 U
1,2-Dichloropropane	12 U	12 U	10 U	12 U
2-Butanone	58 U	62 U	28 J	39 J
2-Hexanone	58 U	62 U	52 U	59 U
4-Methyl-2-pentanone	58 U	62 U	52 U	59 U
Acetone	87 J	130	140	200
Benzene	12 U	12 U	10 U	12 U
Bromodichloromethane	12 U	12 U	10 U	12 U
Bromoform	12 U	12 UJ	10 UJ	12 UJ
Bromomethane	23 U	25 U	21 U	24 U
Carbon disulfide	12 U	12 U	5.3 J	8.9 J
Carbon tetrachloride	12 U	12 U	10 U	12 U
Chlorobenzene	12 U	12 UJ	10 UJ	12 UJ
Chloroethane	23 U	25 U	21 U	24 U
Chloroform	12 U	12 U	10 U	12 U
Chloromethane	23 U	25 U	21 U	24 U
cis-1,2-Dichloroethene	12 U	12 U	10 U	12 U
cis-1,3-Dichloropropene	12 U	12 U	10 U	12 U
Dibromochloromethane	12 U	12 U	10 U	12 U
Ethylbenzene	12 U	12 UJ	10 UJ	12 UJ
Methylene chloride	12 U	12 U	10 U	12 U
Styrene	12 U	12 UJ	10 UJ	12 UJ
Tetrachloroethene	12 U	12 U	10 U	12 U
Toluene	12 U	12 U	10 U	12 U
trans-1,2-Dichloroethene	12 U	12 U	10 U	12 U
trans-1,3-Dichloropropene	12 U	12 U	10 U	12 U
Trichloroethene	12 U	12 U	10 U	12 U
Vinyl chloride	23 U	25 U	21 U	24 U
Xylene (total)	23 U	25 U	21 UJ	24 U
Semivolatiles (ug/kg)				
1,2,4-Trichlorobenzene	720 U	820 U	1400 U	3600 U
1,2-Dichlorobenzene	720 U	820 U	1400 U	3600 U
1,3-Dichlorobenzene	720 U	820 U	1400 U	3600 U
1,4-Dichlorobenzene	720 U	820 U	1400 U	3600 U
2,2'-Oxybis(1-Chloropropane)	720 U	820 U	1400 U	3600 U
2,4,5-Trichlorophenol	720 U	820 U	1400 U	3600 U
2,4,6-Trichlorophenol	720 U	820 U	1400 U	3600 U
2,4-Dichlorophenol	720 U	820 U	1400 U	3600 U
2,4-Dimethylphenol	720 U	820 U	1400 U	3600 U

APPENDIX H.31 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 9 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD01	9SD01D	9SD03	9SD04
Sample Date	06/29/99	06/29/99	06/29/99	06/29/99
Depth Range (ft bgs)	0.00-0.50	0.00-0.50	0.00-0.50	0.00-0.50
Semivolatiles (ug/kg) (cont.)				
2,4-Dinitrophenol	3700 U	4200 U	7100 U	18000 U
2,4-Dinitrotoluene	720 U	820 U	1400 U	3600 U
2,6-Dinitrotoluene	720 U	820 U	1400 U	3600 U
2-Chloronaphthalene	720 U	820 U	1400 U	3600 U
2-Chlorophenol	720 U	820 U	1400 U	3600 U
2-Methylnaphthalene	720 U	820 U	1400 U	3600 U
2-Nitroaniline	3700 U	4200 U	7100 U	18000 U
2-Nitrophenol	720 U	820 U	1400 U	3600 U
3,3'-Dichlorobenzidine	1400 U	1600 U	2800 U	7200 U
3-Nitroaniline	3700 U	4200 U	7100 U	18000 U
4,6-Dinitro-2-methylphenol	3700 U	4200 U	7100 U	18000 U
4-Chloro-3-methylphenol	720 U	820 U	1400 U	3600 U
4-Chloroaniline	1400 U	1600 U	2800 U	7200 U
4-Chlorophenyl phenyl ether	720 U	820 U	1400 U	3600 U
4-Nitroaniline	3700 U	4200 U	7100 U	18000 U
4-Nitrophenol	3700 U	4200 U	7100 U	18000 U
Acenaphthene	720 U	820 U	1400 U	3600 U
Acenaphthylene	720 U	820 U	1400 U	3600 U
Anthracene	720 U	820 U	1400 U	3600 U
Benzidine	5900 U	6700 U	11000 U	29000 U
Benzo(a)anthracene	720 U	820 U	1400 U	3600 U
Benzo(a)pyrene	720 U	820 U	1400 U	3600 U
Benzo(b)fluoranthene	720 U	820 U	1400 U	3600 U
Benzo(g,h,i)perylene	720 U	820 U	1400 U	3600 U
Benzo(k)fluoranthene	720 U	820 U	1400 U	3600 U
Benzoic acid	3700 U	4200 U	7100 U	18000 U
Benzyl alcohol	720 U	820 U	1400 U	3600 U
Bis(2-chloroethoxy)methane	720 U	820 U	1400 U	3600 U
Bis(2-chloroethyl)ether	720 U	820 U	1400 U	3600 U
Bis(2-ethylhexyl)phthalate	720 U	820 U	1400 U	3600 U
Bromodiphenyl ether, p-	720 U	820 U	1400 U	3600 U
Butylbenzylphthalate	720 U	820 U	1400 U	3600 U
Chrysene	720 U	820 U	1400 U	3600 U
Dibenzo(a,h)anthracene	720 U	820 U	1400 U	3600 U
Dibenzofuran	720 U	820 U	1400 U	3600 U
Diethylphthalate	720 U	820 U	1400 U	3600 U
Dimethylphthalate	720 U	820 U	1400 U	3600 U
Di-n-butylphthalate	720 U	820 U	1400 U	3600 U
Di-n-octylphthalate	720 U	820 U	1400 U	3600 U
Diphenylamine	720 U	820 U	1400 U	3600 U
Fluoranthene	720 U	820 U	1400 U	3600 U
Fluorene	720 U	820 U	1400 U	3600 U
Hexachlorobenzene	720 U	820 U	1400 U	3600 U
Hexachlorobutadiene	720 U	820 U	1400 U	3600 U

APPENDIX H.31 (continued)

SUMMARY OF AREA B ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 9 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD01	9SD01D	9SD03	9SD04
Sample Date	06/29/99	06/29/99	06/29/99	06/29/99
Depth Range (ft bgs)	0.00-0.50	0.00-0.50	0.00-0.50	0.00-0.50
Semivolatiles (ug/kg) (cont.)				
Hexachlorocyclopentadiene	720 U	820 U	1400 U	3600 U
Hexachloroethane	720 U	820 U	1400 U	3600 U
Indeno(1,2,3-cd)pyrene	720 U	820 U	1400 U	3600 U
Isophorone	720 U	820 U	1400 U	3600 U
m-Cresol	720 U	820 U	1400 U	3600 U
Naphthalene	720 U	820 U	1400 U	3600 U
Nitrobenzene	720 U	820 U	1400 U	3600 U
N-Nitrosodimethylamine	720 U	820 U	1400 U	3600 U
N-Nitroso-di-n-propylamine	720 U	820 U	1400 U	3600 U
o-Cresol	720 U	820 U	1400 U	3600 U
Pentachlorophenol	3700 U	4200 U	7100 U	18000 U
Phenanthrene	720 U	820 U	1400 U	3600 U
Phenol	720 U	820 U	1400 U	3600 U
Pyrene	720 U	820 U	1400 U	3600 U

APPENDIX H.32
AREA B, SEDIMENT – INORGANICS

APPENIX H.32

SUMMARY OF AREA B ANALYTICAL RESULTS, SEDIMENT - INORGANICS
SWMU 9 (TANKS 214-215)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD01	9SD01D	9SD03	9SD04
Sample Date	06/29/99	06/29/99	06/29/99	06/29/99
Depth Range (ft bgs)	0.00-0.50	0.00-0.50	0.00-0.50	0.00-0.50
Inorganics (mg/kg)				
Antimony	0.59 R	0.68 R	0.51 R	0.59 R
Arsenic	1 J	0.8 J	1.2 J	1.3 J
Barium	13	14	15	20
Beryllium	0.13 J	0.15 J	0.12 J	0.16 J
Cadmium	0.11 U	0.13 U	0.14 J	0.12 J
Chromium	22	23	28	26
Cobalt	7.9	5.4	8.3	12
Copper	98 J	70 J	83 J	120 J
Cyanide	2.2 U	2.5 U	2.1 U	2.2 U
Lead	5 J	5.4 J	47 J	24 J
Mercury	0.07 J	0.085 J	0.084 J	0.1 J
Nickel	7.7 J	6.7	7.2 J	9.8
Selenium	1.8 UJ	2.1 UJ	1.8 UJ	1.8 UJ
Silver	0.13 U	0.15 U	0.11 U	0.13 U
Sulfide	54 U	62 U	210	250
Thallium	0.39 UJ	0.45 UJ	0.38 UJ	0.39 UJ
Tin	4.5 J	4.7	3.6 J	4.3 J
Vanadium	160	150	130	180
Zinc	49 J	49 J	49 J	63 J

APPENDIX H.33
AREA C, SURFACE SOIL – ORGANICS

APPENDIX H.33

SUMMARY OF AREA C ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS05	9SS06	9MW04-00
Sample Date	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00
Volatiles (ug/kg)			
1,1,1,2-Tetrachloroethane	11 U	10 U	11 U
1,1,1-Trichloroethane	5 U	5 U	6 U
1,1,2,2-Tetrachloroethane	5 U	5 U	6 U
1,1,2-Trichloroethane	5 U	5 U	6 U
1,1-Dichloroethane	5 U	5 U	6 U
1,1-Dichloroethene	5 U	5 U	6 U
1,2,3-Trichloropropane	11 U	10 U	11 U
1,2-Dibromo-3-chloropropane	21 U	21 U	23 U
1,2-Dibromoethane	21 U	21 U	23 U
1,2-Dichloroethane	5 U	5 U	6 UJ
1,2-Dichloroethene (Total)	5 U	5 U	6 U
1,2-Dichloropropane	5 U	5 U	6 U
2-Butanone	11 UJ	10 UJ	11 U
2-Chloro-1,3-butadiene	110 U	100 U	110 U
2-Hexanone	11 UJ	10 UJ	11 U
3-Chloropropene	21 U	21 U	23 U
4-Methyl-2-pentanone	11 UJ	10 UJ	11 U
Acetone	11 UJ	10 UJ	11 UJ
Acetonitrile	110 U	100 U	110 U
Acrolein	530 UJ	530 UJ	570 U
Acrylonitrile	110 U	100 U	110 U
Benzene	5 U	5 U	6 U
Bromodichloromethane	5 U	5 U	6 U
Bromoform	5 U	5 U	6 U
Bromomethane	11 U	10 U	11 U
Carbon disulfide	5 U	5 U	6 U
Carbon tetrachloride	5 U	5 U	6 UJ
Chlorobenzene	5 U	5 U	6 U
Chloroethane	11 U	10 U	11 U
Chloroform	5 U	5 U	6 U
Chloromethane	11 U	10 U	11 UJ
cis-1,3-Dichloropropene	5 U	5 U	6 U
Dibromochloromethane	5 U	5 U	6 U
Dibromomethane	11 U	10 U	11 U
Dichlorodifluoromethane	21 UJ	21 UJ	23 UJ
Ethylbenzene	5 U	5 U	6 U
Ethylmethacrylate	21 U	21 U	23 U
Iodomethane	11 U	10 U	11 U
Isobutanol	2100 R	2100 R	2300 R
Methacrylonitrile	21 U	21 U	23 U
Methylene chloride	5 U	5 U	6 UJ
Pentachloroethane	21 U	21 U	23 U
Propionitrile (Ethyl Cyanide)	53 UJ	53 UJ	57 R
Styrene	5 U	5 U	6 U
Tetrachloroethene	5 U	5 U	6 U

APPENDIX H.33 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS05	9SS06	9MW04-00
Sample Date	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00
Volatiles (ug/kg) (cont.)			
Toluene	5 U	5 U	6 U
trans-1,3-Dichloropropene	5 U	5 U	6 U
trans-1,4-Dichloro-2-butene	21 U	21 U	23 U
Trichloroethene	5 U	5 U	6 U
Trichlorofluoromethane	11 UJ	10 UJ	11 U
Vinyl Acetate	11 U	10 U	11 U
Vinyl chloride	11 U	10 U	11 UJ
Xylene (total)	5 U	5 U	6 U
Semivolatiles (ug/kg)			
1,2,4,5-Tetrachlorobenzene	350 R	340 R	380 R
1,2,4-Trichlorobenzene	350 U	340 U	380 U
1,2-Dichlorobenzene	350 U	340 U	380 U
1,2-Diphenylhydrazine	350 U	340 U	380 U
1,3-Dichlorobenzene	350 U	340 U	380 U
1,4-Dichlorobenzene	350 U	340 U	380 U
1,4-Dioxane	700 U	690 U	760 U
1,4-Naphthoquinone	1700 UJ	1700 UJ	1900 UJ
1-Naphthylamine	700 U	690 U	760 U
2,2'-Oxybis(1-Chloropropane)	350 U	340 U	380 U
2,3,4,6-Tetrachlorophenol	350 U	340 U	380 U
2,4,5-Trichlorophenol	1700 U	1700 U	1900 U
2,4,6-Trichlorophenol	350 U	340 U	380 U
2,4-Dichlorophenol	350 U	340 U	380 U
2,4-Dimethylphenol	350 U	340 U	380 U
2,4-Dinitrophenol	1700 UJ	1700 UJ	1900 U
2,4-Dinitrotoluene	350 U	340 U	380 U
2,6-Dichlorophenol	350 U	340 U	380 UJ
2,6-Dinitrotoluene	350 U	340 U	380 U
2-Acetylaminofluorene	700 U	690 U	760 U
2-Chloronaphthalene	350 U	340 U	380 U
2-Chlorophenol	350 U	340 U	380 U
2-Methylnaphthalene	350 UJ	340 UJ	380 UJ
2-Naphthylamine	870 U	860 U	950 U
2-Nitroaniline	1700 U	1700 U	1900 U
2-Nitrophenol	350 U	340 U	380 U
2-Picoline	350 U	340 U	380 U
2-sec-butyl-4,6-dinitrophenol	700 U	690 U	760 U
3,3'-Dichlorobenzidine	700 U	690 U	760 U
3,3'-Dimethylbenzidine	1700 U	1700 U	1900 U
3-Methylcholanthrene	350 U	340 U	380 U
3-Nitroaniline	1700 U	1700 U	1900 U
4,6-Dinitro-2-methylphenol	1700 UJ	1700 UJ	1900 U
4-Aminobiphenyl	700 U	690 U	760 U
4-bromophenyl-phenylether	350 U	340 U	380 UJ
4-Chloro-3-methylphenol	700 U	690 U	760 U

SUMMARY OF AREA C ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS05	9SS06	9MW04-00
Sample Date	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00
Semivolatiles (ug/kg) (cont.)			
4-Chloroaniline	700 U	690 U	760 U
4-Chlorophenyl-phenylether	350 U	340 U	380 U
4-Nitroaniline	1700 U	1700 U	1900 U
4-Nitrophenol	1700 U	1700 U	1900 U
4-Nitroquinoline-1-oxide	1700 UJ	1700 UJ	1900 R
5-Nitro-o-toluidine	700 UJ	690 UJ	760 U
7,12-Dimethylbenz(a)anthracene	700 U	690 U	760 U
a,a-Dimethylphenethylamine	1700 U	1700 U	1900 UJ
Acenaphthene	350 U	340 U	380 U
Acenaphthylene	350 U	340 U	380 U
Acetophenone	350 U	340 U	380 U
Aniline	1700 U	1700 U	1900 U
Anthracene	350 U	340 U	380 U
Aramite	700 R	690 R	760 U
Benzidine	3500 UJ	3400 UJ	3800 UJ
Benzo(a)anthracene	350 U	340 U	380 U
Benzo(a)pyrene	350 U	340 U	380 U
Benzo(b)fluoranthene	350 U	340 U	59 J
Benzo(g,h,i)perylene	350 U	340 U	380 U
Benzo(k)fluoranthene	350 U	340 U	380 U
Benzoic acid	1700 UJ	1700 UJ	1900 UJ
Benzyl alcohol	350 UJ	340 UJ	380 UJ
Bis(2-chloroethoxy)methane	350 U	340 U	380 U
Bis(2-chloroethyl)ether	350 U	340 U	380 U
Bis(2-ethylhexyl)phthalate	350 U	340 U	380 U
Butylbenzylphthalate	350 U	340 U	380 U
Carbazole	350 U	340 U	380 U
Chlorobenzilate	350 U	340 U	380 U
Chrysene	350 U	340 U	45 J
Diallate	350 UJ	340 UJ	380 U
Dibenzo(a,h)anthracene	350 U	340 U	380 U
Dibenzofuran	350 U	340 U	380 U
Diethylphthalate	350 U	340 U	380 U
Dimethylphthalate	350 U	340 U	380 U
Di-n-butylphthalate	350 U	340 U	100 J
Di-n-octylphthalate	350 U	340 U	380 U
Diphenylamine	350 U	340 U	380 U
Ethyl methanesulfonate	350 U	340 U	380 U
Fluoranthene	350 U	340 U	380 U
Fluorene	350 U	340 U	380 U
Hexachlorobenzene	350 U	340 U	380 U
Hexachlorobutadiene	350 U	340 U	380 U
Hexachlorocyclopentadiene	350 U	340 U	380 U
Hexachloroethane	350 U	340 U	380 U
Hexachlorophene	3500 R	3400 R	3800 R

APPENDIX H.33 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS05	9SS06	9MW04-00
Sample Date	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00
Semivolatiles (ug/kg) (cont.)			
Hexachloropropene	1700 U	1700 U	1900 U
Indeno(1,2,3-cd)pyrene	350 U	340 U	380 U
Isophorone	350 U	340 U	380 U
Isosafrole	350 U	340 U	380 U
m,p-Cresol	350 U	340 U	380 U
m-Dinitrobenzene	700 U	690 U	760 U
Methapyrilene	870 UJ	860 UJ	950 UJ
Methyl methanesulfonate	350 U	340 U	380 U
Naphthalene	350 U	340 U	380 U
Nitrobenzene	350 U	340 U	380 U
N-Nitrosodiethylamine	350 U	340 U	380 U
N-Nitrosodimethylamine	350 UJ	340 UJ	380 U
N-Nitroso-di-n-butylamine	350 U	340 U	380 U
N-Nitroso-di-n-propylamine	350 U	340 U	380 U
N-Nitrosodiphenylamine (1)	350 U	340 U	380 U
N-Nitrosomethylethylamine	350 U	340 U	380 U
N-Nitrosomorpholine	700 U	690 U	760 U
N-Nitrosopiperidine	350 UJ	340 UJ	380 U
N-Nitrosopyrrolidine	1700 U	1700 U	1900 U
o-Cresol	350 U	340 U	380 U
o-Toluidine	350 U	340 U	380 U
p-Dimethylaminoazobenzene	700 UJ	690 UJ	760 U
Pentachlorobenzene	350 U	340 U	380 U
Pentachloronitrobenzene	350 U	340 U	380 R
Pentachlorophenol	1700 U	1700 U	1900 U
Phenacetin	350 U	340 U	380 U
Phenanthrene	350 U	340 U	380 U
Phenol	350 U	340 U	380 U
p-Phenylenediamine	700 UJ	690 UJ	760 U
Pronamide	350 U	340 U	380 U
Pyrene	350 U	340 U	56 J
Pyridine	700 U	690 U	760 UJ
Safrole	350 U	340 U	380 U
sym-Trinitrobenzene	3500 UJ	3400 UJ	3800 U
TPH (ug/kg)			
Diesel Range Organics	4400 U	4400 U	4800 U
Gasoline Range Organics	32 U	27 J	34 U

APPENDIX H.34
AREA C, SURFACE SOIL – INORGANICS

APPENDIX H.34

SUMMARY OF AREA C ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SS05	9SS06	9MW04-00
Sample Date	03/20/96	03/20/96	03/20/96
Depth Range (ft bgs)	0.00-1.00	0.00-1.00	0.00-1.00
RCRA METALS (mg/kg)			
Arsenic, Total	0.56 U	0.68 U	0.7 U
Barium, Total	110	52.6	59.6
Cadmium, Total	0.21 U	0.23 U	0.25 U
Chromium, Total	17.6 J	30.4 J	25.1 J
Lead, Total	14.5	52.5	9.3
Mercury, Total	0.05 U	0.05 U	0.06 U
Selenium, Total	0.16 UJ	0.19 UJ	0.97 UJ
Silver, Total	0.3 U	0.32 U	0.35 U

APPENDIX H.35
AREA C, SUBSURFACE SOIL – ORGANICS

APPENDIX H.35

SUMMARY OF AREA C ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW04-03	9MW04-05	9TP11-05	9TP13-04	9TP13-04D	9TP14-05	9TP14-05D	9TP15-05	9TP16-05	9TP17-05
Sample Date	04/19/96	04/19/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/14/96
Depth Range (ft bgs)	6.00-8.00	10.00-12.00	11.00	9.00	9.00	10.00	10.00	10.00	10.00	10.00
Volatiles (ug/kg)										
1,1,1,2-Tetrachloroethane	11 U	12 U	12 U	12 U	11 U	11 U	11 U	12 U	12 U	14 UJ
1,1,1-Trichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
1,1,2,2-Tetrachloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
1,1,2-Trichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
1,1-Dichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
1,1-Dichloroethene	6 UJ	6 UJ	6 UJ	6 UJ	6 U	6 UJ	6 UJ	6 UJ	6 UJ	7 UJ
1,2,3-Trichloropropane	11 U	12 U	12 U	12 U	11 U	11 U	11 U	12 U	12 U	14 UJ
1,2-Dibromo-3-chloropropane	22 UJ	23 UJ	24 UJ	23 UJ	23 U	22 UJ	22 UJ	23 UJ	24 UJ	28 UJ
1,2-Dibromoethane	22 U	23 U	24 U	23 U	23 U	22 U	22 U	23 U	24 U	28 U
1,2-Dichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
1,2-Dichloroethene (Total)	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
1,2-Dichloropropane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
2-Butanone	11 U	12 U	12 U	12 U	11 U	11 U	11 U	12 U	12 U	14 U
2-Chloro-1,3-butadiene	110 U	120 U	120 U	120 U	110 U	110 U	110 U	120 U	120 U	140 U
2-Hexanone	11 U	12 U	12 U	12 UJ	11 U	11 UJ	11 U	12 UJ	12 UJ	14 UJ
3-Chloropropene	22 U	23 U	24 UJ	23 U	23 U	22 U	22 UJ	23 U	24 U	28 U
4-Methyl-2-pentanone	11 U	12 U	12 U	12 U	11 U	11 U	11 U	12 U	12 U	14 U
Acetone	11 U	12 U	12 U	74 J	95	11 UJ	11 U	12 UJ	24 J	31 J
Acetonitrile	110 U	120 U	120 UJ	120 UJ	110 U	110 UJ	110 UJ	120 UJ	120 UJ	140 U
Acrolein	560 UJ	580 UJ	590 UJ	580 UJ	570 UJ	560 UJ	560 UJ	590 UJ	610 UJ	690 UJ
Acrylonitrile	110 U	120 U	120 U	120 U	110 U	110 U	110 U	120 U	120 U	140 UJ
Benzene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
Bromodichloromethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
Bromoform	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 UJ
Bromomethane	11 U	12 U	12 U	12 U	11 U	11 U	11 U	12 U	12 U	14 U
Carbon disulfide	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
Carbon tetrachloride	6 UJ	6 UJ	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
Chlorobenzene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U

APPENDIX H.35 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW04-03	9MW04-05	9TP11-05	9TP13-04	9TP13-04D	9TP14-05	9TP14-05D	9TP15-05	9TP16-05	9TP17-05
Sample Date	04/19/96	04/19/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/14/96
Depth Range (ft bgs)	6.00-8.00	10.00-12.00	11.00	9.00	9.00	10.00	10.00	10.00	10.00	10.00
Volatiles (ug/kg) (cont.)										
Chloroethane	11 U	12 U	12 U	12 U	11 U	11 U	11 U	12 U	12 U	14 U
Chloroform	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
Chloromethane	11 U	12 U	12 U	12 U	11 U	11 U	11 U	12 U	12 U	14 U
cis-1,3-Dichloropropene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
Dibromochloromethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
Dibromomethane	11 UJ	12 UJ	12 U	12 U	11 U	11 U	11 U	12 U	12 U	14 UJ
Dichlorodifluoromethane	22 UJ	23 UJ	24 UJ	23 UJ	23 U	22 UJ	22 UJ	23 UJ	24 UJ	28 UJ
Ethylbenzene	6 U	6 U	6 U	6 U	6 U	6 U	22 U	6 U	6 U	7 U
Ethylmethacrylate	22 U	23 U	24 U	23 U	23 U	22 U	6 U	23 U	24 U	28 U
Iodomethane	11 UJ	12 UJ	12 U	12 UJ	11 U	11 UJ	11 U	12 UJ	12 UJ	14 UJ
Isobutanol	2200 R	2300 U	2400 R	2300 R	2300 R	2200 R	2200 R	2300 R	2400 R	2800 R
Methacrylonitrile	22 U	23 U	24 U	23 U	23 U	22 U	22 U	23 U	24 U	28 U
Methylene chloride	6 U	6 U	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	7 UJ
Pentachloroethane	22 U	23 U	24 U	23 U	23 U	22 U	22 U	23 U	24 U	28 UJ
Propionitrile (Ethyl Cyanide)	56 R	58 U	59 R	58 R	57 R	56 R	56 R	59 R	61 R	69 R
Styrene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
Tetrachloroethene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
Toluene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
trans-1,3-Dichloropropene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
trans-1,4-Dichloro-2-butene	22 U	23 U	24 U	23 U	23 U	22 U	22 U	23 U	24 U	28 UJ
Trichloroethene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
Trichlorofluoromethane	11 U	12 U	12 U	12 U	11 U	11 U	11 U	12 U	12 U	14 U
Vinyl Acetate	11 U	12 U	12 UJ	12 UJ	11 U	11 UJ	11 UJ	12 UJ	12 UJ	14 U
Vinyl chloride	11 U	12 U	12 U	12 U	11 U	11 U	11 U	12 U	12 U	14 U
Xylene (total)	6 U	6 U	6 U	2 J	6 U	6 U	6 U	6 U	6 U	7 U

APPENDIX H.35 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW04-03	9MW04-05	9TP11-05	9TP13-04	9TP13-04D	9TP14-05	9TP14-05D	9TP15-05	9TP16-05	9TP17-05
Sample Date	04/19/96	04/19/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/14/96
Depth Range (ft bgs)	6.00-8.00	10.00-12.00	11.00	9.00	9.00	10.00	10.00	10.00	10.00	10.00
Semivolatiles (ug/kg)										
1,2,4,5-Tetrachlorobenzene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
1,2,4-Trichlorobenzene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
1,2-Dichlorobenzene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
1,2-Diphenylhydrazine	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
1,3-Dichlorobenzene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
1,4-Dichlorobenzene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
1,4-Dioxane	720 UJ	710 UJ	780 UJ	760 UJ	760 UJ	730 UJ	740 UJ	770 U	820 U	920 U
1,4-Naphthoquinone	1800 UJ	1800 UJ	2000 UJ	1900 UJ	1900 UJ	1800 UJ	1800 UJ	1900 UJ	2000 UJ	2300 UJ
1-Naphthylamine	720 U	710 U	780 U	760 U	760 U	730 U	740 U	770 U	820 U	920 U
2,2'-Oxybis(1-Chloropropane)	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
2,3,4,6-Tetrachlorophenol	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
2,4,5-Trichlorophenol	1800 U	1800 U	2000 U	1900 U	1900 U	1800 U	1800 U	1900 U	2000 U	2300 U
2,4,6-Trichlorophenol	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
2,4-Dichlorophenol	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
2,4-Dimethylphenol	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
2,4-Dinitrophenol	1800 UJ	1800 UJ	2000 U	1900 U	1900 U	1800 U	1800 U	1900 U	2000 U	2300 U
2,4-Dinitrotoluene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
2,6-Dichlorophenol	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
2,6-Dinitrotoluene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
2-Acetylaminofluorene	720 U	710 U	780 U	760 U	760 U	730 U	740 U	770 U	820 U	920 U
2-Chloronaphthalene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
2-Chlorophenol	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
2-Methylnaphthalene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
2-Naphthylamine	910 U	890 U	980 U	960 U	960 U	920 U	920 U	960 U	1000 U	1100 U
2-Nitroaniline	1800 U	1800 U	2000 U	1900 U	1900 U	1800 U	1800 U	1900 U	2000 U	2300 U
2-Nitrophenol	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
2-Picoline	360 UJ	360 UJ	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
2-sec-butyl-4,6-dinitrophenol	720 U	710 U	780 UJ	760 UJ	760 UJ	730 UJ	740 UJ	770 U	820 U	920 U

APPENDIX H.35 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW04-03	9MW04-05	9TP11-05	9TP13-04	9TP13-04D	9TP14-05	9TP14-05D	9TP15-05	9TP16-05	9TP17-05
Sample Date	04/19/96	04/19/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/14/96
Depth Range (ft bgs)	6.00-8.00	10.00-12.00	11.00	9.00	9.00	10.00	10.00	10.00	10.00	10.00
Semivolatiles (ug/kg) (cont.)										
3,3'-Dichlorobenzidine	720 U	710 U	780 U	760 U	760 U	730 U	740 U	770 U	820 U	920 UJ
3,3'-Dimethylbenzidine	1800 R	1800 R	2000 R	1900 R	1900 R	1800 R	1800 R	1900 R	2000 R	2300 R
3-Methylcholanthrene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
3-Nitroaniline	1800 U	1800 U	2000 U	1900 U	1900 U	1800 U	1800 U	1900 U	2000 U	2300 U
4,6-Dinitro-2-methylphenol	1800 U	1800 U	2000 U	1900 U	1900 U	1800 U	1800 U	1900 U	2000 U	2300 UJ
4-Aminobiphenyl	720 U	710 U	780 U	760 U	760 U	730 U	740 U	770 U	820 U	920 U
4-bromophenyl-phenylether	360 U	360 U	390 U	380 U	NA	370 U	NA	380 U	410 U	460 U
4-Chloro-3-methylphenol	720 U	710 U	780 U	760 U	760 U	730 U	740 U	770 U	820 U	920 U
4-Chloroaniline	720 U	710 U	780 U	760 U	760 U	730 U	740 U	770 U	820 U	920 U
4-Chlorophenyl-phenylether	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
4-Nitroaniline	1800 U	1800 U	2000 U	1900 U	1900 U	1800 U	1800 U	1900 U	2000 U	2300 U
4-Nitrophenol	1800 U	1800 U	2000 U	1900 U	1900 U	1800 U	1800 U	1900 U	2000 U	2300 UJ
4-Nitroquinoline-1-oxide	1800 R	1800 R	2000 R	1900 R	1900 R	1800 R	1800 R	1900 R	2000 R	2300 R
5-Nitro-o-toluidine	720 U	710 U	780 U	760 U	760 U	730 U	740 U	770 U	820 U	920 U
7,12-Dimethylbenz(a)anthracene	720 U	710 U	780 U	760 U	760 U	730 U	740 U	770 U	820 U	920 U
a,a-Dimethylphenethylamine	1800 UJ	1800 UJ	2000 U	1900 U	19000 U	1800 U	1800 U	1900 UJ	2000 UJ	2300 UJ
Acenaphthene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Acenaphthylene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Acetophenone	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Aniline	1800 UJ	1800 UJ	2000 U	1900 U	1900 U	1800 U	1800 U	1900 U	2000 U	2300 UJ
Anthracene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Aramite	720 U	710 U	780 UJ	760 UJ	760 UJ	730 UJ	740 UJ	770 U	820 U	920 U
Benzidine	3600 U	3600 U	3900 UJ	3800 UJ	3800 UJ	3700 UJ	3700 UJ	3800 UJ	4100 UJ	4600 U
Benzo(a)anthracene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 UJ
Benzo(a)pyrene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Benzo(b)fluoranthene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Benzo(g,h,i)perylene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Benzo(k)fluoranthene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U

APPENDIX H.35 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW04-03	9MW04-05	9TP11-05	9TP13-04	9TP13-04D	9TP14-05	9TP14-05D	9TP15-05	9TP16-05	9TP17-05
Sample Date	04/19/96	04/19/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/14/96
Depth Range (ft bgs)	6.00-8.00	10.00-12.00	11.00	9.00	9.00	10.00	10.00	10.00	10.00	10.00
Semivolatiles (ug/kg) (cont.)										
Benzoic acid	1800 U	1800 U	2000 U	1900 U	1900 U	1800 U	1800 U	1900 U	2000 U	2300 U
Benzyl alcohol	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 UJ
Bis(2-chloroethoxy)methane	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Bis(2-chloroethyl)ether	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Bis(2-ethylhexyl)phthalate	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Butylbenzylphthalate	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 UJ
Carbazole	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Chlorobenzilate	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Chrysene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 UJ
Diallate	360 UJ	360 UJ	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 UJ
Dibenzo(a,h)anthracene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Dibenzofuran	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Diethylphthalate	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Dimethylphthalate	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Di-n-butylphthalate	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Di-n-octylphthalate	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Diphenylamine	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Ethyl methanesulfonate	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Fluoranthene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Fluorene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Hexachlorobenzene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Hexachlorobutadiene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Hexachlorocyclopentadiene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 UJ	410 UJ	460 U
Hexachloroethane	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Hexachlorophene	3600 UJ	3600 UJ	3900 U	3800 U	3800 U	3700 U	3700 U	3800 U	4100 U	4600 UJ
Hexachloropropene	1800 U	1800 U	2000 U	1900 U	1900 U	1800 U	1800 U	1900 U	2000 U	2300 U
Indeno(1,2,3-cd)pyrene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Isophorone	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U

APPENDIX H.35 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW04-03	9MW04-05	9TP11-05	9TP13-04	9TP13-04D	9TP14-05	9TP14-05D	9TP15-05	9TP16-05	9TP17-05
Sample Date	04/19/96	04/19/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/14/96
Depth Range (ft bgs)	6.00-8.00	10.00-12.00	11.00	9.00	9.00	10.00	10.00	10.00	10.00	10.00
Semivolatiles (ug/kg) (cont.)										
Isosafrole	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
m,p-Cresol	360 UJ	360 UJ	390 U	380 U	NA	370 U	NA	380 U	410 U	460 U
m-Dinitrobenzene	720 R	710 R	780 U	760 U	760 U	730 U	740 U	770 U	820 U	920 U
Methapyrilene	910 U	890 U	980 U	960 U	960 U	920 U	920 U	960 U	1000 U	1100 UJ
Methyl methanesulfonate	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Naphthalene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Nitrobenzene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
N-Nitrosodiethylamine	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
N-Nitrosodimethylamine	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
N-Nitroso-di-n-butylamine	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
N-Nitroso-di-n-propylamine	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
N-Nitrosodiphenylamine (1)	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
N-Nitrosomethylethylamine	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
N-Nitrosomorpholine	720 U	710 U	780 U	760 U	760 U	730 U	740 U	770 U	820 U	920 U
N-Nitrosopiperidine	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
N-Nitrosopyrrolidine	1800 U	1800 U	2000 U	1900 U	1900 U	1800 U	1800 U	1900 U	2000 U	2300 U
o-Cresol	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
o-Toluidine	360 UJ	360 UJ	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 UJ
p-Dimethylaminoazobenzene	720 U	710 U	780 U	760 U	760 U	730 U	740 U	770 U	820 U	920 U
Pentachlorobenzene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Pentachloronitrobenzene	360 U	360 U	390 R	380 R	380 R	370 R	370 R	380 R	410 R	460 U
Pentachlorophenol	1800 U	1800 U	2000 U	1900 U	1900 U	1800 U	1800 U	1900 U	2000 U	2300 U
Phenacetin	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Phenanthrene	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Phenol	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
p-Phenylenediamine	720 R	710 R	780 R	760 R	760 R	730 R	740 R	770 UJ	820 UJ	920 R
Pronamide	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
Pyrene	360 UJ	360 UJ	390 UJ	380 UJ	380 UJ	370 UJ	370 UJ	380 U	410 U	460 UJ

APPENDIX H.35 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW04-03	9MW04-05	9TP11-05	9TP13-04	9TP13-04D	9TP14-05	9TP14-05D	9TP15-05	9TP16-05	9TP17-05
Sample Date	04/19/96	04/19/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/14/96
Depth Range (ft bgs)	6.00-8.00	10.00-12.00	11.00	9.00	9.00	10.00	10.00	10.00	10.00	10.00
Semivolatiles (ug/kg) (cont.)										
Pyridine	720 U	710 U	780 U	760 U	760 U	730 U	740 U	770 U	820 U	920 U
Safrole	360 U	360 U	390 U	380 U	380 U	370 U	370 U	380 U	410 U	460 U
sym-Trinitrobenzene	3600 U	3600 U	3900 U	3800 U	3800 U	3700 U	3700 U	3800 U	4100 U	4600 UJ
TPH (ug/kg)										
Diesel Range Organics	4600 U	4600 U	4900 UJ	4800 UJ	4700 U	4600 U	4600 UJ	4800 UJ	5100 U	5600 U
Gasoline Range Organics	33 U	33 U	35 U	19 J	34 U	33 U	33 U	35 U	37 U	41 U

APPENDIX H.36
AREA C, SUBSURFACE SOIL – INORGANICS

APPENDIX H.36

SUMMARY OF AREA C ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW04-03	9MW04-05	9TP11-05	9TP13-04	9TP13-04D	9TP14-05	9TP14-05D	9TP15-05	9TP16-05	9TP17-05
Sample Date	04/19/96	04/19/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/14/96
Depth Range (ft bgs)	6.00-8.00	10.00-12.00	11.00	9.00	9.00	10.00	10.00	10.00	10.00	10.00
RCRA METALS (mg/kg)										
Arsenic, Total	0.52 U	0.54 U	0.57 UJ	1.1 UJ	0.55 UJ	0.55 UJ	0.54 UJ	0.56 UJ	0.6 UJ	0.66 UJ
Barium, Total	96.9	35.6	77.7	31.6	34.8	82.1	81.7	83.8	59.2	57.2
Cadmium, Total	0.25 UJ	0.25 UJ	0.27 UJ	0.26 UJ	0.26 UJ	0.25 UJ	0.26 UJ	0.28 UJ	0.26 UJ	0.33 UJ
Chromium, Total	28.3	20.4	24.2 R	24.4 R	26.2 R	22.4 R	22.4 R	22.4 R	29.1 R	24.9 R
Lead, Total	1.4	1.2	5.2 J	6.4 J	14.5 J	26.2 J	22.1 J	24 J	31.5 J	2.2 J
Mercury, Total	0.04 U	0.05 U	0.06 UJ	0.04 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.04 UJ	0.05 UJ	0.06 UJ
Selenium, Total	0.24 UJ	0.25 UJ	0.26 UJ	0.26 UJ	0.64 UJ	0.26 UJ	0.25 UJ	0.26 UJ	0.28 UJ	0.31 UJ
Silver, Total	0.72	0.71	0.57	0.71	0.79	0.35 U	0.36 U	0.39 U	0.86	0.67

APPENDIX H.37
AREA C, GROUNDWATER – ORGANICS

APPENDIX H.37

SUMMARY OF AREA C ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW07	13GW08	13GW09	13GW10	13GW11	9MW04	13GW10	13GW10D	13GW11
Sample Date	3/24/96	3/24/96	3/24/96	3/24/96	03/25/96	04/24/96	06/29/99	06/29/99	06/29/99
Volatiles (ug/L)									
1,1,1,2-Tetrachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 UJ	NA	NA	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 UJ	NA	NA	5 U
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
1,2,3-Trichloropropane	10 U	10 U	10 U	10 U	10 U	10 UJ	NA	NA	NA
1,2-Dibromo-3-chloropropane	20 U	20 U	20 U	20 U	20 U	20 UJ	NA	NA	NA
1,2-Dibromoethane	20 U	20 U	20 U	20 U	20 U	20 UJ	NA	NA	NA
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
1,2-Dichloroethene (Total)	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	NA
1,2-Dichloropropane	5 U	5 U	5 U	5 U	2 J	5 U	NA	NA	5 U
2-Butanone	10 U	10 U	10 U	10 U	10 U	10 UJ	NA	NA	25 U
2-Chloro-1,3-butadiene	100 U	100 U	100 U	100 U	100 U	100 U	NA	NA	NA
2-Hexanone	10 U	10 U	10 U	10 U	10 U	10 UJ	NA	NA	25 U
3-Chloropropene	20 U	20 U	20 U	20 U	20 U	20 UJ	NA	NA	NA
4-Methyl-2-pentanone	10 U	10 U	10 U	10 U	10 U	10 UJ	NA	NA	25 U
Acetone	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	NA	NA	50 U
Acetonitrile	100 UJ	100 UJ	100 UJ	100 UJ	100 U	100 UJ	NA	NA	NA
Acrolein	500 U	500 U	500 U	500 U	500 U	500 UJ	NA	NA	NA
Acrylonitrile	100 U	100 U	100 U	100 U	100 U	100 UJ	NA	NA	NA
Benzene	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
Bromoform	5 U	5 U	5 U	5 U	5 U	5 UJ	NA	NA	5 U
Bromomethane	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	10 U
Carbon disulfide	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
Chloroethane	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	10 U

APPENDIX H.37 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW07	13GW08	13GW09	13GW10	13GW11	9MW04	13GW10	13GW10D	13GW11
Sample Date	3/24/96	3/24/96	3/24/96	3/24/96	03/25/96	04/24/96	06/29/99	06/29/99	06/29/99
Volatiles (ug/L) (cont.)									
Chloroform	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
Chloromethane	10 U	10 U	10 U	10 U	10 UJ	10 U	NA	NA	10 U
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	5 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
Dibromomethane	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA
Dichlorodifluoromethane	20 U	20 U	20 U	20 U	20 UJ	20 U	NA	NA	NA
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
Ethylmethacrylate	20 U	20 U	20 U	20 U	20 U	20 UJ	NA	NA	NA
Iodomethane	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA
Isobutanol	2000 R	2000 R	2000 R	2000 R	2000 U	2000 R	NA	NA	NA
Methacrylonitrile	20 U	20 U	20 U	20 U	20 U	20 UJ	NA	NA	NA
Methylene chloride	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
Pentachloroethane	20 U	20 U	20 U	20 U	20 U	20 U	NA	NA	NA
Propionitrile (Ethyl Cyanide)	50 R	50 R	50 R	50 U	50 U	50 R	NA	NA	NA
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
Toluene	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	4.2 J
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
trans-1,4-Dichloro-2-butene	20 U	20 U	20 U	20 U	20 U	20 UJ	NA	NA	NA
Trichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	5 U
Trichlorofluoromethane	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA
Vinyl Acetate	10 U	10 U	10 U	10 U	10 U	10 UJ	NA	NA	NA
Vinyl chloride	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	10 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	10 U
Semivolatiles (ug/L)									
1,2,4,5-Tetrachlorobenzene	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
1,2,4-Trichlorobenzene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA

APPENDIX H.37 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW07	13GW08	13GW09	13GW10	13GW11	9MW04	13GW10	13GW10D	13GW11
Sample Date	3/24/96	3/24/96	3/24/96	3/24/96	03/25/96	04/24/96	06/29/99	06/29/99	06/29/99
Semivolatiles (ug/L) (cont.)									
1,2-Dichlorobenzene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
1,2-Diphenylhydrazine	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
1,3-Dichlorobenzene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
1,4-Dichlorobenzene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
1,4-Dioxane	23 U	21 U	21 U	23 U	21 UJ	20 R	NA	NA	NA
1,4-Naphthoquinone	57 U	53 U	53 U	58 U	52 UJ	50 UJ	NA	NA	NA
1-Naphthylamine	23 U	21 U	21 U	23 U	21 U	20 U	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	11 U	10 U	10 U	12 U	10 U	10 U	10 UJ	10 UJ	NA
2,3,4,6-Tetrachlorophenol	11 U	10 U	10 U	12 U	10 UJ	10 UJ	NA	NA	NA
2,4,5-Trichlorophenol	57 UJ	53 U	53 U	58 U	52 U	50 U	10 U	10 U	NA
2,4,6-Trichlorophenol	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
2,4-Dichlorophenol	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
2,4-Dimethylphenol	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
2,4-Dinitrophenol	57 UJ	53 UJ	53 UJ	58 UJ	52 UJ	50 U	50 UJ	50 UJ	NA
2,4-Dinitrotoluene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
2,6-Dichlorophenol	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
2,6-Dinitrotoluene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
2-Acetylaminofluorene	23 U	21 U	21 U	23 U	21 U	20 U	NA	NA	NA
2-Chloronaphthalene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
2-Chlorophenol	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
2-Methylnaphthalene	11 UJ	10 U	10 U	12 U	10 UJ	10 U	10 U	10 U	NA
2-Naphthylamine	28 U	26 U	26 U	29 U	26 UJ	25 U	NA	NA	NA
2-Nitroaniline	57 U	53 U	53 U	58 U	52 U	50 U	50 U	50 U	NA
2-Nitrophenol	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
2-Picoline	11 U	10 U	10 U	12 U	10 UJ	10 UJ	NA	NA	NA
2-sec-butyl-4,6-dinitrophenol	23 U	21 U	21 U	23 U	21 UJ	20 U	NA	NA	NA
3,3'-Dichlorobenzidine	23 U	21 U	21 U	23 U	21 U	20 U	20 U	20 U	NA
3,3'-Dimethylbenzidine	57 U	53 U	53 U	58 U	52 U	50 U	NA	NA	NA
3-Methylcholanthrene	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA

APPENDIX H.37 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW07	13GW08	13GW09	13GW10	13GW11	9MW04	13GW10	13GW10D	13GW11
Sample Date	3/24/96	3/24/96	3/24/96	3/24/96	03/25/96	04/24/96	06/29/99	06/29/99	06/29/99
Semivolatiles (ug/L) (cont.)									
3-Nitroaniline	57 U	53 U	53 U	58 U	52 U	50 U	50 U	50 U	NA
4- Chlorophenyl-phenylether	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
4,6-Dinitro-2-methylphenol	57 UJ	53 UJ	53 UJ	58 UJ	52 U	50 U	50 UJ	50 UJ	NA
4-Aminobiphenyl	23 U	21 U	21 U	23 U	21 U	20 U	NA	NA	NA
4-bromophenyl-phenylether	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
4-Chloro-3-methylphenol	23 U	21 U	21 U	23 U	21 U	20 U	10 U	10 U	NA
4-Chloroaniline	23 U	21 U	21 U	23 U	21 U	20 U	20 U	20 U	NA
4-Nitroaniline	57 U	53 UJ	53 UJ	58 UJ	52 U	50 U	50 U	50 U	NA
4-Nitrophenol	57 U	53 U	53 U	58 U	52 U	50 U	50 U	50 U	NA
4-Nitroquinoline-1-oxide	57 U	53 U	53 U	58 U	52 R	50 R	NA	NA	NA
5-Nitro-o-toluidine	23 U	21 U	21 U	23 U	21 U	20 U	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	23 U	21 U	21 U	23 U	21 U	20 U	NA	NA	NA
a,a-Dimethylphenethylamine	57 U	53 U	53 U	58 U	52 UJ	50 U	NA	NA	NA
Acenaphthene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Acenaphthylene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Acetophenone	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
Aniline	57 U	53 UJ	53 UJ	58 UJ	52 UJ	50 U	NA	NA	NA
Anthracene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Aramite	23 U	21 U	21 U	23 U	21 R	20 R	NA	NA	NA
Benzidine	110 UJ	100 U	100 U	120 U	100 UJ	100 U	80 U	80 U	NA
Benzo(a)anthracene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Benzo(a)pyrene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Benzo(b)fluoranthene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Benzo(g,h,i)perylene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Benzo(k)fluoranthene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Benzoic acid	57 U	53 U	53 U	58 U	52 U	50 U	50 UJ	50 UJ	NA
Benzyl alcohol	11 U	10 UJ	10 UJ	12 UJ	10 U	10 U	10 U	10 U	NA
Bis(2-chloroethoxy)methane	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Bis(2-chloroethyl)ether	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA

APPENDIX H.37 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW07	13GW08	13GW09	13GW10	13GW11	9MW04	13GW10	13GW10D	13GW11
Sample Date	3/24/96	3/24/96	3/24/96	3/24/96	03/25/96	04/24/96	06/29/99	06/29/99	06/29/99
Semivolatiles (ug/L) (cont.)									
Bis(2-ethylhexyl)phthalate	11 U	10 U	10 U	38	10 U	10 U	10 U	10 U	NA
Bromodiphenyl ether, p-	NA	NA	NA	NA	NA	NA	10 U	10 U	NA
Butylbenzylphthalate	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Carbazole	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
Chlorobenzilate	11 U	10 U	10 U	12 U	10 UJ	10 U	NA	NA	NA
Chrysene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Diallate	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
Dibenzo(a,h)anthracene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Dibenzofuran	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Diethylphthalate	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Dimethylphthalate	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Di-n-butylphthalate	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Di-n-octylphthalate	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Diphenylamine	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Ethyl methanesulfonate	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
Fluoranthene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Fluorene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Hexachlorobenzene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Hexachlorobutadiene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Hexachlorocyclopentadiene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Hexachloroethane	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Hexachlorophene	110 U	100 U	100 U	120 U	100 R	100 R	NA	NA	NA
Hexachloropropene	57 U	53 U	53 U	58 U	52 UJ	50 U	NA	NA	NA
Indeno(1,2,3-cd)pyrene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Isophorone	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Isosafrole	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
m,p-Cresol	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
m-Cresol	NA	NA	NA	NA	NA	NA	10 U	10 U	NA
m-Dinitrobenzene	23 U	21 U	21 U	23 U	21 U	20 U	NA	NA	NA

APPENDIX H.37 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW07	13GW08	13GW09	13GW10	13GW11	9MW04	13GW10	13GW10D	13GW11
Sample Date	3/24/96	3/24/96	3/24/96	3/24/96	03/25/96	04/24/96	06/29/99	06/29/99	06/29/99
Semivolatiles (ug/L) (cont.)									
Methapyrilene	28 U	26 U	26 U	29 U	26 UJ	25 UJ	NA	NA	NA
Methyl methanesulfonate	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
Naphthalene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Nitrobenzene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
N-Nitrosodiethylamine	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
N-Nitrosodimethylamine	11 UJ	10 UJ	10 UJ	12 UJ	10 UJ	10 UJ	10 UJ	10 UJ	NA
N-Nitroso-di-n-butylamine	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
N-Nitroso-di-n-propylamine	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
N-Nitrosodiphenylamine (1)	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
N-Nitrosomethylethylamine	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
N-Nitrosomorpholine	23 U	21 U	21 U	23 U	21 U	20 UJ	NA	NA	NA
N-Nitrosopiperidine	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
N-Nitrosopyrrolidine	57 U	53 U	53 U	58 U	52 U	50 U	NA	NA	NA
o-Cresol	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
o-Toluidine	11 U	10 U	10 U	12 U	10 R	10 R	NA	NA	NA
p-Dimethylaminoazobenzene	23 U	21 U	21 U	23 U	21 U	20 U	NA	NA	NA
Pentachlorobenzene	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
Pentachloronitrobenzene	11 U	10 U	10 U	12 U	10 U	10 R	NA	NA	NA
Pentachlorophenol	57 U	53 U	53 U	58 U	52 U	50 U	50 U	50 U	NA
Phenacetin	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
Phenanthrene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Phenol	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
p-Phenylenediamine	23 U	21 U	21 U	23 U	21 UJ	20 R	NA	NA	NA
Pronamide	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
Pyrene	11 U	10 U	10 U	12 U	10 U	10 U	10 U	10 U	NA
Pyridine	23 U	21 UJ	21 UJ	23 UJ	21 U	20 UJ	NA	NA	NA
Safrole	11 U	10 U	10 U	12 U	10 U	10 U	NA	NA	NA
sym-Trinitrobenzene	110 U	100 U	100 U	120 U	100 U	100 U	NA	NA	NA

APPENDIX H.37 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW07	13GW08	13GW09	13GW10	13GW11	9MW04	13GW10	13GW10D	13GW11
Sample Date	3/24/96	3/24/96	3/24/96	3/24/96	03/25/96	04/24/96	06/29/99	06/29/99	06/29/99
PCBS (ug/L)									
Aroclor-1260	1.2 U	1.1 U	1 U	1.1 U	1 U	1 U	NA	NA	NA
Aroclor-1254	1.2 U	1.1 U	1 U	1.1 U	1 U	1 U	NA	NA	NA
Aroclor-1221	0.58 U	0.56 U	0.5 U	0.56 U	0.53 U	0.52 U	NA	NA	NA
Aroclor-1232	0.58 U	0.56 U	0.5 U	0.56 U	0.53 U	0.52 U	NA	NA	NA
Aroclor-1248	0.58 U	0.56 U	0.5 U	0.56 U	0.53 U	0.52 U	NA	NA	NA
Aroclor-1016	0.58 U	0.56 U	0.5 U	0.56 U	0.53 U	0.52 U	NA	NA	NA
Aroclor-1242	0.58 U	0.56 U	0.5 U	0.56 U	0.53 U	0.52 U	NA	NA	NA
TPH (ug/L)									
Diesel Range Organics	130 UJ	130 U	130 UJ	130 UJ	150 U	130 U	NA	NA	NA
Gasoline Range Organics	30 U	30 U	30 U	30 U	30 U	30 U	NA	NA	NA

APPENDIX H.38
AREA C, GROUNDWATER – TOTAL INORGANICS

APPENDIX H.38

SUMMARY OF AREA C ANALYTICAL RESULTS, GROUNDWATER - TOTAL INORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW04
Sample Date	04/24/96
RCRA METALS (ug/L)	
Arsenic, Total	1.8 UJ
Barium, Total	235
Cadmium, Total	12.1
Chromium, Total	6.4 R
Lead, Total	1.2 UJ
Mercury, Total	0.1 U
Selenium, Total	2.8 UJ
Silver, Total	4 U

APPENDIX H.39
AREA C, GROUNDWATER – DISSOLVED INORGANICS

APPENDIX H.39

SUMMARY OF AREA C ANALYTICAL RESULTS, GROUNDWATER - DISSOLVED INORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9MW04	9MW04
Sample Date	04/24/96	06/29/99
RCRA METALS (ug/L)		
Arsenic, Soluble	1.8 U	NA
Barium, Soluble	209	NA
Cadmium, Soluble	11.4	24.7
Chromium, Soluble	2.6 U	NA
Lead, Soluble	1.2 UJ	NA
Mercury, Soluble	0.1 U	NA
Selenium, Soluble	2.8 UJ	NA
Silver, Soluble	4 U	NA

APPENDIX H.40
AREA C, GROUNDWATER – WATER QUALITY

APPENDIX H.40

SUMMARY OF AREA C ANALYTICAL RESULTS, GROUNDWATER - WATER QUALITY
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	13GW10	13GW11	9MW04
Sample Date	06/29/99	06/29/99	06/29/99
Water Quality			
Alkalinity (as CaCO3) (mg/L)	275	2,070	10,700
Silver (mg/L)	0.0006 U	0.0105	0.0378
Copper (mg/L)	0.0793	0.0563	0.0008 U
Zinc (mg/L)	0.0692	0.0724	0.0068 B
Salinity (ppt)	2.2	2.0 U	32
Sulfate (mg/L)	5 U	200	930
Chloride (mg/L)	600	8,400	22,000
Fluoride (mg/L)	0.82	0.2 U	0.28
Color (PCU)	120	140	5 U
Aluminum (mg/L)	21.9 J	15.5 J	0.15 B
Iron (mg/L)	25.1	19.7	0.255
Manganese (mg/L)	0.998	1.1	8.84
Total dissolved solids (mg/L)	2,600	11,000	42,000
Odor (TON)	1.0	1.0	1.0

APPENDIX H.41
AREA C, SURFACE WATER – ORGANICS

APPENDIX H.41

SUMMARY OF AREA C ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SW06	9SW07
Sample Date	6/29/99	6/29/99
Volatiles (ug/L)		
1,1,1-Trichloroethane	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U
1,1-Dichloroethane	5 U	5 U
1,1-Dichloroethene	5 U	5 U
1,2,4-Trichlorobenzene	10 U	10 U
1,2-Dichloropropane	5 U	5 U
1,3-Dichlorobenzene	10 U	10 U
2-Butanone	25 U	25 U
2-Hexanone	25 U	25 U
4-Methyl-2-pentanone	25 U	25 U
Acetone	50 U	50 U
Benzene	5 U	5 U
Bromodichloromethane	5 U	5 U
Bromoform	5 U	5 U
Bromomethane	10 U	10 U
Carbon disulfide	5 U	5 U
Carbon tetrachloride	5 U	5 U
Chlorobenzene	5 U	5 U
Chloroethane	10 U	10 U
Chloroform	5 U	5 U
Chloromethane	10 U	10 U
cis-1,2-Dichloroethene	5 U	5 U
cis-1,3-Dichloropropene	5 U	5 U
Dibromochloromethane	5 U	5 U
Ethylbenzene	5 U	5 U
Methylene chloride	5 U	2.9 J
Styrene	5 U	5 U
Tetrachloroethene	5 U	5 U
Toluene	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U
Trichloroethene	5 U	5 U
Vinyl chloride	10 U	10 U
Xylene (total)	10 U	10 U
Semivolatiles (ug/L)		
1,2-Dichlorobenzene	10 U	10 U
1,2-Dichloroethane	5 U	5 U
1,4-Dichlorobenzene	10 U	10 U
2,2'-Oxybis(1-Chloropropane)	10 U	10 U
2,4,5-Trichlorophenol	10 U	10 U
2,4,6-Trichlorophenol	10 U	10 U
2,4-Dichlorophenol	10 U	10 U
2,4-Dimethylphenol	10 U	10 U
2,4-Dinitrophenol	50 U	50 U

APPENDIX H.41 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SW06	9SW07
Sample Date	6/29/99	6/29/99
Semivolatiles (ug/L) (cont.)		
2,4-Dinitrotoluene	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U
2-Chloronaphthalene	10 U	10 U
2-Chlorophenol	10 U	10 U
2-Methylnaphthalene	10 U	10 U
2-Nitroaniline	50 U	50 U
2-Nitrophenol	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U
3-Nitroaniline	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U
4-Chloro-3-methylphenol	10 U	10 U
4-Chloroaniline	20 U	20 U
4-Chlorophenyl phenyl ether	10 U	10 U
4-Nitroaniline	50 U	50 U
4-Nitrophenol	50 U	50 U
Acenaphthene	10 U	10 U
Acenaphthylene	10 U	10 U
Anthracene	10 U	10 U
Benzidine	80 U	80 U
Benzo(a)anthracene	10 U	10 U
Benzo(a)pyrene	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U
Benzoic acid	50 U	50 U
Benzyl alcohol	10 U	10 U
Bis(2-chloroethoxy)methane	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U
Bis(2-ethylhexyl)phthalate	10 U	10 U
Bromodiphenyl ether, p-	10 U	10 U
Butylbenzylphthalate	10 U	10 U
Chrysene	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U
Dibenzofuran	10 U	10 U
Diethylphthalate	10 U	10 U
Dimethylphthalate	10 U	10 U
Di-n-butylphthalate	10 U	10 U
Di-n-octylphthalate	10 U	10 U
Diphenylamine	10 U	10 U
Fluoranthene	10 U	10 U
Fluorene	10 U	10 U
Hexachlorobenzene	10 U	10 U
Hexachlorobutadiene	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U
Hexachloroethane	10 U	10 U

APPENDIX H.41 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SW06	9SW07
Sample Date	6/29/99	6/29/99
Semivolatiles (ug/L) (cont.)		
Indeno(1,2,3-cd)pyrene	10 U	10 U
Isophorone	10 U	10 U
m-Cresol	10 U	10 U
Naphthalene	10 U	10 U
Nitrobenzene	10 U	10 U
N-Nitrosodimethylamine	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U
o-Cresol	10 U	10 U
Pentachlorophenol	50 U	50 U
Phenanthrene	10 U	10 U
Phenol	10 U	10 U
Pyrene	10 U	10 U

APPENDIX H.42
AREA C, SURFACE WATER – TOTAL INORGANICS

APPENDIX H.42

SUMMARY OF AREA C ANALYTICAL RESULTS, SURFACE WATER - TOTAL INORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SW06	9SW07
Sample Date	06/29/99	06/29/99
Total Metals (ug/L)		
Antimony	13.5 U	13.5 U
Arsenic	60.8 J	8.7 J
Barium	341	274
Beryllium	2.3	2.4
Cadmium	3.3	2.5 U
Chromium	155	103
Cobalt	145	81.6
Copper	389	368
Lead	130 J	80.9 J
Mercury	0.59	0.5
Nickel	63.4	53.5
Selenium	17 U	17 U
Silver	3 U	3 U
Sulfide	100 U	100 U
Thallium	180 R	180 R
Tin	13	11.5
Vanadium	1070	660
Zinc	425	246
Cyanide	10 U	10 U

APPENDIX H.43
AREA C, SEDIMENT – ORGANICS

APPENDIX H.43

SUMMARY OF AREA C ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD06	9SD07
Sample Date	6/29/99	6/29/99
Depth Range (ft bgs)	0.00-0.50	0.00-0.50
Volatiles (ug/kg)		
1,1,1-Trichloroethane	20 U	13 U
1,1,2,2-Tetrachloroethane	20 U	13 U
1,1,2-Trichloroethane	20 U	13 U
1,1-Dichloroethane	20 U	13 U
1,1-Dichloroethene	20 U	13 U
1,2-Dichloroethane	20 U	13 U
1,2-Dichloropropane	20 U	13 U
2-Butanone	68 J	63 U
2-Hexanone	100 U	63 U
4-Methyl-2-pentanone	100 U	63 U
Acetone	290	74 J
Benzene	20 U	13 U
Bromodichloromethane	20 U	13 U
Bromoform	20 U	13 U
Bromomethane	40 U	25 U
Carbon disulfide	20 U	16
Carbon tetrachloride	20 U	13 U
Chlorobenzene	20 U	13 U
Chloroethane	40 U	25 U
Chloroform	20 U	13 U
Chloromethane	40 U	25 U
cis-1,2-Dichloroethene	20 U	13 U
cis-1,3-Dichloropropene	20 U	13 U
Dibromochloromethane	20 U	13 U
Ethylbenzene	20 U	13 U
Methylene chloride	20 U	13 U
Styrene	20 U	13 U
Tetrachloroethene	20 U	13 U
Toluene	20 U	13 U
trans-1,2-Dichloroethene	20 U	13 U
trans-1,3-Dichloropropene	20 U	13 U
Trichloroethene	20 U	13 U
Vinyl chloride	40 U	25 U
Xylene (total)	40 U	25 U
Semivolatiles (ug/kg)		
1,2,4-Trichlorobenzene	1300 U	750 U
1,2-Dichlorobenzene	1300 U	750 U
1,3-Dichlorobenzene	1300 U	750 U
1,4-Dichlorobenzene	1300 U	750 U
2,2'-Oxybis(1-Chloropropane)	1300 U	750 U
2,4,5-Trichlorophenol	1300 U	750 U
2,4,6-Trichlorophenol	1300 U	750 U
2,4-Dichlorophenol	1300 U	750 U

APPENDIX H.43 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD06	9SD07
Sample Date	06/29/99	06/29/99
Depth Range (ft bgs)	0.00-0.50	0.00-0.50
Semivolatiles (ug/kg) (cont.)		
2,4-Dimethylphenol	1300 U	750 U
2,4-Dinitrophenol	6800 U	3900 U
2,4-Dinitrotoluene	1300 U	750 U
2,6-Dinitrotoluene	1300 U	750 U
2-Chloronaphthalene	1300 U	750 U
2-Chlorophenol	1300 U	750 U
2-Methylnaphthalene	1300 U	750 U
2-Nitroaniline	6800 U	3900 U
2-Nitrophenol	1300 U	750 U
3,3'-Dichlorobenzidine	2600 U	1500 U
3-Nitroaniline	6800 U	3900 U
4,6-Dinitro-2-methylphenol	6800 U	3900 U
4-Chloro-3-methylphenol	1300 U	750 U
4-Chloroaniline	2600 U	1500 U
4-Chlorophenyl phenyl ether	1300 U	750 U
4-Nitroaniline	6800 U	3900 U
4-Nitrophenol	6800 U	3900 U
Acenaphthene	1300 U	750 U
Acenaphthylene	1300 U	750 U
Anthracene	1300 U	750 U
Benzidine	11000 U	6100 U
Benzo(a)anthracene	1300 U	750 U
Benzo(a)pyrene	1300 U	750 U
Benzo(b)fluoranthene	1300 U	750 U
Benzo(g,h,i)perylene	1300 U	750 U
Benzo(k)fluoranthene	1300 U	750 U
Benzoic acid	6800 U	3900 U
Benzyl alcohol	1300 U	750 U
Bis(2-chloroethoxy)methane	1300 U	750 U
Bis(2-chloroethyl)ether	1300 U	750 U
Bis(2-ethylhexyl)phthalate	1300 U	750 U
Bromodiphenyl ether, p-	1300 U	750 U
Butylbenzylphthalate	1300 U	750 U
Chrysene	1300 U	750 U
Dibenzo(a,h)anthracene	1300 U	750 U
Dibenzofuran	1300 U	750 U
Diethylphthalate	1300 U	750 U
Dimethylphthalate	1300 U	750 U
Di-n-butylphthalate	1300 U	750 U
Di-n-octylphthalate	1300 U	750 U
Diphenylamine	1300 U	750 U
Fluoranthene	1300 U	750 U
Fluorene	1300 U	750 U

APPENDIX H.43 (continued)

SUMMARY OF AREA C ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD06	9SD07
Sample Date	06/29/99	06/29/99
Depth Range (ft bgs)	0.00-0.50	0.00-0.50
Semivolatiles (ug/kg) (cont.)		
Hexachlorobenzene	1300 U	750 U
Hexachlorobutadiene	1300 U	750 U
Hexachlorocyclopentadiene	1300 U	750 U
Hexachloroethane	1300 U	750 U
Indeno(1,2,3-cd)pyrene	1300 U	750 U
Isophorone	1300 U	750 U
m-Cresol	1300 U	750 U
Naphthalene	1300 U	750 U
Nitrobenzene	1300 U	750 U
N-Nitrosodimethylamine	1300 U	750 U
N-Nitroso-di-n-propylamine	1300 U	750 U
o-Cresol	1300 U	750 U
Pentachlorophenol	6800 U	3900 U
Phenanthrene	1300 U	750 U
Phenol	1300 U	750 U
Pyrene	1300 U	750 U

APPENDIX H.44
AREA C, SEDIMENT – INORGANICS

APPENDIX H.44

SUMMARY OF AREA C ANALYTICAL RESULTS, SEDIMENT - INORGANICS
SWMU 09 (TANKS 216-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9SD06	9SD07
Sample Date	06/29/99	06/29/99
Depth Range (ft bgs)	0.00-0.50	0.00-0.50
Inorganics (mg/kg)		
Antimony	0.98 R	0.56 R
Arsenic	4.6 J	2.3 J
Barium	80	29
Beryllium	0.097 J	0.076 J
Cadmium	0.18 U	0.1 U
Chromium	30	9.1
Cobalt	22	7.6
Copper	49 J	28 J
Cyanide	4 U	2.3 U
Lead	22 J	8.1 J
Mercury	0.049 J	0.015 J
Nickel	7 J	4.4 J
Selenium	0.68 J	0.39 UJ
Silver	0.22 U	0.12 U
Sulfide	290	57 U
Thallium	0.72 UJ	0.41 UJ
Tin	6 J	3.5 J
Vanadium	180	66
Zinc	52 J	20 U

APPENDIX H.45
ONSITE LABORATORY DATA

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The World Leader In On-Site Sampling and Analysis

BAKER ENVIRONMENTAL INC., PROJECT NO. CTO - 099
SWMU #9
ROOSEVELT ROADS NAVAL BASE
CEIBA, P.R.

TEG Project #99H0624BAK

VOLATILE ORGANIC COMPOUNDS (Mod. EPA Method 8021) ANALYSES OF WATER

SAMPLE NUMBER	DATE ANALYZED	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	TOTAL XYLENES (µg/L)	TRICHLORO-ETHENE (µg/L)
METHOD BLANK	06/24/99	ND	ND	ND	ND	ND
9-A02-HP01	06/24/99	2,800	2,500	27	250	------
9-A02-HP02	06/24/99	7,400	3,400	ND	670	------
9-A02R-GW02	06/24/99	12,000	7,200	280	2,200	------
9-02R-GW03	06/24/99	2,100	2,300	ND	ND	------
9-A02R-GW09	06/24/99	ND	6	ND	ND	------
7 TCE-Bs	06/24/99	ND	ND	ND	ND	42
9-B06-HP02	06/24/99	ND	ND	ND	ND	------
9-B06-HP02 (dup)	06/24/99	ND	ND	ND	ND	------
DETECTION LIMIT (µg/L)		5	5	5	15	5

SAMPLING PERFORMED BY: BAKER PERSONNEL
µg/L = MICROGRAMS PER LITER
"ND" INDICATES ANALYTE NOT DETECTED AT OR ABOVE THE LISTED DETECTION LIMIT
"(dup)" INDICATES LABORATORY DUPLICATE
------ = ANALYSIS NOT REQUESTED BY CLIENT
ANALYSES PERFORMED BY: MARCO A. PEDRAZA
DATA REVIEWED BY: KEVIN SHELBURNE

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BAKER ENVIRONMENTAL INC., PROJECT NO. CTO - 099
SWMU #9
ROOSEVELT ROADS NAVAL BASE
CEIBA, P.R.

TEG Project #99H0624BAK

VOLATILE ORGANIC COMPOUNDS (Mod. EPA Method 8021) ANALYSES OF WATER

SAMPLE NUMBER	DATE ANALYZED	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	TOTAL XYLENES (µg/L)	TRICHLORO-ETHENE (µg/L)
METHOD BLANK	06/25/99	ND	ND	ND	ND	ND
7 TCE-As	06/25/99	ND	ND	ND	ND	ND
9-02R-GW04	06/25/99	ND	ND	ND	ND	------
9-02R-GW05	06/25/99	ND	ND	ND	ND	------
9-02R-GW07	06/25/99	ND	ND	ND	ND	------
9-A02R-GW01	06/25/99	61	ND	ND	ND	------
9-B05-HP01	06/25/99	ND	120	ND	610	------
9-B05-HP02	06/25/99	11,000	14,000	1,200	4,000	------
9-B05-HP04	06/25/99	18	110	ND	30	------
9-B06-HP01	06/25/99	ND	ND	ND	ND	------
9-B06-HP03	06/25/99	ND	ND	ND	ND	------
9-B06-HP04	06/25/99	82	280	ND	61	------
9-B06-HP04 (dup)	06/25/99	60	200	ND	66	------
DETECTION LIMIT (µg/L)		5	5	5	15	5

SAMPLING PERFORMED BY: BAKER PERSONNEL
µg/L = MICROGRAMS PER LITER
"ND" INDICATES ANALYTE NOT DETECTED AT OR ABOVE THE LISTED DETECTION LIMIT
"(dup)" INDICATES LABORATORY DUPLICATE
------ = ANALYSIS NOT REQUESTED BY CLIENT
ANALYSES PERFORMED BY: MARCO A. PEDRAZA
DATA REVIEWED BY: KEVIN SHELBURNE

TEG-PUERTO RICO • PMB 627, HC-01 Box 29030, Caguas, PR 00725 • Phone (787) 720-0329 • Fax (787) 789-3858 • Pager 759-1255 Unit 217-4053

BAKER ENVIRONMENTAL INC., PROJECT NO. CTO - 099
SWMU #9
ROOSEVELT ROADS NAVAL BASE
CEIBA, P.R.

TEG Project #99H0624BAK

VOLATILE ORGANIC COMPOUNDS (Mod. EPA Method 8021) ANALYSES OF WATER

SAMPLE NUMBER	DATE ANALYZE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	TOTAL XYLENES (µg/L)	TRICHLORO-ETHENE (µg/L)
METHOD BLANK	06/26/99	ND	ND	ND	ND	ND
9-A02-HP01D	06/26/99	2,200	2,900	1,400	430	------
7 TCE-Cs	06/26/99	ND	ND	ND	ND	30
9-02R-GW06	06/26/99	ND	ND	ND	ND	------
9-02R-HP10	06/26/99	ND	ND	ND	ND	------
9-02R-HP10D	06/26/99	ND	ND	ND	ND	------
9-02R-HP11	06/26/99	ND	ND	ND	ND	------
9-02R-HP12	06/26/99	ND	ND	ND	ND	------
9-A02-HP03	06/26/99	ND	ND	ND	ND	------
9-A02-HP03D	06/26/99	ND	ND	ND	ND	------
9-A02-HP04	06/26/99	ND	ND	ND	ND	------
9-A02-HP05	06/26/99	37	52	8.0	160	------
9-A02-HP05D	06/26/99	32	36	6.0	150	------
9-A02R-HP08	06/26/99	ND	ND	ND	ND	------
9-B05-HP03	06/26/99	610	500	120	310	------
9-B05-HP05	06/26/99	29	9.3	ND	ND	------
DETECTION LIMIT (µg/L)		5	5	5	15	5

µg/L = MICROGRAMS PER LITER
"ND" INDICATES ANALYTE NOT DETECTED AT OR ABOVE THE LISTED DETECTION LIMIT
------ = ANALYSIS NOT REQUESTED BY CLIENT
SAMPLING PERFORMED BY: BAKER PERSONNEL
ANALYSES PERFORMED BY: MARCO A. PEDRAZA
DATA REVIEWED BY: KEVIN SHELBURNE

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BAKER ENVIRONMENTAL INC., PROJECT NO. CTO - 099
SWMU #9
ROOSEVELT ROADS NAVAL BASE
CEIBA, P.R.

TEG Project #99H0624BAK

TPH (Mod. EPA Method 8015B) ANALYSES OF WATER

SAMPLE NUMBER	DATE ANALYZED	TPH-GAS C_5-C_{12} (mg/L)	TPH-DIESEL C_{13}-C_{24} (mg/L)
METHOD BLANK	06/26/99	ND	ND
9-A02R-HP08	06/26/99	ND	ND
9-02R-GW06	06/26/99	ND	ND
9-02R-HP10	06/26/99	ND	ND
9-02R-HP10D	06/26/99	ND	ND
9-02R-HP11	06/26/99	ND	ND
9-02R-HP12	06/26/99	ND	ND
9-A02-HP03	06/26/99	ND	ND
9-A02-HP03D	06/26/99	ND	ND
9-A02-HP04	06/26/99	ND	ND
9-A02-HP05	06/26/99	ND	ND
9-A02-HP05D	06/26/99	ND	ND
9-B05-HP03	06/26/99	ND	ND
9-B05-HP05	06/26/99	ND	ND
9-B05-HP05 REP	06/26/99	ND	ND
DETECTION LIMIT (mg/L)		10	25

"REP" INDICATES LABORATORY REPLICATE
mg/L = MILLIGRAMS PER LITER
"ND" INDICATES ANALYTE NOT DETECTED AT OR ABOVE THE LISTED DETECTION LIMIT
SAMPLING PERFORMED BY: BAKER PERSONNEL
ANALYSES PERFORMED BY: MARCO A. PEDRAZA
DATA REVIEWED BY: KEVIN SHELBURNE

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BAKER ENVIRONMENTAL INC., PROJECT NO. CTO - 099
SWMU #9
ROOSEVELT ROADS NAVAL BASE
CEIBA, P.R.

TEG Project #99H0624BAK

VOLATILE ORGANIC COMPOUNDS (Mod. EPA Method 8021) ANALYSES OF WATER

SAMPLE NUMBER	DATE ANALYZED	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	TOTAL XYLENES (µg/L)	METHYLENE CHLORIDE (µg/L)	CHLORO-FORM (µg/L)	TRI-CHLORO-ETHENE (µg/L)	BROMO-DICHLORO-METHANE (µg/L)	CHLORO-DIBROMO-METHANE (µg/L)	BROMO-FORM (µg/L)
METHOD BLANK	06/27/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-B06-HP05	06/27/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-MW07	06/27/99	ND	ND	ND	ND	ND	29	2,000	ND	ND	ND
7-MW07D	06/27/99	ND	ND	ND	ND	ND	13	1,800	ND	ND	ND
7-MW08	06/27/99	ND	ND	ND	ND	ND	ND	17	ND	ND	ND
7-TCE-1s	06/27/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OGW-24	06/27/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DETECTION LIMIT (µg/L)		5	5	5	15	5	5	5	5	5	5

µg/L = MICROGRAMS PER LITER
"ND" INDICATES ANALYTE NOT DETECTED AT OR ABOVE THE LISTED DETECTION LIMIT

SAMPLING PERFORMED BY: BAKER PERSONNEL
ANALYSES PERFORMED BY: MARCO A. PEDRAZA
DATA REVIEWED BY: KEVIN SHELBURNE

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BAKER ENVIRONMENTAL INC., PROJECT NO. CTO - 099
SWMU #9
ROOSEVELT ROADS NAVAL BASE
CEIBA, P.R.

TEG Project #99H0624BAK

VOLATILE ORGANIC COMPOUNDS (Mod. EPA Method 8021) ANALYSES OF WATER

SAMPLE NUMBER	DATE ANALYZED	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	TOTAL XYLENES (µg/L)	METHYLENE CHLORIDE (µg/L)	CHLORO-FORM (µg/L)	TRI-CHLORO-ETHENE (µg/L)	BROMO-DICHLORO-METHANE (µg/L)	CHLORO-DIBROMO-METHANE (µg/L)	BROMO-FORM (µg/L)
METHOD BLANK	06/28/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13-GW02	06/28/99	1,900	570	ND	ND	------	------	------	------	------	------
13-GW05	06/28/99	750	34	ND	ND	------	------	------	------	------	------
13-GW06	06/28/99	ND	ND	ND	ND	------	------	------	------	------	------
13-GW06D	06/28/99	ND	ND	ND	ND	------	------	------	------	------	------
7 TCE-2s	06/28/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7 TCE-3s	06/28/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7 TCE-4s	06/28/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-MW02R	06/28/99	8,300	ND	ND	ND	------	------	------	------	------	------
DETECTION LIMIT (µg/L)		5	5	5	15	5	5	5	5	5	5

µg/L = MICROGRAMS PER LITER
"ND" INDICATES ANALYTE NOT DETECTED AT OR ABOVE THE LISTED DETECTION LIMIT
------ = ANALYSIS NOT REQUESTED BY CLIENT

SAMPLING PERFORMED BY: BAKER PERSONNEL
ANALYSES PERFORMED BY: MARCO A. PEDRAZA
DATA REVIEWED BY: KEVIN SHELBURNE

Marco A. Pedraza
Laboratory Manager

Kevin Shelburne
Principal

A 590630

teg Puerto Rico

Chain of Custody Record

PO # _____

Client: BAKER ENV. INC.
Address: 420 ROUSER RD
Phone: 787 717-0669 FAX: _____
Client Project #: CTO-099 Project Manager: TOM FULLER

Date: 6/23/99 Page 1 of 6
TEG Project #: 99E0623BAK Control#: _____
Location: SWMU 9
Collector: MARK KIMES Date of Collection: 6/23/99

Sample Name	Depth	Time	Sample Matrix	Container Type	"Grab Composite"	8021	8020 A (BTEX)	VOL 8260	SEMI VOL 8270	TRPH 418.1	TPH 8015 B (gasoline)	TPH 8015 B (diesel)	TPH 8015 B (gas & diesel)	TPH 8015 B (motor oil)	TPH 8015 B (full range)	TOTAL LEAD	TCLP LEAD	METALS	RCI	8082-PCBS	8082-Pesticide	PNA 610/8100	TCLP METALS	~~BTEX~~		FIELD NOTES / PRESERVATION	Total # of Containers
9-AØ2-HPØ2		1430	W	40 ml	G		X																				2
9-Ø2R-GWØ3		1535	W	"	G		X																				1
9-AØ2-HPØ1		1435	W	"	G		X																				1
~~9-AØ2-HPØ1D~~		~~1435~~	~~W~~	~~"~~	~~G~~		~~X~~																			RUSH	~~1~~

RELINQUISHED BY (signature)	Date/Time	RECEIVED BY (signature)	Date/Time
Mark S. Kimes	6/23 1513	Franklin Mc[illegible]	5:15 6/23/99
RELINQUISHED BY (signature)	Date/Time	RECEIVED BY (signature)	Date/Time

Total # of containers	05	TEMPERATURE
Chain of Custody seals Y / N / NA		
Seals intact? Y / N / NA		
Received good conditions / cold	Y	1 cm

teg Transglobal Environmental Geochemistry

Chain of Custody Record

PO # 1

Client: Butler ENV.

Address

Phone FAX

Client Project # CTO-099 Project Manager

Date 6/04/99 Page 2 of 6

TEG Project # 99H0624B0/5 Outside Lab.#

Location SW MW9

Collector Butler Date of Collection 6/04/99

Sample #	Depth	Time	Sample Type	Container Type	VOA 8010	VOA 8020 (BTEX)	VOA 8260	SEMI VOL 8270	TRPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	TPH 8015 (oil)	PNA 610/8100	TOTAL LEAD	pH	METALS	RCI	8021						FIELD NOTES / PRESERVATION	Total # of Containers
7 TCE BS		945																	✓							2
9-B06-HP02		1100				✓																				2
~~9A02 R-GW01~~		~~1155~~				✓																				~~2~~ DK
9A02 R GW03		1610				✓																				2
9-A02R GW02		1625				✓																				2
~~9-A02R-GW05~~		~~1825~~				✓																				~~2~~ DK

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[signature]		[signature]	
RELINQUISHED BY (signature)	Date/Time	RECEIVED BY (signature)	Date/Time

Total # of containers 12

Chain of Custody seals Y / N / NA

Seals intact? Y / N / NA

Received good conditions / cold

TEMPERATURE

on site Job

teg Transglobal Environmental Geochemistry

Chain of Custody Record

PO # _____

Client: Baker Env.

Address _____

Phone _____ FAX _____

Client Project # CTU-099 Project Manager _____

Date 6/25/99 Page 3 of 6

TEG Project # 99H0624 Outside Lab.# _____

Location SWMU 9

Collector Baker Date of Collection 6/25/99

Sample #	Depth	Time	Sample Type	Container Type	VOA 8010	VOA 8020 (BTEX)	VOA 8260	SEMI VOL 8270	TRPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	TPH 8015 (oil)	PNA 610/8100	TOTAL LEAD	pH	METALS	RCI	8021						FIELD NOTES / PRESERVATION	Total # of Containers
9-B05 HP01		0705	water	40 vom		✓																				2
9B06-HP03		0750				✓													X	10						2
9B05-HP04		0710				✓																				2
9B06-HP01		0725				✓				✓									X	10						2
7TCE-AS		1100																	✓							2
9-02R-GW04		1115				✓																				2
9-02R-GW07		1149				✓																				2
9-B06-HP04		1551				✓																				2
9B05 HP02		0715				✓																				2
9-02R-GW05		1825				✓																				2 JK
9-A02R-GW01		1555				✓																				2 JK

HP03 062599AA31

RELINQUISHED BY (signature)	Date/Time	RECEIVED BY (signature)	Date/Time
Mark E. Kane		[illegible]	
RELINQUISHED BY (signature)	Date/Time	RECEIVED BY (signature)	Date/Time

Total # of containers 28 JK

Chain of Custody seals Y / N / NA

Seals intact? Y / N / NA

Received good conditions / cold

TEMPERATURE

On site JK

teg Transglobal Environmental Geochemistry

Chain of Custody Record

PO # _____

Client: Baker Env.

Address _____

Phone _____ FAX _____

Client Project # CTO-095 Project Manager TF

Date 6/26/99 Page 4 of 6

TEG Project # 99H0624BOA Outside Lab.# _____

Location SWMU9

Collector Baker Date of Collection 6/26/99

Sample #	Depth	Time	Sample Type	Container Type	VOA 8010	VOA 8020/BTEX	VOA 8260	SEMI VOL 8270	TRPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 B (gas & diesel)	TPH 8015 (oil)	PNA 610/8100	TOTAL LEAD	pH	METALS	RCI	8021						FIELD NOTES / PRESERVATION	Total # of Containers
9A02R-HP08		650	water	4/3 amb VOA		✓						✓														2
TICE-CS		730																	✓							2
9B05-HP05		845				✓						✓														2
9B05-HP03		850				✓						✓														2
9B02R-GW06		1245				✓						✓														2
9A02-HP03		1055				✓						✓														2
9A02-HP03D		1055				✓						✓														2
9A02-HP04		1300				✓						✓														2
9A02-HP05		1420				✓						✓														2
9A02-HP05D		1420				✓						✓														2
~~9A02-HP02D~~						✓ JK													Not run JK							~~2~~ JK
~~9B06-HP05~~		1425																								
9B02R-HP10		1455				✓						✓														2
9B02R-HP10D		1455				✓						✓														2
9-02R-HP11		1445				✓						✓														2
9-02R-HP12		1505				✓						✓														2

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[signature]		[signature]	
RELINQUISHED BY (signature)	Date/Time	RECEIVED BY (signature)	Date/Time

Total # of containers 38 JK

Chain of Custody seals Y / N / NA

Seals intact? Y / N / NA

Received good conditions / cold

TEMPERATURE

Onsite JK

Sample disposal instructions: _____ TEG Disposal @ $2.00 each _____ Return to client _____ Pick up

teg Transglobal Environmental Geochemistry

Chain of Custody Record

PO # _____

Client: _____ Date 6/07/99 Page 5 of 6

Address _____ TEG Project # 9910 62 Outside Lab.# _____

Phone _____ FAX _____ Location _____

Client Project # _____ Project Manager _____ Collector BAKER Date of Collection 6/07/99

Sample #	Depth	Time	Sample Type	Container Type	VOA 8010	VOA 8020 (BTEX)	VOA 8260	SEMI VOL 8270	TRPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	TPH 8015 (oil)	PNA 610/8100	TOTAL LEAD	pH	METALS	RCI	VOA 8021						FIELD NOTES / PRESERVATION	Total # of Containers
7MW68		750	water	40mL VOA															✓							2
7MW67		805																	✓							2
7MW67D		0805																	✓							2
7TCE-1S		800																	✓							2
OGW-24		1010																	✓							2
9-B06-HP05		1415	✓	✓															✓							2 JK

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[signature]		[signature]	
RELINQUISHED BY (signature)	Date/Time	RECEIVED BY (signature)	Date/Time

Total # of containers	12 JK	TEMPERATURE On ye JK
Chain of Custody seals Y / N / NA		
Seals intact? Y / N / NA		
Received good conditions / cold		

Sample disposal Instructions: _____ TEG Disposal @ $2.00 each _____ Return to client Pickup

teg Transglobal Environmental Geochemistry

Chain of Custody Record

PO # _____

: Baker Environmental

ıss _____

ə _____ FAX _____

t Project # CTO-099 Project Manager _____

Date 6/2/99 Page 6 of 6

TEG Project # 99H0624BOK Outside Lab.# _____

Location Sum V9

Collector Baker Date of Collection 6/28/99

Sample #	Depth	Time	Sample Type	Container Type	VOA 8010	VOA 8020 (BTEX)	VOA 8260	SEMI VOL 8270	TRPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	TPH 8015 (oil)	PNA 610/8100	TOTAL LEAD	pH	METALS	RCI	8021						FIELD NOTES / PRESERVATION	Total # of
7-TCE-25		735	Water	40mL VOA															✓							
7TCE-35		740																	✓							
7-TCE 45		745																	✓							
13GW02		910				✓																				
9MW02R		920				✓																				
13GW05		925				✓																				
13GW06		935				✓																				
13GW06D		935				✓																				

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RELINQUISHED BY (signature)	Date/Time	RECEIVED BY (signature)	Date/Time

Total # of containers 16

Chain of Custody seals Y / N / NA

Seals intact? Y / N / NA

TEMPERATURE On site Job

APPENDIX I
QUALITY ASSURANCE/QUALITY CONTROL RESULTS

Data Qualifiers:

U – Not detected. The associated number indicates the approximate sample concentration necessary to be detected.

J – Analyte present. Reported value may not be accurate or precise.

Notes:

NA – Not analyzed.

ug/L – micrograms per liter.

APPENDIX I.1
QA/QC RESULTS, PHASE I - ORGANICS

APPENDIX 1.1

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9RB01	9RB02	FB01	FB02	FB03	TB10	TB11	TB12	TB13
Sample Date	04/08/96	04/17/96	04/16/96	04/16/96	04/17/96	04/03/96	04/03/96	04/06/96	04/08/96
Volatiles (ug/L)									
1,1,1,2-Tetrachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 UJ
1,2-Dibromo-3-chloropropane	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 UJ
1,2-Dibromoethane	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
1,2-Dichloroethene (Total)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
2-Chloro-1,3-butadiene	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
2-Hexanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
3-Chloropropene	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 U	20 U
4-Methyl-2-pentanone	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ
Acetone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
Acetonitrile	100 U	100 U	100 U	100 U	100 U	100 UJ	100 UJ	100 U	100 UJ
Acrolein	500 UJ	500 UJ	500 R	500 U	500 UJ	500 U	500 U	500 UJ	500 UJ
Acrylonitrile	100 UJ	100 U	100 U	100 U	100 U	100 UJ	100 UJ	100 UJ	100 UJ
Benzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	14	5 U	5 U	5 U	5 U	5 U
Bromoform	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Bromomethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon disulfide	5 UJ	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 UJ
Carbon tetrachloride	5 U	5 U	5 U	5 R	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9RB01	9RB02	FB01	FB02	FB03	TB10	TB11	TB12	TB13
Sample Date	04/08/96	04/17/96	04/16/96	04/16/96	04/17/96	04/03/96	04/03/96	04/06/96	04/08/96
Volatiles (ug/L) (cont.)									
Chloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	5 U	5 U	4 J	150	5 U	5 U	5 U	5 U	5 U
Chloromethane	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U	3 J	5 U	5 U	5 U	5 U	5 U
Dibromomethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dichlorodifluoromethane	20 U	20 UJ	20 U	20 U	20 UJ	20 U	20 U	20 U	20 UJ
Ethyl methacrylate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Iodomethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isobutanol	2000 R	2000 R	2000 R	2000 U	2000 R	2000 R	2000 R	2000 R	2000 R
Methacrylonitrile	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 U	20 UJ
Methyl methacrylate			20 U		20 U	20 U	20 U	20 U	20 UJ
Methylene chloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Pentachloroethane	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 U	20 UJ
Propionitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,4-Dichloro-2-butene	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Acetate	10 U	10 UJ	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U
Vinyl chloride	10 U	10 UJ	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9RB01	9RB02	FB01	FB02	FB03	TB10	TB11	TB12	TB13
Sample Date	04/08/96	04/17/96	04/16/96	04/16/96	04/17/96	04/03/96	04/03/96	04/06/96	04/08/96
Semivolatiles (ug/L)									
1,2,4,5-Tetrachlorobenzene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
1,2,4-Trichlorobenzene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
1,2-Dichlorobenzene	10 UJ	9 U	10 U	10 U	10 U	NA	NA	NA	NA
1,2-Diphenylhydrazine	10 U	9 U	NA	NA	10 U	NA	NA	NA	NA
1,3-Dichlorobenzene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
1,4-Dichlorobenzene	10 U	2 J	10 U	10 U	2 J	NA	NA	NA	NA
1,4-Dioxane	20 U	19 U	20 U	20 U	19 U	NA	NA	NA	NA
1,4-Naphthoquinone	50 U	47 UJ	50 U	50 U	48 UJ	NA	NA	NA	NA
1-Naphthylamine	20 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	10 UJ	9 UJ	10 U	10 U	10 UJ	NA	NA	NA	NA
2,4,5-Trichlorophenol	50 U	47 U	50 U	50 U	48 U	NA	NA	NA	NA
2,4,6-Trichlorophenol	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
2,4-Dichlorophenol	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
2,4-Dimethylphenol	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
2,4-Dinitrophenol	50 UJ	47 UJ	50 U	50 U	48 UJ	NA	NA	NA	NA
2,4-Dinitrotoluene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
2,6-Dichlorophenol	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
2,6-Dinitrotoluene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
2-Acetylaminofluorene	20 U	19 U	20 U	20 U	19 U	NA	NA	NA	NA
2-Chloronaphthalene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
2-Chlorophenol	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
2-Methylnaphthalene	10 UJ	9 U	10 U	10 U	10 U	NA	NA	NA	NA
2-Naphthylamine	25 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
2-Nitroaniline	50 U	47 U	50 U	50 U	48 U	NA	NA	NA	NA
2-Nitrophenol	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
2-Picoline	10 U	9 UJ	10 U	10 U	10 UJ	NA	NA	NA	NA
2-sec-butyl-4,6-dinitrophenol	20 UJ	19 U	20 U	20 U	19 U	NA	NA	NA	NA

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9RB01	9RB02	FB01	FB02	FB03	TB10	TB11	TB12	TB13
Sample Date	04/08/96	04/17/96	04/16/96	04/16/96	04/17/96	04/03/96	04/03/96	04/06/96	04/08/96
Semivolatiles (ug/L) (cont.)									
3,3'-Dichlorobenzidine	20 U	19 U	20 U	20 R	19 U	NA	NA	NA	NA
3,3'-Dimethylbenzidine	50 UJ	19 U	20 R	20 U	19 U	NA	NA	NA	NA
3-Methylcholanthrene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
3-Nitroaniline	50 U	47 U	50 U	50 U	48 U	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	50 UJ	47 U	50 U	50 U	48 U	NA	NA	NA	NA
4-Aminobiphenyl	20 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
4-bromophenyl-phenylether	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
4-Chloro-3-methylphenol	20 U	19 U	10 U	10 U	19 U	NA	NA	NA	NA
4-Chloroaniline	20 U	19 U	10 U	10 U	19 U	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-Phenylether	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
4-Nitroaniline	50 UJ	47 U	50 U	50 U	48 U	NA	NA	NA	NA
4-Nitrophenol	50 U	47 U	50 U	50 U	48 U	NA	NA	NA	NA
4-Nitroquinoline-1-oxide	50 R	47 R	50 U	50 U	48 R	NA	NA	NA	NA
5-Nitro-o-toluidine	20 UJ	19 U	20 U	20 U	19 U	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	20 U	19 U	20 U	20 U	19 U	NA	NA	NA	NA
a,a--Dimethylphenethylamine	50 U	47 U	50 U	50 U	48 U	NA	NA	NA	NA
Acenaphthene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Acenaphthylene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Acetophenone	10 UJ	9 U	10 U	10 U	10 U	NA	NA	NA	NA
alpha, alpha-Dimethylphenethylamine	NA	NA	NA	NA		NA	NA	NA	NA
Aniline	50 U	47 U	50 U	50 U	48 U	NA	NA	NA	NA
Anthracene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Aramite	20 UJ	19 R	20 U	20 U	19 R	NA	NA	NA	NA
Benzidine	99 UJ	94 U	NA	NA	95 U	NA	NA	NA	NA
Benzo(a)anthracene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Benzo(a)pyrene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Benzo(b)fluoranthene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9RB01	9RB02	FB01	FB02	FB03	TB10	TB11	TB12	TB13
Sample Date	04/08/96	04/17/96	04/16/96	04/16/96	04/17/96	04/03/96	04/03/96	04/06/96	04/08/96
Semivolatiles (ug/L) (cont.)									
Benzo(g,h,i)perylene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Benzo(k)fluoranthene	10 UJ	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Benzoic acid	50 UJ	47 UJ	50 U	50 U	48 UJ	NA	NA	NA	NA
Benzyl alcohol	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Bis(2-chloroethyl)ether	10 UJ	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	10 U	1 J	10 U	10 U	16	NA	NA	NA	NA
Butylbenzylphthalate	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Carbazole	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Chlorobenzilate	10 UJ	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Chrysene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Diallate	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Dibenzo(a,h)anthracene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Dibenzofuran	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Diethylphthalate	10 U	1 J	10 U	10 U	10 U	NA	NA	NA	NA
Dimethylphthalate	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Di-n-butylphthalate	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Di-n-octylphthalate	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Diphenylamine	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Ethyl methanesulfonate	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Ethylmethacrylate	20 U	20 U	20 U	20 U	20 U	20 U	20 UJ	20 U	20 UJ
Fluoranthene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Fluorene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Hexachlorobenzene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Hexachlorobutadiene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Hexachlorocyclopentadiene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Hexachloroethane	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Hexachlorophene	99 UJ	94 R	100 U	100 R	95 R	NA	NA	NA	NA

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9RB01	9RB02	FB01	FB02	FB03	TB10	TB11	TB12	TB13
Sample Date	04/08/96	04/17/96	04/16/96	04/16/96	04/17/96	04/03/96	04/03/96	04/06/96	04/08/96
Semivolatiles (ug/L) (cont.)									
Hexachloropropene	50 UJ	19 R	20 R	20 U	19 R	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Isophorone	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Isosafrole	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
m&p Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	10 UJ	9 U	10 U	10 U	10 U	NA	NA	NA	NA
m-Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA
m-Dinitrobenzene	20 U	NA	20 U	20 U	NA	NA	NA	NA	NA
meta-Dinitrobenzene	NA	19 U	NA	NA	19 U	NA	NA	NA	NA
Methapyrilene	25 UJ	24 UJ	25 U	25 U	24 UJ	NA	NA	NA	NA
Methyl methanesulfonate	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Naphthalene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Nitrobenzene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
N-Nitrosodiethylamine	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
N-Nitrosodimethylamine	10 UJ	9 UJ	10 U	10 U	10 UJ	NA	NA	NA	NA
N-Nitroso-di-n-butylamine	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
N-Nitrosodiphenylamine (1)	10 UJ	9 U	10 U	10 U	10 U	NA	NA	NA	NA
N-Nitrosomethylethylamine	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
N-Nitrosomorpholine	20 UJ	19 U	20 U	20 U	19 U	NA	NA	NA	NA
N-Nitrosopiperidine	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
N-Nitrosopyrrolidine	50 UJ	47 U	50 U	50 U	48 U	NA	NA	NA	NA
o-Cresol	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
o-Toluidine	10 UJ	9 U	10 U	10 U	10 U	NA	NA	NA	NA
p-Dimethylaminoazobenzene	20 UJ	19 U	20 U	20 U	19 U	NA	NA	NA	NA
Pentachlorobenzene	10 UJ	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Pentachloronitrobenzene	10 UJ	9 R	10 U	10 U	10 R	NA	NA	NA	NA
Pentachlorophenol	50 U	47 U	50 U	50 U	48 U	NA	NA	NA	NA

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9RB01	9RB02	FB01	FB02	FB03	TB10	TB11	TB12	TB13
Sample Date	04/08/96	04/17/96	04/16/96	04/16/96	04/17/96	04/03/96	04/03/96	04/06/96	04/08/96
Semivolatiles (ug/L) (cont.)									
Phenacetin	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Phenanthrene	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Phenol	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
p-Phenylenediamine	20 R	19 R	20 U	20 U	19 R	NA	NA	NA	NA
Pronamide	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Propionitrile (Ethyl Cyanide)	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R
Pyrene	10 UJ	9 U	10 U	10 U	10 U	NA	NA	NA	NA
Pyridine	20 U	19 UJ	20 U	20 U	19 UJ	NA	NA	NA	NA
Safrole	10 U	9 U	10 U	10 U	10 U	NA	NA	NA	NA
sym-Trinitrobenzene	99 U	94 U	100 U	100 U	95 U	NA	NA	NA	NA
Pesticides/PCBS (ug/L)									
4,4'-DDD	NA	NA	0.1 U	0.1 U	0.095 U	NA	NA	NA	NA
4,4'-DDE	NA	NA	0.1 U	0.1 U	0.095 U	NA	NA	NA	NA
4,4'-DDT	NA	NA	0.1 U	0.1 U	0.095 U	NA	NA	NA	NA
Aldrin	NA	NA	0.05 U	0.05 U	0.048 U	NA	NA	NA	NA
alpha-BHC	NA	NA	0.05 U	0.05 U	0.048 U	NA	NA	NA	NA
alpha-Chlordane	NA	NA	0.5 U	0.5 U	0.48 U	NA	NA	NA	NA
Aroclor-1016	NA	NA	0.5 U	0.5 U	0.48 U	NA	NA	NA	NA
Aroclor-1221	NA	NA	0.5 U	0.5 U	0.48 U	NA	NA	NA	NA
Aroclor-1232	NA	NA	0.5 U	0.5 U	0.48 U	NA	NA	NA	NA
Aroclor-1242	NA	NA	0.5 U	0.5 U	0.48 U	NA	NA	NA	NA
Aroclor-1248	NA	NA	0.5 U	0.5 U	0.48 U	NA	NA	NA	NA
Aroclor-1254	NA	NA	1 U	1 U	0.95 U	NA	NA	NA	NA
Aroclor-1260	NA	NA	1 UJ	1 U	0.95 U	NA	NA	NA	NA
beta-BHC	NA	NA	0.05 U	0.05 U	0.048 U	NA	NA	NA	NA
delta-BHC	NA	NA	0.05 U	0.05 U	0.048 U	NA	NA	NA	NA
Dieldrin	NA	NA	0.1 U	0.1 U	0.095 U	NA	NA	NA	NA
Endosulfan I	NA	NA	0.05 U	0.05 U	0.048 U	NA	NA	NA	NA

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9RB01	9RB02	FB01	FB02	FB03	TB10	TB11	TB12	TB13
Sample Date	04/08/96	04/17/96	04/16/96	04/16/96	04/17/96	04/03/96	04/03/96	04/06/96	04/08/96
Pesticides/PCBS (ug/L) (cont.)									
Endosulfan II	NA	NA	0.1 U	0.1 U	0.095 U	NA	NA	NA	NA
Endosulfan sulfate	NA	NA	0.1 U	0.1 U	0.095 U	NA	NA	NA	NA
Endrin	NA	NA	0.1 U	0.1 U	0.095 U	NA	NA	NA	NA
Endrin aldehyde	NA	NA	0.1 U	0.1 U	0.095 U	NA	NA	NA	NA
gamma-BHC (Lindane)	NA	NA	0.05 U	0.05 U	0.048 U	NA	NA	NA	NA
gamma-Chlordane	NA	NA	0.5 U	0.5 U	0.48 U	NA	NA	NA	NA
Heptachlor	NA	NA	0.05 U	0.05 U	0.048 U	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	0.05 U	0.05 U	0.048 U	NA	NA	NA	NA
Isodrin	NA	NA	0.05 UJ	0.05 UJ	0.048 U	NA	NA	NA	NA
Kepone	NA	NA	0.1 UJ	0.1 UJ	0.095 U	NA	NA	NA	NA
Methoxychlor	NA	NA	0.5 U	0.5 U	0.48 U	NA	NA	NA	NA
Toxaphene	NA	NA	1 U	1 U	0.95 U	NA	NA	NA	NA
TPH (ug/L)									
Diesel Range Organics	120 U	120 U	NA	NA	NA	NA	NA	NA	NA
Gasoline Range Organics	30 U	30 U	NA	NA	30 U	NA	NA	NA	NA

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	TB14	TB15	TB16	TB17	TB18	TB19	TB20	TB21
Sample Date	04/12/96	04/16/96	04/17/96	04/19/96	04/20/96	04/22/96	04/25/96	04/27/96
Volatiles (ug/L)								
1,1,1,2-Tetrachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U
1,2,3-Trichloropropane	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U
1,2-Dibromo-3-chloropropane	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 U
1,2-Dibromoethane	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (Total)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U
2-Chloro-1,3-butadiene	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
2-Hexanone	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U
3-Chloropropene	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 U
4-Methyl-2-pentanone	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U
Acetone	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U
Acetonitrile	100 U	100 U	100 U	100 U	100 U	100 UJ	100 UJ	100 U
Acrolein	500 U	500 U	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 U
Acrylonitrile	100 U	100 U	100 U	100 U	100 U	100 UJ	100 UJ	100 U
Benzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U
Bromomethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon disulfide	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	TB14	TB15	TB16	TB17	TB18	TB19	TB20	TB21
Sample Date	04/12/96	04/16/96	04/17/96	04/19/96	04/20/96	04/22/96	04/25/96	04/27/96
Volatiles (ug/L) (cont.)								
Chloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromomethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dichlorodifluoromethane	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 U	20 U	20 U
Ethyl methacrylate	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Iodomethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isobutanol	2000 R	2000 R	2000 R	2000 R	2000 R	2000 R	2000 R	2000 U
Methacrylonitrile	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 U
Methyl methacrylate	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 U
Methylene chloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Pentachloroethane	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Propionitrile	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,4-Dichloro-2-butene	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Acetate	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U
Vinyl chloride	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	TB14	TB15	TB16	TB17	TB18	TB19	TB20	TB21
Sample Date	04/12/96	04/16/96	04/17/96	04/19/96	04/20/96	04/22/96	04/25/96	04/27/96
Semivolatiles (ug/L)								
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA
2-Picoline	NA	NA	NA	NA	NA	NA	NA	NA
2-sec-butyl-4,6-dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	TB14	TB15	TB16	TB17	TB18	TB19	TB20	TB21
Sample Date	04/12/96	04/16/96	04/17/96	04/19/96	04/20/96	04/22/96	04/25/96	04/27/96
Semivolatiles (ug/L) (cont.)								
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA
4-bromophenyl-phenylether	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-Phenylether	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA	NA	NA
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA
a,a--Dimethylphenethylamine	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA
alpha, alpha-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA
Aramite	NA	NA	NA	NA	NA	NA	NA	NA
Benzidine	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	TB14	TB15	TB16	TB17	TB18	TB19	TB20	TB21
Sample Date	04/12/96	04/16/96	04/17/96	04/19/96	04/20/96	04/22/96	04/25/96	04/27/96
Semivolatiles (ug/L) (cont.)								
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA
Ethylmethacrylate	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 U
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorophene	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	TB14	TB15	TB16	TB17	TB18	TB19	TB20	TB21
Sample Date	04/12/96	04/16/96	04/17/96	04/19/96	04/20/96	04/22/96	04/25/96	04/27/96
Semivolatiles (ug/L) (cont.)								
Hexachloropropene	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA	NA	NA	NA
Isosafrole	NA	NA	NA	NA	NA	NA	NA	NA
m&p Cresol	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	NA	NA	NA	NA	NA	NA	NA	NA
m-Cresol	NA	NA	NA	NA	NA	NA	NA	NA
m-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA
meta-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA	NA	NA
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine (1)	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA	NA	NA
o-Cresol	NA	NA	NA	NA	NA	NA	NA	NA
o-Toluidine	NA	NA	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	TB14	TB15	TB16	TB17	TB18	TB19	TB20	TB21
Sample Date	04/12/96	04/16/96	04/17/96	04/19/96	04/20/96	04/22/96	04/25/96	04/27/96
Semivolatiles (ug/L) (cont.)								
Phenacetin	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA	NA	NA
p-Phenylenediamine	NA	NA	NA	NA	NA	NA	NA	NA
Pronamide	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile (Ethyl Cyanide)	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 U
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA
Pyridine	NA	NA	NA	NA	NA	NA	NA	NA
Safrole	NA	NA	NA	NA	NA	NA	NA	NA
sym-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/PCBS (ug/L)								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1221	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1232	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1242	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX I.1 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	TB14	TB15	TB16	TB17	TB18	TB19	TB20	TB21
Sample Date	04/12/96	04/16/96	04/17/96	04/19/96	04/20/96	04/22/96	04/25/96	04/27/96
Pesticides/PCBS (ug/L) (cont.)								
Endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan sulfate	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA	NA
Endrin aldehyde	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA	NA
Isodrin	NA	NA	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA	NA	NA	NA
TPH (ug/L)								
Diesel Range Organics	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline Range Organics	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX I.2
QA/QC RESULTS, PHASE I – TOTAL INORGANICS

APPENDIX I.2

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE I - TOTAL INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9RB01	9RB02	FB01	FB02	FB03
Sample Date	04/08/96	04/17/96	04/16/96	04/16/96	04/17/96
RCRA METALS (ug/L)					
Antimony, Total	NA	NA	23.5 U	13	24.6 U
Arsenic, Total	0.9 U	1.2 U	1.6 U	1.6 U	1.2 U
Barium, Total	0.8 U	0.93	1.4 U	5	1.5
Beryllium, Total	NA	NA	1 U	0.3 U	1.1 U
Cadmium, Total	2.9 U	2.9 U	4.4	4.2 U	2.9 U
Chromium, Total	2.6 U	2.6 U	4.6 U	4.6 U	5.1
Cobalt, Total	NA	NA	3.4 U	2.2 U	3.9 U
Copper, Total	NA	NA	5.6	3.1	2.6
Lead, Total	1.2 U	1.2 U	0.8 U	1 J	1.2 U
Mercury, Total	0.1 U	0.1 U	0.1 U	0.14 J	0.1 U
Nickel, Total	NA	NA	11.1 U	3.7 U	11.1 U
Selenium, Total	1.4 U	1.4 U	1.5 U	1.5 UJ	1.4 U
Silver, Total	4 U	4 U	3.2 U	3.2 U	4 U
Sulfide	NA	NA	1000 U	1000 U	1000 U
Thallium, Total	NA	NA	1.3 U	1.3 U	1 U
Tin, Total	NA	NA	18.2 U	11.3 U	13.5 U
Vanadium, Total	NA	NA	3.2 U	1.7 U	2.6 U
Zinc, Total	NA	NA	5.1	7.3	2.8 U

APPENDIX I.3
QA/QC RESULTS, PHASE II – ORGANICS

APPENDIX 1.3

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE II - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9ER01	9ER02	FB01
Sample Date	10/02/97	10/02/97	09/19/97
Volatiles (ug/L)			
1,1,1,2-Tetrachloroethane	NA	NA	10 U
1,1,1-Trichloroethane	NA	NA	5 U
1,1,2,2-Tetrachloroethane	NA	NA	5 U
1,1,2-Trichloroethane	NA	NA	5 U
1,1-Dichloroethane	NA	NA	5 UJ
1,1-Dichloroethene	NA	NA	5 U
1,2,3-Trichloropropane	NA	NA	10 U
1,2-Dibromo-3-chloropropane	NA	NA	20 U
1,2-Dibromoethane	NA	NA	20 U
1,2-Dichloroethane	NA	NA	5 UJ
1,2-Dichloroethene (Total)	NA	NA	5 U
1,2-Dichloropropane	NA	NA	5 UJ
2-Butanone	NA	NA	10 UJ
2-Chloro-1,3-butadiene	NA	NA	100 U
2-Hexanone	NA	NA	10 UJ
3-Chloropropene	NA	NA	20 U
4-Methyl-2-pentanone	NA	NA	10 UJ
Acetone	NA	NA	20 J
Acetonitrile	NA	NA	100 UJ
Acrolein	NA	NA	500 UJ
Acrylonitrile	NA	NA	100 UJ
Benzene	1 U	1 U	5 U
Bromodichloromethane	NA	NA	13 J
Bromoform	NA	NA	5 U
Bromomethane	NA	NA	10 UJ
Carbon disulfide	NA	NA	5 U
Carbon tetrachloride	NA	NA	5 U
Chlorobenzene	NA	NA	5 U
Chloroethane	NA	NA	10 U
Chloroform	NA	NA	160 J
Chloromethane	NA	NA	10 UJ
cis-1,3-Dichloropropene	NA	NA	5 U
Dibromochloromethane	NA	NA	5 U
Dibromomethane	NA	NA	10 U
Dichlorodifluoromethane	NA	NA	20 UJ
Ethyl methacrylate	NA	NA	20 U
Ethylbenzene	1 U	1 U	5 U
Iodomethane	NA	NA	10 U
Isobutanol	NA	NA	2000 R
Methacrylonitrile	NA	NA	20 UJ
Methyl methacrylate	NA	NA	20 UJ
Methylene chloride	NA	NA	5 UJ

APPENDIX I.3 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE II - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9ER01	9ER02	FB01
Sample Date	10/02/97	10/02/97	09/19/97
Volatiles (ug/L) (cont.)			
Pentachloroethane	NA	NA	20 UJ
Propionitrile	NA	NA	50 R
Styrene	NA	NA	5 U
Tetrachloroethene	NA	NA	5 U
Toluene	0.8 J	0.5 J	5 U
trans-1,3-Dichloropropene	NA	NA	5 U
trans-1,4-Dichloro-2-butene	NA	NA	20 U
Trichloroethene	NA	NA	5 U
Trichlorofluoromethane	NA	NA	10 U
Vinyl Acetate	NA	NA	10 UJ
Vinyl chloride	NA	NA	10 UJ
Xylene (total)	1 U	1 U	5 U
TPH (ug/L)			
Diesel Range Organics	130 U	140 U	120 U
Gasoline Range Organics	50 U	50 U	25 J

APPENDIX I.4
QA/QC RESULTS, PHASE II – TOTAL INORGANICS

APPENDIX I.4

SUMMARY QA/QC ANALYTICAL RESULTS, PHASE II - TOTAL INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9ER01	9ER02
Sample Date	10/02/97	10/02/97
RCRA METALS (ug/L)		
Antimony, Total	NA	NA
Arsenic, Total	2.5 U	2.5 U
Barium, Total	0.4 U	0.4 U
Beryllium, Total	NA	NA
Cadmium, Total	0.4 U	0.4 U
Chromium, Total	1.6 J	1.4 J
Cobalt, Total	NA	NA
Copper, Total	NA	NA
Lead, Total	1.5 U	1.5 U
Mercury, Total	0.1 U	0.1 U
Nickel, Total	NA	NA
Selenium, Total	2.2 U	2.2 U
Silver, Total	0.7 U	0.7 U
Thallium, Total	NA	NA
Tin, Total	NA	NA
Vanadium, Total	NA	NA
Zinc, Total	NA	NA

APPENDIX I.5
QA/QC RESULTS, PHASE III – ORGANICS

APPENDIX I.5

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE III - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	99-ER01	99-ER02	99-ER03	99-ER04	99FB01	99FB02
Sample Date	06/30/99	06/30/99	06/30/99	06/30/99	06/30/99	06/30/99
Volatiles (ug/L)						
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	25 U	25 U	25 U	25 U	25 U	25 U
4-Methyl-2-pentanone	25 U	25 U	25 U	25 U	25 U	25 U
Acetone	50 U	50 U	50 U	50 U	50 U	50 U
Benzene	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	14
Bromoform	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	10 U	10 U	10 U	10 U	10 U	10 U
Carbon disulfide	5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	5 U	5 U	5 U	5 U	5 U	84
Chloromethane	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Methylene chloride	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	10 U	10 U	10 U	10 U	10 U	10 U
Xylene (total)	10 U	10 U	10 U	10 U	10 U	10 U
Semivolatiles (ug/L)						
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
2,2'-Oxybis(1-Chloropropane)	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U

APPENDIX I.5 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE III - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	99-ER01	99-ER02	99-ER03	99-ER04	99FB01	99FB02
Sample Date	06/30/99	06/30/99	06/30/99	06/30/99	06/30/99	06/30/99
Semivolatiles (ug/L) (cont.)						
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50 U	50 U	50 U	50 U	50 U	50 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U	20 U	20 U
3-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U	50 U	50 U	50 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	20 U	20 U	20 U	20 U	20 U	[illegible]
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzidine	80 U	80 U	80 U	80 U	80 U	80 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50 U	50 U	50 U	50 U	50 U	50 U
Benzyl alcohol	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Bromodiphenyl ether, p-	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U	10 U	10 U	[illegible]
Dimethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10 U	10 U	10 U	10 U	10 U	10 U

APPENDIX I.5 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE III - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	99-ER01	99-ER02	99-ER03	99-ER04	99FB01	99FB02
Sample Date	06/30/99	06/30/99	06/30/99	06/30/99	06/30/99	06/30/99
Semivolatiles (ug/L) (cont.)						
Diphenylamine	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U
m-Cresol	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodimethylamine	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U	10 U	10 U
o-Cresol	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
TPH (ug/L)						
Diesel Range Organics	100 U	100 U	100 U	NA	100 U	100 U
Gasoline Range Organics	50 U	50 U	50 U	NA	50 U	50 U

APPENDIX I.5 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE III - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TB01	9TB03	9TB04	9TB05	9TB06	9TB07
Sample Date	06/24/99	06/28/99	06/29/99	06/29/99	06/29/99	06/30/99
Volatiles (ug/L)						
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	25 U	25 U	25 U	25 U	25 U	25 U
4-Methyl-2-pentanone	25 U	25 U	25 U	25 U	25 U	25 U
Acetone	50 U	50 U	50 U	50 U	50 U	50 U
Benzene	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	10 U	10 U	10 U	10 U	10 U	10
Carbon disulfide	5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	10 U	10 U	10 U	10 U	7.2 J	10 U
cis-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Methylene chloride	5 U	5 U	5 U	2.7 J	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	10 U	10 U	10 U	10 U	10 U	10 U
Xylene (total)	10 U	10 U	10 U	10 U	10 U	10 U
Semivolatiles (ug/L)						
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA

APPENDIX I.5 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE III - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TB01	9TB03	9TB04	9TB05	9TB06	9TB07
Sample Date	06/24/99	06/28/99	06/29/99	06/29/99	06/29/99	06/30/99
Semivolatiles (ug/L) (cont.)						
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA
Benzidine	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA
Benzoic acid	NA	NA	NA	NA	NA	NA
Benzyl alcohol	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA
Bromodiphenyl ether, p-	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA
Diethylphthalate	NA	NA	NA	NA	NA	NA
Dimethylphthalate	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA

APPENDIX I.5 (continued)

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE III - ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	9TB01	9TB03	9TB04	9TB05	9TB06	9TB07
Sample Date	06/24/99	06/28/99	06/29/99	06/29/99	06/29/99	06/30/99
Semivolatiles (ug/L) (cont.)						
Diphenylamine	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA	NA
m-Cresol	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	NA	NA	NA	NA	NA	NA
o-Cresol	NA	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA
TPH (ug/L)						
Diesel Range Organics	NA	NA	NA	NA	NA	NA
Gasoline Range Organics	250 U	NA	NA	NA	NA	NA

APPENDIX I.6
QA/QC RESULTS, PHASE III – TOTAL INORGANICS

APPENDIX I.6

SUMMARY OF QA/QC ANALYTICAL RESULTS, PHASE III - TOTAL INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	99-ER01	99-ER02	99-ER03	99-ER04	99FB01	99FB02
Sample Date	06/30/99	06/30/99	06/30/99	06/30/99	06/30/99	06/30/99
Inorganics (ug/L)						
Antimony, Total	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U
Arsenic, Total	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.4 J
Barium, Total	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	8.9 J
Beryllium, Total	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Cadmium, Total	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chromium, Total	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Cobalt, Total	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Copper	0.92 J	0.8 U	0.8 U	1 J	0.81 J	10.6 J
Cyanide, total	10 U	10 U	10 U	10 U	NA	NA
Lead, Total	0.9 U	1.2 J	0.9 U	0.9 U	0.9 U	0.9 U
Mercury, Total	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel, Total	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Selenium, Total	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	137 U
Silver	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Sulfide	100 U	100 U	100 U	100 U	NA	NA
Thallium, Total	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Tin, Total	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Vanadium, Total	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.74 J
Zinc	0.8 U	0.8 U	0.8 U	0.8 U	2.4 J	63.3

APPENDIX J
EXPOSURE PARAMETERS

EXPOSURE PARAMETERS USED FOR DAILY INTAKE CALCULATIONS
SWMU 9

Scenario Timeframe: Current
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Surface Water
Receptor Population: On-Site Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	C	Contaminant Concentration in Surface Water	mg/L	6-43,44,45	6-43,44,45	Chronic Daily Intake (CDI) (mg/kg/day) =
	IR-W	Ingestion Rate of Surface Water	L/hour	0.05	EPA, 1989a	C x IR-W x ET x EF x ED x 1/BW x 1/AT
	ET	Exposure Time	hours/day	1	Professional Judgement	
	EF	Exposure Frequency	days/year	52	Professional Judgement	
	ED	Exposure Duration	years	30	EPA, 1989a	
	BW	Body Weight	kg	70	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	EPA, 1989a	
Dermal	C	Contaminant Concentration in Surface Water	mg/L	6-43,44,45	6-43,44,45	CDI (mg/kg/day) =
	CF	Conversion Factor	L/cm3	1.00E-03	--	C x CF x SA x PC x ET x EF x ED x
	SA	Surface Area Available for Contact	cm2	4,050	EPA, 1997[(1)]a	1/BW x1/AT
	PC	Permeability Constant	cm/hour	Chemical Specific	EPA, 1992a	
	ET	Exposure Time	hours/day	1	Professional Judgement	
	EF	Exposure Frequency	days/year	52	Professional Judgement	
	ED	Exposure Duration	years	30	EPA, 1989a	
	BW	Body Weight	kg	70	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	EPA, 1989a	

Notes:
(1) It is assumed that the one-site worker is wearing shoes, shorts, and a short sleeve shirt. Total exposed surface area includes the average surface area by body part for a male adult including the lower leg, forearm, and hands as listed on Table 6-4 Exposure Factors Handbook 1997.

EXPOSURE PARAMETERS USED FOR DAILY INTAKE CALCULATIONS
SWMU 9

Scenario Timeframe: Current
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Sediment
Receptor Population: On-Site Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	C	Contaminant Concentration in Sediment	mg/kg	6-43,44,45	6-43,44,45	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-S	Ingestion Rate of Sediment	mg/day	100	EPA, 1989a	C x IR x CF x Fi x EF x ED x 1/BW x 1/AT
	CF	Conversion Factor	kg/mg	1.00E-06	--	
	Fi	Fraction Ingested from Source	NA	0.5	Professional Judgement	
	EF	Exposure Frequency	days/year	52	Professional Judgement	
	ED	Exposure Duration	years	30	EPA, 1989a	
	BW	Body Weight	kg	70	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	EPA, 1989a	
Dermal	C	Contaminant Concentration in Sediment	mg/kg	6-43,44,45	6-43,44,45	CDI (mg/kg-day) =
	CF	Conversion Factor	kg/mg	1.00E-06	--	C x CF x SA x AF x ABS x EF x ED x
	SA	Surface Area Available for Contact	cm2	4,050	EPA, 1997[(2)]a	1/BW x1/AT
	AF	Soil to Skin Adherence Factor	mg/cm2	1	EPA, 1995a	
	ABS	Absorption Factor	NA	(1)	EPA, 1995a	
	EF	Exposure Frequency	days/year	52	Professional Judgement	
	ED	Exposure Duration	years	30	EPA, 1989a	
	BW	Body Weight	kg	70	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	EPA, 1989a	
Inhalation	C	Contaminant Concentration in Soil	mg/kg	6-43,44,45	6-43,44,45	CDI (mg/kg-day) =
	IR-S	Inhalation Rate	m3/hour	1.25	EPA, 1991a	C x IR x ET x EF x ED x 1/PEF x
	ET	Exposure Time	hours/day	8	EPA, 1991a	1/BW x1/AT
	EF	Exposure Frequency	days/year	52	EPA, 1991a	
	ED	Exposure Duration	years	1	EPA, 1991a	
	1/PEF	Particulate Emission Factor	m3/kg	1.32E+09	Cowherd et al., 1995	
	BW	Body Weight	kg	70	EPA,1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA,1989a	
	AT-N	Averaging Time (Non-Cancer)	days	365	EPA,1989a	

Notes:

(1) USEPA Region III default values of 0.05% for VOCs with vapor pressures greater than 95.2 mmHg, 3.0% for VOCs with vapor pressures less than 95.2 mmHg, 10% for SVOCs, nitramines, and pesticides, 6% for PCBs, 3.2% for arsenic, and 1% for inorganics were used for ABS values.

(2) It is assumed that the one-site worker is wearing shoes, shorts, and a short sleeve shirt. Total exposure surface area includes the average surface area by body part for a male adult including the lower leg, forearm, and hands as listed on Table 6-4 Exposure Factors Handbook

EXPOSURE PARAMETERS USED FOR DAILY INTAKE CALCULATIONS
SWMU 9

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil
Exposure Point: Subsurface Soil
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	C	Contaminant Concentration in Soil	mg/kg	6-43,44,45	6-43,44,45	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	480	EPA,1996	C x IR x CF x Fi x EF x ED x 1/BW x 1/AT
	CF	Conversion Factor	kg/mg	1.00E-06	--	
	Fi	Fraction Ingested from Source	NA	1	Professional Judgement	
	EF	Exposure Frequency	days/year	180	Professional Judgement	
	ED	Exposure Duration	years	1	EPA,1991a	
	BW	Body Weight	kg	70	EPA,1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA,1989a	
	AT-N	Averaging Time (Non-Cancer)	days	365	EPA,1989a	
Dermal	C	Contaminant Concentration in Soil	mg/kg	6-43,44,45	6-43,44,45	CDI (mg/kg-day) =
	CF	Conversion Factor	kg/mg	1.00E-06	--	C x CF x SA x AF x ABS x EF x ED x
	SA	Surface Area Available for Contact	cm2	3,160	EPA, 1997(2)a	1/BW x1/AT
	AF	Soil to Skin Adherence Factor	mg/cm2	1	EPA, 1992a	
	ABS	Absorption Factor	NA	(1)	EPA,1995a	
	EF	Exposure Frequency	days/year	180	Professional Judgement	
	ED	Exposure Duration	years	1	Professional Judgement	
	BW	Body Weight	kg	70	EPA,1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA,1989a	
	AT-N	Averaging Time (Non-Cancer)	days	365	EPA,1989a	
Inhalation	C	Contaminant Concentration in Soil	mg/kg	6-43,44,45	6-43,44,45	CDI (mg/kg-day) =
	IR-S	Inhalation Rate	m3/hour	1.25	EPA, 1991a	C x IR x ET x EF x ED x 1/PEF x
	ET	Exposure Time	hours/day	8	EPA, 1991a	1/BW x1/AT
	EF	Exposure Frequency	days/year	180	EPA, 1991a	
	ED	Exposure Duration	years	1	EPA, 1991a	
	1/PEF	Particulate Emission Factor	m3/kg	1.32E+09	Cowherd et al., 1995	
	BW	Body Weight	kg	70	EPA,1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA,1989a	
	AT-N	Averaging Time (Non-Cancer)	days	365	EPA,1989a	

Notes:

(1) USEPA Region III default values of 0.05% for VOCs with vapor pressures greater than 95.2 mmHg, 3.0% for VOCs with vapor pressures less than 95.2 mmHg, 10% for SVOCs, nitramines, and pesticides, 6% for PCBs, 3.2% for arsenic, and 1% for inorganics were used for ABS values.

(2) It is assumed that the construction worker is wearing shoes, pants, and a short sleeve shirt. Total exposed surface area includes the average surface area by body for a male adult including the forearm, hands and the head as listed on Table 6-4 Exposure Factors Handbook 1997.

EXPOSURE PARAMETERS USED FOR DAILY INTAKE CALCULATIONS
SWMU 9

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Groundwater
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	C	Contaminant Concentration in Groundwater	mg/L	6-43,44,45	6-43,44,45	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-W	Ingestion Rate of Groundwater	L/day	0.05	EPA,1989a	C x IR-W x EF x ED x 1/BW x 1/AT
	EF	Exposure Frequency	days/year	180	Professional Judgement	
	ED	Exposure Duration	years	1	Professional Judgement	
	BW	Body Weight	kg	70	EPA,1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA,1989a	
	AT-N	Averaging Time (Non-Cancer)	days	365	EPA,1989a	
Dermal	C	Contaminant Concentration in Groundwater	mg/L	6-43,44,45	6-43,44,45	CDI (mg/kg-day) =
	CF	Conversion Factor	L/cm3	1.00E-03	--	C x CF x SA x PC x ET x EF x ED x
	SA	Surface Area Available for Contact	cm2	3,100	EPA, 1997[(1)]a	1/BW x1/AT
	PC	Permeability Constant	cm/hour	Chemical Specific	EPA, 1992a	
	ET	Exposure Time	hours/day	1	Professional Judgement	
	EF	Exposure Frequency	days/year	180	Professional Judgement	
	ED	Exposure Duration	years	1	Professional Judgement	
	BW	Body Weight	kg	70	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989a	

Notes:

(1) It is assumed that the construction worker is wearing shoes, pants, and a short sleeve shirt. Total exposed surface area includes the average surface area by body for a male adult including the forearm, and hands and the feet as listed on Table 6-4 Exposure Factors Handbook 1997. Even though the construction worker is wearing shoes, he may be standing in a trench with groundwater and therefore this HHRA accounted for a worker not wearing water-proof boots. While,an incidental splash to the the head may occur, it is not likely that the worker would have his entire head in the groundwater for one hour. Therefore, the surface area for the head was not included.

EXPOSURE PARAMETERS USED FOR DAILY INTAKE CALCULATIONS
SWMU 9

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Tap Water - Beneficial Use Scenario
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	C	Contaminant Concentration in Groundwater	mg/L	6-43,44,45	6-43,44,45	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-W	Ingestion Rate of Groundwater	L/day	0.05	EPA, 1989a	C x IR-W x EF x ED x 1/BW x 1/AT
	EF	Exposure Frequency	days/year	52	Professional Judgement	
	ED	Exposure Duration	years	30	EPA, 1989a	
	BW	Body Weight	kg	70	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	EPA, 1989a	
Dermal	C	Contaminant Concentration in Groundwater	mg/L	6-43,44,45	6-43,44,45	CDI (mg/kg-day) =
	CF	Conversion Factor	L/cm3	1.00E-03	--	C x CF x SA x PC x ET x EF x ED x
	SA	Surface Area Available for Contact	cm2	5,800	EPA, 1997a	1/BW x1/AT
	PC	Permeability Constant	cm/hour	Chemical Specific	EPA,1992a	
	ET	Exposure Time	hours/day	1	Professional Judgement	
	EF	Exposure Frequency	days/year	52	Professional Judgement	
	ED	Exposure Duration	years	30	EPA, 1989a	
	BW	Body Weight	kg	70	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	EPA, 1989a	

EXPOSURE PARAMETERS USED FOR DAILY INTAKE CALCULATIONS
SWMU 9

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Surface Water
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	C	Contaminant Concentration in Surface Water	mg/L	6-43,44,45	6-43,44,45	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-W	Ingestion Rate of Surface Water	L/hour	0.05	EPA, 1989a	C x IR-W x ET x EF x ED x 1/BW x 1/AT
	ET	Exposure Time	hours/day	1	Professional Judgement	
	EF	Exposure Frequency	days/year	52	Professional Judgement	
	ED	Exposure Duration	years	30	EPA, 1989a	
	BW	Body Weight	kg	70	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	EPA, 1989a	
Dermal	C	Contaminant Concentration in Surface Water	mg/L	6-43,44,45	6-43,44,45	CDI (mg/kg-day) =
	CF	Conversion Factor	L/cm3	1.00E-03	--	C x CF x SA x PC x ET x EF x ED x
	SA	Surface Area Available for Contact	cm2	5,800	EPA, 1997a	1/BW x1/AT
	PC	Permeability Constant	cm/hour	Chemical Specific	EPA, 1992a	
	ET	Exposure Time	hours/day	1	Professional Judgement	
	EF	Exposure Frequency	days/year	52	Professional Judgement	
	ED	Exposure Duration	years	30	EPA, 1989a	
	BW	Body Weight	kg	70	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	EPA, 1989a	

NA - Not Applicable.

EXPOSURE PARAMETERS USED FOR DAILY INTAKE CALCULATIONS
SWMU 9

Scenario Timeframe: Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Sediment
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	C	Contaminant Concentration in Sediment	mg/kg	6-43,44,45	6-43,44,45	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-S	Ingestion Rate of Sediment	mg/day	100	EPA, 1889a	C x IR x CF x Fi x EF x ED x 1/BW x 1/AT
	CF	Conversion Factor	kg/mg	1.00E-06	--	
	Fi	Fraction Ingested from Source	NA	0.5	Professional Judgement	
	EF	Exposure Frequency	days/year	52	EPA, 1991a	
	ED	Exposure Duration	years	30	EPA, 1889a	
	BW	Body Weight	kg	70	EPA, 1889a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1889a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	EPA, 1889a	
Dermal	C	Contaminant Concentration in Sediment	mg/kg	6-43,44,45	6-43,44,45	CDI (mg/kg-day) =
	CF	Conversion Factor	kg/mg	1.00E-06	--	C x CF x SA x AF x ABS x EF x ED x
	SA	Surface Area Available for Contact	cm2	5,800	EPA, 1997a	1/BW x1/AT
	AF	Soil to Skin Adherence Factor	mg/cm2	1	EPA, 1992a	
	ABS	Absorption Factor	NA	(1)	EPA, 1995a	
	EF	Exposure Frequency	days/year	52	Professional Judgement	
	ED	Exposure Duration	years	30	EPA, 1989a	
	BW	Body Weight	kg	70	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	EPA, 1989a	

Notes:

(1) USEPA Region III default values of 0.05% for VOCs with vapor pressures greater than 95.2 mmHg, 3.0% for VOCs with vapor pressures less than 95.2 mmHg, 10% for SVOCs, nitramines, and pesticides, 6% for PCBs, 3.2% for arsenic, and 1% for inorganics were used for ABS values.

EXPOSURE PARAMETERS USED FOR DAILY INTAKE CALCULATIONS
SWMU 9

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Tap Water - Beneficial Use Scenario
Receptor Population: Resident
Receptor Age: Younger Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	C	Contaminant Concentration in Groundwater	mg/L	6-43,44,45	6-43,44,45	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-W	Ingestion Rate of Groundwater	L/day	0.05	EPA, 1989a	C x IR-W x EF x ED x 1/BW x 1/AT
	EF	Exposure Frequency	days/year	52	Professional Judgement	
	ED	Exposure Duration	years	6	EPA, 1989a	
	BW	Body Weight	kg	15	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989a	
Dermal	C	Contaminant Concentration in Groundwater	mg/L	6-43,44,45	6-43,44,45	CDI (mg/kg-day) =
	CF	Conversion Factor	L/cm3	1.00E-03	--	C x CF x SA x PC x ET x EF x ED x
	SA	Surface Area Available for Contact	cm2	2,006	EPA, 1992a	1/BW x1/AT
	PC	Permeability Constant	cm/hour	Chemical Specific	EPA, 1992a	
	ET	Exposure Time	hours/day	1	Professional Judgement	
	EF	Exposure Frequency	days/year	52	Professional Judgement	
	ED	Exposure Duration	years	6	EPA, 1989a	
	BW	Body Weight	kg	15	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989a	

EXPOSURE PARAMETERS USED FOR DAILY INTAKE CALCULATIONS
SWMU 9

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Surface Water
Receptor Population: Resident
Receptor Age: Younger Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	C	Contaminant Concentration in Surface Water	mg/L	6-43,44,45	6-43,44,45	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-W	Ingestion Rate of Surface Water	L/hour	0.05	EPA, 1989a	C x IR-W x ET x EF x ED x 1/BW x 1/AT
	ET	Exposure Time	hours/day	1	Professional Judgement	
	EF	Exposure Frequency	days/year	52	Professional Judgement	
	ED	Exposure Duration	years	6	EPA, 1989a	
	BW	Body Weight	kg	15	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989a	
Dermal	C	Contaminant Concentration in Surface Water	mg/L	6-43,44,45	6-43,44,45	CDI (mg/kg-day) =
	CF	Conversion Factor	L/cm3	1.00E-03	--	C x CF x SA x PC x ET x EF x ED x
	SA	Surface Area Available for Contact	cm2	2,006	EPA, 1992a	1/BW x1/AT
	PC	Permeability Constant	cm/hour	Chemical Specific	EPA, 1992a	
	ET	Exposure Time	hours/day	1	Professional Judgement	
	EF	Exposure Frequency	days/year	52	Professional Judgement	
	ED	Exposure Duration	years	6	EPA, 1989a	
	BW	Body Weight	kg	15	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989a	

EXPOSURE PARAMETERS USED FOR DAILY INTAKE CALCULATIONS
SWMU 9

Scenario Timeframe: Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Sediment
Receptor Population: Resident
Receptor Age: Younger Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	C	Contaminant Concentration in Sediment	mg/kg	6-43,44,45	6-43,44,45	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR-S	Ingestion Rate of Sediment	mg/day	200	EPA, 1989a	C x IR x CF x Fi x EF x ED x 1/BW x 1/AT
	CF	Conversion Factor	kg/mg	1.00E-06	--	
	Fi	Fraction Ingested from Source	NA	0.5	Professional Judgement	
	EF	Exposure Frequency	days/year	52	EPA, 1989a	
	ED	Exposure Duration	years	6	EPA, 1989a	
	BW	Body Weight	kg	15	EPA, 1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989a	
Dermal	C	Contaminant Concentration in Sediment	mg/kg	6-43,44,45	6-43,44,45	CDI (mg/kg-day) =
	CF	Conversion Factor	kg/mg	1.00E-06	--	C x CF x SA x AF x ABS x EF x ED x
	SA	Surface Area Available for Contact	cm2	2,006	EPA, 1992a	1/BW x1/AT
	AF	Soil to Skin Adherence Factor	mg/cm2	1	EPA, 1992a	
	ABS	Absorption Factor	NA	(1)	EPA, 1995a	
	EF	Exposure Frequency	days/year	52	EPA,1989a	
	ED	Exposure Duration	years	6	EPA,1989a	
	BW	Body Weight	kg	15	EPA,1989a	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA,1989a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA,1989a	

Notes:

(1) USEPA Region III default values of 0.05% for VOCs with vapor pressures greater than 95.2 mmHg, 3.0% for VOCs with vapor pressures less than 95.2 mmHg, 10% for SVOCs, nitramines, and pesticides, 6% for PCBs, 3.2% for arsenic, and 1% for inorganics were used for ABS values.

APPENDIX K
STATISTICS

SUBSURFACE SOIL, INORGANICS – AREA A

POSITIVE DETECTIONS IN
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	9MW01-08	9MW01-15	9MW02-04	9MW02-06	9MW02-10	9TP07-04	9TP08-04	9TP09-04	9TP10-04	9TP18-05
SAMPLE DATE	04/10/96	04/10/96	04/12/96	04/12/96	04/12/96	04/08/96	04/08/96	04/08/96	04/08/96	04/14/96
DEPTH RANGE	16.00-18.00	18.00-20.00	8.00-10.00	12.00-14.00	14.00-16.00	8.00-10.00	8.00-10.00	8.00-10.00	8.00-10.00	10.00-12.00
					Phase I, Area A					
RCRA METALS (mg/kg										
Lead, Total	1 J	0.69 J	1.7 J	1.7 J	0.88 J	6 J	5.9 J	0.83 J	19.3 J	4.1 J
Mercury, Total	0.05 U	0.06 U	0.06 UJ	0.05 UJ	0.07 UJ	0.05 U	0.06 U	0.04 U	0.05 U	0.06 UJ
Silver, Total	0.54 U	0.67	0.51 U	0.42 U	0.42 U	0.38 U	0.37 U	0.48	0.4 U	0.41 U
Arsenic, Total	0.23 J	0.12 UJ	0.14 UJ	0.71 UJ	0.19 J	0.15 J	5 J	0.1 UJ	0.47 J	0.5 J
Barium, Total	36.7	9	11.6	40	77.2	119	45.7	46.9	103	62.7
Cadmium, Total	0.39 U	0.29 U	0.37 UJ	0.31 UJ	0.31 UJ	0.28 U	0.27 U	0.29 U	0.29 U	0.3 UJ
Chromium, Total	5.3 J	3.2 J	2.8 R	2.8 R	6.9 R	50.8 J	5 J	2.7 J	7.2 J	5.2 R
Selenium, Total	0.19 UJ	0.14 UJ	0.32 UJ	0.33 UJ	0.33 UJ	0.16 UJ	0.13 U	0.16 UJ	0.15 UJ	0.29 UJ

POSITIVE DETECTIONS IN
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	9MW02R-05	9MW02R-06	9MW02S-05	9MW02N-05	9TP07A-01	9TP07A-02	9TP07B-01	9TP07B-02	9TP09A-01	9TP09A-02
SAMPLE DATE	09/21/97	09/21/97	09/21/97	09/21/97	10/01/97	10/01/97	10/01/97	10/01/97	10/01/97	10/01/97
DEPTH RANGE	8.00-10.00	10.00-12.00	8.00-10.00	8.00-10.00	1.00-12.00	2.00-12.00	1.00-12.00	2.00-12.00	1.00-12.00	2.00-12.00
					Phase II, Area A					
RCRA METALS (mg/kg										
Lead, Total	3.1	1.1	1.6	1.8	0.79	3.7	0.18 U	0.15 U	0.35	1.2
Mercury, Total	0.03 U	0.03 U	0.1	0.02 U	0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	0.03 U
Silver, Total	0.08 J	0.06 U	0.08 U	0.07 J	0.4 J	0.3 J	0.28 J	0.3 J	0.25 J	0.22 J
Arsenic, Total	0.78 U	0.72 U	1.2 J	2.4 J	0.28 UJ	0.29 J	0.31 UJ	0.24 UJ	0.44 J	0.28 J
Barium, Total	13.5 J	16.7 J	14.7 J	9.7 J	156 J	51.4 J	32.2 J	42.8 J	131 J	240 J
Cadmium, Total	0.04 U	0.18 U	0.05 U	0.23 U	1.3	1.6	1.3	0.99	1.5	1.6
Chromium, Total	4	7	8.2	28.9	11.3 J	2.4 J	6.3 J	4.1 J	8.3 J	11.3 J
Selenium, Total	0.39 J	0.2 U	1.8	0.26 U	1.6 J	0.67 J	0.84 J	1 J	0.49 J	1 J

POSITIVE DETECTIONS IN
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE DEPTH RANGE	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
RCRA METALS (mg/kg								
Lead, Total	0.15 U	0.18 U	0.35	19.3 J	9TP10-04	18/20	3.0967	1.65
Mercury, Total	0.02 U	0.07 UJ	0.1	0.1	9MW02S-05	1/20	0.1	0.1
Silver, Total	0.06 U	0.54 U	0.07 J	0.67	9MW01-15	10/20	0.305	0.29
Arsenic, Total	0.1 UJ	0.78 U	0.15 J	5 J	9TP08-04	11/20	1.0136	0.44
Barium, Total	0	0	9	240 J	9TP09A-02	20/20	62.99	44.25
Cadmium, Total	0.04 U	0.39 U	0.99	1.6	9TP07A-02,9TP09A-02	6/20	1.3817	1.4
Chromium, Total	0	0	2.4 J	50.8 J	9TP07-04	16/16	10.375	6.65
Selenium, Total	0.13 U	0.33 UJ	0.39 J	1.8	9MW02S-05	8/20	0.9738	0.92

POSITIVE DETECTIONS IN
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE DEPTH RANGE	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
RCRA METALS (mg/kg						
Lead, Total	2.7953	4.2616	4.443	0.2903	1.3268	9.041
Mercury, Total	0.0245	0.0195	0.032	-3.8884	0.5659	0.0316
Silver, Total	0.2423	0.1499	0.3003	-1.6441	0.7773	0.3968
Arsenic, Total	0.6425	1.1553	1.0892	-1.2279	1.1569	1.2628
Barium, Total	62.99	59.884	86.1439	3.723	0.9744	119.2709
Cadmium, Total	0.5045	0.6029	0.7376	-1.4511	1.3209	1.5651
Chromium, Total	10.375	12.4762	15.8429	1.9518	0.8132	16.7551
Selenium, Total	0.456	0.5308	0.6612	-1.4135	1.1422	1.021

W-TEST
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Lognormal Distribution W-Value	Quantile	True/False	Normal Distribution W-Value	Quantile	True/False	Sample Count
RCRA METALS (mg/kg)							
Lead, Total	0.951361633	0.905	TRUE	0.576199541	0.905	FALSE	20
Mercury, Total	0.888579198	0.905	FALSE	0.61368609	0.905	FALSE	20
Silver, Total	0.879872832	0.905	FALSE	0.895936135	0.905	FALSE	20
Arsenic, Total	0.942802445	0.905	TRUE	0.510891285	0.905	FALSE	20
Barium, Total	0.956344686	0.905	TRUE	0.820059456	0.905	FALSE	20
Cadmium, Total	0.857087329	0.905	FALSE	0.688592345	0.905	FALSE	20
Chromium, Total	0.918240278	0.887	TRUE	0.605655049	0.887	FALSE	16
Selenium, Total	0.8798168	0.905	FALSE	0.751397907	0.905	FALSE	20

SUBSURFACE SOIL, INORGANICS – AREA B

POSITIVE DETECTIONS IN
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	9MW03-04	9MW03-09	9TP02-06	9TP03-03	9TP04-04	9TP05-04	9TP06-04
SAMPLE DATE	04/15/96	04/15/96	35157	04/06/96	04/06/96	04/06/96	04/06/96
DEPTH RANGE	8.00-10.00	12.00-14.00	11.50-12.00	6.00-8.00	8.00-10.00	8.00-10.00	8.00-10.00
				Phase I, Area B			
RCRA METALS (mg/kg)							
Lead, Total	0.77	0.54	0.004	34.2 J	0.28 J	1.5 J	0.61 J
Silver, Total	0.46 U	1.1	0.00052 U	0.37 U	0.41 U	0.4 U	0.46 U
Arsenic, Total	0.6 U	0.13 UJ	0.0015	2 J	0.27 J	0.1 UJ	0.45 J
Barium, Total	40.4	24	0.0524 J	18.8	43	28.2	85.6
Cadmium, Total	0.33 U	0.3 U	0.00037 U	0.27 U	0.29 U	0.29 U	0.33 U
Chromium, Total	7.1	8.3	0.011 J	5.1 J	3.4 J	3 J	5.6 J
Selenium, Total	0.14 UJ	0.16 UJ	0.00079 J	0.29 UJ	0.16 UJ	0.16 UJ	0.29 J

POSITIVE DETECTIONS IN
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	9TP01A-01	9TP01A-02	9TP02A-01	9TP02A-02
SAMPLE DATE	10/01/97	10/01/97	09/30/97	09/30/97
DEPTH RANGE	1.00-12.00	2.00-12.00	1.00-12.00	2.00-12.00
		Phase II, Area B		
RCRA METALS (mg/kg)				
Lead, Total	2	0.17 U	0.54	0.21 U
Silver, Total	0.21 J	0.25 J	0.11 U	0.12 J
Arsenic, Total	1.2 J	1 J	0.69 J	0.34 UJ
Barium, Total	130 J	182 J	143 J	69.8 UJ
Cadmium, Total	1.7	2.3	0.83	1.3
Chromium, Total	9.9 J	14.4 J	7 J	5.7 J
Selenium, Total	2 J	0.49 J	1.2 J	1.1 J

POSITIVE DETECTIONS IN
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE DEPTH RANGE	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
RCRA METALS (mg/kg)								
Lead, Total	0.17 U	0.21 U	0.004	34.2 J	9TP03-03	9/11	4.4938	0.61
Silver, Total	0.00052 U	0.46 U	0.12 J	1.1	9MW03-09	4/11	0.42	0.23
Arsenic, Total	0.1 UJ	0.6 U	0.0015	2 J	9TP03-03	7/11	0.8016	0.69
Barium, Total	69.8 UJ	69.8 UJ	0.0524 J	182 J	9TP01A-02	10/11	69.5052	41.7
Cadmium, Total	0.00037 U	0.33 U	0.83	2.3	9TP01A-02	4/11	1.5325	1.5
Chromium, Total	ND	ND	0.011 J	14.4 J	9TP01A-02	11/11	6.3192	5.7
Selenium, Total	0.14 UJ	0.29 UJ	0.00079 J	2 J	9TP01A-01	6/11	0.8468	0.795

POSITIVE DETECTIONS IN
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE DEPTH RANGE	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
RCRA METALS (mg/kg)						
Lead, Total	3.694	10.1362	9.2332	-0.8064	2.2428	485.5932
Silver, Total	0.2532	0.2917	0.4126	-2.1771	2.1342	78.2752
Arsenic, Total	0.5633	0.6186	0.9014	-1.5283	2.0156	92.4085
Barium, Total	66.3593	59.8206	99.0499	3.3635	2.2307	29853.4176
Cadmium, Total	0.6396	0.7872	1.0698	-1.6837	2.556	2071.5724
Chromium, Total	6.3192	3.8058	8.399	1.2625	1.9657	600.7991
Selenium, Total	0.5033	0.6506	0.8588	-1.8447	2.1471	115.1222

W-TEST
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Lognormal Distribution W-Value	Quantile	True/False	Normal Distribution W-Value	Quantile	True/False	Sample Count
RCRA METALS (mg/kg)							
Lead, Total	0.938776112	0.85	TRUE	0.396286781	0.85	FALSE	11
Silver, Total	0.630840587	0.85	FALSE	0.596813314	0.85	FALSE	11
Arsenic, Total	0.867631078	0.85	TRUE	0.845510471	0.85	FALSE	11
Barium, Total	0.674666885	0.85	FALSE	0.863671228	0.85	TRUE	11
Cadmium, Total	0.722849135	0.85	FALSE	0.757724585	0.85	FALSE	11
Chromium, Total	0.566869498	0.85	FALSE	0.967412763	0.85	TRUE	11
Selenium, Total	0.853339899	0.85	TRUE	0.763687015	0.85	FALSE	11

SUBSURFACE SOIL, INORGANICS – AREA C

POSITIVE DETECTIONS IN
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	9MW04-03	9MW04-05	9TP11-05	9TP13-04	9TP14-05	9TP15-05	9TP16-05	9TP17-05
SAMPLE DATE	04/19/96	04/19/96	04/13/96	04/13/96	04/13/96	04/13/96	04/13/96	04/14/96
DEPTH RANGE	6.00-8.00	10.00-12.00	10.00-12.00	8.00-10.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00
				Phase I, Area C				
RCRA METALS (mg/kg)								
Lead, Total	1.4	1.2	5.2 J	6.4 J	26.2 J	24 J	31.5 J	2.2 J
Silver, Total	0.72	0.71	0.57	0.71	0.35 U	0.39 U	0.86	0.67
Barium, Total	96.9	35.6	77.7	31.6	82.1	83.8	59.2	57.2
Chromium, Total	28.3	20.4	24.2 R	24.4 R	22.4 R	22.4 R	29.1 R	24.9 R

POSITIVE DETECTIONS IN
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE DEPTH RANGE	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
RCRA METALS (mg/kg)								
Lead, Total	ND	ND	1.2	31.5 J	9TP16-05	8/8	12.2625	5.8
Silver, Total	0.35 U	0.39 U	0.57	0.86	9TP16-05	6/8	0.7067	0.71
Barium, Total	ND	ND	31.6	96.9	9MW04-03	8/8	65.5125	68.45
Chromium, Total	ND	ND	20.4	28.3	9MW04-03	2/2	24.35	24.35

POSITIVE DETECTIONS IN
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE DEPTH RANGE	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
RCRA METALS (mg/kg)						
Lead, Total	12.2625	12.6941	20.7654	1.8383	1.3398	170.1464
Silver, Total	0.5763	0.2541	0.7465	-0.6881	0.6284	1.1723
Barium, Total	65.5125	23.5949	81.3172	4.1145	0.4122	96.178
Chromium, Total	24.35	5.5861	49.2891	3.1792	0.2315	46.6476

W-TEST
SUBSURFACE SOIL, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Lognormal Distribution W-Value	Quantile	True/False	Normal Distribution W-Value	Quantile	True/False	Sample Count
RCRA METALS (mg/kg)							
Lead, Total	0.883794023	0.818	TRUE	0.800620611	0.818	FALSE	8
Silver, Total	0.727780718	0.818	FALSE	0.815758819	0.818	FALSE	8
Barium, Total	0.887230669	0.818	TRUE	0.928337654	0.818	TRUE	8
Chromium, Total	6.291674448	NA	NA	22.02209537	NA	NA	2

GROUNDWATER, ORGANICS – AREA A

POSITIVE DETECTIONS IN GROUNDWATER, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	13GW01	13GW02	13GW03	9MW01	9MW02	9GW02R	9GW02S	9GW02N	9-02R-GW03	9-A02-HP02
SAMPLE DATE	03/24/96	03/24/96	03/24/96	04/14/96	04/16/96	09/30/97	09/30/97	09/30/97	06/27/99	06/27/99
			Phase I, Area A				**Phase II, Area A**			**Phase III, Area A**
VOLATILES (ug/l)										
Benzene	500 U	130	5 U	5 U	1600 J	NA	NA	NA	NA	NA
Methylene chloride	500 U	5 U	5 U	5 U	7	NA	NA	NA	NA	NA
Ethylbenzene	500 U	160	5 U	5 U	27	NA	NA	NA	NA	NA
Toluene	500 U	5 U	5 U	5 U	180 J	NA	NA	NA	NA	NA
Xylene (total)	500 U	28	5 U	5 U	82	NA	NA	NA	NA	NA
SEMIVOLATILES (ug/l)										
Benzoic acid	53 U	56 U	50 U	19 J	50 U	NA	NA	NA	NA	NA
Naphthalene	11 U	26	10 U	10 U	10 U	NA	NA	NA	NA	NA
2-Methylnaphthalene	11 U	23 J	10 UJ	10 U	10 U	NA	NA	NA	NA	NA
Acetophenone	11 U	11 U	10 U	1 J	10 U	NA	NA	NA	NA	NA
Benzyl alcohol	11 UJ	11 U	10 U	10 U	3 J	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	5 J	5 J	4 J	10 U	3 J	NA	NA	NA	NA	NA
Dimethylphthalate	11 U	11 U	10 U	2 J	10 U	NA	NA	NA	NA	NA
PCBS (ug/l)	NO DETECTS									
BTEX (ug/l)										
Benzene	NA	NA	NA	NA	NA	4900	1.7	1 U	230	8.7
Toluene	NA	NA	NA	NA	NA	4100	3 U	1 U	240	5 U
Ethylbenzene	NA	NA	NA	NA	NA	220	0.52 J	1 U	6.9	110
Xylene (total)	NA	NA	NA	NA	NA	840	2.4	1 U	8.7 J	25
TPH (ug/l)										
Gasoline Range Organics	750 U	9000	100 J	30 U	770	15000	50 U	50 U	NA	NA
Diesel Range Organics	140 UJ	2300 J	120 UJ	NA	130 U	1700	130 U	140 U	NA	NA

POSITIVE DETECTIONS IN GROUNDWATER, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
VOLATILES (ug/l)								
Benzene	5 U	500 U	130	1600 J	9MW02	2/5	865	865
Methylene chloride	5 U	500 U	7	7	9MW02	1/5	7	7
Ethylbenzene	5 U	500 U	27	160	13GW02	2/5	93.5	93.5
Toluene	5 U	500 U	180 J	180 J	9MW02	1/5	180	180
Xylene (total)	5 U	500 U	28	82	9MW02	2/5	55	55
SEMIVOLATILES (ug/l)								
Benzoic acid	50 U	56 U	19 J	19 J	9MW01	1/5	19	19
Naphthalene	10 U	11 U	26	26	13GW02	1/5	26	26
2-Methylnaphthalene	10 U	11 U	23 J	23 J	13GW02	1/5	23	23
Acetophenone	10 U	11 U	1 J	1 J	9MW01	1/5	1	1
Benzyl alcohol	10 U	11 U	3 J	3 J	9MW02	1/5	3	3
Bis(2-ethylhexyl)phthalate	10 U	10 U	3 J	5 J	13GW01,13GW02	4/5	4.25	4.5
Dimethylphthalate	10 U	11 U	2 J	2 J	9MW01	1/5	2	2
PCBS (ug/l)	NO DETECTS							
BTEX (ug/l)								
Benzene	1 U	1 U	1.7	4900	9GW02R	4/5	1285.1	119.35
Toluene	1 U	5 U	240	4100	9GW02R	2/5	2170	2170
Ethylbenzene	1 U	1 U	0.52 J	220	9GW02R	4/5	84.355	58.45
Xylene (total)	1 U	1 U	2.4	840	9GW02R	4/5	219.025	16.85
TPH (ug/l)								
Gasoline Range Organics	30 U	750 U	100 J	15000	9GW02R	4/8	6217.5	4885
Diesel Range Organics	120 UJ	140 U	1700	2300 J	13GW02	2/7	2000	2000

POSITIVE DETECTIONS IN GROUNDWATER, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
VOLATILES (ug/l)						
Benzene	397	680.3248	1045.6154	3.9199	2.8924	1.96459E+12
Methylene chloride	52.9	110.1995	157.9632	2.0432	1.9948	656978.9911
Ethylbenzene	88.4	111.5445	194.7455	3.145	2.1983	96817850.86
Toluene	87.5	118.9932	200.947	2.6927	2.4352	424826547.5
Xylene (total)	73	104.1339	172.2803	3.0186	2.0694	30546393.37
SEMIVOLATILES (ug/l)						
Benzoic acid	24.7	3.4205	27.9611	3.1983	0.1495	29.1885
Naphthalene	9.3	9.3381	18.2029	1.9582	0.7278	40.4962
2-Methylnaphthalene	8.7	7.9969	16.3242	1.9337	0.6731	29.7455
Acetophenone	4.4	1.917	6.2277	1.3257	0.7426	22.4132
Benzyl alcohol	4.8	1.0368	5.7885	1.5454	0.2543	6.5742
Bis(2-ethylhexyl)phthalate	4.4	0.8944	5.2527	1.4626	0.2253	5.8041
Dimethylphthalate	4.6	1.4748	6.0061	1.4643	0.4337	9.0016
PCBS (ug/l)	NO DETECTS					
BTEX (ug/l)						
Benzene	1028.18	2166.6338	3093.8286	3.1872	3.7558	3.98478E+19
Toluene	868.9	1809.1899	2593.7649	2.8856	3.8435	9.28912E+19
Ethylbenzene	67.584	97.0955	160.1539	2.1357	2.8731	2.72705E+11
Xylene (total)	175.32	371.6925	529.6882	2.4596	2.8008	1.85335E+11
TPH (ug/l)						
Gasoline Range Organics	3163.75	5690.4743	6975.4249	5.6306	2.6806	92992677.04
Diesel Range Organics	618.5714	959.4648	1323.2535	5.1599	1.6629	39680.6783

W-TEST
GROUNDWATER, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Lognormal Distribution W-Value	Quantile	True/False	Normal Distribution W-Value	Quantile	True/False	Sample Count
VOLATILES (ug/l)							
Benzene	0.873188959	0.762	TRUE	0.679272687	0.762	FALSE	5
Methylene chloride	0.687905849	0.762	FALSE	0.564374067	0.762	FALSE	5
Ethylbenzene	0.854476816	0.762	TRUE	0.823881602	0.762	TRUE	5
Toluene	0.706111622	0.762	FALSE	0.758883627	0.762	FALSE	5
Xylene (total)	0.889262799	0.762	TRUE	0.77775123	0.762	TRUE	5
SEMIVOLATILES (ug/l)							
Benzoic acid	0.825797289	0.762	TRUE	0.859788231	0.762	TRUE	5
Naphthalene	0.590635767	0.762	FALSE	0.568144976	0.762	FALSE	5
2-Methylnaphthalene	0.59366289	0.762	FALSE	0.570796575	0.762	FALSE	5
Acetophenone	0.605787266	0.762	FALSE	0.658537335	0.762	FALSE	5
Benzyl alcohol	0.70121132	0.762	FALSE	0.738618284	0.762	FALSE	5
Bis(2-ethylhexyl)phthalate	0.76217023	0.762	TRUE	0.770771953	0.762	TRUE	5
Dimethylphthalate	0.642516884	0.762	FALSE	0.688113283	0.762	FALSE	5
PCBS (ug/l)							
BTEX (ug/l)							
Benzene	0.942384771	0.762	TRUE	0.583935817	0.762	FALSE	5
Toluene	0.880707376	0.762	TRUE	0.591167043	0.762	FALSE	5
Ethylbenzene	0.862754201	0.762	TRUE	0.787224056	0.762	TRUE	5
Xylene (total)	0.964424791	0.762	TRUE	0.57435863	0.762	FALSE	5
TPH (ug/l)							
Gasoline Range Organics	0.896340818	0.818	TRUE	0.641002444	0.818	FALSE	8
Diesel Range Organics	0.675048043	0.803	FALSE	0.659017089	0.803	FALSE	7

GROUNDWATER, ORGANICS – AREA B

POSITIVE DETECTIONS IN GROUNDWATER, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	13GW04	13GW05	13GW06	9MW03
SAMPLE DATE	03/23/96	03/24/96	03/24/96	04/20/96
		Phase I, Area B		
VOLATILES (ug/l)				
Chloroform	5 U	5 U	1100	5 J
Benzene	5 U	140	5 U	5 U
Methylene chloride	5 U	5 U	11	5 U
Bromoform	5 U	5 U	360	5 U
Bromodichloromethane	5 U	5 U	460	5 U
Ethylbenzene	5 U	8	5 U	5 U
Dibromochloromethane	5 U	5 U	300	5 U
TPH (ug/l)				
Gasoline Range Organics	4200	160 J	30 U	30 U
SEMIVOLATILES (ug/l)				
Benzoic acid	54 U	53 U	49 U	19 J
Diethylphthalate	11 U	1 J	10 U	11 U
Bis(2-ethylhexyl)phthalate	7 J	2 J	10 U	11 U
PCBS (ug/l)	NO DETECTS			

POSITIVE DETECTIONS IN GROUNDWATER, ORGANICS SWMU 09 (TANKS 212-217) NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
VOLATILES (ug/l)								
Chloroform	5 U	5 U	5 J	1100	13GW06	2/4	552.5	552.5
Benzene	5 U	5 U	140	140	13GW05	1/4	140	140
Methylene chloride	5 U	5 U	11	11	13GW06	1/4	11	11
Bromoform	5 U	5 U	360	360	13GW06	1/4	360	360
Bromodichloromethane	5 U	5 U	460	460	13GW06	1/4	460	460
Ethylbenzene	5 U	5 U	8	8	13GW05	1/4	8	8
Dibromochloromethane	5 U	5 U	300	300	13GW06	1/4	300	300
TPH (ug/l)								
Gasoline Range Organics	30 U	30 U	160 J	4200	13GW04	2/4	2180	2180
SEMIVOLATILES (ug/l)								
Benzoic acid	49 U	54 U	19 J	19 J	9MW03	1/4	19	19
Diethylphthalate	10 U	11 U	1 J	1 J	13GW05	1/4	1	1
Bis(2-ethylhexyl)phthalate	10 U	11 U	2 J	7 J	13GW04	2/4	4.5	4.5
PCBS (ug/l)								

POSITIVE DETECTIONS IN GROUNDWATER, ORGANICS SWMU 09 (TANKS 212-217) NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
VOLATILES (ug/l)						
Chloroform	277.5	548.3346	922.7152	2.6113	2.946	3.13911E+17
Benzene	36.875	68.75	117.7719	1.9226	2.0127	9244719348
Methylene chloride	4.625	4.25	9.6259	1.2867	0.7408	48.263
Bromoform	91.875	178.75	302.2068	2.1587	2.4849	2.92033E+12
Bromodichloromethane	116.875	228.75	386.0409	2.22	2.6075	1.79929E+15
Ethylbenzene	3.875	2.75	7.1109	1.2071	0.5816	16.2738
Dibromochloromethane	76.875	148.75	251.9064	2.1132	2.3937	9.44437E+11
TPH (ug/l)						
Gasoline Range Organics	1097.5	2069.4625	3532.5983	4.7085	2.6675	5.00542E+16
SEMIVOLATILES (ug/l)						
Benzoic acid	24.25	3.6629	28.5601	3.179	0.162	30.6456
Diethylphthalate	4.25	2.1794	6.8145	1.2547	0.8377	92.3723
Bis(2-ethylhexyl)phthalate	4.875	2.0966	7.342	1.4883	0.5487	19.5351
PCBS (ug/l)						

W-TEST
GROUNDWATER, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Lognormal Distribution W-Value	Quantile	True/False	Normal Distribution W-Value	Quantile	True/False	Sample Count
VOLATILES (ug/l)							
Chloroform	0.709824784	0.748	FALSE	0.631314124	0.748	FALSE	4
Benzene	0.629658453	0.748	FALSE	0.629658453	0.748	FALSE	4
Methylene chloride	0.629658453	0.748	FALSE	0.629658453	0.748	FALSE	4
Bromoform	0.629658453	0.748	FALSE	0.629658453	0.748	FALSE	4
Bromodichloromethane	0.629658453	0.748	FALSE	0.629658453	0.748	FALSE	4
Ethylbenzene	0.629658453	0.748	FALSE	0.629658453	0.748	FALSE	4
Dibromochloromethane	0.629658453	0.748	FALSE	0.629658453	0.748	FALSE	4
TPH (ug/l)							
Gasoline Range Organics	0.853818647	0.748	TRUE	0.6546875	0.748	FALSE	4
SEMIVOLATILES (ug/l)							
Benzoic acid	0.824023345	0.748	TRUE	0.845314012	0.748	TRUE	4
Diethylphthalate	0.669829728	0.748	FALSE	0.707969408	0.748	FALSE	4
Bis(2-ethylhexyl)phthalate	0.851332046	0.748	TRUE	0.939476324	0.748	TRUE	4
PCBS (ug/l)	NO DETECTS						

GROUNDWATER, ORGANICS – AREA C

POSITIVE DETECTIONS IN GROUNDWATER, ORGANICS SWMU 09 (TANKS 212-217) NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	13GW07	13GW08	13GW09	13GW10	13GW11	9MW04	13GW10	13GW11
SAMPLE DATE	03/23/96	03/23/96	03/23/96	03/23/96	03/25/96	04/24/96	6/29/99	6/29/99
			Phase I, Area C				Phase III, Area C	
VOLATILES (ug/l)								
1,2-Dichloropropane	5 U	5 U	5 U	5 U	2 J	5 U	NA	5 U
Toluene	5 U	5 U	5 U	5 U	5 U	5 U	NA	4.2 J
TPH (ug/l)	NO DETECTS							
SEMIVOLATILES (ug/l)								
Bis(2-ethylhexyl)phthalate	11 U	10 U	10 U	38	10 U	10 U	10 U	NA
PCBS (ug/l)	NO DETECTS							

POSITIVE DETECTIONS IN
GROUNDWATER, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
VOLATILES (ug/l)								
1,2-Dichloropropane	5 U	5 U	2 J	2 J	13GW11	1/7	2	2
Toluene	5 U	5 U	4.2 J	4.2 J	13GW11	1/7	4.2	4.2
TPH (ug/l)								
SEMIVOLATILES (ug/l)								
Bis(2-ethylhexyl)phthalate	10 U	11 U	38	38	13GW10	1/7	38	38
PCBS (ug/l)								

POSITIVE DETECTIONS IN
GROUNDWATER, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
VOLATILES (ug/l)						
1,2-Dichloropropane	2.4286	0.189	2.5674	0.8844	0.0843	2.5931
Toluene	2.7429	0.6425	3.2148	0.9904	0.1961	3.2191
TPH (ug/l)						
SEMIVOLATILES (ug/l)						
Bis(2-ethylhexyl)phthalate	9.7857	12.4427	18.9243	1.9128	0.7614	24.1278
PCBS (ug/l)						

W-TEST
GROUNDWATER, ORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Lognormal Distribution W-Value	Quantile	True/False	Normal Distribution W-Value	Quantile	True/False	Sample Count
VOLATILES (ug/l)							
1,2-Dichloropropane	0.453253372	0.803	FALSE	0.453253372	0.803	FALSE	7
Toluene	0.453253372	0.803	FALSE	0.453253372	0.803	FALSE	7
TPH (ug/l)	NO DETECTS						
SEMIVOLATILES (ug/l)							
Bis(2-ethylhexyl)phthalate	0.480673785	0.803	FALSE	0.462185211	0.803	FALSE	7
PCBS (ug/l)	NO DETECTS						

GROUNDWATER, TOTAL INORGANICS – AREA A

POSITIVE DETECTIONS IN
GROUNDWATER, TOTAL INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	9MW01	9MW02	9GW02R	9GW02S	9GW02N
SAMPLE DATE	04/22/96	04/21/96	09/30/97	09/30/97	09/30/97
	Phase I, Area A			**Phase II, Area A**	
RCRA METALS (ug/l)					
Lead, Total	1.7 R	5.5 R	4.5	10.4 J	1.9 J
Mercury, Total	0.1 UJ	0.33 J	0.1 U	0.1 U	0.1 U
Silver, Total	4 U	4 U	2.6 J	3 U	1.5 J
Arsenic, Total	6 U	6 U	2.5 U	29.2 J	14.1
Barium, Total	264	353	207	571 J	325
Cadmium, Total	12.9	29	4.3 J	8.9 J	3.5 J
Chromium, Total	2.6 U	11.2 J	7.3 J	193	39.4
Selenium, Total	28 R	28 R	8.8	11 U	11 U

POSITIVE DETECTIONS IN
GROUNDWATER, TOTAL INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
RCRA METALS (ug/l)								
Lead, Total	ND	ND	1.9 J	10.4 J	9GW02S	3/3	5.6	4.5
Mercury, Total	0.1 U	0.1 U	0.33 J	0.33 J	9MW02	1/5	0.33	0.33
Silver, Total	3 U	4 U	1.5 J	2.6 J	9GW02R	2/5	2.05	2.05
Arsenic, Total	2.5 U	6 U	14.1	29.2 J	9GW02S	2/5	21.65	21.65
Barium, Total	ND	ND	207	571 J	9GW02S	5/5	344	325
Cadmium, Total	ND	ND	3.5 J	29	9MW02	5/5	11.72	8.9
Chromium, Total	2.6 U	2.6 U	7.3 J	193	9GW02S	4/5	62.725	25.3
Selenium, Total	11 U	11 U	8.8	8.8	9GW02R	1/3	8.8	8.8

POSITIVE DETECTIONS IN
GROUNDWATER, TOTAL INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
RCRA METALS (ug/l)						
Lead, Total	5.6	4.3555	12.9427	1.4959	0.85	7430.6496
Mercury, Total	0.106	0.1252	0.2254	-2.6183	0.8439	0.6889
Silver, Total	1.92	0.455	2.3538	0.6305	0.2317	2.5488
Arsenic, Total	10.11	11.8317	21.3902	1.6881	1.2847	1196.1449
Barium, Total	344	138.8704	476.3978	5.7813	0.3779	574.5635
Cadmium, Total	11.72	10.3751	21.6115	2.1644	0.856	85.4005
Chromium, Total	50.44	81.0259	127.6893	2.7205	1.8737	579596.1199
Selenium, Total	6.6	1.9053	9.8121	1.8614	0.2714	14.6843

W-TEST
GROUNDWATER, TOTAL INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Lognormal Distribution W-Value	Quantile	True/False	Normal Distribution W-Value	Quantile	True/False	Sample Count
RCRA METALS (ug/l)							
Lead, Total	0.999911617	0.767	TRUE	0.952143045	0.767	TRUE	3
Mercury, Total	0.55211645	0.762	FALSE	0.55211645	0.762	FALSE	5
Silver, Total	0.880999643	0.762	TRUE	0.876098942	0.762	TRUE	5
Arsenic, Total	0.92232703	0.762	TRUE	0.806734356	0.762	TRUE	5
Barium, Total	0.970405053	0.762	TRUE	0.89933037	0.762	TRUE	5
Cadmium, Total	0.952004352	0.762	TRUE	0.840412537	0.762	TRUE	5
Chromium, Total	0.990719812	0.762	TRUE	0.695538313	0.762	FALSE	5
Selenium, Total	3.709781504	0.767	TRUE	13.99303944	0.767	TRUE	3

SURFACE WATER, TOTAL INORGANICS – AREA A

POSITIVE DETECTIONS IN
SURFACE WATER, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	9SW02
SAMPLE DATE	06/29/99
	Phase III, Area A
TOTAL METALS (ug/l)	
Arsenic	38.3 J
Barium	50.5
Cadmium	0.7 J
Cobalt	0.96 J
Selenium	22.3 J
Tin	2.7 J
Vanadium	88.5
Zinc	6.3 J

POSITIVE DETECTIONS IN
SURFACE WATER, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
TOTAL METALS (ug/l)								
Arsenic	ND	ND	38.3 J	38.3 J	9SW02	1/1	38.3	38.3
Barium	ND	ND	50.5	50.5	9SW02	1/1	50.5	50.5
Cadmium	ND	ND	0.7 J	0.7 J	9SW02	1/1	0.7	0.7
Cobalt	ND	ND	0.96 J	0.96 J	9SW02	1/1	0.96	0.96
Selenium	ND	ND	22.3 J	22.3 J	9SW02	1/1	22.3	22.3
Tin	ND	ND	2.7 J	2.7 J	9SW02	1/1	2.7	2.7
Vanadium	ND	ND	88.5	88.5	9SW02	1/1	88.5	88.5
Zinc	ND	ND	6.3 J	6.3 J	9SW02	1/1	6.3	6.3

POSITIVE DETECTIONS IN
SURFACE WATER, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
TOTAL METALS (ug/l)						
Arsenic	38.3	ND	ND	3.6454	ND	ND
Barium	50.5	ND	ND	3.922	ND	ND
Cadmium	0.7	ND	ND	-0.3567	ND	ND
Cobalt	0.96	ND	ND	-0.0408	ND	ND
Selenium	22.3	ND	ND	3.1046	ND	ND
Tin	2.7	ND	ND	0.9933	ND	ND
Vanadium	88.5	ND	ND	4.483	ND	ND
Zinc	6.3	ND	ND	1.8405	ND	ND

W-TEST
SURFACE WATER, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Lognormal Distribution			Normal Distribution			Sample
	W-Value	Quantile	True/False	W-Value	Quantile	True/False	Count
TOTAL METALS (ug/l)							
Arsenic	ND	ND	ND	ND	ND	ND	1
Barium	ND	ND	ND	ND	ND	ND	1
Cadmium	ND	ND	ND	ND	ND	ND	1
Cobalt	ND	ND	ND	ND	ND	ND	1
Selenium	ND	ND	ND	ND	ND	ND	1
Tin	ND	ND	ND	ND	ND	ND	1
Vanadium	ND	ND	ND	ND	ND	ND	1
Zinc	ND	ND	ND	ND	ND	ND	1

SURFACE WATER, TOTAL INORGANICS – AREA B

POSITIVE DETECTIONS IN
SURFACE WATER, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS,
PUERTO RICO

SAMPLE ID	9SW01	9SW03	9SW04
SAMPLE DATE	06/29/99	06/29/99	06/29/99
		Phase 3, Area B	
TOTAL METALS (ug/l)			
Antimony	16.5	2.7 U	2.7 U
Arsenic	17.8 J	33.5 J	39.7 J
Barium	54.2	54.9	61.1
Beryllium	0.73	0.1 U	0.12 J
Cadmium	2.5 U	0.94 J	1.5 J
Chromium	8.5	8 J	7.7 U
Cobalt	4.1	3.6 J	4.4 J
Copper	50.4	41.4 U	55.6 J
Lead	4.5 UJ	4.5 UJ	5.4 J
Nickel	10.1	4.5 J	4.4 J
Tin	9.2	5 J	3.8 J
Vanadium	70.9	134	72.3
Zinc	27.4	14.5 J	19.9 J
Cyanide	6.1	10 U	10 U

POSITIVE DETECTIONS IN
SURFACE WATER, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS,
PUERTO RICO

SAMPLE ID SAMPLE DATE	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
TOTAL METALS (ug/l)								
Antimony	2.7 U	2.7 U	16.5	16.5	9SW01	1/3	16.5	16.5
Arsenic	0	0	17.8 J	39.7 J	9SW04	3/3	30.3333	33.5
Barium	0	0	54.2	61.1	9SW04	3/3	56.7333	54.9
Beryllium	0.1 U	0.1 U	0.12 J	0.73	9SW01	2/3	0.425	0.425
Cadmium	2.5 U	2.5 U	0.94 J	1.5 J	9SW04	2/3	1.22	1.22
Chromium	7.7 U	7.7 U	8 J	8.5	9SW01	2/3	8.25	8.25
Cobalt	0	0	3.6 J	4.4 J	9SW04	3/3	4.0333	4.1
Copper	41.4 U	41.4 U	50.4	55.6 J	9SW04	2/3	53	53
Lead	4.5 UJ	4.5 UJ	5.4 J	5.4 J	9SW04	1/3	5.4	5.4
Nickel	0	0	4.4 J	10.1	9SW01	3/3	6.3333	4.5
Tin	0	0	3.8 J	9.2	9SW01	3/3	6	5
Vanadium	0	0	70.9	134	9SW03	3/3	92.4	72.3
Zinc	0	0	14.5 J	27.4	9SW01	3/3	20.6	19.9
Cyanide	10 U	10 U	6.1	6.1	9SW01	1/3	6.1	6.1

POSITIVE DETECTIONS IN
SURFACE WATER, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS,
PUERTO RICO

SAMPLE ID SAMPLE DATE	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
TOTAL METALS (ug/l)						
Antimony	6.4	8.7469	21.146	1.1345	1.4453	4421664694
Arsenic	30.3333	11.2882	49.3636	3.3574	0.4227	218.7773
Barium	56.7333	3.7978	63.1358	4.0369	0.0658	64.5226
Beryllium	0.3	0.374	0.9305	-1.8102	1.3671	70513909.34
Cadmium	1.23	0.2805	1.7029	0.1889	0.2355	2.4618
Chromium	6.7833	2.5526	11.0866	1.8559	0.4408	53.3832
Cobalt	4.0333	0.4041	4.7146	1.3912	0.1018	5.1221
Copper	42.2333	18.8288	73.9759	3.6561	0.5443	905.9422
Lead	3.3	1.8187	6.3661	1.1028	0.5055	55.7634
Nickel	6.3333	3.2624	11.8332	1.7661	0.4734	57.5307
Tin	6	2.8355	10.7802	1.7212	0.4526	49.5143
Vanadium	92.4	36.0335	153.1473	4.48	0.362	358.4178
Zinc	20.6	6.4784	31.5216	2.9918	0.3182	67.8251
Cyanide	5.3667	0.6351	6.4374	1.6757	0.1148	7.027

SAMPLE ID SAMPLE DATE	Lognormal Distribution W-Value	Quantile	True/False	Normal Distribution W-Value	Quantile	True/False	Sample Count
TOTAL METALS (ug/l)							
Antimony	0.749985615	0.767	FALSE	0.749985615	0.767	FALSE	3
Arsenic	0.900208798	0.767	TRUE	0.940959533	0.767	TRUE	3
Barium	0.829281555	0.767	TRUE	0.825209502	0.767	TRUE	3
Beryllium	0.961412365	0.767	TRUE	0.826288655	0.767	TRUE	3
Cadmium	0.984139641	0.767	TRUE	0.996168949	0.767	TRUE	3
Chromium	0.807032729	0.767	TRUE	0.829597849	0.767	TRUE	3
Cobalt	0.971570388	0.767	TRUE	0.979573048	0.767	TRUE	3
Copper	0.823710456	0.767	TRUE	0.858890321	0.767	TRUE	3
Lead	0.749985615	0.767	FALSE	0.749985615	0.767	FALSE	3
Nickel	0.770254036	0.767	TRUE	0.763139137	0.767	FALSE	3
Tin	0.95423291	0.767	TRUE	0.906699027	0.767	TRUE	3
Vanadium	0.773000748	0.767	TRUE	0.766617177	0.767	FALSE	3
Zinc	0.999972115	0.767	TRUE	0.991224733	0.767	TRUE	3
Cyanide	0.749985615	0.767	FALSE	0.749985615	0.767	FALSE	3

SURFACE WATER, TOTAL INORGANICS – AREA C

POSITIVE DETECTIONS IN
SURFACEWATER, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	9SW06	9SW07
SAMPLE DATE	06/29/99	06/29/99
	Phase III, Area C	
TOTAL METALS (ug/l)		
Arsenic	60.8 J	8.7 J
Barium	341	274
Beryllium	2.3	2.4
Cadmium	3.3	2.5 U
Chromium	155	103
Cobalt	145	81.6
Copper	389	368
Lead	130 J	80.9 J
Mercury	0.59	0.5
Nickel	63.4	53.5
Tin	13	11.5
Vanadium	1070	660
Zinc	425	246

POSITIVE DETECTIONS IN
SURFACEWATER, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
TOTAL METALS (ug/l)								
Arsenic	ND	ND	8.7 J	60.8 J	9SW06	2/2	34.75	34.75
Barium	ND	ND	274	341	9SW06	2/2	307.5	307.5
Beryllium	ND	ND	2.3	2.4	9SW07	2/2	2.35	2.35
Cadmium	2.5 U	2.5 U	3.3	3.3	9SW06	1/2	3.3	3.3
Chromium	ND	ND	103	155	9SW06	2/2	129	129
Cobalt	ND	ND	81.6	145	9SW06	2/2	113.3	113.3
Copper	ND	ND	368	389	9SW06	2/2	378.5	378.5
Lead	ND	ND	80.9 J	130 J	9SW06	2/2	105.45	105.45
Mercury	ND	ND	0.5	0.59	9SW06	2/2	0.545	0.545
Nickel	ND	ND	53.5	63.4	9SW06	2/2	58.45	58.45
Tin	ND	ND	11.5	13	9SW06	2/2	12.25	12.25
Vanadium	ND	ND	660	1070	9SW06	2/2	865	865
Zinc	ND	ND	246	425	9SW06	2/2	335.5	335.5

POSITIVE DETECTIONS IN
SURFACEWATER, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
TOTAL METALS (ug/l)						
Arsenic	34.75	36.8403	199.2233	3.1355	1.3748	2594.7294
Barium	307.5	47.3762	519.0108	5.7225	0.1547	473.3765
Beryllium	2.35	0.0707	2.6656	0.8542	0.0301	2.5534
Cadmium	2.275	1.4496	8.7467	0.7085	0.6864	16.9738
Chromium	129	36.7696	293.1577	4.8391	0.289	291.6663
Cobalt	113.3	44.8306	313.446	4.6893	0.4065	361.3316
Copper	378.5	14.8492	444.7942	5.9358	0.0392	421.7313
Lead	105.45	34.7189	260.4523	4.6304	0.3354	272.8703
Mercury	0.545	0.0636	0.8289	-0.6104	0.117	0.7544
Nickel	58.45	7.0004	89.7032	4.0646	0.1201	81.621
Tin	12.25	1.0607	16.9855	2.5036	0.0867	15.5768
Vanadium	865	289.9138	2159.3186	6.7338	0.3417	2279.8261
Zinc	335.5	126.5721	900.5804	5.7787	0.3866	1008.8636

W-TEST
SURFACEWATER, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Lognormal Distribution			Normal Distribution			Sample
	W-Value	Quantile	True/False	W-Value	Quantile	True/False	Count
TOTAL METALS (ug/l)							
Arsenic	0.99998082	NA	NA	0.99998082	NA	NA	2
Barium	0.99998082	NA	NA	0.99998082	NA	NA	2
Beryllium	0.99998082	NA	NA	0.99998082	NA	NA	2
Cadmium	0.99998082	NA	NA	0.99998082	NA	NA	2
Chromium	0.99998082	NA	NA	0.99998082	NA	NA	2
Cobalt	0.99998082	NA	NA	0.99998082	NA	NA	2
Copper	0.99998082	NA	NA	0.99998082	NA	NA	2
Lead	0.99998082	NA	NA	0.99998082	NA	NA	2
Mercury	0.99998082	NA	NA	0.99998082	NA	NA	2
Nickel	0.99998082	NA	NA	0.99998082	NA	NA	2
Tin	0.99998082	NA	NA	0.99998082	NA	NA	2
Vanadium	0.99998082	NA	NA	0.99998082	NA	NA	2
Zinc	0.99998082	NA	NA	0.99998082	NA	NA	2

SEDIMENT, TOTAL INORGANICS – AREA A

POSITIVE DETECTIONS IN
SEDIMENT, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	9SD02
SAMPLE DATE	06/29/99
	Phase III, Area A
TOTAL METALS (mg/kg)	
Arsenic	1.8 J
Barium	14
Beryllium	0.29 J
Chromium	21
Cobalt	6.9
Copper	63 J
Lead	12 J
Mercury	0.078 J
Nickel	6.6 J
Tin	4.3 J
Vanadium	180
Zinc	64 J

POSITIVE DETECTIONS IN
SEDIMENT, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
TOTAL METALS (mg/kg)								
Arsenic	ND	ND	1.8 J	1.8 J	9SD02	1/1	1.8	1.8
Barium	ND	ND	14	14	9SD02	1/1	14	14
Beryllium	ND	ND	0.29 J	0.29 J	9SD02	1/1	0.29	0.29
Chromium	ND	ND	21	21	9SD02	1/1	21	21
Cobalt	ND	ND	6.9	6.9	9SD02	1/1	6.9	6.9
Copper	ND	ND	63 J	63 J	9SD02	1/1	63	63
Lead	ND	ND	12 J	12 J	9SD02	1/1	12	12
Mercury	ND	ND	0.078 J	0.078 J	9SD02	1/1	0.078	0.078
Nickel	ND	ND	6.6 J	6.6 J	9SD02	1/1	6.6	6.6
Tin	ND	ND	4.3 J	4.3 J	9SD02	1/1	4.3	4.3
Vanadium	ND	ND	180	180	9SD02	1/1	180	180
Zinc	ND	ND	64 J	64 J	9SD02	1/1	64	64

POSITIVE DETECTIONS IN
SEDIMENT, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
TOTAL METALS (mg/kg)						
Arsenic	1.8	ND	ND	0.5878	ND	ND
Barium	14	ND	ND	2.6391	ND	ND
Beryllium	0.29	ND	ND	-1.2379	ND	ND
Chromium	21	ND	ND	3.0445	ND	ND
Cobalt	6.9	ND	ND	1.9315	ND	ND
Copper	63	ND	ND	4.1431	ND	ND
Lead	12	ND	ND	2.4849	ND	ND
Mercury	0.078	ND	ND	-2.551	ND	ND
Nickel	6.6	ND	ND	1.8871	ND	ND
Tin	4.3	ND	ND	1.4586	ND	ND
Vanadium	180	ND	ND	5.193	ND	ND
Zinc	64	ND	ND	4.1589	ND	ND

W-TEST
SEDIMENT, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Lognormal Distribution W-Value	Quantile	True/False	Normal Distribution W-Value	Quantile	True/False	Sample Count
TOTAL METALS (mg/kg)							
Arsenic	ND	ND	ND	ND	ND	ND	1
Barium	ND	ND	ND	ND	ND	ND	1
Beryllium	ND	ND	ND	ND	ND	ND	1
Chromium	ND	ND	ND	ND	ND	ND	1
Cobalt	ND	ND	ND	ND	ND	ND	1
Copper	ND	ND	ND	ND	ND	ND	1
Lead	ND	ND	ND	ND	ND	ND	1
Mercury	ND	ND	ND	ND	ND	ND	1
Nickel	ND	ND	ND	ND	ND	ND	1
Tin	ND	ND	ND	ND	ND	ND	1
Vanadium	ND	ND	ND	ND	ND	ND	1
Zinc	ND	ND	ND	ND	ND	ND	1

SEDIMENT, TOTAL INORGANICS – AREA B

POSITIVE DETECTIONS IN
SEDIMENT, INORGANICS
SWMU 09 TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	9SD01	9SD03	9SD04
SAMPLE DATE	06/29/99	06/29/99	06/29/99
TOTAL METALS (mg/kg)			
Antimony	0.68 R	0.51 R	0.59 R
Arsenic	1 J	1.2 J	1.3 J
Barium	14	15	20
Beryllium	0.15 J	0.12 J	0.16 J
Cadmium	0.13 U	0.14 J	0.12 J
Chromium	23	28	26
Cobalt	7.9	8.3	12
Copper	98 J	83 J	120 J
Lead	5.4 J	47 J	24 J
Mercury	0.085 J	0.084 J	0.1 J
Nickel	7.7 J	7.2 J	9.8
Sulfide	62 U	210	250
Tin	4.7	3.6 J	4.3 J
Vanadium	160	130	180
Zinc	49 J	49 J	63 J

POSITIVE DETECTIONS IN
SEDIMENT, INORGANICS
SWMU 09 TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
TOTAL METALS (mg/kg)								
Antimony	0	0	0	0		0/0	#DIV/0!	#NUM!
Arsenic	0	0	1 J	1.3 J	9SD04	3/3	1.1667	1.2
Barium	0	0	14	20	9SD04	3/3	16.3333	15
Beryllium	0	0	0.12 J	0.16 J	9SD04	3/3	0.1433	0.15
Cadmium	0.13 U	0.13 U	0.12 J	0.14 J	9SD03	2/3	0.13	0.13
Chromium	0	0	23	28	9SD03	3/3	25.6667	26
Cobalt	0	0	7.9	12	9SD04	3/3	9.4	8.3
Copper	0	0	83 J	120 J	9SD04	3/3	100.3333	98
Lead	0	0	5.4 J	47 J	9SD03	3/3	25.4667	24
Mercury	0	0	0.084 J	0.1 J	9SD04	3/3	0.0897	0.085
Nickel	0	0	7.2 J	9.8	9SD04	3/3	8.2333	7.7
Sulfide	62 U	62 U	210	250	9SD04	2/3	230	230
Tin	0	0	3.6 J	4.7	9SD01	3/3	4.2	4.3
Vanadium	0	0	130	180	9SD04	3/3	156.6667	160
Zinc	0	0	49 J	63 J	9SD04	3/3	53.6667	49

POSITIVE DETECTIONS IN
SEDIMENT, INORGANICS
SWMU 09 TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
TOTAL METALS (mg/kg)						
Antimony	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Arsenic	1.1667	0.1528	1.4243	0.1482	0.1345	1.601
Barium	16.3333	3.2146	21.7527	2.7809	0.1892	25.524
Beryllium	0.1433	0.0208	0.1784	-1.95	0.151	0.2046
Cadmium	0.1083	0.0388	0.1737	-2.2732	0.4059	0.7213
Chromium	25.6667	2.5166	29.9093	3.2419	0.0993	31.1846
Cobalt	9.4	2.2605	13.2109	2.2227	0.2284	18.4009
Copper	100.3333	18.61	131.7071	4.5971	0.1846	155.1265
Lead	25.4667	20.8387	60.5977	2.9049	1.1074	12058431.56
Mercury	0.0897	0.009	0.1049	-2.4149	0.0974	0.1085
Nickel	8.2333	1.3796	10.5591	2.0992	0.1621	12.0615
Sulfide	163.6667	116.6205	360.272	4.7675	1.1582	147894724.5
Tin	4.2	0.5568	5.1387	1.429	0.1358	5.7813
Vanadium	156.6667	25.1661	199.0931	5.0452	0.1648	231.0767
Zinc	53.6667	8.0829	67.2933	3.9756	0.1451	75.5049

SAMPLE ID SAMPLE DATE	Lognormal Distribution W-Value	Quantile	True/False	Normal Distribution W-Value	Quantile	True/False	Sample Count
TOTAL METALS (mg/kg)							
Arsenic	0.951766984	0.767	TRUE	0.964267219	0.767	TRUE	3
Barium	0.888626407	0.767	TRUE	0.870951037	0.767	TRUE	3
Beryllium	0.907985454	0.767	TRUE	0.923059218	0.767	TRUE	3
Cadmium	0.893421061	0.767	TRUE	0.93230256	0.767	TRUE	3
Chromium	0.980124978	0.767	TRUE	0.986823178	0.767	TRUE	3
Cobalt	0.837217076	0.767	TRUE	0.822391271	0.767	TRUE	3
Copper	0.996742118	0.767	TRUE	0.988190863	0.767	TRUE	3
Lead	0.954342257	0.767	TRUE	0.996265702	0.767	TRUE	3
Mercury	0.800641466	0.767	TRUE	0.796665218	0.767	TRUE	3
Nickel	0.90397524	0.767	TRUE	0.887898907	0.767	TRUE	3
Sulfide	0.812153914	0.767	TRUE	0.881597512	0.767	TRUE	3
Tin	0.964377599	0.767	TRUE	0.975787736	0.767	TRUE	3
Vanadium	0.975196704	0.767	TRUE	0.986823178	0.767	TRUE	3
Zinc	0.749985615	0.767	FALSE	0.749985615	0.767	FALSE	3

SEDIMENT, TOTAL INORGANICS – AREA C

POSITIVE DETECTIONS IN
SEDIMENT, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID	9SD06	9SD07
SAMPLE DATE	06/29/99	06/29/99
	Phase III, Area C	
TOTAL METALS (mg/kg)		
Arsenic	4.6 J	2.3 J
Barium	80	29
Beryllium	0.097 J	0.076 J
Chromium	30	9.1
Cobalt	22	7.6
Copper	49 J	28 J
Lead	22 J	8.1 J
Mercury	0.049 J	0.015 J
Nickel	7 J	4.4 J
Selenium	0.68 J	0.39 UJ
Sulfide	290	57 U
Tin	6 J	3.5 J
Vanadium	180	66
Zinc	52 J	20 U

POSITIVE DETECTIONS IN
SEDIMENT, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
TOTAL METALS (mg/kg)								
Arsenic	ND	ND	2.3 J	4.6 J	9SD06	2/2	3.45	3.45
Barium	ND	ND	29	80	9SD06	2/2	54.5	54.5
Beryllium	ND	ND	0.076 J	0.097 J	9SD06	2/2	0.0865	0.0865
Chromium	ND	ND	9.1	30	9SD06	2/2	19.55	19.55
Cobalt	ND	ND	7.6	22	9SD06	2/2	14.8	14.8
Copper	ND	ND	28 J	49 J	9SD06	2/2	38.5	38.5
Lead	ND	ND	8.1 J	22 J	9SD06	2/2	15.05	15.05
Mercury	ND	ND	0.015 J	0.049 J	9SD06	2/2	0.032	0.032
Nickel	ND	ND	4.4 J	7 J	9SD06	2/2	5.7	5.7
Selenium	0.39 UJ	0.39 UJ	0.68 J	0.68 J	9SD06	1/2	0.68	0.68
Sulfide	57 U	57 U	290	290	9SD06	1/2	290	290
Tin	ND	ND	3.5 J	6 J	9SD06	2/2	4.75	4.75
Vanadium	ND	ND	66	180	9SD06	2/2	123	123
Zinc	20 U	20 U	52 J	52 J	9SD06	1/2	52	52

POSITIVE DETECTIONS IN
SEDIMENT, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

SAMPLE ID SAMPLE DATE	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
TOTAL METALS (mg/kg)						
Arsenic	3.45	1.6263	10.7106	1.1795	0.4901	14.1169
Barium	54.5	36.0624	215.5004	3.8747	0.7175	448.1949
Beryllium	0.0865	0.0148	0.1526	-2.455	0.1725	0.1401
Chromium	19.55	14.7785	85.5285	2.8047	0.8435	239.8638
Cobalt	14.8	10.1823	60.2588	2.5596	0.7516	135.4972
Copper	38.5	14.8492	104.7942	3.612	0.3957	118.9216
Lead	15.05	9.8288	58.9306	2.5915	0.7065	119.5753
Mercury	0.032	0.024	0.1391	-3.6078	0.8371	0.3847
Nickel	5.7	1.8385	13.908	1.7138	0.3283	14.4474
Selenium	0.4375	0.3429	1.9684	-1.0102	0.8832	6.102
Sulfide	159.25	184.9084	984.7725	4.5099	1.6405	31789.6208
Tin	4.75	1.7678	12.6423	1.5223	0.3811	14.0545
Vanadium	123	80.6102	482.8838	4.6913	0.7094	986.1162
Zinc	31	29.6985	163.5888	3.1269	1.1658	1110.3103

W-TEST
SEDIMENT, INORGANICS
SWMU 09 (TANKS 212-217)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Lognormal Distribution W-Value	Quantile	True/False	Normal Distribution W-Value	Quantile	True/False	Sample Count
TOTAL METALS (mg/kg)							
Arsenic	0.99998082	NA	NA	0.99998082	NA	NA	2
Barium	0.99998082	NA	NA	0.99998082	NA	NA	2
Beryllium	0.99998082	NA	NA	0.99998082	NA	NA	2
Chromium	0.99998082	NA	NA	0.99998082	NA	NA	2
Cobalt	0.99998082	NA	NA	0.99998082	NA	NA	2
Copper	0.99998082	NA	NA	0.99998082	NA	NA	2
Lead	0.99998082	NA	NA	0.99998082	NA	NA	2
Mercury	0.99998082	NA	NA	0.99998082	NA	NA	2
Nickel	0.99998082	NA	NA	0.99998082	NA	NA	2
Selenium	0.99998082	NA	NA	0.99998082	NA	NA	2
Sulfide	0.99998082	NA	NA	0.99998082	NA	NA	2
Tin	0.99998082	NA	NA	0.99998082	NA	NA	2
Vanadium	0.99998082	NA	NA	0.99998082	NA	NA	2
Zinc	0.99998082	NA	NA	0.99998082	NA	NA	2

APPENDIX L
HUMAN HEALTH RISK ASSESSMENT CALCULATIONS

AREA A

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
INCIDENTAL INGESTION OF GROUNDWATER IN BENEFICIAL USE SCENARIO - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cw*IR*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Adult	Young Child	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
IR	Ingestion Rate (L/d)	0.05	0.05	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	30	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	

				Adult						Young Child					
				Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Toluene	4.1	NA	0.2	1.8E-04	--	--	4.2E-04	2.1E-03	3.0%	1.7E-04	--	--	1.9E-03	9.7E-03	3.0%
2-methylnaphthalene	0.023	NA	0.02	1.0E-06	--	--	2.3E-06	1.2E-04	0.2%	9.4E-07	--	--	1.1E-05	5.5E-04	0.2%
Acetophenone	0.001	NA	0.1	4.4E-08	--	--	1.0E-07	1.0E-06	0.0%	4.1E-08	--	--	4.7E-07	4.7E-06	0.0%
Benzene	1.6	0.029	0.003	7.0E-05	2.0E-06	59.0%	1.6E-04	5.4E-02	76.9%	6.5E-05	1.9E-06	59.0%	7.6E-04	2.5E-01	76.9%
Ethylbenzene	0.16	NA	0.1	7.0E-06	--	--	1.6E-05	1.6E-04	0.2%	6.5E-06	--	--	7.6E-05	7.6E-04	0.2%
Methylene Chloride	0.007	0.0075	0.06	3.1E-07	2.3E-09	0.1%	7.1E-07	1.2E-05	0.0%	2.8E-07	2.1E-09	0.1%	3.3E-06	5.5E-05	0.0%
Naphthalene	0.026	NA	0.02	1.1E-06	--	--	2.6E-06	1.3E-04	0.2%	1.1E-06	--	--	1.2E-05	6.2E-04	0.2%
Bis(2-ethylhexyl)phthalate	0.005	0.014	0.02	2.2E-07	3.1E-09	0.1%	5.1E-07	2.5E-05	0.0%	2.0E-07	2.8E-09	0.1%	2.4E-06	1.2E-04	0.0%
Arsenic	0.02139	1.5	0.0003	9.3E-07	1.4E-06	40.8%	2.2E-06	7.3E-03	10.3%	8.7E-07	1.3E-06	40.8%	1.0E-05	3.4E-02	10.3%
Chromium	0.193	NA	0.003	8.4E-06	--	--	2.0E-05	6.5E-03	9.3%	7.9E-06	--	--	9.2E-05	3.1E-02	9.3%
				Total ILCR:	3.4E-06	100.0%	HI:	7.1E-02	100.0%	Total ILCR:	3.2E-06	100.0%	HI:	3.3E-01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
DERMAL CONTACT WITH GROUNDWATER IN BENEFICIAL USE SCENARIO - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cw*CF*Kp*SA*EF*ED*ET)/(BW*AT)

ILCR = CDI*CSFo Adj CSF Adj = CSF/AD
HQ = CDI/RfDo Adj RfD Adj = RfD*AD

Parameter	Description	Adult	Young Child	
DAD	Dermally absorbed dose (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
SA	Skin surface area available for contact (cm2)	5,800	2,006	
EF	Exposure frequency (d/yr)	52	52	
ED	Exposure duration (yrs)	30	6	
ET	Exposure time (hrs/day)	1	1	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
CF	Conversion factor (L/cm3)	1.00E-03	1.00E-03	
Kp	Dermal permeability coefficient (cm/hour)	CS	CS	
AD	Adjustment for Absorbed Dose	CS	CS	

					Adult						Young Child					
					Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Toluene	4.1	0.045	NA	0.2	9.3E-04	--	--	2.2E-03	1.1E-02	2.9%	3.0E-04	--	--	3.5E-03	1.8E-02	2.9%
2-methylnaphthalene	0.023	0.1423	NA	0.01	1.7E-05	--	--	3.9E-05	3.9E-03	1.0%	5.3E-06	--	--	6.2E-05	6.2E-03	1.0%
Acetophenone	0.001	0.0046653	NA	0.1	2.4E-08	--	--	5.5E-08	5.5E-07	0.0%	7.6E-09	--	--	8.9E-08	8.9E-07	0.0%
Benzene	1.6	0.021	0.029	0.003	1.7E-04	4.9E-06	90.2%	4.0E-04	1.3E-01	34.7%	5.5E-05	1.6E-06	90.2%	6.4E-04	2.1E-01	34.7%
Ethylbenzene	0.16	0.074	NA	0.092	6.0E-05	--	--	1.4E-04	1.5E-03	0.4%	1.9E-05	--	--	2.3E-04	2.5E-03	0.4%
Methylene Chloride	0.007	0.0045	0.0075	0.06	1.6E-07	1.2E-09	0.0%	3.7E-07	6.2E-06	0.0%	5.1E-08	3.9E-10	0.0%	6.0E-07	1.0E-05	0.0%
Naphthalene	0.026	0.069	NA	0.01	9.1E-06	--	--	2.1E-05	2.1E-03	0.6%	2.9E-06	--	--	3.4E-05	3.4E-03	0.6%
Bis(2-ethylhexyl)phthalate	0.005	0.033	0.02545455	0.011	8.3E-07	2.1E-08	0.4%	1.9E-06	1.8E-04	0.0%	2.7E-07	6.9E-09	0.4%	3.1E-06	2.9E-04	0.0%
Arsenic	0.02139	0.003	1.57894737	0.000285	3.2E-07	5.1E-07	9.4%	7.6E-07	2.7E-03	0.7%	1.0E-07	1.7E-07	9.4%	1.2E-06	4.3E-03	0.7%
Chromium	0.193	0.003	NA	0.00003	2.9E-06	--	--	6.8E-06	2.3E-01	59.8%	9.5E-07	--	--	1.1E-05	3.7E-01	59.8%
					Total ILCR:	5.5E-06	100.0%	HI:	3.8E-01	100.0%	Total ILCR:	1.8E-06	100.0%	HI:	6.2E-01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
INCIDENTAL INGESTION OF SURFACE WATER - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cw*IR*ET*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Adult	Young Child	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
IR	Ingestion Rate (L/hour)	0.05	0.05	
ET	Exposure Time (hours/day)	1	1	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	30	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	

				Adult						Young Child					
				Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	0.0383	1.5	0.0003	1.7E-06	2.5E-06	100.0%	3.9E-06	1.3E-02	91.0%	1.6E-06	2.3E-06	100.0%	1.8E-05	6.1E-02	91.0%
Vanadium	0.0885	NA	0.007	3.9E-06	--	--	9.0E-06	1.3E-03	9.0%	3.6E-06	--	--	4.2E-05	6.0E-03	9.0%
				Total ILCR:	2.5E-06	100.0%	HI:	1.4E-02	100.0%	Total ILCR:	2.3E-06	100.0%	HI:	6.7E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
DERMAL CONTACT WITH SURFACE WATER - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cw*CF*Kp*SA*EF*ED*ET)/(BW*AT)

ILCR = CDI*CSFo Adj CSF Adj = CSF/AD
HQ = CDI/RfDo Adj RfD Adj = RfD*AD

Parameter	Description	Adult	Young Child	
DAD	Dermally absorbed dose (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
SA	Skin surface area available for contact (cm2)	5,800	2,006	
EF	Exposure frequency (d/yr)	52	52	
ED	Exposure duration (yrs)	30	6	
ET	Exposure time (hrs/day)	1	1	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
CF	Conversion factor (L/cm3)	1.00E-03	1.00E-03	
Kp	Dermal permeability coefficient (cm/hour)	CS	CS	
AD	Adjustment for Absorbed Dose	CS	CS	

					Adult						Young Child					
					Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Arsenic	0.0383	3.0E-03	1.58E+00	2.85E-04	5.8E-07	9.2E-07	100.0%	1.4E-06	4.8E-03	17.5%	1.9E-07	3.0E-07	100.0%	2.2E-06	7.7E-03	17.5%
Vanadium	0.0885	3.0E-03	NA	1.40E-04	1.3E-06	--	--	3.1E-06	2.2E-02	82.5%	4.3E-07	--	--	5.1E-06	3.6E-02	82.5%
					Total ILCR:	9.2E-07	100.0%	HI:	2.7E-02	100.0%	Total ILCR:	3.0E-07	100.0%	HI:	4.4E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
INCIDENTAL INGESTION OF SEDIMENT - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cs*IR*CF*FI*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Adult	Young Child	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
IR	Ingestion Rate (mg/d)	100	200	
CF	Conversion factor (kg/mg)	1.00E-06	1.00E-06	
FI	Fraction of soil ingested from site	0.5	0.5	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	30	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	

				Adult						Young Child					
				Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.8	1.5	0.0003	7.9E-08	1.2E-07	100.0%	1.8E-07	6.1E-04	100.0%	1.5E-07	2.2E-07	100.0%	1.7E-06	5.7E-03	100.0%
				Total ILCR:	1.2E-07	100.0%	HI:	6.1E-04	100.0%	Total ILCR:	2.2E-07	100.0%	HI:	5.7E-03	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
DERMAL CONTACT WITH SEDIMENT - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cs*CF*AF*ABS*SA*EF*ED)/(BW*AT)
ILCR = CDI*CSFd
HQ = CDI/RfDd

Parameter	Description	Adult	Young Child	
DAD	Dermally absorbed dose (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
CF	Conversion factor (kg/mg)	1.00E-06	1.00E-06	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
SA	Skin surface area available for contact (cm2)	5,800	2,006	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	30	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	

					Adult						Young Child					
					Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.8	0.032	1.57894737	2.85E-04	2.9E-07	4.6E-07	100.0%	6.8E-07	2.4E-03	100.0%	9.4E-08	1.5E-07	100.0%	1.1E-06	3.9E-03	100.0%
					Total ILCR:	4.6E-07	100.0%	HI:	2.4E-03	100.0%	Total ILCR:	1.5E-07	100.0%	HI:	3.9E-03	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT ON-SITE WORKERS - CURRENT SCENARIO
INCIDENTAL INGESTION OF SURFACE WATER - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cw*IR*ET*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	On-site Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cw	Concentration of chemical in water (mg/L)	CS	
IR	Ingestion Rate (L/hour)	0.05	
ET	Exposure Time (hours/day)	1	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	30	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	

				Adult					
				Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	0.0383	1.5	0.0003	1.7E-06	2.5E-06	100.0%	3.9E-06	1.3E-02	91.0%
Vanadium	0.0885	NA	0.007	3.9E-06	--	--	9.0E-06	1.3E-03	9.0%
				Total ILCR:	2.5E-06	100.0%	HI:	1.4E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT ON-SITE WORKERS - CURRENT SCENARIO
DERMAL CONTACT WITH SURFACE WATER - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cw*CF*Kp*SA*EF*ED*ET)/(BW*AT)

ILCR = CDI*CSFo Adj CSF Adj = CSF/AD
HQ = CDI/RfDo Adj RfD Adj = RfD*AD

Parameter	Description	On-site Worker	
DAD	Dermally absorbed dose (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
SA	Skin surface area available for contact (cm2)	4,050	
EF	Exposure frequency (d/yr)	52	
ED	Exposure duration (yrs)	30	
ET	Exposure time (hrs/day)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	
Cw	Concentration of chemical in water (mg/L)	CS	
CF	Conversion factor (L/cm3)	1.00E-03	
Kp	Dermal permeability coefficient (cm/hour)	CS	
AD	Adjustment for Absorbed Dose	CS	

					Adult					
					Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Arsenic	0.0383	0.003	1.57894737	0.000285	4.1E-07	6.4E-07	100.0%	9.5E-07	3.3E-03	17.5%
Vanadium	0.0885	0.003	NA	0.00014	9.4E-07	--	--	2.2E-06	1.6E-02	82.5%
					Total ILCR:	6.4E-07	100.0%	HI:	1.9E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT ON-SITE WORKERS - CURRENT SCENARIO
INCIDENTAL INGESTION OF SEDIMENT - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cs*IR*CF*FI*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	On-site Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in sediment (mg/kg)	CS	
IR	Ingestion Rate (mg/d)	100	
CF	Conversion factor (kg/mg)	1.00E-06	
FI	Fraction of sediment ingested from site	0.5	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	30	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	

Parameter	Cs (mg/kg)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	Carcinogens			Noncarcinogens		
				CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.8	1.5	0.0003	7.9E-08	1.2E-07	100.0%	1.8E-07	6.1E-04	100.0%
				Total ILCR:	1.2E-07	100.0%	HI:	6.1E-04	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
TEC - 2,3,7,8-TCDD Toxic Equivalent Concentration

ADULT ON-SITE WORKERS - CURRENT SCENARIO
DERMAL CONTACT WITH SEDIMENT - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cs*CF*AF*ABS*A*EF*ED)/(BW*AT)
ILCR = CDI*CSFd
HQ = CDI/RfDd

Parameter	Description	On-site Worker	
DAD	Dermally absorbed dose (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in sediment (mg/kg)	CS	
CF	Conversion factor (kg/mg)	1.00E-06	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
A	Skin surface area available for contact (cm2)	4,050	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	30	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	

					Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.8	0.032	1.57894737	0.000285	2.0E-07	3.2E-07	100.0%	4.7E-07	1.7E-03	100.0%
					Total ILCR:	3.2E-07	100.0%	HI:	1.7E-03	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
TEC - 2,3,7,8-TCDD Toxic Equivalent Concentration

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
INCIDENTAL INGESTION OF SUBSURFACE SOIL - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cs*IR*CF*FI*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Construction Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	
IR	Ingestion Rate (mg/d)	480	
CF	Conversion factor (kg/mg)	1.00E-06	
FI	Fraction of soil ingested from site	1	
EF	Exposure Frequency (d/yr)	180	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	

				Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.26	1.5	0.0003	6.1E-08	9.1E-08	100.0%	4.3E-06	1.4E-02	42.9%
Chromium	16.76	NA	0.003	8.1E-07	--	--	5.7E-05	1.9E-02	57.1%
				Total ILCR:	9.1E-08	100.0%	Total HI:	3.3E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
DERMAL CONTACT WITH SUBSURFACE SOIL - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cs*CF*AF*ABS*SA*EF*ED)/(BW*AT)
ILCR = CDI*CSFd
HQ = CDI/RfDd

Parameter	Description	Construction Worker	
DAD	Dermally absorbed dose (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	
CF	Conversion factor (kg/mg)	1.00E-06	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
SA	Skin surface area available for contact (cm2)	3,160	
EF	Exposure Frequency (d/yr)	180	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	

					Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.26	0.032	1.57894737	0.000285	1.3E-08	2.0E-08	100.0%	9.0E-07	3.1E-03	2.5%
Chromium	16.76	0.01	NA	0.00003	5.3E-08	--	--	3.7E-06	1.2E-01	97.5%
					Total ILCR:	2.0E-08	100.0%	Total HI:	1.3E-01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM EXCAVATED SUBSURFACE SOIL - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Ca*RR*ET*EF*ED)/(BW*AT)
Where: Ca = Cs * (1/PEF)

ILCR = CDI*CSFi
HQ = CDI/RfDi

Parameter	Description	Construction Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFi	Inhalation cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDi	Inhalation reference dose (mg/kg/d)	CS	
Ca	Concentration of chemical in air as fugitive dusts (mg/m3)	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	
PEF	Particulate emission factor (m3/kg)	1.32E+09	
RR	Respiration rate (m3/hr)	1.25	
ET	Exposure time (hrs/d)	8	
EF	Exposure Frequency (d/yr)	180	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	

					Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	Ca (mg/m3)	CSFi 1/(mg/kg/d)	RfDi (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.26	9.5455E-10	15.1	NA	9.6E-13	1.5E-11	2.7%	6.7E-11	--	--
Chromium	16.76	1.2697E-08	41	0.00003	1.3E-11	5.2E-10	97.3%	8.9E-10	3.0E-05	100.0%
					Total ILCR:	5.4E-10	100.0%	Total HI:	3.0E-05	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
INCIDENTAL INGESTION OF GROUNDWATER - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cw*IR*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Construction Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cw	Concentration of chemical in water (mg/L)	CS	
IR	Ingestion Rate (L/d)	0.05	
EF	Exposure Frequency (d/yr)	180	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	

				Adult					
				Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Toluene	4.1	NA	0.2	2.1E-05	--	--	1.4E-03	7.2E-03	3.0%
2-methylnaphthalene	0.023	NA	0.02	1.2E-07	--	--	8.1E-06	4.1E-04	0.2%
Acetophenone	0.001	NA	0.1	5.0E-09	--	--	3.5E-07	3.5E-06	0.0%
Benzene	1.6	0.029	0.003	8.1E-06	2.3E-07	59.0%	5.6E-04	1.9E-01	76.9%
Ethylbenzene	0.16	NA	0.1	8.1E-07	--	--	5.6E-05	5.6E-04	0.2%
Methylene Chloride	0.007	0.0075	0.06	3.5E-08	2.6E-10	0.1%	2.5E-06	4.1E-05	0.0%
Naphthalene	0.026	NA	0.02	1.3E-07	--	--	9.2E-06	4.6E-04	0.2%
Bis(2-ethylhexyl)phthalate	0.005	0.014	0.02	2.5E-08	3.5E-10	0.1%	1.8E-06	8.8E-05	0.0%
Arsenic	0.02139	1.5	0.0003	1.1E-07	1.6E-07	40.8%	7.5E-06	2.5E-02	10.3%
Chromium	0.193	NA	0.003	9.7E-07	--	--	6.8E-05	2.3E-02	9.3%
				Total ILCR:	4.0E-07	100.0%	HI:	2.4E-01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
Inorganics reported are total (soluble and insoluble).

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
DERMAL CONTACT WITH GROUNDWATER - SWMU 9, AREA A
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cw*CF*Kp*SA*EF*ED*ET)/(BW*AT)

ILCR = CDI*CSFo Adj CSF Adj = CSF/AD
HQ = CDI/RfDo Adj RfD Adj = RfD*AD

Parameter	Description	Construction Worker	
DAD	Dermally absorbed dose (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
SA	Skin surface area available for contact (cm2)	3,100	
EF	Exposure frequency (d/yr)	180	
ED	Exposure duration (yrs)	1	
ET	Exposure time (hrs/day)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	
Cw	Concentration of chemical in water (mg/L)	CS	
CF	Conversion factor (L/cm3)	1.00E-03	
Kp	Dermal permeability coefficient (cm/hour)	CS	
AD	Adjustment for Absorbed Dose	CS	

					Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Toluene	4.1	0.045	NA	0.2	5.8E-05	--	--	4.0E-03	2.0E-02	2.9%
2-methylnaphthalene	0.023	0.1423	NA	0.01	1.0E-06	--	--	7.1E-05	7.1E-03	1.0%
Acetophenone	0.001	0.0046653	NA	0.1	1.5E-09	--	--	1.0E-07	1.0E-06	0.0%
Benzene	1.6	0.021	0.029	0.003	1.0E-05	3.0E-07	90.2%	7.3E-04	2.4E-01	34.7%
Ethylbenzene	0.16	0.074	NA	0.092	3.7E-06	--	--	2.6E-04	2.8E-03	0.4%
Methylene Chloride	0.007	0.0045	0.0075	0.06	9.8E-09	7.4E-11	0.0%	6.9E-07	1.1E-05	0.0%
Naphthalene	0.026	0.069	NA	0.01	5.6E-07	--	--	3.9E-05	3.9E-03	0.6%
Bis(2-ethylhexyl)phthalate	0.005	0.033	0.0254545	0.011	5.1E-08	1.3E-09	0.4%	3.6E-06	3.3E-04	0.0%
Arsenic	0.02139	0.003	1.5789474	0.000285	2.0E-08	3.2E-08	9.4%	1.4E-06	4.9E-03	0.7%
Chromium	0.193	0.003	NA	0.00003	1.8E-07	--	--	1.3E-05	4.2E-01	59.8%
					Total ILCR:	3.4E-07	100.0%	HI:	7.1E-01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
Inorganics reported are total (soluble and insoluble).

AREA B

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
INCIDENTAL INGESTION OF GROUNDWATER IN BENEFICIAL USE SCENARIO - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cw*IR*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Adult	Young Child	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
IR	Ingestion Rate (L/d)	0.05	0.05	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	30	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	

				Adult						Young Child					
				Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Benzene	0.14	0.029	0.003	6.1E-06	1.8E-07	6.0%	1.4E-05	4.7E-03	21.9%	5.7E-06	1.7E-07	6.0%	6.6E-05	2.2E-02	21.9%
Bromodichloromethane	0.46	0.062	0.02	2.0E-05	1.2E-06	42.2%	4.7E-05	2.3E-03	10.8%	1.9E-05	1.2E-06	42.2%	2.2E-04	1.1E-02	10.8%
Bromoform	0.36	0.0079	0.02	1.6E-05	1.2E-07	4.2%	3.7E-05	1.8E-03	8.4%	1.5E-05	1.2E-07	4.2%	1.7E-04	8.5E-03	8.4%
Chloroform	1.1	0.0061	0.01	4.8E-05	2.9E-07	9.9%	1.1E-04	1.1E-02	51.6%	4.5E-05	2.7E-07	9.9%	5.2E-04	5.2E-02	51.6%
Dibromochloromethane	0.3	0.084	0.02	1.3E-05	1.1E-06	37.3%	3.1E-05	1.5E-03	7.0%	1.2E-05	1.0E-06	37.3%	1.4E-04	7.1E-03	7.0%
Methylene Chloride	0.011	0.0075	0.06	4.8E-07	3.6E-09	0.1%	1.1E-06	1.9E-05	0.1%	4.5E-07	3.4E-09	0.1%	5.2E-06	8.7E-05	0.1%
Bis(2-ethylhexyl)phthalate	0.007	0.014	0.02	3.1E-07	4.3E-09	0.1%	7.1E-07	3.6E-05	0.2%	2.8E-07	4.0E-09	0.1%	3.3E-06	1.7E-04	0.2%
				Total ILCR:	2.9E-06	100.0%	HI:	2.2E-02	100.0%	Total ILCR:	2.7E-06	100.0%	HI:	1.0E-01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
DERMAL CONTACT WITH GROUNDWATER IN BENEFICIAL USE SCENARIO - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cw*CF*Kp*SA*EF*ED*ET)/(BW*AT)

ILCR = CDI*CSFo Adj CSF Adj = CSF/AD
HQ = CDI/RfDo Adj RfD Adj = RfD*AD

Parameter	Description	Adult	Young Child	
DAD	Dermally absorbed dose (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
SA	Skin surface area available for contact (cm2)	5,800	2,006	
EF	Exposure frequency (d/yr)	52	52	
ED	Exposure duration (yrs)	30	6	
ET	Exposure time (hrs/day)	1	1	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
CF	Conversion factor (L/cm3)	1.00E-03	1.00E-03	
Kp	Dermal permeability coefficient (cm/hour)	CS	CS	
AD	Adjustment for Absorbed Dose	CS	CS	

					Adult						Young Child					
					Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Benzene	0.14	0.021	0.029	0.003	1.5E-05	4.3E-07	20.2%	3.5E-05	1.2E-02	44.2%	4.8E-06	1.4E-07	20.2%	5.6E-05	1.9E-02	44.2%
Bromodichloromethane	0.46	0.0058	0.062	0.02	1.3E-05	8.4E-07	39.2%	3.1E-05	1.6E-03	6.0%	4.4E-06	2.7E-07	39.2%	5.1E-05	2.5E-03	6.0%
Bromoform	0.36	0.0026	0.0079	0.02	4.7E-06	3.7E-08	1.8%	1.1E-05	5.5E-04	2.1%	1.5E-06	1.2E-08	1.8%	1.8E-05	8.9E-04	2.1%
Chloroform	1.1	0.0089	0.0061	0.01	5.0E-05	3.0E-07	14.1%	1.2E-04	1.2E-02	44.1%	1.6E-05	9.8E-08	14.1%	1.9E-04	1.9E-02	44.1%
Dibromochloromethane	0.3	0.0039	0.084	0.02	5.9E-06	5.0E-07	23.3%	1.4E-05	6.9E-04	2.6%	1.9E-06	1.6E-07	23.3%	2.2E-05	1.1E-03	2.6%
Methylene Chloride	0.011	0.0045	0.0075	0.06	2.5E-07	1.9E-09	0.1%	5.8E-07	9.7E-06	0.0%	8.1E-08	6.1E-10	0.1%	9.4E-07	1.6E-05	0.0%
Bis(2-ethylhexyl)phthalate	0.007	0.033	0.02545455	0.011	1.2E-06	3.0E-08	1.4%	2.7E-06	2.5E-04	0.9%	3.8E-07	9.6E-09	1.4%	4.4E-06	4.0E-04	0.9%
					Total ILCR:	2.1E-06	100.0%	HI:	2.6E-02	100.0%	Total ILCR:	6.9E-07	100.0%	HI:	4.2E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
INCIDENTAL INGESTION OF SURFACE WATER - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cw*IR*ET*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Adult	Young Child	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
IR	Ingestion Rate (L/hour)	0.05	0.05	
ET	Exposure Time (hours/day)	1	1	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	30	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	

				Adult						Young Child					
				Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Antimony	0.0165	NA	0.0004	7.2E-07	--	--	1.7E-06	4.2E-03	21.4%	6.7E-07	--	--	7.8E-06	2.0E-02	21.4%
Arsenic	0.0397	1.5	0.0003	1.7E-06	2.6E-06	100.0%	4.0E-06	1.3E-02	68.7%	1.6E-06	2.4E-06	100.0%	1.9E-05	6.3E-02	68.7%
Vanadium	0.134	NA	0.007	5.8E-06	--	--	1.4E-05	1.9E-03	9.9%	5.5E-06	--	--	6.4E-05	9.1E-03	9.9%
				Total ILCR:	2.6E-06	100.0%	HI:	2.0E-02	100.0%	Total ILCR:	2.4E-06	100.0%	HI:	9.2E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
DERMAL CONTACT WITH SURFACE WATER - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cw*CF*Kp*SA*EF*ED*ET)/(BW*AT)

ILCR = CDI*CSFo Adj CSF Adj = CSF/AD
HQ = CDI/RfDo Adj RfD Adj = RfD*AD

Parameter	Description	Adult	Young Child	
DAD	Dermally absorbed dose (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
SA	Skin surface area available for contact (cm2)	5,800	2,006	
EF	Exposure frequency (d/yr)	52	52	
ED	Exposure duration (yrs)	30	6	
ET	Exposure time (hrs/day)	1	1	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
CF	Conversion factor (L/cm3)	1.00E-03	1.00E-03	
Kp	Dermal permeability coefficient (cm/hour)	CS	CS	
AD	Adjustment for Absorbed Dose	CS	CS	

					Adult						Young Child					
					Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Antimony	0.0165	3.0E-03	NA	4.00E-05	2.5E-07	--	--	5.8E-07	1.5E-02	27.3%	8.1E-08	--	--	9.4E-07	2.4E-02	27.3%
Arsenic	0.0397	3.0E-03	1.58E+00	2.85E-04	6.0E-07	9.5E-07	100.0%	1.4E-06	4.9E-03	9.2%	1.9E-07	3.1E-07	100.0%	2.3E-06	8.0E-03	9.2%
Vanadium	0.134	3.0E-03	NA	1.40E-04	2.0E-06	--	--	4.7E-06	3.4E-02	63.4%	6.6E-07	--	--	7.7E-06	5.5E-02	63.4%
					Total ILCR:	9.5E-07	100.0%	HI:	5.3E-02	100.0%	Total ILCR:	3.1E-07	100.0%	HI:	8.6E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
INCIDENTAL INGESTION OF SEDIMENT - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cs*IR*CF*FI*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Adult	Young Child	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
IR	Ingestion Rate (mg/d)	100	200	
CF	Conversion factor (kg/mg)	1.00E-06	1.00E-06	
FI	Fraction of soil ingested from site	0.5	0.5	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	30	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	

				Adult						Young Child					
				Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.3	1.5	0.0003	5.7E-08	8.5E-08	100.0%	1.3E-07	4.4E-04	11.0%	1.1E-07	1.6E-07	100.0%	1.2E-06	4.1E-03	11.0%
Chromium	28	NA	0.003	1.2E-06	--	--	2.8E-06	9.5E-04	23.7%	2.3E-06	--	--	2.7E-05	8.9E-03	23.7%
Vanadium	180	NA	0.007	7.9E-06	--	--	1.8E-05	2.6E-03	65.3%	1.5E-05	--	--	1.7E-04	2.4E-02	65.3%
Sulfide	250	NA	NA	1.1E-05	--	--	2.5E-05	--	--	2.0E-05	--	--	2.4E-04	--	--
				Total ILCR:	8.5E-08	100.0%	HI:	4.0E-03	100.0%	Total ILCR:	1.6E-07	100.0%	HI:	3.7E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
DERMAL CONTACT WITH SEDIMENT - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cs*CF*AF*ABS*SA*EF*ED)/(BW*AT)
ILCR = CDI*CSFd
HQ = CDI/RfDd

Parameter	Description	Adult	Young Child	
DAD	Dermally absorbed dose (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
CF	Conversion factor (kg/mg)	1.00E-06	1.00E-06	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
SA	Skin surface area available for contact (cm2)	5,800	2,006	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	30	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	

					Adult						Young Child					
					Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI	DAD (mg/kg/d)	ILCR	% Contrib Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.3	0.032	1.57894737	2.85E-04	2.1E-07	3.3E-07	100.0%	4.9E-07	1.7E-03	0.7%	6.8E-08	1.1E-07	100.0%	7.9E-07	2.8E-03	0.7%
Chromium	28	0.01	NA	3.00E-05	1.4E-06	--	--	3.3E-06	1.1E-01	41.8%	4.6E-07	--	--	5.3E-06	1.8E-01	41.8%
Vanadium	180	0.01	NA	1.40E-04	9.1E-06	--	--	2.1E-05	1.5E-01	57.6%	2.9E-06	--	--	3.4E-05	2.4E-01	57.6%
Sulfide	250	NA	NA	NA	#VALUE!	--	--	#VALUE!	--	--	#VALUE!	--	--	#VALUE!	--	--
					Total ILCR:	3.3E-07	100.0%	HI:	2.6E-01	100.0%	Total ILCR:	1.1E-07	100.0%	HI:	4.3E-01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT ON-SITE WORKERS - CURRENT SCENARIO
INCIDENTAL INGESTION OF SURFACE WATER - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cw*IR*ET*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	On-site Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cw	Concentration of chemical in water (mg/L)	CS	
IR	Ingestion Rate (L/hour)	0.05	
ET	Exposure Time (hours/day)	1	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	30	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	

				Adult					
				Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Antimony	0.0165	NA	0.0004	7.2E-07	--	--	1.7E-06	4.2E-03	21.4%
Arsenic	0.0397	1.5	0.0003	1.7E-06	2.6E-06	100.0%	4.0E-06	1.3E-02	68.7%
Vanadium	0.134	NA	0.007	5.8E-06	--	--	1.4E-05	1.9E-03	9.9%
				Total ILCR:	2.6E-06	100.0%	HI:	2.0E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT ON-SITE WORKERS - CURRENT SCENARIO
DERMAL CONTACT WITH SURFACE WATER - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cw*CF*Kp*SA*EF*ED*ET)/(BW*AT)

ILCR = CDI*CSFo Adj CSF Adj = CSF/AD
HQ = CDI/RfDo Adj RfD Adj = RfD*AD

Parameter	Description	On-site Worker	
DAD	Dermally absorbed dose (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
SA	Skin surface area available for contact (cm2)	4,050	
EF	Exposure frequency (d/yr)	52	
ED	Exposure duration (yrs)	30	
ET	Exposure time (hrs/day)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	
Cw	Concentration of chemical in water (mg/L)	CS	
CF	Conversion factor (L/cm3)	1.00E-03	
Kp	Dermal permeability coefficient (cm/hour)	CS	
AD	Adjustment for Absorbed Dose	CS	

					Adult					
					Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Antimony	0.0165	0.003	NA	0.00004	1.7E-07	--	--	4.1E-07	1.0E-02	27.3%
Arsenic	0.0397	0.003	1.5789474	0.000285	4.2E-07	6.6E-07	100.0%	9.8E-07	3.4E-03	9.2%
Vanadium	0.134	0.003	NA	0.00014	1.4E-06	--	--	3.3E-06	2.4E-02	63.4%
					Total ILCR:	6.6E-07	100.0%	HI:	3.7E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT ON-SITE WORKERS - CURRENT SCENARIO
INCIDENTAL INGESTION OF SEDIMENT - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cs*IR*CF*FI*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	On-site Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in sediment (mg/kg)	CS	
IR	Ingestion Rate (mg/d)	100	
CF	Conversion factor (kg/mg)	1.00E-06	
FI	Fraction of sediment ingested from site	0.5	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	30	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	

Parameter	Cs (mg/kg)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	Carcinogens			Noncarcinogens		
				CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.3	1.5	0.0003	5.7E-08	8.5E-08	100.0%	1.3E-07	4.4E-04	11.0%
Chromium	28	NA	0.003	1.2E-06	--	--	2.8E-06	9.5E-04	23.7%
Vanadium	180	NA	0.007	7.9E-06	--	--	1.8E-05	2.6E-03	65.3%
Sulfide	250	NA	NA	1.1E-05	--	--	2.5E-05	--	--
				Total ILCR:	8.5E-08	100.0%	HI:	4.0E-03	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
TEC - 2,3,7,8-TCDD Toxic Equivalent Concentration

ADULT ON-SITE WORKERS - CURRENT SCENARIO
DERMAL CONTACT WITH SEDIMENT - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cs*CF*AF*ABS*A*EF*ED)/(BW*AT)
ILCR = CDI*CSFd
HQ = CDI/RfDd

Parameter	Description	On-site Worker	
DAD	Dermally absorbed dose (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in sediment (mg/kg)	CS	
CF	Conversion factor (kg/mg)	1.00E-06	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
A	Skin surface area available for contact (cm2)	4,050	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	30	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	

					Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Arsenic	1.3	0.032	1.5789474	0.000285	1.5E-07	2.3E-07	100.0%	3.4E-07	1.2E-03	0.7%
Chromium	28	0.01	NA	0.00003	9.9E-07	--	--	2.3E-06	7.7E-02	41.8%
Vanadium	180	0.01	NA	0.00014	6.4E-06	--	--	1.5E-05	1.1E-01	57.6%
Sulfide	250	NA	NA	NA	#VALUE!	--	--	#VALUE!	--	--
					Total ILCR:	2.3E-07	100.0%	HI:	1.8E-01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
TEC - 2,3,7,8-TCDD Toxic Equivalent Concentration

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
INCIDENTAL INGESTION OF SUBSURFACE SOIL - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cs*IR*CF*FI*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Construction Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	
IR	Ingestion Rate (mg/d)	480	
CF	Conversion factor (kg/mg)	1.00E-06	
FI	Fraction of soil ingested from site	1	
EF	Exposure Frequency (d/yr)	180	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	

				Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	2	1.5	0.0003	9.7E-08	1.4E-07	100.0%	6.8E-06	2.3E-02	100.0%
				Total ILCR:	1.4E-07	100.0%	Total HI:	2.3E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
DERMAL CONTACT WITH SUBSURFACE SOIL - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cs*CF*AF*ABS*SA*EF*ED)/(BW*AT)
ILCR = CDI*CSFd
HQ = CDI/RfDd

Parameter	Description	Construction Worker	
DAD	Dermally absorbed dose (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	
CF	Conversion factor (kg/mg)	1.00E-06	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
SA	Skin surface area available for contact (cm2)	3,160	
EF	Exposure Frequency (d/yr)	180	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	

					Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Arsenic	2	0.032	1.57894737	0.000285	2.0E-08	3.2E-08	100.0%	1.4E-06	5.0E-03	100.0%
					Total ILCR:	3.2E-08	100.0%	Total HI:	5.0E-03	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM EXCAVATED SUBSURFACE SOIL - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Ca*RR*ET*EF*ED)/(BW*AT)
Where: Ca = Cs * (1/PEF)

ILCR = CDI*CSFi
HQ = CDI/RfDi

Parameter	Description	Construction Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFi	Inhalation cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDi	Inhalation reference dose (mg/kg/d)	CS	
Ca	Concentration of chemical in air as fugitive dusts (mg/m3)	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	
PEF	Particulate emission factor (m3/kg)	1.32E+09	
RR	Respiration rate (m3/hr)	1.25	
ET	Exposure time (hrs/d)	8	
EF	Exposure Frequency (d/yr)	180	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	

					Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	Ca (mg/m3)	CSFi 1/(mg/kg/d)	RfDi (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	2	1.5152E-09	15.1	NA	1.5E-12	2.3E-11	100.0%	1.1E-10	--	--
					Total ILCR:	2.3E-11	100.0%	Total HI:	0.0E+00	0.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
INCIDENTAL INGESTION OF GROUNDWATER - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cw*IR*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Construction Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cw	Concentration of chemical in water (mg/L)	CS	
IR	Ingestion Rate (L/d)	0.05	
EF	Exposure Frequency (d/yr)	180	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	

				Adult					
				Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Benzene	0.14	0.029	0.003	7.0E-07	2.0E-08	6.0%	4.9E-05	1.6E-02	21.9%
Bromodichloromethane	0.46	0.062	0.02	2.3E-06	1.4E-07	42.2%	1.6E-04	8.1E-03	10.8%
Bromoform	0.36	0.0079	0.02	1.8E-06	1.4E-08	4.2%	1.3E-04	6.3E-03	8.4%
Chloroform	1.1	0.0061	0.01	5.5E-06	3.4E-08	9.9%	3.9E-04	3.9E-02	51.6%
Dibromochloromethane	0.3	0.084	0.02	1.5E-06	1.3E-07	37.3%	1.1E-04	5.3E-03	7.0%
Methylene Chloride	0.011	0.0075	0.06	5.5E-08	4.2E-10	0.1%	3.9E-06	6.5E-05	0.1%
Bis(2-ethylhexyl)phthalate	0.007	0.014	0.02	3.5E-08	4.9E-10	0.1%	2.5E-06	1.2E-04	0.2%
				Total ILCR:	3.4E-07	100.0%	HI:	7.5E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
Inorganics reported are total (soluble and insoluble).

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
INCIDENTAL DERMAL CONTACT WITH GROUNDWATER - SWMU 9, AREA B
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cw*CF*Kp*SA*EF*ED*ET)/(BW*AT)

ILCR = CDI*CSFo Adj CSF Adj = CSF/AD
HQ = CDI/RfDo Adj RfD Adj = RfD*AD

Parameter	Description	Construction Worker	
DAD	Dermally absorbed dose (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
SA	Skin surface area available for contact (cm2)	3,100	
EF	Exposure frequency (d/yr)	180	
ED	Exposure duration (yrs)	1	
ET	Exposure time (hrs/day)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	
Cw	Concentration of chemical in water (mg/L)	CS	
CF	Conversion factor (L/cm3)	1.00E-03	
Kp	Dermal permeability coefficient (cm/hour)	CS	
AD	Adjustment for Absorbed Dose	CS	

					Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Benzene	0.14	0.021	0.029	0.003	9.2E-07	2.7E-08	20.2%	6.4E-05	2.1E-02	44.2%
Bromodichloromethane	0.46	0.0058	0.062	0.02	8.3E-07	5.2E-08	39.2%	5.8E-05	2.9E-03	6.0%
Bromoform	0.36	0.0026	0.0079	0.02	2.9E-07	2.3E-09	1.8%	2.0E-05	1.0E-03	2.1%
Chloroform	1.1	0.0089	0.0061	0.01	3.1E-06	1.9E-08	14.1%	2.1E-04	2.1E-02	44.1%
Dibromochloromethane	0.3	0.0039	0.084	0.02	3.7E-07	3.1E-08	23.3%	2.6E-05	1.3E-03	2.6%
Methylene Chloride	0.011	0.0045	0.0075	0.06	1.5E-08	1.2E-10	0.1%	1.1E-06	1.8E-05	0.0%
Bis(2-ethylhexyl)phthalate	0.007	0.033	0.0254545	0.011	7.2E-08	1.8E-09	1.4%	5.0E-06	4.6E-04	0.9%
					Total ILCR:	1.3E-07	100.0%	HI:	4.8E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
Inorganics reported are total (soluble and insoluble).

AREA C

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
INCIDENTAL INGESTION OF GROUNDWATER IN BENEFICIAL USE SCENARIO - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cw*IR*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Adult	Young Child	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
IR	Ingestion Rate (L/d)	0.05	0.05	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	30	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	

				Adult						Young Child					
				Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
1,2-Dichloropropane	0.002	0.068	NA	8.7E-08	5.9E-09	20.4%	2.0E-07	--	--	8.1E-08	5.5E-09	20.4%	9.5E-07	--	--
Bis(2-ethylhexyl)phthalate	0.038	0.014	0.02	1.7E-06	2.3E-08	79.6%	3.9E-06	1.9E-04	100.0%	1.5E-06	2.2E-08	79.6%	1.8E-05	9.0E-04	100.0%
				Total ILCR:	2.9E-08	100.0%	HI:	1.9E-04	100.0%	Total ILCR:	2.7E-08	100.0%	HI:	9.0E-04	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
DERMAL CONTACT WITH GROUNDWATER IN BENEFICIAL USE SCENARIO - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cw*CF*Kp*SA*EF*ED*ET)/(BW*AT)

ILCR = CDI*CSFo Adj CSF Adj = CSF/AD
HQ = CDI/RfDo Adj RfD Adj = RfD*AD

Parameter	Description	Adult	Young Child	
DAD	Dermally absorbed dose (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
SA	Skin surface area available for contact (cm2)	5,800	2,006	
EF	Exposure frequency (d/yr)	52	52	
ED	Exposure duration (yrs)	30	6	
ET	Exposure time (hrs/day)	1	1	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
CF	Conversion factor (L/cm3)	1.00E-03	1.00E-03	
Kp	Dermal permeability coefficient (cm/hour)	CS	CS	
AD	Adjustment for Absorbed Dose	CS	CS	

					Adult						Young Child					
					Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
1,2-Dichloropropane	0.002	0.01	0.085	NA	1.0E-07	8.6E-09	5.1%	2.4E-07	--	--	3.3E-08	2.8E-09	5.1%	3.8E-07	--	--
Bis(2-ethylhexyl)phthalate	0.038	0.033	0.02545455	0.011	6.3E-06	1.6E-07	94.9%	1.5E-05	1.3E-03	100.0%	2.0E-06	5.2E-08	94.9%	2.4E-05	2.2E-03	100.0%
					Total ILCR:	1.7E-07	100.0%	HI:	1.3E-03	100.0%	Total ILCR:	5.5E-08	100.0%	HI:	2.2E-03	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
INCIDENTAL INGESTION OF SURFACE WATER - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cw*IR*ET*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Adult	Young Child	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
IR	Ingestion Rate (L/hour)	0.05	0.01	
ET	Exposure Time (hours/day)	1	1	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	30	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	

				Adult						Young Child					
				Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	0.0608	1.5	0.0003	2.7E-06	4.0E-06	100.0%	6.2E-06	2.1E-02	47.3%	4.9E-07	7.4E-07	100.0%	5.8E-06	1.9E-02	47.3%
Barium	0.341	NA	0.07	1.5E-05	--	--	3.5E-05	5.0E-04	1.1%	2.8E-06	--	--	3.2E-05	4.6E-04	1.1%
Cadmium	0.0033	NA	0.0005	1.4E-07	--	--	3.4E-07	6.7E-04	1.5%	2.7E-08	--	--	3.1E-07	6.3E-04	1.5%
Chromium	0.155	NA	0.003	6.8E-06	--	--	1.6E-05	5.3E-03	12.1%	1.3E-06	--	--	1.5E-05	4.9E-03	12.1%
Copper	0.389	NA	0.04	1.7E-05	--	--	4.0E-05	9.9E-04	2.3%	3.2E-06	--	--	3.7E-05	9.2E-04	2.3%
Lead	0.13	NA	NA	5.7E-06	--	--	1.3E-05	--	--	1.1E-06	--	--	1.2E-05	--	--
Vanadium	1.07	NA	0.007	4.7E-05	--	--	1.1E-04	1.6E-02	35.7%	8.7E-06	--	--	1.0E-04	1.5E-02	35.7%
				Total ILCR:	4.0E-06	100.0%	HI:	4.4E-02	100.0%	Total ILCR:	7.4E-07	100.0%	HI:	4.1E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
DERMAL CONTACT WITH SURFACE WATER - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cw*CF*Kp*SA*EF*ED*ET)/(BW*AT)

ILCR = CDI*CSFo Adj CSF Adj = CSF/AD
HQ = CDI/RfDo Adj RfD Adj = RfD*AD

Parameter	Description	Adult	Young Child	
DAD	Dermally absorbed dose (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
SA	Skin surface area available for contact (cm2)	5,800	2,006	
EF	Exposure frequency (d/yr)	52	52	
ED	Exposure duration (yrs)	30	6	
ET	Exposure time (hrs/day)	1	1	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
CF	Conversion factor (L/cm3)	1.00E-03	1.00E-03	
Kp	Dermal permeability coefficient (cm/hour)	CS	CS	
AD	Adjustment for Absorbed Dose	CS	CS	

					Adult						Young Child					
					Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Arsenic	0.0608	3.0E-03	1.58E+00	2.85E-04	9.2E-07	1.5E-06	100.0%	2.2E-06	7.6E-03	1.6%	3.0E-07	4.7E-07	100.0%	3.5E-06	1.2E-02	1.6%
Barium	0.341	3.0E-03	NA	7.00E-02	5.2E-06	--	--	1.2E-05	1.7E-04	0.0%	1.7E-06	--	--	1.9E-05	2.8E-04	0.0%
Cadmium	0.0033	3.0E-03	NA	2.50E-05	5.0E-08	--	--	1.2E-07	4.7E-03	1.0%	1.6E-08	--	--	1.9E-07	7.5E-03	1.0%
Chromium	0.155	3.0E-03	NA	3.00E-05	2.4E-06	--	--	5.5E-06	1.8E-01	39.2%	7.6E-07	--	--	8.9E-06	3.0E-01	39.2%
Copper	0.389	3.0E-03	NA	2.40E-02	5.9E-06	--	--	1.4E-05	5.7E-04	0.1%	1.9E-06	--	--	2.2E-05	9.3E-04	0.1%
Lead	0.13	3.0E-03	NA	NA	2.0E-06	--	--	4.6E-06	--	--	6.4E-07	--	--	7.4E-06	--	--
Vanadium	1.07	3.0E-03	NA	1.40E-04	1.6E-05	--	--	3.8E-05	2.7E-01	58.0%	5.2E-06	--	--	6.1E-05	4.4E-01	58.0%
					Total ILCR:	1.5E-06	100.0%	HI:	4.7E-01	100.0%	Total ILCR:	4.7E-07	100.0%	HI:	7.5E-01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
INCIDENTAL INGESTION OF SEDIMENT - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cs*IR*CF*FI*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Adult	Young Child	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
IR	Ingestion Rate (mg/d)	100	200	
CF	Conversion factor (kg/mg)	1.00E-06	1.00E-06	
FI	Fraction of soil ingested from site	0.5	0.5	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	30	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	

				Adult						Young Child					
				Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	4.6	1.5	0.0003	2.0E-07	3.0E-07	100.0%	4.7E-07	1.6E-03	30.0%	3.7E-07	5.6E-07	100.0%	4.4E-06	1.5E-02	30.0%
Chromium	30	NA	0.003	1.3E-06	--	--	3.1E-06	1.0E-03	19.6%	2.4E-06	--	--	2.8E-05	9.5E-03	19.6%
Sulfide	290	NA	NA	1.3E-05	--	--	3.0E-05	--	--	2.4E-05	--	--	2.8E-04	--	--
Vanadium	180	NA	0.007	7.9E-06	--	--	1.8E-05	2.6E-03	50.4%	1.5E-05	--	--	1.7E-04	2.4E-02	50.4%
				Total ILCR:	3.0E-07	100.0%	HI:	5.2E-03	100.0%	Total ILCR:	5.6E-07	100.0%	HI:	4.8E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT AND YOUNG CHILD (AGES 1 TO 6 YEARS) RESIDENTS - FUTURE SCENARIO
DERMAL CONTACT WITH SEDIMENT - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cs*CF*AF*ABS*SA*EF*ED)/(BW*AT)
ILCR = CDI*CSFd
HQ = CDI/RfDd

Parameter	Description	Adult	Young Child	
DAD	Dermally absorbed dose (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
CF	Conversion factor (kg/mg)	1.00E-06	1.00E-06	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
SA	Skin surface area available for contact (cm2)	5,800	2,006	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	30	6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25,550	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	2,190	

					Adult						Young Child					
					Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Arsenic	4.6	0.032	1.57894737	2.85E-04	7.4E-07	1.2E-06	100.0%	1.7E-06	6.1E-03	2.2%	2.4E-07	3.8E-07	100.0%	2.8E-06	9.8E-03	2.2%
Chromium	30	0.01	NA	3.00E-05	1.5E-06	--	--	3.5E-06	1.2E-01	42.8%	4.9E-07	--	--	5.7E-06	1.9E-01	42.8%
Sulfide	290	NA	NA	NA	#VALUE!	--	--	#VALUE!	--	--	#VALUE!	--	--	#VALUE!	--	--
Vanadium	180	0.01	NA	1.40E-04	9.1E-06	--	--	2.1E-05	1.5E-01	55.0%	2.9E-06	--	--	3.4E-05	2.4E-01	55.0%
					Total ILCR:	1.2E-06	100.0%	HI:	2.8E-01	100.0%	Total ILCR:	3.8E-07	100.0%	HI:	4.5E-01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT ON-SITE WORKERS - CURRENT SCENARIO
INCIDENTAL INGESTION OF SURFACE WATER - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cw*IR*ET*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	On-site Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cw	Concentration of chemical in water (mg/L)	CS	
IR	Ingestion Rate (L/hour)	0.05	
ET	Exposure Time (hours/day)	1	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	30	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	

				Adult					
				Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	0.0608	1.5	0.0003	2.7E-06	4.0E-06	100.0%	6.2E-06	2.1E-02	47.3%
Barium	0.341	NA	0.07	1.5E-05	--	--	3.5E-05	5.0E-04	1.1%
Cadmium	0.0033	NA	0.0005	1.4E-07	--	--	3.4E-07	6.7E-04	1.5%
Chromium	0.155	NA	0.003	6.8E-06	--	--	1.6E-05	5.3E-03	12.1%
Copper	0.389	NA	0.04	1.7E-05	--	--	4.0E-05	9.9E-04	2.3%
Lead	0.13	NA	NA	5.7E-06	--	--	1.3E-05	--	--
Vanadium	1.07	NA	0.007	4.7E-05	--	--	1.1E-04	1.6E-02	35.7%
				Total ILCR:	4.0E-06	100.0%	HI:	4.4E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT ON-SITE WORKERS - CURRENT SCENARIO
INCIDENTAL DERMAL CONTACT SURFACE WATER - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cw*CF*Kp*SA*EF*ED*ET)/(BW*AT)

ILCR = CDI*CSFo Adj CSF Adj = CSF/AD
HQ = CDI/RfDo Adj RfD Adj = RfD*AD

Parameter	Description	On-site Worker	
DAD	Dermally absorbed dose (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
SA	Skin surface area available for contact (cm2)	4,050	
EF	Exposure frequency (d/yr)	52	
ED	Exposure duration (yrs)	30	
ET	Exposure time (hrs/day)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	
Cw	Concentration of chemical in water (mg/L)	CS	
CF	Conversion factor (L/cm3)	1.00E-03	
Kp	Dermal permeability coefficient (cm/hour)	CS	
AD	Adjustment for Absorbed Dose	CS	

					Adult					
					Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Arsenic	0.0608	0.003	1.5789474	0.000285	6.4E-07	1.0E-06	100.0%	1.5E-06	5.3E-03	1.6%
Barium	0.341	0.003	NA	0.07	3.6E-06	--	--	8.4E-06	1.2E-04	0.0%
Cadmium	0.0033	0.003	NA	0.000025	3.5E-08	--	--	8.2E-08	3.3E-03	1.0%
Chromium	0.155	0.003	NA	0.00003	1.6E-06	--	--	3.8E-06	1.3E-01	39.2%
Copper	0.389	0.003	NA	0.024	4.1E-06	--	--	9.6E-06	4.0E-04	0.1%
Lead	0.13	0.003	NA	NA	1.4E-06	--	--	3.2E-06	--	--
Vanadium	1.07	0.003	NA	0.00014	1.1E-05	--	--	2.6E-05	1.9E-01	58.0%
					Total ILCR:	1.0E-06	100.0%	HI:	3.3E-01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT ON-SITE WORKERS - CURRENT SCENARIO
INCIDENTAL INGESTION OF SEDIMENTS - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cs*IR*CF*FI*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	On-site Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in sediment (mg/kg)	CS	
IR	Ingestion Rate (mg/d)	100	
CF	Conversion factor (kg/mg)	1.00E-06	
FI	Fraction of sediment ingested from site	0.5	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	30	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	

Parameter	Cs (mg/kg)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	Carcinogens			Noncarcinogens		
				CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	4.6	1.5	0.0003	2.0E-07	3.0E-07	100.0%	4.7E-07	1.6E-03	30.0%
Chromium	30	NA	0.003	1.3E-06	--	--	3.1E-06	1.0E-03	19.6%
Sulfide	290	NA	NA	1.3E-05	--	--	3.0E-05	--	--
Vanadium	180	NA	0.007	7.9E-06	--	--	1.8E-05	2.6E-03	50.4%
				Total ILCR:	3.0E-07	100.0%	HI:	5.2E-03	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT ON-SITE WORKERS - CURRENT SCENARIO
DERMAL CONTACT SEDIMENT - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cs*CF*AF*ABS*A*EF*ED)/(BW*AT)
ILCR = CDI*CSFd
HQ = CDI/RfDd

Parameter	Description	On-site Worker	
DAD	Dermally absorbed dose (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in sediment (mg/kg)	CS	
CF	Conversion factor (kg/mg)	1.00E-06	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
A	Skin surface area available for contact (cm2)	4,050	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	30	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	10,950	

					Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Arsenic	4.6	0.032	1.5789474	0.000285	5.2E-07	8.2E-07	100.0%	1.2E-06	4.3E-03	2.2%
Chromium	30	0.01	NA	0.00003	1.1E-06	--	--	2.5E-06	8.2E-02	42.8%
Sulfide	290	NA	NA	NA	#VALUE!	--	--	#VALUE!	--	--
Vanadium	180	0.01	NA	0.00014	6.4E-06	--	--	1.5E-05	1.1E-01	55.0%
					Total ILCR:	8.2E-07	100.0%	HI:	1.9E-01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
INCIDENTAL INGESTION OF SUBSURFACE SOIL - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cs*IR*CF*FI*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Construction Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	
IR	Ingestion Rate (mg/d)	480	
CF	Conversion factor (kg/mg)	1.00E-06	
FI	Fraction of soil ingested from site	1	
EF	Exposure Frequency (d/yr)	180	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	

				Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Chromium	28.3	NA	0.003	1.4E-06	--	--	9.6E-05	3.2E-02	100.0%
				Total ILCR:	0.0E+00	0.0%	Total HI:	3.2E-02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
DERMAL CONTACT SUBSURFACE SOIL - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cs*CF*AF*ABS*SA*EF*ED)/(BW*AT)
ILCR = CDI*CSFd
HQ = CDI/RfDd

Parameter	Description	Construction Worker	
DAD	Dermally absorbed dose (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	
CF	Conversion factor (kg/mg)	1.00E-06	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
SA	Skin surface area available for contact (cm2)	3,160	
EF	Exposure Frequency (d/yr)	180	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	

					Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Chromium	28.3	0.01	NA	0.00003	9.0E-08	--	--	6.3E-06	2.1E-01	100.0%
					Total ILCR:	0.0E+00	0.0%	Total HI:	2.1E-01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
INHALATION OF FUGATIVE DUST SUBSURFACE SOIL - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Ca*RR*ET*EF*ED)/(BW*AT)
Where: Ca = Cs * (1/PEF)

ILCR = CDI*CSFi
HQ = CDI/RfDi

Parameter	Description	Construction Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFi	Inhalation cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDi	Inhalation reference dose (mg/kg/d)	CS	
Ca	Concentration of chemical in air as fugitive dusts (mg/m3)	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	
PEF	Particulate emission factor (m3/kg)	1.32E+09	
RR	Respiration rate (m3/hr)	1.25	
ET	Exposure time (hrs/d)	8	
EF	Exposure Frequency (d/yr)	180	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	

					Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	Ca (mg/m3)	CSFi 1/(mg/kg/d)	RfDi (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Chromium	28.3	2.1439E-08	41	0.00003	2.2E-11	8.8E-10	100.0%	1.5E-09	5.0E-05	100.0%
					Total ILCR:	8.8E-10	100.0%	Total HI:	5.0E-05	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
INCIDENTAL INGESTION OF GROUNDWATER - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

CDI (mg/kg/d)= (Cw*IR*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Construction Worker	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
Cw	Concentration of chemical in water (mg/L)	CS	
IR	Ingestion Rate (L/d)	0.05	
EF	Exposure Frequency (d/yr)	180	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	

				Adult					
				Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
1,2-Dichloropropane	0.002	0.068	NA	1.0E-08	6.8E-10	20.4%	7.0E-07	--	--
Bis(2-ethylhexyl)phthalate	0.038	0.014	0.02	1.9E-07	2.7E-09	79.6%	1.3E-05	6.7E-04	100.0%
				Total ILCR:	3.4E-09	100.0%	HI:	6.7E-04	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
Inorganics reported are total (soluble and insoluble).

ADULT CONSTRUCTION WORKERS - FUTURE SCENARIO
INCIDENTAL DERMAL CONTACT WITH GROUNDWATER - SWMU 9, AREA C
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

DAD (mg/kg/d)= (Cw*CF*Kp*SA*EF*ED*ET)/(BW*AT)

ILCR = CDI*CSFo Adj CSF Adj = CSF/AD
HQ = CDI/RfDo Adj RfD Adj = RfD*AD

Parameter	Description	Construction Worker	
DAD	Dermally absorbed dose (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFo	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
SA	Skin surface area available for contact (cm2)	3,100	
EF	Exposure frequency (d/yr)	180	
ED	Exposure duration (yrs)	1	
ET	Exposure time (hrs/day)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25,550	
ATn	Averaging time, noncarcinogens (d)	365	
Cw	Concentration of chemical in water (mg/L)	CS	
CF	Conversion factor (L/cm3)	1.00E-03	
Kp	Dermal permeability coefficient (cm/hour)	CS	
AD	Adjustment for Absorbed Dose	CS	

					Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
1,2-Dichloropropane	0.002	0.01	0.085	NA	6.2E-09	5.3E-10	5.1%	4.4E-07	--	--
Bis(2-ethylhexyl)phthalate	0.038	0.033	0.02545455	0.011	3.9E-07	1.0E-08	94.9%	2.7E-05	2.5E-03	100.0%
					Total ILCR:	1.0E-08	100.0%	HI:	2.5E-03	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
Inorganics reported are total (soluble and insoluble).

APPENDIX M
DERMAL ABSORPTION FACTORS

ORAL ABS VALUES FOR ORAL-TO-DERMAL EXTRAPOLATION PER RAGS APPENDIX A
LAST UDATED: 04/08/99

CHEMICAL	ORAL ABS	SOURCE
VOCs		
Acetone	0.83	NCEA 10-9-92
Benzene	1 CSF	IRIS
2-Butanone	0.95	NCEA 10-9-92
Chloroform	1	NCEA 2-91
1,2-Dichloroethene	1	NCEA 11-1-93
Ethylbenzene	0.92	NCEA 11-1-93
Tetrachloroethene	1	NCEA 11-1-93
Toluene	1	NCEA 10-9-92
Vinyl chloride	1	NCEA 11-1-93
Xylenes	0.9	NCEA 10-9-92
BNAs		
Bis(2-ethylhexyl)phthalate	0.55	ATSDR, 1991
4-Methylphenol	0.65	NCEA 5-5-94
Pentachlorophenol	0.9	ATSDR, 1994
Acenaphthene	0.7	ATSDR, 1993
Acenaphthylene	0.7	ATSDR, 1993
Anthracene	0.6	ATSDR, 1993
Benz[a]anthracene	N/A	NCEA 2-9-93
Benzo[b]fluoranthene	N/A	NCEA 2-11-92
Benzo[a]pyrene	N/A	NCEA 7-24-91
Chrysene	N/A	NCEA 2-11-92
Dibenz[a,h]anthracene	N/A	NCEA 12-29-92
Dibenzofuran	0.7	ATSDR, 1993
Fluoranthene	0.7	ATSDR, 1993
Fluorene	0.7	ATSDR, 1993
Indeno[1,2,3-c,d]pyrene	N/A	NCEA 2-11-92
2-Methylnaphthalene	0.8	See naphthalene
Naphthalene	0.8	ATSDR, 1993
Pyrene	0.8	ATSDR, 1993
Pesticides/PCBs/Dioxins		
Chlordane	0.8	ATSDR, 1994
PCBs	0.89 RfD	NCEA 7-31-92
PCBs	For CSF, see IRIS	
Dieldrin	0.5	ATSDR, 1992
DDD, DDT	0.8-1	ATSDR, 1993
Inorganics		
Aluminum	0.27	ATSDR, 1992
Antimony	0.1	ATSDR, 1992
Arsenic	0.95	NCEA 10-9-92
Barium	1	NCEA 8-5-93
Beryllium	0.01	NCEA 5-12-94
Cadmium	.05 water RfD	IRIS
	0.025 food RfD	IRIS
Chromium	0.01	ATSDR, 1993
Cobalt	0.3	ATSDR, 1992
Copper	0.6	NCEA 6-24-92
Cyanide	N/A	NCEA 6-3-91
Mercury	1	IRIS; ATSDR, 1997
Nickel	0.01-0.1	NCEA 6-5-92
Selenium	0.9	ATSDR, 1994
Silver	N/A	NCEA 6-10-91
Thallium	1	ATSDR, 1992
Titanium	0.03 oral/food	Casarett & Doull, 1986
Vanadium	0.02	ATSDR, 1992
Zinc	0.25	NCEA 10-9-92

NCEA = National Center for Environmental Assessment Issue Paper
IRIS = Integrated Risk Information System
ATSDR = Agency for Toxic Substances and Disease Registry

* Use to adjust RfD + CSF when doing dermal risk

For HI multiple by available #

For CR divide by available #

APPENDIX N
SCREENING LEVEL DIETARY INTAKE CALCULATIONS

Food Chain Exposure Model for Piscivorous Birds (Belted Kingfisher)
Conservative Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area A

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.1075	
IR_{sw}	Water ingestion rate (L/day)	0.02107	
IR_{sed}	Sediment ingestion rate (kg/day)	0.01075	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.125	

Chemical	Maximum Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (L/kg)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Maximum Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Arsenic	0.0383	17	1.0	17	6.51E-01	1.8	7.21E-01	2.46	2.93E-01	7.38	9.77E-02
Barium	0.0505	95	1.0	95	4.80E+00	14	5.34E+00	20.8	2.57E-01	41.7	1.28E-01
Beryllium	ND	19	1.0	19	NA	0.29	2.49E-02	NE	NA	NE	NA
Cadmium	0.0007	2,213	1.0	2,213	1.55E+00	ND	1.33E+00	1.45	9.19E-01	20	6.66E-02
Chromium	ND	3	1.0	3	NA	21	1.81E+00	1	**1.81E+00**	5	3.61E-01
Cobalt	0.00096	40	1.0	40	3.84E-02	6.9	6.27E-01	NE	NA	NE	NA
Copper	ND	290	1.0	290	NA	63	5.42E+00	47	1.15E-01	61.7	8.78E-02
Lead	ND	45	1.0	45	NA	12	1.03E+00	1.13	9.13E-01	11.3	9.13E-02
Mercury	ND	NA	NA	27,900	NA	0.078	6.71E-03	0.0064	**1.05E+00**	0.064	1.05E-01
Nickel	ND	106	1.0	106	NA	6.6	5.68E-01	77.4	7.33E-03	107	5.30E-03
Selenium	0.0223	NA	NA	2,600	5.80E+01	ND	4.99E+01	1.8	**2.77E+01**	11.8	**4.23E+00**
Tin	0.0027	85	1.0	85	2.30E-01	4.3	5.68E-01	6.8	8.35E-02	16.9	3.36E-02
Vanadium	0.0885	153	1.0	153	1.35E+01	180	2.71E+01	11.4	**2.38E+00**	114	2.38E-01
Zinc	0.0063	966	1.0	966	6.09E+00	64	1.07E+01	14.5	7.41E-01	131	8.20E-02
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.13	1.12E-02	NE	NA	NE	NA

ND = Not Detected
NA = Not Applicable
NE = Not Established

Hazard Index for inorganics:	**3.63E+01**	**5.52E+00**
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Belted Kingfisher)
Conservative Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area B

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.1075	
IR_{sw}	Water ingestion rate (L/day)	0.02107	
IR_{sed}	Sediment ingestion rate (kg/day)	0.01075	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.125	

Chemical	Maximum Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (L/kg)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Maximum Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Antimony	0.0165	1	1.0	1	1.65E-02	No Data	1.70E-02	NE	NA	NE	NA
Arsenic	0.0397	17	1.0	17	6.75E-01	1.3	6.99E-01	2.46	2.84E-01	7.38	9.47E-02
Barium	0.0611	95	1.0	95	5.80E+00	20	6.72E+00	20.8	3.23E-01	41.7	1.61E-01
Beryllium	0.00073	19	1.0	19	1.39E-02	0.16	2.58E-02	NE	NA	NE	NA
Cadmium	0.0015	2,213	1.0	2,213	3.32E+00	0.14	2.87E+00	1.45	**1.98E+00**	20	1.43E-01
Chromium	0.0085	3	1.0	3	2.55E-02	28	2.43E+00	1	**2.43E+00**	5	4.86E-01
Cobalt	0.0044	40	1.0	40	1.76E-01	12	1.18E+00	NE	NA	NE	NA
Copper	0.0556	290	1.0	290	1.61E+01	120	2.42E+01	47	5.15E-01	61.7	3.92E-01
Cyanide	0.0061	0	1.0	0	0.00E+00	ND	1.03E-03	NE	NA	NE	NA
Lead	0.0054	45	1.0	45	2.43E-01	47	4.25E+00	1.13	**3.76E+00**	11.3	3.76E-01
Mercury	ND	NA	NA	27,900	NA	0.1	8.60E-03	0.0064	**1.34E+00**	0.064	1.34E-01
Nickel	0.0101	106	1.0	106	1.07E+00	9.8	1.77E+00	77.4	2.28E-02	107	1.65E-02
Tin	0.0092	85	1.0	85	7.82E-01	4.7	1.08E+00	6.8	1.59E-01	16.9	6.38E-02
Vanadium	0.134	153	1.0	153	2.05E+01	180	3.31E+01	11.4	**2.91E+00**	114	2.91E-01
Zinc	0.0274	966	1.0	966	2.65E+01	63	2.82E+01	14.5	**1.94E+00**	131	2.15E-01
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.2	1.72E-02	NE	NA	NE	NA
2-Butanone	ND	0.66	1.0	0.66	NA	0.039	3.35E-03	NE	NA	NA	NA
Carbon disulfide	ND	15	1.05	15.75	NA	0.0089	7.65E-04	NE	NA	NE	NA

ND = Not Detected
NA = Not Applicable
NE = Not Established

Hazard Index for inorganics:	**1.57E+01**	**2.37E+00**
Hazard Index for volatiles:	NA	NA

Bold and . d value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Belted Kingfisher)
Conservative Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area C

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.1075	
IR_{sw}	Water ingestion rate (L/day)	0.02107	
IR_{sed}	Sediment ingestion rate (kg/day)	0.01075	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.125	

Chemical	Maximum Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (L/kg)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Maximum Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Arsenic	0.0608	17	1.0	17	1.03E+00	4.6	1.29E+00	2.46	5.26E-01	7.38	1.75E-01
Barium	0.341	95	1.0	95	3.24E+01	80	3.48E+01	20.8	**1.67E+00**	41.7	8.34E-01
Beryllium	0.0024	19	1.0	19	4.56E-02	0.097	4.80E-02	NE	NA	NE	NA
Cadmium	0.0033	2,213	1.0	2,213	7.30E+00	ND	6.28E+00	1.45	**4.33E+00**	20	3.14E-01
Chromium	0.155	3	1.0	3	4.65E-01	30	3.01E+00	1	**3.01E+00**	5	6.01E-01
Cobalt	0.145	40	1.0	40	5.80E+00	22	6.90E+00	NE	NA	NE	NA
Copper	0.389	290	1.0	290	1.13E+02	49	1.01E+02	47	**2.16E+00**	61.7	**1.64E+00**
Lead	0.130	45	1.0	45	5.85E+00	22	6.94E+00	1.13	**6.15E+00**	11.3	6.15E-01
Mercury	0.00059	NA	NA	27,900	1.65E+01	0.049	1.42E+01	0.0064	**2.21E+03**	0.064	**2.21E+02**
Nickel	0.0634	106	1.0	106	6.72E+00	7	6.39E+00	77.4	8.26E-02	107	5.97E-02
Selenium	ND	NA	NA	2,600	NA	0.68	5.85E-02	1.8	3.25E-02	11.8	4.96E-03
Tin	0.013	85	1.0	85	1.11E+00	6	1.47E+00	6.8	2.16E-01	16.9	8.69E-02
Vanadium	1.07	153	1.0	153	1.64E+02	180	1.56E+02	11.4	**1.37E+01**	114	**1.37E+00**
Zinc	0.425	966	1.0	966	4.11E+02	52	3.58E+02	14.5	**2.47E+01**	131	**2.73E+00**
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.290	2.49E-02	NE	NA	NE	NA
2-Butanone	ND	0.66	1.0	0.66	NA	0.068	5.85E-03	NE	NA	NE	NA
Carbon disulfide	ND	15	1.05	15.75	NA	0.016	1.38E-03	NE	NA	NE	NA
Methylene chloride	0.0029	3.9	1.0	3.9	1.13E-02	ND	1.02E-02	NE	NA	NE	NA

ND = Not Detected
NA = Not Applicable
NE = Not Established

Hazard Index for inorganics:	**2.27E+03**	**2.30E+02**
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Belted Kingfisher)
Conservative Assumptions
Naval Station Roosevelt Roads
Background

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.1075	
IR_{sw}	Water ingestion rate (L/day)	0.02107	
IR_{sed}	Sediment ingestion rate (kg/day)	0.01075	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.125	

Chemical	Maximum Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (L/kg)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Maximum Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Arsenic	0.0351	17	1.0	17	5.97E-01	1.3	6.31E-01	2.46	2.56E-01	7.38	8.55E-02
Barium	0.0559	95	1.0	95	5.31E+00	8.1	5.27E+00	20.8	2.54E-01	41.7	1.26E-01
Beryllium	ND	19	1.0	19	NA	0.047	4.04E-03	NE	NA	NE	NA
Chromium	0.0091	3	1.0	3	2.73E-02	16	1.40E+00	1	**1.40E+00**	5	2.80E-01
Cobalt	0.0032	40	1.0	40	1.28E-01	4.7	5.15E-01	NE	NA	NE	NA
Copper	ND	290	1.0	290	NA	58	4.99E+00	47	1.06E-01	61.7	8.08E-02
Lead	ND	45	1.0	45	NA	4.6	3.96E-01	1.13	3.50E-01	11.3	3.50E-02
Mercury	ND	NA	NA	27,900	NA	0.041	3.53E-03	0.0064	5.51E-01	0.064	5.51E-02
Nickel	ND	106	1.0	106	NA	4.8	4.13E-01	77.4	5.33E-03	107	3.86E-03
Tin	0.0027	85	1.0	85	2.30E-01	4.2	5.59E-01	6.8	8.22E-02	16.9	3.31E-02
Vanadium	0.0484	153	1.0	153	7.41E+00	110	1.58E+01	11.4	**1.39E+00**	114	1.39E-01
Zinc	0.0119	966	1.0	966	1.15E+01	ND	9.89E+00	14.5	6.82E-01	131	7.55E-02
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.14	1.20E-02	NE	NA	NE	NA

ND = Not Detected
NA = Not Applicable
NE = Not Established

Hazard Index for inorganics:	**5.08E+00**	9.14E-01
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Great Blue Heron)
Conservative Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area A

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.45183	
IR_{sw}	Water ingestion rate (L/day)	0.11122	
IR_{sed}	Sediment ingestion rate (kg/day)	0.045183	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	2.204	

Chemical	Maximum Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (Unitless)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Maximum Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Arsenic	0.0383	17	1.0	17	6.51E-01	1.8	1.72E-01	2.46	7.00E-02	7.38	2.33E-02
Barium	0.0505	95	1.0	95	4.80E+00	14	1.27E+00	20.8	6.12E-02	41.7	3.05E-02
Beryllium	ND	19	1.0	19	NA	0.29	5.95E-03	NE	NA	NE	NA
Cadmium	0.0007	2,213	1.0	2,213	1.55E+00	ND	3.18E-01	1.45	2.19E-01	20	1.59E-02
Chromium	ND	3	1.0	3	NA	21	4.31E-01	1	4.31E-01	5	8.61E-02
Cobalt	0.00096	40	1.0	40	3.84E-02	6.9	1.49E-01	NE	NA	NE	NA
Copper	ND	290	1.0	290	NA	63	1.29E+00	47	2.75E-02	61.7	2.09E-02
Lead	ND	45	1.0	45	NA	12	2.46E-01	1.13	2.18E-01	11.3	2.18E-02
Mercury	ND	NA	NA	27,900	NA	0.078	1.60E-03	0.0064	2.50E-01	0.064	2.50E-02
Nickel	ND	106	1.0	106	NA	6.6	1.35E-01	77.4	1.75E-03	107	1.26E-03
Selenium	0.0223	NA	NA	2,600	5.80E+01	ND	1.19E+01	1.8	**6.60E+00**	11.8	**1.01E+00**
Tin	0.0027	85	1.0	85	2.30E-01	4.3	1.35E-01	6.8	1.99E-02	16.9	8.01E-03
Vanadium	0.0885	153	1.0	153	1.35E+01	180	6.47E+00	11.4	5.68E-01	114	5.68E-02
Zinc	0.0063	966	1.0	966	6.09E+00	64	2.56E+00	14.5	1.77E-01	131	1.95E-02
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.13	2.67E-03	NE	NA	NE	NA

ND = Not Detected
NA = Not Applicable
NE = Not Established

Hazard Index for inorganics:	**8.65E+00**	**1.32E+00**
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Great Blue Heron)
Conservative Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area B

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.45183	
IR_{sw}	Water ingestion rate (L/day)	0.11122	
IR_{sed}	Sediment ingestion rate (kg/day)	0.045183	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	2.204	

Chemical	Maximum Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (Unitless)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Maximum Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Antimony	0.0165	1	1.0	1	1.65E-02	No Data	4.22E-03	NE	NA	NE	NA
Arsenic	0.0397	17	1.0	17	6.75E-01	1.3	1.67E-01	2.46	6.79E-02	7.38	2.26E-02
Barium	0.0611	95	1.0	95	5.80E+00	20	1.60E+00	20.8	7.71E-02	41.7	3.84E-02
Beryllium	0.00073	19	1.0	19	1.39E-02	0.16	6.16E-03	NE	NA	NE	NA
Cadmium	0.0015	2,213	1.0	2,213	3.32E+00	0.14	6.83E-01	1.45	4.71E-01	20	3.42E-02
Chromium	0.0085	3	1.0	3	2.55E-02	28	5.80E-01	1	5.80E-01	5	1.16E-01
Cobalt	0.0044	40	1.0	40	1.76E-01	12	2.82E-01	NE	NA	NE	NA
Copper	0.0556	290	1.0	290	1.61E+01	120	5.77E+00	47	1.23E-01	61.7	9.35E-02
Cyanide	0.0061	0	1.0	0	0.00E+00	ND	3.08E-04	NE	NA	NE	NA
Lead	0.0054	45	1.0	45	2.43E-01	47	1.01E+00	1.13	8.97E-01	11.3	8.97E-02
Mercury	ND	NA	NA	27,900	NA	0.1	2.05E-03	0.0064	3.20E-01	0.064	3.20E-02
Nickel	0.0101	106	1.0	106	1.07E+00	9.8	4.21E-01	77.4	5.44E-03	107	3.93E-03
Tin	0.0092	85	1.0	85	7.82E-01	4.7	2.57E-01	6.8	3.78E-02	16.9	1.52E-02
Vanadium	0.134	153	1.0	153	2.05E+01	180	7.90E+00	11.4	6.93E-01	114	6.93E-02
Zinc	0.0274	966	1.0	966	2.65E+01	63	6.72E+00	14.5	4.63E-01	131	5.13E-02
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.2	4.10E-03	NE	NA	NE	NA
2-Butanone	ND	0.66	1.0	0.66	NA	0.039	8.00E-04	NE	NA	NA	NA
Carbon disulfide	ND	15	1.05	15.75	NA	0.0089	1.82E-04	NE	NA	NE	NA

ND = Not Detected
NA = Not Applicable
NE = Not Established

Hazard Index for inorganics:	**3.74E+00**	5.66E-01
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Great Blue Heron)
Conservative Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area C

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.45183	
IR_{sw}	Water ingestion rate (L/day)	0.11122	
IR_{sed}	Sediment ingestion rate (kg/day)	0.045183	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	2.204	

Chemical	Maximum Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (Unitless)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Maximum Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Arsenic	0.0608	17	1.0	17	1.03E+00	4.6	3.09E-01	2.46	1.26E-01	7.38	4.19E-02
Barium	0.341	95	1.0	95	3.24E+01	80	8.30E+00	20.8	3.99E-01	41.7	1.99E-01
Beryllium	0.0024	19	1.0	19	4.56E-02	0.097	1.15E-02	NE	NA	NE	NA
Cadmium	0.0033	2,213	1.0	2,213	7.30E+00	ND	1.50E+00	1.45	**1.03E+00**	20	7.49E-02
Chromium	0.155	3	1.0	3	4.65E-01	30	7.18E-01	1	7.18E-01	5	1.44E-01
Cobalt	0.145	40	1.0	40	5.80E+00	22	1.65E+00	NE	NA	NE	NA
Copper	0.389	290	1.0	290	1.13E+02	49	2.42E+01	47	5.14E-01	61.7	3.91E-01
Lead	0.130	45	1.0	45	5.85E+00	22	1.66E+00	1.13	**1.47E+00**	11.3	1.47E-01
Mercury	0.00059	NA	NA	27,900	1.65E+01	0.049	3.38E+00	0.0064	**5.27E+02**	0.064	**5.27E+01**
Nickel	0.0634	106	1.0	106	6.72E+00	7	1.52E+00	77.4	1.97E-02	107	1.42E-02
Selenium	ND	NA	NA	2,600	NA	0.68	1.39E-02	1.8	7.74E-03	11.8	1.18E-03
Tin	0.013	85	1.0	85	1.11E+00	6	3.50E-01	6.8	5.15E-02	16.9	2.07E-02
Vanadium	1.07	153	1.0	153	1.64E+02	180	3.73E+01	11.4	**3.27E+00**	114	3.27E-01
Zinc	0.425	966	1.0	966	4.11E+02	52	8.53E+01	14.5	**5.88E+00**	131	6.51E-01
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.290	5.95E-03	NE	NA	NE	NA
2-Butanone	ND	0.66	1.0	0.66	NA	0.068	1.39E-03	NE	NA	NE	NA
Carbon disulfide	ND	15	1.05	15.75	NA	0.016	3.28E-04	NE	NA	NE	NA
Methylene chloride	0.0029	3.9	1.0	3.9	1.13E-02	ND	2.46E-03	NE	NA	NE	NA

ND = Not Detected
NA = Not Applicable
NE = Not Established

Hazard Index for inorganics:	**5.41E+02**	**5.48E+01**
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Great Blue Heron)
Conservative Assumptions
Naval Station Roosevelt Roads
Background

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.45183	
IR_{sw}	Water ingestion rate (L/day)	0.11122	
IR_{sed}	Sediment ingestion rate (kg/day)	0.045183	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	2.204	

Chemical	Maximum Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (Unitless)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Maximum Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Arsenic	0.0351	17	1.0	17	5.97E-01	1.3	1.51E-01	2.46	6.13E-02	7.38	2.04E-02
Barium	0.0559	95	1.0	95	5.31E+00	8.1	1.26E+00	20.8	6.05E-02	41.7	3.02E-02
Beryllium	ND	19	1.0	19	NA	0.047	9.64E-04	NE	NA	NE	NA
Chromium	0.0091	3	1.0	3	2.73E-02	16	3.34E-01	1	3.34E-01	5	6.68E-02
Cobalt	0.0032	40	1.0	40	1.28E-01	4.7	1.23E-01	NE	NA	NE	NA
Copper	ND	290	1.0	290	NA	58	1.19E+00	47	2.53E-02	61.7	1.93E-02
Lead	ND	45	1.0	45	NA	4.6	9.43E-02	1.13	8.35E-02	11.3	8.35E-03
Mercury	ND	NA	NA	27,900	NA	0.041	8.41E-04	0.0064	1.31E-01	0.064	1.31E-02
Nickel	ND	106	1.0	106	NA	4.8	9.84E-02	77.4	1.27E-03	107	9.20E-04
Tin	0.0027	85	1.0	85	2.30E-01	4.2	1.33E-01	6.8	1.96E-02	16.9	7.89E-03
Vanadium	0.0484	153	1.0	153	7.41E+00	110	3.78E+00	11.4	3.31E-01	114	3.31E-02
Zinc	0.0119	966	1.0	966	1.15E+01	ND	2.36E+00	14.5	1.63E-01	131	1.80E-02
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.14	2.87E-03	NE	NA	NE	NA

ND = Not Detected
NA = Not Applicable
NE = Not Established

Hazard Index for inorganics:	**1.21E+00**	2.18E-01
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Carnivorous Birds Consuming Small Mammals (Red-Tailed Hawk}
Conservative Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area A

$DI = [(C_m*IR_m) + (C_{soil}*IR_{soil})][H]/BW$
$C_m = (C_{soil}*BAF_m)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_m	Chemical concentration in small mammals (mg/kg)	CS	
BAF_m	Soil-mammal bioaccumulation factor (unitless)	CS	
IR_m	Mammal ingestion rate (kg/day)	0.13585	
IR_{soil}	Soil ingestion rate (kg/day)	0.013585	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.957	

Chemical	Maximum Soil Concentration (mg/kg)	Soil-Mammal Bioaccumulation Factor (mg/kg)	Estimated Mammal Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Arsenic	3.7	0.0149	5.51E-02	6.03E-02	2.46	2.45E-02	7.38	8.18E-03
Barium	232	0.253	5.87E+01	1.16E+01	20.8	5.59E-01	41.7	2.79E-01
Chromium	29.7	0.349	1.04E+01	1.89E+00	1.0	**1.89E+00**	5.0	3.79E-01
Lead	15.6	0.339	5.29E+00	9.72E-01	1.13	8.60E-01	3.0	3.24E-01
Selenium	1.6	1.263	2.02E+00	3.10E-01	0.44	7.04E-01	1.5	2.06E-01
Silver	0.35	1.0	3.50E-01	5.47E-02	NE	NA	NE	NA
Volatiles:								
Acetone	0.012	1.0	1.20E-02	1.87E-03	NE	NA	NE	NA
Semi-Volatiles:								
Benzyl Alcohol	0.440	1.0	4.40E-01	6.87E-02	NE	NA	NE	NA
Diethylphthalate	0.040	1.0	4.00E-02	6.25E-03	NE	NA	NE	NA

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**4.04E+00**	**1.20E+00**
Hazard Index for volatiles:	NA	NA
Hazard Index for semi-volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Carnivorous Birds Consuming Small Mammals (Red-Tailed Hawk}
Conservative Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area B

$DI = [(C_m*IR_m) + (C_{soil}*IR_{soil})][H]/BW$
$C_m = (C_{soil}*BAF_m)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_m	Chemical concentration in small mammals (mg/kg)	CS	
BAF_m	Soil-mammal bioaccumulation factor (unitless)	CS	
IR_m	Mammal ingestion rate (kg/day)	0.13585	
IR_{soil}	Soil ingestion rate (kg/day)	0.013585	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.957	

Chemical	Maximum Soil Concentration (mg/kg)	Soil-Mammal Bioaccumulation Factor (mg/kg)	Estimated Mammal Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Arsenic	2.0	0.0149	2.98E-02	3.26E-02	2.46	1.33E-02	7.38	4.42E-03
Barium	115	0.253	2.91E+01	5.76E+00	20.8	2.77E-01	41.7	1.38E-01
Cadmium	0.42	7.017	2.95E+00	4.24E-01	1.45	2.93E-01	20	2.12E-02
Chromium	13.2	0.349	4.61E+00	8.41E-01	1.0	8.41E-01	5.0	1.68E-01
Lead	258	0.339	8.75E+01	1.61E+01	1.13	**1.42E+01**	3.0	**5.36E+00**
Selenium	1.1	1.263	1.39E+00	2.13E-01	0.44	4.84E-01	1.5	1.42E-01
Volatiles:								
Acetone	0.022	1.0	2.20E-02	NE	NE	NE	NE	NA
Semi-Volatiles:								
Di-n-butylphthalate	0.040	1.0	4.00E-02	6.25E-03	0.11	5.68E-02	1.1	5.68E-03

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**1.61E+01**	**5.83E+00**
Hazard Index for volatiles:	NA	NA
Hazard Index for semi-volatiles:	5.68E-02	5.68E-03

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Carnivorous Birds Consuming Small Mammals (Red-Tailed Hawk)
Conservative Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area C

$DI = [(C_m * IR_m) + (C_{soil} * IR_{soil})][H]/BW$
$C_m = (C_{soil} * BAF_m)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_m	Chemical concentration in small mammals (mg/kg)	CS	
BAF_m	Soil-mammal bioaccumulation factor (unitless)	CS	
IR_m	Mammal ingestion rate (kg/day)	0.13585	
IR_{soil}	Soil ingestion rate (kg/day)	0.013585	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.957	

Chemical	Maximum Soil Concentration (mg/kg)	Soil-Mammal Bioaccumulation Factor (mg/kg)	Estimated Mammal Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Barium	110	0.2530	2.78E+01	5.51E+00	20.8	2.65E-01	41.7	1.32E-01
Chromium	30.4	0.3490	1.06E+01	1.94E+00	1.0	**1.94E+00**	5.0	3.88E-01
Lead	52.5	0.3390	1.78E+01	3.27E+00	1.13	**2.90E+00**	3.0	**1.09E+00**
Semi-Volatiles:								
Benzo(b)fluoranthene	0.059	1.0	5.90E-02	9.21E-03	NE	NA	NE	NA
Chrysene	0.045	1.0	4.50E-02	7.03E-03	NE	NA	NE	NA
Di-n-butylphthalate	0.100	1.0	1.00E-01	1.56E-02	0.11	1.42E-01	1.1	1.42E-02
Pyrene	0.056	1.0	5.60E-02	8.74E-03	NE	NA	NE	NA

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**5.10E+00**	**1.61E+00**
Hazard Index for semi-volatiles:	1.42E-01	1.42E-02

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Carnivorous Birds Consuming Small Mammals (Red-Tailed Hawk}
Conservative Assumptions
Naval Station Roosevelt Roads
Background

$DI = [(C_m*IR_m) + (C_{soil}*IR_{soil})][H]/BW$
$C_m = (C_{soil}*BAF_m)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_m	Chemical concentration in small mammals (mg/kg)	CS	
BAF_m	Soil-mammal bioaccumulation factor (unitless)	CS	
IR_m	Mammal ingestion rate (kg/day)	0.13585	
IR_{soil}	Soil ingestion rate (kg/day)	0.013585	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.957	

Chemical	Maximum Soil Concentration (mg/kg)	Soil-Mammal Bioaccumulation Factor (mg/kg)	Estimated Mammal Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Arsenic	2.5	0.0149	3.73E-02	4.08E-02	2.46	1.66E-02	7.38	5.53E-03
Barium	110	0.253	2.78E+01	5.51E+00	20.8	2.65E-01	41.7	1.32E-01
Cadmium	0.92	7.017	6.46E+00	9.29E-01	1.45	6.41E-01	20	4.65E-02
Chromium	34	0.349	1.19E+01	2.17E+00	1.0	**2.17E+00**	5.0	4.33E-01
Lead	21	0.339	7.12E+00	1.31E+00	1.13	**1.16E+00**	3.0	4.36E-01
Mercury	0.12	1.046	1.26E-01	1.95E-02	0.0064	**3.05E+00**	0.064	3.05E-01
			Hazard Index for inorganics:			**7.30E+00**		**1.36E+00**

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Insectivorous Birds Consuming Soil Arthropods (American Robin)
Conservative Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area A

$DI = [(C_w*IR_w) + (C_{soil}*IR_{soil})][H]/BW$
$C_w = (C_{soil}*BAF_w)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_w	Chemical concentration in earthworms (mg/kg)	CS	
BAF_w	Soil-earthworm bioaccumulation factor (unitless)	CS	
IR_w	Earthworm ingestion rate (kg/day)	0.02045	
IR_{soil}	Soil ingestion rate (kg/day)	0.002127	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.0635	

Chemical	Maximum Soil Concentration (mg/kg)	Soil-Earthworm Bioaccumulation Factor (Unitless)	Estimated Earthworm Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Arsenic	3.7	0.523	1.94E+00	7.47E-01	2.46	3.04E-01	7.38	1.01E-01
Barium	232	1.0	2.32E+02	8.25E+01	20.8	**3.97E+00**	41.7	**1.98E+00**
Chromium	29.7	3.162	9.39E+01	3.12E+01	1.0	**3.12E+01**	5.0	**6.25E+00**
Lead	15.6	1.522	2.37E+01	8.17E+00	1.13	**7.23E+00**	3.0	**2.72E+00**
Selenium	1.6	1.34	2.14E+00	7.44E-01	0.4	**1.86E+00**	0.8	9.30E-01
Silver	0.35	1.0	3.50E-01	1.24E-01	NE	NA	NE	NA
Volatiles:								
Acetone	0.012	1.0	1.20E-02	4.27E-03	NE	NA	NE	NA
Semi-Volatiles:								
Benzyl Alcohol	0.440	1.0	4.40E-01	1.56E-01	NE	NA	NE	NA
Diethylphthalate	0.040	1.0	4.00E-02	1.42E-02	NE	NA	NE	NA

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**4.46E+01**	**1.20E+01**
Hazard Index for volatiles:	NA	NA
Hazard Index for semi-volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Insectivorous Birds Consuming Soil Arthropods (American Robin)
Conservative Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area B

$DI = [(C_w*IR_w) + (C_{soil}*IR_{soil})][H]/BW$
$C_w = (C_{soil}*BAF_w)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_w	Chemical concentration in earthworms (mg/kg)	CS	
BAF_w	Soil-earthworm bioaccumulation factor (unitless)	CS	
IR_w	Earthworm ingestion rate (kg/day)	0.02045	
IR_{soil}	Soil ingestion rate (kg/day)	0.002127	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.0635	

Chemical	Maximum Soil Concentration (mg/kg)	Soil-Earthworm Bioaccumulation Factor (Unitless)	Estimated Earthworm Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Arsenic	2.0	0.523	1.05E+00	4.04E-01	2.46	1.64E-01	7.38	5.47E-02
Barium	115	1.0	1.15E+02	4.09E+01	20.8	**1.97E+00**	41.7	9.81E-01
Cadmium	0.42	40.69	1.71E+01	5.52E+00	1.45	**3.81E+00**	20	2.76E-01
Chromium	13.2	3.162	4.17E+01	1.39E+01	1.0	**1.39E+01**	5.0	**2.78E+00**
Lead	258	1.522	3.93E+02	1.35E+02	1.13	**1.20E+02**	3.0	**4.50E+01**
Selenium	1.1	1.34	1.47E+00	5.12E-01	0.4	**1.28E+00**	0.8	6.39E-01
Volatiles:								
Acetone	0.022	1.0	2.20E-02	7.82E-03	NE	NA	NE	NA
Semi-Volatiles:								
Di-n-butylphthalate	0.040	1.0	4.00E-02	1.42E-02	0.11	1.29E-01	1.1	1.29E-02

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**1.41E+02**	**4.98E+01**
Hazard Index for volatiles:	NA	NA
Hazard Index for semi-volatiles:	1.29E-01	1.29E-02

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Insectivorous Birds Consuming Soil Arthropods (American Robin)
Conservative Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area C

$DI = [(C_w*IR_w) + (C_{soil}*IR_{soil})][H]/BW$
$C_w = (C_{soil}*BAF_w)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_w	Chemical concentration in earthworms (mg/kg)	CS	
BAF_w	Soil-earthworm bioaccumulation factor (unitless)	CS	
IR_w	Earthworm ingestion rate (kg/day)	0.02045	
IR_{soil}	Soil ingestion rate (kg/day)	0.002127	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.0635	

Chemical	Maximum Soil Concentration (mg/kg)	Soil-Earthworm Bioaccumulation Factor (Unitless)	Estimated Earthworm Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Barium	110	1.0	1.10E+02	3.91E+01	20.8	**1.88E+00**	41.7	9.38E-01
Chromium	30.4	3.162	9.61E+01	3.20E+01	1.0	**3.20E+01**	5.0	**6.40E+00**
Lead	52.5	1.522	7.99E+01	2.75E+01	1.13	**2.43E+01**	3.0	**9.16E+00**
Semi-Volatiles:								
Benzo(b)fluoranthene	0.059	1.0	5.90E-02	2.10E-02	NE	NA	NE	NA
Chrysene	0.045	1.4	6.30E-02	2.18E-02	NE	NA	NE	NA
Di-n-butylphthalate	0.100	1.0	1.00E-01	3.56E-02	0.11	3.23E-01	1.1	3.23E-02
Pyrene	0.056	3.1	1.74E-01	5.78E-02	NE	NA	NE	NA

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**5.82E+01**	**1.65E+01**
Hazard Index for semi-volatiles:	3.23E-01	3.23E-02

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Insectivorous Birds Consuming Soil Arthropods (American Robin)
Conservative Assumptions
Naval Station Roosevelt Roads
Background

$DI = [(C_w*IR_w) + (C_{soil}*IR_{soil})][H]/BW$
$C_w = (C_{soil}*BAF_w)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_w	Chemical concentration in earthworms (mg/kg)	CS	
BAF_w	Soil-earthworm bioaccumulation factor (unitless)	CS	
IR_w	Earthworm ingestion rate (kg/day)	0.02045	
IR_{soil}	Soil ingestion rate (kg/day)	0.002127	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.0635	

Chemical	Maximum Soil Concentration (mg/kg)	Soil-Earthworm Bioaccumulation Factor (Unitless)	Estimated Earthworm Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Arsenic	2.5	0.523	1.31E+00	5.05E-01	2.46	2.05E-01	7.38	6.84E-02
Barium	110	1.0	1.10E+02	3.91E+01	20.8	**1.88E+00**	41.7	9.38E-01
Cadmium	0.92	40.69	3.74E+01	1.21E+01	1.45	**8.34E+00**	20	6.04E-01
Chromium	34	3.162	1.08E+02	3.58E+01	1.0	**3.58E+01**	5.0	**7.15E+00**
Lead	21	1.522	3.20E+01	1.10E+01	1.13	**9.73E+00**	3.0	**3.67E+00**
Mercury	0.12	20.625	2.475	8.01E-01	0.0064	**1.25E+02**	0.064	**1.25E+01**
			Hazard Index for inorganics:			**1.81E+02**		**2.49E+01**

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

APPENDIX O
REFINED DIETARY INTAKE CALCULATIONS

Food Chain Exposure Model for Piscivorous Birds (Belted Kingfisher)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area A

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.074	
IR_{sw}	Water ingestion rate (L/day)	0.016403	
IR_{sed}	Sediment ingestion rate (kg/day)	0.0074	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.148	

Chemical	Mean Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (L/kg)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Mean Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Arsenic	0.0383	17	1.0	17	6.51E-01	1.8	4.20E-01	2.46	1.71E-01	7.38	5.69E-02
Barium	0.0505	95	1.0	95	4.80E+00	14	3.10E+00	20.8	1.49E-01	41.7	7.44E-02
Beryllium	ND	19	1.0	19	NA	0.29	1.45E-02	NE	NA	NE	NA
Cadmium	0.0007	2,213	1.0	2,213	1.55E+00	ND	7.75E-01	1.45	5.34E-01	20	3.87E-02
Chromium	ND	3	1.0	3	NA	21	1.05E+00	1	**1.05E+00**	5	2.10E-01
Cobalt	0.00096	40	1.0	40	3.84E-02	6.9	3.64E-01	NE	NA	NE	NA
Copper	ND	290	1.0	290	NA	63	3.15E+00	47	6.70E-02	61.7	5.11E-02
Lead	ND	45	1.0	45	NA	12	6.00E-01	1.13	5.31E-01	11.3	5.31E-02
Mercury	ND	NA	NA	27,900	NA	0.078	3.90E-03	0.0064	6.09E-01	0.064	6.09E-02
Nickel	ND	106	1.0	106	NA	6.6	3.30E-01	77.4	4.26E-03	107	3.08E-03
Selenium	0.0223	NA	NA	2,600	5.80E+01	ND	2.90E+01	1.8	**1.61E+01**	11.8	**2.46E+00**
Tin	0.0027	85	1.0	85	2.30E-01	4.3	3.30E-01	6.8	4.85E-02	16.9	1.95E-02
Vanadium	0.0885	153	1.0	153	1.35E+01	180	1.58E+01	11.4	**1.38E+00**	114	1.38E-01
Zinc	0.0063	966	1.0	966	6.09E+00	64	6.24E+00	14.5	4.31E-01	131	4.77E-02
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.13	6.50E-03	NE	NA	NE	NA

ND = Not Detected
NA = Not Applicable
NE = Not Established

Hazard Index for inorganics:	**2.11E+01**	**3.21E+00**
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Belted Kingfisher)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area B

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.074	
IR_{sw}	Water ingestion rate (L/day)	0.016403	
IR_{sed}	Sediment ingestion rate (kg/day)	0.0074	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.148	

Chemical	Mean Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (L/kg)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Mean Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Antimony	0.0064	1	1.0	1	6.40E-03	No Data	3.91E-03	NE	NA	NE	NA
Arsenic	0.0303	17	1.0	17	5.15E-01	1.2	3.21E-01	2.46	1.30E-01	7.38	4.35E-02
Barium	0.0567	95	1.0	95	5.39E+00	16.3	3.51E+00	20.8	1.69E-01	41.7	8.43E-02
Beryllium	0.0003	19	1.0	19	5.70E-03	0.14	9.88E-03	NE	NA	NE	NA
Cadmium	0.0012	2,213	1.0	2,213	2.66E+00	0.11	1.33E+00	1.45	9.20E-01	20	6.67E-02
Chromium	0.0068	3	1.0	3	2.04E-02	25.7	1.30E+00	1	**1.30E+00**	5	2.59E-01
Cobalt	0.004	40	1.0	40	1.60E-01	9.4	5.50E-01	NE	NA	NE	NA
Copper	0.0422	290	1.0	290	1.22E+01	100	1.11E+01	47	2.37E-01	61.7	1.80E-01
Cyanide	0.0054	0	1.0	0	0.00E+00	ND	5.98E-04	NE	NA	NE	NA
Lead	0.0033	45	1.0	45	1.49E-01	25.4	1.34E+00	1.13	**1.19E+00**	11.3	1.19E-01
Mercury	ND	NA	NA	27,900	NA	0.09	4.50E-03	0.0064	7.03E-01	0.064	7.03E-02
Nickel	0.0063	106	1.0	106	6.68E-01	8.2	7.45E-01	77.4	9.62E-03	107	6.96E-03
Tin	0.006	85	1.0	85	5.10E-01	4.2	4.66E-01	6.8	6.85E-02	16.9	2.76E-02
Vanadium	0.0924	153	1.0	153	1.41E+01	157	1.49E+01	11.4	**1.31E+00**	114	1.31E-01
Zinc	0.0206	966	1.0	966	1.99E+01	53.7	1.26E+01	14.5	8.72E-01	131	9.65E-02
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.157	7.85E-03	NE	NA	NE	NA
2-Butanone	ND	0.66	1.0	0.66	NA	0.0327	1.64E-03	NE	NA	NA	NA
Carbon disulfide	ND	15	1.05	15.75	NA	0.0067	3.35E-04	NE	NA	NE	NA

ND = Not Detected
NA = Not Applicable
NE = Not Established

Hazard Index for inorganics:	**6.90E+00**	**1.09E+00**
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Belted Kingfisher)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area C

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.074	
IR_{sw}	Water ingestion rate (L/day)	0.016403	
IR_{sed}	Sediment ingestion rate (kg/day)	0.0074	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.148	

Chemical	Mean Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (L/kg)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Mean Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Arsenic	0.0348	17	1.0	17	5.92E-01	3.5	4.75E-01	2.46	1.93E-01	7.38	6.43E-02
Barium	0.308	95	1.0	95	2.93E+01	54.5	1.74E+01	20.8	8.36E-01	41.7	4.17E-01
Beryllium	0.0024	19	1.0	19	4.56E-02	0.087	2.74E-02	NE	NA	NE	NA
Cadmium	0.0023	2,213	1.0	2,213	5.09E+00	ND	2.55E+00	1.45	**1.76E+00**	20	1.27E-01
Chromium	0.129	3	1.0	3	3.87E-01	19.6	1.19E+00	1	**1.19E+00**	5	2.38E-01
Cobalt	0.113	40	1.0	40	4.52E+00	14.8	3.01E+00	NE	NA	NE	NA
Copper	0.379	290	1.0	290	1.10E+02	38.5	5.69E+01	47	**1.21E+00**	61.7	9.23E-01
Lead	0.105	45	1.0	45	4.73E+00	15.1	3.13E+00	1.13	**2.77E+00**	11.3	2.77E-01
Mercury	0.00055	NA	NA	27,900	1.53E+01	0.032	7.67E+00	0.0064	**1.20E+03**	0.064	**1.20E+02**
Nickel	0.0585	106	1.0	106	6.20E+00	5.7	3.39E+00	77.4	4.38E-02	107	3.17E-02
Selenium	ND	NA	NA	2,600	NA	0.44	2.20E-02	1.8	1.22E-02	11.8	1.86E-03
Tin	0.0123	85	1.0	85	1.05E+00	4.8	7.64E-01	6.8	1.12E-01	16.9	4.52E-02
Vanadium	0.865	153	1.0	153	1.32E+02	123	7.24E+01	11.4	**6.35E+00**	114	6.35E-01
Zinc	0.336	966	1.0	966	3.25E+02	31	1.64E+02	14.5	**1.13E+01**	131	**1.25E+00**
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.182	9.10E-03	NE	NA	NE	NA
2-Butanone	ND	0.66	1.0	0.66	NA	0.0498	2.49E-03	NE	NA	NE	NA
Carbon disulfide	ND	15	1.05	15.75	NA	0.013	6.50E-04	NE	NA	NE	NA
Methylene chloride	0.0027	3.9	1.0	3.9	1.05E-02	ND	5.56E-03	NE	NA	NE	NA

ND = Not Detected
NA = Not Applicable
NE = Not Established

Hazard Index for inorganics:	**1.22E+03**	**1.24E+02**
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Belted Kingfisher)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
Background

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.074	
IR_{sw}	Water ingestion rate (L/day)	0.016403	
IR_{sed}	Sediment ingestion rate (kg/day)	0.0074	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.148	

Chemical	Mean Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (L/kg)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Mean Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Arsenic	0.0351	17	1.0	17	5.97E-01	1.3	3.67E-01	2.46	1.49E-01	7.38	4.98E-02
Barium	0.0559	95	1.0	95	5.31E+00	8.1	3.07E+00	20.8	1.47E-01	41.7	7.35E-02
Beryllium	ND	19	1.0	19	NA	0.047	2.35E-03	NE	NA	NE	NA
Chromium	0.0091	3	1.0	3	2.73E-02	16	8.15E-01	1	8.15E-01	5	1.63E-01
Cobalt	0.0032	40	1.0	40	1.28E-01	4.7	2.99E-01	NE	NA	NE	NA
Copper	ND	290	1.0	290	NA	58	2.90E+00	47	6.17E-02	61.7	4.70E-02
Lead	ND	45	1.0	45	NA	4.6	2.30E-01	1.13	2.04E-01	11.3	2.04E-02
Mercury	ND	NA	NA	27,900	NA	0.041	2.05E-03	0.0064	3.20E-01	0.064	3.20E-02
Nickel	ND	106	1.0	106	NA	4.8	2.40E-01	77.4	3.10E-03	107	2.24E-03
Tin	0.0027	85	1.0	85	2.30E-01	4.2	3.25E-01	6.8	4.78E-02	16.9	1.92E-02
Vanadium	0.0484	153	1.0	153	7.41E+00	110	9.21E+00	11.4	8.08E-01	114	8.08E-02
Zinc	0.0119	966	1.0	966	1.15E+01	ND	5.75E+00	14.5	3.96E-01	131	4.39E-02
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.14	7.00E-03	NE	NA	NE	NA

ND = Not Detected
NA = Not Applicable
NE = Not Established

Hazard Index for inorganics:	**2.95E+00**	5.32E-01
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Great Blue Heron)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area A

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.39289	
IR_{sw}	Water ingestion rate (L/day)	0.10095	
IR_{sed}	Sediment ingestion rate (kg/day)	0.03929	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	2.229	

Chemical	Mean Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (Unitless)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Mean Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Arsenic	0.0383	17	1.0	17	6.51E-01	1.8	1.48E-01	2.46	6.03E-02	7.38	2.01E-02
Barium	0.0505	95	1.0	95	4.80E+00	14	1.09E+00	20.8	5.26E-02	41.7	2.63E-02
Beryllium	ND	19	1.0	19	NA	0.29	5.11E-03	NE	NA	NE	NA
Cadmium	0.0007	2,213	1.0	2,213	1.55E+00	ND	2.73E-01	1.45	1.88E-01	20	1.37E-02
Chromium	ND	3	1.0	3	NA	21	3.70E-01	1	3.70E-01	5	7.40E-02
Cobalt	0.00096	40	1.0	40	3.84E-02	6.9	1.28E-01	NE	NA	NE	NA
Copper	ND	290	1.0	290	NA	63	1.11E+00	47	2.36E-02	61.7	1.80E-02
Lead	ND	45	1.0	45	NA	12	2.12E-01	1.13	1.87E-01	11.3	1.87E-02
Mercury	ND	NA	NA	27,900	NA	0.078	1.37E-03	0.0064	2.15E-01	0.064	2.15E-02
Nickel	ND	106	1.0	106	NA	6.6	1.16E-01	77.4	1.50E-03	107	1.09E-03
Selenium	0.0223	NA	NA	2,600	5.80E+01	ND	1.02E+01	1.8	**5.68E+00**	11.8	8.66E-01
Tin	0.0027	85	1.0	85	2.30E-01	4.3	1.16E-01	6.8	1.71E-02	16.9	6.89E-03
Vanadium	0.0885	153	1.0	153	1.35E+01	180	5.56E+00	11.4	4.88E-01	114	4.88E-02
Zinc	0.0063	966	1.0	966	6.09E+00	64	2.20E+00	14.5	1.52E-01	131	1.68E-02
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.13	2.29E-03	NE	NA	NE	NA

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**7.43E+00**	**1.13E+00**
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Great Blue Heron)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area B

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.39289	
IR_{sw}	Water ingestion rate (L/day)	0.10095	
IR_{sed}	Sediment ingestion rate (kg/day)	0.03929	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	2.229	

Chemical	Mean Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (Unitless)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Mean Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Antimony	0.0064	1	1.0	1	6.40E-03	No Data	1.42E-03	NE	NA	NE	NA
Arsenic	0.0303	17	1.0	17	5.15E-01	1.17	1.13E-01	2.46	4.58E-02	7.38	1.53E-02
Barium	0.0567	95	1.0	95	5.39E+00	16.3	1.24E+00	20.8	5.96E-02	41.7	2.97E-02
Beryllium	0.0003	19	1.0	19	5.70E-03	0.14	3.49E-03	NE	NA	NE	NA
Cadmium	0.0012	2,213	1.0	2,213	2.66E+00	0.11	4.70E-01	1.45	3.24E-01	20	2.35E-02
Chromium	0.0068	3	1.0	3	2.04E-02	25.7	4.57E-01	1	4.57E-01	5	9.14E-02
Cobalt	0.0040	40	1.0	40	1.60E-01	9.40	1.94E-01	NE	NA	NE	NA
Copper	0.0422	290	1.0	290	1.22E+01	100	3.92E+00	47	8.34E-02	61.7	6.36E-02
Cyanide	0.0054	0	1.0	0	0.00E+00	ND	2.45E-04	NE	NA	NE	NA
Lead	0.0033	45	1.0	45	1.49E-01	25.5	4.76E-01	1.13	4.21E-01	11.3	4.21E-02
Mercury	ND	NA	NA	27,900	NA	0.09	1.59E-03	0.0064	2.48E-01	0.064	2.48E-02
Nickel	0.0063	106	1.0	106	6.68E-01	8.20	2.63E-01	77.4	3.39E-03	107	2.45E-03
Tin	0.0060	85	1.0	85	5.10E-01	4.20	1.64E-01	6.8	2.41E-02	16.9	9.72E-03
Vanadium	0.0924	153	1.0	153	1.41E+01	157	5.26E+00	11.4	4.62E-01	114	4.62E-02
Zinc	0.0206	966	1.0	966	1.99E+01	53.7	4.46E+00	14.5	3.07E-01	131	3.40E-02
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.157	2.77E-03	NE	NA	NE	NA
2-Butanone	ND	0.66	1.0	0.66	NA	0.033	5.82E-04	NE	NA	NA	NA
Carbon disulfide	ND	15	1.05	15.75	NA	0.007	1.23E-04	NE	NA	NE	NA

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**2.44E+00**	3.83E-01
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Great Blue Heron)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area C

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.39289	
IR_{sw}	Water ingestion rate (L/day)	0.10095	
IR_{sed}	Sediment ingestion rate (kg/day)	0.03929	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	2.229	

Chemical	Mean Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (Unitless)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Mean Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Arsenic	0.0348	17	1.0	17	5.91E-01	3.45	1.67E-01	2.46	6.77E-02	7.38	2.26E-02
Barium	0.3075	95	1.0	95	2.92E+01	54.5	6.12E+00	20.8	2.94E-01	41.7	1.47E-01
Beryllium	0.0024	19	1.0	19	4.47E-02	0.087	9.51E-03	NE	NA	NE	NA
Cadmium	0.0023	2,213	1.0	2,213	5.03E+00	ND	8.88E-01	1.45	6.12E-01	20	4.44E-02
Chromium	0.1290	3	1.0	3	3.87E-01	19.6	4.20E-01	1	4.20E-01	5	8.39E-02
Cobalt	0.1133	40	1.0	40	4.53E+00	14.8	1.06E+00	NE	NA	NE	NA
Copper	0.3785	290	1.0	290	1.10E+02	38.5	2.00E+01	47	4.26E-01	61.7	3.25E-01
Lead	0.1055	45	1.0	45	4.75E+00	15.1	1.11E+00	1.13	9.80E-01	11.3	9.80E-02
Mercury	0.000545	NA	NA	27,900	1.52E+01	0.032	2.68E+00	0.0064	**4.19E+02**	0.064	**4.19E+01**
Nickel	0.0585	106	1.0	106	6.20E+00	5.7	1.20E+00	77.4	1.54E-02	107	1.12E-02
Selenium	ND	NA	NA	2,600	NA	0.44	7.76E-03	1.8	4.31E-03	11.8	6.57E-04
Tin	0.0123	85	1.0	85	1.04E+00	4.75	2.68E-01	6.8	3.94E-02	16.9	1.58E-02
Vanadium	0.8650	153	1.0	153	1.32E+02	123	2.55E+01	11.4	**2.24E+00**	114	2.24E-01
Zinc	0.3355	966	1.0	966	3.24E+02	31	5.77E+01	14.5	**3.98E+00**	131	4.40E-01
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.182	3.21E-03	NE	NA	NE	NA
2-Butanone	ND	0.66	1.0	0.66	NA	0.050	8.81E-04	NE	NA	NE	NA
Carbon disulfide	ND	15	1.05	15.75	NA	0.013	2.29E-04	NE	NA	NE	NA
Methylene chloride	0.0027	3.9	1.0	3.9	1.05E-02	ND	1.98E-03	NE	NA	NA	NA

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**4.28E+02**	**4.33E+01**
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Piscivorous Birds (Great Blue Heron)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
Background

$DI = [(C_f*IR_f) + (C_{sw}*IR_{sw}) + (C_{sed}*IR_{sed})][H]/BW$
$C_f = (C_{sw}*BAF_f)$ where $BAF_f = (BCF_f*FCM)$
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{sw}	Chemical concentration in water (mg/L)	CS	
C_f	Chemical concentration in fish (mg/kg)	CS	
BAF_f	Bioaccumulation factor - trophic level 3 fish (L/kg)	CS	
BCF_f	Water-fish bioconcentration factor (L/kg)	CS	
FMC	Food chain multiplier - trophic level 3 fish (unitless)	CS	
C_{sed}	Chemical concentration in sediment (mg/kg)	CS	
IR_f	Fish ingestion rate (kg/day)	0.39289	
IR_{sw}	Water ingestion rate (L/day)	0.10095	
IR_{sed}	Sediment ingestion rate (kg/day)	0.03929	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	2.229	

Chemical	Mean Water Concentration (mg/L)	Water-Fish Bioconcentration Factor (Unitless)	Food Chain Multiplier (unitless)	Fish Bioaccumulation Factor (L/kg)	Estimated Fish Concentration (mg/kg)	Mean Sediment Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:											
Arsenic	0.0351	17	1.0	17	5.97E-01	1.3	1.30E-01	2.46	5.27E-02	7.38	1.76E-02
Barium	0.0559	95	1.0	95	5.31E+00	8.1	1.08E+00	20.8	5.20E-02	41.7	2.59E-02
Beryllium	ND	19	1.0	19	NA	0.047	8.28E-04	NE	NA	NE	NA
Chromium	0.0091	3	1.0	3	2.73E-02	16	2.87E-01	1	2.87E-01	5	5.75E-02
Cobalt	0.0032	40	1.0	40	1.28E-01	4.7	1.06E-01	NE	NA	NE	NA
Copper	ND	290	1.0	290	NA	58	1.02E+00	47	2.18E-02	61.7	1.66E-02
Lead	ND	45	1.0	45	NA	4.6	8.11E-02	1.13	7.18E-02	11.3	7.18E-03
Mercury	ND	NA	NA	27,900	NA	0.041	7.23E-04	0.0064	1.13E-01	0.064	1.13E-02
Nickel	ND	106	1.0	106	NA	4.8	8.46E-02	77.4	1.09E-03	107	7.91E-04
Tin	0.0027	85	1.0	85	2.30E-01	4.2	1.15E-01	6.8	1.69E-02	16.9	6.78E-03
Vanadium	0.0484	153	1.0	153	7.41E+00	110	3.25E+00	11.4	2.85E-01	114	2.85E-02
Zinc	0.0119	966	1.0	966	1.15E+01	ND	2.03E+00	14.5	1.40E-01	131	1.55E-02
Volatiles:											
Acetone	ND	0.26	1.0	0.26	NA	0.14	2.47E-03	NE	NA	NE	NA

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**1.04E+00**	1.88E-01
Hazard Index for volatiles:	NA	NA

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Carnivorous Birds Consuming Small Mammals (Red-Tailed Hawk)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area A

$DI = [(C_m * IR_m) + (C_{soil} * IR_{soil})][H]/BW$
$C_m = (C_{soil} * BAF_m)$ or estimated from a log-linear regression model (general trophic level group)
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_m	Chemical concentration in small mammals (mg/kg)	CS	
BAF_m	Soil-mammal bioaccumulation factor (unitless)	CS	
IR_m	Mammal ingestion rate (kg/day)	0.111474	
IR_{soil}	Soil ingestion rate (kg/day)	0.0111474	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	1.126	

Chemical	Mean Soil Concentration (mg/kg)	Soil-Mammal Bioaccumulation Factor (mg/kg)	Estimated Mammal Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Arsenic	1.8	NA [1]	1.27E-02	1.91E-02	2.46	7.76E-03	7.38	2.59E-03
Barium	118	0.0566	6.68E+00	1.83E+00	20.8	8.80E-02	41.7	4.39E-02
Chromium	15.7	NA [1]	1.75E+00	3.29E-01	1.0	3.29E-01	5.0	6.57E-02
Lead	9.1	NA [1]	2.87E+00	3.74E-01	1.13	3.31E-01	3.0	1.25E-01
Selenium	0.66	NA [1]	5.64E-01	6.24E-02	0.44	1.42E-01	1.5	4.16E-02
Silver	0.21	1.0	2.10E-01	2.29E-02	NE	NA	NE	NA
Volatiles:								
Acetone	0.0073	1.0	7.30E-03	7.95E-04	NE	NA	NE	NA
Semi-Volatiles:								
Benzyl Alcohol	0.250	1.0	2.50E-01	2.72E-02	NE	NA	NE	NA
Diethylphthalate	0.040	1.0	4.00E-02	4.36E-03	NE	NA	NE	NA

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	8.97E-01	2.78E-01
Hazard Index for volatiles:	NA	NA
Hazard Index for semi-volatiles:	NA	NA

[1] A log-linear regression model (Sample et al. 1998a) was used to estimate the tissue concentration in small mammals.

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Carnivorous Birds Consuming Small Mammals (Red-Tailed Hawk)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area B

$DI = [(C_m*IR_m) + (C_{soil}*IR_{soil})][H]/BW$
$C_m = (C_{soil}*BAF_m)$ or estimated from a log-linear regression model (general trophic level group)
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_m	Chemical concentration in small mammals (mg/kg)	CS	
BAF_m	Soil-mammal bioaccumulation factor (unitless)	CS	
IR_m	Mammal ingestion rate (kg/day)	0.111474	
IR_{soil}	Soil ingestion rate (kg/day)	0.0111474	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	1.126	

Chemical	Mean Soil Concentration (mg/kg)	Soil-Mammal Bioaccumulation Factor (mg/kg)	Estimated Mammal Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Arsenic	1.67	NA [1]	1.19E-02	1.77E-02	2.46	7.20E-03	7.38	2.40E-03
Barium	85.4	0.0566	4.83E+00	1.32E+00	20.8	6.37E-02	41.7	3.18E-02
Cadmium	0.21	NA [1]	3.04E-01	3.22E-02	1.45	2.22E-02	20	1.61E-03
Chromium	10.7	NA [1]	1.32E+00	2.37E-01	1.0	2.37E-01	5.0	4.73E-02
Lead	101	NA [1]	8.31E+00	1.82E+00	1.13	**1.61E+00**	3.0	6.07E-01
Selenium	0.72	NA [1]	5.83E-01	6.48E-02	0.44	1.47E-01	1.5	4.32E-02
Volatiles:								
Acetone	0.0138	1.0	1.38E-02	NE	NE	NE	NE	NA
Semi-Volatiles:								
Di-n-butylphthalate	0.040	1.0	4.00E-02	4.36E-03	0.11	3.96E-02	1.1	3.96E-03

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**2.09E+00**	7.34E-01
Hazard Index for volatiles:	NA	NA
Hazard Index for semi-volatiles:	3.96E-02	3.96E-03

[1] A log-linear regression model (Sample et al. 1998a) was used to estimate the tissue concentration in small mammals.

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Carnivorous Birds Consuming Small Mammals (Red-Tailed Hawk}
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area C

$DI = [(C_m*IR_m) + (C_{soil}*IR_{soil})][H]/BW$
$C_m = (C_{soil}*BAF_m)$ or estimated from a log-linear regression model (general trophic level group)
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_m	Chemical concentration in small mammals (mg/kg)	CS	
BAF_m	Soil-mammal bioaccumulation factor (unitless)	CS	
IR_m	Mammal ingestion rate (kg/day)	0.111474	
IR_{soil}	Soil ingestion rate (kg/day)	0.0111474	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	1.126	

Chemical	Mean Soil Concentration (mg/kg)	Soil-Mammal Bioaccumulation Factor (mg/kg)	Estimated Mammal Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Barium	74.1	0.0566	4.19E+00	1.15E+00	20.8	5.52E-02	41.7	2.75E-02
Chromium	24.4	NA [1]	2.42E+00	4.81E-01	1.0	4.81E-01	5.0	9.62E-02
Lead	25.4	NA [1]	4.51E+00	6.98E-01	1.13	6.18E-01	3.0	2.33E-01
Semi-Volatiles:								
Benzo(b)fluoranthene	0.059	1.0	5.90E-02	6.43E-03	NE	NA	NE	NA
Chrysene	0.045	1.0	4.50E-02	4.90E-03	NE	NA	NE	NA
Di-n-butylphthalate	0.100	1.0	1.00E-01	1.09E-02	0.11	9.90E-02	1.1	9.90E-03
Pyrene	0.056	1.0	5.60E-02	6.10E-03	NE	NA	NE	NA

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**1.15E+00**	3.56E-01
Hazard Index for semi-volatiles:	9.90E-02	9.90E-03

[1] A log-linear regression model (Sample et al. 1998a) was used to estimate the tissue concentration in small mammals.

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Carnivorous Birds Consuming Small Mammals (Red-Tailed Hawk}
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
Background

$DI = [(C_m*IR_m) + (C_{soil}*IR_{soil})][H]/BW$
$C_m = (C_{soil}*BAF_m)$ or estimated from a log-linear regression model (general trophic level group)
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
Cm	Chemical concentration in small mammals (mg/kg)	CS	
BAF_m	Soil-mammal bioaccumulation factor (unitless)	CS	
IR_m	Mammal ingestion rate (kg/day)	0.111474	
IR_{soil}	Soil ingestion rate (kg/day)	0.0111474	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	1.126	

Chemical	Mean Soil Concentration (mg/kg)	Soil-Mammal Bioaccumulation Factor (mg/kg)	Estimated Mammal Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Arsenic	1.9	NA [1]	1.33E-02	2.01E-02	2.46	8.18E-03	7.38	2.73E-03
Barium	76.4	0.0566	4.32E+00	1.18E+00	20.8	5.69E-02	41.7	2.84E-02
Cadmium	0.24	NA [1]	3.25E-01	3.46E-02	1.45	2.38E-02	20	1.73E-03
Chromium	19.5	NA [1]	2.05E+00	3.96E-01	1.0	3.96E-01	5.0	7.93E-02
Lead	10.5	NA [1]	3.05E+00	4.06E-01	1.13	3.59E-01	3.0	1.35E-01
Mercury	0.062	0.0543	3.37E-03	9.47E-04	0.0064	1.48E-01	0.064	1.48E-02
			Hazard Index for inorganics:			9.93E-01		2.62E-01

[1] A log-linear regression model (Sample et al. 1998a) was used to estimate the tissue concentration in small mammals.

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Insectivorous Birds Consuming Soil Arthropods (American Robin)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area A

$DI = [(C_w * IR_w) + (C_{soil} * IR_{soil})][H]/BW$
$C_w = (C_{soil} * BAF_w)$ or estimated from a log-linear regression model
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_w	Chemical concentration in earthworms (mg/kg)	CS	
BAF_w	Soil-earthworm bioaccumulation factor (unitless)	CS	
IR_w	Earthworm ingestion rate (kg/day)	0.01603	
IR_{soil}	Soil ingestion rate (kg/day)	0.00167	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.0773	

Chemical	Mean Soil Concentration (mg/kg)	Soil-Earthworm Bioaccumulation Factor (Unitless)	Estimated Earthworm Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (Unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Arsenic	1.8	NA [1]	3.66E-01	1.15E-01	2.46	4.66E-02	7.38	1.55E-02
Barium	118	0.36	4.25E+01	1.14E+01	20.8	5.46E-01	41.7	2.72E-01
Chromium	15.7	0.32	5.02E+00	1.38E+00	1.0	**1.38E+00**	5.0	2.76E-01
Lead	9.1	NA [1]	4.78E+00	1.19E+00	1.13	**1.05E+00**	3.0	3.96E-01
Selenium	0.66	NA [1]	6.84E-01	1.56E-01	0.4	3.90E-01	0.8	1.95E-01
Silver	0.21	1.0	2.10E-01	4.81E-02	NE	NA	NE	NA
Volatiles:								
Acetone	0.0073	1.0	7.30E-03	1.67E-03	NE	NA	NE	NA
Semi-Volatiles:								
Benzyl Alcohol	0.250	1.0	2.50E-01	5.72E-02	NE	NA	NE	NA
Diethylphthalate	0.040	1.0	4.00E-02	9.16E-03	NE	NA	NE	NA

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**3.41E+00**	**1.16E+00**
Hazard Index for volatiles:	NA	NA
Hazard Index for semi-volatiles:	NA	NA

[1] A log-linear regression model (Sample et al. 1998b) was used to estimate the tissue concentration in earthworms.

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Insectivorous Birds Consuming Soil Arthropods (American Robin)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area B

$DI = [(C_w * IR_w) + (C_{soil} * IR_{soil})][H]/BW$
$C_w = (C_{soil} * BAF_w)$ or estimated from a log-linear regression model
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_w	Chemical concentration in earthworms (mg/kg)	CS	
BAF_w	Soil-earthworm bioaccumulation factor (unitless)	CS	
IR_w	Earthworm ingestion rate (kg/day)	0.01603	
IR_{soil}	Soil ingestion rate (kg/day)	0.00167	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.0773	

Chemical	Mean Soil Concentration (mg/kg)	Soil-Earthworm Bioaccumulation Factor (Unitless)	Estimated Earthworm Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (Unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Arsenic	1.67	NA [1]	3.47E-01	1.08E-01	2.46	4.39E-02	7.38	1.46E-02
Barium	85.4	0.36	3.07E+01	8.22E+00	20.8	3.95E-01	41.7	1.97E-01
Cadmium	0.21	NA [1]	2.39E+00	5.01E-01	1.45	3.46E-01	20	2.51E-02
Chromium	10.7	0.32	3.42E+00	9.41E-01	1.0	9.41E-01	5.0	1.88E-01
Lead	101	NA [1]	3.33E+01	9.09E+00	1.13	**8.05E+00**	3.0	**3.03E+00**
Selenium	0.72	NA [1]	7.29E-01	1.67E-01	0.4	4.17E-01	100	1.67E-03
Volatiles:								
Acetone	0.014	1.0	1.38E-02	3.16E-03	NE	NA	NE	NA
Semi-Volatiles:								
Di-n-butylphthalate	0.040	1.0	4.00E-02	9.16E-03	0.11	8.33E-02	1.1	8.33E-03

NE = Not Established
NA = Not Applicable

Hazard Index for inorganics:	**1.02E+01**	**3.46E+00**
Hazard Index for volatiles:	NA	NA
Hazard Index for semi-volatiles:	8.33E-02	8.33E-03

[1] A log-linear regression model (Sample et al. 1998b) was used to estimate the tissue concentration in earthworms.

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Insectivorous Birds Consuming Soil Arthropods (American Robin)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
SWMU 9, Area C

$DI = [(C_w * IR_w) + (C_{soil} * IR_{soil})][H]/BW$
$C_w = (C_{soil} * BAF_w)$ or estimated from a log-linear regression model
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_w	Chemical concentration in earthworms (mg/kg)	CS	
BAF_w	Soil-earthworm bioaccumulation factor (unitless)	CS	
IR_w	Earthworm ingestion rate (kg/day)	0.01603	
IR_{soil}	Soil ingestion rate (kg/day)	0.00167	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.0773	

Chemical	Mean Soil Concentration (mg/kg)	Soil-Earthworm Bioaccumulation Factor (Unitless)	Estimated Earthworm Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (Unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Barium	74.1	0.36	2.67E+01	7.13E+00	20.8	3.43E-01	41.7	1.71E-01
Chromium	24.4	0.32	7.81E+00	2.15E+00	1.0	**2.15E+00**	5.0	4.29E-01
Lead	25.4	NA [1]	1.09E+01	2.82E+00	1.13	**2.49E+00**	3.0	9.39E-01
Semi-Volatiles:								
Benzo(b)fluoranthene	0.059	0.12	7.08E-03	2.74E-03	NE	NA	NE	NA
Chrysene	0.045	0.20	9.00E-03	2.84E-03	NE	NA	NE	NA
Di-n-butylphthalate	0.100	1.0	1.00E-01	2.29E-02	0.11	2.08E-01	1.1	2.08E-02
Pyrene	0.056	0.34	1.90E-02	5.16E-03	NE	NA	NE	NA
				Hazard Index for inorganics:		**4.98E+00**		**1.54E+00**
				Hazard Index for semi-volatiles:		2.08E-01		2.08E-02

[1] A log-linear regression model (Sample et al. 1998b) was used to estimate the tissue concentration in earthworms.

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

Food Chain Exposure Model for Insectivorous Birds Consuming Soil Arthropods (American Robin)
Refinement of Conservative Exposure Assumptions
Naval Station Roosevelt Roads
Background

$DI = [(C_w * IR_w) + (C_{soil} * IR_{soil})][H]/BW$
$C_w = (C_{soil} * BAF_w)$ or estimated from a log-linear regression model
HQ = DI/NOAEL or LOAEL

Parameter		Value	
DI	Dietary intake (mg/kg/day)	CS	(Chemical Specific)
C_{soil}	Chemical concentration in soil (mg/kg)	CS	
C_w	Chemical concentration in earthworms (mg/kg)	CS	
BAF_w	Soil-earthworm bioaccumulation factor (unitless)	CS	
IR_w	Earthworm ingestion rate (kg/day)	0.01603	
IR_{soil}	Soil ingestion rate (kg/day)	0.00167	
H	Ratio of site area to home range area (unitless)	1.0	
BW	Body weight (kg)	0.0773	

Chemical	Mean Soil Concentration (mg/kg)	Soil-Earthworm Bioaccumulation Factor (Unitless)	Estimated Earthworm Concentration (mg/kg)	Dietary Intake (mg/kg/day)	NOAEL (mg/kg/day)	Hazard Quotient (Unitless)	LOAEL (mg/kg/day)	Hazard Quotient (Unitless)
Inorganics:								
Arsenic	1.9	NA [1]	3.80E-01	1.20E-01	2.46	4.87E-02	7.38	1.62E-02
Barium	76.4	0.36	2.75E+01	7.35E+00	20.8	3.54E-01	41.7	1.76E-01
Cadmium	0.24	NA [1]	2.66E+00	5.57E-01	1.45	3.84E-01	20	2.78E-02
Chromium	19.5	0.32	6.24E+00	1.72E+00	1.0	**1.72E+00**	5.0	3.43E-01
Lead	10.6	NA [1]	5.40E+00	1.35E+00	1.13	**1.19E+00**	3.0	4.50E-01
Mercury	0.0622	NA [1]	4.24E-01	8.93E-02	0.0064	**1.39E+01**	0.064	**1.39E+00**
				Hazard Index for inorganics:		**1.76E+01**		**2.41E+00**

[1] A log-linear regression model (Sample et al. 1998b) was used to estimate the tissue concentration in earthworms.

Bold and shaded value indicates a Hazard Quotient or Hazard Index greater than 1.0

APPENDIX P
SCREENING LEVEL AND REFINEMENT HQ AND HI VALUES

TABLE P-1

COMPARISON OF SWMU 9 (AREA A, B, AND C) AND BACKGROUND SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: SEDIMENT-ASSOCIATED BIOTA
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

	Hazard Quotient Values for Sediment-Associated Biota (Unitless)							
	Area A		Area B		Area C		Background	
Chemical	Screening HQ Value	Refinement HQ Value [1]	Screening HQ Value	Refinement HQ Value [1]	Screening HQ Value	Refinement HQ Value [1]	Screening HQ Value	Refinement HQ Value [1]
Inorganics (mg/kg):								
Arsenic	2.49E-01	2.49E-01	1.80E-01	1.66E-01	6.35E-01	4.83E-01	1.80E-01	1.80E-01
Barium	2.92E-01	2.92E-01	4.17E-01	3.40E-01	**1.67E+00**	**1.14E+00**	1.69E-01	1.69E-01
Beryllium	NC	NC	NC	NC	NC	NC	NC	NC
Cadmium	IEP	IEP	2.07E-01	1.63E-01	IEP	IEP	IEP	IEP
Chromium	4.02E-01	4.02E-01	5.35E-01	4.91E-01	5.74E-01	3.75E-01	3.06E-01	3.06E-01
Cobalt	6.90E-01	6.90E-01	**1.20E+00**	9.40E-01	**2.20E+00**	**1.48E+00**	4.70E-01	4.70E-01
Copper	**3.37E+00**	**3.37E+00**	**6.42E+00**	**5.35E+00**	**2.62E+00**	**2.06E+00**	**3.10E+00**	**3.10E+00**
Lead	3.97E-01	3.97E-01	**1.56E+00**	8.41E-01	7.28E-01	5.00E-01	1.52E-01	1.52E-01
Mercury	6.00E-01	6.00E-01	7.69E-01	6.92E-01	3.77E-01	2.46E-01	3.15E-01	3.15E-01
Nickel	4.15E-01	4.15E-01	6.16E-01	5.16E-01	4.40E-01	3.58E-01	3.02E-01	3.02E-01
Selenium	IEP	IEP	IEP	IEP	6.80E-01	4.40E-01	IEP	IEP
Tin	NC	NC	NC	NC	NC	NC	NC	NC
Vanadium	**3.16E+00**	**3.16E+00**	**3.16E+00**	**2.75E+00**	**3.16E+00**	**2.16E+00**	**1.93E+00**	**1.93E+00**
Zinc	5.16E-01	5.16E-01	5.08E-01	4.33E-01	4.19E-01	2.50E-01	IEP	IEP
Volatiles (ug/kg):								
Acetone	NC	NC	NC	NC	NC	NC	NC	NC
2-Butanone	IEP	IEP	NC	NC	NC	NC	IEP	IEP
Carbon disulfide	IEP	IEP	NC	NC	NC	NC	IEP	IEP

HI for Inorganics [2]:	**1.01E+01**	**1.01E+01**	**1.56E+01**	**1.27E+01**	**1.35E+01**	**9.48E+00**	**6.93E+00**	**6.93E+00**
HI for Volatiles [2]:	NA	NA	NA	NA	NA	NA	NA	NA

Bold and shaded values indicate a Hazard Quotient or Hazard Index greater than 1.0

TABLE P-1 (Continued)

COMPARISON OF SWMU 9 (AREA A, B, AND C) AND BACKGROUND SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: SEDIMENT-ASSOCIATED BIOTA
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Notes:

NC = Not Calculated (a threshold screening value was not available from the literature)
IEP = Incomplete Exposure Pathway
HI = Hazard Index
NA = Not Applicable

(1) Arithmatic mean sediment concentrations were used in place of maximum detected sediment concentrations in the calculation of refinement Hazard Quotient values. For those sampling locations with a single sediment sample (Area A and background), the refinement Hazard Quotient and Hazard Index values are identical to the screening-level Hazard Quotient and Hazard Index values.

(2) Hazard Index values were calculated by summing the individual Hazard Quotient values.

TABLE P-2

COMPARISON OF SWMU 9 (AREA A, B, AND C) AND BACKGROUND SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: SALTWATER AQUATIC LIFE
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Chemical	Hazard Quotient Values for Saltwater aquatic Life (Unitless) [1]							
	Area A		Area B		Area C		Background	
	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]
Inorganics (mg/kg):								
Antimony	IEP	IEP	3.30E-02	1.28E-02	IEP	IEP	IEP	IEP
Arsenic	**1.06E+00**	**1.06E+00**	**1.10E+00**	8.42E-01	**1.69E+00**	9.67E-01	9.75E-01	9.75E-01
Barium	NC	NC	NC	NC	NC	NC	NC	NC
Beryllium	IEP	IEP	NC	NC	NC	NC	IEP	IEP
Cadmium	7.45E-02	7.45E-02	1.60E-01	1.28E-01	3.51E-01	2.45E-01	IEP	IEP
Chromium	IEP	IEP	1.69E-01	1.35E-01	**3.08E+00**	**2.56E+00**	1.81E-01	1.81E-01
Cobalt	NC	NC	NC	NC	NC	NC	NC	NC
Copper	IEP	IEP	**1.50E+01**	**1.14E+01**	**1.05E+02**	**1.02E+02**	IEP	IEP
Cyanide	IEP	IEP	**6.10E+00**	**5.40E+00**	IEP	IEP	IEP	IEP
Lead	IEP	IEP	6.35E-01	3.88E-01	**1.53E+01**	**1.24E+01**	IEP	IEP
Mercury	IEP	IEP	IEP	IEP	5.36E-01	5.00E-01	IEP	IEP
Nickel	IEP	IEP	**1.22E+00**	7.59E-01	**7.64E+00**	**7.05E+00**	IEP	IEP
Selenium	3.14E-01	3.14E-01	IEP	IEP	IEP	IEP	IEP	IEP
Tin	NC	NC	NC	NC	NC	NC	NC	NC
Vanadium	NC	NC	NC	NC	NC	NC	NC	NC
Zinc	7.36E-02	7.36E-02	3.20E-01	2.41E-01	**4.96E+00**	**3.93E+00**	1.39E-01	1.39E-01
Volatiles (ug/kg):								
Methylene chloride	IEP	IEP	IEP	IEP	4.53E-04	4.22E-04	IEP	IEP

HI for Inorganics [3]:	**1.52E+00**	**1.52E+00**	**2.48E+01**	**1.93E+01**	**1.39E+02**	**1.30E+02**	**1.29E+00**	**1.29E+00**
HI for Volatiles [3]:	IEP	IEP	IEP	IEP	4.53E-04	4.22E-04	IEP	IEP

Bold and shaded values indicate a Hazard Quotient or Hazard Index greater than 1.0

TABLE P-2 (CONTINUED)

COMPARISON OF SWMU 9 (AREA A, B, AND C) AND BACKGROUND SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: SALTWATER AQUATIC LIFE
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Notes:

NC = Not Calculated (a threshold screening value was not available from the literature)
IEP = Incomplete Exposure Pathway
HI = Hazard Index

(1) Hazard Quotient values are based on chronic threshold screening values.

(2) Arithmatic mean surface water concentrations were used in place of maximum detected surface water concentrations in the calculation of refinement Hazard Quotient values. For those sampling locations with a single sediment sample (Area A and background), the refinement Hazard Quotient and Hazard Index values are identical to the screening-level Hazard Quotient and Hazard Index values.

(3) Hazard Index values were calculated by summing the individual Hazard Quotient values.

TABLE P-3

COMPARISON OF SWMU 9 (AREA A, B, AND C) AND BACKGROUND SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: EARTHWORMS
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Chemical	Hazard Quotient Values for Earthworms (Unitless)							
	Area A		Area B		Area C		Background	
	Screening HQ Value	Refinement HQ Value (1)	Screening HQ Value	Refinement HQ Value (1)	Screening HQ Value	Refinement HQ Value (1)	Screening HQ Value	Refinement HQ Value (1)
Inorganics (mg/kg):								
Arsenic	6.17E-02	3.00E-02	3.33E-02	2.78E-02	IEP	IEP	4.17E-02	3.17E-02
Barium	NC	NC	NC	NC	NC	NC	NC	NC
Beryllium	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Cadmium	IEP	IEP	1.40E-02	7.00E-03	IEP	IEP	3.07E-02	8.00E-03
Chromium	**7.43E+01**	**3.93E+01**	**3.30E+01**	**2.68E+01**	**7.60E+01**	**6.10E+01**	**8.50E+01**	**4.88E+01**
Cobalt	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Copper	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Lead	3.12E-02	1.82E-02	5.16E-01	2.02E-01	1.05E-01	5.08E-02	4.20E-02	2.10E-02
Mercury	IEP	IEP	IEP	IEP	IEP	IEP	**1.20E+00**	6.20E-01
Nickel	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Selenium	2.29E-02	9.43E-03	1.57E-02	1.03E-02	IEP	IEP	IEP	IEP
Silver	NC	NC	IEP	IEP	IEP	IEP	IEP	IEP
Tin	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Vanadium	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Zinc	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Volatiles (ug/kg):								
Acetone	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Semi-Volatiles (ug/kg):								
Benzo(b)fluoranthene	IEP	IEP	IEP	IEP	NC	NC	IEP	IEP
Benzyl Alcohol	NC	NC	IEP	IEP	IEP	IEP	IEP	IEP
Chrysene	IEP	IEP	IEP	IEP	NC	NC	IEP	IEP
Diethylphthalate	NC	NC	IEP	IEP	IEP	IEP	IEP	IEP
Di-n-buthylphthalate	IEP	IEP	NC	NC	NC	NC	IEP	IEP
Pyrene	IEP	IEP	IEP	IEP	NC	NC	IEP	IEP

HI for Inorganics (2):	**7.44E+01**	**3.94E+01**	**3.36E+01**	**2.70E+01**	**7.61E+01**	**6.11E+01**	**8.63E+01**	**4.94E+01**
HI for Volatiles (2):	NA	NA	NA	NA	IEP	IEP	IEP	NA
HI for Semi-Volatiles (2):	NA	NA	NA	NA	NA	NA	IEP	IEP

Bold and shaded values indicate a Hazard Quotient or Hazard Index greater than 1.0

TABLE P-3 (CONTINUED)

COMPARISON OF SWMU 9 (AREA A, B, AND C) AND BACKGROUND SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: EARTHWORMS
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Notes:

NC = Not Calculated (a threshold screening value was not available from the literature)
IEP = Incomplete Exposure Pathway
HI = Hazard Index
NA = Not Applicable

(1) Arithmatic mean surface soil concentrations were used in place of maximum detected surface soil concentrations in the calculation of refinement Hazard Quotient and Hazard Index values.

(2) Hazard Index values were calculated by summing the individual Hazard Quotient values.

TABLE P-4

COMPARISON OF SWMU 9 (AREA A, B, AND C) AND BACKGROUND SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: PLANTS
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Chemical	Hazard Quotient Values for Plants (Unitless)							
	Area A		Area B		Area C		Background	
	Screening HQ Value	Refinement HQ Value (1)	Screening HQ Value	Refinement HQ Value (1)	Screening HQ Value	Refinement HQ Value (1)	Screening HQ Value	Refinement HQ Value (1)
Inorganics (mg/kg):								
Arsenic	3.70E-01	1.80E-01	2.00E-01	1.67E-01	2.20E-01	IEP	2.50E-01	1.90E-01
Barium	4.64E-01	2.36E-01	2.30E-01	1.71E-01	IEP	1.48E-01	2.20E-01	1.53E-01
Beryllium	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Cadmium	IEP	IEP	1.05E-01	5.25E-02	IEP	IEP	2.30E-01	6.00E-02
Chromium	**2.97E+01**	**1.57E+01**	**1.32E+01**	**1.07E+01**	**3.04E+01**	**2.44E+01**	**3.40E+01**	**1.95E+01**
Cobalt	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Copper	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Lead	3.12E-01	1.82E-01	**5.16E+00**	**2.02E+00**	**1.05E+00**	5.08E-01	4.20E-01	2.10E-01
Mercury	IEP	IEP	IEP	IEP	IEP	IEP	4.00E-01	2.07E-01
Nickel	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Selenium	**1.60E+00**	6.60E-01	**1.10E+00**	7.20E-01	IEP	IEP	IEP	IEP
Silver	1.75E-01	1.05E-01	IEP	IEP	IEP	IEP	IEP	IEP
Tin	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Vanadium	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Zinc	IEP	IEP	IEP	IEP	IEP	IEP	IEP	IEP
Volatiles (ug/kg):								
Acetone	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Semi-Volatiles (ug/kg):								
Benzo(b)fluoranthene	IEP	IEP	IEP	IEP	NC	NC	IEP	IEP
Benzyl Alcohol	IEP	NC	IEP	IEP	IEP	IEP	IEP	IEP
Chrysene	IEP	IEP	IEP	IEP	NC	NC	IEP	IEP
Diethylphthalate	4.00E-04	4.00E-04	IEP	IEP	IEP	IEP	IEP	IEP
Di-n-buthylphthalate	IEP	IEP	2.00E-04	2.00E-04	5.00E-04	5.00E-04	IEP	IEP
Pyrene	IEP	IEP	IEP	IEP	NC	NC	IEP	IEP
HI for Inorganics (2):	**3.26E+01**	**1.71E+01**	**2.00E+01**	**1.38E+01**	**3.17E+01**	**2.51E+01**	**3.55E+01**	**2.03E+01**
HI for Volatiles (2):	NA	NA	NA	NA	IEP	IEP	IEP	IEP
HI for Semi-Volatiles (2):	4.00E-04	4.00E-04	0.0002	2.00E-04	5.00E-04	5.00E-04	IEP	IEP

Bold and shaded values indicate a Hazard Quotient or Hazard Index greater than 1.0

TABLE P-4 (CONTINUED)

COMPARISON OF SWMU 9 (AREA A, B, AND C) AND BACKGROUND SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: PLANTS
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Notes:

NC = Not Calculated (a threshold screening value was not available from the literature)
IEP = Incomplete Exposure Pathway
HI = Hazard Index
NA = Not Applicable

(1) Arithmatic mean surface soil concentrations were used in place of maximum detected surface soil concentrations in the calculation of refinement Hazard Quotient and Hazard Index values.

(2) Hazard Index values were calculated by summing the individual Hazard Quotient values.

TABLE P-5

COMPARISON OF SWMU 9, AREA A SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: AVIAN RECEPTORS
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Chemical	Hazard Quotient Values forArea A Avian Receptors (Unitless) [1]							
	Belted Kingfisher		Great Blue Heron		American Robin		Red-Tailed Hawk	
	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]
Inorganics:								
Arsenic	2.93E-01	1.71E-01	7.00E-02	6.03E-02	3.04E-01	4.66E-02	2.45E-02	7.76E-03
Barium	2.57E-01	1.49E-01	6.12E-02	5.26E-02	**3.97E+00**	5.46E-01	5.59E-01	8.80E-02
Beryllium	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Cadmium	9.19E-01	5.34E-01	2.19E-01	1.88E-01	IEP	IEP	IEP	IEP
Chromium	**1.81E+00**	**1.05E+00**	4.31E-01	3.70E-01	**3.12E+01**	**1.38E+00**	**1.89E+00**	3.29E-01
Cobalt	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Copper	1.15E-01	6.70E-02	2.75E-02	2.36E-02	IEP	IEP	IEP	IEP
Lead	9.13E-01	5.31E-01	2.18E-01	1.87E-01	**7.23E+00**	**1.05E+00**	8.60E-01	3.31E-01
Mercury	**1.05E+00**	6.09E-01	2.50E-01	2.15E-01	IEP	IEP	IEP	IEP
Nickel	7.33E-03	4.26E-03	1.73E-03	1.50E-03	IEP	IEP	IEP	IEP
Selenium	**2.77E+01**	**1.61E+01**	**6.60E+00**	**5.68E+00**	**1.86E+00**	3.90E-01	7.04E-01	1.42E-01
Silver	IEP	IEP	IEP	IEP	NC	NC	NC	NC
Tin	8.35E-02	4.85E-02	1.99E-02	1.71E-02	IEP	IEP	IEP	IEP
Vanadium	**2.38E+00**	**1.38E+00**	5.68E-01	4.88E-01	IEP	IEP	IEP	IEP
Zinc	7.41E-01	4.31E-01	1.77E-01	1.52E-01	IEP	IEP	IEP	IEP
Volatiles:								
Acetone	NC	NC	NC	NC	NC	NC	NC	NC
Semi-Volatiles:								
Benzyl Alcohol	IEP	IEP	IEP	IEP	NC	NC	NC	NC
Diethylphthalate	IEP	IEP	IEP	IEP	NC	NC	NC	NC

HI for Inorganics [3]:	**3.63E+01**	**2.11E+01**	**8.65E+00**	**7.43E+00**	**4.46E+01**	**3.41E+00**	**4.04E+00**	8.97E-01
HI for Volatiles [3]:	NA	NA	NA	NA	NA	NA	NA	NA
HI for Semi-Volatiles [3]:	IEP	IEP	IEP	IEP	NA	NA	NA	NA

Bold and shaded values indicate a Hazard Quotient or Hazard Index greater than 1.0

TABLE P-5 (CONTINUED)

COMPARISON OF SWMU 9, AREA A SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: AVIAN RECEPTORS
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Notes:

NC = Not Calculated (an NOAEL was not available from the literature)
IEP = Incomplete Exposure Pathway
HI = Hazard Index
NA = Not Applicable
NOAEL = No Observed Adverse Effect Level
LOAEL = Lowest Observed Adverse Effect Level

(1) Hazard Quotient values are based on NOAEL values.

(2) Average media concentrations, average body weights, and average ingestion rates were used in the calculation of refinement Hazard Quotient and Hazard Index values.

(3) Hazard Index values were calculated by summing the individual Hazard Quotient values.

TABLE P-6

COMPARISON OF SWMU 9, AREA B SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: AVIAN RECEPTORS
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Chemical	Hazard Quotient Values for Area B Avian Receptors (Unitless) [1]							
	Belted Kingfisher		Great Blue Heron		American Robin		Red-Tailed Hawk	
	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]
Inorganics:								
Antimony	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Arsenic	2.48E-01	1.30E-01	6.79E-02	4.58E-02	1.64E-01	4.39E-02	1.33E-02	7.20E-03
Barium	3.23E-01	1.69E-01	7.71E-02	5.96E-02	**1.97E+00**	3.95E-01	2.77E-01	6.37E-02
Beryllium	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Cadmium	**1.98E+00**	9.20E-01	4.71E-01	3.24E-01	**3.81E+00**	3.46E-01	2.93E-01	2.22E-02
Chromium	**2.43E+00**	**1.30E+00**	5.80E-01	4.57E-01	**1.39E+01**	9.41E-01	8.41E-01	2.37E-01
Cobalt	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Copper	5.15E-01	2.37E-01	1.23E-01	8.34E-02	IEP	IEP	IEP	IEP
Cyanide	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Lead	**3.76E+00**	**1.19E+00**	8.97E-01	4.21E-01	**1.20E+02**	**8.05E+00**	**1.42E+01**	**1.61E+00**
Mercury	**1.34E+00**	7.03E-01	3.20E-01	2.48E-01	IEP	IEP	IEP	IEP
Nickel	2.28E-02	9.62E-03	5.44E-03	3.39E-03	IEP	IEP	IEP	IEP
Selenium	IEP	IEP	IEP	IEP	**1.28E+00**	4.17E-01	4.84E-01	1.47E-01
Tin	1.59E-01	6.85E-02	3.78E-02	2.41E-02	IEP	IEP	IEP	IEP
Vanadium	**2.91E+00**	**1.31E+00**	6.93E-01	4.62E-01	IEP	IEP	IEP	IEP
Zinc	**1.94E+00**	8.72E-01	4.63E-01	3.07E-01	IEP	IEP	IEP	IEP
Volatiles (ug/kg):								
Acetone	NC	NC	NC	NC	NC	NC	NC	NC
2-Butanone	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Carbon disulfide	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Semi-Volatiles (ug/kg):								
Di-n-butylphthalate	IEP	IEP	IEP	IEP	1.29E-01	8.33E-02	5.86E-02	3.96E-02
HI for Inorganics [3]:	**1.57E+01**	**6.90E+00**	**3.74E+00**	**2.44E+00**	**1.41E+02**	**1.02E+01**	**1.61E+01**	**2.09E+00**
HI for Volatiles [3]:	NA	NA	NA	NA	NA	NA	NA	NA
HI for Semi-Volatiles [3]:	IEP	IEP	IEP	NA	1.29E-01	8.33E-02	5.86E-02	3.96E-02

Bold and shaded values indicate a Hazard Quotient or Hazard Index greater than 1.0

TABLE P-6 (CONTINUED)

COMPARISON OF SWMU 9, AREA B SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: AVIAN RECEPTORS
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Notes:

NC = Not Calculated (an NOAEL was not available from the literature)
IEP = Incomplete Exposure Pathway
HI = Hazard Index
NA = Not Applicable
NOAEL = No Observed Adverse Effect Level
LOAEL = Lowest Observed Adverse Effect Level

(1) Hazard Quotient values are based on NOAEL values.

(2) Average media concentrations, average body weights, and average ingestion rates were used in the calculation of refinement Hazard Quotient and Hazard Index values.

(3) Hazard Index values were calculated by summing the individual Hazard Quotient values.

TABLE P-7

COMPARISON OF SWMU 9, AREA C SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: AVIAN RECEPTORS
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Chemical	Hazard Quotient Values for Area C Avian Receptors (Unitless) [1]							
	Belted Kingfisher		Great Blue Heron		American Robin		Red-Tailed Hawk	
	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]
Inorganics (mg/kg):								
Arsenic	5.26E-01	1.93E-01	1.26E-01	6.77E-02	IEP	IEP	IEP	IEP
Barium	**1.67E+00**	8.36E-01	3.99E-01	2.94E-01	**1.88E+00**	3.43E-01	2.65E-01	5.52E-02
Beryllium	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Cadmium	**4.33E+00**	**1.76E+00**	**1.03E+00**	6.12E-01	IEP	IEP	IEP	IEP
Chromium	**3.01E+00**	**1.19E+00**	7.18E-01	4.20E-01	**3.20E+01**	**2.15E+00**	**1.94E+00**	4.81E-01
Cobalt	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Copper	**2.16E+00**	**1.21E+00**	5.14E-01	4.26E-01	IEP	IEP	IEP	IEP
Lead	**6.15E+00**	**2.77E+00**	**1.47E+00**	9.80E-01	**2.43E+01**	**2.49E+00**	**2.90E+00**	6.18E-01
Mercury	**2.21E+03**	**1.20E+03**	**5.27E+02**	**4.19E+02**	IEP	IEP	IEP	IEP
Nickel	8.26E-02	4.38E-02	1.97E-02	1.54E-02	IEP	IEP	IEP	IEP
Selenium	3.25E-02	1.22E-02	7.74E-03	4.31E-03	IEP	IEP	IEP	IEP
Tin	2.16E-01	1.12E-01	5.15E-02	3.94E-02	IEP	IEP	IEP	IEP
Vanadium	**1.37E+01**	**6.35E+00**	**3.27E+00**	**2.24E+00**	IEP	IEP	IEP	IEP
Zinc	**2.47E+01**	**1.13E+01**	**5.88E+00**	**3.98E+00**	IEP	IEP	IEP	IEP
Volatiles (ug/kg):								
Acetone	NC	NC	NC	NC	IEP	IEP	IEP	IEP
2-Butanone	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Carbon disulfide	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Methylene chloride	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Semi-Volatiles (ug/kg):								
Benzo(b)fluoranthene	IEP	IEP	IEP	IEP	NC	NC	NC	NC
Chrysene	IEP	IEP	IEP	IEP	NC	NC	NC	NC
Di-n-buthylphthalate	IEP	IEP	IEP	IEP	3.23E-01	2.08E-01	1.42E-01	9.90E-02
Pyrene	IEP	IEP	IEP	IEP	NC	NC	NC	NC

HI for Inorganics [3]:	**2.27E+02**	**1.23E+03**	**5.41E+02**	**4.28E+02**	**5.82E+01**	**4.98E+00**	**5.10E+00**	**1.15E+00**
HI for Volatiles [3]:	NA	NA	NA	NA	IEP	IEP	IEP	IEP
HI for Semi-Volatiles [3]:	IEP	IEP	IEP	IEP	3.23E-01	2.08E-01	1.42E-01	9.90E-02

Bold and shaded values indicate a Hazard Quotient or Hazard Index greater than 1.0

TABLE P-7 (CONTINUED)

COMPARISON OF SWMU 9, AREA C SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: AVIAN RECEPTORS
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Notes:

NC = Not Calculated (a threshold screening value was not available from the literature)
IEP = Incomplete Exposure Pathway
HI = Hazard Index
NA = Not Applicable

(1) Hazard Quotient values are based on NOAEL values.

(2) Average media concentrations, average body weights, and average ingestion rates were used in the calculation of refinement Hazard Quotient and Hazard Index values.

(3) Hazard Index values were calculated by summing the individual Hazard Quotient values.

TABLE P-8

COMPARISON OF BACKGROUND SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: AVIAN RECEPTORS
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Chemical	Hazard Quotient Values for Background Avian Receptors (Unitless) [1]							
	Belted Kingfisher		Great Blue Heron		American Robin		Red-Tailed Hawk	
	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]	Screening HQ Value	Refinement HQ Value [2]
Inorganics (mg/kg):								
Arsenic	2.56E-01	1.49E-01	6.13E-02	5.27E-02	2.05E-01	4.87E-02	1.66E-02	8.18E-03
Barium	2.54E-01	1.47E-01	6.05E-02	5.20E-02	**1.88E+00**	3.54E-01	2.65E-01	5.69E-02
Beryllium	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Cadmium	IEP	IEP	IEP	IEP	**8.34E+00**	3.84E-01	6.41E-01	2.38E-02
Chromium	**1.40E+00**	8.15E-01	3.34E-01	2.87E-01	**3.58E+01**	**1.72E+00**	**2.17E+00**	3.96E-01
Cobalt	NC	NC	NC	NC	IEP	IEP	IEP	IEP
Copper	1.06E-01	6.17E-02	2.53E-02	2.18E-02	IEP	IEP	IEP	IEP
Lead	3.50E-01	2.04E-01	8.35E-02	7.18E-02	**9.73E+00**	**1.19E+00**	**1.16E+00**	3.59E-01
Mercury	5.51E-01	3.20E-01	1.31E-01	1.13E-01	**1.25E+02**	**1.39E+01**	**3.05E+00**	1.48E-01
Nickel	5.33E-03	3.10E-03	1.27E-03	1.09E-03	IEP	IEP	IEP	IEP
Tin	8.22E-02	4.78E-02	1.96E-02	1.69E-02	IEP	IEP	IEP	IEP
Vanadium	**1.39E+00**	8.08E-01	3.31E-01	2.85E-01	IEP	IEP	IEP	IEP
Zinc	6.82E-01	3.96E-01	1.63E-01	1.40E-01	IEP	IEP	IEP	IEP
Volatiles (ug/kg):								
Acetone	NC	NC	NC	NC	IEP	IEP	IEP	IEP
HI for Inorganics [3]:	**5.08E+00**	**2.95E+00**	**1.21E+01**	**1.04E+00**	**1.81E+02**	**1.76E+01**	**7.30E+00**	9.93E-01
HI for Volatiles [3]:	NA	NA	NA	NA	IEP	IEP	IEP	IEP

Bold and shaded values indicate a Hazard Quotient or Hazard Index greater than 1.0

Notes:

NC = Not Calculated (a threshold screening value was not available from the literature)
IEP = Incomplete Exposure Pathway
HI = Hazard Index
NA = Not Applicable

TABLE P-8 (CONTINUED)

COMPARISON OF BACKGROUND SCREENING-LEVEL HAZARD QUOTIENT AND HAZARD INDEX VALUES TO HAZARD QUOTIENT AND HAZARD INDEX VALUES CALCULATED FOLLOWING THE REFINEMENT OF EXPOSURE ASSUMPTIONS: AVIAN RECEPTORS
SWMU 9 - TANKS 212-217
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Notes (continued):

(1) Hazard Quotient values are based on NOAEL values.

(2) Average media concentrations, average body weights, and average ingestion rates were used in the calculation of refinement Hazard Quotient and Hazard Index values.

(3) Hazard Index values were calculated by summing the individual Hazard Quotient values.