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Revised Draft

Reference:
Contract
N62470-89-D-48

CTO-0277

April 1999

RCRA Facility Investigation Report for Operable Unit 3/5 Naval Station Roosevelt Roads Ceiba, Puerto Rico Volume III of III Appendices

Prepared For

Department of the Navy Atlantic Division

Naval Facilities Engineering Command

Norfolk, Virginia

Under The

LANTDIV CLEAN Program

Comprehensive Long-Term Environmental Action Navy

Baker

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WESTON

REVISED DRAFT

RCRA FACILITY INVESTIGATION REPORT FOR OPERABLE UNITS 3 AND 5

RCRA/HSWA Permit No. PR2170027203

NAVAL STATION ROOSEVELT ROADS
CEIBA, PUERTO RICO

VOLUME III OF III
APPENDICES

CONTRACT TASK ORDER 0277

April 1, 1999

Prepared for:

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

Under the:

LANTDIV CLEAN Program
Contract N62470-89-D-4814

Comprehensive Long-Term Environmental
Action Navy

APPENDICES

A Site 5 Geophysical Investigation Report

B Chain-of-Custody Records

B.1 Chain-of-Custody Records - Phase I

B.2 Chain-of-Custody Records - Phase II

C Test Boring and Well Construction Records

C.1 SWMU 1 - Phase I

C.2 SWMU 1 - Phase II

C.3 SWMU 2 - Phase I

C.4 SWMU 11/45 - Phase I

C.5 SWMU 11/45 - Phase II

D Well Development Records

D.1 SWMU 1 - Phase I

D.2 SWMU 1 - Phase II

D.3 SWMU 2 - Phase I

D.4 SWMU 11/45 - Phase I

E Wellhead Test Data (Slug Tests)

E.1 SWMU 1 - Phase I

E.2 SWMU 2 - Phase I

E.3 SWMU 11/45 - Phase I

F Analytical Laboratory Results

F.1 Surface Soil, Organics, SWMU 1

F.2 Surface Soil, Inorganics, SWMU 1

F.3 Subsurface Soil, Organics, SWMU 1

F.4 Subsurface Soil, Inorganics, SWMU 1

F.5 Sediment, Organics, SWMU 1

F.6 Sediment, Inorganics, SWMU 1

F.7 Groundwater, Organics, SWMU 1

F.8 Groundwater, Inorganics, SWMU 1

F.9 Surface Water, Organics, SWMU 1

F.10 Surface Water, Inorganics, SWMU 1

F.11 Surface Soil, Organics, SWMU 2

APPENDICES (continued)

F.12 Surface Soil, Inorganics, SWMU 2

F.13 Subsurface Soil, Organics, SWMU 2

F.14 Subsurface Soil, Inorganics, SWMU 2

F.15 Sediment, Organics, SWMU 2

F.16 Sediment, Inorganics, SWMU 2

F.17 Groundwater, Organics, SWMU 2

F.18 Groundwater, Inorganics, SWMU 2

F.19 Surface Water, Organics, SWMU 2

F.20 Surface Water, Inorganics, SWMU 2

F.21 Surface Soil, Organics, SWMU 45

F.22 Surface Soil, Inorganics, SWMU 45

F.23 Subsurface Soil, Organics, SWMU 45

F.24 Subsurface Soil, Inorganics, SWMU 45

F.25 Sediment, Organics, SWMU 45

F.26 Sediment, Inorganics, SWMU 45

F.27 Groundwater, Organics, SWMU 45

F.28 Groundwater, Inorganics, SWMU 45

F.29 Surface Soil, Organics, Background

F.30 Surface Soil, Inorganics, Background

F.31 Subsurface Soil, Organics, Background

F.32 Subsurface Soil, Inorganics, Background

F.33 Groundwater, Organics, Background

F.34 Groundwater, Inorganics, Background

G Quality Assurance/Quality Control Results

G.1 QA/QC Results, Organic Compounds, Equipment Rinsate Blanks

G.2 QA/QC Results, Inorganic Compounds, Equipment Rinsate Blanks

G.3 QA/QC Results, Organic Compounds, Field Blanks

G.4 QA/QC Results, Inorganic Compounds, Field Blanks

G.5 QA/QC Results, Organic Compounds, Trip Blanks

H **Analytical Data Statistics**

Criteria Comparison Summaries

Frequency of Detection Summaries

W-Test Summaries

I **Risk Assessment Calculations**

SWMU 1

SWMU 2

SWMU 11/45

J **Foster and Chrostowski Shower Model**

K **Toxicological Profiles**

L **Risk Summaries for "No Risk" Scenarios**

APPENDIX A
SITE 5 - ARMY CREMATOR DISPOSAL SITE
GEOPHYSICAL INVESTIGATION REPORT

DRAFT

GEOPHYSICAL SURVEY

THE ARMY CREMATOR DISPOSAL AREA (SITE 5)

NAVAL STATION, ROOSEVELT ROADS, PUERTO RICO

CONTRACT TASK ORDER 0007

Prepared For:

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

Under the:

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Contract N62470-89-D-4814

Prepared By:

BAKER ENVIRONMENTAL, INC.
Coraopolis, Pennsylvania

JULY 26, 1993

TABLE OF CONTENTS

		Page
4.B.1.0	INTRODUCTION AND OBJECTIVES	4.B-1
4.B.2.0	METHODS OF INVESTIGATION	4.B-1
	2.1 Survey Control	4.B-1
	2.2 Electromagnetic Terrain Conductivity	4.B-1
	2.3 Magnetometry	4.B-4
4.B.3.0	RESULTS	4.B-4
	3.1 Electromagnetic Terrain Conductivity	4.B-4
	3.2 Magnetometry	4.B-16
4.B.4.0	SUMMARY AND CONCLUSIONS	4.B-16

LIST OF FIGURES

Number		Page
4.B.1	Site Location Map	4.B-2
4.B.2	Geophysical Coverage and Results	4.B-3
4.B.3	EM Conductivity Profiles	4.B-5
4.B.4	EM Conductivity Profiles	4.B-6
4.B.5	EM Conductivity Profiles	4.B-7
4.B.6	EM In-Phase Profiles	4.B-8
4.B.7	EM In-Phase Profiles	4.B-9
4.B.8	EM In-Phase Profiles	4.B-10
4.B.9	EM and Magnetometry Profiles	4.B-11
4.B.10	EM and Magnetometry Profiles	4.B-12
4.B.11	EM and Magnetometry Profiles	4.B-13
4.B.12	EM and Magnetometry Profiles	4.B-14
4.B.13	EM and Magnetometry Profiles	4.B-15

4.B.1.0 INTRODUCTION AND OBJECTIVES

A multidisciplinary geophysical survey was undertaken at Naval Station, Roosevelt Roads to characterize subsurface conditions at the Army Cremator Disposal Area (Site 5). The purpose of the survey was to delineate disposal features (three suspected trenches) and to locate buried metal objects. Electromagnetic (EM) terrain conductivity and magnetometry were used to achieve these objectives. On site interpretation of the geophysical data was used to help finalize the siting of soil sampling stations. The survey was conducted in November of 1992.

4.B.2.0 METHODS OF INVESTIGATION

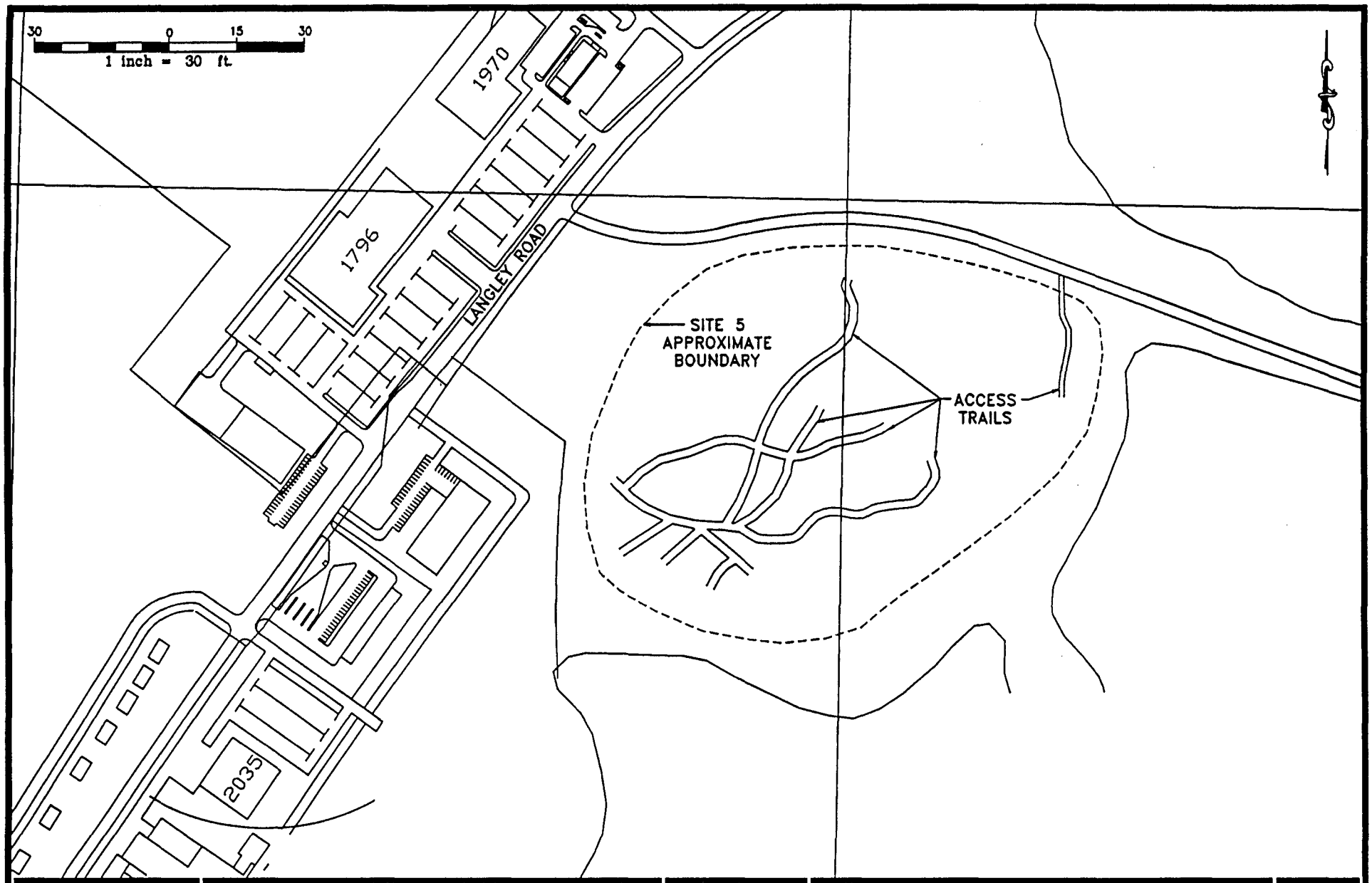
2.1 Survey Control

The initial geophysical investigation followed access lanes selected by Baker Environmental. The Navy Public Works Office provided an operator and heavy equipment necessary to clear the dense vegetation. Based on preliminary data interpretation, additional lines of coverage were added to better define lateral disposal boundaries. This additional coverage was limited by local geological and topographic features such as near-vertical rock outcrop and steep-sloping ravines. A Global Positioning System (GPS) navigation receiver was utilized to reference the survey area to local cultural features (Figure 4.B.1) and locate the geophysical lines of coverage (Figure 4.B.2).

2.2 Electromagnetic Terrain Conductivity

The conductivity of subsurface materials is determined by measuring the response to an induced electromagnetic field. Factors affecting in-situ conductivity include porosity, moisture content, clay content, and the conductivity of subsurface fluids and materials. Former excavations and landfills are often identified by recognizing lateral changes in soil conductivity. This method may also be used to infer the presence of buried metal objects such as drums, tanks or utilities.

Electromagnetic (EM) terrain conductivity profiling was performed at Site 5 to delineate buried debris and locate metal objects. Instrumentation used during this survey was a Geonics model EM-31 coupled with an Omnidata polycorder. The EM-31 is a fixed-coil device with a maximum investigation depth of approximately 15 feet. The polycorder acts as an



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REVIEWED	TJS
S.O.#	19007
CADD#	00703130

GEOPHYSICAL INVESTIGATION
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO
PREPARED FOR BAKER ENVIRONMENTAL, INC

WESTON GEOPHYSICAL CORP.
Coraopolis, Pennsylvania

Baker
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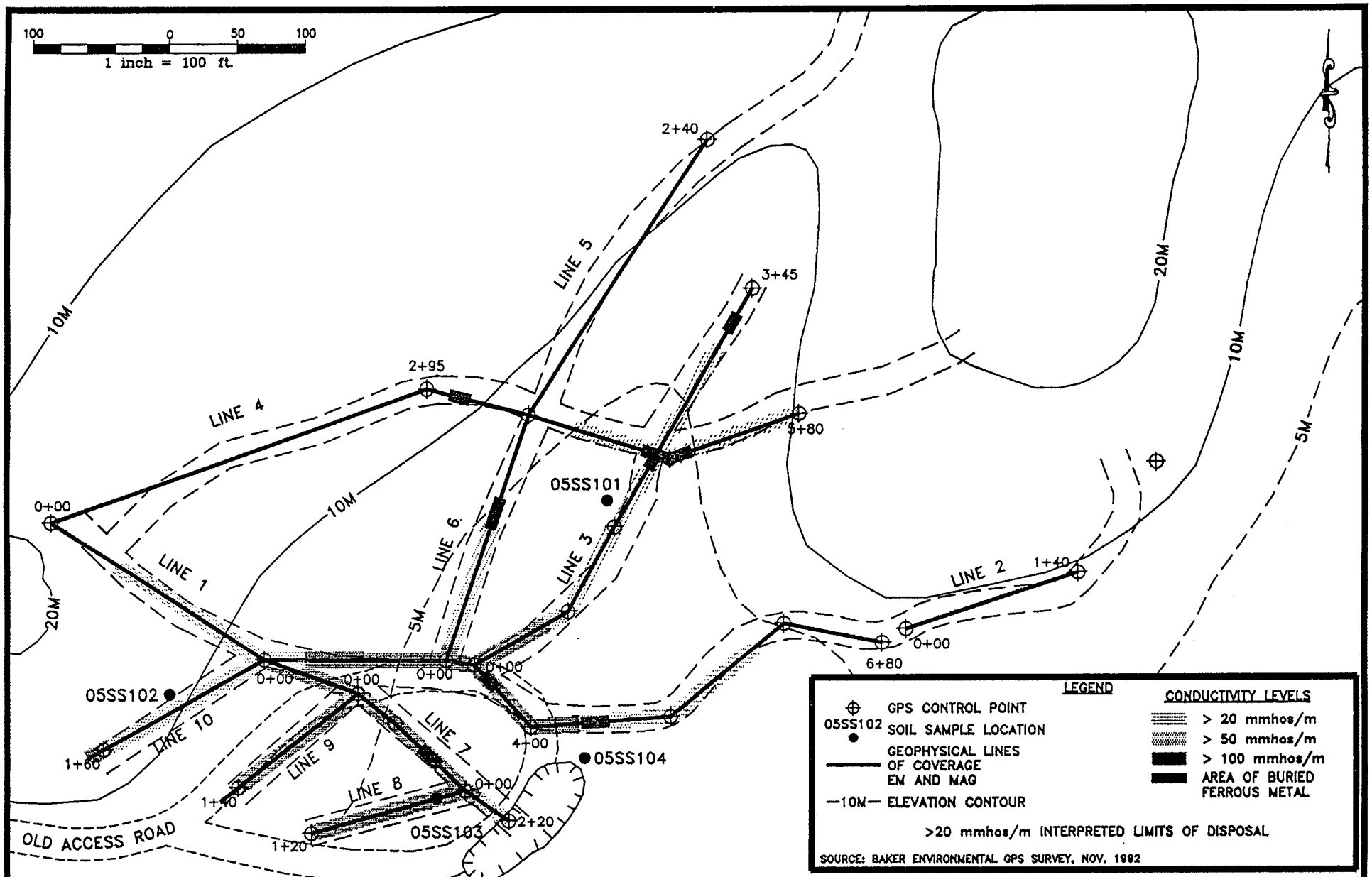
SITE LOCATION MAP
SITE 5
ARMY CREMATOR DISPOSAL SITE

SCALE GRAPHIC
DATE 7/93

FIGURE
4.B.1



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S.O.#	19007
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GEOPHYSICAL INVESTIGATION
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GEOPHYSICAL COVERAGE AND RESULTS
SITE 5
ARMY CREMATOR DISPOSAL SITE

SCALE	GRAPHIC
DATE	7/93

FIGURE
4.B.2

electronic notebook that digitally records the data for future playback. EM-31 data were acquired in the vertical dipole mode (VDM) at 5-foot intervals along each traverse.

Both quadrature-phase (conductivity) and in-phase measurements of the EM field were performed at each station to more confidently distinguish metallic objects from nonmetallic objects or earth materials with high electrical properties. The quadrature-phase component provides a measurement of soil conductivity in units of millimhos/meter (mmhos/m), while the in-phase component is measured in parts per thousand (ppt) of the primary magnetic field.

Both conductivity and in-phase data were downloaded to a laptop computer and profiled prior to interpretation (Figures 4.B.3 through 4.B-8).

2.3 Magnetometry

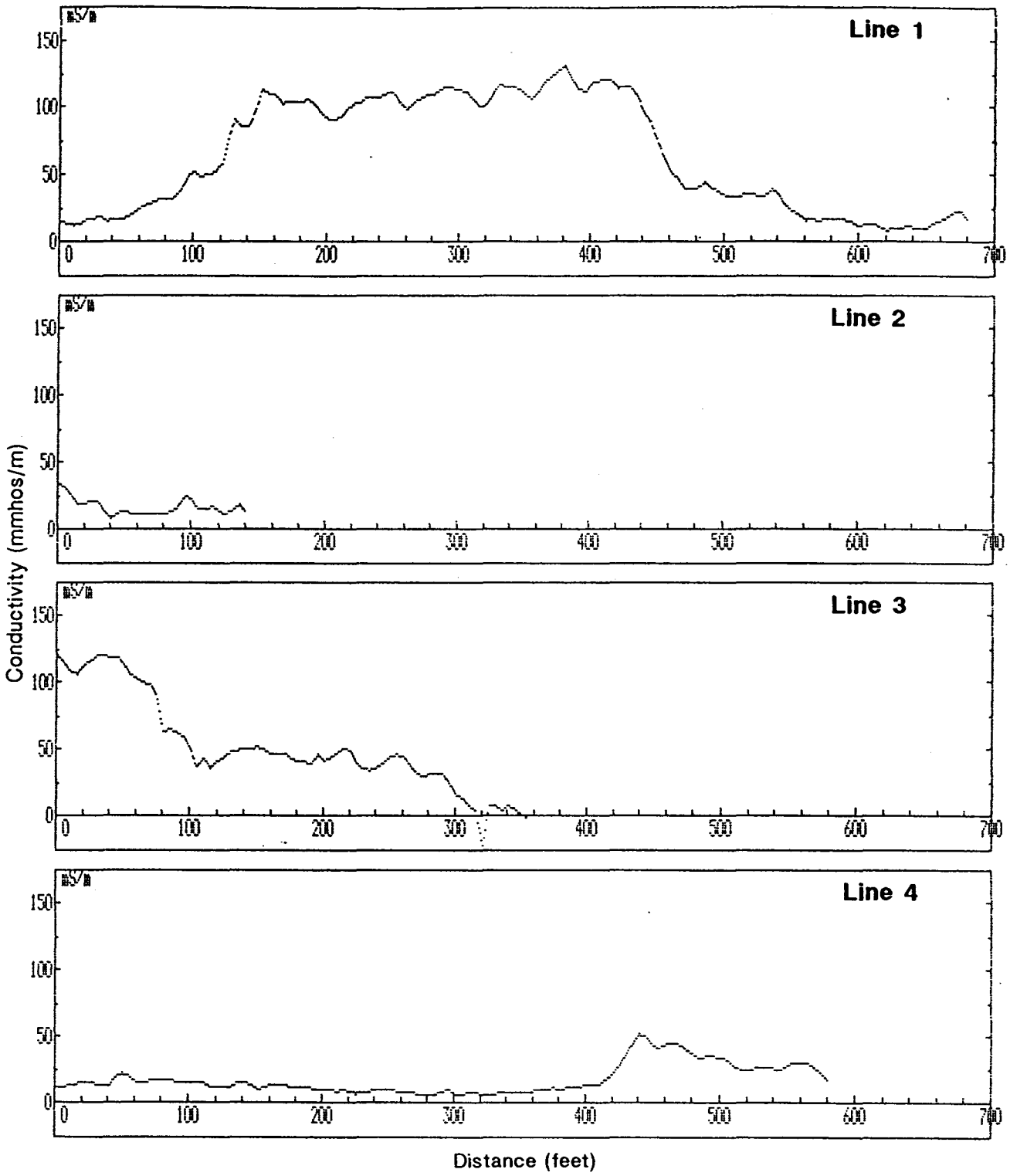
Magnetic profiling was performed to complement the interpretation of subsurface debris and objects within Site 5. A total-field digital proton precession magnetometer, Geometrics model G-856X was utilized during this survey. Magnetic data were acquired at 10-foot intervals along survey lines duplicating the EM-31 coverage. A magnetic base station was reoccupied at approximately one hour intervals during the survey to facilitate adjustment of data for natural daily variations in the magnetic field due to solar activities. Perturbations to the ambient magnetic field are indicative of localized ferrous metal, the magnitudes of which are a function of the mass of the objects and their depth.

The magnetic data were downloaded to a computer, corrected for diurnal drift, and profiled prior to interpretation (Figures 4.B.9 through 4.B.13). The magnetic profiles were then compared to the EM conductivity and in-phase profiles to determine whether specific EM anomalies were caused by ferrous or nonferrous buried objects or fill.

4.B.3.0 RESULTS

3.1 Electromagnetic Terrain Conductivity

EM terrain conductivity measurements were conducted along the traverses (Lines 1-10) shown on Figure 4.B.2 to map the lateral extent of disposal. Conductivity levels above background (>20mmhos/m) were interpreted to be indicative of buried debris and used to define the limits of the landfill boundaries. East and west disposal limits were determined by



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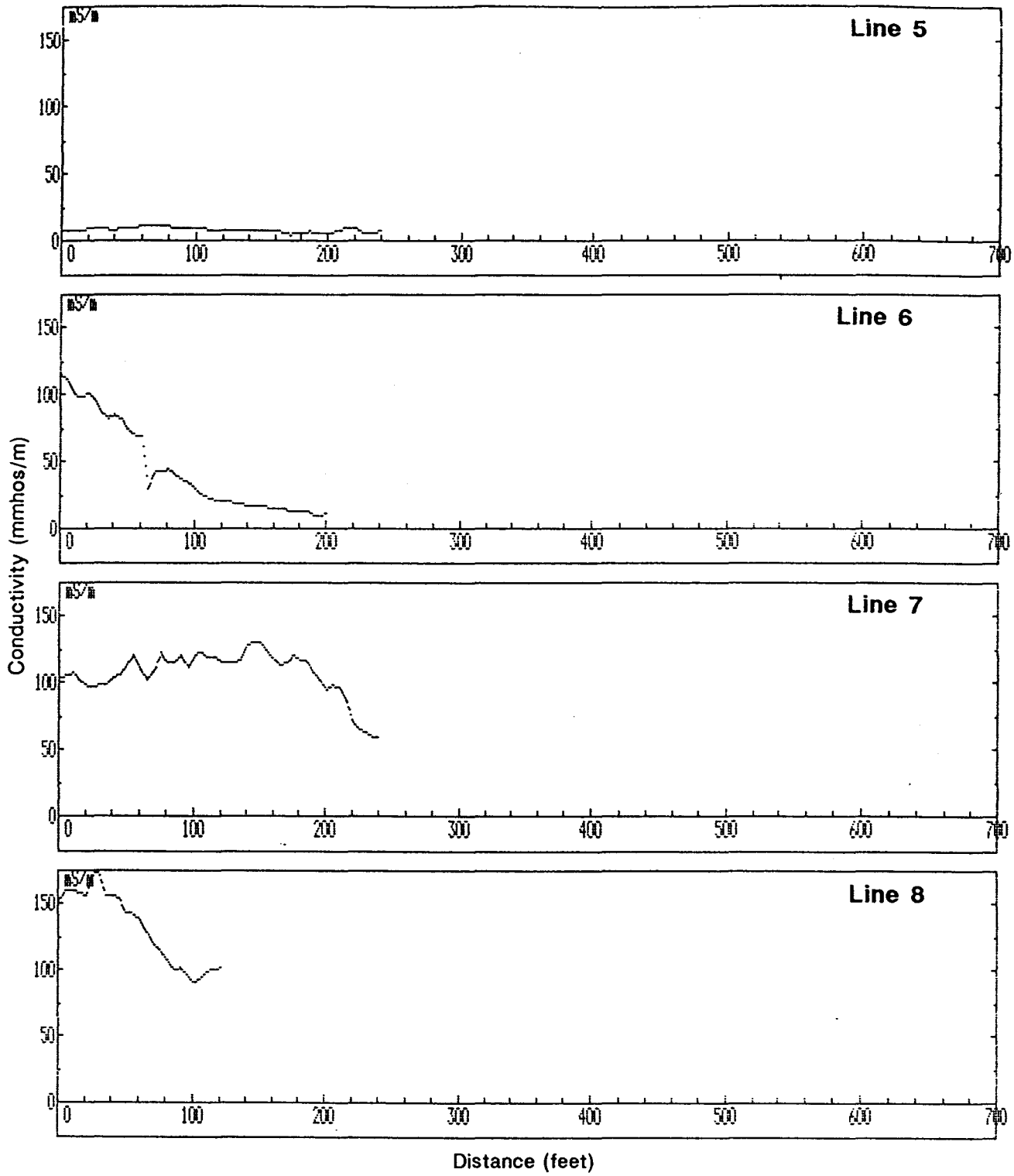
Geophysical Investigation Naval Station Roosevelt Roads Ceiba, Puerto Rico	**EM Conductivity Profiles (VDM)** **Lines 1 - 4**
WESTON GEOPHYSICAL CORP. Coraopolis, Pennsylvania	Date 7/93 — Figure No. 4.B.3



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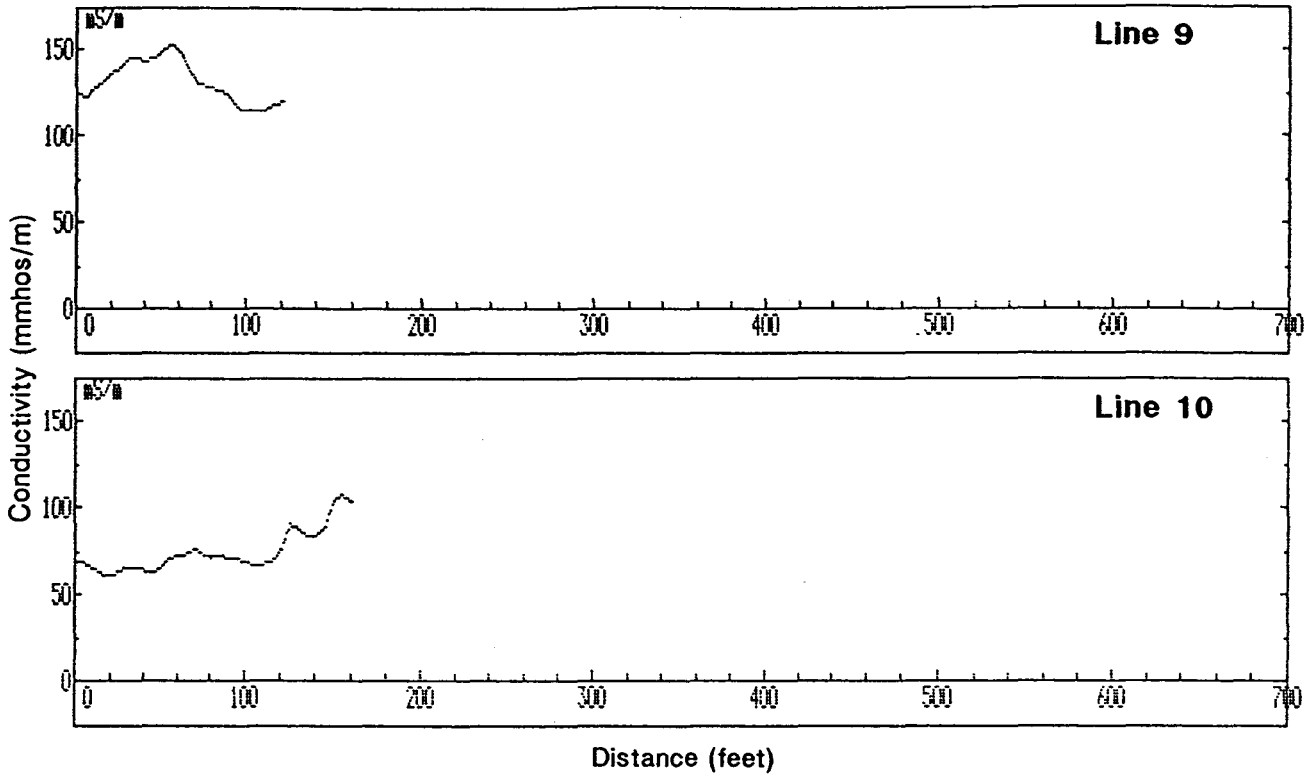
Geophysical Investigation Naval Station Roosevelt Roads Ceiba, Puerto Rico	**EM Conductivity Profiles (VDM)** **Lines 5 - 8**
WESTON GEOPHYSICAL CORP. Coraopolis, Pennsylvania	Date 7/93 — Figure No. 4.B.4



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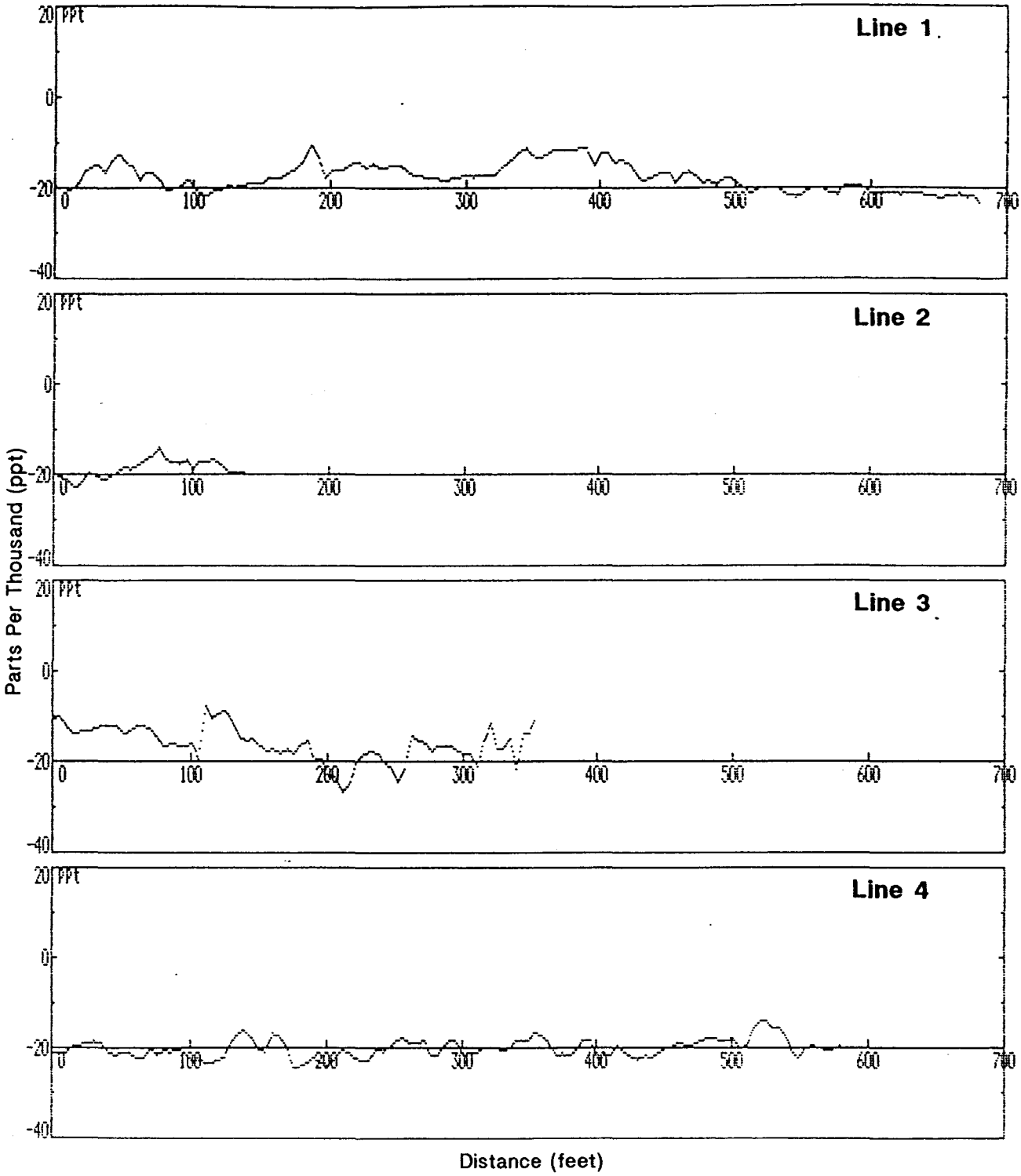
Geophysical Investigation Naval Station Roosevelt Roads Ceiba, Puerto Rico	**EM Conductivity Profiles (VDM)** **Lines 9 &10**
WESTON GEOPHYSICAL CORP. Coraopolis, Pennsylvania	Date 7/93 — Figure No. 4.B.5



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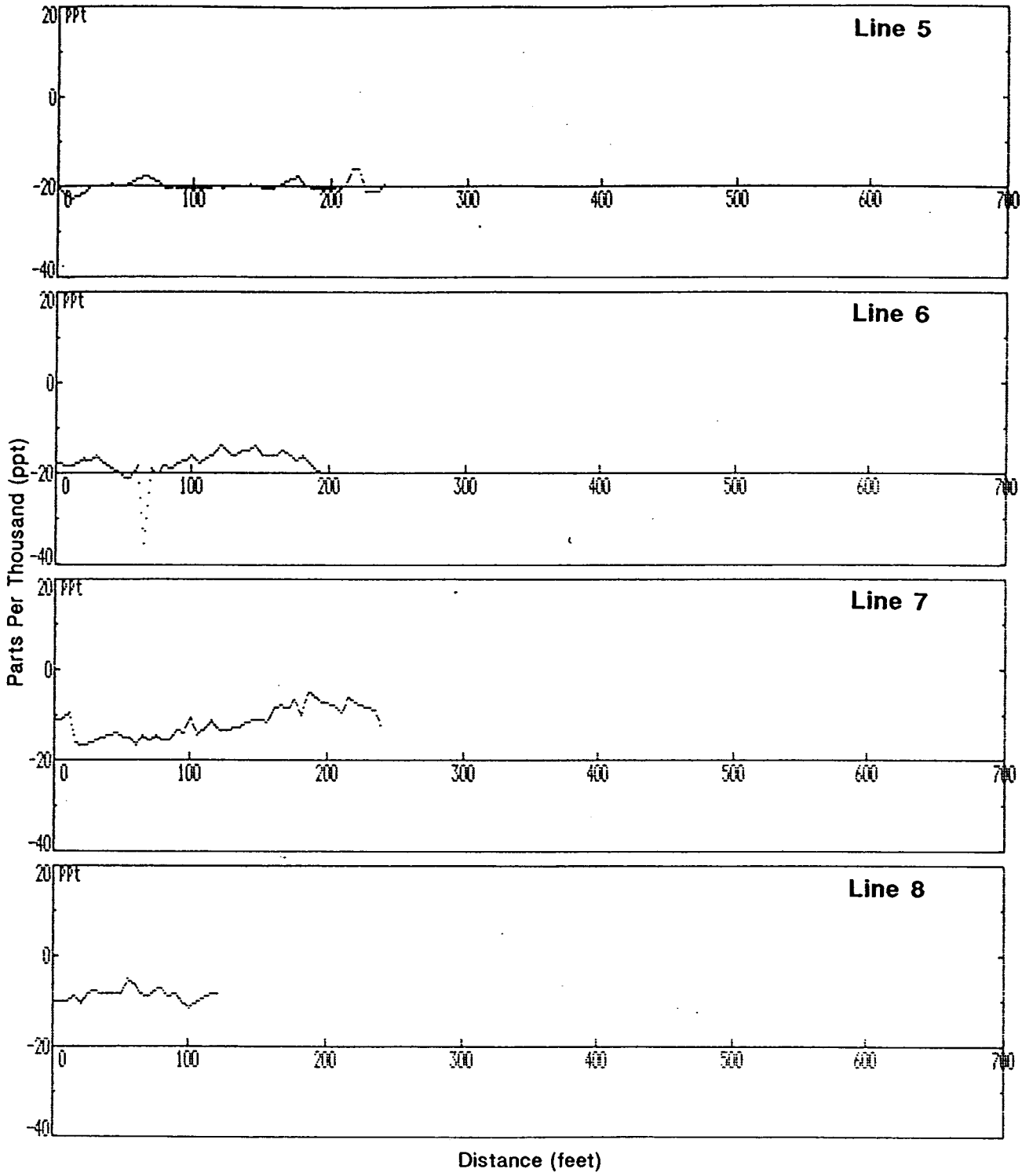
Geophysical Investigation Naval Station Roosevelt Roads Ceiba, Puerto Rico	**EM In-Phase Profiles** **Lines 1 - 4**
WESTON GEOPHYSICAL CORP. Coraopolis, Pennsylvania	Date 7/93 — Figure No. 4.B.6



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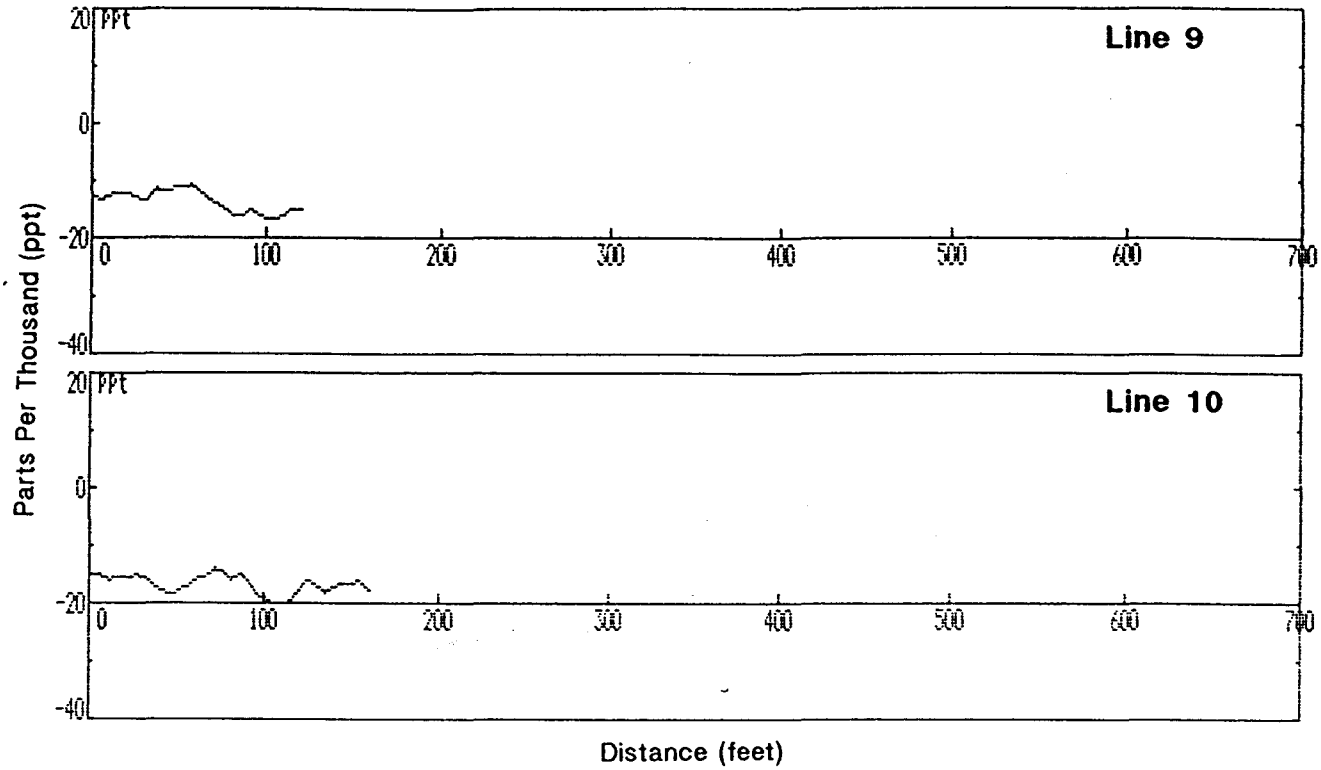
Geophysical Investigation Naval Station Roosevelt Roads Ceiba, Puerto Rico	EM In-Phase Profiles Lines 5 - 8
WESTON GEOPHYSICAL CORP. Coraopolis, Pennsylvania	Date 7/93 — Figure No. 4.B.7



Baker
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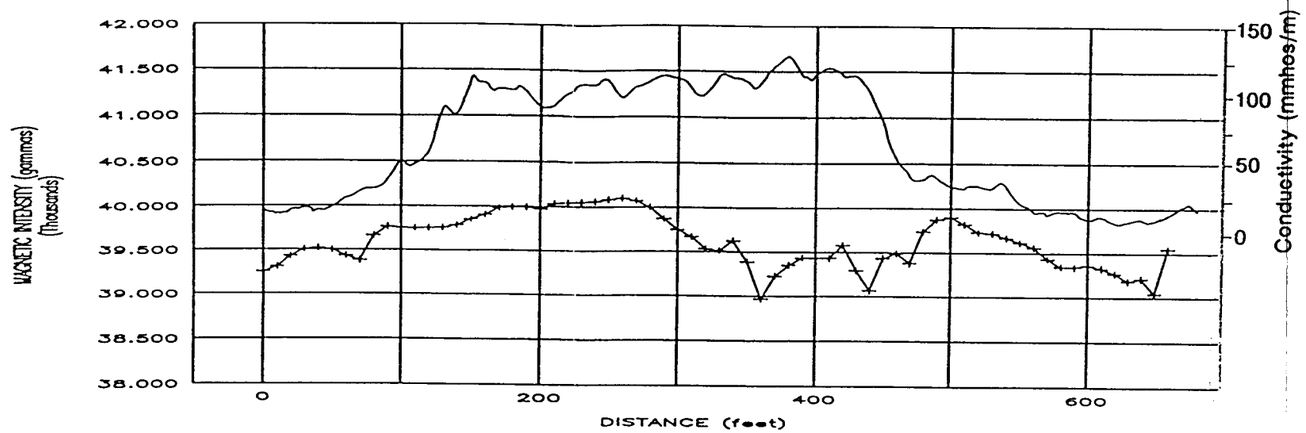
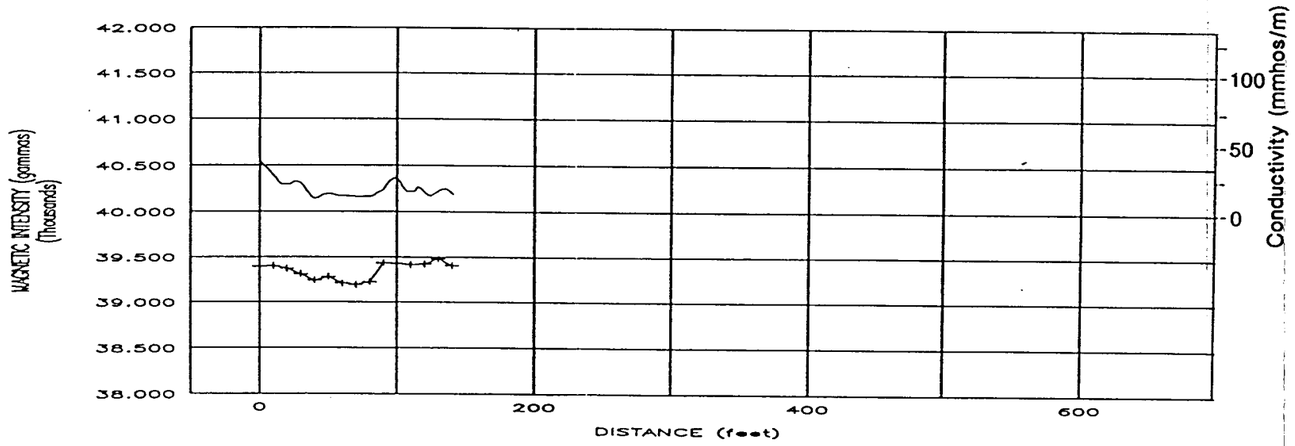
Geophysical Investigation Naval Station Roosevelt Roads Ceiba, Puerto Rico	EM In-Phase Profiles Lines 9 &10
WESTON GEOPHYSICAL CORP. Coraopolis, Pennsylvania	Date 7/93 — Figure No. 4.B.8



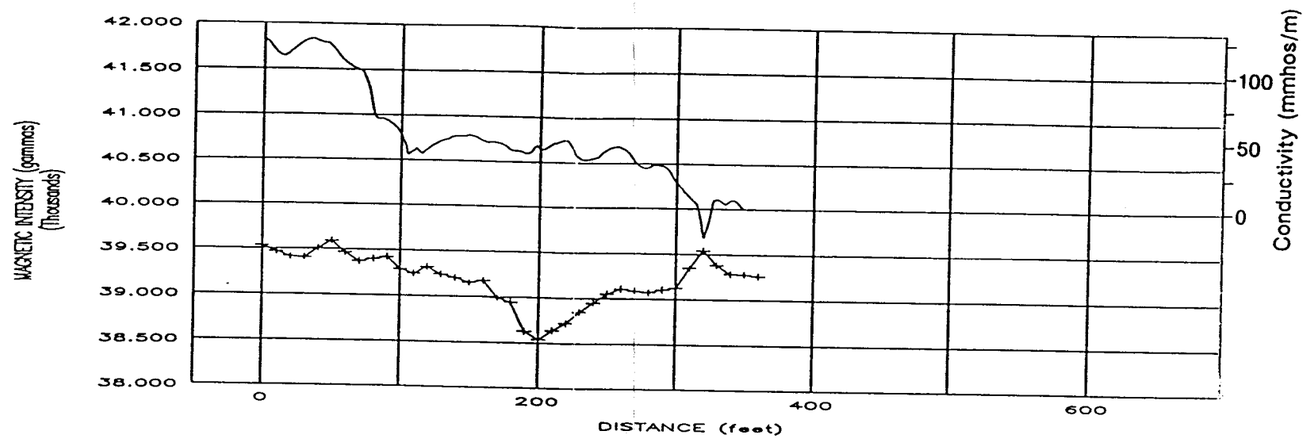
LINE NO. 1



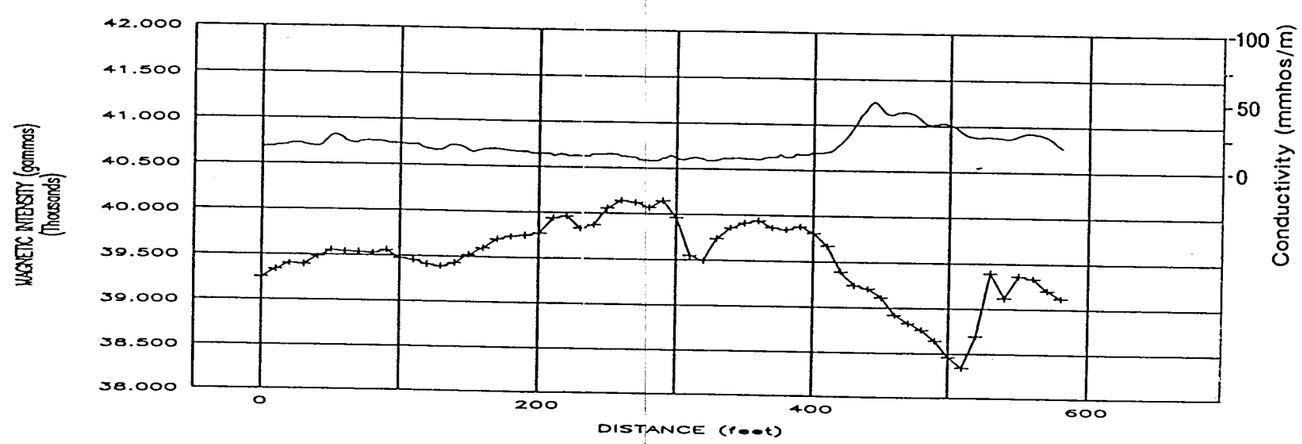
LINE NO. 2

Magnetometry Profile EM Profile

REVISIONS	DATE SCALE DRAWN DM REVIEWED TJS S.O.# 19007-70-SRN CADD#	Geophysical Investigation Naval Station Roosevelt Roads Ceiba, Puerto Rico WESTON GEOPHYSICAL CORP. Coraopolis, Pennsylvania	Baker Baker Environmental, Inc.	EM Conductivity (VDM) & Magnetometry Profiles Lines 1 & 2 SCALE / DATE 7/93	FIGURE NO. 4.B.9
WESTON GEOPHYSICAL CORP. IS A WHOLLY OWNED SUBSIDIARY OF BAKER ENVIRONMENTAL, INC.					



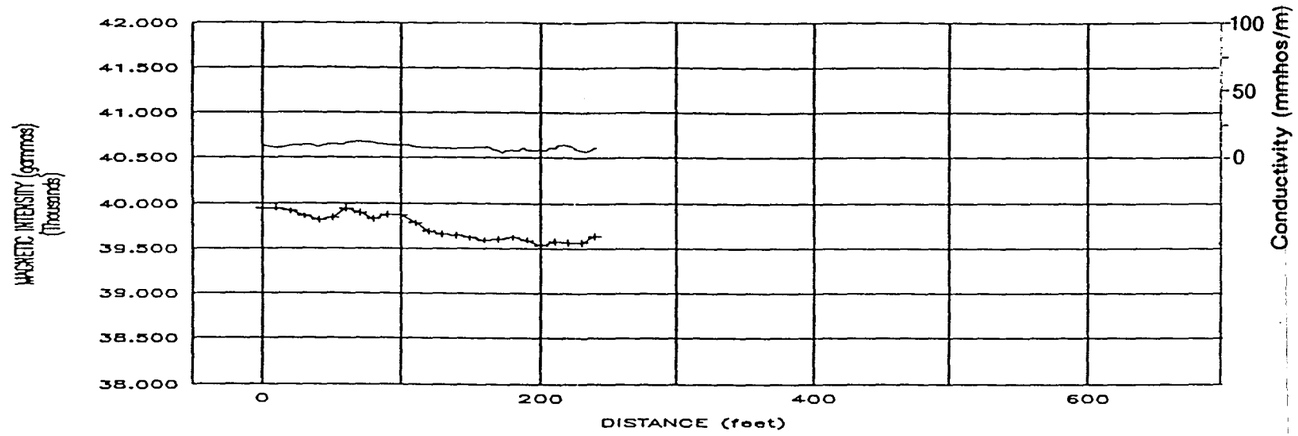
LINE NO. 3



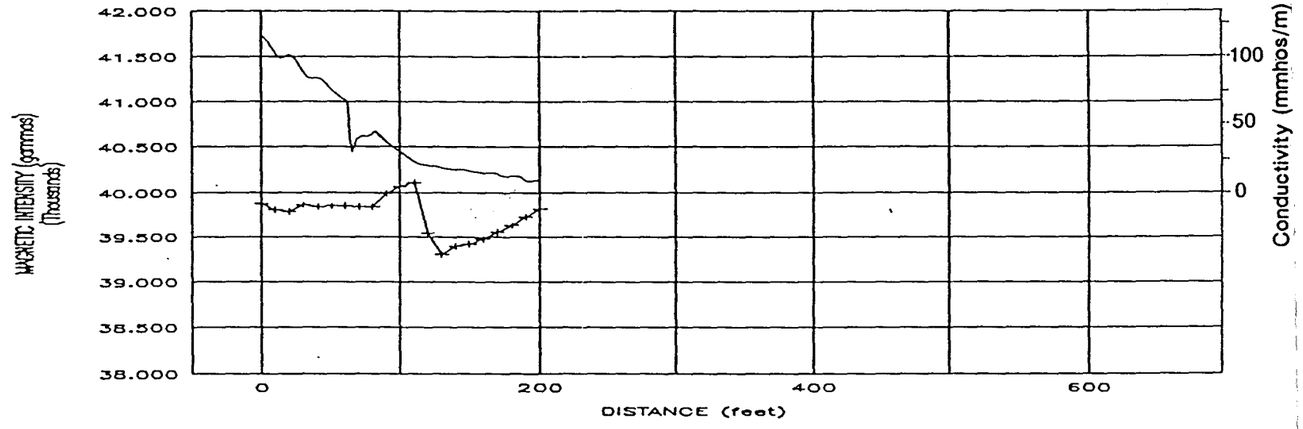
LINE NO. 4

Magnetometry Profile EM Profile

REVISIONS	DATE SCALE DRAWN DM REVIEWED TJS S.O.# 19007-70-SRN CADD#	Geophysical Investigation Naval Station Roosevelt Roads Ceiba, Puerto Rico	Baker Baker Environmental, Inc.	EM Conductivity (VDM) & Magnetometry Profiles Lines 3 & 4	FIGURE NO.
WESTON GEOPHYSICAL CORP. IS A WHOLLY OWNED SUBSIDIARY OF BAKER ENVIRONMENTAL, INC.		WESTON GEOPHYSICAL CORP. Coraopolis, Pennsylvania		SCALE / DATE 7/93	4.B.10



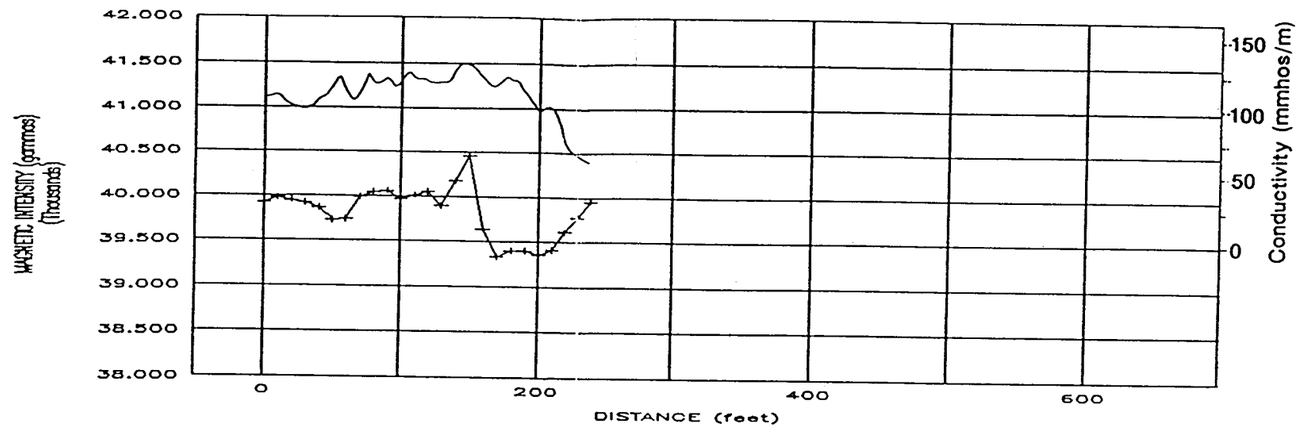
LINE NO. 5



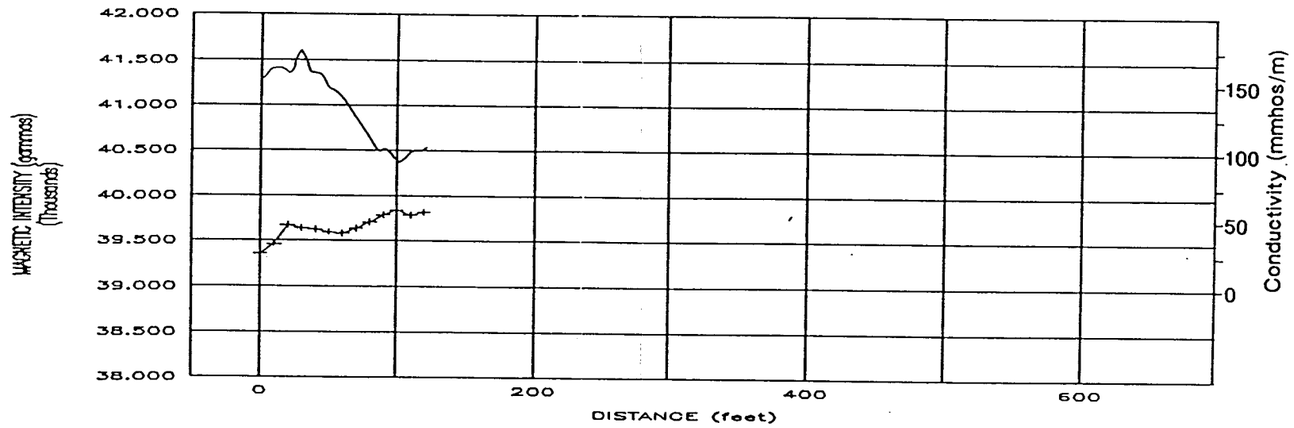
LINE NO. 6

Magnetometry Profile EM Profile

REVISIONS	DATE SCALE DRAWN DM REVIEWED TJS S.O.# 19007-70-SRN CADD#	Geophysical Investigation Naval Station Roosevelt Roads Ceiba, Puerto Rico WESTON GEOPHYSICAL CORP. Coraopolis, Pennsylvania	Baker Baker Environmental, Inc.	EM Conductivity (VDM) & Magnetometry Profiles Lines 5 & 6 SCALE / DATE 7/93	FIGURE NO. 4.B.11
WESTON GEOPHYSICAL CORP. IS A WHOLLY OWNED SUBSIDIARY OF BAKER ENVIRONMENTAL, INC.					



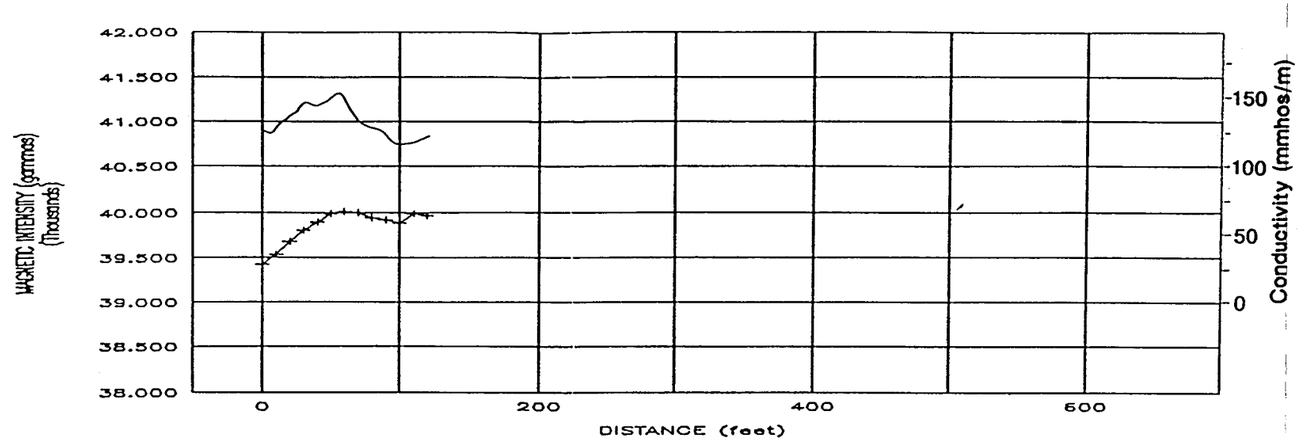
LINE NO. 7



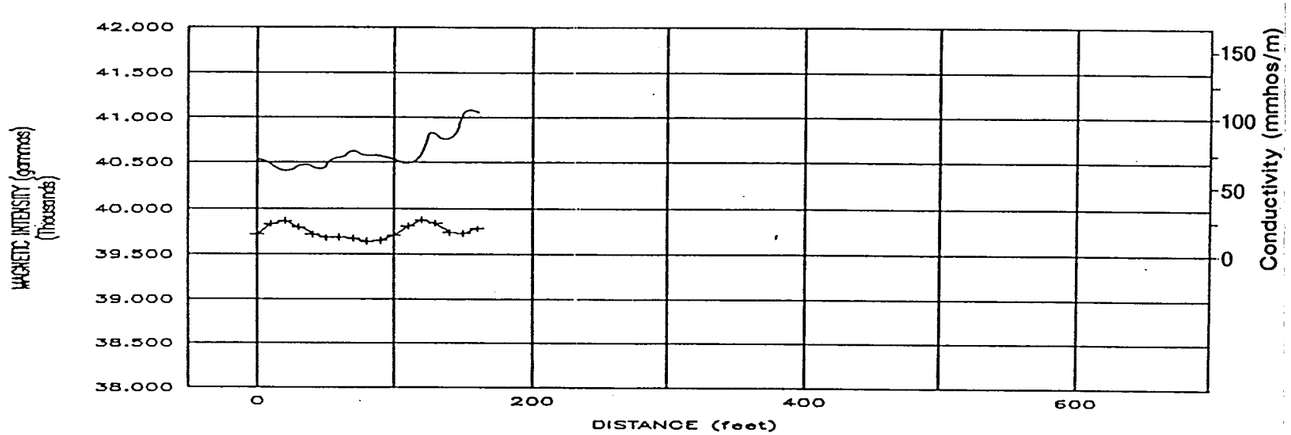
LINE NO. 8

Magnetometry Profile EM Profile

REVISIONS	DATE	Geophysical Investigation Naval Station Roosevelt Roads Ceiba, Puerto Rico	Baker Baker Environmental, Inc.	EM Conductivity (VDM) & Magnetometry Profiles Lines 7 & 8	FIGURE NO.
	SCALE				4.B.12
	DRAWN DM				
	REVIEWED TJS				
WESTON GEOPHYSICAL CORP. IS A WHOLLY OWNED SUBSIDIARY OF BAKER ENVIRONMENTAL, INC.	S.O.# 19007-70-SRN	WESTON GEOPHYSICAL CORP. Coraopolis, Pennsylvania		SCALE / DATE 7/93	
	CADD#				



LINE NO. 9



LINE NO. 10

Magnetometry Profile EM Profile

REVISIONS	DATE	Geophysical Investigation Naval Station Roosevelt Roads Ceiba, Puerto Rico	Baker Baker Environmental, Inc.	EM Conductivity (VDM) & Magnetometry Profiles Lines 9 & 10	FIGURE NO.
	SCALE				4.B.13
	DRAWN DM				
	REVIEWED TJS				
WESTON GEOPHYSICAL CORP. IS A WHOLLY OWNED SUBSIDIARY OF BAKER ENVIRONMENTAL, INC.	S.O.# 19007-70-SRN	WESTON GEOPHYSICAL CORP. Coraopolis, Pennsylvania		SCALE / DATE 7/93	
	CADD#				

conductivity values above background on Line 1 and 4. The northern boundary was similarly defined by Lines 3-6 along with an abrupt increase in topography near the ends of Lines 3 and 4.

The highest EM readings (>100 mmhos/m) were measured on Lines 1, 7, 8 and 9, and may correlate with more centralized burial of debris. This zone of anomalously high conductivity appears to agree with the suspected trench locations and debris stockpiles defined by historical airphoto analysis made by Geo Decisions, Inc. (Appendix 4.A).

Topographic features that could not be negotiated by the clearing equipment prevented the delineation of the southern limits of disposal.

3.2 Magnetometry

Magnetometry measurements were taken along the traverses (Lines 1-10) shown on Figure 4.B.2 to complement the EM survey. Magnetic intensities ranged between 39,500 and 40,000 gammas, and exhibited only minimal fluctuations. Several locations of buried ferrous metal have been identified on Figure 4.B.2. Most of these are within the limits of disposal defined by the EM survey. Locations identified beyond the disposal limits may represent miscellaneous scrap metal rather than widespread disposal.

4.B.4.0 SUMMARY AND CONCLUSIONS

EM data defined limits of disposal to the north, west and east. Geologic, topographic and equipment constraints prevented delineation of the southern disposal boundaries.

Disposal boundaries were defined as areas with conductivity values above background (>20mmhos/m) levels.

The highest conductivity values (>100 mmohs/m) and locations of buried ferrous metal coincide with an old access road, debris stock piles and trenches that were identified on historical photos by Geo Decisions, Inc.

Although the high conductivity levels and presence of buried ferrous metal indicate previous disposal on site, a higher resolution geophysical survey with an orthogonal grid would be

required to map actual trench locations completely; however, the identified disposal locations and trends generally agree with the photo-interpretation.

APPENDIX B
CHAIN OF CUSTODY RECORDS

APPENDIX B.1
CHAIN OF CUSTODY RECORDS - PHASE I

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: 11/15/96
Work Order #: 62470-277
Project Contact/Phone #: JOHN ANDERSON
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	8270	8260	8150	INORG Metal	CN	8010
	2MW01-00			S	10/8	1700	X	X	X	X	X	X	X	X	X	X
	2MW02-00					1625	X	X	X	X	X	X	X	X	X	X
	2MW03-00					1605	X	X	X	X	X	X	X	X	X	X
	2[illegible]01-00					1730	X	X	X	X	X	X	X	X	X	X
	2SB01-00					1900	X	X	X	X	X	X	X	X	X	X
	2SB02-00D	X	X			1910	X	X	X	X	X	X	X	X	X	X
	2SB03-00					1815	X	X	X	X	X	X	X	X	X	X
	2SB04-00					1755	X	X	X	X	X	X	X	X	X	X
	2SB05-00					1745	X	X	X	X	X	X	X	X	X	X
	5195B6			S	10/8	1605	FULL RECEIPT									

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE [illegible] DIRECT SAMPLES TO [illegible]
[illegible]
FEDEX [illegible]

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

Relinquished by	Received by	Date	Time
[illegible]		11/16	[illegible]

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

277002

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL, INC.
Est. Final Proj. Sampling Date: 11/15/96
Work Order #: 6240-277
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 →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	OPT 1613	Dioxin	Pest/PCB	INORG Metal	CN	Sulfide
	155Ø2			S	10/11	1050	X	X	X	X	X	X	X	X	X	X
	155Ø2D	X	X		10/11	1050	X	X	X	X	X	X	X	X	X	X
	155Ø3				10/10	1300	X	X	X	X	X	X	X	X	X	X
	155Ø4				10/11	1530	X	X	X	X	X	X	X	X	X	X
	155Ø5				10/11	1200	X	X	X	X	X	X	X	X	X	X
	155Ø6				10/11	1210	X	X	X	X	X	X	X	X	X	X
	1MW1Ø2-ØØ				10/11	1350	X	X	X	X	X	X	X	X	X	X
	1MW1Ø3-ØØ			W	10/11	1113	X	X	X	X	X	X	X	X	X	X
	1SBØ3-ØØ			S	10/11	1550	X	X	X	X	X	X	X	X	X	X
	TB1			W	—		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 TO LIONVILLE, PA. LAB

FEDEX AIR BILL #400-4071-7946

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 Boyd		10/11/96	1420

Relinquished by	Received by	Date	Time

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

27704

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date: 11/15/96
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: VOA, BNA, Pest/PCB, Herb, 8290 (DIOXIN), 8260 (VOC)
INORG: Metal, CN, 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	VOA	BNA	Pest/PCB	Herb	8290 (DIOXIN)	8260 (VOC)	Metal	CN	SULFIDE
	1SB02-00			S	10/13	0950	X	X	X	X	X	X	X	X	X
	1SS07				10/13	1240	X	X	X	X	X	X	X	X	X
	1MW04-00				10/13	0950	X	X	X	X	X	X	X	X	X
	1SS01				10/13	0945	X	X	X	X	X	X	X	X	X
	1SB01-00			S	10/13	1000	X	X	X	X	X	X	X	X	X
	TB02			W			X								

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE SEND DIOXIN SAMPLES TO LIONVILLE, PA LAB

FED EX AIR BILL # 400-2537-9546

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

Relinquished by	Received by	Date	Time
Chris Boro		10/14/96	1420

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

277004

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: BAKER ENVIRONMENTAL
Est. Final Prof. Sampling Date: 11/15/96
Work Order #: 62470-277
Project Contact/Phone #: J. ANDY/(412)269-6000
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				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	WESTON Analytics Use Only													
	1MW04-02			S	10/15	1155	X	X	X	X	X	X	X	X	X	X				
	1MW04-04			S	10/15	322	X	X	X	X	X	X	X	X	X	X				
	1RB01			W	10/15	1630	X	X	X	X	X	X	X	X	X	X				
	TB03			W			X													

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE SEND DIOXIN SAMPLES TO LIONVILLE, PA LAB

FEDEX AIR BILL # 400-4071-8123

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

Relinquished by	Received by	Date	Time
[illegible]		10/16/96	0955

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# ____ 381-596a

277ØØ5

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL, INC
Est. Final Proj. Sampling Date: 11/15/96
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 →

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	PCB	Dioxin	Hexane	INORG Metal	CN	Sulfide						
								WESTON Analytics Use Only															
									#														
		1SS08			S	10/21	1550	X	X	X	X	X	X	X	X	X	X						
		1SD01			S	10/22	0940	X	X	X	X	X	X	X	X	X	X						
		1SD02			S	10/22	0900	X	X	X	X	X	X	X	X	X	X						
		1MW03-03			S	10/22	1415	X	X	X	X	X	X	X	X	X	X						
		1MW03-05			S	10/22	1515	X	X	X	X	X	X	X	X	X	X						
		1IZB02			W	10/22	1745	X	X	X	X	X	X	X	X	X	X						
		FB01			W	10/23	0815	X	X	X	X	X	X	X	X	X	X						
		TB04			W			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 - Filter

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE DELIVER DIOXIN SAMPLES TO LIONVILLE, PA. LAB

FED EX AIR BILL # 400-4071-8134

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

Relinquished by	Received by	Date	Time
Chris Boso		10/23/96	1100

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# ____ 381-596a

#277-006

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page ____ of ____

Client: BAKER ENVIRONMENTAL, INC
Est. Final Proj. Sampling Date: NOV. 14, 1996
Work Order #: 624 10-277
Project Contact/Phone #: JOHN ANDT/412-269-6000
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 →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	SVOCS	Dioxins	Explosives	INORG Metal	CN	Sulfide
	1RB03			W	10/25	0945	X	X	X	X	X	X	X	X	X	X
	1SB03-03			S	10/24	0833	X	X	X	X	X	X	X	X	X	X
	1SB03-06			S	10/24	0815	X	X	X	X	X	X	X	X	X	X
	TB05			W			X									
	1SB01-02/05			S	10/25	1442	X	X	X	X	X	X	X	X	X	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:
APPENDIX IX ANALYSES
PLEASE SHIP DIOXIN SAMPLES TO
LIONVILLE, PA LAB

FED-EX AIR BILL # 400-4071 8101

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

#C1 0001

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 1 of 1

Client: BAKER ENVIRONMENTAL, INC
Est. Final Proj. Sampling Date: NOV. 14, 1996
Work Order #: 6270-277
Project Contact/Phone #: JOHN ANDY/412-269-6000
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	O/P Pest	Dioxin	EXPLOSIVES	Metal	CN	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									
	IMW02-03			S	10/28	0850	X	X	X	X	X	X	X	X	X	X
	IMW02S-03D			S	10/28	0850	X	X	X	X	X	X	X	X	X	X
	IMW02-03	X		S	10/28	0850	X	X	X	X	X	X	X	X	X	X
	IMW02-11/12			S	10/28	1003	X	X	X	X	X	X	X	X	X	X
	ISB02-03/04			S	10/26	0847	X	X	X	X	X	X	X	X	X	X
	ISB02-10/11/12			S	10/26	1027	X	X	X	X	X	X	X	X	X	X
	IRB04			W	10/26	1230	X	X	X	X	X	X	X	X	X	X
	TB06			W			X									

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
APPENDIX IX ANALYSIS
PLEASE SHIP DIOXIN SAMPLES TO
LIONVILLE, PA LAB

FED-EX AIRBILL #400-4071-~~8112~~ 8016

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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Mark [illegible]							

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

277-008

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page ____ of ____

Client: BAKER ENVIRONMENTAL, INC
Est. Final Proj. Sampling Date: Nov 14, 1996
Work Order #: 62470-277
Project Contact/Phone #: JOHN ANDY/412-269-6000
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:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC: VOA	BNA	Pest/PCB	Herb	DIOXIN	DIOXIN	EXPLOSIVES	INORG: Metal	CN	SULFIDE
								WESTON Analytics Use Only									
S - Soil		1MW01-00			S	10/29	0855	X	X	X	X	X	X	X	X	X	X
SE - Sediment		1MW01-02			S	10/29	0915	X	X	X	X	X	X	X	X	X	X
SO - Solid		1MW01-02D			S	10/29	0915	X	X	X	X	X	X	X	X	X	X
SL - Sludge		1RB05			W	10/29	1515	X	X	X	X	X	X	X	X	X	X
W - Water		FB02			W	10/29	1630	X	X	X	X	X	X	X	X	X	X
O - Oil		TB07			W			X									
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:
- ARP. IX ANALYSIS
- PLEASE SHIP DIOXIN SAMPLES TO LIONVILLE, PA LAB

FED-EX AIR BILL # 400-471-8005

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
[signature]							

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

WESTON Analytics Use Only

277099

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date: 11/15/96
Work Order #: 62470-277
Project Contact/Phone #: J. TRAGESSER (412) 269-6000
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: VOA, BNA, Pest/PCB, Herb, PCB, TCLP, ORTHO PHOSPHATE, EXPLOSIVES
INORG: Metal, CN, APHA, SULFIDE

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	PCB	TCLP	ORTHO PHOSPHATE	EXPLOSIVES	Metal	CN	APHA	SULFIDE
	1MW01			W	11/5/96	1740	X	X	X	X	X	X			X	X	X	
	1MW01D	X	X			1740	X	X	X	X	X	X			X	X	X	
	1MW02					1450	X	X	X	X	X	X			X	X	X	
	1MW03					1345	X	X	X	X	X	X			X	X	X	
	1MW04				11/5/96	0945	X	X	X	X	X	X			X	X	X	
	5GW01				11/6/96	0940	X	X	X	X	X	X			X	X	X	
	5GW03				11/5/96	1100	X	X	X	X	X	X			X	X	X	
	5GW04				11/5/96	1615	X	X	X	X	X	X			X	X	X	
	~~5GW0~~ CB					CB	X	X	X	X	X	X						
	TB08			W	—		X											

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
DIOXIN SAMPLES SENT TO LIONVILLE, PA LAB

FED EX AIR BILL # 400-4071-8031

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

Relinquished by	Received by	Date	Time
Chris Boes		11/6/96	1205

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# _____ 381-596a

27ØØ94a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date: 11/15/96
Work Order #: 62470-277
Project Contact/Phone #: J. TRAGESSER (412) 769-6000
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	DIOXIN			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	WESTON Analytics Use Only													
	1MW01			W	11/5/96	1740					X									
	1MW01D	X	X		11/5/96	1740					X									
	1MW02				11/5/96	1450					X									
	1MW03				11/5/96	1345					X									
	1MW04				11/5/96	0945					X									
	5GW01				11/6/96	0940					X									
	5GW03				11/5/96	1100					X									
	5GW04			W	11/5/96	1615					X									

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FEDEX AIRBILL No. 400-4072-0212

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

Relinquished by	Received by	Date	Time
[illegible]		11/6/96	1215

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# _____ 381-596a

WESTON Analytics Use Only

277010

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date: 11/15/96
Work Order #: 62470-277
Project Contact/Phone #: J. TRAGESSER (412) 269-6000
AD Project Manager: BOSCO RAMIREZ
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	EXPLOSIVES		Metal	CN	PAL PE							

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	EXPLOSIVES	Metal	CN	PAL PE
							WESTON Analytics Use Only									
	ZMW02-02			S	11/6/96	1320	X	X	X	X	X	X	X	X	X	X
	ZMW02-05			S	11/6/96	1406	X	X	X	X	X	X	X	X	X	X
	ZRB01			WL	11/6/96	1700	X	X	X	X	X	X	X	X	X	X
	TB09			WL	—	—	X									
	ZMW01-01			S	11/8/96	1340	X	X	X	X	X	X	X	X	X	X

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE SEND DIOXIN SAMPLES TO LIONVILLE, PA. LAB

AIR BILL NO. (FEDEX) 400-4071-8053

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

Relinquished by	Received by	Date	Time
[illegible]		11/9/96	1425

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

277011

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: [illegible] ENVIRONMENTAL
Est. Final Proj. Sampling Date: 11/18/96
Work Order #: 62410-277
Project Contact/Phone #: J. TRAGESSER (412) 269-6000
AD Project Manager: BOSO RAMIREZ
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	DIOX	EXPLOSIVES	Metal	CN	SULFIDE							

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	DIOX	EXPLOSIVES	Metal	CN	SULFIDE
	2RB02			W	11/10/96	1350	X	X	X	X	X	X	X	X	X	X
	2SD01			S	11/11/96	0940	X	X	X	X	X	X	X	X	X	X
	2MW03-01				11/9/96	0954	X	X	X	X	X	X	X	X	X	X
	2MW03-01D				11/9/96	0954	X	X	X	X	X	X	X	X	X	X
	2SB05-01/02				11/10/96	0855	X	X	X	X	X	X	X	X	X	X
	2SB05-01/02				11/10/96	0855	X	X	X	X	X	X	X	X	X	X
	1SD03				11/10/96	1500	X	X	X	X	X	X	X	X	X	X
	2SB04-02			S	11/10/96	1616	X	X	X	X	X	X	X	X	X	X
	TB10			W	—	—	X									

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE SEND DIOXIN SAMPLES TO LIONVILLE, PA. LAB

FEDEX AIR BILL # 400-4071-8042

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 Bolo		11/11/96	1235

Relinquished by	Received by	Date	Time

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

~~ETO~~ 277012

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL, INC
Est. Final Proj. Sampling Date: 11/14/96
Work Order #: 62410-277
Project Contact/Phone #: JOHN ANDY/412-269-6000
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	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	OPPS	EXPS	SOLVS	INORG Metal	CN	[illegible]	[illegible]	[illegible]	[illegible]
		2MW01			W	11/12	1515	X	X	X	X	X	X	X	X	X	X			
		2MW02			W		1015	X	X	X	X	X	X	X	X	X	X			
		2MW02	X	X	W		1015	X	X	X	X	X	X	X	X	X	X			
		2MW02D			W		1015	X	X	X	X	X	X	X	X	X	X			
		2MW03			W		1415	X	X	X	X	X	X	X	X	X	X			
		6GW01			W		1615	X	X	X	X	X	X	X	X	X	X	X	X	
		2RB03			W	11/12	1715	X	X	X	X	X	X	X	X	X				
		2RB04			W	11/13	0730	X	X	X	X	X	X	X	X	X				
		TB11			W	—	—	X												
		2SD02			SE	11/11	1450	X	X	X	X	X	X	X	X	X		X		

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

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

APPENDIX IX ANALYSIS
BOTTLES LABELED "6MW01"
SHOULD READ "6GW01"

FED-EX AIRBILL Nº 400-4071 8064

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

Relinquished by	Received by	Date	Time
Chris Bo[illegible]		11/13/96	1234

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

CTO ~~012~~ 277012

Custody Transfer Record/Lab Work Request

WESTON

Client
Est. Final Proj. Sampling Date SEE PAGE 1 OF 2
Work Order #
Project Contact/Phone #
AD Project Manager
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	Explosives	Sulfide	Metal	CN	TOC

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	Explosives	Sulfide	Metal	CN	TOC
	~~2SD02 MKD~~															
	2SD03			SE	11/13/96	1530	X	X	X	X	X	X	X	X	X	X

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

APPENDIX IX ANALYSIS

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 Boelo		11/13/96	1234

Relinquished by	Received by	Date	Time

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

WESTON Analytics Use Only

CT ~~[illegible] 012A~~ CDB 277012a

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: BAKER ENVIRONMENTAL, INC
Est. Final Proj. Sampling Date: 11/14/96
Work Order #: 62470-277
Project Contact/Phone #: JOHN ANDY/412-269-6006
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	Dioxin				Metal	CN	EPA					
		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													
	2MW01			W	11/12	1515				X									
	2MW02			W		1015				X									
	2MW02	X	X	W		1015				X									
	2MW02D			W		1015				X									
	2MW03			W		1415				X									
	2RB03			W		1715				X									
	2RB04			W	11/13	0730				X									
	2SD02			SE	11/11	1450				X									
	2SD03			SE	11/11	1530				X									
	6GW01			W	11/12	1615				X					X				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

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

FED-EX AIRBILL No. 400-4072-0201

Relinquished by	Received by	Date	Time
Chris Bass		11/13/96	1235

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# ____ 381-596a

277Ø13

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date 11/27/96
Work Order # 62470-277
Project Contact/Phone # J. TRAGESSER (412) 269-6000
AD Project Manager BOSCO RAMIREZ
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	EXPLOSIVES	Metal	CN	SULFIDE	TOC	PCB BETEX	TCLP METALS		

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	EXPLOSIVES	Metal	CN	SULFIDE	TOC	PCB BETEX	TCLP METALS		
							WESTON Analytics Use Only														
	2RBØ5			W	11/18/96	1815	X	X	X	X	X	X	X	X	X	X					
	1SDØ1			S	11/19/96	0840											X				
	1SDØ2			S	11/19/96	0900											X				
	1SDØ3			S	11/19/96	0925											X				
	2SDØ1			S	11/18/96	1715											X				
	2SBØ1-Ø2			S	11/18/96	0858	X	X	X	X	X	X	X	X	X	X					
	2SBØ1-Ø5	X	X	S	11/18/96	0946	X	X	X	X	X	X	X	X	X	X					
	2IDW-S			S	11/19/96	1130												X	X		
	1IDW-S			S	11/19/96	1200												X	X		
	TBIZ			W	—	—	X														

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE SEND DIOXIN SAMPLES TO LIONVILLE, PA. LAB

FED EX AIR BILL # 400-4071-8075

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 Bond	FEDEX	11/19/96	1330				

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

WESTON Analytics Use Only

27701

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date: 11/27/96
Work Order #: 62470-277
Project Contact/Phone #: J. TRAGESSER (412) 269-6000
AD Project Manager: BOSCO RAMIREZ
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

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

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN

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	VOA	BNA	Pest/PCB	Herb				Metal	CN					
	4SHP01			W	11/22/96	1520	X	X	X					X						
	4SHP02				11/22/96	1530	X	X	X					X						
	4SHP03				11/22	1435	X	X	X					X						
	4SHP04				11/22	1615	X	X	X					X						
	4SRB01				11/22	0845	X	X	X					X						
	FB03				11/22	0915	X	X	X					X						
	4SRB02			W	11/22	1200	X	X	X					X						
	TB13			W	—	—	X													
	4SMW04-00			S	11/22	1439	X	X	X					X						
	4SMW04-00D			S	11/22	1439	X	X	X					X						

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE RUN VOA FOR SAMPLES 4SHP02 & 4SHP01 ASAP. SAMPLES EFFERVESCED WHEN MIXED W/ HCL

FEDEX AIR BILL # 400-4071-8020

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

Relinquished by	Received by	Date	Time
Rosco Ramirez	FEDEX	11/22/96	1805

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

277014

Custody Transfer Record/Lab Work Request

WESTON

Client BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date 11/27/96
Work Order # 62470-277
Project Contact/Phone #
AD Project Manager
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				Metal	CN						
		WESTON Analytics Use Only														

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				Metal	CN						
	45MW04-01			S	11/22/96	1443	X	X	X					X							
	45MW04-02				11/22	1450	X	X	X					X							
	45MW01-00				11/22	1001	X	X	X					X							
	45MW01-02				11/22	1043	X	X	X					X							
	45MW01-03				11/22	1048	X	X	X					X							
	45MW02-00				11/21	0812	X	X	X					X							
	45MW02-01				11/21	0816	X	X	X					X							
	45MW02-02				11/22	0823	X	X	X					X							
	45MW03-00				11/21	1433	X	X	X					X							
	45MW03-03	X	X	S	11/21	1508	X	X	X					X							

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FED EX AIR BILL #400-4071-8020

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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Chris Bodo	FEDEX	11/22/96	1805				

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

27[illegible]14

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: BAYER ENV
Est. Final Proj. Sampling Date: 11/27
Work Order #: 62470-277
Project Contact/Phone #:
AD Project Manager:
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							Metal	CN						
		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													
	45MW03-03D			S	11/21	1508	X	X	X						X				
	45MW03-04			S	11/21	1519	X	X	X						X				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FEDEX AIRBILL #400-4071-8020

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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Chris Bodo	FEDEX	1805	11/22/96				

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

277015

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date
Work Order #: 62470-277
Project Contact/Phone #: 412/269-[redacted]2060
AD Project Manager: TOM FUCLAR
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #																					
#/Type Container	Liquid	G	G	G										F							
	Solid																				
Volume	Liquid	40ml	1L	1L										1L							
	Solid																				
Preservatives																					
ANALYSES REQUESTED →		ORGANIC										INORG									
		VOA	BNA	Pest/PCB	Herb							Metal	CN	RCRA METALS							

MATRIX CODES: S - Soil; SE - Sediment; SQ - 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	WESTON Analytics Use Only														
	45MW01	✓	✓	W	11/25/96	0735	✓	✓	✓						✓						
	45MW01D			W	"	0735	✓	✓	✓						✓						
	45MW02			W	"	0735	✓	✓	✓						✓						
	45MW03			W	"	0925	✓	✓	✓						✓						
	45MW04			W	"	0900	✓	✓	✓						✓						
	TB14			W	—	—	✓														
	45SD01			SE	11/25/96	1350	✓	✓	✓						✓						
	45SD02			SE	"	1400	✓	✓	✓						✓						
	45SD03			SE	"	1405	✓	✓	✓						✓						
	45SD04			SE	"	1410	✓	✓	✓						✓						

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE RUN VOA ON SAMPLES 45IDW-W1, 45IDW-W2, 45MW02 & 45MW04. WATER EFFERVESCED WHEN MIXED WITH ACID

FEDEX AIR BILL #400-4071-8086

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 Boro		11/25/96	1840				

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

WESTON Analytics Use Only

27 615

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date
Work Order #: 62470-277
Project Contact/Phone #: 412/269-2060
AD Project Manager: TOM FULLER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #																
#/Type Container	Liquid															
	Solid					G					G					
Volume	Liquid															
	Solid					2oz					1oz					
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb	BTEX			Metal	CN	PCB WGTS	PCB GRAB	PCB 3gr	PCB WGTS		

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only													
S - Soil		1 IDW-W			W	11/24/96	0645	✓									✓	✓	✓	✓	
SE - Sediment		2 IDW-W			W	"	0735	✓									✓	✓	✓	✓	
SO - Solid		45 IDW-W1			W	"	1010	✓									✓	✓	✓	✓	
SL - Sludge		45 IDW-W2			W	"	1025	✓									✓	✓	✓	✓	
W - Water																					
O - Oil																					
A - Air		45 IDW-S1			S	11/24/96	0840					✓					✓				
DS - Drum Solids		45 IDW-S2			S	11/24/96	0855					✓					✓				
DL - Drum Liquids																					
L - EP/TCLP Leachate																					
WI - Wipe																					
X - Other																					
F - Fish																					

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
SEE NOTE Pg. 1 of 2

FEDEX AIR BILL #400-4671-8086

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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Chris Bobo		11/25/96	1840				

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

Z77016

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date
Work Order #: 62470-277
Project Contact/Phone #: 412/269-2060
AD Project Manager: TOM FULLER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #																
#/Type Container	Liquid															
	Solid			G												
Volume	Liquid															
	Solid			8 oz												
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				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	WESTON Analytics Use Only													
	11 WS-ØØ1			WT	11/23/96	1140			✓											
	11 WS-ØØ2			WT	11/23/96	1142			✓											
	11 WS-ØØ3			WT	"	1144			✓											
	11 WS-ØØ4			WT	"	1146			✓											
	11 WS-ØØ5			WT	"	1148			✓											
	11 WS-ØØ6			WT	"	1150			✓											
	11 WS-ØØ7			WT	"	1153			✓											
	11 WS-ØØ8			WT	"	1155			✓											
	11 WS-ØØ9			WT	"	1157			✓											
	11 WS-Ø10			WT	"	1200			✓											

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FEDEX AIR BILL # 400-4071-8086

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

Relinquished by	Received by	Date	Time
Chris Boro		11/25/96	1827

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# ____ 381-596a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date
Work Order #: 62470-277
Project Contact/Phone #: 412/269-2060
AD Project Manager: TOM FULLER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #																	
#/Type Container	Liquid																
	Solid			G													
Volume	Liquid																
	Solid			8oz													
Preservatives																	
ANALYSES REQUESTED →			ORGANIC							INORG							
			VOA	BNA	Pest/PCB	Herb				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	WESTON Analytics Use Only													
	11 WS-Ø11			WT	11/25/96	1207			✓											
	11 WS-Ø12			"	"	1209			✓											
	11 WS-Ø13			"	"	1211			✓											
	11 WS-Ø14			"	"	1215			✓											
	11 WS-Ø15			"	"	1220			✓											
	11 WS-Ø16			"	"	1225			✓											
	11 WS-Ø17			"	"	1227			✓											
	11 WS-Ø18			"	"	1233			✓											
	11 WS-Ø19			"	"	1235			✓											
	11 WS-Ø20			"	"	1237			✓											

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
Chris Boss		11/25/96	1827

Relinquished by	Received by	Date	Time

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

WESTON Analytics Use Only

277016

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date:
Work Order #: C2470-277
Project Contact/Phone #: 412/269-2060
AD Project Manager: TOM FULLER
QC: Del: TAT:

Date Rec'd: Date Due:
Account #:

Refrigerator #:
#/Type Container: Liquid / Solid: G
Volume: Liquid / Solid: 8oz
Preservatives:

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: 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	WESTON Analytics Use Only													
	11-WS-Ø21			W	11/20/96	1240			✓											
	11-WS-Ø22			W	"	1210			✓											
	11-WS-Ø23			W	"	1215			✓											
	11-WS-Ø24			W	"	1216			✓											
	11-WS-Ø25			W	"	1221			✓											
	11-WS-Ø26			W	"	1222			✓											
	11-WS-Ø27			W	"	1226			✓											
	11-WS-Ø28			W	"	1228			✓											
	11-WS-Ø29			W	"	1231			✓											
	11-WS-Ø30			W	"	1234			✓											

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1.
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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 Boes		11/25/96	1827

Relinquished by	Received by	Date	Time

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

27 016

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: LAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date:
Work Order #: 62470-297
Project Contact/Phone #: 412/269-2060
AD Project Manager: TOM FULLER
QC: Del: TAT:
Date Rec'd: Date Due:
Account #:

Refrigerator #																			
#/Type Container	Liquid																		
	Solid			G															
Volume	Liquid																		
	Solid			8oz															
Preservatives																			
ANALYSES REQUESTED →				ORGANIC								INORG							
				VOA	BNA	Pest/PCB	Herb					Metal	CN						

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only													
S - Soil		11 WS-031			WT	11/24/96	1236			✓											
SE - Sediment		11 WS-032					1238			✓											
SO - Solid		11 WS-033					1242			✓											
SL - Sludge		11 WS-034			"	"	1244			✓											
W - Water		11 WS-035			"	"	1247			✓											
O - Oil		11 WS-036			"	"	1249			✓											
A - Air		11 WS-037			"	"	1251			✓											
DS - Drum Solids		11 WS-038			"	"	1254			✓											
DL - Drum Liquids		11 WS-039			"	"	1256			✓											
L - EP/TCLP Leachate		11 WS-040			"	"	1259			✓											
WI - Wipe																					
X - Other																					
F - Fish																					

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
Chris Bosco		11/25/96	1827

Relinquished by	Received by	Date	Time

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

277016

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj Sampling Date
Work Order #: 62470-277
Project Contact/Phone #: 412/269-2060
AD Project Manager: TOM FULLER
QC: Del TAT
Date Rec'd: Date Due:
Account #:

Refrigerator #																	
#/Type Container	Liquid																
	Solid			G													
Volume	Liquid																
	Solid			8oz													
Preservatives																	
ANALYSES REQUESTED		ORGANIC								INORG							
		VOA	BNA	Pest/PCB	Herb					Metal	CN						

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only													
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		11WS-041			WS	11/6/96	1300			✓											
		11WS-042			"	"	1302			✓											
		11WS-043			"	"	1305			✓											
		11WS-044			"	"	1307			✓											
		11WS-045			"	"	1310			✓											
		11WS-046			"	"	1312			✓											
		11WS-047			"	"	1316			✓											
		11WS-048			"	"	1318			✓											
		11WS-049			"	"	1322			✓											
		11WS-050			"	"	1326			✓											

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
Chris Boro		11/7/96	1827

Relinquished by	Received by	Date	Time

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

WESTON Analytics Use Only

2 Ø16

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date
Work Order #: 62470-277
Project Contact/Phone #: 412/269-2060
AD Project Manager: TOM FULCER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #																			
#/Type Container	Liquid																		
	Solid				G														
Volume	Liquid																		
	Solid				8oz														
Preservatives																			
ANALYSES REQUESTED →				ORGANIC								INORG							
				VOA	BNA	Pest/PCB	Herb					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	WESTON Analytics Use Only												
	11 WS-Ø51			WT	11/25/96	1342			✓										
	11 WS-Ø52			"	"	1354			✓										
	11 WS-Ø53			"	"	1336			✓										
	11 WS-Ø54			"	"	1328			✓										
	11 WS-Ø55			"	"	1330			✓										
	11 WS-Ø56			"	"	1348			✓										
	11 WS-Ø57			"	"	1340			✓										
	11 WS-Ø58			"	"	1348			✓										
	11 WS-Ø59			"	"	1350			✓										
	11 WS-Ø60			"	"	1356			✓										

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
Chris Boes		11/25/96	1827

Relinquished by	Received by	Date	Time

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

277016

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date
Work Order #: 62470-277
Project Contact/Phone #: 412/269-2060
AD Project Manager: TOM FULLER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #																	
#/Type Container	Liquid																
	Solid			G													
Volume	Liquid																
	Solid			8oz													
Preservatives				—													
ANALYSES REQUESTED				ORGANIC							INORG						
				VOA	BNA	Pest/PCB	Herb				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	WESTON Analytics Use Only												
	11 WS-Ø61			WT	11/21/96	1358			✓										
	11 WS-Ø62			"	"	1402			✓										
	11 WS-Ø63			"	"	1404			✓										
	11 WS-Ø64			"	"	1321			✓										
	11 WS-Ø65			"	"	1323			✓										
	11 WS-Ø66			"	"	1325			✓										
	11 WS-Ø67			"	"	1327			✓										
	11 WS-Ø68			"	"	1331			✓										
	11 WS-Ø69			"	"	1333			✓										
	11 WS-Ø70			"	"	1337			✓										

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
Chris Boes		11/25/96	1827

Relinquished by	Received by	Date	Time

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

2770

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date
Work Order # 62470-277
Project Contact/Phone # 412/269-2060
AD Project Manager TOM FULLER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #		
#/Type Container	Liquid	
	Solid	G
Volume	Liquid	
	Solid	8oz
Preservatives		

ANALYSES REQUESTED →

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	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	Metal	CN
	11WS-071			WI	11/25/96	1339			✓			
	11 WS-072			"	"	1341			✓			
	11 WS-073			"	"	1343			✓			
	11 WS-074			"	"	1347			✓			
	11 WS-075			"	"	1349			✓			
	11 WS-076			"	"	1352			✓			
	11 WS-077			"	"	1355			✓			
	11 WS-078			"	"	1359			✓			
	11 WS-079			"	"	1401			✓			
	11 WS-080			"	"	1403			✓			

WESTON Analytics Use Only

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
Chris Boes		11/25/96	1827

Relinquished by	Received by	Date	Time

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

CB ~~216~~ 277016

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date
Work Order #: 62470-277
Project Contact/Phone #: 412/269-2060
AD Project Manager: TOM FULLER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account #

Refrigerator #																		
#/Type Container	Liquid																	
	Solid			G														
Volume	Liquid																	
	Solid			8oz														
Preservatives																		
ANALYSES REQUESTED		ORGANIC								INORG								
		VOA	BNA	Pest/PCB	Herb					Metal	CN							

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only													
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		11 WS-081			WT	11/25/96	1405			✓											
		11 WS-082			"	"	1409			✓											
		11 WS-083			"	"	1411			✓											
		11 WS-084			"	"	1415			✓											
		11 WS-085			"	"	1424			✓											
		11 WS-086			"	"	1426			✓											
		11 WS-087			"	"	1428			✓											
		11 WS-088			"	"	1432			✓											
		11 WS-089			"	"	1438			✓											
		11 WS-090			"	"	1440			✓											

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
Chris Bobo		11/25/96	1827

Relinquished by	Received by	Date	Time

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

WESTON Analytics Use Only

277016

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date
Work Order #: 62470-277
Project Contact/Phone #: 412/269-2060
AD Project Manager: TOM FULLER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #																
#/Type Container	Liquid															
	Solid			G												
Volume	Liquid															
	Solid			8oz												
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
		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													
	11 WS-091			WI	11/25/96	1454			✓										
	11 WS-092			"	"	1456			✓										
	11 WS-093			"	"	1458			✓										
	11 WS-094			"	"	1448			✓										
	11 WS-095			"	"	1444			✓										
	11 WS-096			"	"	1446			✓										
	11 WS-097			"	"	1502			✓										
	11 WS-098			"	"	1506			✓										
	11 WS-099			"	"	1512			✓										
	11 WS-100			"	"	1514			✓										

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
Chris Boes		11/25/96	1827

Relinquished by	Received by	Date	Time

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

WESTON Analytics Use Only

277016

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date
Work Order #: 62470-277
Project Contact/Phone #: 412/269-2060
AD Project Manager: TOM FULLER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #		
#/Type Container	Liquid	
	Solid	G
Volume	Liquid	
	Solid	8oz
Preservatives		—

ANALYSES REQUESTED →

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	Metal	CN

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	Pest/PCB
	11 WS-101			WI	11/25/96	1516	✓
	11 WS-102			"	"	1520	✓
	11 WS-103			"	"	1522	✓
	11 WS-104			"	"	1524	✓
	11 WS-105			"	"	1536	✓
	11 WS-106			"	"	1535	✓
	11 WS-107			"	"	1545	✓
	11 WS-108			"	"	1547	✓
	11 WS-109			"	"	1539	✓
	11 WS-110			"	"	1523	✓

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
Chris Boes		11/25/96	1827

Relinquished by	Received by	Date	Time

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

WESTON Analytics Use Only

277016

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date
Work Order # 62470-277
Project Contact/Phone # 412/269-2060
AD Project Manager TOM FULLER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #																	
#/Type Container	Liquid																
	Solid			G													
Volume	Liquid																
	Solid			8oz													
Preservatives				—													
ANALYSES REQUESTED →				ORGANIC							INORG						
				VOA	BNA	PESS/PCB	Herb				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	WESTON Analytics Use Only													
	11 WS-111			GW	11/6/96	1525			✓											
	11 WS-112			"	"	1517			✓											
	11 WS-113			"	"	1519			✓											
	11 WS-114			"	"	1513			✓											
	11 WS-115			"	"	1511			✓											
	11 WS-116			"	"	1507			✓											
	11 WS-117			"	"	1509			✓											
	11 WS-118			"	"	1459			✓											
	11 WS-119			"	"	1501			✓											
	11 WS-120			"	"	1451			✓											

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
Chris Boeo		11/25/96	1827

Relinquished by	Received by	Date	Time

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

WESTON Analytics Use Only

277016.

Custody Transfer Record/Lab Work Request

WESTON

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date
Work Order #: 62470-277
Project Contact/Phone #: 412/269-2060
AD Project Manager: TOM FULLER
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #

#/Type Container	Liquid	
	Solid	G
Volume	Liquid	
	Solid	8oz
Preservatives		

ANALYSES REQUESTED →

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	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	WESTON Analytics Use Only													
	11 WS-121			WI	11/23/96	1453			✓											
	11 WS-122			"	"	1447			✓											
	11 WS-123			"	"	1449			✓											
	11 WS-124			"	"	1439			✓											
	11 WS-125			"	"	1441			✓											
	11 WS-126			"	"	1543			✓											

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
Chris Boes		11/25/96	1827

Relinquished by	Received by	Date	Time

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

1 OF 2 277001

IEA
An Aquarion Company

149 Rangeway Road
N. Billerica, Massachusetts 01862
508 / 667-1400
Fax 508 / 667-7871

CHAIN OF CUSTODY RECORD

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☒ RCRA ☐ MCP ☐ OTHER _____

REQUIRED

CUST P.O. # :
IEA QUOTE # :

TURN AROUND

☐ 15 BUSINESS DAY
☐ 10 BUSINESS DAY
☐ RUSH _____
☐ OTHER _____

COMPANY	CONTACT PERSON	PROJECT I.D.	PHONE #	FAX #
BAKER ENVIRONMENTAL	JOHN ANDY	62470-277	412/269-6000	412/269-2002

ADDRESS		
420 ROUSER ROAD		
CITY	STATE	ZIP
CORAOPOLIS	PA	15108

DATE	TIME	SAMPLE I.D.	MATRIX	CONTAINER TYPE	# OF CONTAINERS	PRESERVATIVES	REQUESTED PARAMETERS: ASBESTOS	(COMMENTS)
11/12	1400	1MW01	W	1L PLAS.	1	–		
	1335	1MW02				–		
	1120	1MW03				–		
	~~1305~~ 1030	1MW04				–		
	1435	5GW01				–		
	1055	5GW03				–		
	1305	5GW04				–		
	1615	6GW01				–		
	1515	2MW01				–		
11/12	1015	2MW02	W	1L PLAS.	1	–		

SAMPLED BY: _____ (PRINT NAME) _____ (SIGNATURE)

RELINQUISHED BY *(SIGNATURE)*	DATE / TIME	RECEIVED BY	DATE / TIME
RELINQUISHED BY *(SIGNATURE)*	**DATE / TIME**	**RECEIVED FOR LAB BY**	**DATE / TIME**

IEA USE ONLY

FIELD REMARKS

2 OF 2 277ØØ1

IEA
An Aquarion Company
149 Rangeway Road
N. Billerica, Massachusetts 01862
508 / 667-1400
Fax 508 / 667-7871

CHAIN OF CUSTODY RECORD

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☒ RCRA ☐ MCP ☐ OTHER_____

REQUIRED

CUST. P.O. #	
IEA QUOTE #	

TURN AROUND

☐ 15 BUSINESS DAY
☐ 10 BUSINESS DAY
☐ RUSH_____
☐ OTHER_____

COMPANY	CONTACT PERSON	PROJECT I.D.	PHONE #	FAX #
SEE PAGE 1 OF 2				

ADDRESS	CITY	STATE	ZIP

DATE	TIME	SAMPLE I.D.	MATRIX	CONTAINER TYPE	# OF CONTAINERS	PRESERVATIVES	REQUESTED PARAMETERS: ASBESTOS								(COMMENTS)
11/12	1415	2MW03	W	1L PLAST.	1	-									

SAMPLED BY: _____ (PRINT NAME) _____ (SIGNATURE)

RELINQUISHED BY *(SIGNATURE)*	DATE / TIME	RECEIVED BY	DATE / TIME
RELINQUISHED BY *(SIGNATURE)*	**DATE / TIME**	**RECEIVED FOR LAB BY**	**DATE / TIME**

IEA USE ONLY

FIELD REMARKS

IEA
An Aquarion Company
149 Rangeway Road
N. Billerica, Massachusetts 01862
508 / 667-1400
Fax 508 / 667-7871

277ØØ 1/5

CHAIN OF CUSTODY RECORD

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☒ RCRA ☐ MCP ☐ OTHER ____

REQUIRED

CUST PO # :
IEA QUOTE # :

TURN AROUND

☐ 15 BUSINESS DAY
☐ 10 BUSINESS DAY
☐ RUSH ____
☐ OTHER ____

COMPANY	CONTACT PERSON	PROJECT I.D.	PHONE #	FAX #
BAKER ENVIRONMENTAL	CHRIS BOES	62470-277	(412) 269-6020	(412) 269-2002

ADDRESS		
420 ROUSER RD BLDG 3		
CITY	STATE	ZIP
CORAOPOLIS	PA	15108

DATE	TIME	SAMPLE I.D.	MATRIX	CONTAINER TYPE	# OF CONTAINERS	PRESERVATIVES	REQUESTED PARAMETERS: ASBESTOS								(COMMENTS)
11/8/96	1340	ZIAWIØ1-Ø1	S	P/G	1	—	X								
10/8/96	1700	ZIAWIØ1-ØØ	↓	↓	↓	↓	X								
10/8/96	1825	ZIAWIØ2-ØØ					X								
10/8/96	1805	ZIAWIØ3-ØØ					X								
10/8/96	1900	ZSBØ2-ØØ					X								
10/8/96	1815	ZSBØ3-ØØ					X								
10/8/96	1755	ZSBØ4-ØØ					X								
11/10/96	1616	ZSBØ4-Ø2					X								
11/10/96	0855	ZSBØ5-Ø1/Ø2					X								
10/8/96	1745	ZSBØ5-ØØ	S	P/G	1	—	X								

SAMPLED BY: ____ (PRINT NAME) ____ (SIGNATURE)

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY	DATE / TIME
[illegible]	11/24/96 1530		

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED FOR LAB BY	DATE / TIME

IEA USE ONLY

FIELD REMARKS

FED EX AIR BILL #400-4071-7972

277ØØ2 2/5

CHAIN OF CUSTODY RECORD

IEA
An Aquarion Company
149 Rangeway Road
N. Billerica, Massachusetts 01862
508 / 667-1400
Fax 508 / 667-7871

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☒ RCRA ☐ MCP ☐ OTHER

REQUIRED

CUST PO #:
IEA QUOTE #:

TURN AROUND

☐ 15 BUSINESS DAY
☐ 10 BUSINESS DAY
☐ RUSH
☐ OTHER

COMPANY	CONTACT PERSON	PROJECT I.D.	PHONE #	FAX #
BAKER ENVIRONMENTAL	CHRIS BOES	62470-277	(412) 269-6020	(412) 269-2002

ADDRESS	CITY	STATE	ZIP
420 ROUSER RD BLDG 3	CORAOPOLIS	PA	15108

DATE	TIME	SAMPLE I.D.	MATRIX	CONTAINER TYPE	# OF CONTAINERS	PRESERVATIVES	ASBESTOS								(COMMENTS)
11/06/96	1320	ZMW1Ø2-Ø2	S	P	1	—	X								
11/06/96	1406	~~ZMW1Ø5~~ CBL - ZMW1Ø2-Ø5	S	P	1	—	X								
11/9/96	0954	ZMW1Ø3-Ø1	S	P	1	—	X								
11/9/96	0954	ZMW1Ø3-Ø1D	S	P	1	—	X								
10/21/96	1550	1SSØ8	S	P	1	—	X								
10/13/96	1240	1SSØ7	S	G	1	—	X								
10/11/96	1210	1SSØ6	S	G	1	—	X								
10/11/96	1200	1SSØ5	S	G	1	—	X								
10/10/96	~~1540~~ 1530	1SSØ4	S	G	1	—	X								
10/10/96	1300	1SSØ3	S	G	1	—	X								

SAMPLED BY: _____ (PRINT NAME) _____ (SIGNATURE)

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY	DATE / TIME
Chris Boes	11/24/96 1530		

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED FOR LAB BY	DATE / TIME

IEA USE ONLY

FIELD REMARKS

FEDEX AIR BILL #400-4071-7972

IEA
An Aquarion Company
149 Rangeway Road
N. Billerica, Massachusetts 01862
508 / 667-1400
Fax 508 / 667-7871

277ØØ 3/5

CHAIN OF CUSTODY RECORD

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☐ RCRA ☐ MCP ☐ OTHER_____

REQUIRED

CUST P.O. #:
IEA QUOTE #:

TURN AROUND

☐ 15 BUSINESS DAY
☐ 10 BUSINESS DAY
☐ RUSH_____
☐ OTHER_____

COMPANY	CONTACT PERSON	PROJECT I.D.	PHONE #	FAX #
BAKER ENVIRONMENTAL	CHRIS BOEE	62470-277	(412) 269-6020	(412) 269-2002

ADDRESS		
420 ROUSER RD BLDG 3		
CITY	STATE	ZIP
CORAOPOLIS	PA	15108

DATE	TIME	SAMPLE I.D.	MATRIX	CONTAINER TYPE	# OF CONTAINERS	PRESERVATIVES	REQUESTED PARAMETERS: ASBESTOS								(COMMENTS)
10/11/96	1050	1SSØ2	S	G	1	—	X								
10/13/96	1045	1SSØ1	S	G	1	—	X								
11/10/96	1500	1SDØ3	S	P	1	—	X								
10/22/96	1010	1SDØ2	S	P	1	—	X								
10/22/96	0940	1SDØ1	S	P	1	—	X								
10/29/96	0855	1MWØ1-ØØ	S	P	1	—	X								
10/29/96	0900	1MWØ1-Ø2	S	P	1	—	X								
10/10/96	1350	1MWØ2-ØØ	S	G	1	—	X								
10/28/96	0830	1MWØ2-Ø3	S	P	1	—	X								
10/28/96	1003	1MWØ2-11/12	S	P	1	—	X								

SAMPLED BY:_____ (PRINT NAME) _____ (SIGNATURE)

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY	DATE / TIME
Chris Boee	11/24/96 1530		

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED FOR LAB BY	DATE / TIME

IEA USE ONLY

FIELD REMARKS

FED EX AIR BILL # 400-4071-7972

277ØØ2

4/5

CHAIN OF CUSTODY RECORD

IEA
An Aquarion Company
149 Rangeway Road
N. Billerica, Massachusetts 01862
508 / 667-1400
Fax 508 / 667-7871

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☒ RCRA ☐ MCP ☐ OTHER

REQUIRED

CUST P.O. #:
IEA QUOTE #:

TURN AROUND

☐ 15 BUSINESS DAY
☐ 10 BUSINESS DAY
☐ RUSH
☐ OTHER

COMPANY	CONTACT PERSON	PROJECT I.D.	PHONE #	FAX #
BAKER ENVIRONMENTAL	CHRIS BOES	62470-277	(412) 269-6020	(412) 269-2002

ADDRESS	CITY	STATE	ZIP
420 ROUSER RD BLDG 3	CORAOPOLIS	PA	15108

DATE	TIME	SAMPLE I.D.	MATRIX	CONTAINER TYPE	# OF CONTAINERS	PRESERVATIVES	ASBESTOS								(COMMENTS)
10/11/96	1113	1MW03-ØØ	S	G	1	–	X								
10/22/96	1415	1MW03-Ø3	S	P	1	–	X								
10/22/96	1515	1MW03-Ø5	S	P	1	–	X								
10/13/96	0950	1MW04-ØØ	S	G	1	–	X								
10/15/96	1155	1MW04-Ø2	S	G	1	–	X								
10/15/96	1322	1MW04-Ø4	S	G	1	–	X								
10/13/96	1000	1SBØ1-ØØ	S	G	1	–	X								
10/25/96	1442	1SBØ1-Ø2/Ø5	S	P	1	–	X								
10/13/96	0950	1SBØ2-ØØ	S	G	1	–	X								
10/26/96	0847	1SBØ2-Ø3/Ø4	S	P	1	–	X								

SAMPLED BY: _____ (PRINT NAME) _____ (SIGNATURE)

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY	DATE / TIME
Chris Boes	11/24/96 1530		

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED FOR LAB BY	DATE / TIME

IEA USE ONLY

FIELD REMARKS

FED EX AIR BILL #400-4071-7972

277ØØ

5/5

CHAIN OF CUSTODY RECORD

IEA
An Aquarion Company
149 Rangeway Road
N. Billerica, Massachusetts 01862
508 / 667-1400
Fax 508 / 667-7871

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☒ RCRA ☐ MCP ☐ OTHER _____

REQUIRED

CUST. P.O. # :
IEA QUOTE # :

TURN AROUND

☐ 15 BUSINESS DAY
☐ 10 BUSINESS DAY
☐ RUSH _____
☐ OTHER _____

COMPANY	CONTACT PERSON	PROJECT I.D.	PHONE #	FAX #
BAKER ENVIRONMENTAL	CHRIS BOEC	62470-277	(412) 269-6020	(412) 269-2002

ADDRESS		
420 ROUSER RD BLDG 3		
CITY	STATE	ZIP
COLLAPOLIS	PA	15108

DATE	TIME	SAMPLE I.D.	MATRIX	CONTAINER TYPE	# OF CONTAINERS	PRESERVATIVES	REQUESTED PARAMETERS: ASBESTOS								(COMMENTS)
10/26/96	1027	1SBØ2-1Ø/11/12	S	P	1	—	X								
10/11/96	1150	1SBØ3-ØØ	S	G	1	—	X								
10/24/96	0833	1SBØ3-Ø3	S	P	1	—	X								
10/24/96	0915	1SBØ3-Ø6	S	P	1	—	X								
10/8/96	1730	2SBØ1-ØØ	S	G	1	—	X								
11/18/96	0858	2SBØ1-Ø2	S	P	1	—	X								
11/18/96	0946	2SBØ1-Ø5	S	P	1	—	X								
11/11/96	1040	2SDØ1	S	P	1	—	X								
11/11/96	1450	2SDØ2	S	P	1	—	X								
11/11/96	1530	2SDØ3	S	P	1	—	X								

SAMPLED BY: _____ (PRINT NAME) _____ (SIGNATURE)

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY	DATE / TIME
Chris Boec	11/24/96 1530		

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED FOR LAB BY	DATE / TIME

IEA USE ONLY

FIELD REMARKS

FED EX AIR BILL # 400-4071-7972

WESTON Analytics Use Only

277101

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: BAKER ENVIRONMENTAL
Est. Final Proj. Sampling Date: 12/17/96
Work Order #: 62470-277
Project Contact/Phone #: TOM FULLER (412) 269-6000
AD Project Manager: BOSCO RAMIREZ
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				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	WESTON Analytics Use Only													
	2MW02			W	12/17/96	1605	X													
	6GW01			W	12/17/96	1650	X													
	TB002			W	—		X													

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
PLEASE ANALYZE ASAP SAMPLES
NOT PRESERVED W/ HCl

FED EX AIR BILL #400-2537-9550

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

Relinquished by	Received by	Date	Time
Chris Bobo	FEDEX	12/17/96	1725

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# _____ 381-596a

27[illegible]Ø

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: BAKER ENVIRON.
Est. Final Proj. Sampling Date:
Work Order #: 62470-277
Project Contact/Phone #: TOM FULLER (412) 269-6000
AD Project Manager: BOSCO RAMIREZ
QC: Del: TAT:
Date Rec'd: Date Due:
Account #:

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

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: 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	Metal	CN
	1MWØ1			W	12/16/96	1435	X					
	1MWØ1D	X	X			1435	X					
	1MWØ2					1255	X					
	1MWØ3					1215	X					
	1MWØ4					1025	X					
	5GWØ1					1525	X					
	5GWØ3					1120	X					
	5GWØ4					1343	X					
	2MWØ1					1710	X					
	2MWØ3				12/16	1630	X					
	TBØØ1						X					

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: TBØØ1
PLEASE ANALYZE ASAP, SAMPLES NOT PRESERVED W/ HCl

FED EX AIR BILL 4009218 6846

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

Relinquished by	Received by	Date	Time
[illegible]	FED EX	12/16/96	1855

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# _____ 381-596a

APPENDIX B.2
CHAIN OF CUSTODY RECORDS - PHASE II

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

1 of 2

Client: Baker
Est. Final Proj. Sampling Date: Oct 15, 1997
Project #:
Project Contact/Phone #: Susan Johnston 412 269 6054
RECRA Project Manager:
QC: C Del: TAT: 28 DAY
Date Rec'd: Date Due:
Account #:

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

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN

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	VOCs	SVOCs	Pest/PCB	TOC
	13-SD06-01			S	9/16/97	1350	X	X	X	X
	13-SD06-02				9/16	1415	X	X		
	13-SD07				9/16	1530	X	X		
	13-SD08				9/16	1530	X			
	13-SD09-00				9/16	1550	X			
	13-SD10-00				9/16	1510	X			
	13-SD11				9/18	0700	X			
	13-SD11D					0700	X			
	13-SD12					0725	X			
	13-SD13					0735	X			

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FED-EX AIRBILL #
400-4071 8705

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]		9/18	1530

Relinquished by	Received by	Date	Time

Page ___ of ___

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

277-01

2 of 2

Client Baker
Est. Final Proj. Sampling Date Oct 15, 1997
Project #
Project Contact/Phone # Susan Johnston 412 268-6058
RECRA Project Manager
QC C Del 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				Metal	CN	TPH 9250						

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	VOCs	SVOCs	App IX Pest	TOC	App IX Full	Exp	Asbestos	PCBs	App IX Metals	TPH 9250	Bulk Density	TPH
	13-SD 14	✓	✓	S	9/18	0745	X	X	X	X								
	13-SB01-03				9/17	1400											X	
	13-SB02-03				9/17	1630											X	
	11-SB01-02				9/17	1045	X	X						X	X	X		
	11-SB05-02				9/17	1705	X	X						X	X	X		
	5-GW02-03			S	9/18	1430					X	X	X					
	11-SB08-02				9/18	1330	X	X						X	X	X		
	11-SB07-02				9/18	1135	X	X						X	X	X		
	11-SB06-02				9/18	1100	X	X						X	X	X		
	13-TB01			W	9/18		X											

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
SAMPLES W/ "11" PREFIX SHOULD NOT BE ANALYZED FOR TOC AS LABELED. USE FOR EXTRA VOLUME.

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]		9/18	1530

Relinquished by	Received by	Date	Time

V

Page

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

1 of 1

Client Baker
Est. Final Proj. Sampling Date 10/15/97
Project #
Project Contact/Phone # Susan Johnston 412 269 6059
RECRA Project Manager
QC C Del TAT 28 Day
Date Rec'd Date Due
Account #

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

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: 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	Metal	CN
	18-GW03			W	9/18/97	0900	X	X	X			
	18-GW02			W	9/18/97	0830	X	X	X			
	~~[illegible]~~ 18-GW01D				9/18/97	0800	X					
	13-ER01				9/16/97	1730	X					
	~~13-GW02~~						~~X~~	~~X~~	~~X~~			
	18-GW01				9/18/97	0800	X					
	11-GW01				9/18/97	0800	X			X		
	18-GW01	X			9/18/97	0800	X					
	18-GW01		X		9/18	0800	X					
	13-ER02				9/18	0735	X					
	~~13-TB02~~				9/18		X					

RECRA LabNet Use Only: VOCs, SVOCs, Pest/PCB, TOTAL LEAD

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

DATE/REVISIONS:

Special Instructions:

1.
2.
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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]		9/18	[illegible]

Relinquished by	Received by	Date	Time

Page 1 of 1

277-04

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: 10/15/97
Work Order #:
Project Contact/Phone #: Susan Johnston 412.269.6054
AD Project Manager:
QC: C Del: 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				Metal	CN							

MATRIX CODES: S - Soil, SE - Sediment, SO - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, LC - EP/TCLP Leachate, WI - Wipe, X - Other, F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only: SVOA	Pest/PCB	PCB	Arsenic Metals	TPH	TOC								
		13-ER-01			✓	9/16	1730	X	X												
		13-ER02			✓	9/18	0735	X	X												
		11-GW01			✓	9/18	0800	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
[illegible]		9/18	1100

Relinquished by	Received by	Date	Time

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

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 412-269-2044
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								
		ACP IX VOA	~~Acpx~~ BNA	Pest/ PCB	Herb	APP IX METALS	RCRA METALS	FULL APP IX	Metal	CN	TPH DRO	TPH GRO	EXPLOS	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	ACP IX VOA	~~Acpx~~ BNA	Pest/ PCB	Herb	APP IX METALS	RCRA METALS	FULL APP IX	Metal	CN	TPH DRO	TPH GRO	EXPLOS	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~~	~~1010~~	~~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.
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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]		9/19	1500

Relinquished by	Received by	Date	Time

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client
Est. Final Proj. Sampling Date
Project #
Project Contact/Phone #
RECRA Project Manager
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	Appix IX Metals	TPH ORO	TPH GRO	Metal	CN	PCBs							
		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	Pest/ PCB	Herb	Appix IX Metals	TPH ORO	TPH GRO	Metal	CN	PCBs					
	11-SB11-02D			S	9/19	1100	X	X			X	X	X			X					
	11-SB11-02			S	9/19	1100	X	X			X	X	X			X					
	11-SB09-02			S	9/19	1015	X	X			X	X	X			X					
	11-SB14-01			S	9/19	1410	X														
	11-GW02 → 05			W	9/19	0810	X						X								
	11-GW04 → 08			W	9/19	0850	X						X								
	11-GW03 → 07			W	9/19	0835	X						X								

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1.
2.
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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	Relinquished by	Received by	Date	Time

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client
Est. Final Proj. Sampling Date
Project #
Project Contact/Phone #
RECRA Project Manager
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	App Dissolved Metals	DRO	GRO	Metal	CN	TOC	DISS metals	TOTAL metals	PCB					
		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	Pest/ PCB	Herb	App Dissolved Metals	DRO	GRO	Metal	CN	TOC	DISS metals	TOTAL metals	PCB			
	11-ER01			W	9/18	1730	X	X	X		X	X	X									
	11-ER02			W	9/18	1745	X	X	X		X	X	X									
	11-GW02			W	9/19	0810										X	X	X				
	11-SB09-02			S	9/19	1015	X	X			X	X	X						X			
	11-SB11-02			S	9/19	1100	X	X			X	X	X						X			
	11-SB14-01			S	9/19	1410	X	X			X	X	X						X			
	11-SB14-02D			S	9/19	1100	X	X			X	X	X						X			

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

400-4071-8716

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

Page ____ of ____

277-08

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client
Est. Final Proj. Sampling Date
Project #
Project Contact/Phone #
RECRA Project Manager
QC _____ Del _____ TAT _____
Date Rec'd _____ Date Due _____
Account #

Change of

Refrigerator #																	
#/Type Container	Liquid																
	Solid																
Volume	Liquid																
	Solid																
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/ PCB	Herb	PCB	DRO	GRO	Metal	CN	EXPLOSIVES	Asbestos	Applicants	Applicants	TOC		
		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	Pest/ PCB	Herb	PCB	DRO	GRO	Metal	CN	EXPLOSIVES	Asbestos	Applicants	Applicants	TOC
	11-GW-04			W	9/19	0950		X			X	X								
	11-GW-03			W	9/19	0835		X			X	X								
	11-GW-02			W	9/19	0810		X			X	X								
	1-MW05-02			S	9/18	1730	X									X	X	X	X	
	~~5~~ GW02-05			S	9/18	1445	X									X	X	X	X	
	1-MW05-05			S	9/18	1900	X									X	X	X	X	
	TB-02			W																
	11-SD01	X	X	S	9/19	1030		X			X	X						X		X
	11-SD01D			S	9/19	1030		X			X	X						X		X
	3-SD16			S	9/19	0930										X	X	X	X	X

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: 3-SD17

400-4071-8716

DATE/REVISIONS: S 0945
1.
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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

Page _____

SWM 1

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: CANTDIV
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	FULL APP IX	ASBESTOS	EXPLOSIVES	Metal	CN						
		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														
	1-ER01			W	9/20	1710					X	X	X							

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FED-EX AIRBILL NO.:
400-4071-8720

DATE/REVISIONS:
1.
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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]		9/22	1500

Relinquished by	Received by	Date	Time

✓

SWMU 1 - 01 ~~SWMU 13 - 03~~

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 DAY
Date Rec'd _____ Date Due _____
Account # _____

Refrigerator #																	
#/Type Container	Liquid																
	Solid																
Volume	Liquid																
	Solid																
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		App IX VOA	BNA	Pest/ PCB	Herb	App IX Metals (TOTAL)	App IX Metals (Dissolved)	Sodium	Metal	CN	Full App IX	Explosives	Asbestos				
		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	BNA	Pest/ PCB	Herb	App IX Metals (TOTAL)	App IX Metals (Dissolved)	Sodium	Metal	CN	Full App IX	Explosives	Asbestos			
	5-GW02			W	10/1	0850	X				X	X	X			X	X	X			
	1-GW05			W	10/1	1330	X														
	1-TB01			W			X														

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FED-EX AIRBILL No.:
400-4071-8790

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

Relinquished by	Received by	Date	Time
Mark E. Kim		10/2	1500

Relinquished by	Received by	Date	Time

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:

SWMU Ø L

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 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	App IX Metals TOTAL	App IX Metals DISSOLVED	Sodium	Metal	CN	Full App IX	Explosives	Asbestos						
		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															
	1-GW05				10/1	1330					X	X	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
Mark E. Kin		10/2	1500

Relinquished by	Received by	Date	Time

SWMU - 11

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: LANTON
Est. Final Proj. Sampling Date: 10/5/97
Project #: CTO - 031
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 →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	TPH GRO	TPH ORO	App IX Metals TOTAL	Metal	CN	App IX Metals Dissolved	TOC				
							ORGANIC							INORG							
							RECRA LabNet Use Only														
	11-GW07 → 16			W	9/20	0915		X	X			X	X			X	X				
	11-GW07D → 16D			W	9/20	0915		X	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:

FED-EX AIRBILL No.:
400-4078-8720

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]		9/22	1500

Relinquished by	Received by	Date	Time

SWM 11

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client LANTDIV
Est. Final Proj. Sampling Date 10/5/97
Project # CTO-031
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 →		ORGANIC								INORG							
		VOA	BNA	Pest/PCB	Herb	TPH DRO	TPH GRO	App IX TOTAL Metals		Metal	CN	App IX Dissolved Metals	TOC				

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	TPH DRO	TPH GRO	App IX TOTAL Metals	Metal	CN	App IX Dissolved Metals	TOC				
								RECRA LabNet Use Only														
		11-GW05 → 10			W	9/20	0800		X	X		X		X			X	X				
		11-GW06 → 11			W	9/20	0845		X	X		X		X			X	X				

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:

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
[illegible]			

Relinquished by	Received by	Date	Time

SWMU-11-01

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client LANTDIV
Est. Final Proj. Sampling Date 10/5/97
Project # CTO-031
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 →		ORGANIC							INORG								
		VOA	BNA	~~Pest/~~ PCB	Herb	TPH DRO	TPH GRO		~~RCRA~~ Metal	CN							
		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	TPH DRO	TPH GRO		Metal	CN						
	11-SB22-04			S	9/21	0915	X	X	X		X	X		X							
	11-SB23-03			S	9/21	1120	X	X	X		X	X		X							
	11-SB26-01			S	9/21	1415	X	X	X		X	X		X							
	11-SB22-06			S	9/21	0900			X												
	11-SB27-04			S	9/21	1600	X	X	X		X	X		X							
	11-SB19-04			S	9/20	1400	X	X	X		X	X		X							
	11-SB15-02			S	9/19	1500	X	X	X		X	X		X							
	11-SB16-04			S	9/19	1000	X	X	X		X	X		X							
	11-SB18-02			S	9/20	1150	X	X	X		X	X		X							
	11-TB01			W			X														

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FED-EX AIRBILL No.:
400-4071-8720

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
Michael E. Kraus		9/22	1500

Relinquished by	Received by	Date	Time

SWMU -01

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client
Est. Final Proj. Sampling Date
Project #
Project Contact/Phone #
RECRA Project Manager
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 GRO			Metal	CN							
						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	Pest/ PCB	Herb	TPH GRO			Metal	CN						
	11-GW08 → 12			W	9/20	0950	X				X										
	11-GW09 → 13			W	9/20	1015	X				X										
	11-GW05 → 10			W	9/20	0800	X				X										
	11-GW06 → 11			W	9/20	0845	X				X										
	11-GW07 → 16			W	9/20	0915	X				X										
	11-GW07D → 16D			W	9/20	0915	X				X										
	11-GW02 → 05			W	9/22	0920	X				X										
	11-GW24			W	9/22	0845	X				X										
	11-GW24D			W	9/22	0845	X				X										
	11-GW25	X	X	W	9/22	0750	X				X										

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

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	Relinquished by	Received by	Date	Time

SWMU-11-01

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client
Est. Final Proj. Sampling Date
Project #
Project Contact/Phone #
RECRA Project Manager
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 GRO			Metal	CN							

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	RECRA LabNet Use Only												
S - Soil		11-ER03			W	9/20	1600	X												
SE - Sediment		11-ER04			W	9/20	1745	X												
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. ____

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	Relinquished by	Received by	Date	Time

SW 11-02

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client LANTOW
Est. Final Proj. Sampling Date 10/5/97
Project # CTO-031
Project Contact/Phone # SUSAN JOHNSTON
RECRA Project Manager ROSCO RAMIREZ
QC D Del D TAT 28 DAY
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #																
#/Type Container	Liquid															
	Solid															
Volume	Liquid							TOTAL								
	Solid															
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	~~Pest/~~ PCB	Herb	TPH DRO	TOC	App IX Metals	Metal	CN	App IX Metals 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													
	11-GW03 * → 07			W	9/19	1800		X	X		X	X	X			X			
	11-GW04 * → 08			W	9/19	1730		X	X		X	X	X			X			
	~~11-SB15-02~~			~~S~~	~~9/19~~	~~1500~~		~~X~~	~~X~~		~~X~~		~~X~~						
	~~11-SB16-04~~			~~S~~	~~9/19~~	~~1600~~		~~X~~	~~X~~		~~X~~		~~X~~						
	~~11-SB18-02~~			~~S~~	~~9/20~~	~~1150~~		~~X~~	~~X~~		~~X~~		~~X~~						

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

* NOTE TIME ON COC IGNORE TIME ON LABELS
THESE ARE THE REST OF THE SAMPLE WHICH WERE SHIPPED ON 9/19.
FED-EX AIRBILL No.
400-4071-8720

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]		9/22	1500

Relinquished by	Received by	Date	Time

V

SWMU 11-03

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client LANTDIV
Est. Final Proj. Sampling Date 10/5/97
Project # CTO-031
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	TPH DRO	App IX TOTAL METALS	App IX Dissolved Metals	Metal	CN	TOC						
		RECRA LabNet Use Only															
11-GW08 ~ 12			X	X		X	X	X			X						
11-GW09 ~ 13			X	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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected
	11-GW08 ~ 12			W	9/20	0950
	11-GW09 ~ 13			W	9/20	1015

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
FED-EX AIRBILL No.:
400-4071-8720

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]		9/22	1500

Relinquished by	Received by	Date	Time

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client LANDAU
Est. Final Proj. Sampling Date 10/5/97
Project # CTO-031
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	TPH GRO	TPH DRO	TOTAL AIR LX Metals		Metal	CN						
		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	TPH GRO	TPH DRO	AIR LX Metals	Metal	CN
	11-EB03			W	9/20	1600		X	X			X	X		
	~~11-SB11-(1)~~			~~S~~	~~9/20~~	~~1100~~		~~X~~	~~X~~			~~X~~	~~X~~		
	11-ER04			W	9/20	1745		X	X			X	X		

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FED-EX AIRBILL No.
400-4071-8720

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]		9/22	1500

Relinquished by	Received by	Date	Time

SWMU-11-05

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client LANTDIV
Est. Final Proj. Sampling Date 10/5/97
Project # CTO-031
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 →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb	TPH DRO	TPH GRO	TOC	Appix Metal	CN	Appix Metals Total	Appix Metals 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	VOA	BNA	Pest/PCB	Herb	TPH DRO	TPH GRO	TOC	Appix Metal	CN	Appix Metals Total	Appix Metals Dissolved				
	11-GW19			W	9/21	0800	X	X	X		X	X	X			X	X				
	11-GW18			W	9/21	0745	X	X	X		X	X	X			X	X				
	~~11-SB22-04~~			~~S~~	~~9/21~~	~~0915~~	~~X~~	~~X~~	~~X~~		~~X~~	~~X~~				~~X~~					
	~~11-SB23-03~~			~~S~~	~~9/21~~	~~1120~~	~~X~~	~~X~~	~~X~~		~~X~~	~~X~~				~~X~~					
	~~11-SB26-01~~			~~S~~	~~9/21~~	~~1415~~	~~X~~	~~X~~	~~X~~		~~X~~	~~X~~				~~X~~					
	~~11-SB22-06~~			~~S~~	~~9/21~~	~~0900~~			~~X~~												
	~~11-SB27-04~~			~~S~~	~~9/21~~	~~1000~~	~~X~~	~~X~~			~~X~~	~~X~~				~~X~~					
	11-TB02			W			X														

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
FED-EX AIRBILL No.:
400-4071-8720

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. Kin		9/22	1500

Relinquished by	Received by	Date	Time

Page _____

SCUM 11 - 010

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client LANTDIV
Est. Final Proj. Sampling Date 10/5/97
Project # CTO - 031
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 →		ORGANIC								INORG							
		VOA	BNA	Pest/PCB	Herb	TPH	DRO	Approx Total	Approx Total	Metal	CN	TOC					
		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	Pest/PCB	Herb	TPH	DRO	Approx Total	Approx Total	Metal	CN	TOC					
	11-GW02 → 05			W	9/22	0920		X	X		X						X					
	11-GW25			W	9/22	0750		X	X		X	X	X				X					

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

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
[signature]		9/22	1500

Relinquished by	Received by	Date	Time

V

SWMU 11-04

RECRA LabNet

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

Client LANTDIV
Est. Final Proj. Sampling Date 10/5/97
Project # CTO-031
Project Contact/Phone # SUSAN JOHNSTON
RECRA Project Manager ROSCO 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	TPH	8270	Appix Metals	Appix Dissolved Metals	Metal	CN	TOC				
		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	Pest/PCB	Herb	TPH	8270	Appix Metals	Appix Dissolved Metals	Metal	CN	TOC					
	11-GW24			W	9/22	0845		X	X		X	X	X				X					
	11-GW24D			W	9/22	0845		X	X		X	X	X				X					

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

400-4071-8702

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

Relinquished by	Received by	Date	Time
[illegible]		9/22	1500

Relinquished by	Received by	Date	Time

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:

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client LANTDIV
Est. Final Proj. Sampling Date 10/5/99
Project # CTO-031
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 →		ORGANIC							INORG								
		VOA	BNA	~~Pest/~~ PCB	Herb	TPH DRO	App IX Metals	App IX Dissolved Metals	Metal	CN	TOC						
							TOTAL										

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	RECRA LabNet Use Only														
S - Soil		11-GW25	X		W	9/22	0750		X	X		X	X	X			X					
SE - Sediment		11-GW25		X	W	9/22	0750		X	X		X	X	X			X					
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:

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
[illegible]		9/22	1500

Relinquished by	Received by	Date	Time

SWMU-11-09

RECRA LabNet

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

Client: LANTDIV
Est. Final Proj. Sampling Date: 10/5/97
Project #: CTO-031
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	TPH GRO	TPH DRO		Metal	CN								
		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	Pest/PCB	Herb	TPH GRO	TPH DRO		Metal	CN						
	11-SB04-01			S	9/24	0845	X	X	X		X	X		X							
	11-SB04-01D			S	9/24	0945	X	X	X		X	X		X							
	11-SB04-01	X	X	S	9/24	0845	X	X	X		X	X		X							
	11-ER05			W	9/24	0745	X	X	X		X	X		X							
	11-ER06			W	9/24	0800	X	X	X		X	X		X							
	11-TB03			W			X														
	11-FB01			W	9/24	1000	X	X	X		X	X		X							
	11-FB02			W	9/24	0930	X	X	X		X	X		X							

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

FED-EX AIRBILL No.:

400-4071-8731

DATE/REVISIONS:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
Mark E. Bair		9/24	1500

Relinquished by	Received by	Date	Time

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:

S 11-10

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client LANTDIV
Est. Final Proj. Sampling Date 10/5/97
Project # CTO-031
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 →		ORGANIC							INORG							
		VOA	BNA	~~Pest/~~ PCB	Herb	TPH GRO	TPH DRO		~~AFP~~ 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	PCB	Herb	TPH GRO	TPH DRO		Metal	CN						
	11-ER07			W	10/2	1120	X	X	X		X	X		X							
	13-TB03			W			X														

RECRA LabNet Use Only

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

SWMU 11-10

RECRA LabNet Use Only

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: LANTDIV
Est. Final Proj. Sampling Date: 10/5/97
Project #: CTO-031
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	TPH DRO	TPH GRO	TOC	HPLX 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	PCB	Herb	TPH DRO	TPH GRO	TOC	Metal	CN					
	11-SD02			SE	10/2	1340	X	X	X		X	X		X						
	11-SD03			SE	10/2	1342	X	X	X		X	X		X						
	11-SD03D			SE	10/2	1342	X	X	X		X	X		X						
	11-SD04			SE	10/2	1350	X	X	X		X	X		X						
	11-SD04	X	X	SE	10/2	1350	X	X	X		X	X		X						
	11-SD05			SE	10/2	1400	X	X	X		X	X		X						
	11-SD06			SE	10/2	1410	X	X	X		X	X		X						
	11-SD07			SE	10/2	1415	X	X	X		X	X		X						
	11-SD08			SE	10/2	1425	X	X	X		X	X		X						
	11-SD09			SE	10/2	1430	X	X	X		X	X		X						

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: 11-TB04
FED-EX AIRBILL No:
400-4071-8786

DATE/REVISIONS:
W 1. X
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]		10/3	1500

Relinquished by	Received by	Date	Time

APPENDIX C
TEST BORING AND WELL CONSTRUCTION RECORDS

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

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 1MW01

SHEET: 1 OF 1

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #1
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: OVERCAST, RAIN, HOT
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 10/29/96 DATE COMPLETED: 10/29/96

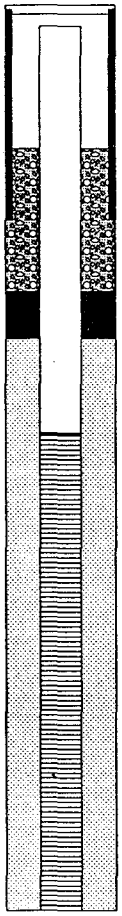
GROUND SURFACE ELEVATION: 107.99' msl
TOP OF PVC CASING ELEVATION: 110.54' msl

WELL DETAILS (FT)

STICKUP:	2.55
LENGTH OF RISER (2"I.D.):	6.0
LENGTH OF SCREEN (2"I.D.):	10.0
THICKNESS OF GROUT:	3.0
THICKNESS OF SEAL:	1.0
THICKNESS OF SAND PACK:	12.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
	4.0										4.0
111.00	3.0										3.0
110.00	2.0										2.0
109.00	1.0										1.0
108.00	0.0										0.0
107.00	1.0		S-1	SS	7 27 23 20	1.6	0.0	BG		TOPSOIL CLAYEY SILT: Light/medium brown, trace/little fine/fine to medium sand, trace medium to large rock fragments/gravel (possible fill)	1.0
106.00	2.0										2.0
105.00	3.0		S-2	SS	17 14 12 14	1.8	0.0	BG			3.0
104.00	4.0									SILTY CLAY: Medium/dark brown, trace/little fine/fine to medium sand, trace fine/fine to medium gravel/rock fragments (possible fill)	4.0
103.00	5.0		S-3	SS	9 9 7 3	-	0.0	BG			5.0
102.00	6.0										6.0
101.00	7.0		S-4	SS	8 8 10 29	0.7	0.0	BG		SAND AND CLAYEY SILT: Dark brown, fine to coarse, trace medium to large gravel/rock fragments (possible fill). Groundwater at 7.0'	7.0
100.00	8.0										8.0
99.00	9.0		S-5	SS	1 6 3 4	1.5	0.0	BG		CLAY AND SILT: Black, highly organic, possible old ground surface, organic material @ 8.5', trace fine sand	9.0
98.00	10.0										10.0
97.00	11.0		S-6	SS	2 13 20 30	1.9	0.0	BG		SILT: Tan/brown, some/little clay, trace/little fine/fine to medium sand, apparent rock structure evident, but faint	11.0
96.00	12.0										12.0
95.00	13.0		S-7	SS	18 30 50/5"	1.0	0.0	BG		SILT: Olive/white/black, trace/little clay, trace fine/fine to medium sand. Rock structure. (Decomposed rock). Auger refusal at 16.0'	13.0
94.00	14.0										14.0
93.00	15.0		S-8	SS	28 50/3"	0.5	0.0	BG			15.0
92.00	16.0										16.0
91.00	17.0									BOTTOM OF BOREHOLE @ 16.0' NOTES: (1) groundwater encountered @ 7.0' during drilling	17.0
90.00	18.0										18.0
89.00	19.0										19.0
88.00	20.0										20.0
87.00	21.0										21.0
86.00	22.0										22.0
85.00	23.0										23.0
84.00	24.0										24.0

WELL INSTALLATION



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 1MW02

SHEET: 1 OF 2

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #1
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 10/28/96 DATE COMPLETED: 10/28/96

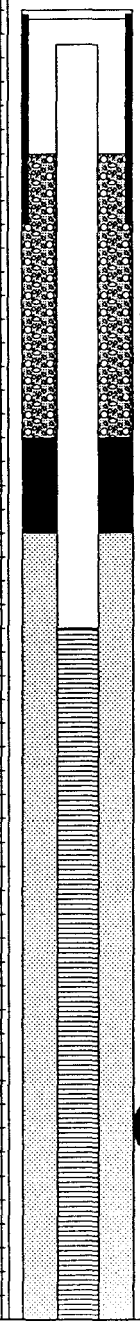
GROUND SURFACE ELEVATION: 126.72' msl
TOP OF PVC CASING ELEVATION: 128.99' msl

WELL DETAILS (FT)

STICKUP:	2.27
LENGTH OF RISER (2"I.D.):	10.0
LENGTH OF SCREEN (2"I.D.):	20.0
THICKNESS OF GROUT:	6.0
THICKNESS OF SEAL:	2.0
THICKNESS OF SAND PACK:	23.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
130.00	4.0										4.0
129.00	3.0										3.0
128.00	2.0										2.0
127.00	1.0										1.0
126.00	0.0										0.0
125.00	1.0		S-1	SS	- - -	-	0.0	BG		TOPSOIL	1.0
124.00	2.0									SILTY CLAY: Reddish brown, trace fine/fine to medium sand, trace rock fragments/gravel (possible fill)	2.0
123.00	3.0		S-2	SS	6 8 7 12	1.8	0.0	BG			3.0
122.00	4.0										4.0
121.00	5.0		S-3	SS	5 12 15 18	1.8	0.0	BG		SILTY CLAY: Brown, trace/little fine sand, slight rock structure evident (highly decomposed rock)	5.0
120.00	6.0										6.0
119.00	7.0		S-4	SS	23 29 34 43	2.0	0.0	BG		SILT: Light brown/white, trace clay, trace fine sand (highly decomposed rock)	7.0
118.00	8.0										8.0
117.00	9.0		S-5	SS	9 50 / 5"	0.7	0.0	BG		SILT: Light brown/black/white, trace/little clay, trace fine sand (decomposed rock)	9.0
116.00	10.0										10.0
115.00	11.0		S-6	SS	11 50 / 4"	0.25	0.0	BG			11.0
114.00	12.0										12.0
113.00	13.0		S-7	SS	50 / 4"	0.33	0.0	BG			13.0
112.00	14.0										14.0
111.00	15.0		S-8	SS	50 / 3"	0.33	0.0	BG			15.0
110.00	16.0										16.0
109.00	17.0		S-9	SS	50 / 4"	0.25	0.0	BG			17.0
108.00	18.0										18.0
107.00	19.0		S-10	SS	50 / 5"	0.33	0.0	BG			19.0
106.00	20.0										20.0
105.00	21.0		S-11	SS	50 / 4"	0.33	0.0	BG			21.0
104.00	22.0										22.0
103.00	23.0		S-12	SS	50 / 3"	0.25	0.0	BG			23.0
	24.0										24.0

WELL INSTALLATION



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 1MW02

SHEET: 2 OF: 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
182.00	24.0		S-13	SS	7 9 11 12	0.5	0.0	BG		SILT: Light brown/black/white, trace/little clay, trace fine sand (decomposed rock)	24.0	
181.00	25.0										25.0	
180.00	26.0		S-14	SS	5 6 9 12	0.8	0.0	BG			26.0	
99.00	27.0										27.0	
98.00	28.0		S-15	SS	4 4 12 20	1.0	0.0	BG		SILT: Black/white/reddish brown, trace/little clay, trace fine sand (decomposed rock)	28.0	
97.00	29.0										29.0	
96.00	30.0										30.0	
95.00	31.0									BOTTOM OF BOREHOLE @ 31.0'	31.0	
94.00	32.0									NOTES: 1) Groundwater encountered @ 4.0' during drilling	32.0	
93.00	33.0										33.0	
92.00	34.0										34.0	
91.00	35.0										35.0	
90.00	36.0										36.0	
89.00	37.0										37.0	
88.00	38.0										38.0	
87.00	39.0										39.0	
86.00	40.0										40.0	
85.00	41.0										41.0	
84.00	42.0										42.0	
83.00	43.0										43.0	
82.00	44.0										44.0	
81.00	45.0										45.0	
80.00	46.0										46.0	
79.00	47.0										47.0	
78.00	48.0										48.0	
77.00	49.0										49.0	
76.00	50.0										50.0	
75.00	51.0										51.0	
74.00	52.0										52.0	
73.00	53.0										53.0	
72.00	54.0										54.0	
71.00	55.0										55.0	
	56.0										56.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 1MW03

SHEET: 1 OF 2

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #1
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 10/22/96 DATE COMPLETED: 10/23/96

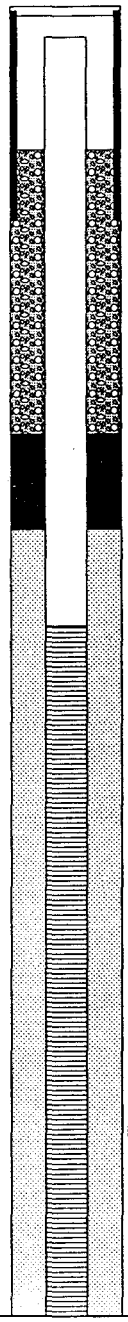
GROUND SURFACE ELEVATION: 117.24' msl
TOP OF PVC CASING ELEVATION: 119.59' msl

WELL DETAILS (FT)

STICKUP:	2.35
LENGTH OF RISER (2"I.D.):	10.0
LENGTH OF SCREEN (2"I.D.):	25.0
THICKNESS OF GROUT:	6.0
THICKNESS OF SEAL:	2.0
THICKNESS OF SAND PACK:	27.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
117.00	0.0		S-1	SS	- - -	-	-	-		TOPSOIL	0.0
116.00	1.0									CLAYEY SILT: Brown, little/some fine/fine to medium sand (possible fill)	1.0
115.00	2.0		S-2	SS	6 7 10 13	1.8	0.7	0.7			2.0
114.00	3.0									SILTY CLAY: Reddish brown, trace/little fine/fine to medium sand	3.0
113.00	4.0		S-3	SS	6 8 13 16	1.8	0.7	0.7			4.0
112.00	5.0										5.0
111.00	6.0		S-4	SS	19 28 28 32	2.0	0.7	0.7		SILT: Reddish brown/white/black, little/trace clay, trace fine sand, rock structure evident (gabbro), (moderate/highly decomposed rock)	6.0
110.00	7.0										7.0
109.00	8.0		S-5	SS	5 10 17 27	1.8	0.8	0.8		SILT: Light brown/black/white, little/some clay, trace fine/fine to medium sand (decomposed rock)	8.0
108.00	9.0										9.0
107.00	10.0		S-6	SS	11 34 50/6"	1.8	0.8	0.8			10.0
106.00	11.0										11.0
105.00	12.0		S-7	SS	14 15 21 35	1.8	-	-			12.0
104.00	13.0									SILT: White/black/dark green, little clay, trace fine/fine to medium sand (moderately decomposed rock)	13.0
103.00	14.0		S-8	SS	5 10 45 47	1.8	-	-			14.0
102.00	15.0										15.0
101.00	16.0										16.0
100.00	17.0										17.0
99.00	18.0										18.0
98.00	19.0										19.0
97.00	20.0		S-9	SS	14 25 37 50/3"	1.8	1.4	1.4			20.0
96.00	21.0										21.0
95.00	22.0										22.0
94.00	23.0										23.0
93.00	24.0										24.0

WELL INSTALLATION



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 1MW03

SHEET: 2 OF: 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
93.00	24.0										24.0	
92.00	25.0									SILT: White/black/dark green, little clay, trace fine/fine to medium sand (moderate/slightly decomposed rock)	25.0	
91.00	26.0		S-10	SS	32 50 / 5"	0.0	1.5	1.5			26.0	
90.00	27.0										27.0	
89.00	28.0										28.0	
88.00	29.0										29.0	
87.00	30.0										30.0	
86.00	31.0		S-11	SS	39 50 / 3"	0.7	-	-			31.0	
85.00	32.0										32.0	
84.00	33.0										33.0	
83.00	34.0									Rock at 35'	34.0	
82.00	35.0									BOTTOM OF BOREHOLE @ 35.0'	35.0	
81.00	36.0		S-12	SS	50 / 3"	0.25	-	-		NOTES: 1) Groundwater encountered @ 13.0' during drilling	36.0	
80.00	37.0										37.0	
79.00	38.0										38.0	
78.00	39.0										39.0	
77.00	40.0										40.0	
76.00	41.0										41.0	
75.00	42.0										42.0	
74.00	43.0										43.0	
73.00	44.0										44.0	
72.00	45.0										45.0	
71.00	46.0										46.0	
70.00	47.0										47.0	
69.00	48.0										48.0	
68.00	49.0										49.0	
67.00	50.0										50.0	
66.00	51.0										51.0	
65.00	52.0										52.0	
64.00	53.0										53.0	
63.00	54.0										54.0	
62.00	55.0										55.0	
61.00	56.0										56.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 1MW04

SHEET: 1 OF 2

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #1
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 10/15/96 DATE COMPLETED: 10/22/96

GROUND SURFACE ELEVATION: 118.12' msl
TOP OF PVC CASING ELEVATION: 120.53' msl

WELL DETAILS (FT)

STICKUP:	2.41
LENGTH OF RISER (2"I.D.):	10.0
LENGTH OF SCREEN (2"I.D.):	25.0
THICKNESS OF GROUT:	5.0
THICKNESS OF SEAL:	2.0
THICKNESS OF SAND PACK:	28.0

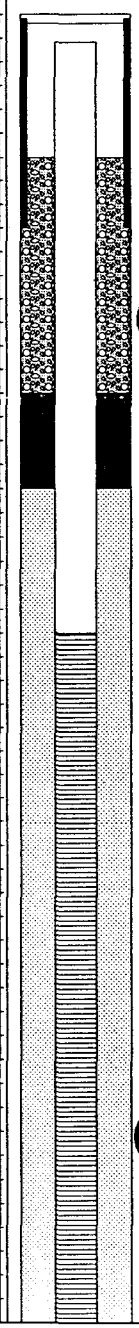
SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS
S-1	SS	8 13 16 15	2.0	0.4	0.4
S-2	SS	8 14 14 12	1.7	0.4	0.3
S-3	SS	7 8 5 6	1.6	0.4	0.3
S-4	SS	24 30 47/6"	1.5	0.4	0.3
S-5	SS	50/1"	0.0	0.4	-
S-6	SS	50/2"	0.0	0.4	-
S-7	SS	51/6"	0.4	0.9	0.9
S-8	SS	19 50/6"	0.5	0.9	0.9
S-9	SS	50/1"	0.0	-	-
S-10	SS	50/2"	0.1	-	-

DESCRIPTION

CLAY AND SILT: Reddish brown/tan, some sand, little rock fragments, trace roots, damp to moist

SAND AND SILT: Light gray/olive/tan, little/some clay, trace/little rock fragments, moist (residual?) @ 7.5' electrical wire, from 7.5' hitting obstructions, can auger thru but can not drive split spoon. Appears to be out of obstructions @ 14.5'

SILT: Dark green/white/black, trace/little fine/fine to medium sand, trace clay (decomposed rock)



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 1MW04

SHEET: 2 OF: 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
94.00	24.0										24.0	
93.00	25.0									SILT: White/black/dark green, little clay, trace fine/fine to medium sand (moderate/slightly decomposed rock). No split spoon samples attempted at 30 and 35' due to rods being locked in borehole/augers and runup/settling of cuttings	25.0	
92.00	26.0		S-10	SS	50 / 0"	0.0	-	-			26.0	
91.00	27.0										27.0	
90.00	28.0										28.0	
89.00	29.0										29.0	
88.00	30.0										30.0	
87.00	31.0										31.0	
86.00	32.0										32.0	
85.00	33.0										33.0	
84.00	34.0										34.0	
83.00	35.0									BOTTOM OF BOREHOLE @ 35.0' NOTES: 1) Groundwater encountered @ 16.0' during drilling	35.0	
82.00	36.0										36.0	
81.00	37.0										37.0	
80.00	38.0										38.0	
79.00	39.0										39.0	
78.00	40.0										40.0	
77.00	41.0										41.0	
76.00	42.0										42.0	
75.00	43.0										43.0	
74.00	44.0										44.0	
73.00	45.0										45.0	
72.00	46.0										46.0	
71.00	47.0										47.0	
70.00	48.0										48.0	
69.00	49.0										49.0	
68.00	50.0										50.0	
67.00	51.0										51.0	
66.00	52.0										52.0	
65.00	53.0										53.0	
64.00	54.0										54.0	
63.00	55.0										55.0	
62.00	56.0										56.0	

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 1SB01

SHEET: 1 OF: 1

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #1
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 10/25/96 DATE COMPLETED: 10/25/96

GROUND SURFACE ELEVATION: 141.27' msl
TOTAL DEPTH: 16.5' bgs

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
141.00	0.0									SILT: Light brown, trace/little clay, trace fine sand (possible fill)	0.0
140.00	1.0		S-1	SS	- - -	-	-	-			1.0
139.00	2.0										2.0
138.00	3.0		S-2	SS	7 16 20 16	1.8	-	-			3.0
137.00	4.0										4.0
136.00	5.0		S-3	SS	24 50 / 2"	0.33	-	-		SILT: Tan, trace fine sand, trace clay (highly decomposed rock)	5.0
135.00	6.0										6.0
134.00	7.0		S-4	SS	50 / 4"	0.0	-	-			7.0
133.00	8.0										8.0
132.00	9.0		S-5	SS	50 / 4"	0.0	-	-			9.0
131.00	10.0						-				10.0
130.00	11.0		S-6	SS	50 / 5"	0.25		-			11.0
129.00	12.0										12.0
128.00	13.0		S-7	SS	50 / 1"	0.0	-	-			13.0
127.00	14.0										14.0
126.00	15.0										15.0
125.00	16.0										16.0
124.00	17.0									BOTTOM OF BOREHOLE @ 16.5'	17.0
123.00	18.0									NOTES:	18.0
122.00	19.0									1) No groundwater was encountered during drilling.	19.0
121.00	20.0									2) Auger refusal at 16.5', three attempts to get below 16.5'	20.0
120.00	21.0										21.0
119.00	22.0										22.0
118.00	23.0										23.0
117.00	24.0										24.0
116.00	25.0										25.0
115.00	26.0										26.0
114.00	27.0										27.0
113.00	28.0										28.0

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 1SB02

SHEET: 1 OF: 1

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #1
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 10/26/96 DATE COMPLETED: 10/26/96

GROUND SURFACE ELEVATION: 128.41' msl
TOTAL DEPTH: 28.25' bgs

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
128.00	0.0		S-1	SS	- - - -	-	-	-		SILT AND CLAY: Dark red/reddish brown (possible fill)	0.0
127.00	1.0										1.0
126.00	2.0		S-2	SS	8 21 18 28	1.7	-	-		SILT: Light brown, trace fine sand, trace clay	2.0
125.00	3.0										3.0
124.00	4.0		S-3	SS	18 29 50/6"	1.3	-	-			4.0
123.00	5.0										5.0
122.00	6.0		S-4	SS	50/4"	0.2	-	-			6.0
121.00	7.0										7.0
120.00	8.0		S-5	SS	50/4"	0.2	-	-			8.0
119.00	9.0										9.0
118.00	10.0		S-6	SS	50/2"	0.0	-	-			10.0
117.00	11.0										11.0
116.00	12.0		S-7	SS	50/4"	0.2	-	-			12.0
115.00	13.0										13.0
114.00	14.0		S-8	SS	50/2"	0.1	-	-			14.0
113.00	15.0										15.0
112.00	16.0		S-9	SS	50/4"	1.8	-	-			16.0
111.00	17.0										17.0
110.00	18.0		S-10	SS	50/4"	0.2	-	-			18.0
109.00	19.0										19.0
108.00	20.0		S-11	SS	50/3"	0.25	-	-			20.0
107.00	21.0										21.0
106.00	22.0		S-12	SS	50/3"	0.2	-	-		SILT: Black/white/reddish brown, trace/little clay, trace fine/fine to medium sand, trace rock fragments (slightly/moderately decomposed gabbro)	22.0
105.00	23.0										23.0
104.00	24.0		S-13	SS	50/3"	0.2	-	-			24.0
103.00	25.0										25.0
102.00	26.0		S-14	SS	50/5"	0.3	-	-		BOTTOM OF BOREHOLE @ 28.25' NOTES: (1) Groundwater encountered @ 26' during drilling	26.0
101.00	27.0										27.0
100.00	28.0		S-15	SS	50/3"	0.25	-	-			28.0

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 1SB03

SHEET: 1 OF: 3

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #1
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 10/24/96 DATE COMPLETED: 10/24/96

GROUND SURFACE ELEVATION: 115.84' msl
TOTAL DEPTH: 60.3' bgs

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
	0.0									SILT: Tan/light brown/brown, trace/little clay, trace fine sand (possible fill)	0.0
115.00	1.0		S-1	SS	- - - -	-	-	-			1.0
114.00	2.0										2.0
113.00	3.0		S-2	SS	5 8 14 13	1.0	-	-		SILT: Tan/light brown/reddish brown, little/trace clay, trace fine sand, (possible residual soil)	3.0
112.00	4.0										4.0
111.00	5.0		S-3	SS	2 1 2 10	1.2	-	-		SILT: White/black/light reddish brown, trace clay, slight trace fine sand (decomposed rock)	5.0
110.00	6.0										6.0
109.00	7.0		S-4	SS	14 18 32 50/5"	1.6	-	-			7.0
108.00	8.0										8.0
107.00	9.0		S-5	SS	35 43 50/4"	1.2	-	-			9.0
106.00	10.0						-				10.0
105.00	11.0		S-6	SS	27 50/6"	0.8		-			11.0
104.00	12.0										12.0
103.00	13.0		S-7	SS	16 29 41 50/5"	1.8	-	-			13.0
102.00	14.0										14.0
101.00	15.0		S-4	SS	23 27 23 27	1.8	-	-			15.0
100.00	16.0										16.0
99.00	17.0		S-5	SS	12 18 28 46	1.8	-	-			17.0
98.00	18.0										18.0
97.00	19.0										19.0
96.00	20.0										20.0
95.00	21.0		S-6	SS	50 / 3"	0.2	-	-			21.0
94.00	22.0										22.0
93.00	23.0										23.0
92.00	24.0										24.0
91.00	25.0										25.0
90.00	26.0		S-7	SS	50 / 3"	0.2	-	-			26.0
89.00	27.0										27.0
88.00	28.0										28.0

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 1SB03

SHEET: 2 OF: 3

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
	28.0									SILT: White/black/light reddish brown, trace clay, slight trace fine sand (decomposed rock), occasional fine rock fragments. Weathering/decomposition decreases with depth.	28.0
87-00	29.0										29.0
86-00	30.0										30.0
85-00	31.0		S-12	SS	24 50/5"	0.8	-	-			31.0
84-00	32.0										32.0
83-00	33.0										33.0
82-00	34.0										34.0
81-00	35.0										35.0
80-00	36.0		S-13	SS	50/4"	0.3	-	-			36.0
79-00	37.0										37.0
78-00	38.0										38.0
77-00	39.0										39.0
76-00	40.0										40.0
75-00	41.0		S-14	SS	50/3"	0.2	-	-			41.0
74-00	42.0										42.0
73-00	43.0										43.0
72-00	44.0										44.0
71-00	45.0										45.0
70-00	46.0		S-15	SS	50/5"	0.3	-	-			46.0
69-00	47.0										47.0
68-00	48.0										48.0
67-00	49.0										49.0
66-00	50.0										50.0
65-00	51.0		S-16	SS	49 50/3"	0.8	-	-			51.0
64-00	52.0										52.0
63-00	53.0										53.0
62-00	54.0										54.0
61-00	55.0										55.0
60-00	56.0		S-17	SS	29 50/6"	0.7	-	-			56.0
59-00	57.0										57.0
58-00	58.0										58.0
57-00	59.0										59.0
56-00	60.0										60.0

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 1SB03

SHEET: 3 OF: 3

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
	60.0										60.0
55:00	61.0		S-18	SS	50 / 4"	0.8	-	-		SILT: White/black/light reddish brown, trace clay, slight trace fine sand (decomposed rock), occasional fine rock fragments. Weathering/decomposition decreases with depth.	61.0
54:00	62.0										62.0
53:00	63.0										63.0
52:00	64.0										64.0
51:00	65.0									BOTTOM OF BOREHOLE @ 60.3'	65.0
50:00	66.0									NOTES:	66.0
49:00	67.0									(1) Groundwater encountered @ 4.0' during drilling	67.0
48:00	68.0										68.0
47:00	69.0										69.0
46:00	70.0										70.0
45:00	71.0										71.0
44:00	72.0										72.0
43:00	73.0										73.0
42:00	74.0										74.0
41:00	75.0										75.0
40:00	76.0										76.0
39:00	77.0										77.0
38:00	78.0										78.0
37:00	79.0										79.0
36:00	80.0										80.0
35:00	81.0										81.0
34:00	82.0										82.0
33:00	83.0										83.0
32:00	84.0										84.0
31:00	85.0										85.0
30:00	86.0										86.0
29:00	87.0										87.0
28:00	88.0										88.0
27:00	89.0										89.0
26:00	90.0										90.0
25:00	91.0										91.0
24:00	92.0										92.0

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 1SB04

SHEET: 1 OF: 2

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #1
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV SCIENTIST: M.K. DeJOHN
DATE BEGUN: 10/27/96 DATE COMPLETED: 10/27/96

GROUND SURFACE ELEVATION: 0.0' msl
TOTAL DEPTH: 35.3' bgs

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
0:00	0.0										0.0
1:00	1.0		S-1	SS	- - - -	-	-	-		CLAY: Dark gray, some silt (muck)	1.0
2:00	2.0										2.0
3:00	3.0		S-2	SS	1 1 1 1	0.0	-	-			3.0
4:00	4.0										4.0
5:00	5.0		S-3	SS	1 / 24"	0.5	-	-			5.0
6:00	6.0										6.0
7:00	7.0		S-4	SS	2 4 6 11	1.7	-	-		SILT: Green/white, trace clay, trace fine sand, (decomposed gabbro)	7.0
8:00	8.0										8.0
9:00	5.0		S-5	SS	7 11 18 28	1.8	-	-			9.0
10:00	10.0										10.0
11:00	11.0		S-6	SS	11 22 29 42	1.3	-	-			11.0
12:00	12.0										12.0
13:00	13.0		S-7	SS	14 18 35 50	1.7	-	-			13.0
14:00	14.0										14.0
15:00	15.0		S-8	SS	11 18 30 24	1.8	-	-			15.0
16:00	16.0										16.0
17:00	17.0										17.0
18:00	18.0										18.0
19:00	19.0										19.0
20:00	20.0										20.0
21:00	21.0		S-9	SS	16 28 50/6"	1.0	-	-			21.0
22:00	22.0										22.0
23:00	23.0										23.0
24:00	24.0										24.0
25:00	25.0										25.0
26:00	26.0		S-10	SS	26 50/4"	0.5	-	-			26.0
27:00	27.0										27.0
28:00	28.0										28.0

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 1SB04

SHEET: 2 OF: 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
28.00	28.0										28.0
29.00	29.0									SILT: Green/white, trace clay, trace fine sand (decomposed rock)	29.0
30.00	30.0										30.0
31.00	31.0		S-11	SS	21 50/4"	0.5	-	-			31.0
32.00	32.0										32.0
33.00	33.0										33.0
34.00	34.0										34.0
35.00	35.0										35.0
36.00	36.0		S-12	SS	50 / 4"	0.25	-	-		BOTTOM OF BOREHOLE @ 35.3'	36.0
37.00	37.0									NOTES:	37.0
38.00	38.0									(1) Groundwater encountered at ground surface	38.0
39.00	39.0										39.0
40.00	40.0										40.0
41.00	41.0										41.0
42.00	42.0										42.0
43.00	43.0										43.0
44.00	44.0										44.0
45.00	45.0										45.0
46.00	46.0										46.0
47.00	47.0										47.0
48.00	48.0										48.0
49.00	49.0										49.0
50.00	50.0										50.0
51.00	51.0										51.0
52.00	52.0										52.0
53.00	53.0										53.0
54.00	54.0										54.0
55.00	55.0										55.0
56.00	56.0										56.0
57.00	57.0										57.0
58.00	58.0										58.0
59.00	59.0										59.0
60.00	60.0										60.0

APPENDIX C.2
TEST BORING AND WELL CONSTRUCTION RECORDS
SWMU 1 - PHASE II

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	Roosevelt Roads SWMU 1 - Army Cremator Disposal Site		
CTO NO.:	62470-277	BORING NO.:	1-MW05
COORDINATES:	EAST: 774560.75	NORTH:	1143767.36
ELEVATION:	SURFACE: 116.30	TOP OF PVC CASING:	117.61

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"		9/18/97	0-20	90's	17.0
Length	2'		5'		9/18/97	Set Well	90's	15.0
Type	SS		HS					
Hammer Wt.	140 lb.							
Fall	30"							

REMARKS: Attempted to collect sample @ two bore-holes - 1 splitspoon sample collected at each then advanced 1-MWO5..

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	13.0
PVC Slotted 10 Slot	2"	13.0	23.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	A-N						Cement/Bentonite Grout from 0.0' to 11.0'.	
2	S-1	0.5 / 0.5	38 / 40 / 50 / 4	02	0	Weathered rock, Basalt, brown, gray, white, dry-damp, dense to very dense. From 1'-3'.	Well casing from -2.5' (stickup to 13.0)	
3								
4								
5								
6	A-N						6.0	110.30
7							Bentonite from 6.0 to 8.0 ft.	
8							8.0	108.30
9							Sand from 8.0 to 23.0 ft.	
10								
						Match to Sheet 2		

DRILLING CO.:	Soil Tech	BAKER REP.:	Brian E. Davis
DRILLER:	Georgie	BORING NO.:	1-MW05

SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Roosevelt Roads SWMU 1 - Army Cremator Disposal Site

CTO NO.: 62470-277 BORING NO.: 1-MW05

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)
11	S-2	0.4	50			Continued from Sheet 1 Weathered rock, Basalt, little gravel, trace silt, dry, brown grey. From 10'-12'.	Sand from 8.0 to 23.0 ft.	
12		0.4	0.4					
13	A-N			05			13.0	103.30
14							Well screen from 13.0 to 23.0 ft.	
15								
16	S-3	0.4	50			Weathered rock, Basalt, trace clay and silt, moist.		
17		0.4	0.4					
18	A-N							
19								
20								
21								
22								
23							Bottom plug @ 23.0	93.30
24						End of boring @ 23.0'		
25								
26								
27								
28								
29								
30								

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

DRILLER: Georgie BORING NO.: 1-MW05 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	Roosevelt Roads SWMU 1- Army Cremator Disposal Site		
CTO NO.:	62470-277	BORING NO.:	5-GW02
COORDINATES: EAST:	774430.00	NORTH:	5143044.03
ELEVATION: SURFACE:	106.70	TOP OF PVC CASING:	108.95

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"		9/18/97	0-15	90's Humid	5.5
Length	2'		5'		9/19/97	Set Well	90's Humid	5.7
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"	-3.0	4.5
PVC Slotted 10 Slot	2"	4.5	14.5

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	14 16 20 22		0	Silt, some clay, brown, dry-damp, few roots, soft to medium stiff.		
2		2.0						
3	A-N						3.0 Bentonite from 1.0 ft. to 3.0 ft.	103.70
4								
5							4.5 Well casing from 3.0 ft. (stickup) to 4.5 ft.	102.20
6	S-2	1.5	7 21 27 35		0			
7		2.0				Highly weathered, decomposed rock, little clay, white, gray, black, brown, damp, dense, From 5'-7'.	Sand from 3.0 ft. to 15.0 ft.	
8	A-N			03			Well screen from 4.5 ft. to 14.5 ft.	
9								
10								
						Match to Sheet 2		

DRILLING CO.:	Soil Tech	BAKER REP.:	Brian E. Davis
DRILLER:	Georgie	BORING NO.:	5-GW02

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Roosevelt Roads SWMU1 - Army Cremator Disposal Site

CTO NO.: 62470-277 BORING NO.: 5-GW02

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)
			35			Continued from Sheet 1		
11	S-3	1.0	50		0	Highly weathered,	Sand from 3.0 to 15.0	
		1.5	0.1			decompose rock, silt, clay,	ft.	
12						brown, grey, white, wet, dense,	Well screen from 4.5	
				05		Collected from 10'-12'.	to 14.5 ft.	
13	A-N							
14								
							Bottom plug @ 14.5	92.20
15						TD 15.0' 9/18/97		
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

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

DRILLER: Georgie BORING NO.: 5-GW02 SHEET 2 OF 2

APPENDIX C.3
TEST BORING AND WELL CONSTRUCTION RECORDS
SWMU 2 - PHASE I

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 2MW01

SHEET: 1 OF: 1

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #2
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/08/96 DATE COMPLETED: 11/08/96

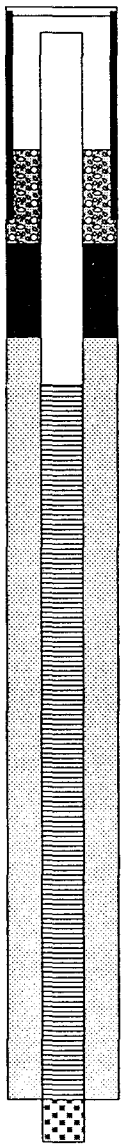
GROUND SURFACE ELEVATION: 102.94' msl
TOP OF PVC CASING ELEVATION: 105.39' msl

WELL DETAILS (FT)

STICKUP:	2.45
LENGTH OF RISER (2"I.D.):	5.0
LENGTH OF SCREEN (2"I.D.):	15.0
THICKNESS OF GROUT:	2.0
THICKNESS OF SEAL:	2.0
THICKNESS OF SAND PACK:	16.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
	4.0										4.0
186.00	3.0										3.0
185.00	2.0										2.0
184.00	1.0										1.0
183.00	0.0										0.0
182.00	1.0		S-1	SS	- - - -	-	-	-		SILTY CLAY: Brown, trace/little fine/fine to medium sand	1.0
181.00	2.0										2.0
180.00	3.0		S-2	SS	1 2 3 2	1.7	-	-			3.0
99.00	4.0										4.0
98.00	5.0		S-3	SS	1 9 11 13	0.5	-	-			5.0
97.00	6.0										6.0
96.00	7.0		S-4	SS	9 11 10 17	0.0	-	-			7.0
95.00	8.0										8.0
94.00	9.0		S-5	SS	5 12 17 20	2.0	-	-		SILT: White/black/reddish brown, trace/little clay, trace fine sand (decomposed rock)	9.0
93.00	10.0										10.0
92.00	11.0		S-6	SS	10 18 25 40	2.0	-	-			11.0
91.00	12.0										12.0
90.00	13.0										13.0
89.00	14.0										14.0
88.00	15.0										15.0
87.00	16.0		S-7	SS	19 34 50/6"	1.8	-	-			16.0
86.00	17.0										17.0
85.00	18.0										18.0
84.00	19.0										19.0
83.00	20.0										20.0
82.00	21.0		S-8	SS	33 50 / 4"	0.8	-	-		BOTTOM OF BOREHOLE @ 20.9'	21.0
81.00	22.0									NOTES: (1) groundwater encountered @ 5.0' during drilling	22.0
80.00	23.0										23.0
79.00	24.0										24.0

WELL INSTALLATION



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 2MW02

SHEET: 1 OF 2

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #2
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/06/96 DATE COMPLETED: 11/07/96

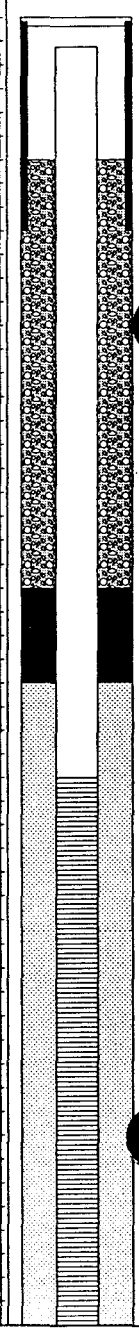
GROUND SURFACE ELEVATION: 108.82' msl
TOP OF PVC CASING ELEVATION: 111.19' msl

WELL DETAILS (FT)

STICKUP:	2.37
LENGTH OF RISER (2"I.D.):	13.0
LENGTH OF SCREEN (2"I.D.):	20.0
THICKNESS OF GROUT:	9.0
THICKNESS OF SEAL:	2.0
THICKNESS OF SAND PACK:	22.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
112.00	4.0										4.0
111.00	3.0										3.0
110.00	2.0										2.0
109.00	1.0										1.0
108.00	0.0										0.0
107.00	1.0		S-1	SS	- - -	-	-	-		SILT AND CLAY: Brown/tan, some rock fragments, little silt, moist (fill)	1.0
106.00	2.0										2.0
105.00	3.0		S-2	SS	5 7 8 8	1.2	-	-			3.0
104.00	4.0										4.0
103.00	5.0		S-3	SS	3 5 13 30	1.7	-	-		SILT AND CLAY: Tan/orange/brown, some sand, little rock fragments, moist	5.0
102.00	6.0										6.0
101.00	7.0		S-4	SS	20 31 31 42	1.9	-	-		CLAY: Dark brown/tan, some silt and gravel, little silt, moist (residual soil)	7.0
100.00	8.0										8.0
99.00	9.0		S-5	SS	31 50 40 31	0.6	-	-			9.0
98.00	10.0										10.0
97.00	11.0		S-6	SS	6 8 15 20	2.0	-	-		CLAY AND SILT: Tan/white/gray, little sand, w/white phenocrysts, moist, relics of healed fractures, occasional black streaks (weathered gabbro)	11.0
96.00	12.0										12.0
95.00	13.0		S-7	SS	13 17 25 42	2.0	-	-			13.0
94.00	14.0										14.0
93.00	15.0		S-8	SS	10 15 23 33	1.7	-	-			15.0
92.00	16.0										16.0
91.00	17.0										17.0
90.00	18.0										18.0
89.00	19.0										19.0
88.00	20.0										20.0
87.00	21.0		S-9	SS	12 25 41 50	1.7	-	-			21.0
86.00	22.0										22.0
85.00	23.0										23.0
	24.0										24.0

WELL INSTALLATION



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 2MW02

SHEET: 2 OF: 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
	24.0									CLAY AND SILT: Tan/white/gray, little sand, w/white phenocrysts, moist, relics of healed fractures, occasional black streaks (weathered gabbro)	24.0	
84.00	25.0										25.0	
83.00	26.0		S-10	SS	20 45 50 /3"	1.6	-	-			26.0	
82.00	27.0										27.0	
81.00	28.0										28.0	
80.00	29.0										29.0	
79.00	30.0										30.0	
78.00	31.0		S-11	SS	22 25 27 33	1.1	-	-			31.0	
77.00	32.0										32.0	
76.00	33.0										33.0	
75.00	34.0										34.0	
74.00	35.0										35.0	
73.00	36.0		S-12	SS	33 50 / 4"	1.0	-	-			36.0	
72.00	37.0										37.0	
71.00	38.0										38.0	
70.00	39.0										39.0	
69.00	40.0										40.0	
68.00	41.0		S-13	SS	50 / 6"	0.3	-	-			41.0	
67.00	42.0										42.0	
66.00	43.0										43.0	
65.00	44.0										44.0	
64.00	45.0										45.0	
63.00	46.0		S-14	SS	50 / 2"	-	-	-			46.0	
62.00	47.0										47.0	
61.00	48.0									BOTTOM OF BOREHOLE @ 48.0'	48.0	
60.00	49.0									NOTES:	49.0	
59.00	50.0									1) Groundwater encountered @ 14.0' during drilling	50.0	
58.00	51.0										51.0	
57.00	52.0										52.0	
56.00	53.0										53.0	
55.00	54.0										54.0	
54.00	55.0										55.0	
53.00	56.0										56.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 2MW03

SHEET: 1 OF: 1

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #2
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/09/96 DATE COMPLETED: 11/09/96

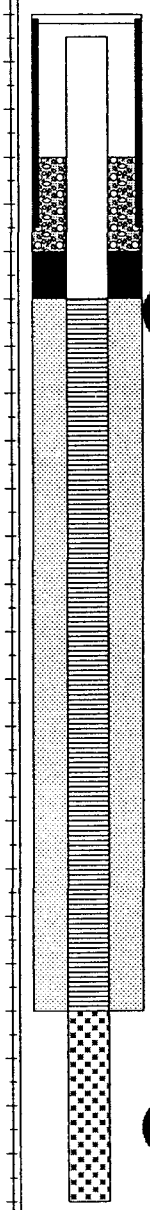
GROUND SURFACE ELEVATION: 102.76' msl
TOP OF PVC CASING ELEVATION: 105.28' msl

WELL DETAILS (FT)

STICKUP:	2.52
LENGTH OF RISER (2"I.D.):	13.0
LENGTH OF SCREEN (2"I.D.):	20.0
THICKNESS OF GROUT:	2.0
THICKNESS OF SEAL:	1.0
THICKNESS OF SAND PACK:	15.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
186.00	4.0										4.0
185.00	3.0										3.0
184.00	2.0										2.0
183.00	1.0										1.0
182.00	0.0		S-1	SS	- - - -	-	-	-		SILTY CLAY: Black, organic, trace fine/fine to medium sand, moist	0.0
181.00	1.0										1.0
180.00	2.0		S-2	SS	6 3 3 9	2.0	-	-			2.0
99.00	3.0										3.0
98.00	4.0		S-3	SS	3 1 1 2	1.8	-	-		SILTY CLAY: Dark brown, trace fine sand, organic, moist	4.0
97.00	5.0										5.0
96.00	6.0		S-4	SS	1 2 4 9	1.8	-	-		SILTY CLAY: Dark gray to black, organic	6.0
95.00	7.0										7.0
94.00	8.0		S-5	SS	2 3 7 13	2.0	-	-		SILTY CLAY: Green/white, grades to clayey silt	8.0
93.00	9.0									SILT: Brown/white/black	9.0
92.00	10.0		S-6	SS	5 6 12 17	2.0	-	-		SILT: Brown/white, trace/little clay, trace fine sand (decomposed rock)	10.0
91.00	11.0										11.0
90.00	12.0										12.0
89.00	13.0										13.0
88.00	14.0										14.0
87.00	15.0		S-7	SS	6 10 14 18	0.5	-	-			15.0
86.00	16.0										16.0
85.00	17.0										17.0
84.00	18.0										18.0
83.00	19.0										19.0
82.00	20.0		S-8	SS	5 14 29 35	2.0	-	-			20.0
81.00	21.0										21.0
80.00	22.0									BOTTOM OF BOREHOLE @ 22.0'	22.0
79.00	23.0									NOTES: (1) Groundwater encountered @ 3.5' during drilling	23.0
	24.0										24.0

WELL INSTALLATION



BAKER

TEST BORING LOG

BOREHOLE NUMBER: 2SB01

SHEET: 1 OF: 2

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #1
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: C.D. BOES
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/18/96 DATE COMPLETED: 11/18/96

GROUND SURFACE ELEVATION: 106.20' msl
TOTAL DEPTH: 35.2' bgs

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
106.00	0.0										0.0
105.00	1.0		S-1	SS	- - - -	-	-	-		CLAY AND SILT: Brown, some sand, little rock fragments, trace organics, moist	1.0
104.00	2.0										2.0
103.00	3.0		S-2	SS	5 5 4 5	0.5	-	-			3.0
102.00	4.0										4.0
101.00	5.0		S-3	SS	2 5 12 11	1.7	-	-		CLAY AND SILT: Tan/brown/ orange/gray, some sand, little/some rock fragments (residual)	5.0
100.00	6.0										6.0
99.00	7.0		S-4	SS	15 20 19 25	1.8	-	-			7.0
98.00	8.0										8.0
97.00	9.0		S-5	SS	6 21 25 30	2.0	-	-			9.0
96.00	10.0						-				10.0
95.00	11.0		S-6	SS	19 15 16 27	2.0		-			11.0
94.00	12.0									SILT AND CLAY: White/gray/black, some sand, moist (decomposed gabbro)	12.0
93.00	13.0		S-7	SS	19 28 45 50/4"	2.0	-	-			13.0
92.00	14.0									SILT AND CLAY: White/gray/black/tan, some sand, trace rock, moist, many healed fractures (decomposed gabbro)	14.0
91.00	15.0										15.0
90.00	16.0		S-8	SS	11 22 33 50/5"	1.8	-	-			16.0
89.00	17.0										17.0
88.00	18.0										18.0
87.00	19.0										19.0
86.00	20.0										20.0
85.00	21.0		S-9	SS	15 30 50/6"	0.7	-	-			21.0
84.00	22.0										22.0
83.00	23.0										23.0
82.00	24.0										24.0
81.00	25.0										25.0
80.00	26.0		S-10	SS	21 50/5"	0.6	-	-			26.0
79.00	27.0										27.0
78.00	28.0										28.0

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 2SB01

SHEET: 2 OF: 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
78.00	28.0										28.0
77.00	29.0									SILT AND CLAY: White/gray/black/tan, some sand, trace rock, wet to moist (decomposed gabbro)	29.0
76.00	30.0										30.0
75.00	31.0		S-11	SS	40 50/2"	0.5	-	-			31.0
74.00	32.0										32.0
73.00	33.0										33.0
72.00	34.0										34.0
71.00	35.0										35.0
70.00	36.0		S-12	SS	50 / 3"	-	-	-		BOTTOM OF BOREHOLE @ 35.25' NOTES: (1) Groundwater encountered at 12.0' during drilling	36.0
69.00	37.0										37.0
68.00	38.0										38.0
67.00	39.0										39.0
66.00	40.0										40.0
65.00	41.0										41.0
64.00	42.0										42.0
63.00	43.0										43.0
62.00	44.0										44.0
61.00	45.0										45.0
60.00	46.0										46.0
59.00	47.0										47.0
58.00	48.0										48.0
57.00	49.0										49.0
56.00	50.0										50.0
55.00	51.0										51.0
54.00	52.0										52.0
53.00	53.0										53.0
52.00	54.0										54.0
51.00	55.0										55.0
50.00	56.0										56.0
49.00	57.0										57.0
48.00	58.0										58.0
47.00	59.0										59.0
46.00	60.0										60.0

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 2SB02

SHEET: 1 OF: 1

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #1
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/13/96 DATE COMPLETED: 11/13/96

GROUND SURFACE ELEVATION: 103.05' msl
TOTAL DEPTH: 25.9' bgs

SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	DESCRIPTION
S-1	SS	- - -	-	-	-	SILTY CLAY: wet
S-2	SS	3 2 4 4	0.0	-	-	
S-3	SS	1 17 19 22	1.7	-	-	SILTY CLAY: Brown/reddish brown/black, little fine/fine to medium sand, trace rock fragments (possible fill)
S-4	SS	27 26 19 26	1.7	-	-	
S-5	SS	11 13 18 18	2.0	-	-	SILT AND CLAY: Brown/brownish red/white, trace.little fine/fine to medium sand, rock structure, moist (decomposed gabbro)
S-6	SS	3 8 12 20	2.0	-	-	
S-7	SS	15 18 50/6"	0.0	-	-	
S-8	SS	21 25 32 35	1.5	-	-	
S-9	SS	27 50 / 4"	0.8	-	-	SILT: Dark green/white/black, trace/little clay, trace/little fine/fine to medium sand, rock structure, moist, (decomposed gabbro)
S-10	SS	35 50/5"	0.6	-	-	

BOTTOM OF BOREHOLE 25.9'

NOTES:
(1) Groundwater encountered @ 2.5' during drilling

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 2SB03

SHEET: 1 OF: 2

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #2
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: C.D. BOES
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/11/96 DATE COMPLETED: 11/11/96

GROUND SURFACE ELEVATION: 101.69' msl
TOTAL DEPTH: 35.2' bgs

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
101.00	0.0		S-1	SS	- - - -	-	-	-		SILTY CLAY: Dark brown/black, highly organic, trace fine sand, wet	0.0
100.00	1.0										1.0
	2.0										2.0
99.00	3.0		S-2	SS	7 2 1 1	1.6	-	-			3.0
98.00	4.0										4.0
97.00	5.0		S-3	SS	1 / 18" 1	0.4	-	-			5.0
96.00	6.0										6.0
95.00	7.0		S-4	SS	2 5 1 3	1.0	-	-		SILTY CLAY: Gray, trace fine sand	7.0
94.00	8.0										8.0
93.00	9.0		S-5	SS	3 3 7 9	1.6	-	-		SILT AND CLAY: Brown/white/light brown, trace/little fine/fine to medium sand, rock structure, moist (decomposed gabbro)	9.0
92.00	10.0										10.0
91.00	11.0		S-6	SS	7 10 14 16	0.5	-	-			11.0
90.00	12.0										12.0
89.00	13.0		S-7	SS	10 14 15 21	2.0	-	-			13.0
88.00	14.0										14.0
87.00	15.0										15.0
86.00	16.0		S-8	SS	4 5 10 17	2.0	-	-			16.0
85.00	17.0									SILT: Dark green/white/black, trace/little clay, trace/little fine/fine to medium sand, rock structure, moist, (decomposed gabbro)	17.0
84.00	18.0										18.0
83.00	19.0										19.0
82.00	20.0										20.0
81.00	21.0		S-9	SS	12 18 24 50/5"	2.0	-	-			21.0
80.00	22.0										22.0
79.00	23.0										23.0
78.00	24.0										24.0
77.00	25.0										25.0
76.00	26.0		S-10	SS	25 50/ 3"	0.8	-	-			26.0
75.00	27.0										27.0
74.00	28.0										28.0

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 2SB03

SHEET: 2 OF: 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
	28.0										28.0
73:00	29.0									SILT: Dark green/white/black, trace/little clay, trace/little fine/fine to medium sand, moist (decomposed gabbro)	29.0
72:00	30.0										30.0
71:00	31.0		S-11	SS	50/4"	0.3	-	-			31.0
70:00	32.0										32.0
69:00	33.0										33.0
68:00	34.0										34.0
67:00	35.0										35.0
66:00	36.0		S-12	SS	50/3"	0.2	-	-		BOTTOM OF BOREHOLE @ 35.25'	36.0
65:00	37.0									NOTES: (1) Groundwater encountered at 2.5' during drilling	37.0
64:00	38.0										38.0
63:00	39.0										39.0
62:00	40.0										40.0
61:00	41.0										41.0
60:00	42.0										42.0
59:00	43.0										43.0
58:00	44.0										44.0
57:00	45.0										45.0
56:00	46.0										46.0
55:00	47.0										47.0
54:00	48.0										48.0
53:00	49.0										49.0
52:00	50.0										50.0
51:00	51.0										51.0
50:00	52.0										52.0
49:00	53.0										53.0
48:00	54.0										54.0
47:00	55.0										55.0
46:00	56.0										56.0
45:00	57.0										57.0
44:00	58.0										58.0
43:00	59.0										59.0
42:00	60.0										60.0

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 2SB04

SHEET: 1 OF: 2

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #2
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/10/96 DATE COMPLETED: 11/10/96

GROUND SURFACE ELEVATION: 104.21' msl
TOTAL DEPTH: 50.9' bgs

SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS
S-1	SS	- - - -	-	-	-
S-2	SS	15 28 20 20	1.2	-	-
S-3	SS	2 2 3 4	1.0	-	-
S-4	SS	4 3 3 5	1.5	-	-
S-5	SS	3 5 6 11	2.0	-	-
S-6	SS	6 12 14 15	2.0	-	-
S-7	SS	16 16 20 25	1.8	-	-
S-8	SS	12 19 31 43	1.8	-	-
S-9	SS	19 40 50/3"	0.8	-	-
S-10	SS	15 24 29 38	2.0	-	-

DESCRIPTION

SILT AND CLAY: Green/white, trace/little fine sand, apparent rock structure.

SILTY CLAY: Brown/reddish brown, trace/little fine sand

SILTY CLAY: Gray, trace fine sand

SILT: Brown/white, trace/little clay, trace fine/fine to medium sand, rock structure, moist, (decomposed gabbro)

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 2SB04

SHEET: 2 OF: 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
76.00	28.0									SILT: Brown/white, trace/little clay, trace fine/fine to medium sand (decomposed gabbro)	28.0
75.00	29.0										29.0
74.00	30.0										30.0
73.00	31.0		S-12	SS	27 40 50/5"	1.0	-	-			31.0
72.00	32.0										32.0
71.00	33.0										33.0
70.00	34.0										34.0
69.00	35.0									SILT: Black/white, trace/little clay, trace/little fine/fine to medium sand, rock structure (decomposed gabbro)	35.0
68.00	36.0		S-13	SS	26 50/4"	0.8	-	-			36.0
67.00	37.0										37.0
66.00	38.0										38.0
65.00	39.0										39.0
64.00	40.0										40.0
63.00	41.0		S-14	SS	16 30 34 50/4"	1.7	-	-			41.0
62.00	42.0										42.0
61.00	43.0										43.0
60.00	44.0										44.0
59.00	45.0									SILT: White/lt.-dark green/black, trace/little clay, trace/little fine/fine to medium sand, rock structure (decomposed gabbro)	45.0
58.00	46.0		S-15	SS	15 22 27 37	2.0	-	-			46.0
57.00	47.0										47.0
56.00	48.0										48.0
55.00	49.0										49.0
54.00	50.0										50.0
53.00	51.0		S-16	SS	26 50/4"	0.7	-	-		BOTTOM OF BOREHOLE @ 50.9'	51.0
52.00	52.0									NOTES:	52.0
51.00	53.0									(1) Groundwater encountered @ 5.5' during drilling	53.0
50.00	54.0										54.0
49.00	55.0										55.0
48.00	56.0										56.0
47.00	57.0										57.0
46.00	58.0										58.0
45.00	59.0										59.0
44.00	60.0										60.0

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 2SB05

SHEET: 1 OF: 2

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #2
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/10/96 DATE COMPLETED: 11/10/96

GROUND SURFACE ELEVATION: 104.64' msl
TOTAL DEPTH: 50.4' bgs

SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	DESCRIPTION
S-1	SS	- - - -	-	0.5	0.5	SILTY CLAY: Reddish brown/brown, trace/little fine sand (possible fill)
S-2	SS	4 17 12 8	0.8	0.5	0.5	
S-3	SS	3 4 5 5	0.8	0.5	0.5	
S-4	SS	5 7 17 24	1.1	0.5	0.5	SILTY CLAY: Gray, trace fine sand
S-5	SS	16 18 12 20	2.0	0.5	0.5	SILTY CLAY: Reddish brown/brown/white, little/ trace rock fragments/gravel, little/trace fine/fine to medium sand, rock structure evident at tip
S-6	SS	5 10 14 16	2.0	0.5	0.5	SILT: Reddish brown/white, trace/little clay, trace fine sand, rock structure, moist, (decomposed gabbro)
S-7	SS	11 17 22 24	2.0	0.5	0.5	
S-8	SS	10 16 29 34	2.0	0.5	0.5	SILT: Green/white/black, trace/little clay, trace fine sand (decomposed gabbro)
S-9	SS	19 29 28 50/5"	1.8	0.5	0.5	
S-10	SS	32 50 / 2"	0.5	0.5	0.5	

ELEVATION: 104.00, 103.00, 102.00, 101.00, 100.00, 99.00, 98.00, 97.00, 96.00, 95.00, 94.00, 93.00, 92.00, 91.00, 90.00, 89.00, 88.00, 87.00, 86.00, 85.00, 84.00, 83.00, 82.00, 81.00, 80.00, 79.00, 78.00, 77.00

DEPTH: 0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0, 21.0, 22.0, 23.0, 24.0, 25.0, 26.0, 27.0, 28.0

BAKER

TEST BORING LOG

BOREHOLE NUMBER: 2SB05

SHEET: 2 OF: 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/6"	RECOVERY	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
	28.0										28.0
76:00	29.0										29.0
75:00	30.0										30.0
74:00	31.0		S-11	SS	24 50/5"	0.8	0.5	0.5		SILT: White/black/light reddish brown, trace clay, slight trace fine sand (decomposed rock), occasional fine rock fragments. Weathering/decomposition decreases with depth.	31.0
73:00	32.0										32.0
72:00	33.0										33.0
71:00	34.0										34.0
70:00	35.0										35.0
69:00	36.0		S-12	SS	50/4"	0.2	0.5	0.5			36.0
68:00	37.0										37.0
67:00	38.0										38.0
66:00	39.0										39.0
65:00	40.0										40.0
64:00	41.0		S-13	SS	50/5"	0.25	0.5	0.5		BOTTOM OF BOREHOLE @ 40.4' NOTES: (1) Groundwater encountered @ 6.0' during drilling	41.0
63:00	42.0										42.0
62:00	43.0										43.0
61:00	44.0										44.0
60:00	45.0										45.0
59:00	46.0										46.0
58:00	47.0										47.0
57:00	48.0										48.0
56:00	49.0										49.0
55:00	50.0										50.0
54:00	51.0										51.0
53:00	52.0										52.0
52:00	53.0										53.0
51:00	54.0										54.0
50:00	55.0										55.0
49:00	56.0										56.0
48:00	57.0										57.0
47:00	58.0										58.0
46:00	59.0										59.0
45:00	60.0										60.0

APPENDIX C.4
TEST BORING AND WELL CONSTRUCTION RECORDS
SWMU 11/45 - PHASE I

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 45MW01

SHEET: 1 OF: 1

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #45
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/22/96 DATE COMPLETED: 11/23/96

GROUND SURFACE ELEVATION: 100.32' msl
TOP OF PVC CASING ELEVATION: 102.82' msl

WELL DETAILS (FT)

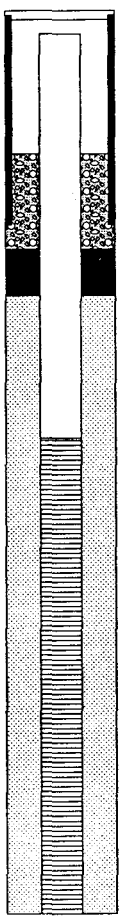
STICKUP:	2.5
LENGTH OF RISER (2"I.D.):	6.0
LENGTH OF SCREEN (2"I.D.):	10.0
THICKNESS OF GROUT:	2.0
THICKNESS OF SEAL:	1.0
THICKNESS OF SAND PACK:	13.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
			S-1	SS	13 17 50/5"	1.0	-	-		GRAVEL/ROCK FRAGMENTS: Brown, fine/fine to medium, some fine/fine to coarse sand, little silt/silt and clay	
			S-2	SS	11 27 29 23	1.8	-	-		SAND AND SILT: White/tan, fine to coarse	
			S-3	SS	10 13 7 5	2.0	-	-			
			S-4	SS	8 9 6 7	2.0	-	-		CLAY/CLAY AND SILT: Brown, trace fine/fine to coarse sand	
			S-5	SS	2 3 2 13	1.8	-	-		SILTY CLAY: Dark brown, trace/little fine/fine to coarse sand	
			S-6	SS	31 50/3"	0.8	-	-		SAND AND SILT: Olive/white/black, fine to coarse (decomposed rock)	
			S-7	SS	50/5"	0.4	-	-			
			S-8	SS	50/2"	0.2	-	-			

BOTTOM OF BOREHOLE @ 16.0'

NOTES:
1) Groundwater encountered @ 8.5' during drilling
2) Auger refusal was encountered @ 1.5', borehole was moved twice.
3) Elevations are based on a building corner slab assumed to be 100' msl

WELL INSTALLATION



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 45MW02

SHEET: 1 OF: 2

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #45
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/21/96 DATE COMPLETED: 11/21/96

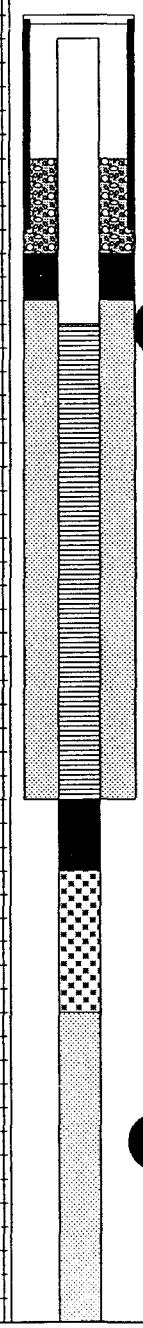
GROUND SURFACE ELEVATION: 99.44' msl
TOP OF PVC CASING ELEVATION: 101.94' msl

WELL DETAILS (FT)

STICKUP:	2.5
LENGTH OF RISER (2"I.D.):	3.5
LENGTH OF SCREEN (2"I.D.):	10.0
THICKNESS OF GROUT:	2.0
THICKNESS OF SEAL:	1.0
THICKNESS OF SAND PACK:	10.5

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
103.00	4.0										4.0
102.00	3.0										3.0
101.00	2.0										2.0
100.00	1.0										1.0
99.00	0.0										0.0
98.00	1.0		S-1	SS	8 17 18 22	1.5	0.7	0.7		SAND: Brown/reddish brown, fine to coarse, little/some fine gravel, little silt/silt and clay (Fill)	1.0
97.00	2.0										2.0
96.00	3.0		S-2	SS	8 12 10 8	1.5	0.7	0.7		SAND AND SILT: White/tan, fine/fine to coarse, trace clay	3.0
95.00	4.0										4.0
94.00	5.0		S-3	SS	4 5 6 7	1.7	0.8	0.8			5.0
93.00	6.0										6.0
92.00	7.0		S-4	SS	10 8 55/6"	0.0	-	-			7.0
91.00	8.0										8.0
90.00	9.0		S-5	SS	1 1/12" 2	2.0	0.7	0.8		CLAY/CLAY AND SILT: White/light gray/light gray-green, trace fine sand	9.0
89.00	10.0										10.0
88.00	11.0		S-6	SS	WOH/12" 1 2	1.8	0.7	0.7			11.0
87.00	12.0									PEAT	12.0
86.00	13.0		S-7	SS	3 3 3 23	2.0	0.7	0.7			13.0
85.00	14.0									SILT AND CLAY: Brown/white, trace/little fine/fine to medium sand (decomposed rock)	14.0
84.00	15.0		S-8	SS	19 26 24 33	2.0	0.8	0.8			15.0
83.00	16.0									SILT: Olive/white/black, trace/little clay, trace fine sand (decomposed rock)	16.0
82.00	17.0										17.0
81.00	18.0										18.0
80.00	19.0										19.0
79.00	20.0		S-9	SS	50 / 3"	0.25	0.7	0.7			20.0
78.00	21.0										21.0
77.00	22.0										22.0
76.00	23.0										23.0
75.00	24.0										24.0

WELL INSTALLATION



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 45MW02

SHEET: 2 OF: 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
75:00	24.0									SILT: Olive/white/black, trace/little clay, trace fine sand (decomposed rock)	24.0	
74:00	25.0										25.0	
73:00	26.0		S-10	SS	50 / 2"	0.0	-	-		BOTTOM OF BOREHOLE @ 25.2'	26.0	
72:00	27.0									NOTES: 1) Groundwater encountered @ 4.0' during drilling 2) Elevations are based on a building corner slab assumed to be 100' msl 3) Lower portion of borehole was backfilled with sand, the borehole caved and the upper portion below the well installation was sealed with bentonite	27.0	
71:00	28.0										28.0	
70:00	29.0										29.0	
69:00	30.0										30.0	
68:00	31.0										31.0	
67:00	32.0										32.0	
66:00	33.0										33.0	
65:00	34.0										34.0	
64:00	35.0										35.0	
63:00	36.0										36.0	
62:00	37.0										37.0	
61:00	38.0										38.0	
60:00	39.0										39.0	
59:00	40.0										40.0	
58:00	41.0										41.0	
57:00	42.0										42.0	
56:00	43.0										43.0	
55:00	44.0										44.0	
54:00	45.0										45.0	
53:00	46.0										46.0	
52:00	47.0										47.0	
51:00	48.0										48.0	
50:00	49.0										49.0	
49:00	50.0										50.0	
48:00	51.0										51.0	
47:00	52.0										52.0	
46:00	53.0										53.0	
45:00	54.0										54.0	
44:00	55.0										55.0	
43:00	56.0										56.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 45MW03

SHEET: 1 OF: 1

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #45
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/21/96 DATE COMPLETED: 11/22/96

GROUND SURFACE ELEVATION: 99.86' msl
TOP OF PVC CASING ELEVATION: 102.36' msl

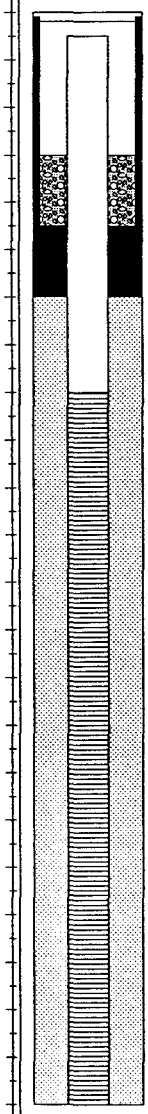
WELL DETAILS (FT)

STICKUP:	2.5
LENGTH OF RISER (2"I.D.):	5.0
LENGTH OF SCREEN (2"I.D.):	15.0
THICKNESS OF GROUT:	1.5
THICKNESS OF SEAL:	1.5
THICKNESS OF SAND PACK:	17.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
103.00	4.0										4.0
102.00	3.0										3.0
101.00	2.0										2.0
100.00	1.0										1.0
99.00	0.0										0.0
98.00	1.0		S-1	SS	5 16 18 31	1.5	0.7	0.7		SILTY CLAY: Brown	1.0
97.00	2.0									GRAVEL/ROCK FRAGMENTS: Light brown/ brown, fine to medium, some fine/fine to medium sand, trace/little silt/silt and clay	2.0
96.00	3.0		S-2	SS	35 36 38 31	1.5	0.7	0.7			3.0
95.00	4.0										4.0
94.00	5.0		S-3	SS	50 / 5"	0.4	0.8	0.8		SAND AND SILT: Tan/white, fine/fine to coarse, trace clay	5.0
93.00	6.0										6.0
92.00	7.0		S-4	SS	21 25 28 50	1.8	1.0	1.0			7.0
91.00	8.0										8.0
90.00	9.0		S-5	SS	31 12 7 7	1.5	-	-		GRAVEL/ROCK FRAGMENTS: Black/brown, some fine to coarse sand, little clay, fuel at 9'	9.0
89.00	10.0										10.0
88.00	11.0		S-6	SS	16 8 6 8	1.6	-	-		SAND: Tan/white, fine to coarse sand, some silt, fuel at 13'	11.0
87.00	12.0										12.0
86.00	13.0		S-7	SS	6 6 8 50/4"	1.7	-	-			13.0
85.00	14.0									SILT: Dark green/olive/white, some fine/fine to coarse sand, trace/little clay (decomposed rock)	14.0
84.00	15.0		S-8	SS	44 50 / 2"	0.5	-	-			15.0
83.00	16.0										16.0
82.00	17.0		S-9	SS	50 / 4"	0.25	-	-			17.0
81.00	18.0										18.0
80.00	19.0										19.0
79.00	20.0										20.0
78.00	21.0		S-10	SS	50 / 6"	0.25	-	-			21.0
77.00	22.0									BOTTOM OF BOREHOLE @ 22.0'	22.0
76.00	23.0										23.0
	24.0										24.0

NOTES:
1) Groundwater encountered @ 9.0' during drilling
2) Elevations are based on a building corner slab assumed to be 100' msl

WELL INSTALLATION



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 45MW04

SHEET: 1 OF: 2

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #45
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: E.J. KLEINKAUF
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/22/96 DATE COMPLETED: 11/22/96

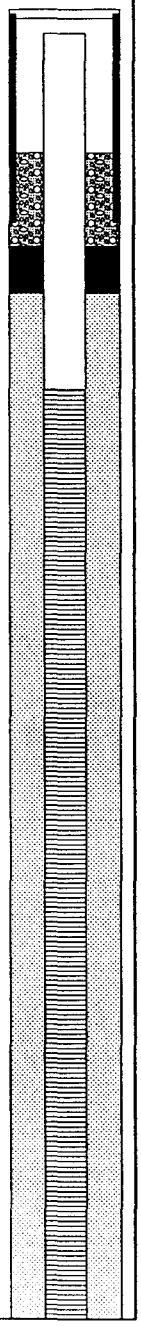
GROUND SURFACE ELEVATION: 99.28' msl
TOP OF PVC CASING ELEVATION: 101.78' msl

WELL DETAILS (FT)

STICKUP:	2.5
LENGTH OF RISER (2"I.D.):	5.0
LENGTH OF SCREEN (2"I.D.):	20.0
THICKNESS OF GROUT:	2.0
THICKNESS OF SEAL:	1.0
THICKNESS OF SAND PACK:	22.0

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
103.00	4.0										4.0
102.00	3.0										3.0
101.00	2.0										2.0
100.00	1.0										1.0
99.00	0.0										0.0
98.00	1.0		S-1	SS	10 27 25 35	1.8	-	-		SAND AND ROCK FRAGMENTS: Brown, fine to coarse, some silt and clay	1.0
97.00	2.0										2.0
96.00	3.0		S-2	SS	19 15 13 10	2.0	-	-		SAND AND SILT: White/tan, fine to medium, trace clay	3.0
95.00	4.0										4.0
94.00	5.0		S-3	SS	5 5 2 2	1.4	-	-			5.0
93.00	6.0										6.0
92.00	7.0		S-4	SS	1/ 12" 2 1	2.0	-	-			7.0
91.00	8.0										8.0
90.00	9.0		S-5	SS	1 / 18" 2	1.7	-	-		SILTY CLAY: Light gray/gray-green	9.0
89.00	10.0										10.0
88.00	11.0		S-6	SS	2 2 3 3	2.0	-	-		PEAT	11.0
87.00	12.0									SAND AND SILT: Brown/white/light gray, trace clay. Includes some shell fragments	12.0
86.00	13.0		S-7	SS	3 3 2 1	2.0	-	-			13.0
85.00	14.0										14.0
84.00	15.0		S-8	SS	2 4 5 4	2.0	-	-			15.0
83.00	16.0										16.0
82.00	17.0		S-9	SS	4 4 12 30	2.0	-	-			17.0
81.00	18.0									SAND AND SILT: Olive/dark green/black/white, trace clay (decomposed rock)	18.0
80.00	19.0										19.0
79.00	20.0										20.0
78.00	21.0		S-10	SS	50 / 5"	0.4	-	-			21.0
77.00	22.0										22.0
76.00	23.0										23.0
75.00	24.0										24.0

WELL INSTALLATION



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 95MW04

SHEET: 2 OF: 2

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
75.00	24.0									SAND AND SILT: Olive/dark green/black/white, trace clay, (decomposed rock)	24.0	
74.00	25.0		S-11	SS	50 / 2"	0.1	-	-		BOTTOM OF BOREHOLE @ 25.2'	25.0	
73.00	26.0									NOTES:	26.0	
72.00	27.0									1) Groundwater encountered @ 7.0' during drilling	27.0	
71.00	28.0									2) Elevations are based on a building corner slab assumed to be 100' msl	28.0	
70.00	29.0										29.0	
69.00	30.0										30.0	
68.00	31.0										31.0	
67.00	32.0										32.0	
66.00	33.0										33.0	
65.00	34.0										34.0	
64.00	35.0										35.0	
63.00	36.0										36.0	
62.00	37.0										37.0	
61.00	38.0										38.0	
60.00	39.0										39.0	
59.00	40.0										40.0	
58.00	41.0										41.0	
57.00	42.0										42.0	
56.00	43.0										43.0	
55.00	44.0										44.0	
54.00	45.0										45.0	
53.00	46.0										46.0	
52.00	47.0										47.0	
51.00	48.0										48.0	
50.00	49.0										49.0	
49.00	50.0										50.0	
48.00	51.0										51.0	
47.00	52.0										52.0	
46.00	53.0										53.0	
45.00	54.0										54.0	
44.00	55.0										55.0	
43.00	56.0										56.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 45HP01

SHEET: 1 OF: 1

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #45
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: C.D. BOES
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/20/96 DATE COMPLETED: 11/20/96

GROUND SURFACE ELEVATION: 0.0' msl
TOP OF PVC CASING ELEVATION: 0.0' msl

WELL DETAILS (FT)

STICKUP: 3.0
LENGTH OF RISER (2"I.D.) 7.0
LENGTH OF SCREEN (2"I.D.) 10.0
THICKNESS OF GROUT:
THICKNESS OF SEAL:
THICKNESS OF SAND PACK:

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH	WELL INSTALLATION
4.00	4.0										4.0	
3.00	3.0										3.0	
2.00	2.0										2.0	
1.00	1.0										1.0	
0.00	0.0										0.0	
1.00	1.0		S-1	SS	- - -	-	-	-		SAND AND SILT: White/tan/light gray, fine grained, little gravel and shells, trace organics and clay, damp (possible fill)	1.0	
2.00	2.0										2.0	
3.00	3.0		S-2	SS	10 6 13 13	1.4	-	-			3.0	
4.00	4.0										4.0	
5.00	5.0		S-3	SS	11 11 11 9	1.8	-	-		SAND AND SILT: fine grained, little gravel and shells, some stratification in samples, moist to damp	5.0	
6.00	6.0										6.0	
7.00	7.0		S-4	SS	8 7 5 2	2.0	-	-			7.0	
8.00	8.0										8.0	
9.00	9.0		S-5	SS	3 1 1 2	2.0	-	-			9.0	
10.00	10.0										10.0	
11.00	11.0										11.0	
12.00	12.0										12.0	
13.00	13.0										13.0	
14.00	14.0										14.0	
15.00	15.0										15.0	
16.00	16.0		S-6	SS	1 1 2 3	1.5	-	-			16.0	
17.00	17.0										17.0	
18.00	18.0									BOTTOM OF BOREHOLE @ 17.0'	18.0	
19.00	19.0									NOTES:	19.0	
20.00	20.0									1) Groundwater encountered @ 8.5' during drilling	20.0	
21.00	21.0									2) No sand pack or seal was installed with this well; the borehole was allowed to cave	21.0	
22.00	22.0									3) No elevation measurements were taken of the groundsurface or the top-of-casing	22.0	
23.00	23.0										23.0	
24.00	24.0										24.0	

BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 45HP02

SHEET: 1 OF: 1

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #45
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: C.D. BOES
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/20/96 DATE COMPLETED: 11/20/96

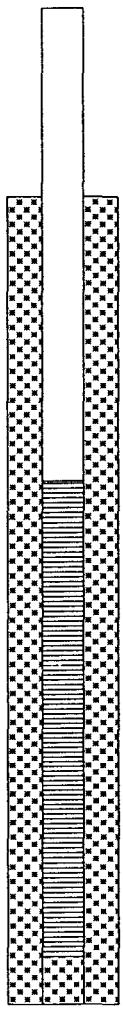
GROUND SURFACE ELEVATION: 0.0' msl
TOP OF PVC CASING ELEVATION: 0.0' msl

WELL DETAILS (FT)

STICKUP: 4.0
LENGTH OF RISER (2"I.D.): 6.0
LENGTH OF SCREEN (2"I.D.): 10.0
THICKNESS OF GROUT:
THICKNESS OF SEAL:
THICKNESS OF SAND PACK:

ELEVATION	DEPTH	SOIL SAMPLES	SAMPLE NO.	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS	LITHOLOGY	DESCRIPTION	DEPTH
4.00	4.0										4.0
3.00	3.0										3.0
2.00	2.0										2.0
1.00	1.0										1.0
0.00	0.0										0.0
1.00	1.0		S-1	SS	- - - -	-	-	-		SAND AND SILT: White/tan/light gray, fine grained, little gravel and shells, trace clay, moist	1.0
2.00	2.0										2.0
3.00	3.0		S-2	SS	4 6 8 5	1.7	-	-			3.0
4.00	4.0										4.0
5.00	5.0		S-3	SS	4 2 3 2	2.0	-	-			5.0
6.00	6.0										6.0
7.00	7.0		S-4	SS	1 1 1 3	2.0	-	-			7.0
8.00	8.0										8.0
9.00	9.0		S-5	SS	1 1 2 1	2.0	-	-			9.0
10.00	10.0										10.0
11.00	11.0										11.0
12.00	12.0										12.0
13.00	13.0										13.0
14.00	14.0										14.0
15.00	15.0										15.0
16.00	16.0		S-6	SS	1 7 13 13	2.0	-	-			16.0
17.00	17.0										17.0
18.00	18.0									BOTTOM OF BOREHOLE @ 17.0'	18.0
19.00	19.0									NOTES:	19.0
20.00	20.0									1) Groundwater encountered @ 7.0' during drilling	20.0
21.00	21.0									2) No sand pack or seal was installed with this well; the borehole was allowed to cave	21.0
22.00	22.0									3) No elevation measurements were taken of the groundsurface or the top-of-casing	22.0
23.00	23.0										23.0
24.00	24.0										24.0

WELL INSTALLATION



BAKER

WELL CONSTRUCTION LOG

BOREHOLE NUMBER: 45HP03

SHEET: 1 OF: 1

PROJECT NUMBER: 62470-277
PROJECT NAME: SWMU #45
LOCATION: NSRR - PUERTO RICO
DRILLING COMPANY: SOIL TECH CORPORATION
RIG TYPE & NUMBER: TRAILER RIG (ACKER)
DRILLING METHOD: HOLLOW STEM AUGERS
WEATHER: SUNNY, HOT, HUMID
GEOLOGIST: C.D. BOES
ENV. SCIENTIST: M.K. DeJOHN
DATE BEGUN: 11/20/96 DATE COMPLETED: 11/20/96

GROUND SURFACE ELEVATION: 0.0' msl
TOP OF PVC CASING ELEVATION: 0.0' msl

WELL DETAILS (FT)

STICKUP: 2.0
LENGTH OF RISER (2"I.D.): 8.0
LENGTH OF SCREEN (2"I.D.): 10.0
THICKNESS OF GROUT:
THICKNESS OF SEAL:
THICKNESS OF SAND PACK:

SAMPLE NO	SAMPLE METHOD	BLOWS/0.5'	RECOVERY (FT)	PID (PPM) BG	PID (PPM) PS
S-1	SS	- - - -	-	-	-
S-2	SS	15 24 27 50/4"	2.0	-	-
S-3	SS	31 34 29 31	2.0	-	-
S-4	SS	17 50 / 3"	1.0	-	-
S-5	SS	50 / 1"	0.0	-	-
S-6	SS	50 / 4"	0.3	-	-
S-7	SS	50 / 2"	0.0	-	-

DESCRIPTION

TOPSOIL

SAND AND SILT: Olive/brown/white/gray, little rock fragments, trace/little clay, moist (possible residual)

SAND AND SILT: Dark olive/med.-dark gray, little/some clay, little/trace rock fragments, moist (residual)

SAND: Reddish brown/gray/olive, medium to coarse grained, some silt, trace clay, moist to wet

BOTTOM OF BOREHOLE @ 18.0'

NOTES:
1) Groundwater encountered @ 10.0' during drilling
2) No sand pack or seal was installed with this well; the borehole was allowed to cave
3) No elevation measurements were taken of the groundsurface or the top-of-casing

WELL INSTALLATION

Baker
Baker Environmental, Inc.

WELL/BORING NO.: 45HPØ4

TEST BORING AND WELL CONSTRUCTION RECORD

INSTALLATION: NSRR-OU5
SITE/AREA: SWMU 45
COORDINATES: NORTH: _____, EAST: _____
ELEVATIONS: SURFACE: _____

CTO NO.: 277

RIG: ACKER

	SPLIT SPOON	AUGERS	SURFACE CASING	REAMING TOOL	DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)
SIZE (DIAM.)	3"	4-1/4" ID			11/20/96	0-17'	CLDY 75-85°F	12
LENGTH	2.0'	5.0'		--				
TYPE	Std.	HSA						
HAMMER WT.	140#	--	--	--				
FALL	30"	--	--	--				

REMARKS: PID NOT FUNCTIONING

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.)
Well Riser	2"	Sch. 40 PVC, Threaded	-2	7
Well Screen	2"	No. 10 Slot Sch. 40 PVC, Threaded	7	17

Depth (ft.)	Samp. Type and No.	Samp. Rec. ft./%	SPT	Lab Samp. Desig.	PID (ppm) TIME BG/Samp.	Visual Description/Comments	Well Installation Detail	Elevation (ft.)
1	A-N					SAND AND SILT, SOME ROCK FRAGMENTS, LITTLE CLAY, BROWN-GRAY-BLACK, DENSE, MOIST		
2								
3 (3.4)	S-1	1.0	15 20 50/.4	—	1140		2" PVC RISER	
4	A-N							
4.6	S-2	0.6	30 50/.2	—	1147	(RESIDUAL)		
5								
6								
6.2	S-3	0.1	50/.2		1158			
7	A-N						TOP OF SCREEN AT 7.0'	
8 (8.0)	S-4	0	50/0		1321			
9	A-N						2" PVC SCREEN	
10 (10.0)	S-5	0	50/0		1335	10.0 Match to Sheet 2		

DRILLING CO.: SOIL TECH
DRILLER: OSEA GARCIA
BAKER REP.: CHRIS BOES
WELL/BORING NO.: 45HPØ4
SHEET 1 OF 2

Baker
Baker Environmental, Inc.

WELL/BORING NO.: 45HPØ4

TEST BORING AND WELL CONSTRUCTION RECORD

INSTALLATION: NSRR-OU5 CTO NO. 277
SITE/AREA: SWMU45

SAMPLE TYPE

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

ACRONYMS

BG = Background
HSA = Hollow Stem Augers
ID = Inside Diameter
PID = Photoionization Detector
ppm = parts per million
SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
WD = While Drilling

Depth (ft.)	Samp. Type and No.	Samp. Rec. ft./%	SPT	Lab Samp. Desig.	PID (ppm) TIME BG/Samp	Visual Description/Comments	Well Installation Detail	Elevation (ft.)
						Continued from Sheet 1		
11	A-N					SAND AND SILT, LITTLE FINE ROCK FRAGMENTS, TRACE CLAY.		
12 12.0						OLIVE-GRAY-WHITE-BLACK, DENSE, MOIST TO WET.		
	S-6	0	50/0	—	13345			
13						HIT WATER AT 12.0'	2" PVC SCREEN	
14								
15	A-N					(RESIDUAL) 15.0		
16						WEATHERED GABBRO, OLIVE-GRAY-BLACK, VERY HARD. (RESIDUAL)		
17 17.0						AUGER REFUSAL AT 17.0' 17.0		
8							BOTTOM OF HP AT 17'	
9						NOTE: 45HPØ4 NOT BACKFILLED WITH SAND OR BENTONITE. BOREHOLE ALLOWED TO COLLAPSE AROUND SCREEN.		
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
0						Match to Sheet _		

DRILLING CO.: SOIL TECH
DRILLER: OSEA GARCIA
BAKER REP.: CHRIS BOES
WELL/BORING NO.: 45HPØ4
SHEET 2 OF 2

APPENDIX C.5
TEST BORING AND WELL CONSTRUCTION RECORDS
SWMU 11/45 - PHASE II

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB01

COORDINATES: EAST: 785846.22 NORTH: 142867.39

ELEVATION: SURFACE: 109.68 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/17/97	0.0 - 14.0	M Sunny, humid, (80°)	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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 Casing	0.75	0.0	8.5
Sch. 40, 10-slot PVC Screen	0.75	8.5	13.5

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 2.0	S-1	1.1 55%	--		2.0 / 2.0	ROCK FRAG. & CLAY; brown; damp (FILL)		
3 – 4.0	S-2	1.1 55%	--	02	2.0 / 2.0	ROCK FRAG. & F SAND; brown; damp (FILL)		
5 – 6.0	S-3	0.7 35%	--	02	2.0 / 2.0	ROCK FRAG., some f sand; brown; damp (FILL)		
7 – 8.0	S-4	1.3 65%	--	02	0.9 / 0.9	tan & white; moist (FILL)		
							8.5	101.18
9 – 10.0	S-5	1.0 50%	--		0.7 / 0.7	gray & black; groundwater at 9.0'; free product (FILL)		
						10.0		99.68
						Match to Sheet 2		

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB01 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB01

SAMPLE TYPE

S = Sample Core 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)
11		S-6	0.7 35%	--		0.5 / 0.5	Continued from Sheet 1 F SAND, trace silt; gray; wet free product (NAT)			
12	12.0									
13		S-7	1.5 75%	--		0.5 / 0.5	F SAND, trace silt (as shell & coral frag); gray; wet		13.5	96.18
14	14.0									
15		S-8	1.0 50%	--		0.5 / 0.5				
16	16.0						16.0		16.0	93.68
							BOH @ 16.0'			
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB01 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB02

COORDINATES: EAST: 7866118.08 NORTH: 142913.25

ELEVATION: SURFACE: 109.36 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/17/97	0.0 - 12.0	M Sunny, 80°	
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Elevation (Ft. MSL)
1 – 2.0	D-N	--	--		--		
2.0 – 4.0	S-1	1.0 50%	--		0.7 / 0.7	F SAND, trace rock frag.; brown; dry (FILL)	
4.0 – 6.0	S-2	1.5 75%	--		0.7 / 0.7	SILT, trace rock frag.; brown; damp (FILL)	
6.0							103.36
6.0 – 8.0	S-3	1.8 90%	--		0.7 / 0.7	F/M SAND, trace shell & coral frag; tan; damp (NAT)	
8.0 – 10.0	S-4	1.3 65%	--		0.6 / 0.6	moist to wet - groundwater @ 10.0'	
						Match to Sheet 2	

DRILLING CO.: Parratt - Wolff BAKER REP.: Mark DeJohn

DRILLER: Chip Lafever BORING NO.: 11-SB02 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB02

SAMPLE TYPE

S = Sample Core 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	Elevation (Ft. MSL)
11		S-5	1.0 50%	--		0.6 0.6	Continued from Sheet 1 SILT & CLAY; gray; moist; "swamp" odor	
12	12.0						12.0	97.36
13							BOH @ 12.0'	
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Parratt - Wolff BAKER REP.: Mark DeJohn

DRILLER: Chip Lafever BORING NO.: 11-SB02 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB03

COORDINATES: EAST: 786073.32 NORTH: 142975.70

ELEVATION: SURFACE: 108.41 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/17/97	0.0 - 12.0	M Sunny, 87°	
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Elevation (Ft. MSL)
1	1.0	D-N	--	--		--		
2	2.0	S-1	0.5 25%	--		0.6 / 0.6	SILT, little f sand & rock frag; tan; dry (FILL)	
3		S-2	0.9 45%	--		0.6 / 0.6	brown; becoming damp (FILL)	
4	4.0						4.0	104.41
5		S-3	1.4 70%	--		0.6 / 0.6	F SAND, some silt & clay, trace rock frag; dark brown; damp (NAT)	
6	6.0						6.0	102.41
7		S-4	1.5 75%	--		0.6 / 0.6	SILT, some clay, trace f sand & rock frag; dark brown to black; damp	
8	8.0							
9		S-5	1.0 50%	--		0.6 / 0.6	moist	
10	10.0							
							Match to Sheet 2	

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB03 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB03

SAMPLE TYPE

S = Sample Core 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		Elevation (Ft. MSL)
11		S-6	1.0 50%	--		0.6 / 0.6	Continued from Sheet 1	11.0	97.41
12	12.0						F SAND, some silt, trace rock frag & clay; tan; moist; H_2S odor		
13		S-7	0.0 0%	--		0.6 / 0.6	No Recovery/groundwater appears to be at 12.0'		
14	14.0								
15		S-8	2.0 100%	--		0.6 / 0.6	wet		
16	16.0							16.0	92.41
17							BOH @ 16.0'		
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB03 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB04

COORDINATES: EAST: 786383.62 NORTH: 143010.58

ELEVATION: SURFACE: 103.89 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/17/97	0.0 - 8.0	Sunny, 87°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Elevation (Ft. MSL)
1 – 2.0	S-1	1.5 75%	--		0.5 / 0.5	F SAND, some rock frag, trace silt; brown; dry	
3 – 4.0	S-2	1.3 65%	--	02	0.4 / 0.4	F/M SAND, little rock frag; tan; wet groundwater at 2.0'	
5 – 6.0	S-3	1.8 90%	--		0.4 / 0.4		
						5.5	98.39
						F SAND, some silt, trace clay; lt gray; wet H_2S odor 6.0	97.89
7 – 8.0	S-4	0.7 35%	--		0.4 / 0.4	F/M SAND, trace fossil frag; lt gray; wet; H_2S odor	
						8.0	95.89
9 – 10						BOH @ 8.0'	

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB04 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB05

COORDINATES: EAST: 785886.87 NORTH: 142863.26

ELEVATION: SURFACE: 109.56 TOP OF PVC CASING:

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/17/97	0.0 - 8.0	M Sunny & 87°	--
Length	2-ft.	--	--	--	9/18/97	8.0 - 14.0	P Sunny & 80°	--
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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 Casing	0.75	0.0	3.5
Sch. 40, 10-slot PVC Screen	0.75	3.5	13.5

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 2.0	S-1	1.3 65%	--		0.3 / 0.3	ROCK FRAG, some f sand; brown; dry (FILL)		
3 – 4.0	S-2	1.3 65%	--	02	0.3 / 0.3	ROCK FRAG. & F SAND; brown; dry (FILL)	3.5 / 4.0	106.06 / 105.56
5 – 6.0	S-3	1.1 55%	--	02	0.3 / 0.3	M/C SAND, little rock frag; light brown; damp (NAT)		
7 – 8.0	S-4	0.9 45%	--	02	0.2 / 0.2			
9 – 10.0	S-5	1.0 50%	--		0.7 / 0.7	brown, gray @ bottom; wet - groundwater at 8.0'		
						Match to Sheet 2		

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB05 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB05

SAMPLE TYPE

S = Sample Core 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	0.5	--		0.5	Continued from Sheet 1			
			25%			0.5	F SAND, little c sand & rock			
12	12.0						frag; dk brown; wet			
							free product			
13		S-7	0.5	--		0.5	trace rock frag; dk brown;			
			25%			0.5	wet; free product		13.5	96.06
14	14.0						14.0		14.0	95.56
							BOH @ 16.0'			
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB05 SHEET 2 OF 2

Baker
Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station
CTO NO.: 62470-356 BORING NO.: 11-SB06
COORDINATES: EAST: 785993.32 NORTH: 142896.74
ELEVATION: SURFACE: 109.51 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/18/97	0.0 - 10.0	P.Sunny, 80°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE
S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
1		S-1	1.7 85%	--		0.7 / 0.7	F SAND, some rock frag, trace silt; tan; dry; w/ a layer of silt (FILL)		
2	2.0								
3		S-2	1.4 70%	--	02	0.5 / 0.5	ROCK FRAG, little silt; gray; dry (FILL)		
4	4.0							4.0	105.51
5		S-3	0.9 45%	--	02	0.4 / 0.4	SILT, little rock frag; brown; damp (NAT)		
6	6.0								
7		S-4	1.2 60%	--	02	0.3 / 0.3	little clay, trace rock frag; brown; wet groundwater at 7.0'; fuel odor		
8	8.0							9.0	100.51
9		S-5	1.0 50%	--		0.3 / 0.3	ROCK FRAG, some m/c sand; gray; wet; fuel odor & free product		
10	10.0							10.0	99.51
							BOH @ 10.0'		

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn
DRILLER: Kevin Shelburne BORING NO.: 11-SB06 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB07

COORDINATES: EAST: 786000.09 NORTH: 142943.08

ELEVATION: SURFACE: 108.64 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/18/97	0.0 - 14.0	P Sunny & 80°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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 Casing	0.75	0.0	4.0
Sch. 40, 10-slot PVC Screen	0.75	4.0	14.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 2.0	S-1	1.4 70%	--		0.3 / 0.3	SILT, some f/c sand, trace rock frag; tan; dry (FILL)		
3 – 4.0	S-2	0.7 35%	--	02	0.3 / 0.3	VF SAND, little rock frag; tan; damp (FILL)	4.0	104.64
5 – 6.0	S-3	0.6 30%	--	02	0.3 / 0.3	F SAND, little rock frag; tan; damp (NAT)	7.0	101.64
7 – 8.0	S-4	0.9 45%	--	02	0.3 / 0.3	F SAND, some rock frag; dk brown; moist to wet; fuel odor & free product	8.4	100.24
9 – 10.0	S-5	1.8 90%	--		0.3 / 0.3	SILT; gray; wet (becoming moist w/ depth); H_2S odor		
						Match to Sheet 2		

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB07 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB07

SAMPLE TYPE

S = Sample Core 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	1.0 50%	--		0.3 / 0.3	Continued from Sheet 1 / PEAT; brown; damp	10.7			97.94
12	12.0										
13		S-7	1.7 85%	--		0.3 / 0.3	SILT; some peat & f sand; light gray; moist				
14	14.0							14.0		14.0	94.64
15							BOH @ 14.0'				
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB07 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB08

COORDINATES: EAST: 786054.03 NORTH: 142921.77

ELEVATION: SURFACE: 108.94 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/18/97	0.0 - 14.0	P Sunny & 87°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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 Casing	0.75	0.0	4.0
Sch. 40, 10-slot PVC Screen	0.75	4.0	14.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 2.0	S-1	1 / 50%	--		0.4 / 0.4	SILT, some f/m sand, little rock frag; lt. tan; dry (FILL)		
3 – 4.0	S-2	0.7 / 35%	--	02	0.4 / 0.4		4.0	104.94
5 – 6.0	S-3	1.1 / 55%	--	02	0.4 / 0.4	SILT, trace clay & rock frag; brown; damp (NAT)		
7 – 8.0	S-4	1.4 / 70%	--	02	0.4 / 0.4	some m sand, trace clay; brown; damp	8.0	100.94
9 – 10.0	S-5	1.5 / 75%	--		0.3 / 0.3	F/M SAND, little silt & clay, trace rock frag; black; moist; fuel odor groundwater at 9.0'	10.0	98.94

Match to Sheet 2

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB08 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB08

SAMPLE TYPE

S = Sample Core 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	1.4	--		0.3	Continued from Sheet 1				
			70%			0.3	CLAY; dark gray; damp;				
12	12.0						peaty at bottom	12.0			96.94
13		S-7	1.7	--		0.3	SILT, some fine shell frag,				
			85%			0.3	trace peat; tan; wet				
14	14.0							14.0		14.0	94.94
							BOH @ 14.0'				
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB08 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB09

COORDINATES: EAST: 786103.33 NORTH: 142950.88

ELEVATION: SURFACE: 108.24 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/19/97	0.0 - 10.0	M.Sunny, 80°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Elevation (Ft. MSL)
1		S-1	1.2 60%	--		0.7 / 0.7	F SAND, little coral/rock frag; tan; dry	
2	2.0							
3		S-2	1.0 50%	--	02	0.7 / 0.7		
4	4.0							
5		S-3	0.8 40%	--	02	0.7 / 0.7	damp	
6	6.0							
7		S-4	0.8 40%	--	02	0.7 / 0.7	damp to moist - groundwater at 8.0' free product & fuel odor	
8	8.0							
9		S-5	0.9 45%	--		0.7 / 0.7	wet; free product & fuel odor	
10	10.0						10.0	98.24
							BOH @ 10.0'	

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB09 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB10

COORDINATES: EAST: 786155.42 NORTH: 142963.68

ELEVATION: SURFACE: 108.39 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/18/97	0.0 - 14.0	P Sunny & 87°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks: The boring was completed on 9/18. The well was installed on 9/19.

SAMPLE TYPE

S = Sample Core 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 Casing	0.75	0.0	4.0
Sch. 40, 10-slot PVC Screen	0.75	4.0	14.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 2.0	S-1	1.2 60%	--		0.3 / 0.3	F SAND, some rock frag; tan; dry		
3 – 4.0	S-2	0.7 35%	--		0.3 / 0.3	damp	4.0	104.39
5 – 6.0	S-3	0.7 35%	--		0.3 / 0.3	little coral frag; tan; damp to moist		
7 – 8.0	S-4	0.6 30%	--		0.3 / 0.3	some coral frag; tan; moist		
9 – 10.0	S-5	0.2 10%	--		--	CORAL & SHELL FRAG; tan; wet - groundwater at 9'		
						Match to Sheet 2		

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB10 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB10

SAMPLE TYPE

S = Sample Core 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	D-N	--	--	--	--			
13								
14 14.0						14.0	14.0	94.39
15						BOH @ 14.0'		
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB10 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB11

COORDINATES: EAST: 786125.50 NORTH: 142985.28

ELEVATION: SURFACE: 108.21 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/19/97	0.0 - 14.0	P Sunny & 80°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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 Casing	0.75	0.0	4.0
Sch. 40, 10-slot PVC Screen	0.75	4.0	14.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 2.0	S-1	1.4 70%	--		0.5 / 0.5	F SAND, little rock/coral frag; tan; dry		
3 – 4.0	S-2	0.6 30%	--	02 02D	0.6 / 0.6		4.0	104.21
5 – 6.0	S-3	0.5 25%	--	02 02D	0.6 / 0.6			
7 – 8.0	S-4	0.5 25%	--	02 02D	0.6 / 0.4	some rock/coral frag; tan; moist to wet		
9 – 10.0	S-5	0.5 25%	--		0.6 / 0.6	ROCK/SHELL FRAG, little f sand, trace silt; gray; wet groundwater at 8.0'		
						Match to Sheet 2		

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB11 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB11

SAMPLE TYPE

S = Sample Core 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	D-N	--	--	--	--			
13								
14	14.0					14.0	14.0	94.21
						BOH @ 14.0'		
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB11 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB12

COORDINATES: EAST: 786372.22 NORTH: 143050.49

ELEVATION: SURFACE: 102.66 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/19/97	0.0 - 6.0	P Sunny & 87°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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, 10-slot PVC Screen	0.75	0.0	4.5

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	1.0 50%	--		0.5 / 0.5	F/M SAND, trace silt, shell & rock frag; lt brown; moist wet - groundwater at 1.0'			
2	2.0									
3		S-2	0.5 25%	--		0.5 / 0.5	ROCK & SHELL FRAG, little coral frag; light tan; wet			
4	4.0									
									4.5	98.16
5		P-N	--	--		--				
6	6.0						6.0		6.0	96.66
7							BOH @ 6.0'			
8										
9										
10										

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB12 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB13

COORDINATES: EAST: 786326.24 NORTH: 143063.32

ELEVATION: SURFACE: 104.31 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/19/97	0.0 - 6.0	P Sunny & 87°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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	0.75	0.0	0.5
Sch. 40, 10-slot PVC Screen	0.75	0.5	5.5

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 2.0	S-1	1.1 55%	--		0.7 / 0.7	F SAND, little coral frag, trace shell frag; grayish-brown; damp	0.5	103.81
3 – 4.0	S-2	0.9 45%	--		0.7 / 0.7	wet - groundwater at 3.5' 1" clay layer at 4.0'		
5 – 6.0	S-3	0.7 35%	--		0.7 / 0.7	F SAND, little coral/shell frag; gray; wet	5.0 6.0	99.31 98.31
7 – 10						BOH @ 6.0'		

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB13 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB14

COORDINATES: EAST: 786318.40 NORTH: 143037.76

ELEVATION: SURFACE: 105.40 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/19/97	0.0 - 6.0	M Sunny, 87°	
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Elevation (Ft. MSL)
1		S-1	0.9 45%	--		0.5 / 0.5	F SAND, little coral frag; grayish-brown; damp	
2	2.0							
3		S-2	0.8 40%	--	02	0.5 / 0.5		
4	4.0						wet - groundwater at 4.0	
5		S-3	0.8 40%	--		0.5 / 0.5	gray; wet	
6	6.0						6.0	99.40
7							BOH @ 6.0'	
8								
9								
10								

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB14 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB15

COORDINATES: EAST: 786289.31 NORTH: 143044.55

ELEVATION: SURFACE: 106.16 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/19/97	0.0 - 8.0	M Sunny, 87°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
1		S-1		--		0.4 / 0.4	SILT, some f sand, little rock frag; brown; dry		
2	2.0							2.0	104.16
3		S-2	0.5 25%	--	02	0.4 / 0.4	F SAND, little rock frag; brown; damp		
4	4.0							4.0	102.16
5		S-3	0.5 25%	--		0.4 / 0.4	CORAL FRAG, some f sand; tan; wet - groundwater at 5.0'		
6	6.0								
7		S-4	0.5 25%	--		0.4 / 0.4	F SAND, little coral frag; gray; wet		
8	8.0							8.0	98.16
9							BOH @ 8.0'		
10									

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB15 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB16

COORDINATES: EAST: 785918.21 NORTH: 142836.85

ELEVATION: SURFACE: 109.57 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/19/97	0.0 - 14.0	M Sunny, 87°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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 Casing	0.75	0.0	4.0
Sch. 40, 10-slot PVC Screen	0.75	4.0	14.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 2.0	D-N	--	--		--	F/M SAND, little to some rock frag; dk brown layered w/ gray; damp		
3 – 4.0	S-1	1.7 85%	--		0.4 / 0.4			
						3.5		106.07
						F SAND, trace silt; tan; moist	4.0	105.57
5 – 6.0	S-2	1.7 85%	--	04	0.3 / 0.3			
						6.0		103.57
7 – 8.0	S-3	1.9 95%	--	04	0.3 / 0.3	SILT; gray; moist		
9 – 10.0	S-4	2.0 100%	--		0.3 / 0.3	moist to wet - groundwater at 8.0'		
						Match to Sheet 2		

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB16 SHEET 1 OF 2

Baker
Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station
CTO NO.: 62470-277 BORING NO.: 11-SB16

SAMPLE TYPE
S = Sample Core 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)
11		S-5	2.0 100%	--		0.3 / 0.3	Continued from Sheet 1				
12	12.0							11.6			97.97
							PEAT; brown; damp	12.5			97.07
13		S-6	1.5 75%	--		0.3 / 0.3	ROCK FRAG; black; wet, then little sand & silt; dark brown; wet				
14	14.0							14.0		14.0	95.57
							BOH @ 14.0'				
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn
DRILLER: Kevin Shelburne BORING NO.: 11-SB16 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB17

COORDINATES: EAST: 785866.19 NORTH: 142928.41

ELEVATION: SURFACE: 109.52 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/20/97	0.0 - 10.0	P.Sunny, 80°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Elevation (Ft. MSL)
1	D-N	--	--		--		
2.0							
3	S-1	0.9 45%	--		0.9 / 0.9	ROCK FRAG, little f sand; brown & gray; damp (FILL)	
4.0						4.0	105.52
5	S-2	1.5 75%	--		0.7 / 0.7	F SAND, trace shell frag; tan; damp (NAT)	
6.0							
7	S-3	1.8 90%	--		0.6 / 0.6	6.7	102.82
8.0						SILT; lt brownish-gray; moist to wet groundwater at 7.5' 8.0	101.52
9	S-4	1.7 85%	--		0.5 / 0.5	Clay; gray; moist; soft	
10.0						10.0	99.52
						BOH @ 10.0'	

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB17 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB18

COORDINATES: EAST: 785907.75 NORTH: 142959.43

ELEVATION: SURFACE: 108.9 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/20/97	0.0 - 14.0	M Sunny, 80°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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 Casing	0.75	0.0	4.0
Sch. 40, 10-slot PVC Screen	0.75	4.0	14.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	D-N	--	--		--			
2 2.0								
3	S-1	1.7 85%	--	02	0.4 / 0.4	F SAND, trace shell frag; tan; damp		
4 4.0							4.0	104.90
						4.3		104.60
5	S-2	1.8 90%	--	02	0.4 / 0.4	SILT; tan; damp to moist		
6 6.0								
7	S-3	1.7 85%	--		0.5 / 0.5			
						7.2		101.70
8 8.0						CLAY, trace silt; gray; moist groundwater at 7.5'		
9	S-4	1.7 85%	--		--			
10 10.0						10.0		98.90
						Match to Sheet 2		

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB18 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB18

SAMPLE TYPE

S = Sample Core 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)
11		S-5	1.8 90%	--		--	Continued from Sheet 1 PEAT; brown; moist				
12	12.0							11.6			
13		S-6	1.6 80%	--		--	CLAY, some peat & shell frag; gray; H_2S odor, then some shell frag; gray; wet				
14	14.0							14.0		14.0	94.90
15							BOH @ 14.0'				
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB18 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB19

COORDINATES: EAST: 786118.69 NORTH: 143029.74

ELEVATION: SURFACE: 108.11 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/20/97	0.0 - 14.0	M Sunny, 87°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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 Casing	0.75	0.0	4.0
Sch. 40, 10-slot PVC Screen	0.75	4.0	14.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 2.0	D-N	--	--		--			
3 – 4.0	S-1	1.5 75%	--		0.4 / 0.4	SILT, some f sand; dark brown; damp	4.0	104.11
5 – 6.0	S-2	1.2 60%	--		0.4 / 0.4	5.5		102.61
7 – 8.0	S-3	1.3 65%	--	04	0.4 / 0.4	CLAY; some f sand & silt; dark brown; damp		
9 – 10.0	S-4	0.8 40%	--	04	0.4 / 0.4	little f sand; dk greenish-gray; moist - groundwater at 10.0'		

Match to Sheet 2

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB19 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB19

SAMPLE TYPE

S = Sample Core 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)
11		S-5	1.3 65%	--		0.4 / 0.4	Continued from Sheet 1 11.0		97.11
12	12.0						F/M SHELL FRAG, little silt; tan; wet; H_2S odor		
13		S-6	0.8 40%	--		0.4 / 0.4			
14	14.0						14.0	14.0	94.11
15							BOH @ 14.0'		
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB19 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB20

COORDINATES: EAST: 786075.10 NORTH: 142955.97

ELEVATION: SURFACE: 108.43 TOP OF PVC CASING: --

Rig: Earthprobe 4000								
	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/20/97	0.0 - 10.0	P.Sunny, 87°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Elevation (Ft. MSL)
1 – 2.0	D-N	--	--		--		
3 – 4.0	S-1	0.5 25%	--		0.7 / 0.7	F SAND, little coral frag; tan; dry	
5 – 6.0	S-2	0.5 25%	--		0.7 / 0.7		
7 – 8.0	S-3	0.5 25%	--		0.6 / 0.6	wet - groundwater at 8.0'; free product	
9 – 10.0	S-4	0.2 10%	--		0.5 / 0.5	CORAL FRAG, little f sand; black; wet; free product & fuel odor	
						10.0	98.43
						BOH @ 10.0'	

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB20 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB21

COORDINATES: EAST: 786279.89 NORTH: 143094.46

ELEVATION: SURFACE: 107.63 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/20/97	0.0 - 8.0	P.Sunny, 87°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Elevation (Ft. MSL)
1 – 2.0	D-N	--	--		--		
3 – 4.0	S-1	1.1 55%	--		0.6 / 0.6	F SAND, little rock frag; lt brown; dry	
5 – 6.0	S-2	1.1 55%	--		0.6 / 0.6		
7 – 8.0	S-3	0.3 15%	--		--	F SAND & ROCK FRAG; brown; moist	
						8.0	99.63
9 – 10						BOH @ 8.0'	

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB21 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB22

COORDINATES: EAST: 785919.49 NORTH: 142898.07

ELEVATION: SURFACE: 109.27 TOP OF PVC CASING: --

Rig: Mobile B-90 & Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	--	4.25 HSA	--	9/21/97	0.0 - 13.5	P Sunny, 80°	--
Length	2-ft.	--	5 ft	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks: The B-90 Drill rig was used to breakthrough very hard near-surface material, then the Earthprobe completed the boring.

SAMPLE TYPE

S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Elevation (Ft. MSL)
1, 2, 3, 3.5	A-N	--	--		--		
4, 5, 5.5	S-1	0.0 0%			0.8 / 0.8		
6, 7, 7.5	S-2	0.6 30%			0.8 / 0.8	F SAND, trace rock frag; tan; damp	
8, 9, 9.5	S-3	1.0 50%		04	0.8 / 0.8	9.0 F SAND, little rock frag; dk brown; moist wet - groundwater at 9.5'	100.27
10	S-4	0.5 25%			0.8 / 0.8	Match to Sheet 2	

DRILLING CO.: TEG - Puerto Rice BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB22 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB22

SAMPLE TYPE	DEFINITIONS
S = Sample Core 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.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Elevation (Ft. MSL)
11						Continued from Sheet 1	
11.5						free product & fuel odor 11.5	97.77
12	S-5	1.5		06	0.8	M SAND, little coral frag, trace clay;	
13		75%			0.8	gray & black; wet; free product & fuel odor	
13.5						13.5	95.77
14						BOH @ 13.5'	
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: TEG - Puerto Rice BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB22 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB23

COORDINATES: EAST: 786185.29 NORTH: 142947.82

ELEVATION: SURFACE: 108.78 TOP OF PVC CASING: --

Rig: Earthprobe 4000								
	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/21/97	0.0 - 10.0	P.Sunny, 80°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
1		D-N	--	--		--			
2	2.0								
3		S-1	1.5 75%	--		0.7 / 0.7	F SAND, trace shell frag; tan; damp		
4	4.0								
5		S-2	1.5 75%	--	03	0.7 / 0.7			
6	6.0								
7		S-3	1.7 85%	--		0.6 / 0.6	F SHELL FRAG; tan; damp		
8	8.0						wet - groundwater at 8.0'		
9		S-4	1.0 50%	--		0.5 / 0.5		9.0	99.78
10	10.0						M SAND, trace coral & shell frag; gray; wet H_2S odor	10.0	98.78
							BOH @ 10.0'		

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB23 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB24

COORDINATES: EAST: 786222.74 NORTH: 143063.19

ELEVATION: SURFACE: 107.97 TOP OF PVC CASING: --

Rig: Mobile B-90 & Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/21/97	0.0 - 14.0	M Sunny, 80°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks: The B-90 Drill rig was used to breakthrough very hard near-surface material, then the Earthprobe completed the boring.

SAMPLE TYPE

S = Sample Core 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 Casing	0.75	0.0	4.0
Sch. 40, 10-slot PVC Screen	0.75	4.0	14.0

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, 3 (3.0)	A-N	--	--		--			
4 (4.0)							4.0	103.97
5, 6 (6.0)	S-1	1.1 55%	--		0.8 / 0.8	F SAND, little coral/shell frag & silt; brown; moist		
7, 8 (8.0)	S-2	1.2 60%	--		0.7 / 0.7	little shell frag, trace silt; gray; wet - groundwater at 7.0'		
9, 10 (10.0)	S-3	1.5 75%	--		0.7 / 0.7			
						Match to Sheet 2		

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB24 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB24

SAMPLE TYPE

S = Sample Core 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-4	--	--		--	Continued from Sheet 1		
							11.3		96.67
12	12.0						SILT, trace clay & shell frag; gray; wet; H_2S odor		
13		D-N	--	--		--			
14	14.0						14.0	14.0	93.97
							BOH @ 14.0'		
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB24 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-277 BORING NO.: 11-SB25

COORDINATES: EAST: 786317.89 NORTH: 142696.27

ELEVATION: SURFACE: 105.64 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/21/97	0.0 - 10.0	M Sunny, 85°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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 Casing	0.75	0.0	5.0
Sch. 40, 10-slot PVC Screen	0.75	5.0	10.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 2.0	D-N	--	--		--			
3 – 4.0	S-1	1.3 65%	--		0.5 / 0.5	F SAND, trace coral frag; grayish-tan; damp		
5 – 6.0	S-2	0.5 25%	--		0.4 / 0.4	some coral frag & silt; brown; wet - groundwater at 4.0'	5.0	100.64
7 – 8.0	S-3	2.0 100%	--		0.4 / 0.4	trace shell frag; gray; wet		
9 – 10.0	D-N	--	--		--	10.0	10.0	95.64

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB25 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station

CTO NO.: 62470-356 BORING NO.: 11-SB26

COORDINATES: EAST: 786343.86 NORTH: 143121.94

ELEVATION: SURFACE: 103.79 TOP OF PVC CASING: --

Rig: Earthprobe 4000								
	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-in.	2-in.	--	--	9/21/97	0.0 - 4.0	P.Sunny, 85°	--
Length	2-ft.	--	--	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE

S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
1		S-1	1.4 70%	--	01	0.4 / 0.4	F SAND, some coral frag, little silt; brown; damp		
2	2.0								
3		S-2	1.5 75%	--		0.4 / 0.4	moist to wet - groundwater at 3.0'		
4	4.0							4.0	99.79
5							BOH @ 4.0'		
6									
7									
8									
9									
10									

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn

DRILLER: Kevin Shelburne BORING NO.: 11-SB26 SHEET 1 OF 1

Baker
Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station
CTO NO.: 62470-356 BORING NO.: 11-SB27
COORDINATES: EAST: 786018.11 NORTH: 142867.33
ELEVATION: SURFACE: 109.32 TOP OF PVC CASING: --

Rig: Earthprobe 4000	Sample Core	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-3/8 in.	--	4.25 HSA	--	9/21/97	0.0 - 12.0	P Sunny, 85°	--
Length	2-ft.	--	5 ft	--				
Type	--	--	--	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE
S = Sample Core 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
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Elevation (Ft. MSL)
1 – 2.0	D-N	--	--		--		
3 – 4.0	S-1	1.3 65%	--		0.4 / 0.4	F SAND, some rock frag, trace silt & clay; dk brown; damp (FILL)	
5 – 6.0	S-2	2.0 100%	--		0.4 / 0.4	little rock frag & silt, trace clay; dk greenish-gray; damp (FILL)	
7 – 8.0	S-3	1.3 65%	--	04	0.2 / 0.2		
8.0							101.32
9 – 10.0	S-4	1.3 65%	--	04	0.2 / 0.2	SILT & CLAY, little f sand & rock frag, trace wood; dk greenish-gray; moist (FILL)	
						Match to Sheet 2	

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn
DRILLER: Kevin Shelburne BORING NO.: 11-SB27 SHEET 1 OF 2

Baker
Baker Environmental

TEST BORING RECORD

PROJECT: RCRA Facility Investigation - SWMU 11/45, Roosevelt Roads Naval Station
CTO NO.: 62470-356 BORING NO.: 11-SB27

SAMPLE TYPE
S = Sample Core 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		Elevation (Ft. MSL)
11		S-5	1.7 85%	--		0.2 0.2	Continued from Sheet 1		
								11.3	98.02
12	12.0						SILT, little clay; gray; moist (NAT)	11.7	97.62
13							SILT, little peat & clay; brownish-gray; moist	12.0	97.32
							BOH @ 12.0'		
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

DRILLING CO.: TEG - Puerto Rico BAKER REP.: Mark DeJohn
DRILLER: Kevin Shelburne BORING NO.: 11-SB27 SHEET 2 OF 2

APPENDIX D
WELL DEVELOPMENT RECORDS

APPENDIX D.1
WELL DEVELOPMENT RECORDS
SWMU 1 - PHASE I

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR-043

CTO NO.: 277 WELL NO.: LMW01

DATE: 11/4/96

GEOLOGIST/ENGINEER: C. BOES/M. DEJOHN

TIME START: 1645

TIME FINISH: 1702

INITIAL WATER LEVEL (FT): 10.09

TOTAL WELL DEPTH (TD): 19.87

WELL DIAMETER (INCHES): 2

CALCULATED WELL VOLUME: 1.5 GAL

BOREHOLE DIAMETER (INCHES):

BOREHOLE VOLUME:

AMOUNT OF WATER ADDED DURING DRILLING:

DEVELOPMENT METHOD: BAILING

PUMP TYPE:

TOTAL TIME (A): 17 MIN

AVERAGE FLOW (GPM)(B):

TOTAL ESTIMATED WITHDRAWAL AxB=:

HNU/OVA READING:

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1645	0	5.51	31.9	88.2	28.7	MEDIUM TO DARK GRAY, VERY TURBID
1647	1.5	5.83	32.7	57.3	29.0	SAME
1650	3.0	6.02	32.0	52.8	29.0	SAME
1654	4.5	6.11	32.5	57.7	29.1	SAME
1657	6.0	6.12	35.8	68.6	29.1	SAME
1700	7.5	6.14	31.1	78.0	29.1	SAME
1702	9.0	6.15	38.4	72.5	29.0	SAME

OBSERVATIONS/NOTES

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR-043

CTO NO.: 277 WELL NO.: 1MW02

DATE: 11/4/96

GEOLOGIST/ENGINEER: C. BOES/M. DEJOHN

TIME START	1600
TIME FINISH	1620
INITIAL WATER LEVEL (FT)	26.71
TOTAL WELL DEPTH (TD)	33.83
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1.2 GAL
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILING
PUMP TYPE	
TOTAL TIME (A)	20 MIN
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1603	0	6.22	29.2	873	27.1	BROWN, VERY TURBID
1606	1.5	6.30	29.1	932	27.1	SAME
1610	3.0	6.26	29.0	895	27.0	SAME
1613	4.5	6.26	29.0	881	27.0	SAME
1617	6.0	6.21	28.8	904	27.0	SAME
1620	7.5	6.28	28.9	876	26.9	SAME

OBSERVATIONS/NOTES

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR-OU3

CTO NO.: 277 WELL NO.: 1MW03

DATE: 11/4/96

GEOLOGIST/ENGINEER: C. BOES/M. DEJOHN

TIME START: 1427

TIME FINISH: 1526

INITIAL WATER LEVEL (FT): 17.92

TOTAL WELL DEPTH (TD): 37.83

WELL DIAMETER (INCHES): 2

CALCULATED WELL VOLUME: 3.3 GAL

BOREHOLE DIAMETER (INCHES):

BOREHOLE VOLUME:

AMOUNT OF WATER ADDED DURING DRILLING:

DEVELOPMENT METHOD: BAILING

PUMP TYPE:

TOTAL TIME (A): 60 MIN

AVERAGE FLOW (GPM)(B):

TOTAL ESTIMATED WITHDRAWAL AxB=:

HNU/OVA READING:

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1427	0	6.48	39.1	1575	27.2	LIGHT BROWN, VERY TURBID
1437	3.5	6.66	35.5	1490	26.9	SAME
1446	7.0	6.69	34.4	1591	27.0	SAME, NOTED SLIGHT SHEEN ON WATER
1456	10.5	6.61	34.7	1843	26.8	SAME
1506	14.0	6.68	34.7	1970	26.8	SAME
1516	17.5	6.65	34.6	2127	26.7	SAME
1526	19.5	6.59	34.4	2146	26.7	SAME

OBSERVATIONS/NOTES

SLIGHT SHEEN NOTED ON WATER AFTER SECOND VOLUME EVACUATED. SHEEN PERSISTED THROUGH OUT DEVELOPMENT.

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR-OU3

CTO NO.: 277 WELL NO.: IMW04

DATE: 11/4/96

GEOLOGIST/ENGINEER: C. BOES/M. DE JOHN

TIME START	1255
TIME FINISH	1349
INITIAL WATER LEVEL (FT)	16.68
TOTAL WELL DEPTH (TD)	37.58
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	3.4 GAL
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILING
PUMP TYPE	
TOTAL TIME (A)	54 MIN
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH (1)	TEMP (°C) (1)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1255	0	—	—	451	27.6	BROWN, VERY TURBID
1303	3.5	—	—	957	27.6	SAME
1315	7.0	—	—	970	27.3	SAME
1326	10.5	—	—	969	27.3	SAME
1337	14.0	—	—	993	27.4	SAME
1349	17.5	5.91	—	1033	27.4	SAME

OBSERVATIONS/NOTES

(1) pH/TEMP. METER NOT FUNCTIONING

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR-043

CTO NO.: 277 WELL NO.: 5GW01

DATE: 10/13/96

GEOLOGIST/ENGINEER: C. Boes/M. DeJohn

	DEVELOPMENT DATA						
TIME START 1630	TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
TIME FINISH 1720							
INITIAL WATER LEVEL (FT) 10.61	1625	0	7.88	35.8	6.03	29.3	SLIGHTLY TURBID
TOTAL WELL DEPTH (TD) 32.90	1645	3.6	7.77	32.9	6.00	29.2	SAME, LT. BROWN
	1655	7.0	7.84	32.7	6.10	29.1	SAME
WELL DIAMETER (INCHES) 2	1708	10.5	7.82	31.9	6.19	29.1	SAME
CALCULATED WELL VOLUME 3.6 GAL	1715	12.0	7.88	32.9	6.20	29.1	SAME
BOREHOLE DIAMETER (INCHES)							
BOREHOLE VOLUME							
AMOUNT OF WATER ADDED DURING DRILLING							
DEVELOPMENT METHOD BAILER							
PUMP TYPE							
TOTAL TIME (A) 50 MIN							
AVERAGE FLOW (GPM)(B)	OBSERVATIONS/NOTES						
TOTAL ESTIMATED WITHDRAWAL AxB=							
HNU/OVA READING							

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR-OU3

CTO NO.: 277 WELL NO.: 5GW04

DATE: 10/14/96

GEOLOGIST/ENGINEER: C. BOES/M. DEJOHN

TIME START: 1100

TIME FINISH: 1703

INITIAL WATER LEVEL (FT): 4.28

TOTAL WELL DEPTH (TD): 25.37

WELL DIAMETER (INCHES): 2

CALCULATED WELL VOLUME: 3.4 GAL

BOREHOLE DIAMETER (INCHES):

BOREHOLE VOLUME:

AMOUNT OF WATER ADDED DURING DRILLING:

DEVELOPMENT METHOD: BAILING

PUMP TYPE:

TOTAL TIME (A): ~60 MIN

AVERAGE FLOW (GPM)(B):

TOTAL ESTIMATED WITHDRAWAL AxB =:

HNU/OVA READING:

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1101	0	6.70	37.4	81.4	29.0	GRAY, SLIGHTLY TURBID
1113	3.5	6.76	34.8	77.5	28.5	GRAY, TURBID
1126	7.0	6.94	33.2	86.1	28.5	SAME
1137	10.5	6.38	47.0	87.7	28.7	SAME
1654	14.0	6.43	29.9	89.6	27.8	SAME
1703	17.5	6.50	26.2	88.5	27.7	SAME

OBSERVATIONS/NOTES

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR-043

CTO NO.: 277 WELL NO.: SGW05

DATE: 10/14/96

GEOLOGIST/ENGINEER: C. BOES/M. DE JOHN

TIME START	0900
TIME FINISH	0924
INITIAL WATER LEVEL (FT)	8.43
TOTAL WELL DEPTH (TD)	15.26
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1.2 GAL
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILING
PUMP TYPE	
TOTAL TIME (A)	24 MIN
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0902	0	6.78	29.2	62.7	29.6	CLEAR-YELLOW TINT
0905	1.2	6.64	29.3	69.3	29.4	DARK GRAY VERY TURBID
0913	2.5	6.51	30.0	68.3	29.4	SAME
0924	3.6	6.92	29.4	68.9	29.4	SAME

OBSERVATIONS/NOTES

APPENDIX D.2
WELL DEVELOPMENT RECORDS
SWMU 1 - PHASE II

Baker

Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: SWMU 1

CTO NO.: 277 WELL NO.: 1-MW05

DATE: 9/25/97 - 9/28/97

GEOLOGIST/ENGINEER: J. Tepsic

TIME START	9/25 16:00
TIME FINISH	9/28 11:30
WATER LEVEL (FT)	16.65
TOTAL WELL DEPTH (TD)	24.50
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1.5 gal
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	Bailing
PUMP TYPE	
TOTAL TIME (A)	66.5 hrs.
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
	1.5	7.62	27.9	1222		V. Turbid Drk. Brn.
	3.0	7.87	26.7	1324		V. Turbid Drk. Brn.
	4.5	7.59	25.9	1268		V. Turbid Drk. Brn.
	5.0	7.39	26.7	1157		
	8.0	5.90	27.2	1031		
	10.0	7.14	27.0	1305		
	12.0	7.28	26.9	1143		
	15.0	7.15	27.7	1162		

OBSERVATIONS/NOTES

Baker

Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: SWMU 1

CTO NO.: 257 WELL NO.: 5-GW02

DATE: 9/25/97 - 9/26/97

GEOLOGIST/ENGINEER: J. Tepsic

TIME START	9/25 17:00
TIME FINISH	9/28 11:40
WATER LEVEL (FT)	8.34
TOTAL WELL DEPTH (TD)	17.20
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	1.5 gal.
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILING
PUMP TYPE	
TOTAL TIME (A)	66 hrs.
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
	1.5	7.43	26.8	1300		V. Turbid Drk. Brn.
	3.0	7.08	26.1			
	4.5	7.06	25.8	8.48		Turbid Lt. Brn
	6.0	7.45	26.0	8.00		
	10.0	6.61	26.0	7.50		
	15.0	6.45	26.1	7.08		Lt. Brn. Turbid
	16.0	7.44	28.5	12.70		
	18.0	7.08	27.9	11.80		

OBSERVATIONS/NOTES

APPENDIX D.3
WELL DEVELOPMENT RECORDS
SWMU 2 - PHASE I

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR-OU3

CTO NO.: 277 WELL NO.: 6GW01

DATE: 10/13/96

GEOLOGIST/ENGINEER: C. BOES/M. DEJOHN

TIME START	1525
TIME FINISH	1625
INITIAL WATER LEVEL (FT)	9.49
TOTAL WELL DEPTH (TD)	25.10
WELL DIAMETER (INCHES)	2
CALCULATED WELL VOLUME	2.5 GAL
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	BAILING
PUMP TYPE	
TOTAL TIME (A)	60 MIN
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
	0	7.97	60.4	2672	29.5	BROWN, SLIGHTLY TURBID
	2.5	7.98	48.1	3359	29.2	SAME AS ABOVE
	5.0	7.96	44.6	3541	29.3	SAME AS ABOVE
	7.5	8.00	44.8	3661	29.2	LT. BROWN, SLIGHTLY LESS TURBID
	10.0	7.97	37.3	3665	29.2	SAME
	12.5	7.94	39.5	3713	29.3	SAME

OBSERVATIONS/NOTES

APPENDIX D.4
WELL DEVELOPMENT RECORDS
SWMU 11/45 - PHASE I

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR-OU #3

CTO NO.: 62470-277 WELL NO.: 45MWØ1

DATE: 24 NOVEMBER 1996

GEOLOGIST/ENGINEER: E.J. KLEINKAUF

TIME START: 0935 H

TIME FINISH: 100 H

INITIAL WATER LEVEL (FT): 11.17'

TOTAL WELL DEPTH (TD): 18.30'

WELL DIAMETER (INCHES): 2"

CALCULATED WELL VOLUME: 1.16 gal.

BOREHOLE DIAMETER (INCHES): 10"

BOREHOLE VOLUME:

AMOUNT OF WATER ADDED DURING DRILLING: ——

DEVELOPMENT METHOD: BAILING

PUMP TYPE: ——

TOTAL TIME (A): 30 MIN.

AVERAGE FLOW (GPM)(B):

TOTAL ESTIMATED WITHDRAWAL AxB=:

HNU/OVA READING: ——

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH (1)	TEMP (°C) (1)	SPEC. COND. (µmhos/cm) (2)	TEMP (°C)	COLOR AND TURBIDITY
0940	1.2	—	—	1810	29.9°	VERY TURBID
0946	2.4	—	—	1787	29.6	VERY TURBID
0950	3.6	—	—	2063	29.6	TURBID
0955	4.8	—	—	2031	29.1	TURBID
1000	6.0	—	—	1962	29.5	SLIGHTLY TURBID
1005	7.2	—	—	1826	29.7	SLIGHTLY TURBID

OBSERVATIONS/NOTES

(1) pH/TEMP. METER WAS NOT FUNCTIONING.

(2) VALUES HAVE BEEN CORRECTED TO 25° C

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR-OU#3

CTO NO.: 62470-277 WELL NO.: 45 MW Ø2

DATE: 24 NOVEMBER 1996.

GEOLOGIST/ENGINEER: E. J. KLEINKAUF

TIME START: 1030 H

TIME FINISH: 1110 H

INITIAL WATER LEVEL (FT): 7.64'

TOTAL WELL DEPTH (TD): 13.20'

WELL DIAMETER (INCHES): 2"

CALCULATED WELL VOLUME: 1 gal.

BOREHOLE DIAMETER (INCHES): 10"

BOREHOLE VOLUME:

AMOUNT OF WATER ADDED DURING DRILLING: —

DEVELOPMENT METHOD: BAILING

PUMP TYPE: —

TOTAL TIME (A): 40 MIN.

AVERAGE FLOW (GPM)(B):

TOTAL ESTIMATED WITHDRAWAL AxB=

HNU/OVA READING: —

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH (1)	TEMP (°C) (1)	SPEC. COND. (µmhos/cm) (2)	TEMP (°C)	COLOR AND TURBIDITY
1031	1	—	—	2869	30.1	TURBID
1038	2	—	—	3113	29.8	TURBID
1042	3	—	—	3057	29.5	TURBID
1049	4	—	—	3562	29.8	TURBID
1055	5	—	—	3909	29.6	TURBID
1059	6	—	—	4124	29.4	TURBID/ORGANIC ODOR
1103	7	—	—	4463	29.3	TURBID/ORGANIC ODOR
1107	8	—	—	4225	29.1	TURBID/ORGANIC ODOR

OBSERVATIONS/NOTES

(1) pH/TEMPERATURE METER WAS NOT FUNCTIONING

(2) VALUES HAVE BEEN CORRECTED TO 25° C.

* @ 8 GALLONS, VOLUME IN WELL HAD DECREASED TO LESS THAN 1 BAILER.

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR - OU #3

CTO NO.: 62470-277 WELL NO.: 45 MWØ3

DATE: 24 NOVEMBER 1996

GEOLOGIST/ENGINEER: E.J. KLEINKAUF

TIME START	1245 H
TIME FINISH	1330 H
INITIAL WATER LEVEL (FT)	10.60'
TOTAL WELL DEPTH (TD)	22.65'
WELL DIAMETER (INCHES)	2"
CALCULATED WELL VOLUME	2 gal.
BOREHOLE DIAMETER (INCHES)	10"
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	—
DEVELOPMENT METHOD	BAILING
PUMP TYPE	—
TOTAL TIME (A)	45 MIN.
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	
HNU/OVA READING	—

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY

OBSERVATIONS/NOTES

*THIS WELL EXHIBITED FUEL/FUEL OIL SO NO MEASUREMENTS WERE TAKEN. TOTAL OF 16 GALLONS WERE BAILED FROM WELL.

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: NSRR - OU #3

CTO NO.: 62470-277 WELL NO.: 45MWØ4

DATE: 62470-277

GEOLOGIST/ENGINEER: E. J. KLEINKAUF

TIME START: 1135 H

TIME FINISH: 1210 H

INITIAL WATER LEVEL (FT): 10.00'

TOTAL WELL DEPTH (TD): 25.65'

WELL DIAMETER (INCHES): 2"

CALCULATED WELL VOLUME: 2.6 gal.

BOREHOLE DIAMETER (INCHES): 10"

BOREHOLE VOLUME:

AMOUNT OF WATER ADDED DURING DRILLING: —

DEVELOPMENT METHOD: BAILING

PUMP TYPE: —

TOTAL TIME (A): 35 MIN.

AVERAGE FLOW (GPM)(B):

TOTAL ESTIMATED WITHDRAWAL AxB=

HNU/OVA READING: —

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH (1)	TEMP (°C) (1)	SPEC. COND. (µmhos/cm) (2)	TEMP (°C)	COLOR AND TURBIDITY
1142	2.5	—	—	18,491	30.2	TURBID
1148	5	—	—	21,050	29.7	TURBID
1154	7.5	—	—	22,996	29.7	TURBID
1159	10	—	—	24,103	30.0	TURBID
1204	12.5	—	—	25,107	29.6	TURBID
1208	15	—	—	26,987	29.4	TURBID

OBSERVATIONS/NOTES

(1) pH/TEMPERATURE METER WAS NOT FUNCTIONING.

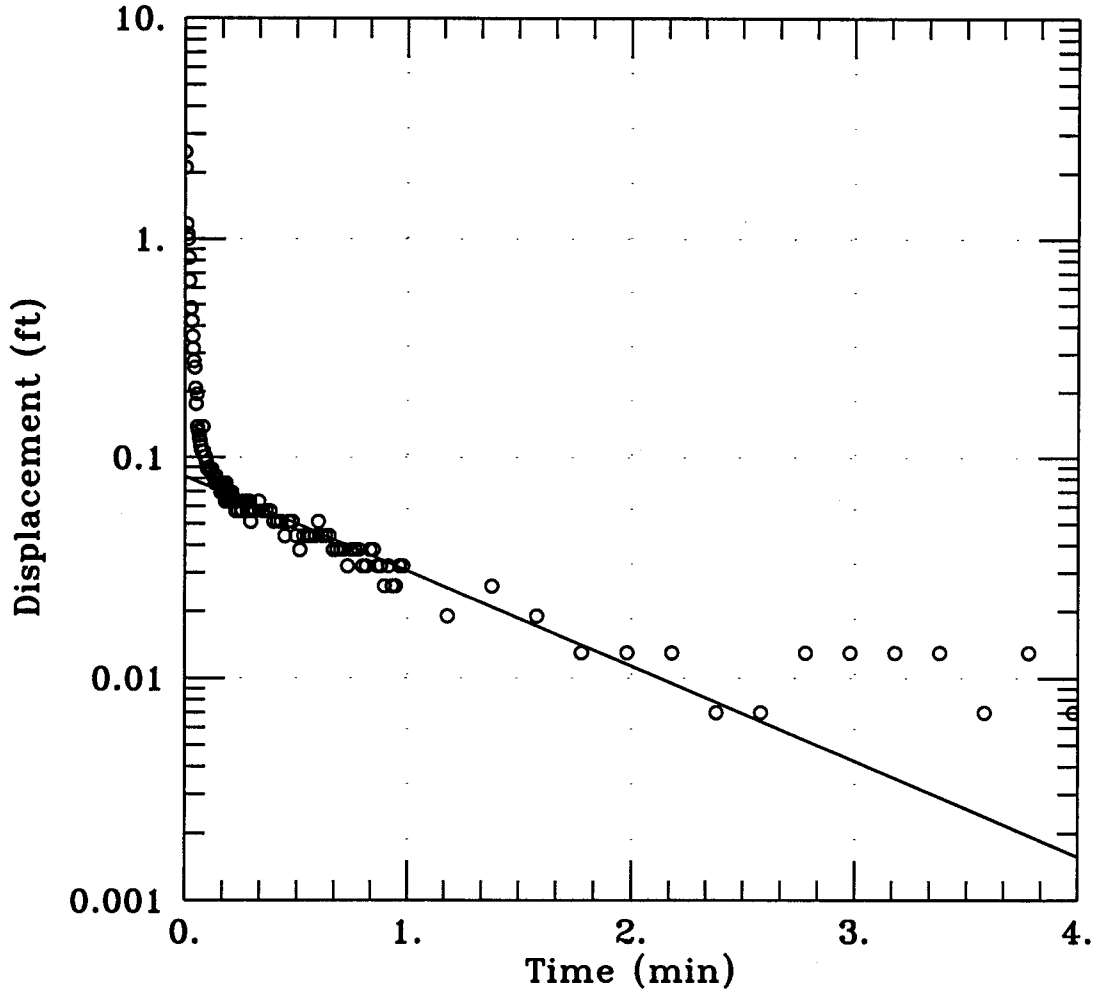
(2) VALUES HAVE BEEN CORRECTED TO 25°C

APPENDIX E
WELLHEAD TEST DATA (SLUG TESTS)

APPENDIX E.1
WELLHEAD TEST DATA (SLUG TESTS)
SWMU 1 - PHASE 1

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 – NRR**	Project: **CTO-277**

1MW01 Rising Head Test



DATA SET:
1MW01R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 9, 1996

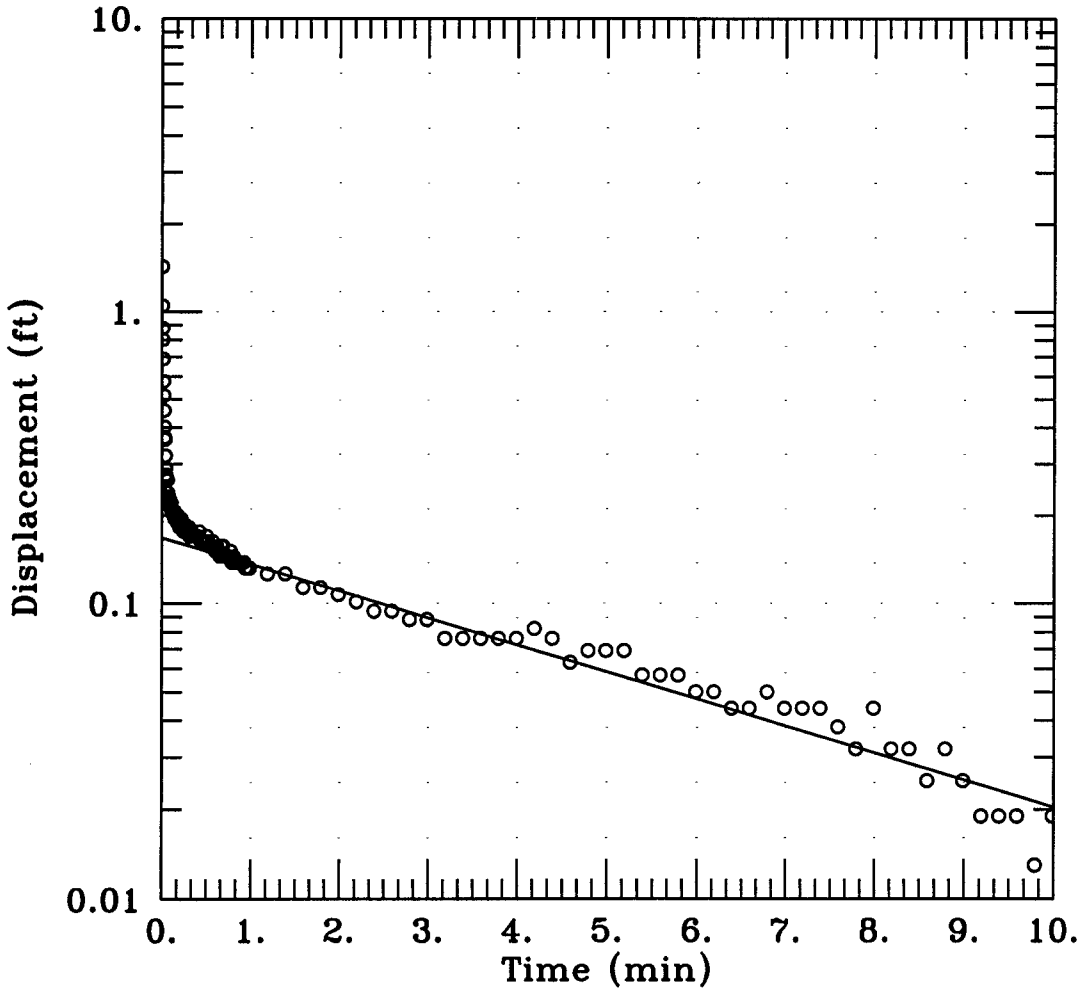
TEST DATA:
H0 = 2.483 ft
rc = 0.17 ft
rw = 0.46 ft
L = 10. ft
b = 10. ft
H = 9.8 ft

PARAMETER ESTIMATES:
K = 13.31 ft/day
y0 = 0.08181 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

1MW02 Rising Head Test



DATA SET:
1MW02R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 9, 1996

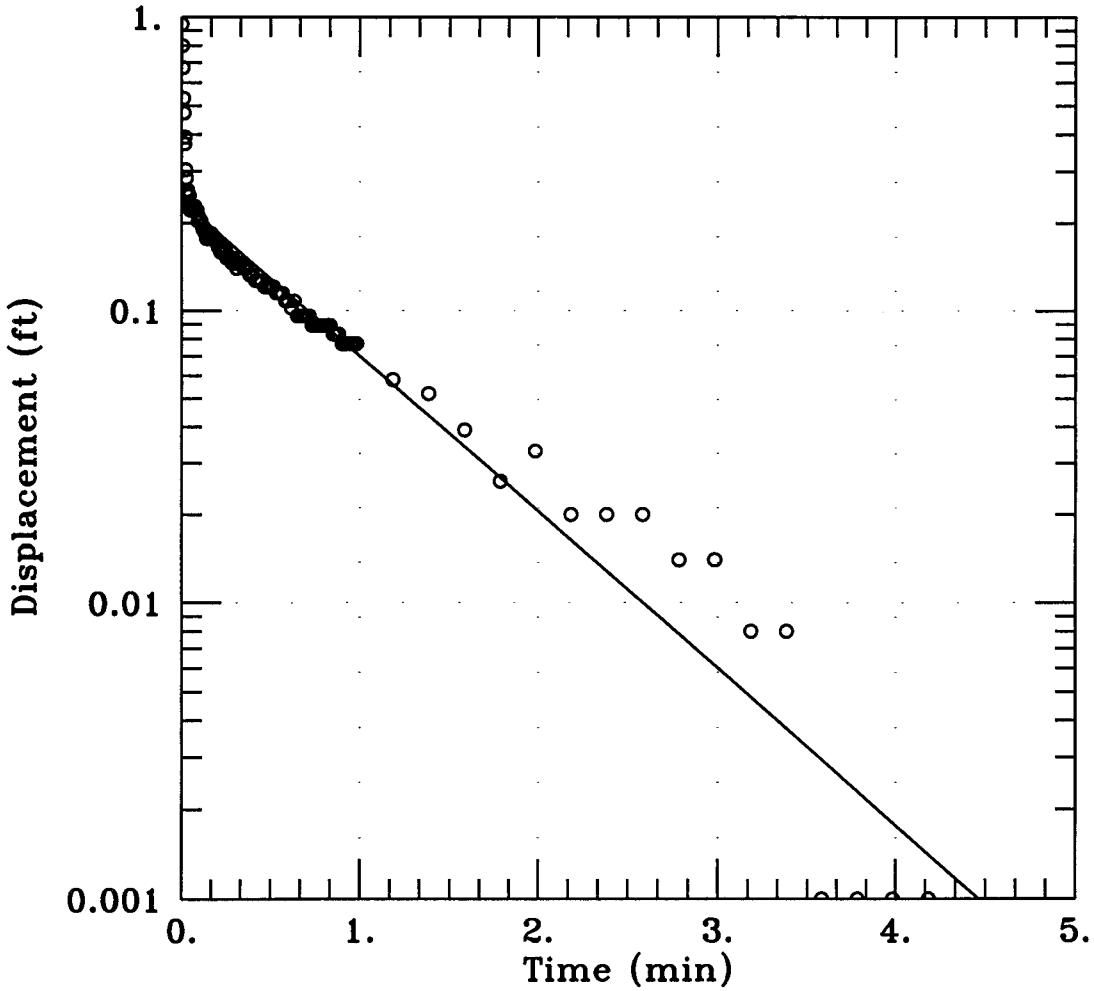
TEST DATA:
H0 = 1.43 ft
rc = 0.17 ft
rw = 0.46 ft
L = 21. ft
b = 22. ft
H = 7.1 ft

PARAMETER ESTIMATES:
K = 1.205 ft/day
y0 = 0.1678 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU1 - NRR**	Project: **CTO-277**

1MW03 Rising Head Test



DATA SET:
1MW03R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 9, 1996

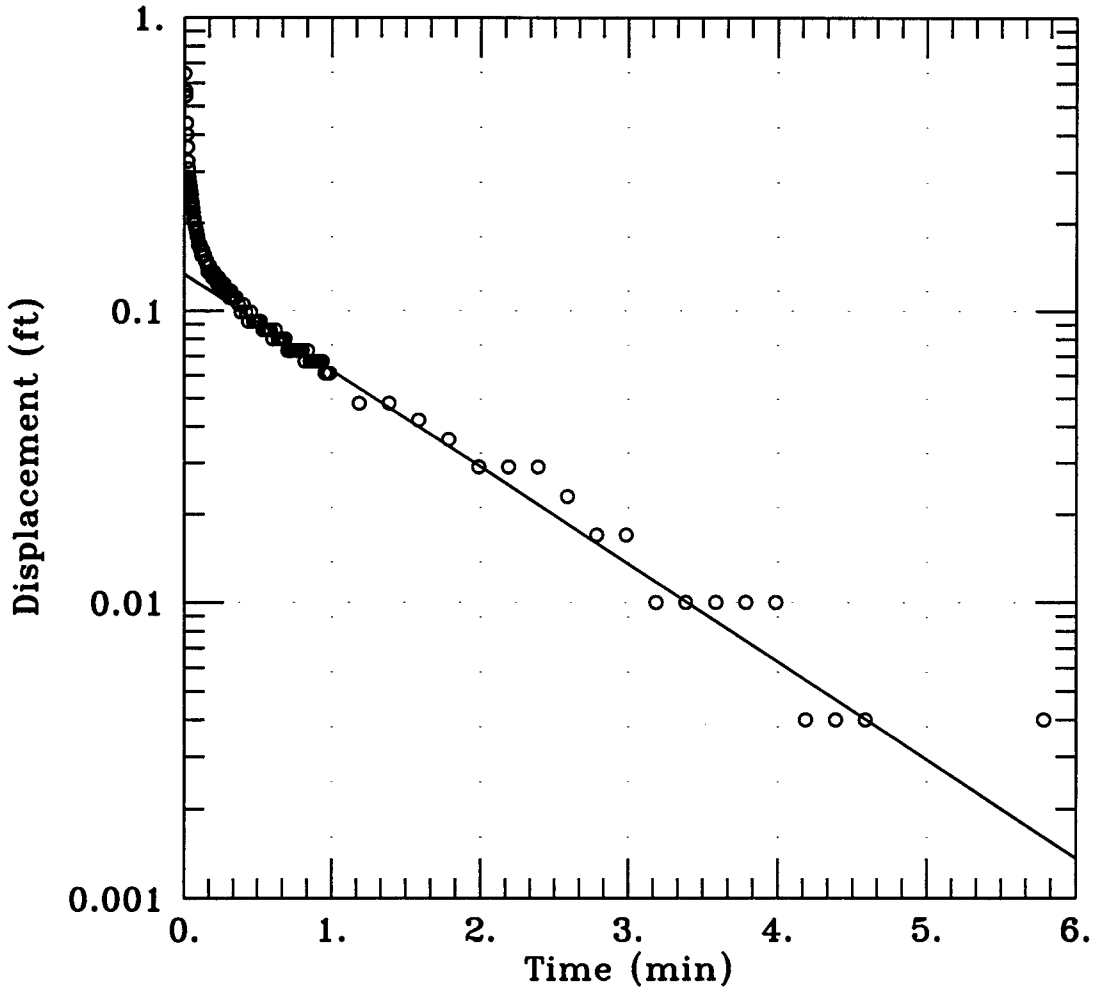
TEST DATA:
H0 = 0.945 ft
rc = 0.17 ft
rw = 0.46 ft
L = 25. ft
b = 26. ft
H = 19.9 ft

PARAMETER ESTIMATES:
K = 7.878 ft/day
y0 = 0.2384 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU1 - NRR**	Project: **CTO-277**

1MW04 Falling Head Test



DATA SET:
1MW04F.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 9, 1996

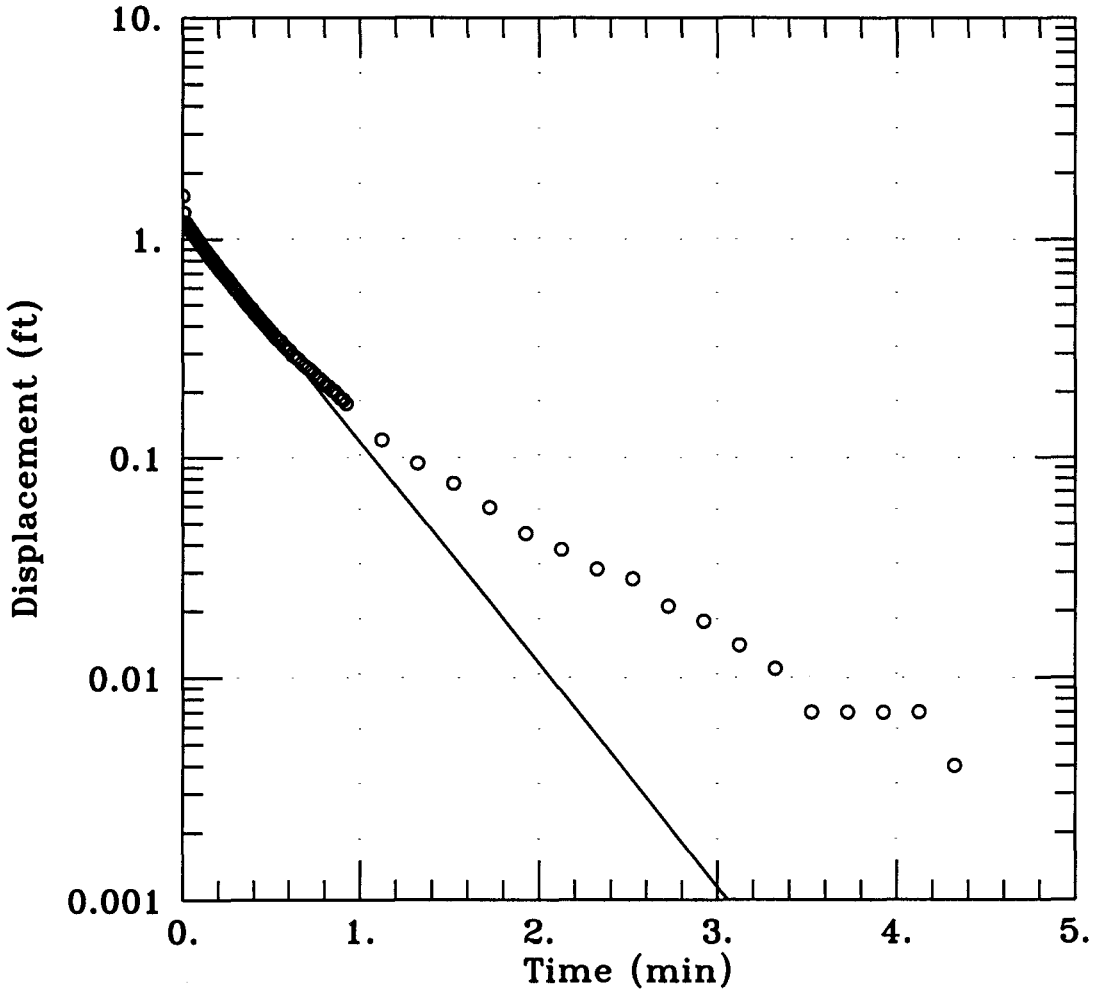
TEST DATA:
H0 = 0.646 ft
rc = 0.17 ft
rw = 0.46 ft
L = 25. ft
b = 26. ft
H = 20.9 ft

PARAMETER ESTIMATES:
K = 4.979 ft/day
y0 = 0.1337 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

5GW01 Falling Head Test



DATA SET:
5GW01F.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 8, 1996

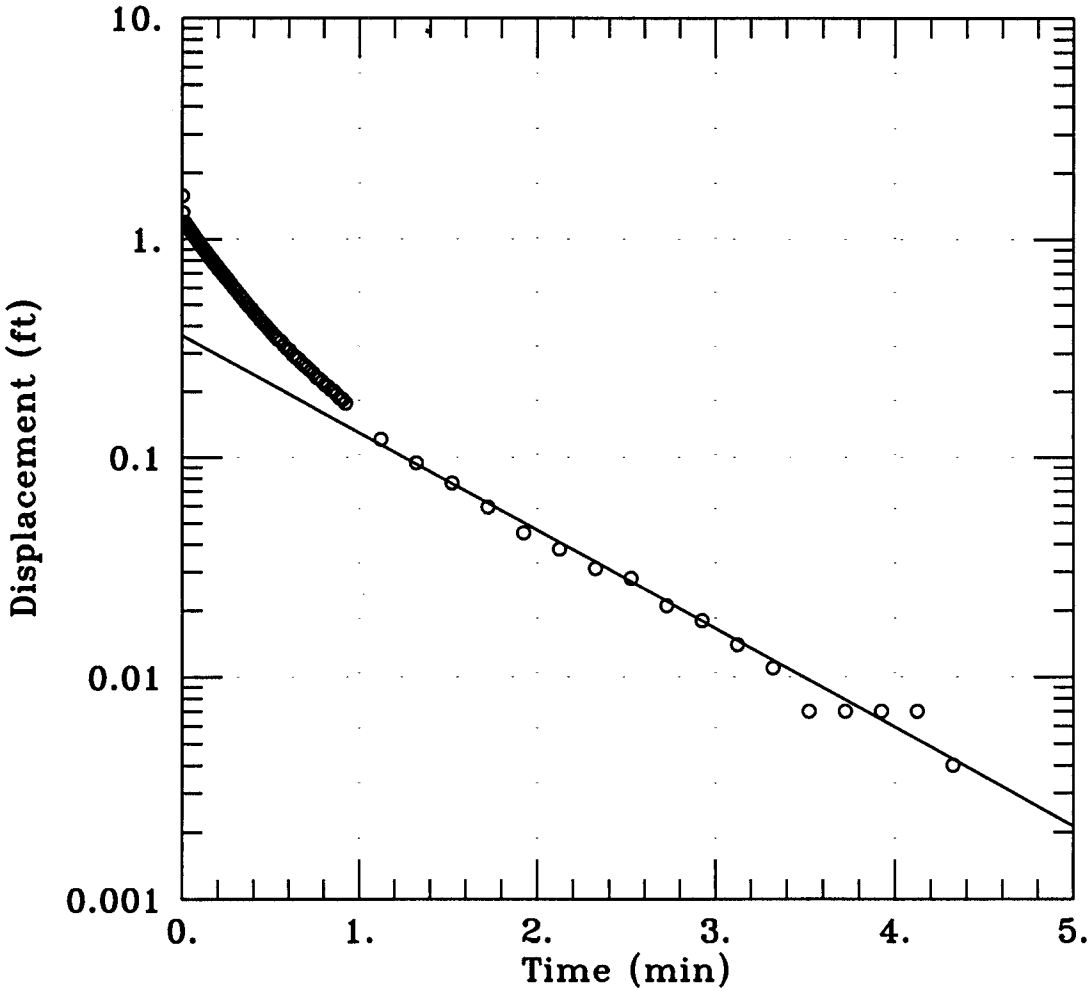
TEST DATA:
H0 = 1.575 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 22.3 ft
H = 22.3 ft

PARAMETER ESTIMATES:
K = 26.92 ft/day
y0 = 1.202 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 – NRR**	Project: **CTO-277**

5GW01 Falling Head Test



DATA SET:
5GW01F.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 8, 1996

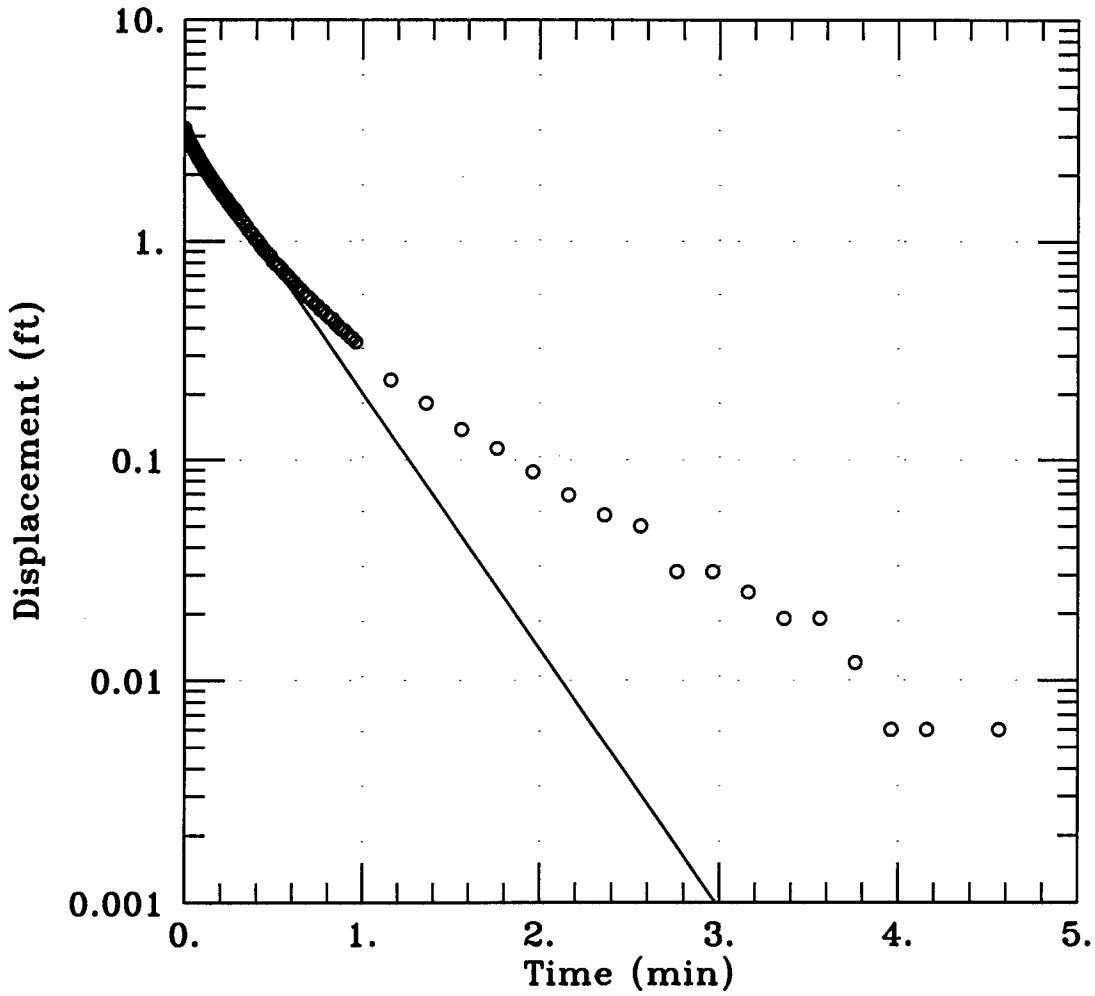
TEST DATA:
H0 = 1.575 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 22.3 ft
H = 22.3 ft

PARAMETER ESTIMATES:
K = 11.92 ft/day
y0 = 0.3615 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

5GW01 Rising Head Test



DATA SET:
5GW01R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 8, 1996

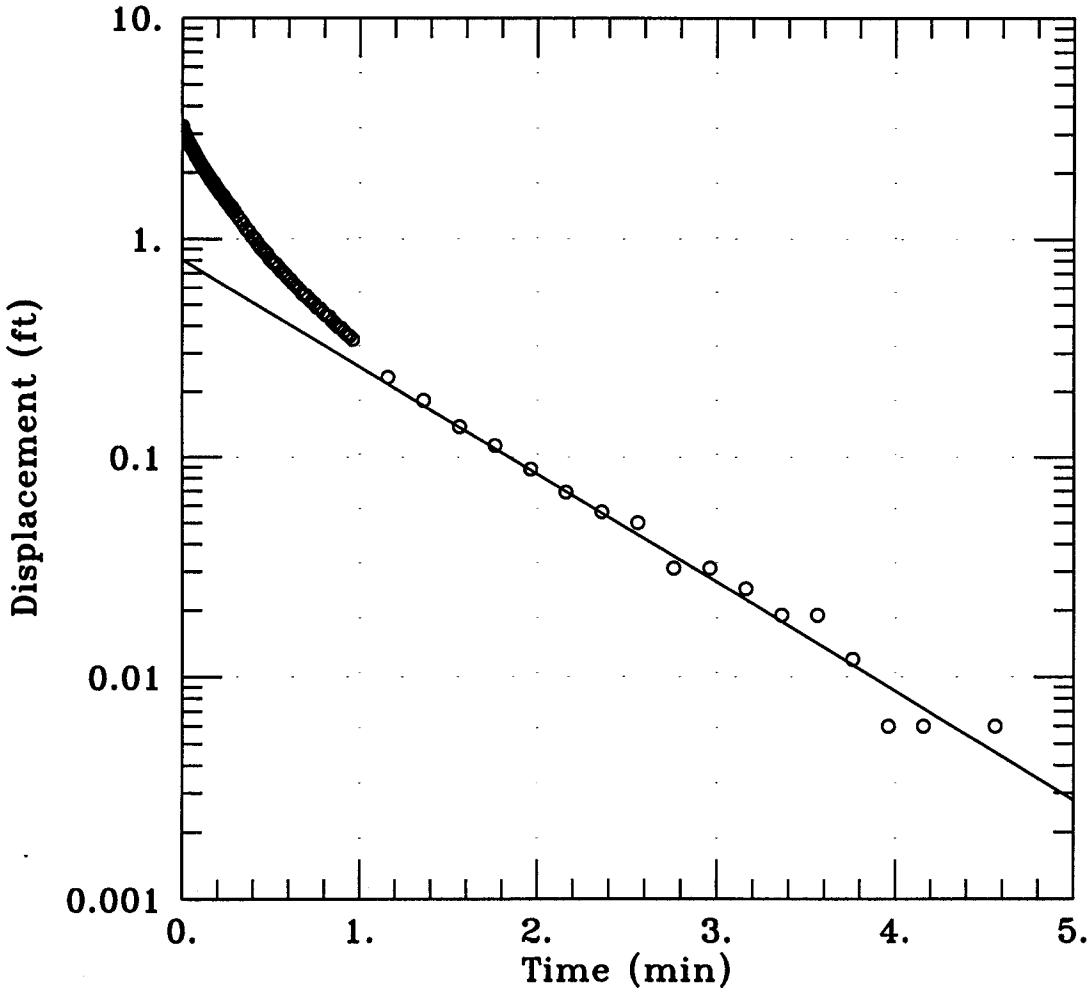
TEST DATA:
H0 = 3.233 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 22.3 ft
H = 22.3 ft

PARAMETER ESTIMATES:
K = 31.13 ft/day
y0 = 2.949 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

5GW01 Rising Head Test



DATA SET:
5GW01R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 8, 1996

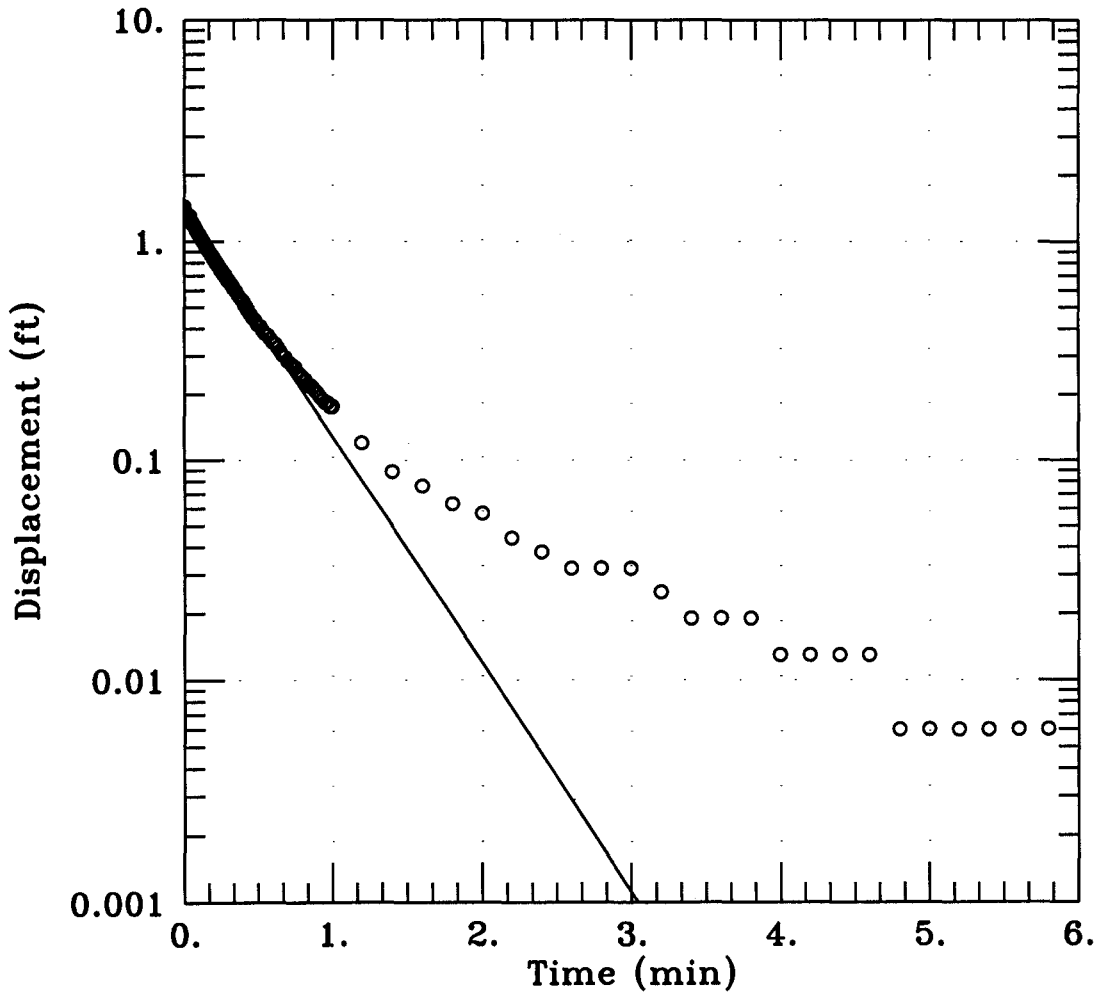
TEST DATA:
H0 = 3.233 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 22.3 ft
H = 22.3 ft

PARAMETER ESTIMATES:
K = 13.15 ft/day
y0 = 0.8039 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

5GW01 Falling Head Test #2



DATA SET:
5GW01F2.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 8, 1996

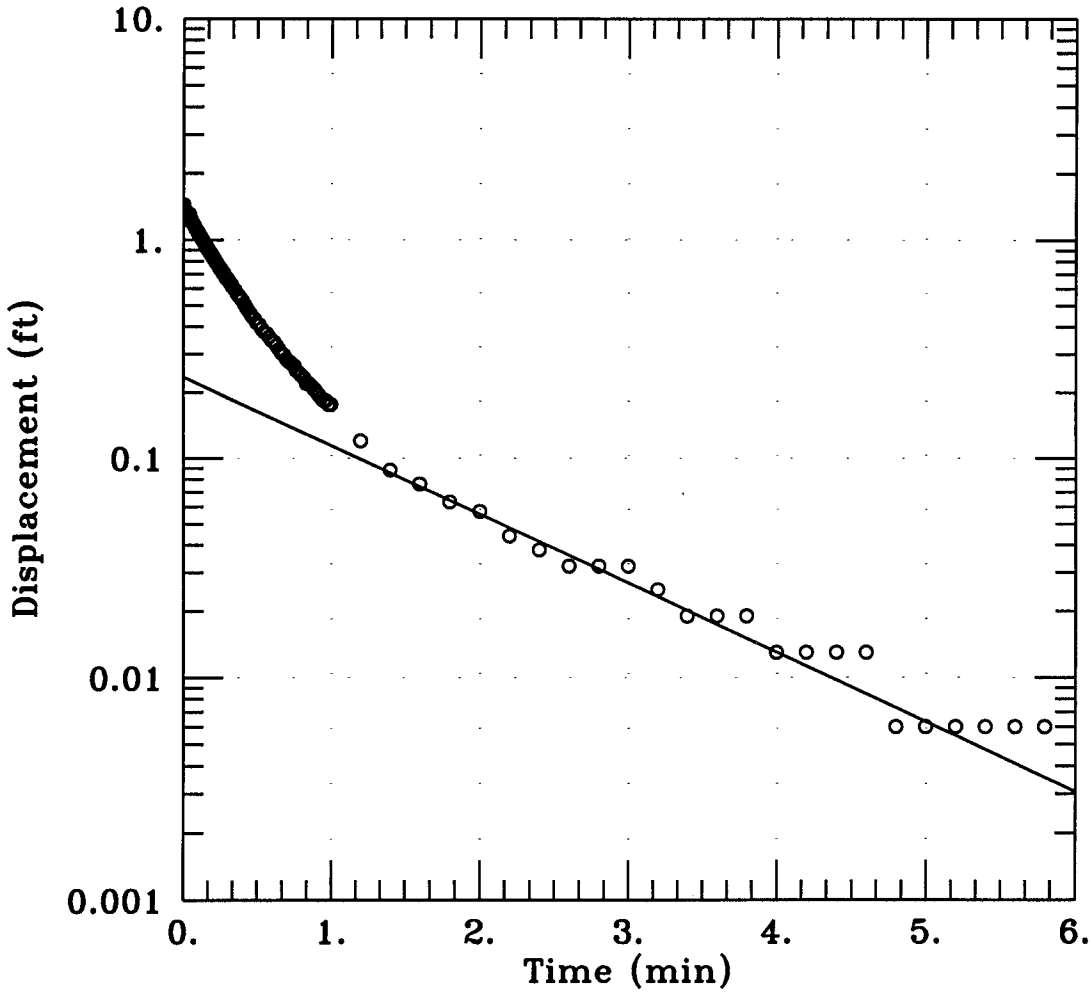
TEST DATA:
H0 = 1.442 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 22.3 ft
H = 22.3 ft

PARAMETER ESTIMATES:
K = 27.49 ft/day
y0 = 1.361 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

5GW01 Falling Head Test #2



DATA SET:
5GW01F2.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 8, 1996

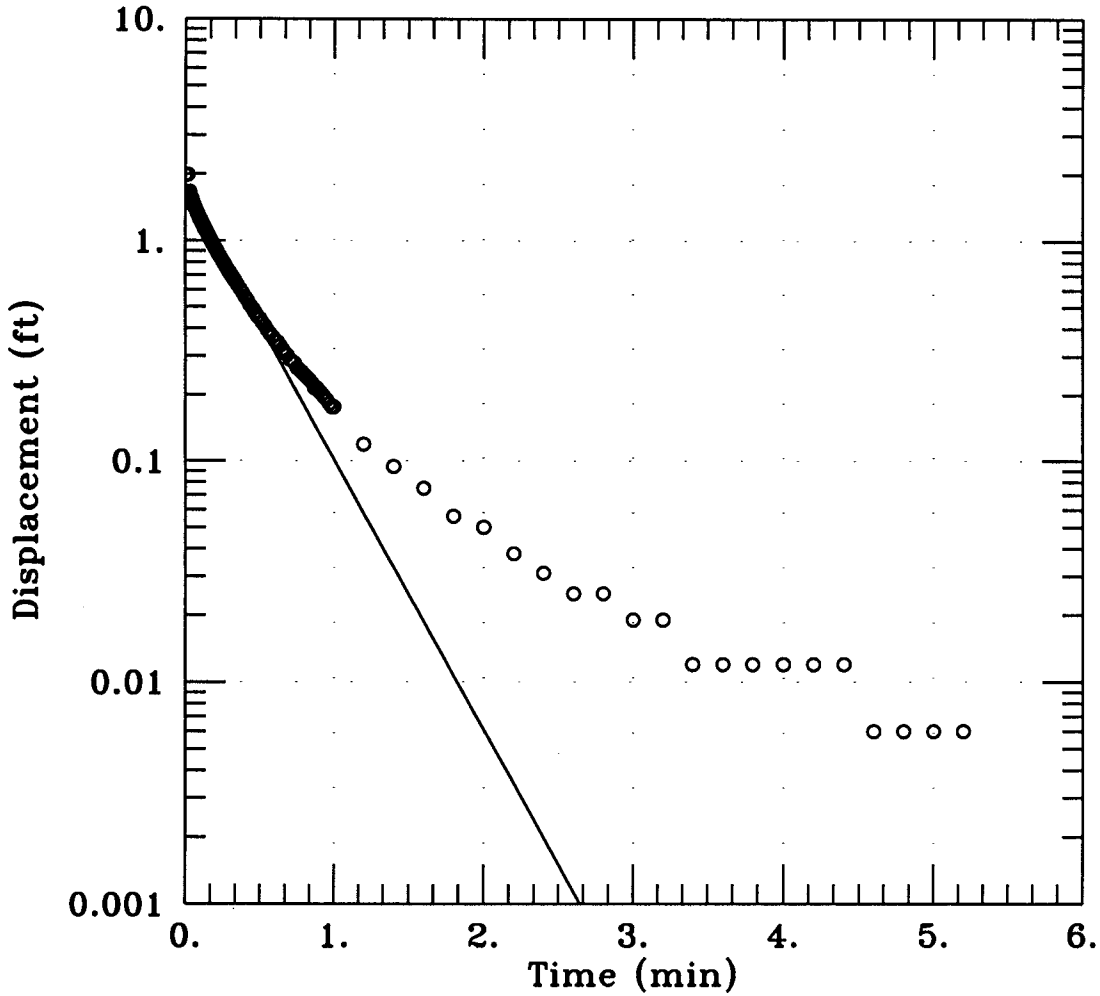
TEST DATA:
H0 = 1.442 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 22.3 ft
H = 22.3 ft

PARAMETER ESTIMATES:
K = 8.397 ft/day
y0 = 0.2351 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

5GW01 Rising Head Test #2



DATA SET:
5GW01R2.DAT
02/20/97

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 8, 1996

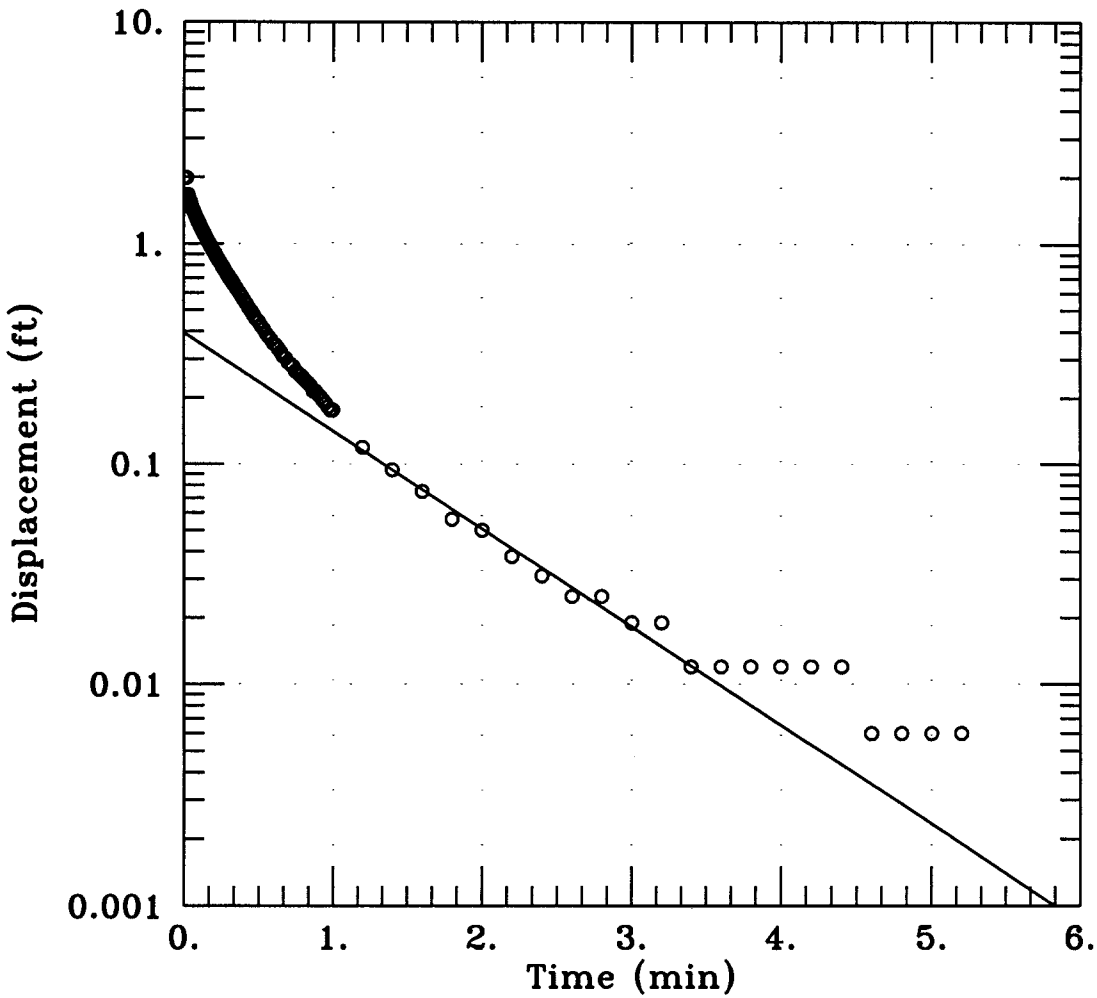
TEST DATA:
H0 = 1.982 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 22.3 ft
H = 22.3 ft

PARAMETER ESTIMATES:
K = 32.55 ft/day
y0 = 1.67 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

5GW01 Rising Head Test #2



DATA SET:
5GW01R2.DAT
02/20/97

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 8, 1996

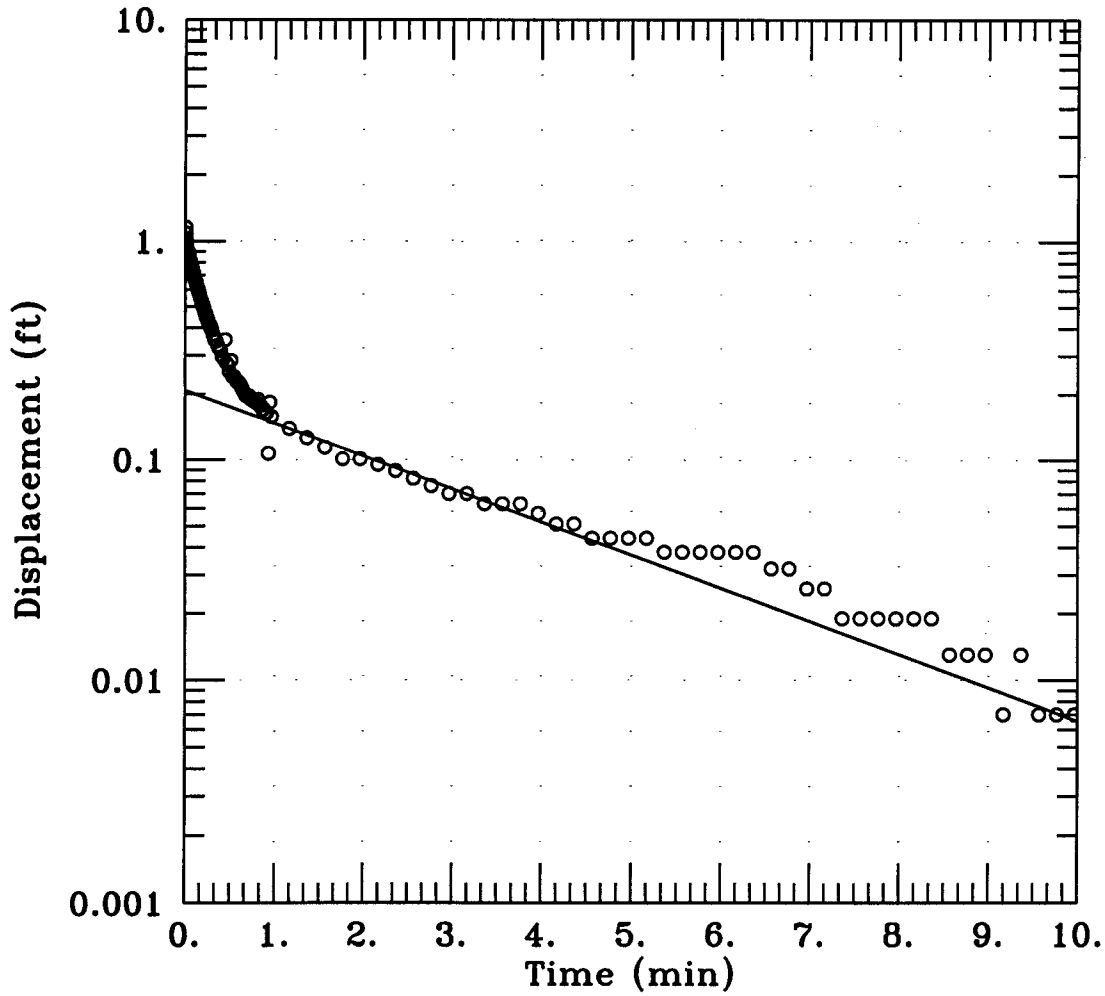
TEST DATA:
H0 = 1.982 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 22.3 ft
H = 22.3 ft

PARAMETER ESTIMATES:
K = 11.89 ft/day
y0 = 0.3941 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

5GW03 Falling Head Test



DATA SET:
5GW03F.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 10, 1996

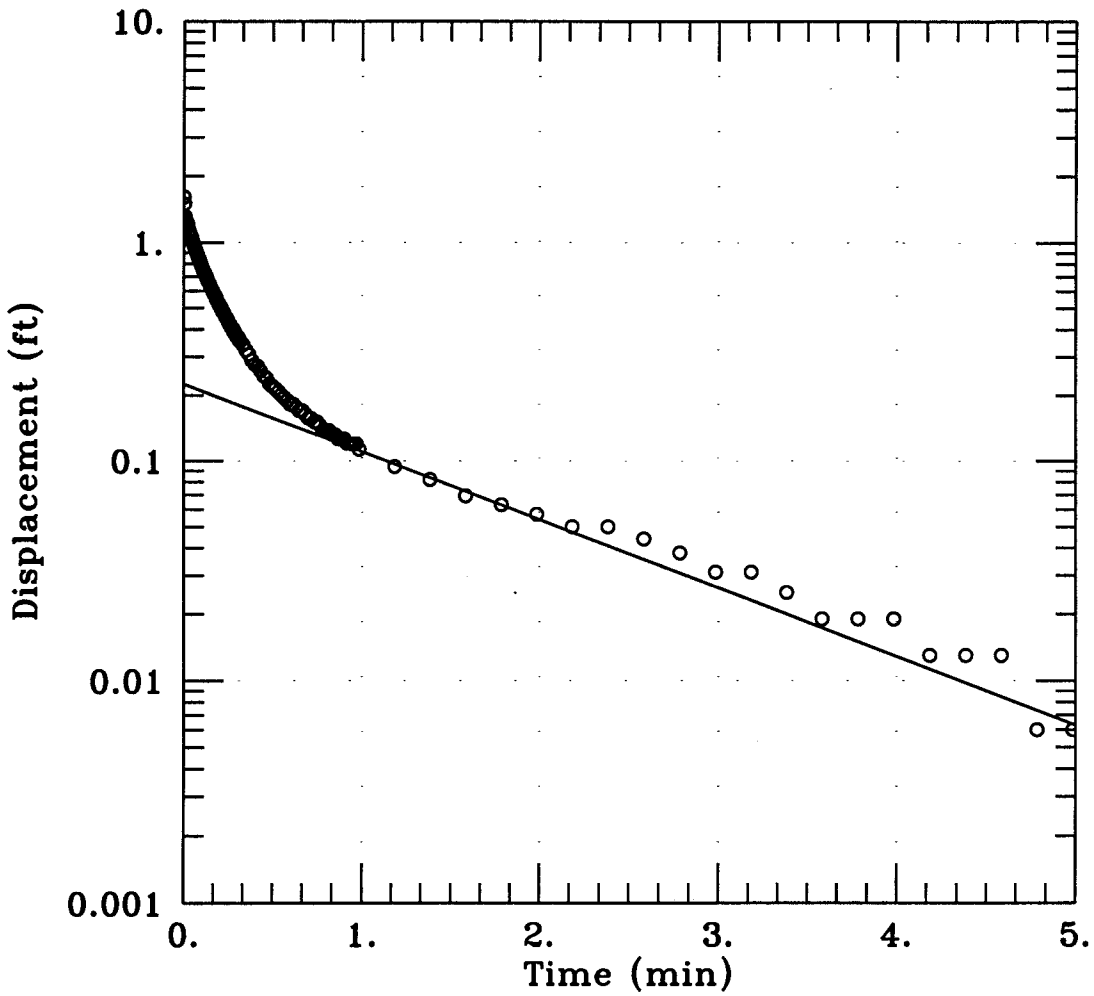
TEST DATA:
H0 = 1. ft
rc = 0.1 ft
rw = 0.1 ft
L = 1. ft
b = 1. ft
H = 1. ft

PARAMETER ESTIMATES:
K = 4.109 ft/day
y0 = 0.2077 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

5GW03 Rising Head Test



DATA SET:
5GW03R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 10, 1996

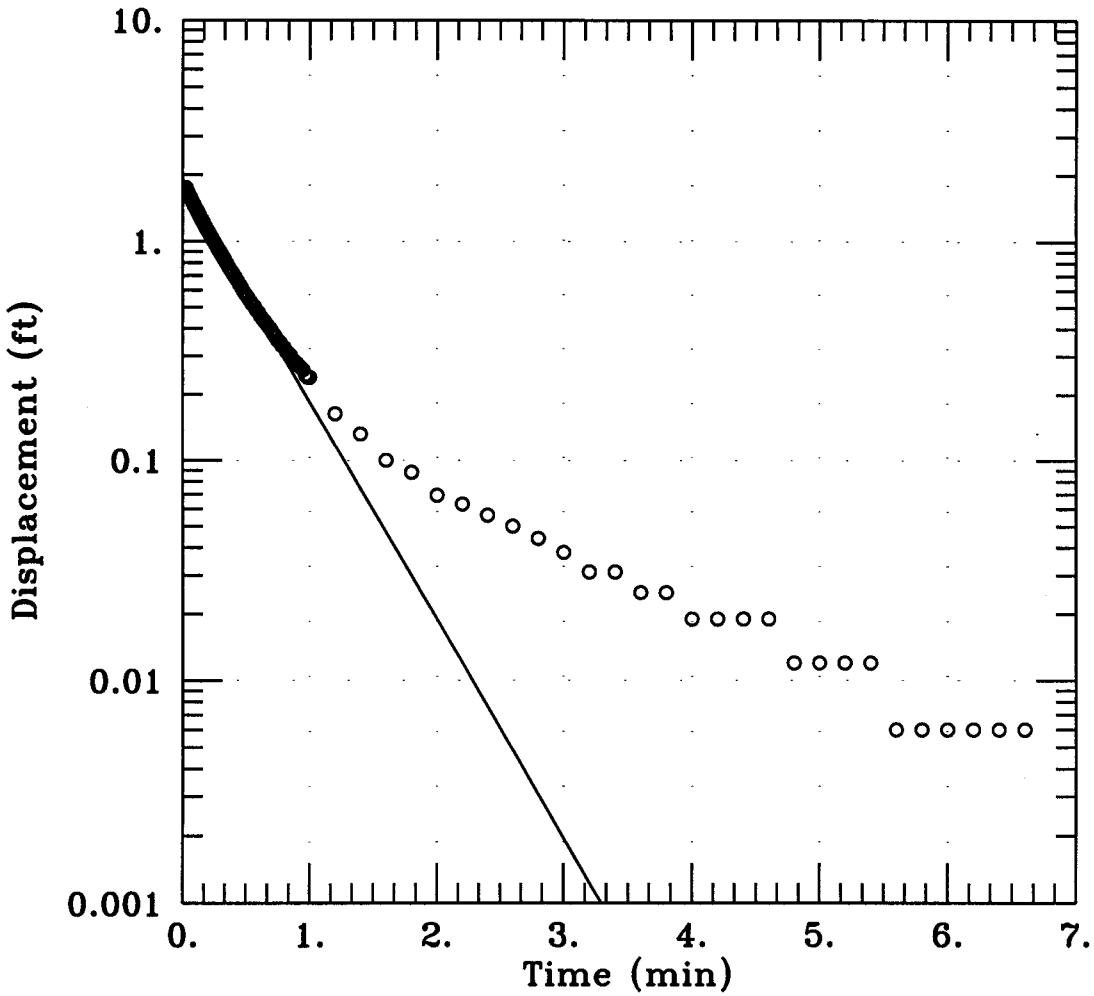
TEST DATA:
H0 = 1.61 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 26.3 ft
H = 26.3 ft

PARAMETER ESTIMATES:
K = 8.59 ft/day
y0 = 0.2252 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

5GW04 Falling Head Test



DATA SET:
5GW04F.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 9, 1996

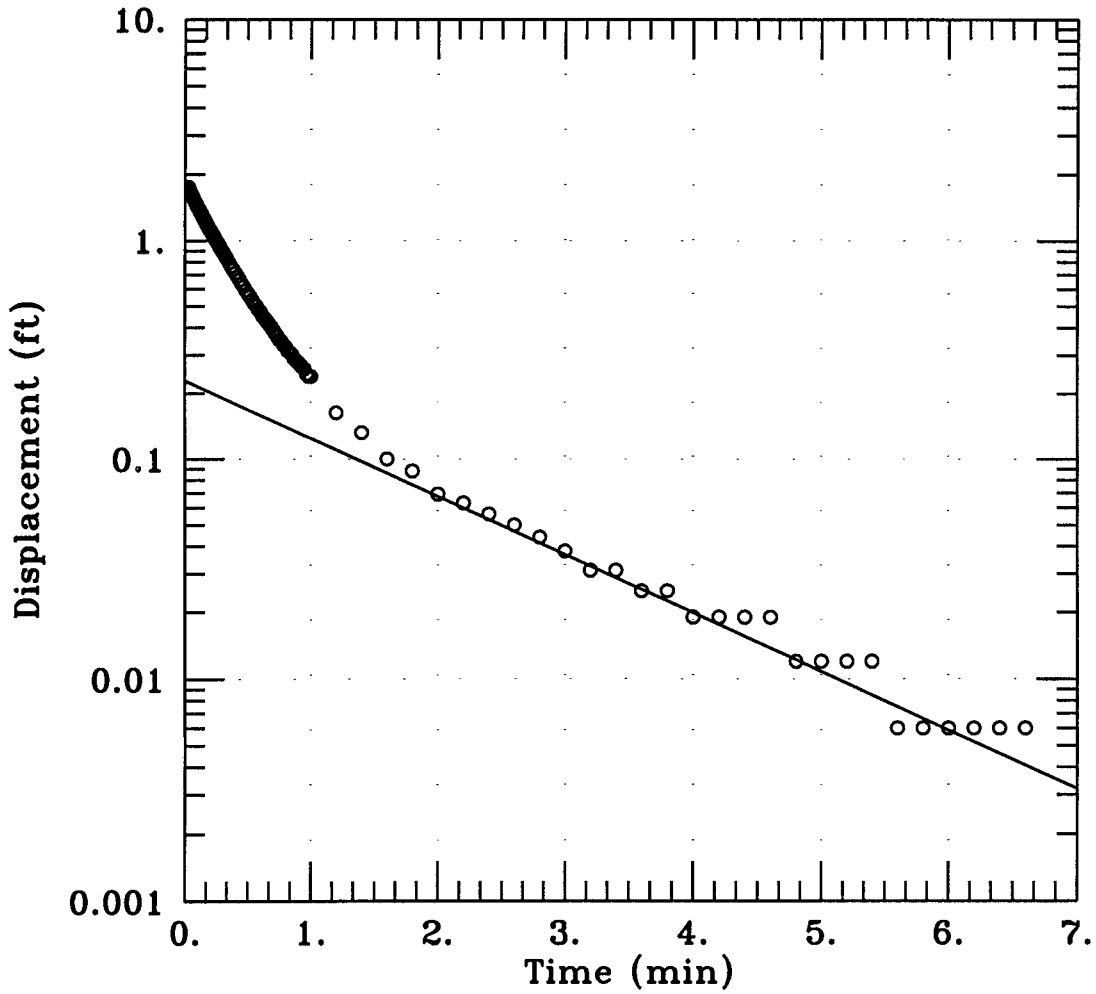
TEST DATA:
H0 = 1.75 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 25.4 ft
H = 25.4 ft

PARAMETER ESTIMATES:
K = 27.09 ft/day
y0 = 1.785 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

5GW04 Falling Head Test



DATA SET:
5GW04F.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 9, 1996

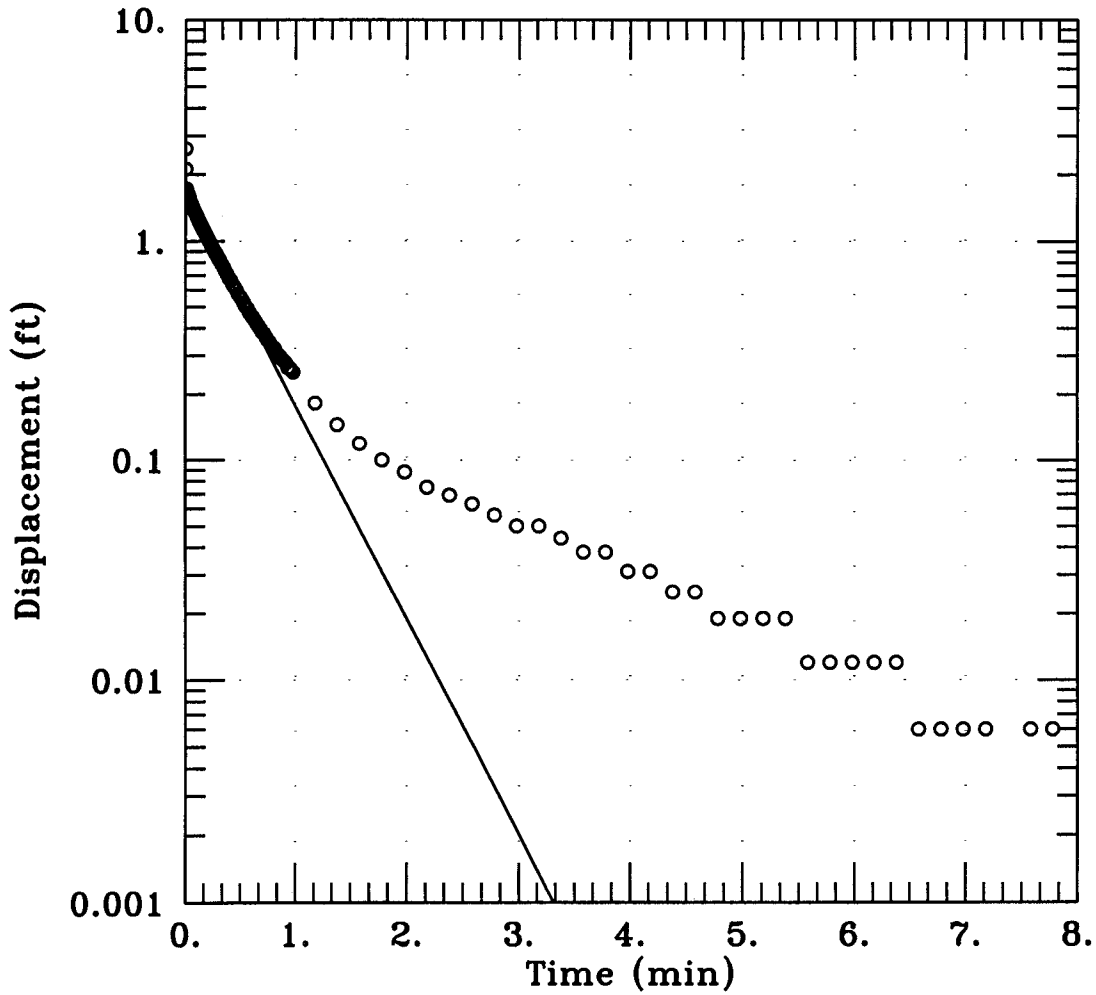
TEST DATA:
H0 = 1.75 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 25.4 ft
H = 25.4 ft

PARAMETER ESTIMATES:
K = 7.279 ft/day
y0 = 0.2289 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

5GW04 Rising Head Test



DATA SET:
5GW04R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 9, 1996

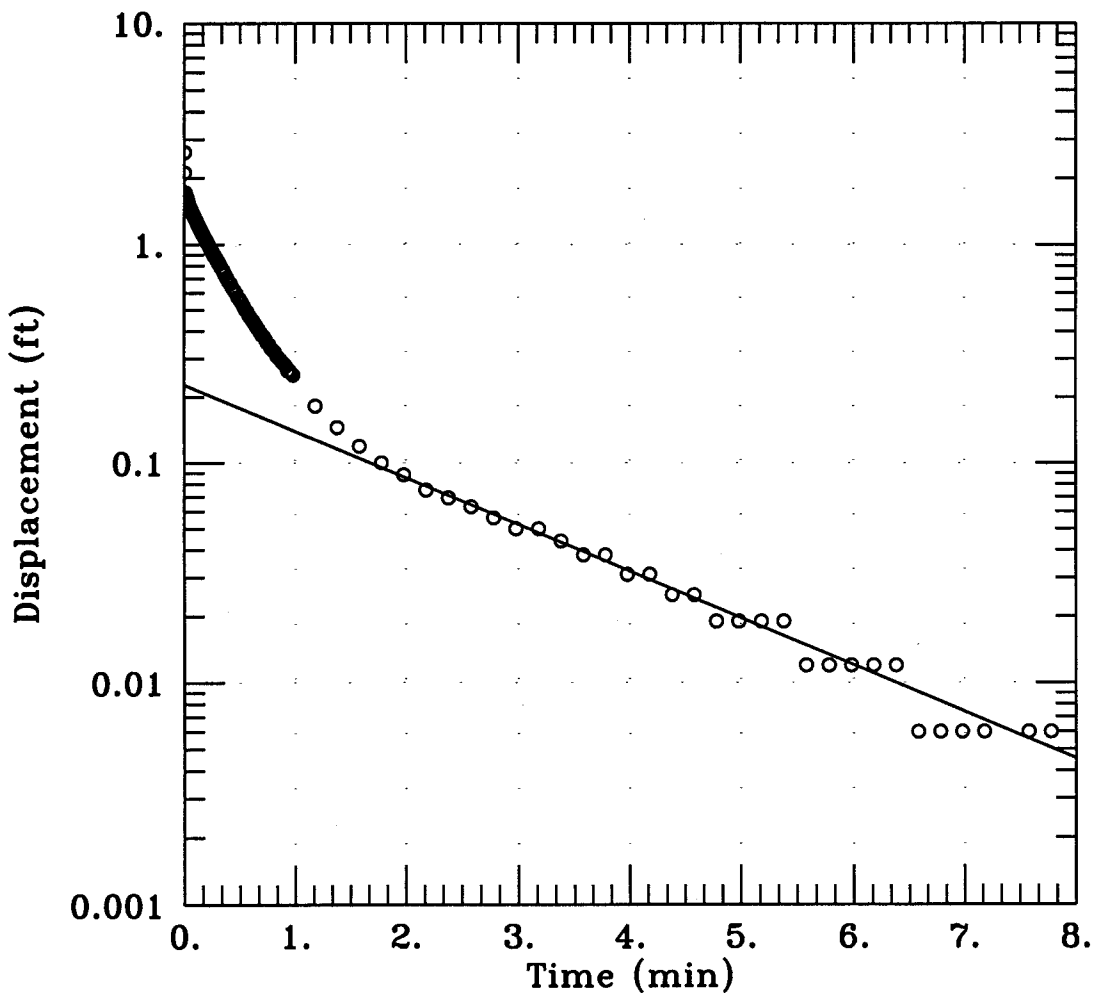
TEST DATA:
H0 = 2.617 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 26.3 ft
H = 26.3 ft

PARAMETER ESTIMATES:
K = 26.83 ft/day
y0 = 1.656 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 1 - NRR**	Project: **CTO-277**

5GW04 Rising Head Test



DATA SET:
5GW04R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 9, 1996

TEST DATA:
H0 = 2.617 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 26.3 ft
H = 26.3 ft

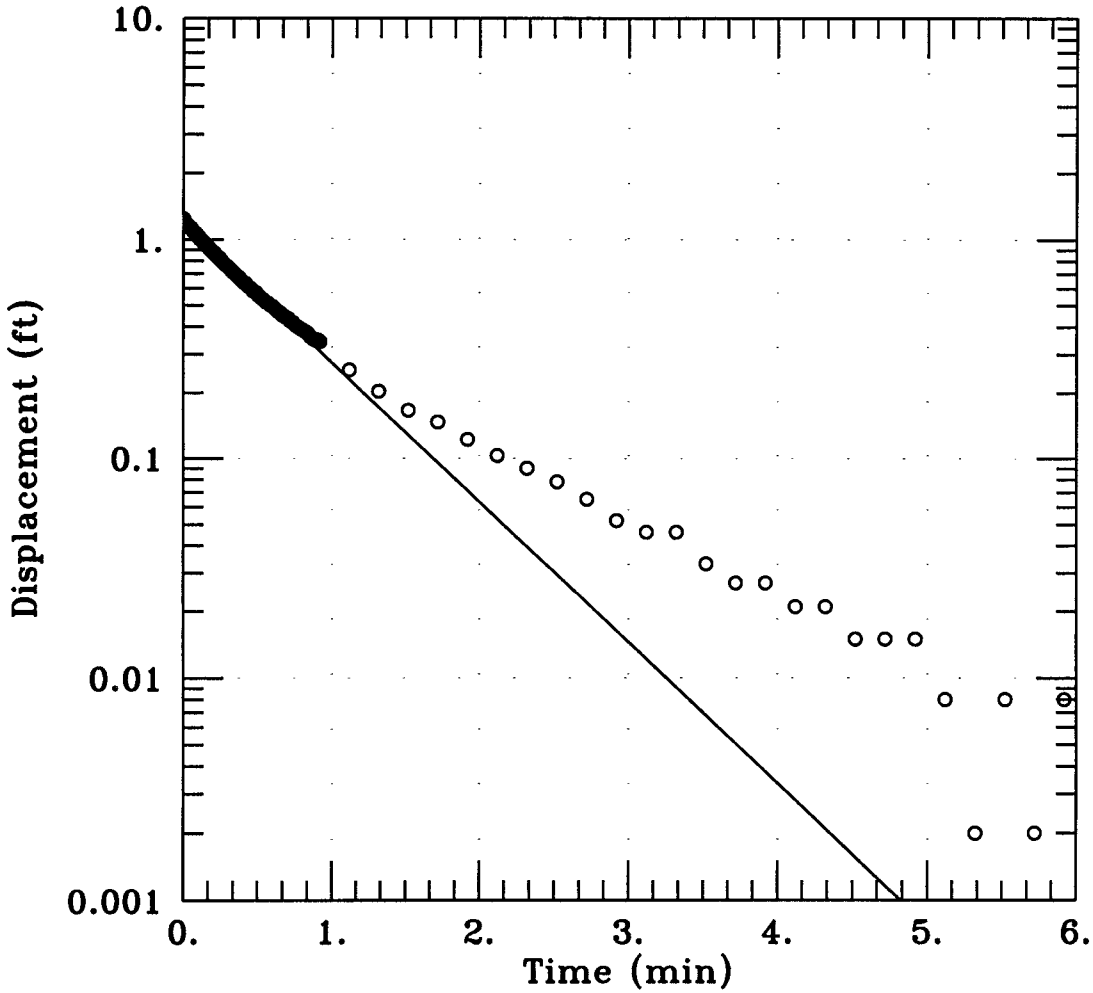
PARAMETER ESTIMATES:
K = 5.872 ft/day
y0 = 0.2269 ft

AQTESOLV

APPENDIX E.2
WELLHEAD TEST DATA (SLUG TESTS)
SWMU 2 - PHASE I

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU2 - NRR**	Project: **CTO-277**

2MW01 Falling Head Test



DATA SET:
2MW01F.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 18, 1996

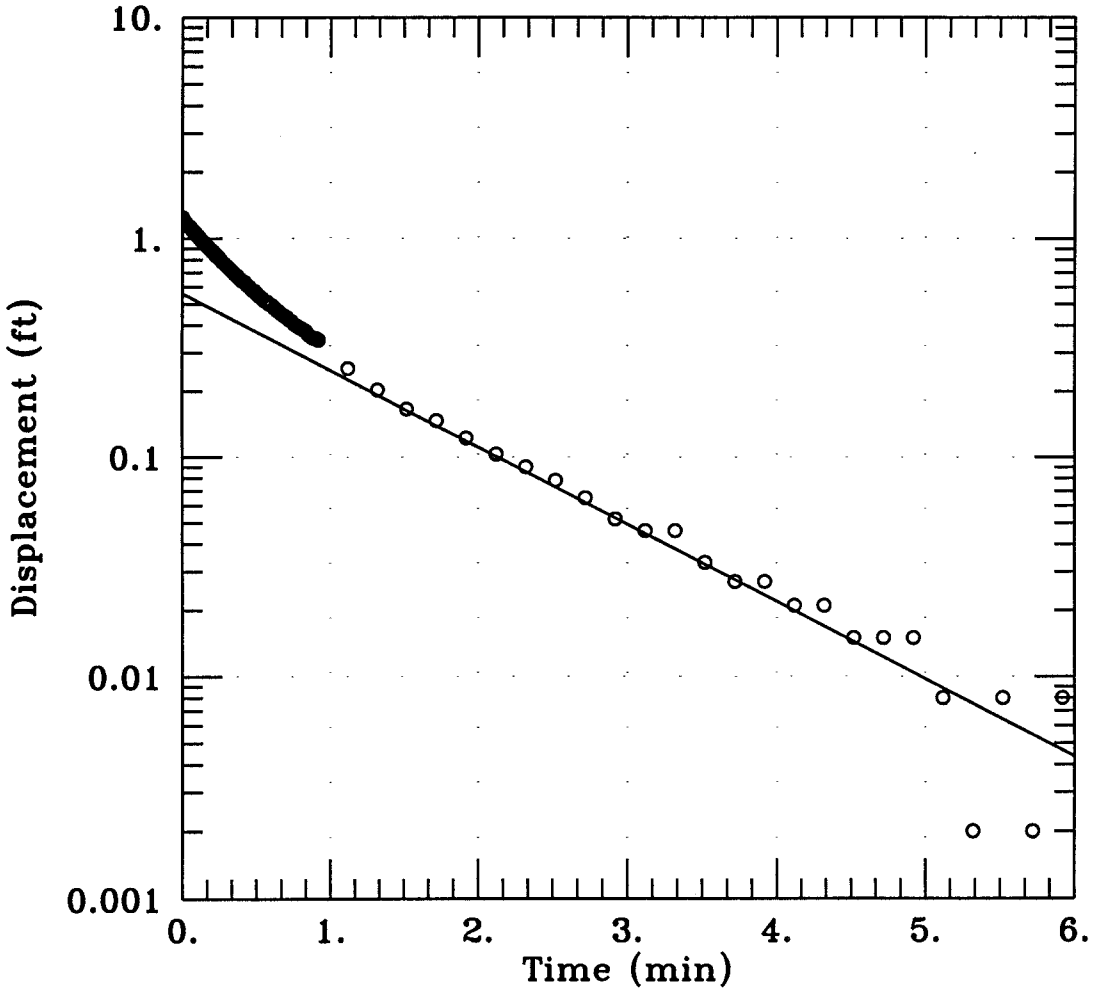
TEST DATA:
H0 = 1.242 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 23.3 ft
H = 23.3 ft

PARAMETER ESTIMATES:
K = 17.19 ft/day
y0 = 1.191 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU2 – NRR**	Project: **CTO-277**

2MW01 Falling Head Test



DATA SET:
2MW01F.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 18, 1996

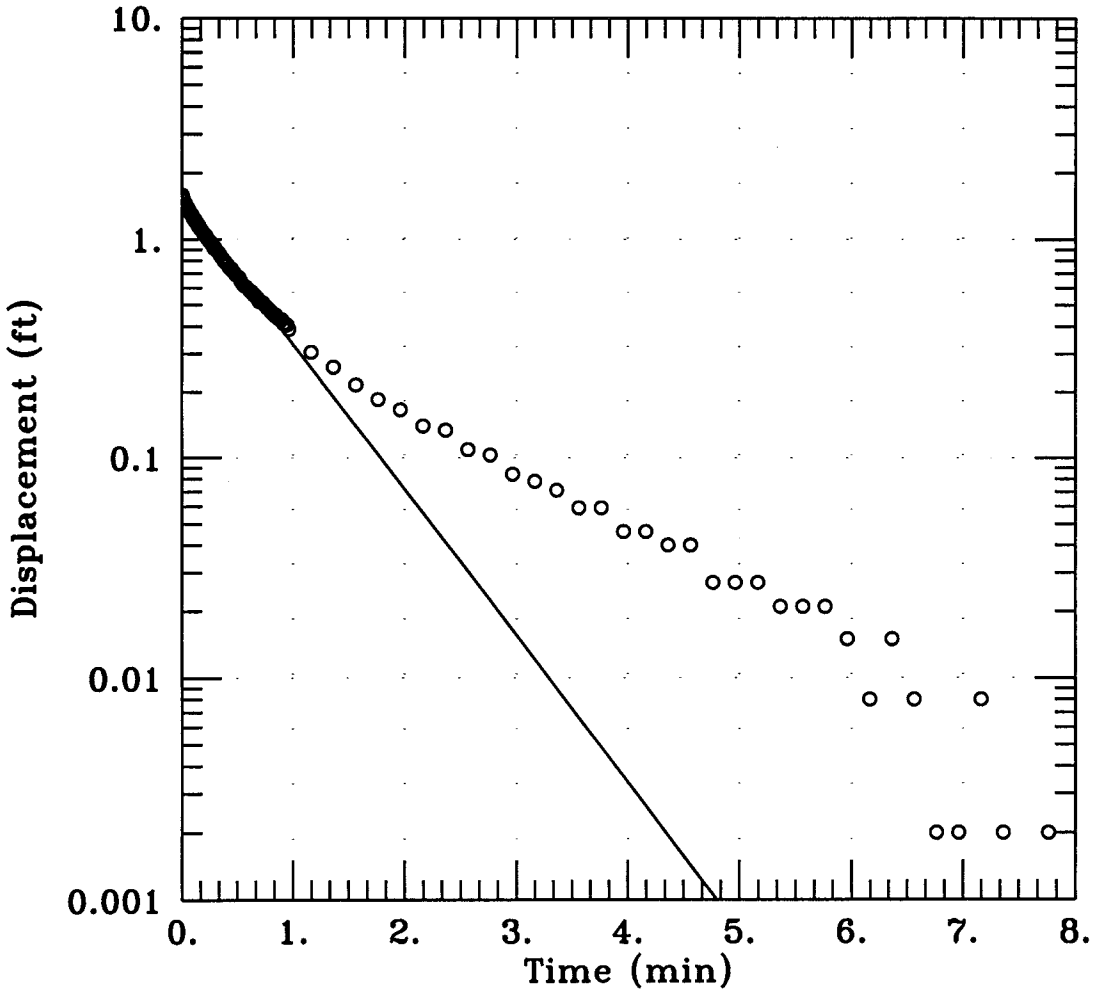
TEST DATA:
H0 = 1.242 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 23.3 ft
H = 23.3 ft

PARAMETER ESTIMATES:
K = 9.477 ft/day
y0 = 0.5591 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU2 - NRR**	Project: **CTO-277**

2MW01 Rising Head Test



DATA SET:
2MW01R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 18, 1996

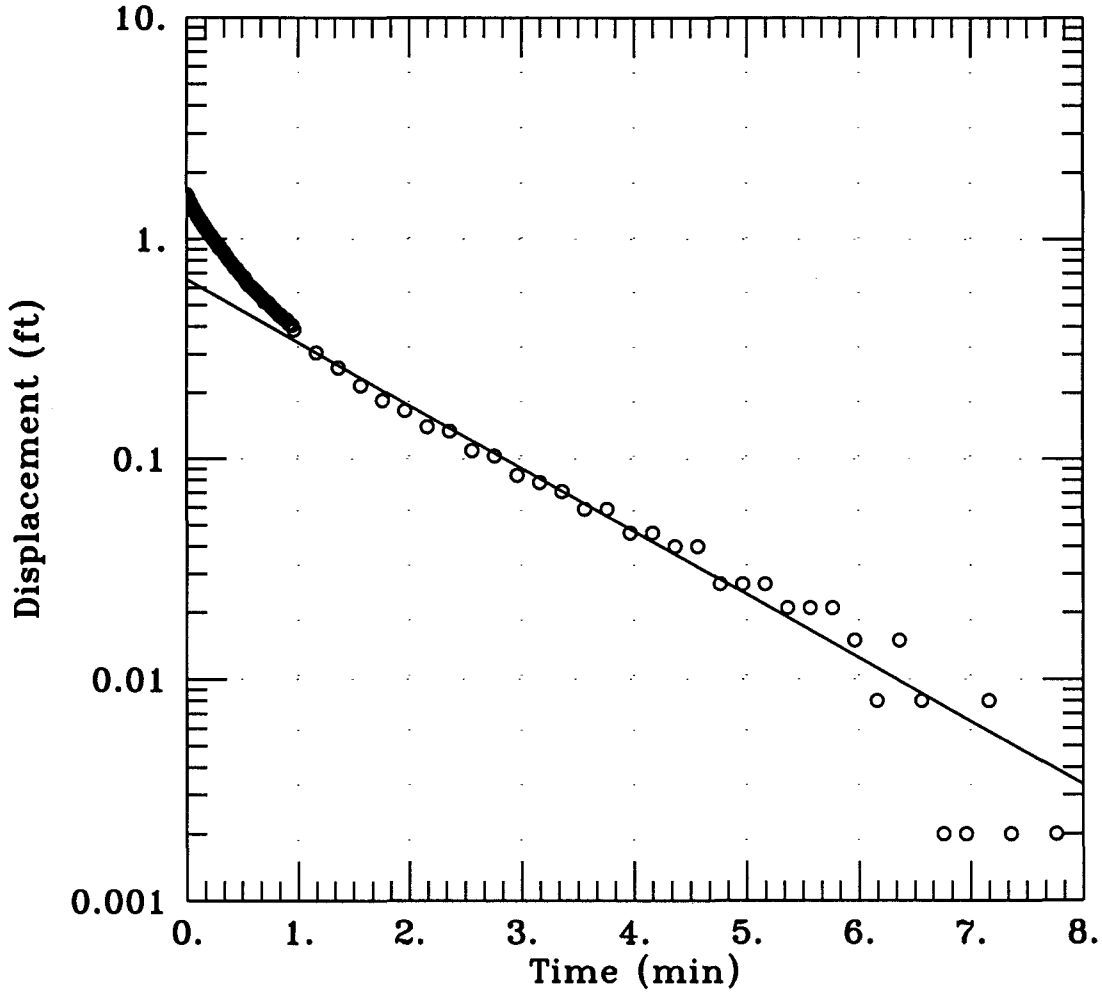
TEST DATA:
H0 = 1.587 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 23.3 ft
H = 23.3 ft

PARAMETER ESTIMATES:
K = 17.88 ft/day
y0 = 1.523 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU2 - NRR**	Project: **CTO-277**

2MW01 Rising Head Test



DATA SET:
2MW01R.DAT
02/20/97

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 18, 1996

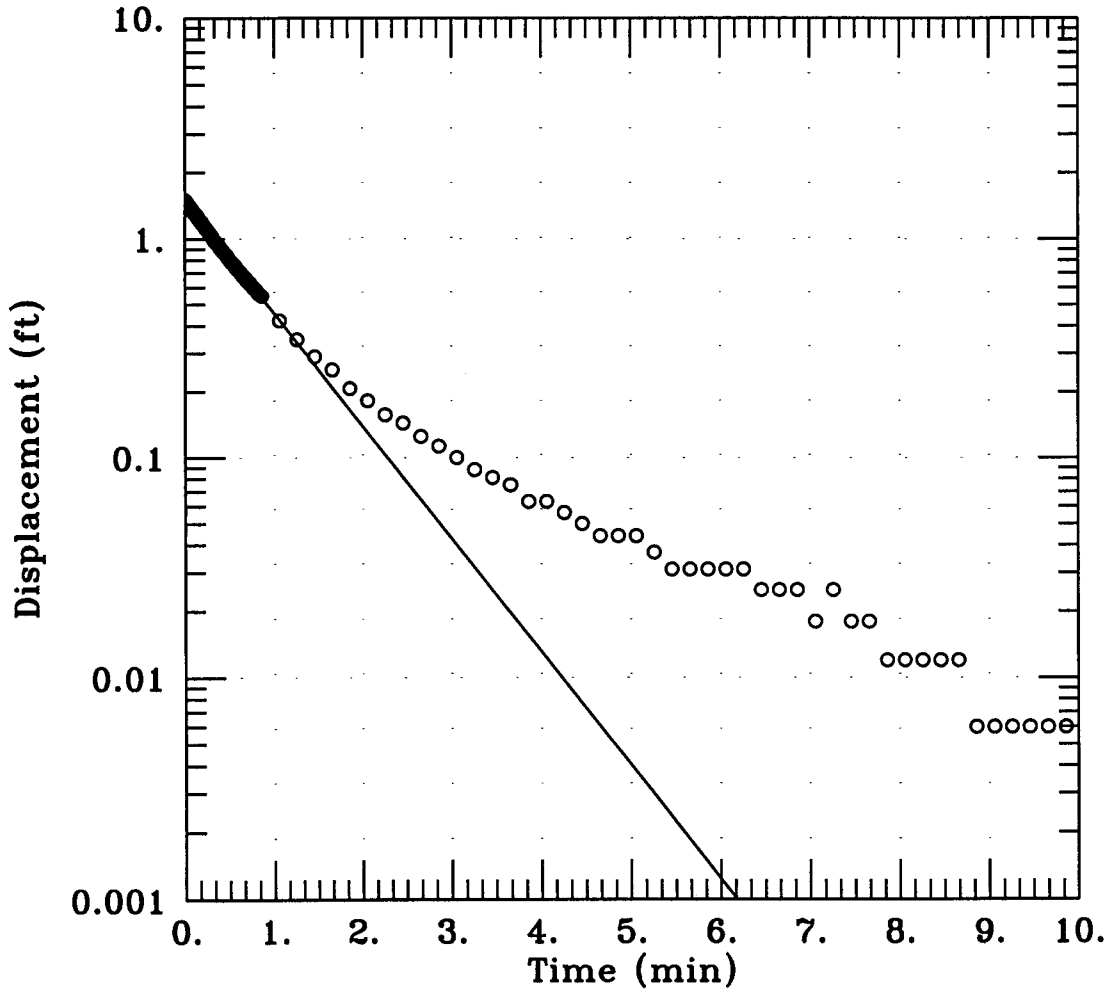
TEST DATA:
H0 = 1.587 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 23.3 ft
H = 23.3 ft

PARAMETER ESTIMATES:
K = 7.721 ft/day
y0 = 0.6545 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU2 - NRR**	Project: **CTO-277**

2MW02 Falling Head Test



DATA SET:
2MW02F.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 18, 1996

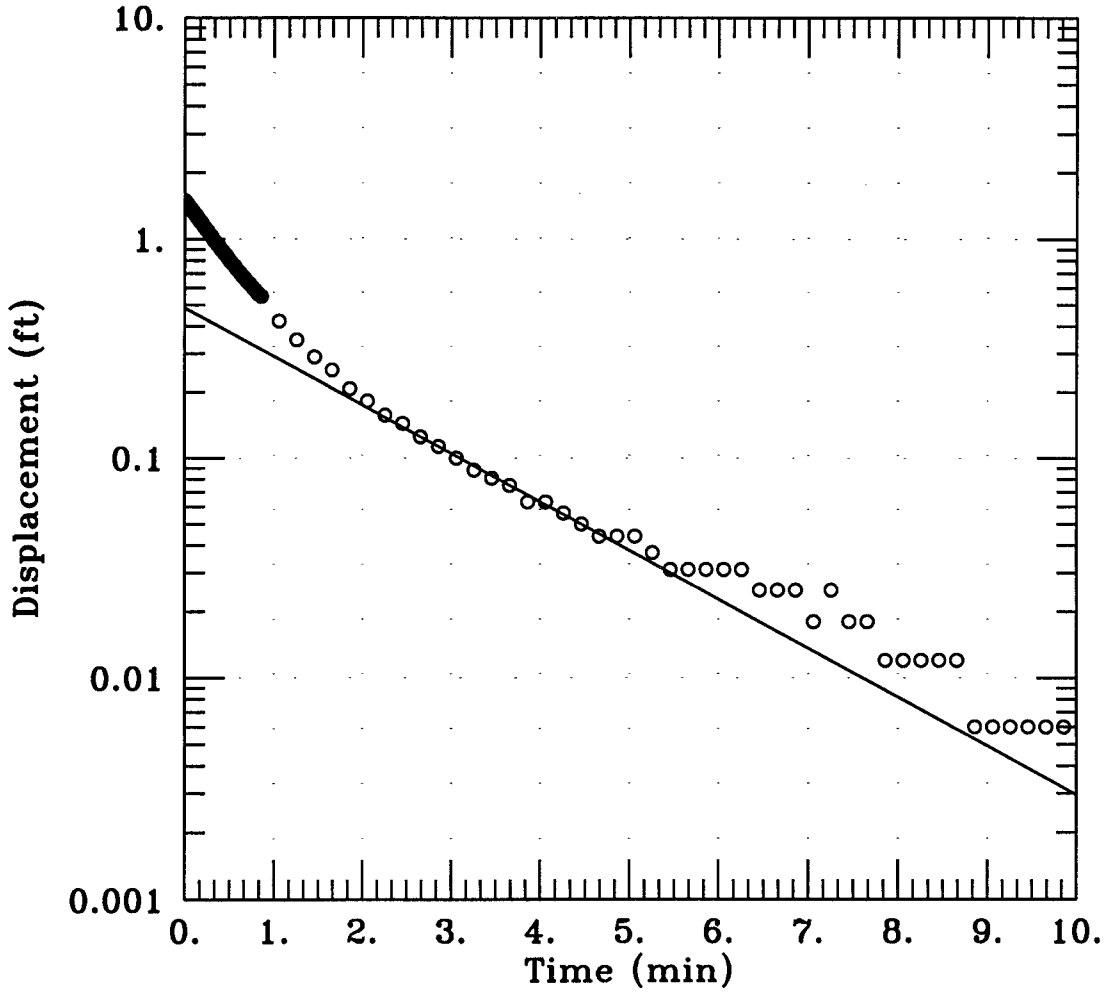
TEST DATA:
H0 = 1.494 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 29.7 ft
H = 29.7 ft

PARAMETER ESTIMATES:
K = 14.52 ft/day
y0 = 1.479 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU2 – NRR**	Project: **CTO-277**

2MW02 Falling Head Test



DATA SET:
2MW02F.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 18, 1996

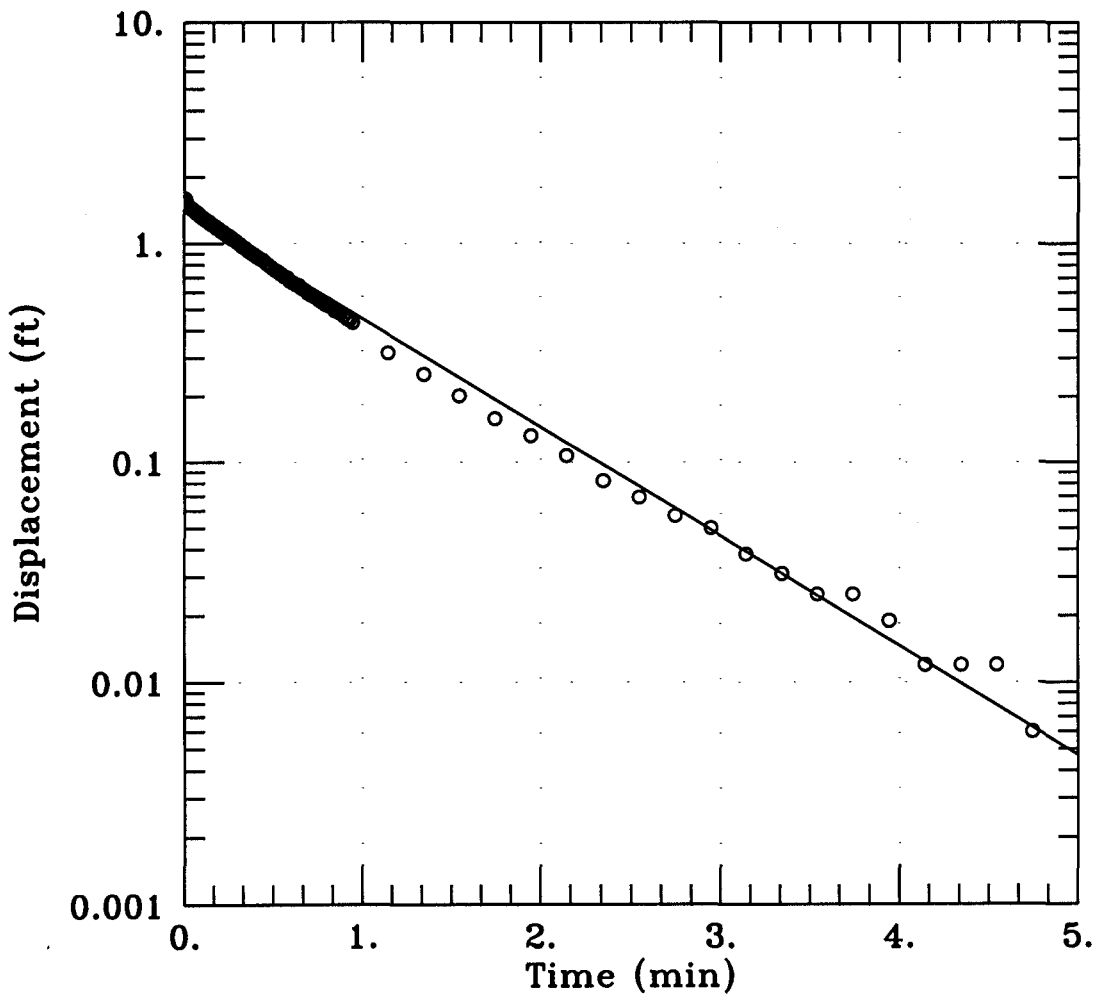
TEST DATA:
H0 = 1.494 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 29.7 ft
H = 29.7 ft

PARAMETER ESTIMATES:
K = 6.271 ft/day
y0 = 0.4847 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU2 – NRR**	Project: **CTO-277**

2MW02 Rising Head Test



DATA SET:
2MW02R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 18, 1996

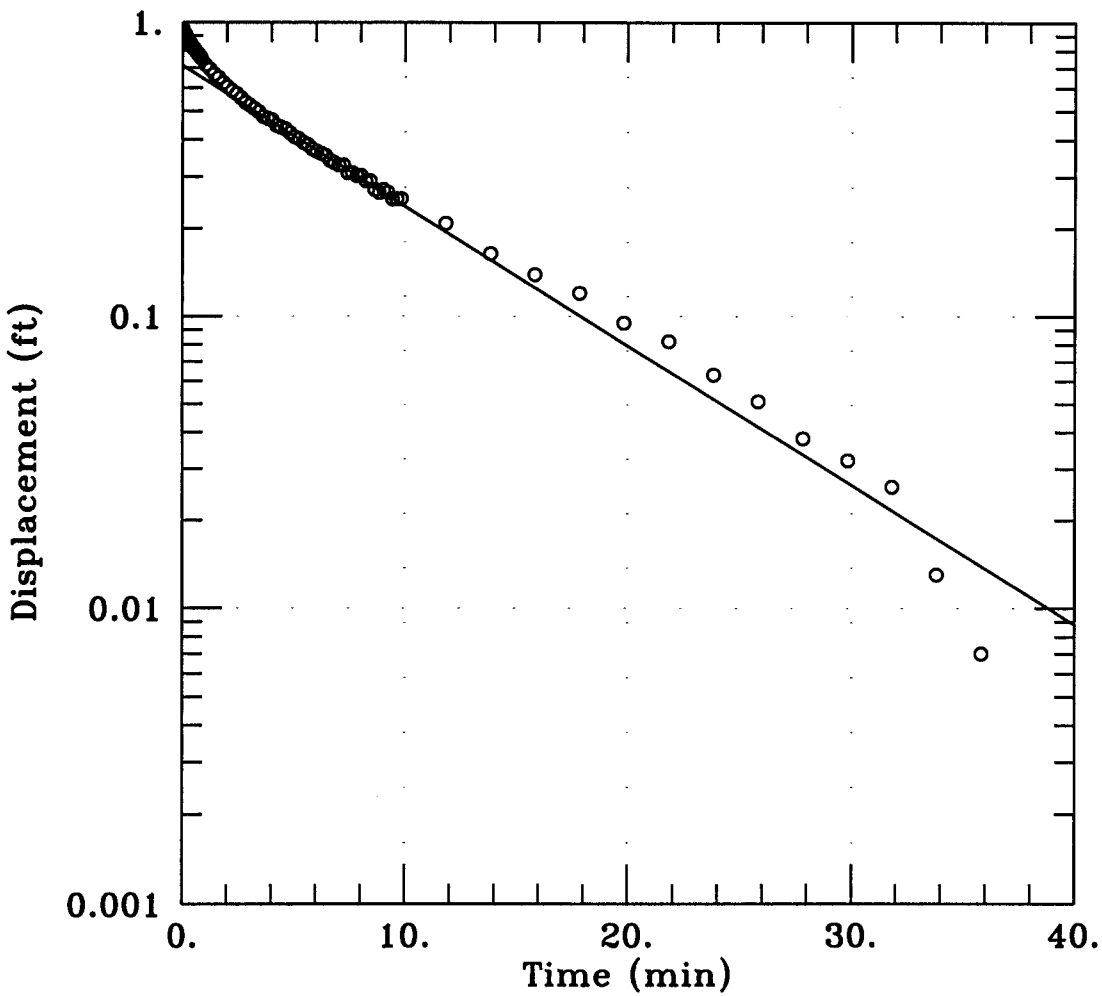
TEST DATA:
H0 = 1.6 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 29.7 ft
H = 29.7 ft

PARAMETER ESTIMATES:
K = 14.06 ft/day
y0 = 1.422 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU2 – NRR**	Project: **CTO–277**

2MW03 Falling Head Test



DATA SET:
2MW03F.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 18, 1996

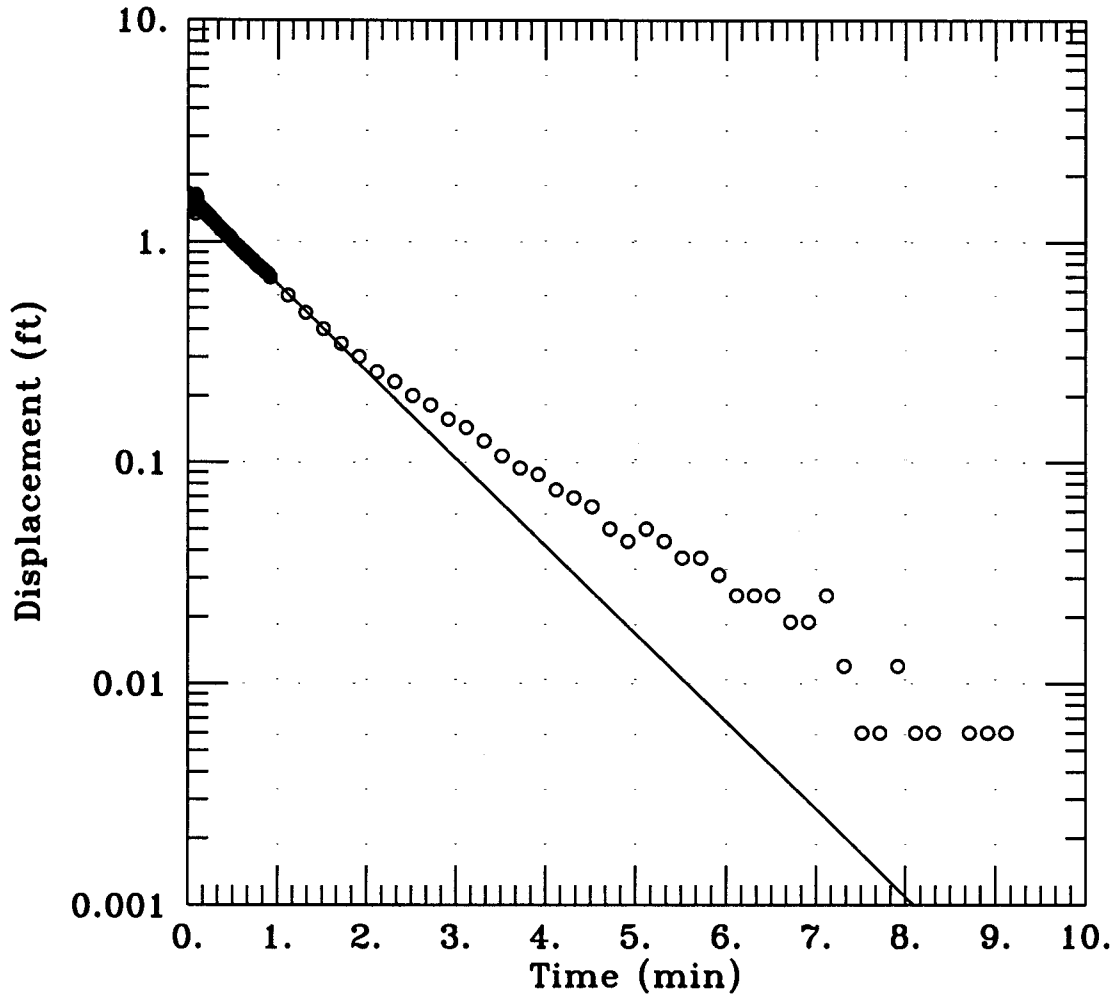
TEST DATA:
H0 = 0.951 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 22.4 ft
H = 22.4 ft

PARAMETER ESTIMATES:
K = 1.277 ft/day
y0 = 0.7133 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 2 - NRR**	Project: **CTO-277**

6GW01 Falling Head Test



DATA SET:
6GW01F.DAT
02/20/97

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 19, 1996

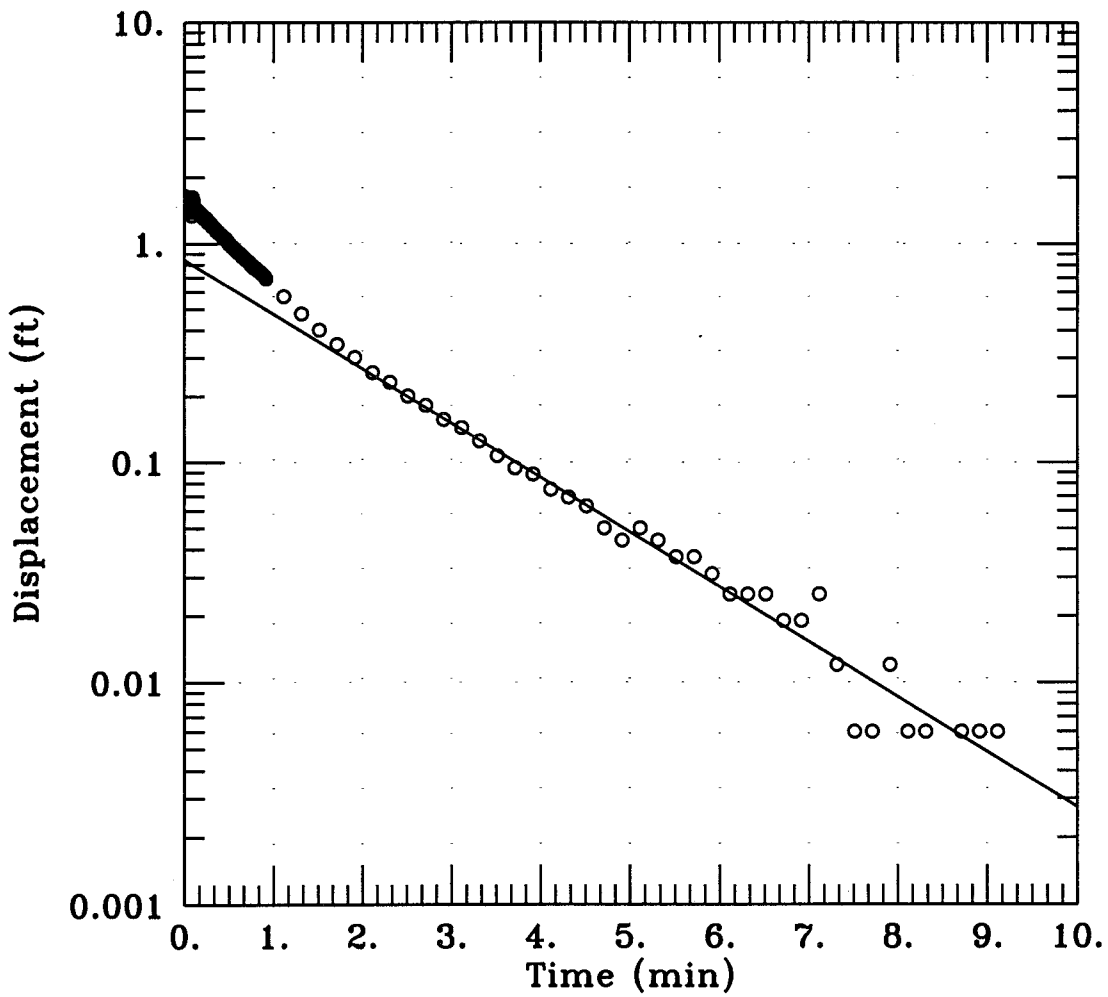
TEST DATA:
H0 = 1.64 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 15.6 ft
H = 15.6 ft

PARAMETER ESTIMATES:
K = 9.771 ft/day
y0 = 1.604 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 2 - NRR**	Project: **CTO-277**

6GW01 Falling Head Test



DATA SET:
6GW01F.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 19, 1996

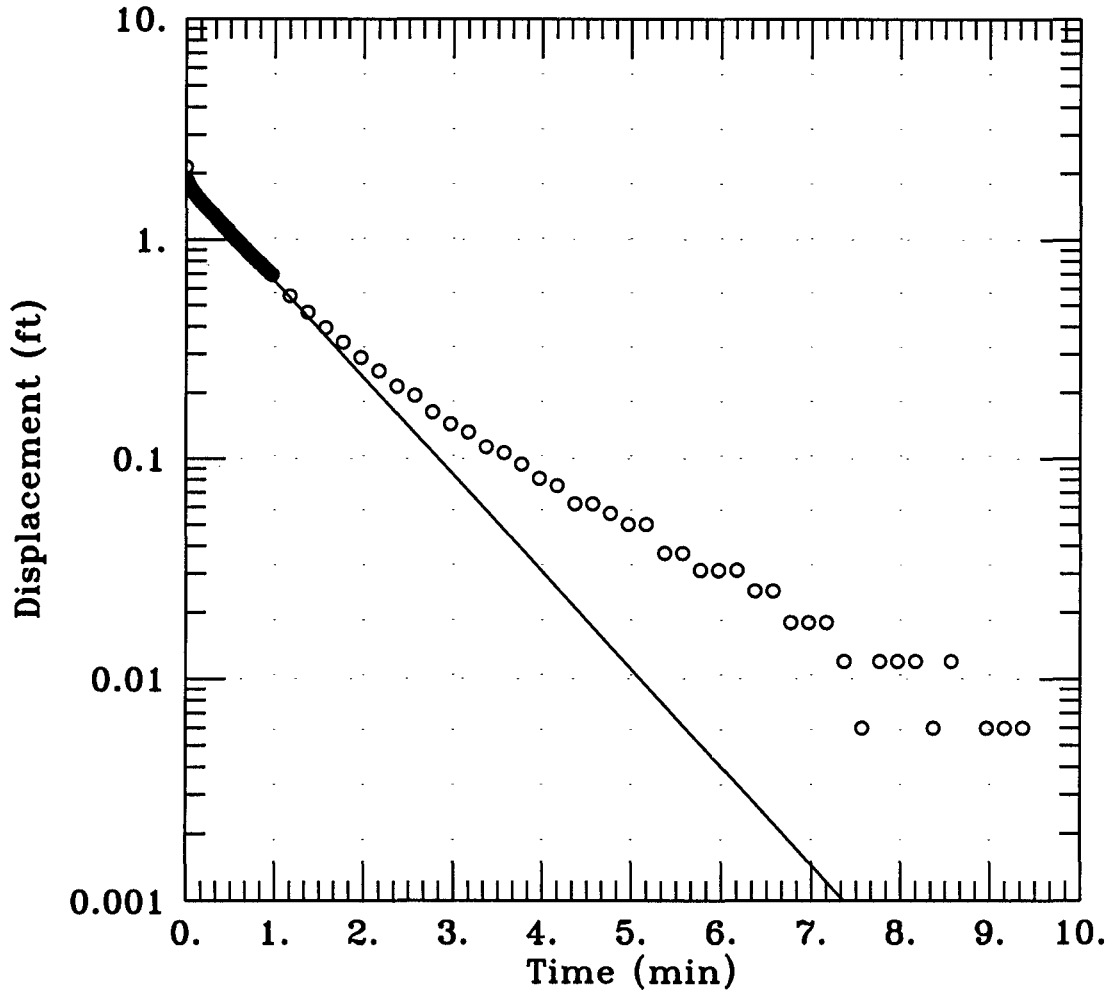
TEST DATA:
H0 = 1.64 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 15.6 ft
H = 15.6 ft

PARAMETER ESTIMATES:
K = 6.136 ft/day
y0 = 0.8409 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 2 - NRR**	Project: **CTO-277**

6GW01 Rising Head Test



DATA SET:
6GW01R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 19, 1996

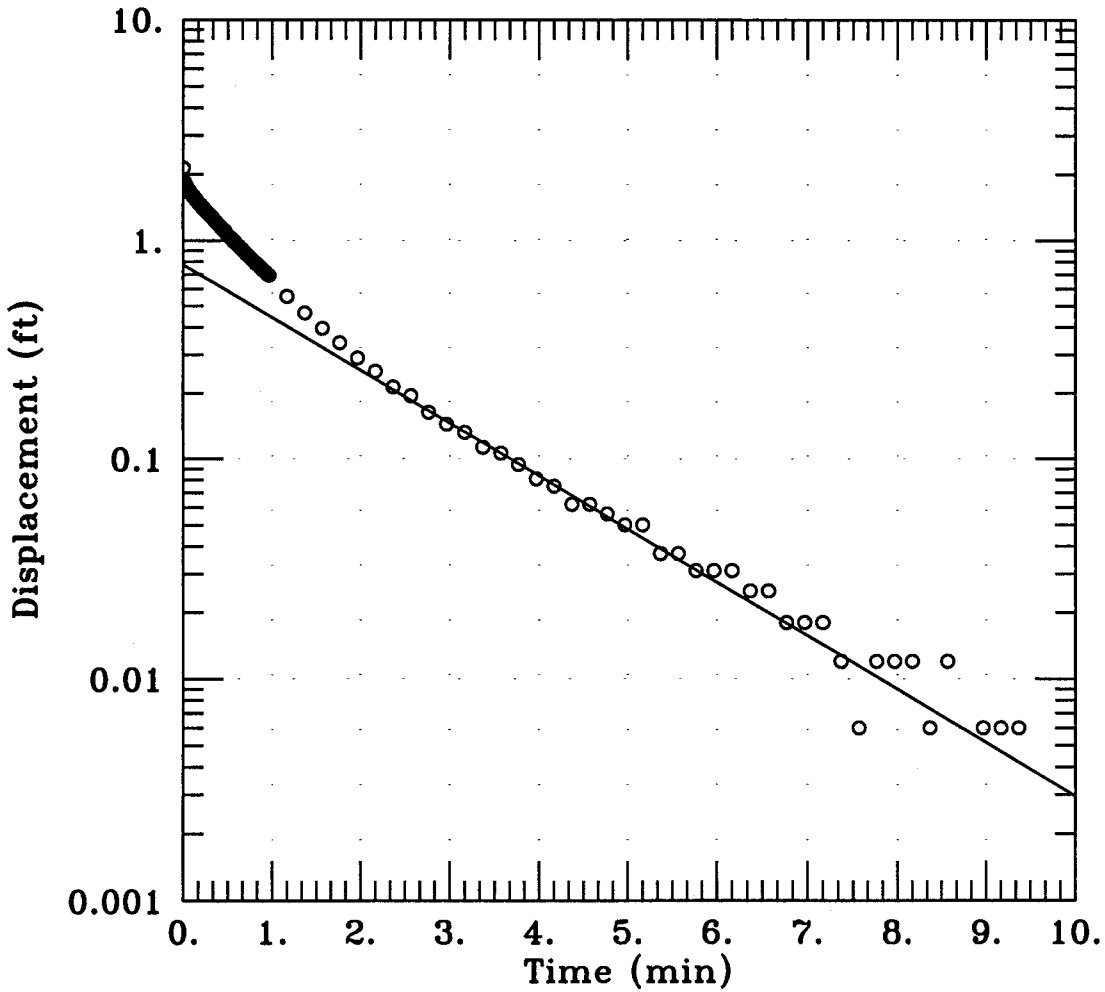
TEST DATA:
H0 = 2.129 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 15.6 ft
H = 15.6 ft

PARAMETER ESTIMATES:
K = 10.9 ft/day
y0 = 1.783 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 2 – NRR**	Project: **CTO-277**

6GW01 Rising Head Test



DATA SET:
6GW01R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 19, 1996

TEST DATA:
H0 = 2.129 ft
rc = 0.17 ft
rw = 0.46 ft
L = 15. ft
b = 15.6 ft
H = 15.6 ft

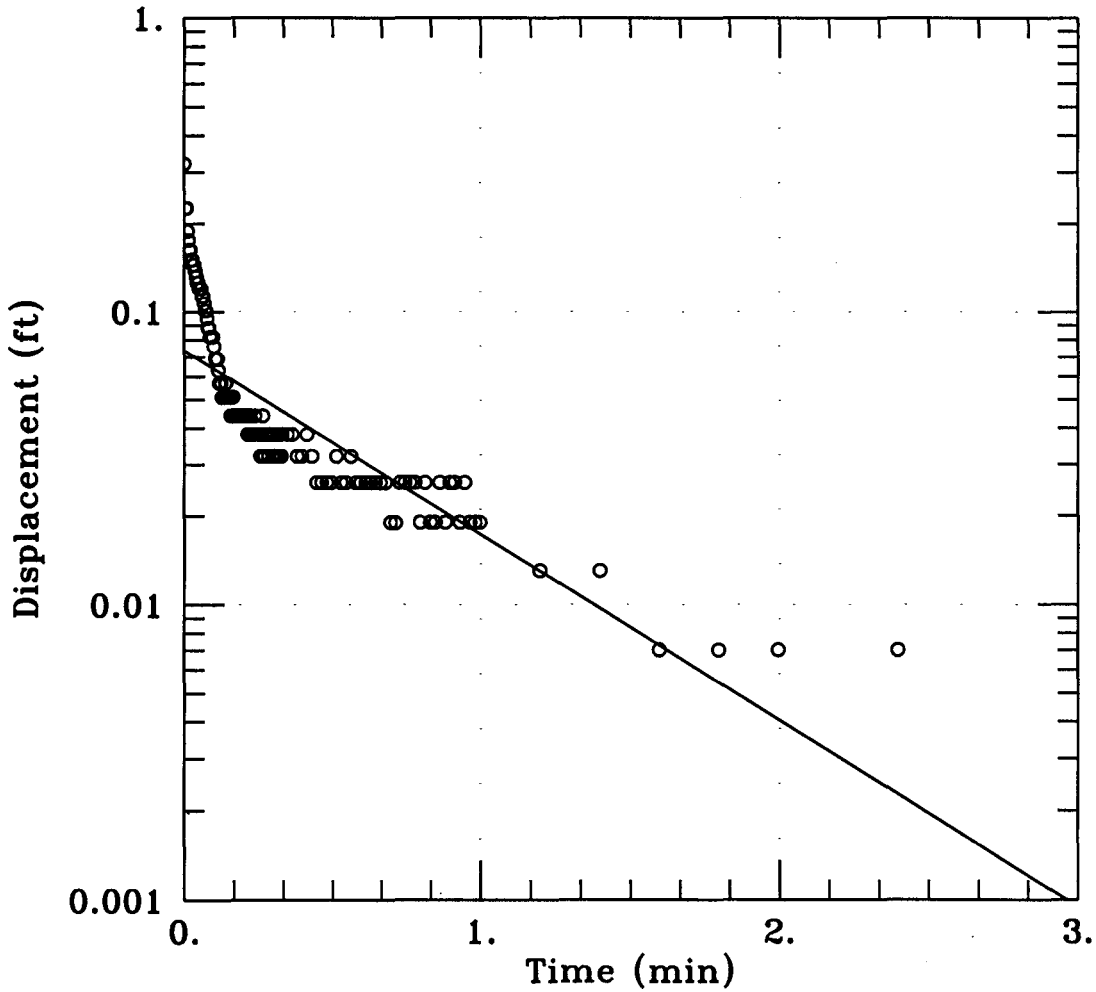
PARAMETER ESTIMATES:
K = 5.966 ft/day
y0 = 0.774 ft

AQTESOLV

APPENDIX E.3
WELLHEAD TEST DATA (SLUG TESTS)
SWMU 11/45 - PHASE I

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 11/45 - NRR**	Project: **CTO-277**

45MW01 Rising Head Test



DATA SET:
45MW01F.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 26, 1996

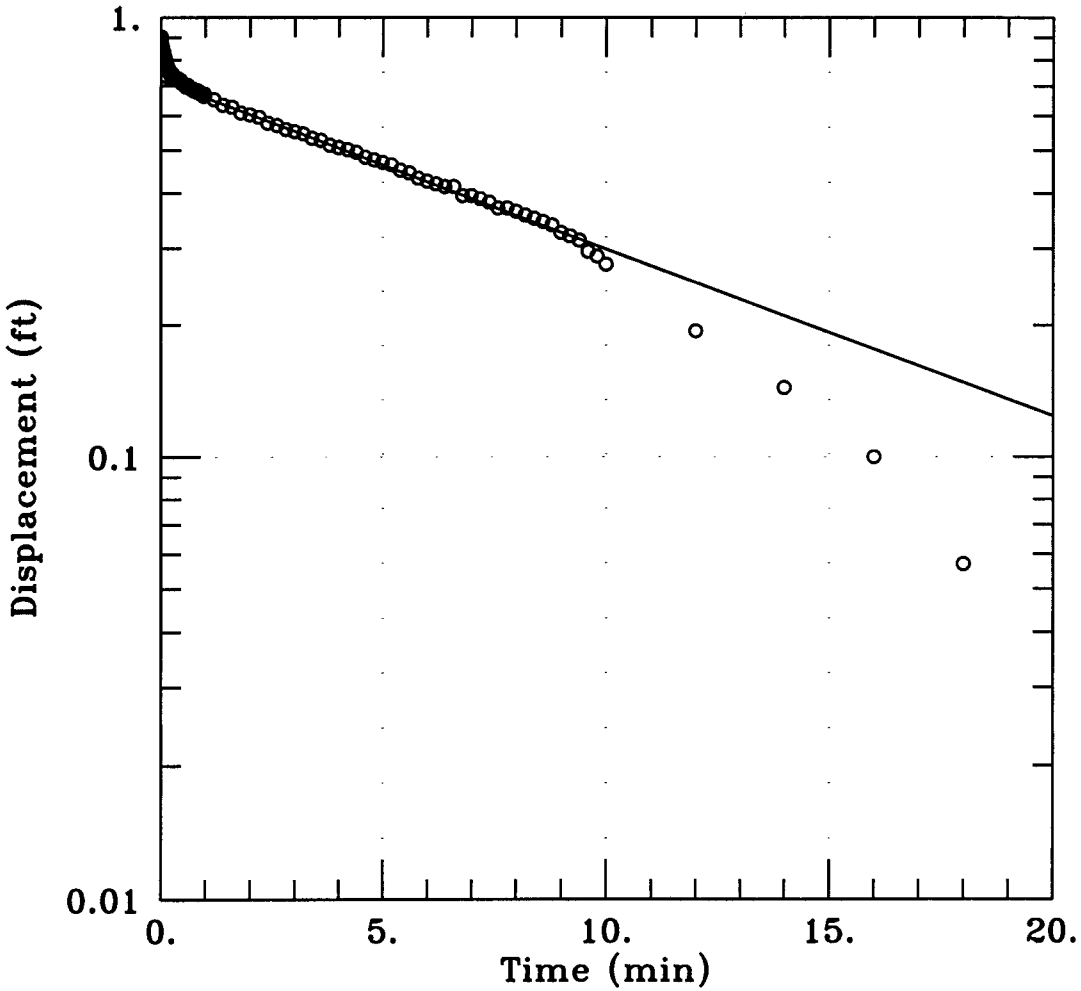
TEST DATA:
H0 = 0.32 ft
rc = 0.17 ft
rw = 0.46 ft
L = 10. ft
b = 11. ft
H = 7.1 ft

PARAMETER ESTIMATES:
K = 16.28 ft/day
y0 = 0.07365 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 11/45**	Project: **CTO-277**

45MW02 Rising Head Test



DATA SET:
45MW02R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 26, 1996

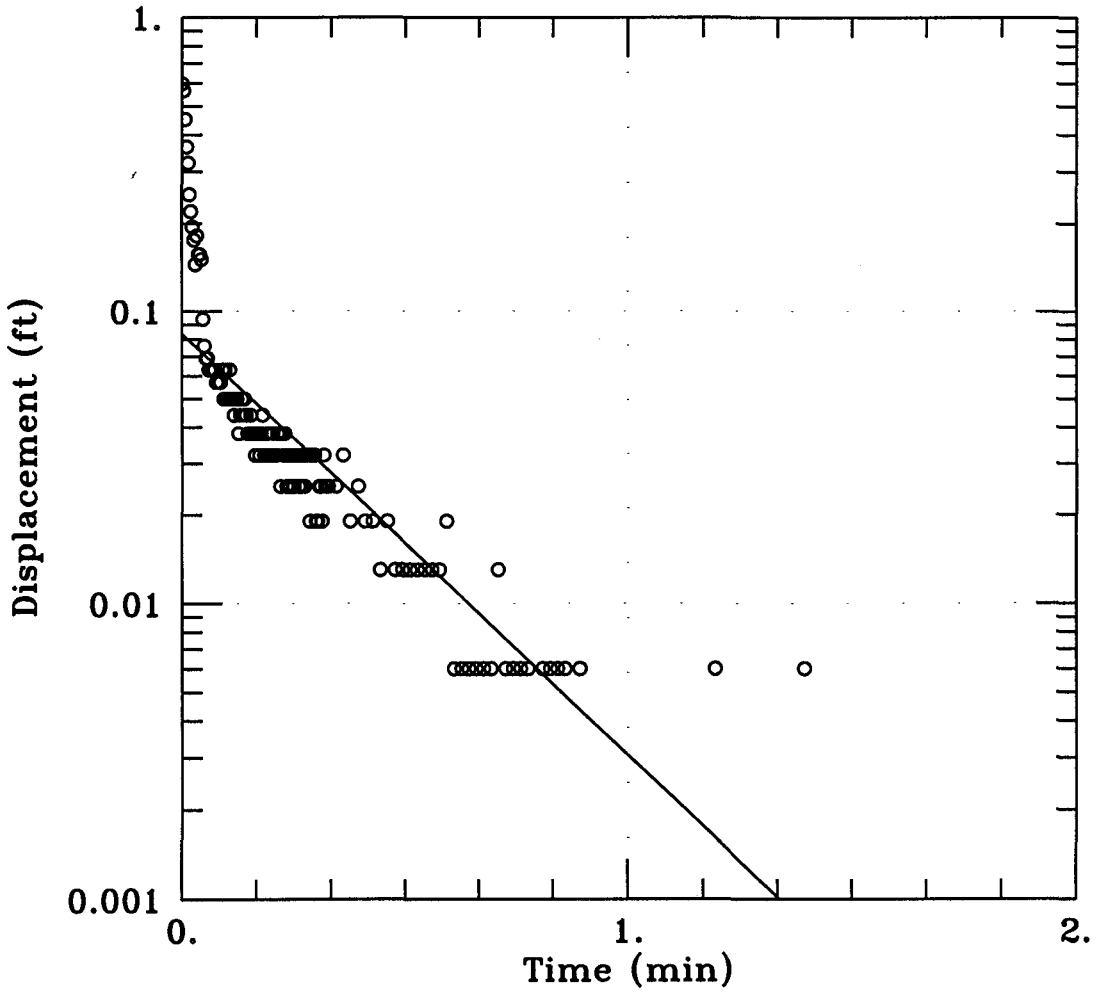
TEST DATA:
H0 = 0.903 ft
rc = 0.17 ft
rw = 0.46 ft
L = 10. ft
b = 11. ft
H = 5.6 ft

PARAMETER ESTIMATES:
K = 0.9114 ft/day
y0 = 0.7185 ft

AQTESOLV

Client: **LANTDIV**	Company: **Baker Environmental**
Location: **SWMU 11/45 - NRR**	Project: **CTO-277**

45MW04 Rising Head Test



DATA SET:
45MW04R.DAT
12/13/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: Nov. 26, 1996

TEST DATA:
H0 = 0.597 ft
rc = 0.17 ft
rw = 0.46 ft
L = 20. ft
b = 21. ft
H = 14.8 ft

PARAMETER ESTIMATES:
K = 24.28 ft/day
y0 = 0.08354 ft

AQTESOLV

APPENDIX F
ANALYTICAL LABORATORY RESULTS

Data Qualifiers:

U - Not detected. The associated number indicates the approximate sample concentration necessary to be detected.

UJ - Not detected, quantitation limit may be inacurate or imprecise.

J - Analyte present. Reported value may not be accurate or precise.

NJ - Presumptive evidence for the presence of the parameter at an estimated value.

C - Results were confirmed by GC/MS.

D - Parameter identified in an analysis at a secondary dilution factor.

B - Not detected substantially above the level in laboratory or field blanks.

R - Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

E - Concentration exceeds calibration range of GC/MS instrument.

JS - Estimted value. Signal to noise ratio threshold was exceeded.

Notes:

NA - Not Analyzed.

ND - None Detected.

NE - Not Established.

APPENDIX F.1
SURFACE SOIL, ORGANICS, SWMU 1

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW03	1MW04	1SB01	1SB02	1SB03
Sample ID	05SS126	05SS128	05SS130	05SS132	05SS135	05SS138	1MW01-00	1MW02-00	1MW03-00	1MW04-00	1SB01-00	1SB02-00	1SB03-00
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/11/96	10/11/96	10/13/96	10/13/96	10/13/96	10/11/96
Depth Range (ft.)	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg)													
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	11 U	12 UJ	12 UJ	12 UJ	13 U	12 UJ	12 U
1,1,1-Trichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 UJ	6 U	6 UJ	6 UJ	6 U
1,1,2-Trichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 U	6 U	6 U
1,1-Dichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 U	6 U	6 U
1,1-Dichloroethene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 U	6 U	6 U
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	11 U	12 UJ	12 UJ	12 UJ	13 UJ	12 UJ	12 U
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA	23 UJ	24 UJ	25 UJ	24 UJ	25 UJ	24 UJ	25 U
1,2-Dibromoethane	NA	NA	NA	NA	NA	NA	23 U	24 UJ	25 UJ	24 UJ	25 U	24 UJ	25 U
1,2-Dichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 U	6 U	6 U
1,2-Dichloroethene (Total)	NA	NA	NA	NA	NA	NA	6 U	6 UJ	6 UJ	6 U	6 U	6 U	6 U
1,2-Dichloropropane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 U	6 U	6 U
2-Butanone	12 UJ	12 UJ	12 U	13 UJ	13 UJ	11 UJ	11 UJ	12 UJ	12 UJ	12 U	13 U	12 U	12 U
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA	110 R	120 UJ	120 UJ	120 UJ	130 UJ	120 UJ	120 U
2-Hexanone	12 U	12 U	12 U	13 U	13 U	11 U	11 UJ	12 UJ	12 UJ	12 U	13 UJ	12 UJ	12 U
3-Chloropropene	NA	NA	NA	NA	NA	NA	23 U	24 UJ	25 UJ	24 UJ	25 U	24 UJ	25 U
4-Methyl-2-pentanone	12 U	12 U	12 U	13 U	13 U	11 U	11 U	12 UJ	12 UJ	12 U	13 UJ	12 UJ	12 U
Acetone	73 J	170 UJ	38 J	48 J	13 U	83 J	11 U	15 J	12 UJ	12 UJ	13 U	12 UJ	12 U
Acetonitrile	NA	NA	NA	NA	NA	NA	110 U	120 UJ	120 UJ	120 U	130 U	120 U	120 U
Acrolein	NA	NA	NA	NA	NA	NA	570 U	600 UJ	620 UJ	590 U	640 U	610 U	620 UJ
Acrylonitrile	NA	NA	NA	NA	NA	NA	110 U	120 UJ	120 UJ	120 U	130 U	120 U	120 U
Benzene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 U	6 U	6 U
Bromodichloromethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 UJ	6 U	6 UJ	6 U
Bromoform	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 U
Bromomethane	12 U	12 U	12 U	13 U	13 U	11 U	11 U	12 UJ	12 UJ	12 U	13 U	12 U	12 U
Carbon disulfide	14	10	18	10	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 U	6 U	6 U
Carbon tetrachloride	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 U	6 U	6 U
Chlorobenzene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 UJ	6 UJ	6 U
Chloroethane	12 U	12 U	12 U	13 U	13 U	11 U	11 U	12 UJ	12 UJ	12 U	13 U	12 U	12 U
Chloroform	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 U	6 U	6 U
Chloromethane	12 U	12 U	12 UJ	13 U	13 U	11 U	11 U	12 UJ	12 UJ	12 U	13 UJ	12 U	12 UJ

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW03	1MW04	1SB01	1SB02	1SB03
Sample ID	05SS126	05SS128	05SS130	05SS132	05SS135	05SS138	1MW01-00	1MW02-00	1MW03-00	1MW04-00	1SB01-00	1SB02-00	1SB03-00
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/11/96	10/11/96	10/13/96	10/13/96	10/13/96	10/11/96
Depth Range (ft.)	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg) (cont.)													
cis-1,2-Dichloroethylene	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 UJ	6 U	6 UJ	6 U
Dibromochloromethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 UJ	6 U	6 UJ	6 U
Dibromomethane	NA	NA	NA	NA	NA	NA	11 U	12 UJ	12 UJ	12 U	13 U	12 U	12 U
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	23 UJ	24 UJ	25 UJ	24 U	25 UJ	24 U	25 UJ
Ethene, 1,2-dichloro-, (E)-	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	NA	NA	NA	NA	NA	NA	23 UJ	24 UJ	25 UJ	24 U	25 UJ	24 UJ	25 U
Ethylbenzene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	1 J	6 UJ	6 U
Iodomethane	NA	NA	NA	NA	NA	NA	11 U	12 UJ	12 UJ	12 UJ	13 U	12 UJ	12 U
Isobutanol	NA	NA	NA	NA	NA	NA	2,300 R	2,400 R	2,500 R	2,400 R	2,500 R	2,400 R	2,500 R
m/p-xylene	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA	23 U	24 UJ	25 UJ	24 U	25 U	24 U	25 U
Methyl methacrylate	NA	NA	NA	NA	NA	NA	23 U	24 UJ	25 UJ	24 U	25 U	24 U	25 U
Methylene chloride	31 U	35 U	28 U	29 U	8	6 U	6 U	6 UJ	6 UJ	6 U	6 U	6 U	6 U
o-Xylene	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	NA	23 U	24 UJ	25 UJ	24 U	25 UJ	24 UJ	25 U
Propionitrile	NA	NA	NA	NA	NA	NA	57 R	60 UJ	62 UJ	59 R	64 R	61 R	62 UJ
Styrene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 UJ	6 UJ	6 U
Tetrachloroethene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 UJ	3 J	6 UJ	6 U
Toluene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 UJ	6 UJ	6 U
trans-1,3-Dichloropropene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	6 U
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	23 UJ	24 UJ	25 UJ	24 U	25 UJ	24 UJ	25 U
Trichloroethene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 U	6 U	6 U
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	11 U	12 UJ	12 UJ	12 U	13 U	12 U	12 UJ
Vinyl Acetate	12 U	12 U	12 U	13 U	13 U	11 U	11 UJ	12 UJ	12 UJ	12 U	13 U	12 U	12 U
Vinyl chloride	12 U	12 U	12 U	13 U	13 U	11 U	11 U	12 UJ	12 UJ	12 U	13 UJ	12 U	12 U
Xylene (total)	NA	NA	NA	NA	NA	NA	6 U	6 UJ	6 UJ	6 U	5 J	6 UJ	6 U

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW03	1MW04	1SB01	1SB02	1SB03
Sample ID	05SS126	05SS128	05SS130	05SS132	05SS135	05SS138	1MW01-00	1MW02-00	1MW03-00	1MW04-00	1SB01-00	1SB02-00	1SB03-00
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/11/96	10/11/96	10/13/96	10/13/96	10/13/96	10/11/96
Depth Range (ft.)	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg)													
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	370 U	400 UJ	410 UJ	390 UJ	420 UJ	410 UJ	410 UJ
1,2,4-Trichlorobenzene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
1,2-Dichlorobenzene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 U	420 U	410 U	410 U
1,3-Dichlorobenzene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
1,4-Dichlorobenzene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
1,4-Dioxane	NA	NA	NA	NA	NA	NA	740 U	790 U	800 U	790 U	840 U	820 U	820 U
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA	1,800 U	2,000 UJ	2,000 UJ	2,000 UJ	2,100 UJ	2,000 UJ	2,000 UJ
1-Naphthylamine	NA	NA	NA	NA	NA	NA	740 U	790 UJ	800 UJ	790 U	840 U	820 U	820 UJ
2,2'-Oxybis(1-Chloropropane)	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	370 U	400 UJ	410 UJ	390 UJ	420 UJ	410 UJ	410 UJ
2,4,5-Trichlorophenol	3,800 U	3,800 U	3,900 U	3,800 U	4,000 UJ	3,800 U	1,800 U	2,000 U	2,000 U	2,000 U	2,100 U	2,000 U	2,000 U
2,4,6-Trichlorophenol	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
2,4-Dichlorophenol	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
2,4-Dimethylphenol	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
2,4-Dinitrophenol	3,800 U	3,800 U	3,900 U	3,800 U	4,000 UJ	3,800 U	1,800 U	2,000 UJ	2,000 UJ	2,000 UJ	2,100 UJ	2,000 UJ	2,000 UJ
2,4-Dinitrotoluene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA	370 U	400 UJ	410 UJ	390 UJ	420 UJ	410 UJ	410 UJ
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 U	420 U	410 U	410 U
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA	740 U	790 U	800 U	790 U	840 U	820 U	820 U
2-Chloronaphthalene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
2-Chlorophenol	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
2-Methylnaphthalene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	71 J
2-Naphthylamine	NA	NA	NA	NA	NA	NA	930 U	990 UJ	1,000 UJ	980 UJ	1,000 UJ	1,000 UJ	1,000 UJ
2-Nitroaniline	3,800 U	3,800 U	3,900 U	3,800 U	4,000 UJ	3,800 U	1,800 U	2,000 U	2,000 U	2,000 U	2,100 U	2,000 U	2,000 U
2-Nitrophenol	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
2-Picoline	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 U	420 U	410 U	410 U
2-sec-butyl-4,6-dinitrophenol	NA	NA	NA	NA	NA	NA	740 U	790 UJ	800 UJ	790 UJ	840 UJ	820 UJ	820 UJ
3,3'-Dichlorobenzidine	1,500 U	1,500 U	1,600 U	1,500 U	1,600 UJ	1,500 U	740 U	790 U	800 U	790 U	840 U	820 U	820 U
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA	1,800 U	2,000 R	2,000 R	2,000 UJ	2,100 UJ	2,000 UJ	2,000 R
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	370 U	400 UJ	410 UJ	390 UJ	420 UJ	410 UJ	410 UJ

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW03	1MW04	1SB01	1SB02	1SB03
Sample ID	05SS126	05SS128	05SS130	05SS132	05SS135	05SS138	1MW01-00	1MW02-00	1MW03-00	1MW04-00	1SB01-00	1SB02-00	1SB03-00
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/11/96	10/11/96	10/13/96	10/13/96	10/13/96	10/11/96
Depth Range (ft.)	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)													
3-Nitroaniline	3,800 U	3,800 U	3,900 U	3,800 U	4,000 UJ	3,800 U	1,800 U	2,000 UJ	2,000 UJ	2,000 UJ	2,100 UJ	2,000 UJ	2,000 UJ
4,6-Dinitro-2-methylphenol	3,800 U	3,800 U	3,900 U	3,800 U	4,000 UJ	3,800 U	1,800 U	2,000 U	2,000 U	2,000 U	2,100 U	2,000 U	2,000 U
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA	740 U	790 U	800 U	790 UJ	840 UJ	820 UJ	820 U
4-Bromophenyl phenyl ether	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
4-Chloro-3-methylphenol	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	740 U	790 U	800 U	790 U	840 U	820 U	820 U
4-Chloroaniline	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	740 U	790 U	800 U	790 U	840 U	820 U	820 U
4-Chlorophenyl phenyl ether	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
4-Nitroaniline	3,800 U	3,800 U	3,900 U	3,800 U	4,000 UJ	3,800 U	1,800 U	2,000 U	2,000 U	2,000 UJ	2,100 UJ	2,000 UJ	2,000 U
4-Nitrophenol	3,800 U	3,800 U	3,900 U	3,800 U	4,000 UJ	3,800 U	1,800 U	2,000 U	2,000 U	2,000 UJ	2,100 UJ	2,000 UJ	2,000 U
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA	1,800 U	2,000 R	2,000 R	2,000 R	2,100 R	2,000 R	2,000 R
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA	740 U	790 U	800 U	790 U	840 U	820 U	820 U
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	740 U	790 UJ	800 UJ	790 UJ	840 UJ	820 UJ	820 UJ
Acenaphthene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Acenaphthylene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Acetophenone	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 U	420 U	410 U	410 U
alpha, alpha-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA	1,800 UJ	2,000 UJ	2,000 UJ	2,000 UJ	2,100 UJ	2,000 UJ	2,000 UJ
Aniline	NA	NA	NA	NA	NA	NA	1,800 U	2,000 U	2,000 U	2,000 U	2,100 U	2,000 U	2,000 U
Anthracene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	48 J
Aramite	NA	NA	NA	NA	NA	NA	740 U	790 U	800 U	790 U	840 U	820 U	820 U
Benzidine	NA	NA	NA	NA	NA	NA	3,700 U	4,000 UJ	4,100 UJ	3,900 UJ	4,200 UJ	4,100 UJ	4,100 UJ
Benzo(a)anthracene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	180 J
Benzo(a)pyrene	1,500 U	1,500 U	1,560 UJ	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	260 J
Benzo(b)fluoranthene	1,500 U	1,500 U	1,560 UJ	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	570
Benzo(g,h,i)perylene	1,500 U	1,500 U	1,560 UJ	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	180 J
Benzo(k)fluoranthene	1,500 U	1,500 U	1,560 UJ	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	260 J
Benzoic acid	NA	NA	NA	NA	NA	NA	1,800 U	2,000 U	2,000 U	2,000 UJ	2,100 UJ	2,000 UJ	2,000 U
Benzyl alcohol	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 UJ	420 UJ	410 UJ	410 U
Bis(2-chloroethoxy)methane	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Bis(2-chloroethyl)ether	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Bis(2-ethylhexyl)phthalate	1,500 U	1,500 U	430 J	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Butylbenzylphthalate	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW03	1MW04	1SB01	1SB02	1SB03
Sample ID	05SS126	05SS128	05SS130	05SS132	05SS135	05SS138	1MW01-00	1MW02-00	1MW03-00	1MW04-00	1SB01-00	1SB02-00	1SB03-00
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/11/96	10/11/96	10/13/96	10/13/96	10/13/96	10/11/96
Depth Range (ft.)	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)													
Carbazole	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 UJ	410 UJ	390 U	420 U	410 U	410 UJ
Chlorobenzilate	NA	NA	NA	NA	NA	NA	370 U	400 UJ	410 UJ	390 UJ	420 UJ	410 UJ	410 UJ
Chrysene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	270 J
Diallate	NA	NA	NA	NA	NA	NA	370 UJ	400 UJ	410 UJ	390 U	420 U	410 U	410 UJ
Dibenzo(a,h)anthracene	1,500 U	1,500 U	1,560 UJ	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	57 J
Dibenzofuran	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Diethylphthalate	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Dimethylphthalate	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Di-n-butylphthalate	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Di-n-octylphthalate	1,500 U	1,500 U	1,560 UJ	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Diphenylamine	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA	370 U	400 UJ	410 UJ	390 UJ	420 UJ	410 UJ	410 UJ
Fluoranthene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	120 J
Fluorene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Hexachlorobenzene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Hexachlorobutadiene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Hexachlorocyclopentadiene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Hexachloroethane	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Hexachlorophene	NA	NA	NA	NA	NA	NA	3,700 R	4,000 R	4,100 R	3,900 R	4,200 R	4,100 R	4,100 R
Hexachloropropene	NA	NA	NA	NA	NA	NA	1,800 U	2,000 UJ	2,000 UJ	2,000 UJ	2,100 UJ	2,000 UJ	2,000 UJ
Indeno(1,2,3-cd)pyrene	1,500 U	1,500 U	1,560 UJ	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	190 J
Isophorone	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Isosafrole	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 U	420 U	410 U	410 U
m&p Cresol	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 U	420 U	410 U	410 U
m-Dinitrobenzene	NA	NA	NA	NA	NA	NA	740 U	790 UJ	800 UJ	790 UJ	840 UJ	820 UJ	820 UJ
Meta-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA	930 UJ	990 UJ	1,000 UJ	980 UJ	1,000 UJ	1,000 UJ	1,000 UJ
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA	370 U	400 UJ	410 UJ	390 UJ	420 UJ	410 UJ	410 UJ
Naphthalene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Nitrobenzene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA	370 UJ	400 U	410 U	390 UJ	420 UJ	410 UJ	410 U

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW03	1MW04	1SB01	1SB02	1SB03
Sample ID	05SS126	05SS128	05SS130	05SS132	05SS135	05SS138	1MW01-00	1MW02-00	1MW03-00	1MW04-00	1SB01-00	1SB02-00	1SB03-00
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/11/96	10/11/96	10/13/96	10/13/96	10/13/96	10/11/96
Depth Range (ft.)	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)													
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 UJ	420 UJ	410 UJ	410 U
N-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 U	420 U	410 U	410 U
N-Nitroso-di-n-propylamine	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
N-Nitrosodiphenylamine (1)	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA	370 UJ	400 UJ	410 UJ	390 UJ	420 UJ	410 UJ	410 UJ
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA	740 UJ	790 UJ	800 UJ	790 UJ	840 UJ	820 UJ	820 UJ
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA	370 UJ	400 UJ	410 UJ	390 UJ	420 UJ	410 UJ	410 UJ
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA	1,800 U	2,000 U	2,000 U	2,000 U	2,100 U	2,000 U	2,000 U
o-Cresol	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
o-Toluidine	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 U	420 U	410 U	410 U
p-Cresol	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	NA	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA	740 UJ	790 U	800 U	790 U	840 U	820 U	820 U
Pentachlorobenzene	NA	NA	NA	NA	NA	NA	370 U	400 UJ	410 UJ	390 UJ	420 UJ	410 UJ	410 UJ
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	370 U	400 R	410 R	390 R	420 R	410 R	410 R
Pentachlorophenol	3,800 U	3,800 U	3,900 U	3,800 U	4,000 UJ	3,800 U	1,800 U	2,000 U	2,000 U	2,000 U	2,100 U	2,000 U	2,000 U
Phenacetin	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Phenanthrene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Phenol	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	410 U
p-Phenylenediamine	NA	NA	NA	NA	NA	NA	740 U	790 R	810 R	790 R	840 R	820 R	820 R
Pronamide	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 U	420 U	410 U	410 U
Pyrene	1,500 U	1,500 U	1,560 U	1,500 U	1,600 UJ	1,500 U	370 U	400 U	410 U	390 U	420 U	410 U	280 J
Pyridine	NA	NA	NA	NA	NA	NA	740 U	790 U	800 U	790 U	840 U	820 U	820 U
Safrole	NA	NA	NA	NA	NA	NA	370 U	400 U	410 U	390 U	420 U	410 U	410 U
sym-Trinitrobenzene	NA	NA	NA	NA	NA	NA	3,700 U	4,000 UJ	4,100 UJ	3,900 UJ	4,200 UJ	4,100 UJ	4,100 UJ

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW03	1MW04	1SB01	1SB02	1SB03
Sample ID	05SS126	05SS128	05SS130	05SS132	05SS135	05SS138	1MW01-00	1MW02-00	1MW03-00	1MW04-00	1SB01-00	1SB02-00	1SB03-00
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/11/96	10/11/96	10/13/96	10/13/96	10/13/96	10/11/96
Depth Range (ft.)	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
PESTICIDES/PCBs (ug/kg)													
4,4'-DDD	1.8 J	0.26 J	180 NJ	4.1 UJ	4 U	3.7 U	9 U	9.6 U	9.8 U	9.4 U	10 U	9.7 U	20 U
4,4'-DDE	5.5	2.2 J	480 J	0.63 J	4 U	3.7 U	9 U	9.6 U	4.1	7.4	1.2 J	9.7 U	610
4,4'-DDT	2.1 J	2.9 J	3,500 CD	0.49 J	4 U	0.11 NJ	9 U	9.6 U	4.5	14	2.5	1.2 J	340
Aldrin	2 U	2 U	21 U	2.1 UJ	2.1 U	1.9 U	4.5 U	4.8 U	4.9 U	4.7 U	5 U	4.8 U	9.8 U
alpha-BHC	2 U	2 U	21 U	2.1 UJ	2.1 U	1.9 U	4.5 U	4.8 U	4.9 U	4.7 U	5 U	4.8 U	9.8 U
alpha-Chlordane	2 U	2 UJ	21 UJ	2.1 UJ	2.1 U	1.9 U	45 U	48 U	49 U	47 U	50 U	48 U	98 U
beta-BHC	2 U	2 U	21 U	2.1 UJ	2.1 U	1.9 UJ	4.5 U	4.8 U	4.9 U	4.7 U	5 U	4.8 U	9.8 U
Chlordane, gamma-	2 U	2 UJ	21 U	2.1 UJ	2.1 UJ	1.9 U	NA	NA	NA	NA	NA	NA	NA
delta-BHC	0.097 U	2 UJ	21 UJ	2.1 UJ	2.1 U	1.9 U	4.5 U	4.8 U	4.9 U	4.7 U	5 U	4.8 U	9.8 U
Dieldrin	3.8 UJ	3.9 U	40 U	4.1 UJ	4 U	3.7 UJ	9 U	9.6 U	9.8 U	9.4 U	10 U	9.7 U	20 U
Endosulfan I	2 U	2 U	21 U	2.1 UJ	2.1 U	1.9 UJ	4.5 U	4.8 U	4.9 U	4.7 U	5 U	4.8 U	9.8 U
Endosulfan II	3.8 U	3.9 U	40 U	4.1 UJ	4 U	3.7 U	9 U	9.6 U	9.8 U	9.4 U	10 U	9.7 U	20 U
Endosulfan sulfate	3.8 U	3.9 U	40 U	4.1 UJ	4 U	3.7 U	9 U	9.6 U	9.8 U	9.4 U	10 U	9.7 U	20 U
Endrin	0.12 NJ	3.9 U	40 U	4.1 UJ	4 U	3.7 U	9 U	9.6 U	9.8 U	9.4 U	10 U	9.7 U	20 U
Endrin aldehyde	3.8 U	3.9 U	40 U	4.1 UJ	4 U	3.7 U	9 U	9.6 U	9.8 U	9.4 U	10 U	9.7 U	20 U
Endrin ketone	3.8 U	3.9 U	40 U	4.1 UJ	4 U	3.7 U	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	2 U	2 U	21 U	2.1 UJ	2.1 U	1.9 UJ	4.5 U	4.8 U	4.9 U	4.7 U	5 U	4.8 U	9.8 U
gamma-Chlordane	NA	NA	NA	NA	NA	NA	45 U	48 U	49 U	47 U	50 U	48 U	98 U
Heptachlor	2 UJ	2 UJ	21 U	2.1 NJ	0.12 J	1.9 UJ	4.5 U	4.8 U	4.9 U	4.7 U	5 U	4.8 U	9.8 U
Heptachlor epoxide	2 U	2 U	21 U	2.1 UJ	2.1 U	1.9 U	4.5 U	4.8 U	4.9 U	4.7 U	5 U	4.8 U	9.8 U
Isodrin	NA	NA	NA	NA	NA	NA	4.5 U	4.8 U	4.9 U	4.7 U	5 U	4.8 U	9.8 U
Kepone	NA	NA	NA	NA	NA	NA	9 UJ	9.6 UJ	9.8 UJ	9.4 UJ	10 UJ	9.7 UJ	20 UJ
Methoxychlor	0.44 NJ	21 UJ	210 U	21 UJ	21 U	19 UJ	45 U	48 U	49 U	47 U	50 U	48 U	98 U
Toxaphene	200 U	200 U	2,100 U	210 UJ	210 U	190 U	90 U	96 U	98 U	94 U	100 U	97 U	200 U
Aroclor-1016	38 U	39 U	400 U	41 UJ	40 U	37 U	45 U	48 U	49 U	47 U	50 U	48 U	98 U
Aroclor-1221	77 U	80 U	810 U	82 UJ	81 U	76 U	45 U	48 U	49 U	47 U	50 U	48 U	98 U
Aroclor-1232	38 U	39 U	400 U	41 UJ	40 U	37 U	45 U	48 U	49 U	47 U	50 U	48 U	98 U
Aroclor-1242	38 U	39 U	400 U	41 UJ	40 U	37 U	45 U	48 U	49 U	47 U	50 U	48 U	98 U
Aroclor-1248	38 U	39 U	400 U	41 UJ	40 U	37 U	45 U	48 U	49 U	47 U	50 U	48 U	98 U
Aroclor-1254	38 U	39 U	400 U	41 UJ	40 U	37 U	90 U	96 U	98 U	94 U	100 U	97 U	200 U
Aroclor-1260	38 U	39 U	400 U	41 UJ	40 U	37 U	90 U	96 U	98 U	94 U	100 U	97 U	200 U

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW03	1MW04	1SB01	1SB02	1SB03
Sample ID	05SS126	05SS128	05SS130	05SS132	05SS135	05SS138	1MW01-00	1MW02-00	1MW03-00	1MW04-00	1SB01-00	1SB02-00	1SB03-00
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/11/96	10/11/96	10/13/96	10/13/96	10/13/96	10/11/96
Depth Range (ft.)	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
CHLORINATED HERBICIDES (ug/kg)													
2,4,5-T	NA	NA	NA	NA	NA	NA	38 U	40 U	40 U	39 U	42 U	41 UJ	41 U
2,4,5-TP (Silvex)	NA	NA	NA	NA	NA	NA	38 U	40 U	40 U	39 U	42 U	41 UJ	41 U
2,4-D	NA	NA	NA	NA	NA	NA	380 U	400 U	400 U	390 U	420 U	410 UJ	410 U
OP-PESTICIDES (ug/kg)													
Dimethoate	NA	NA	NA	NA	NA	NA	75 U	79 U	81 U	76 U	84 U	81 U	81 U
Disulfoton	NA	NA	NA	NA	NA	NA	75 U	79 U	81 U	76 U	84 U	81 U	81 U
Famphur	NA	NA	NA	NA	NA	NA	75 U	79 U	81 U	76 U	84 U	81 U	81 U
Methyl parathion	NA	NA	NA	NA	NA	NA	75 U	79 U	81 U	76 U	84 U	81 U	81 U
O,O,O-Triethylphosphorothioate	NA	NA	NA	NA	NA	NA	75 U	79 U	81 U	76 U	84 U	81 U	81 U
Parathion	NA	NA	NA	NA	NA	NA	75 U	79 U	81 U	76 U	84 U	81 U	81 U
Phorate	NA	NA	NA	NA	NA	NA	75 U	79 U	81 U	76 U	84 U	81 U	81 U
Sulfotepp	NA	NA	NA	NA	NA	NA	75 U	79 U	81 U	76 U	84 U	81 U	81 U
Thionazin	NA	NA	NA	NA	NA	NA	75 U	79 U	81 U	76 U	84 U	81 U	81 U
DIOXINS (ug/kg)													
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	0.03 U	0.07 U	0.06 U	0.06 U	0.04 U	0.05 U	0.04 U
Total HxCDD	NA	NA	NA	NA	NA	NA	0.08 U	0.31 U	0.26 U	0.09 U	0.11 U	0.18 U	0.21 U
Total HxCDF	NA	NA	NA	NA	NA	NA	0.06 U	0.35 U	0.25 U	0.12 U	0.08 U	0.15 U	0.16 U
Total PeCDD	NA	NA	NA	NA	NA	NA	0.06 U	0.16 U	0.2 U	0.11 U	0.07 U	0.09 U	0.08 U
Total PeCDF	NA	NA	NA	NA	NA	NA	0.06 U	0.12 U	0.16 U	0.1 U	0.09 U	0.06 U	0.1 U
Total TCDD	NA	NA	NA	NA	NA	NA	0.03 U	0.07 U	0.06 U	0.06 U	0.04 U	0.05 U	0.04 U
Total TCDF	NA	NA	NA	NA	NA	NA	0.03 U	0.03 U	0.05 U	0.04 U	0.04 U	0.08 U	0.05 U

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW03	1MW04	1SB01	1SB02	1SB03
Sample ID	05SS126	05SS128	05SS130	05SS132	05SS135	05SS138	1MW01-00	1MW02-00	1MW03-00	1MW04-00	1SB01-00	1SB02-00	1SB03-00
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/11/96	10/11/96	10/13/96	10/13/96	10/13/96	10/11/96
Depth Range (ft.)	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
EXPLOSIVES (ug/kg)													
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA	130 U	130 U	130 U	130 U	130 U	130 U	130 U
1,3-Dinitrobenzene	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-TNT	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4-DNT/2,6-DNT	NA	NA	NA	NA	NA	NA	200 U	200 U	200 U	200 U	200 U	200 U	200 U
2-Nitrotoluene	NA	NA	NA	NA	NA	NA	500 U	500 U	500 U	500 U	500 U	500 U	500 U
3-Nitrotoluene	NA	NA	NA	NA	NA	NA	500 U	500 U	500 U	500 U	500 U	500 U	500 U
4-Nitrotoluene	NA	NA	NA	NA	NA	NA	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U
Amino-DNTs	NA	NA	NA	NA	NA	NA	200 U	200 U	200 U	200 U	200 U	200 U	200 U
HMX	NA	NA	NA	NA	NA	NA	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U
Nitrobenzene	NA	NA	NA	NA	NA	NA	210 U	210 U	210 U	210 U	210 U	210 U	210 U
RDX (Cyclonite)	NA	NA	NA	NA	NA	NA	540 U	540 U	540 U	540 U	540 U	540 U	540 U
Tetryl	NA	NA	NA	NA	NA	NA	380 U	380 U	380 U	380 U	380 U	380 U	380 U
ASBESTOS													
Asbestos (MFL)	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SS01	1SS02	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample ID	1SS01	1SS02	1SS02D	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample Date	10/13/96	10/11/96	10/11/96	10/10/96	10/10/96	10/11/96	10/11/96	10/13/96	10/21/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg)									
1,1,1,2-Tetrachloroethane	12 UJ	12 U	12 U	11 U	12 U	12 U	12 U	11 UJ	11 U
1,1,1-Trichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U
1,1,2-Trichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	6 U	6 U	6 U	6 U	6 UJ	6 U	6 UJ	6 U	6 U
1,1-Dichloroethene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2,3-Trichloropropane	12 UJ	12 U	12 U	11 U	12 U	12 U	12 UJ	11 UJ	11 U
1,2-Dibromo-3-chloropropane	23 UJ	24 U	24 U	23 U	25 U	24 U	25 UJ	23 UJ	23 U
1,2-Dibromoethane	23 UJ	24 U	24 U	23 U	25 U	24 U	25 U	23 UJ	23 U
1,2-Dichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (Total)	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	12 U	12 U	12 U	11 U	12 U	12 U	12 U	11 U	11 UJ
2-Chloro-1,3-butadiene	120 UJ	120 U	120 U	110 U	120 U	120 U	120 U	110 UJ	110 R
2-Hexanone	12 U	12 U	12 U	11 U	12 U	12 U	12 UJ	11 UJ	11 UJ
3-Chloropropene	23 UJ	24 U	24 U	23 U	25 U	24 U	25 U	23 UJ	23 U
4-Methyl-2-pentanone	12 U	12 U	12 U	11 U	12 U	12 U	12 UJ	11 UJ	11 UJ
Acetone	12 UJ	12 U	12 U	11 U	12 U	12 U	12 U	11 UJ	11 UJ
Acetonitrile	120 U	120 U	120 U	110 U	120 U	120 U	120 U	110 U	110 UJ
Acrolein	580 U	610 UJ	610 UJ	570 UJ	630 UJ	600 UJ	620 UJ	560 U	570 U
Acrylonitrile	120 U	120 U	120 U	110 U	120 UJ	120 U	120 UJ	110 U	110 U
Benzene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Bromodichloromethane	6 UJ	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 U
Bromoform	6 UJ	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U
Bromomethane	12 U	12 U	12 U	11 U	12 U	12 U	12 U	11 U	11 UJ
Carbon disulfide	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Carbon tetrachloride	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Chlorobenzene	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U
Chloroethane	12 U	12 U	12 U	11 U	12 U	12 U	12 U	11 U	11 U
Chloroform	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Chloromethane	12 U	12 UJ	12 UJ	11 UJ	12 U	12 UJ	12 U	11 U	11 UJ

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SS01	1SS02	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample ID	1SS01	1SS02	1SS02D	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample Date	10/13/96	10/11/96	10/11/96	10/10/96	10/10/96	10/11/96	10/11/96	10/13/96	10/21/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg) (cont.)									
cis-1,2-Dichloroethylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	6 UJ	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 U
Dibromochloromethane	6 UJ	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U
Dibromomethane	12 U	12 U	12 U	11 U	12 U	12 U	12 U	11 U	11 U
Dichlorodifluoromethane	23 U	24 UJ	24 UJ	23 UJ	25 UJ	24 UJ	25 UJ	23 U	23 UJ
Ethene, 1,2-dichloro-, (E)-	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	23 U	24 U	24 U	23 U	25 UJ	24 U	25 UJ	23 UJ	23 U
Ethylbenzene	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U
Iodomethane	12 UJ	12 U	12 U	11 U	12 UJ	12 U	12 UJ	11 UJ	11 U
Isobutanol	2,300 R	2,400 R	2,400 R	2,300 R	2,500 R	2,400 R	2,500 R	2,300 R	2,300 R
m/p-xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methacrylonitrile	23 U	24 U	24 U	23 U	25 U	24 U	25 U	23 U	23 U
Methyl methacrylate	23 U	24 U	24 U	23 U	25 U	24 U	25 U	23 U	23 UJ
Methylene chloride	6 U	6 U	6 U	6 U	6 UJ	6 U	6 UJ	6 U	6 U
o-Xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloroethane	23 U	24 U	24 U	23 U	25 U	24 U	25 UJ	23 UJ	23 UJ
Propionitrile	58 R	61 UJ	61 UJ	57 UJ	63 U	60 UJ	62 U	56 R	57 R
Styrene	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U
Tetrachloroethene	6 UJ	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 UJ
Toluene	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U
trans-1,3-Dichloropropene	6 UJ	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U
trans-1,4-Dichloro-2-butene	23 U	24 U	24 U	23 U	25 U	24 U	25 UJ	23 UJ	23 UJ
Trichloroethene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Trichlorofluoromethane	12 U	12 UJ	12 UJ	11 UJ	12 UJ	12 UJ	12 UJ	11 U	11 UJ
Vinyl Acetate	12 U	12 U	12 U	11 U	12 U	12 U	12 U	11 U	11 U
Vinyl chloride	12 U	12 U	12 U	11 U	12 U	12 U	12 U	11 U	11 U
Xylene (total)	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SS01	1SS02	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample ID	1SS01	1SS02	1SS02D	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample Date	10/13/96	10/11/96	10/11/96	10/10/96	10/10/96	10/11/96	10/11/96	10/13/96	10/21/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg)									
1,2,4,5-Tetrachlorobenzene	370 UJ	400 UJ	400 UJ	380 UJ	410 UJ	400 UJ	410 UJ	370 UJ	380 U
1,2,4-Trichlorobenzene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
1,2-Dichlorobenzene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
1,2-Diphenylhydrazine	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 UJ
1,3-Dichlorobenzene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
1,4-Dichlorobenzene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
1,4-Dioxane	750 U	800 U	800 U	760 U	820 UJ	790 U	830 U	750 U	750 U
1,4-Naphthoquinone	1,900 UJ	2,000 UJ	2,000 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,100 UJ	1,900 UJ	1,900 U
1-Naphthylamine	750 U	800 UJ	800 UJ	760 UJ	820 UJ	790 UJ	830 UJ	750 U	750 U
2,2'-Oxybis(1-Chloropropane)	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 UJ
2,3,4,6-Tetrachlorophenol	370 UJ	400 UJ	400 UJ	380 UJ	410 UJ	400 UJ	410 UJ	370 UJ	380 U
2,4,5-Trichlorophenol	1,900 U	2,000 U	2,000 U	1,900 U	2,000 U	2,000 U	2,100 U	1,900 U	1,900 U
2,4,6-Trichlorophenol	370 U	400 U	400 U	380 U	410 U	400 U	410 U	370 U	380 U
2,4-Dichlorophenol	370 U	400 U	400 U	380 U	410 U	400 U	410 U	370 U	380 U
2,4-Dimethylphenol	370 U	400 U	400 U	380 U	410 U	400 U	410 U	370 U	380 U
2,4-Dinitrophenol	1,900 UJ	2,000 UJ	2,000 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,100 UJ	1,900 UJ	1,900 U
2,4-Dinitrotoluene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
2,6-Dichlorophenol	370 UJ	400 UJ	400 UJ	380 UJ	410 UJ	400 UJ	410 UJ	370 UJ	380 U
2,6-Dinitrotoluene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
2-Acetylaminofluorene	750 U	800 U	800 U	760 U	820 UJ	790 U	830 U	750 U	750 U
2-Chloronaphthalene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
2-Chlorophenol	370 U	400 U	400 U	380 U	410 U	400 U	410 U	370 U	380 U
2-Methylnaphthalene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
2-Naphthylamine	940 UJ	1,000 UJ	1,000 UJ	940 UJ	1,000 UJ	990 UJ	1,000 UJ	940 UJ	940 U
2-Nitroaniline	1,900 U	2,000 U	2,000 U	1,900 U	2,000 UJ	2,000 U	2,100 U	1,900 U	1,900 UJ
2-Nitrophenol	370 U	400 U	400 U	380 U	410 U	400 U	410 U	370 U	380 U
2-Picoline	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
2-sec-butyl-4,6-dinitrophenol	750 UJ	800 UJ	800 UJ	760 UJ	820 UJ	790 UJ	830 UJ	750 UJ	750 U
3,3'-Dichlorobenzidine	750 U	800 U	800 U	760 U	820 UJ	790 U	830 U	750 U	750 U
3,3'-Dimethylbenzidine	1,900 UJ	2,000 R	2,000 R	1,900 R	2,000 R	2,000 R	2,100 R	1,900 UJ	1,900 UJ
3-Methylcholanthrene	370 UJ	400 UJ	400 UJ	380 UJ	410 UJ	400 UJ	410 UJ	370 UJ	380 U

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SS01	1SS02	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample ID	1SS01	1SS02	1SS02D	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample Date	10/13/96	10/11/96	10/11/96	10/10/96	10/10/96	10/11/96	10/11/96	10/13/96	10/21/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)									
3-Nitroaniline	1,900 UJ	2,000 UJ	2,000 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,100 UJ	1,900 UJ	1,900 U
4,6-Dinitro-2-methylphenol	1,900 U	2,000 U	2,000 U	1,900 U	2,000 U	2,000 U	2,100 U	1,900 U	1,900 UJ
4-Aminobiphenyl	750 UJ	800 U	800 U	760 U	820 UJ	790 U	830 U	750 UJ	750 U
4-Bromophenyl phenyl ether	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
4-Chloro-3-methylphenol	750 U	800 U	800 U	760 U	820 U	790 U	830 U	750 U	750 U
4-Chloroaniline	750 U	800 U	800 U	760 U	820 U	790 U	830 U	750 U	750 U
4-Chlorophenyl phenyl ether	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
4-Nitroaniline	1,900 UJ	2,000 U	2,000 U	1,900 U	2,000 UJ	2,000 U	2,100 U	1,900 UJ	1,900 UJ
4-Nitrophenol	1,900 UJ	2,000 U	2,000 U	1,900 U	2,000 U	2,000 U	2,100 U	1,900 UJ	1,900 UJ
4-Nitroquinoline-1-oxide	1,900 R	2,000 R	2,000 R	1,900 R	2,000 R	2,000 R	2,100 R	1,900 R	1,900 R
5-Nitro-o-toluidine	750 U	800 U	800 U	760 U	820 UJ	790 U	830 U	750 U	750 U
7,12-Dimethylbenz(a)anthracene	750 UJ	800 UJ	800 UJ	760 UJ	820 UJ	790 UJ	830 U	750 UJ	750 U
Acenaphthene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Acenaphthylene	370 U	400 U	400 U	380 U	410 UJ	400 U	45 J	370 U	380 U
Acetophenone	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
alpha, alpha-Dimethylphenethylamine	1,900 UJ	2,000 UJ	2,000 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,100 UJ	1,900 UJ	1,900 UJ
Aniline	1,900 U	2,000 U	2,000 U	1,900 U	2,000 UJ	2,000 U	2,100 U	1,900 U	1,900 UJ
Anthracene	370 U	400 U	400 U	380 U	410 UJ	400 U	110 J	370 U	380 U
Aramite	750 U	800 U	800 U	760 U	820 UJ	790 U	830 U	750 U	750 U
Benzidine	3,700 UJ	4,000 UJ	4,000 UJ	3,800 UJ	4,100 UJ	4,000 UJ	4,100 UJ	3,700 UJ	3,800 U
Benzo(a)anthracene	370 U	400 U	400 U	380 U	410 UJ	400 U	930	56 J	380 U
Benzo(a)pyrene	370 U	400 U	400 U	380 U	410 UJ	400 U	590	68 J	380 U
Benzo(b)fluoranthene	370 U	400 U	400 U	380 U	410 UJ	400 U	1,500	100 J	380 U
Benzo(g,h,i)perylene	370 U	400 U	400 U	380 U	410 UJ	400 U	230 J	38 J	380 U
Benzo(k)fluoranthene	370 U	400 U	400 U	380 U	410 UJ	400 U	660	46 J	380 U
Benzoic acid	1,900 UJ	2,000 U	2,000 U	1,900 U	2,000 U	2,000 U	2,100 U	1,900 UJ	1,900 U
Benzyl alcohol	370 UJ	400 U	400 U	380 U	410 U	400 U	410 U	370 UJ	380 U
Bis(2-chloroethoxy)methane	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Bis(2-chloroethyl)ether	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Bis(2-ethylhexyl)phthalate	370 U	400 U	400 U	380 U	410 UJ	47 J	410 U	370 U	380 U
Butylbenzylphthalate	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	75 J	380 U

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SS01	1SS02	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample ID	1SS01	1SS02	1SS02D	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample Date	10/13/96	10/11/96	10/11/96	10/10/96	10/10/96	10/11/96	10/11/96	10/13/96	10/21/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)									
Carbazole	370 U	400 UJ	400 UJ	380 UJ	410 UJ	400 UJ	410 UJ	370 U	380 U
Chlorobenzilate	370 UJ	400 UJ	400 UJ	380 UJ	410 UJ	400 UJ	410 UJ	370 UJ	380 U
Chrysene	370 U	400 U	400 U	380 U	410 UJ	400 U	1,000	58 J	380 U
Diallate	370 U	400 UJ	400 UJ	380 UJ	410 UJ	400 UJ	410 UJ	370 U	380 UJ
Dibenzo(a,h)anthracene	370 U	400 U	400 U	380 U	410 UJ	400 U	91 J	370 U	380 U
Dibenzofuran	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Diethylphthalate	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Dimethylphthalate	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Di-n-butylphthalate	370 U	400 U	400 U	380 U	410 UJ	580 U	410 U	370 U	380 U
Di-n-octylphthalate	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Diphenylamine	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Ethyl methanesulfonate	370 UJ	400 UJ	400 UJ	380 UJ	410 UJ	400 UJ	410 UJ	370 UJ	380 U
Fluoranthene	370 U	400 U	400 U	380 U	410 UJ	400 U	770	62 J	380 U
Fluorene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Hexachlorobenzene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Hexachlorobutadiene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Hexachlorocyclopentadiene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Hexachloroethane	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Hexachlorophene	3,700 R	4,000 R	4,000 R	3,800 R	4,100 R	4,000 R	4,100 R	3,700 R	3,800 U
Hexachloropropene	1,900 UJ	2,000 UJ	2,000 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,100 UJ	1,900 UJ	1,900 U
Indeno(1,2,3-cd)pyrene	370 U	400 U	400 U	380 U	410 UJ	400 U	300 J	47 J	380 U
Isophorone	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Isosafrole	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
m&p Cresol	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
m-Dinitrobenzene	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Meta-Dinitrobenzene	750 UJ	800 UJ	800 UJ	760 UJ	820 UJ	790 UJ	830 UJ	750 UJ	750 U
Methapyrilene	940 UJ	1,000 UJ	1,000 UJ	940 UJ	1,000 UJ	990 UJ	1,000 UJ	940 UJ	940 UJ
Methyl methanesulfonate	370 UJ	400 UJ	400 UJ	380 UJ	410 UJ	400 UJ	410 UJ	370 UJ	380 U
Naphthalene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Nitrobenzene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
N-Nitrosodiethylamine	370 UJ	400 U	400 U	380 U	410 UJ	400 U	410 U	370 UJ	380 UJ

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SS01	1SS02	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample ID	1SS01	1SS02	1SS02D	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample Date	10/13/96	10/11/96	10/11/96	10/10/96	10/10/96	10/11/96	10/11/96	10/13/96	10/21/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)									
N-Nitrosodimethylamine	370 UJ	400 U	400 U	380 U	410 UJ	400 U	410 U	370 UJ	380 UJ
N-Nitroso-di-n-butylamine	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
N-Nitroso-di-n-propylamine	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 UJ
N-Nitrosodiphenylamine (1)	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
N-Nitrosomethylethylamine	370 UJ	400 UJ	400 UJ	380 UJ	410 UJ	400 UJ	410 UJ	370 UJ	380 UJ
N-Nitrosomorpholine	750 UJ	800 UJ	800 UJ	760 UJ	820 UJ	790 UJ	830 UJ	750 UJ	750 UJ
N-Nitrosopiperidine	370 UJ	400 UJ	400 UJ	380 UJ	410 UJ	400 UJ	410 UJ	370 UJ	380 UJ
N-Nitrosopyrrolidine	1,900 U	2,000 U	2,000 U	1,900 U	2,000 UJ	2,000 U	2,100 U	1,900 U	1,900 U
o-Cresol	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
o-Toluidine	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
p-Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	750 U	800 U	800 U	760 U	820 UJ	790 U	830 U	750 U	750 UJ
Pentachlorobenzene	370 UJ	400 UJ	400 UJ	380 UJ	410 UJ	400 UJ	410 UJ	370 UJ	380 U
Pentachloronitrobenzene	370 R	400 R	400 R	380 R	410 R	400 R	410 R	370 R	380 U
Pentachlorophenol	1,900 U	2,000 U	2,000 U	1,900 U	2,000 U	2,000 U	2,100 U	1,900 U	1,900 U
Phenacetin	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Phenanthrene	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Phenol	370 U	400 U	400 U	380 U	410 U	400 U	410 U	370 U	380 U
p-Phenylenediamine	750 R	800 R	800 R	760 R	820 UJ	790 R	830 R	750 R	750 R
Pronamide	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Pyrene	370 U	400 U	400 U	380 U	410 UJ	400 U	2,600	82 J	380 U
Pyridine	750 U	800 U	800 U	760 U	820 UJ	790 U	830 U	750 U	750 U
Safrole	370 U	400 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
sym-Trinitrobenzene	3,700 UJ	4,000 UJ	4,000 UJ	3,800 UJ	4,100 UJ	4,000 UJ	4,100 UJ	3,700 UJ	3,800 U

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SS01	1SS02	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample ID	1SS01	1SS02	1SS02D	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample Date	10/13/96	10/11/96	10/11/96	10/10/96	10/10/96	10/11/96	10/11/96	10/13/96	10/21/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
PESTICIDES/PCBs (ug/kg)									
4,4'-DDD	9.1 U	9.6 U	9.7 U	9.1 U	10 U	9.6 U	49 U	8.8 U	9 U
4,4'-DDE	9.1 U	2.4	3.2	9.1 U	1.7 J	1.6 J	1,300	280	9 U
4,4'-DDT	9.1 U	1.2 J	1.6 J	9.1 U	1.2 J	3.6	270	140	9 U
Aldrin	4.6 U	4.8 U	4.9 U	4.5 U	5 U	4.8 U	24 U	4.4 U	4.5 U
alpha-BHC	4.6 U	4.8 U	4.9 U	4.5 U	5 U	4.8 U	24 U	4.4 U	4.5 U
alpha-Chlordane	46 U	48 U	49 U	45 U	50 U	48 U	240 U	44 U	45 U
beta-BHC	4.6 U	4.8 U	4.9 U	4.5 U	5 U	4.8 U	24 U	4.4 U	4.5 U
Chlordane, gamma-	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC	4.6 U	4.8 U	4.9 U	4.5 U	5 U	4.8 U	24 U	4.4 U	4.5 U
Dieldrin	9.1 U	9.6 U	9.7 U	9.1 U	10 U	9.6 U	49 U	8.8 U	9 U
Endosulfan I	4.6 U	4.8 U	4.9 U	4.5 U	5 U	4.8 U	24 U	4.4 U	4.5 U
Endosulfan II	9.1 U	9.6 U	9.7 U	9.1 U	10 U	9.6 U	49 U	8.8 U	9 U
Endosulfan sulfate	9.1 U	9.6 U	9.7 U	9.1 U	10 U	9.6 U	49 U	8.8 U	9 U
Endrin	9.1 U	9.6 U	9.7 U	9.1 U	10 U	9.6 U	49 U	8.8 U	9 U
Endrin aldehyde	9.1 U	9.6 U	9.7 U	9.1 U	10 U	9.6 U	49 U	8.8 U	9 U
Endrin ketone	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	4.6 U	4.8 U	4.9 U	4.5 U	5 U	4.8 U	24 U	4.4 U	4.5 U
gamma-Chlordane	46 U	48 U	49 U	45 U	50 U	48 U	240 U	44 U	45 U
Heptachlor	4.6 U	4.8 U	4.9 U	4.5 U	5 U	4.8 U	24 U	4.4 U	4.5 U
Heptachlor epoxide	4.6 U	4.8 U	4.9 U	4.5 U	5 U	4.8 U	24 U	4.4 U	4.5 U
Isodrin	4.6 U	4.8 U	4.9 U	4.5 U	5 U	4.8 U	24 U	4.4 U	4.5 U
Kepone	9.1 UJ	9.6 U	9.7 UJ	9.1 UJ	10 UJ	9.6 UJ	49 UJ	8.8 UJ	9 U
Methoxychlor	46 U	48 U	49 U	45 U	50 U	48 U	240 U	44 U	45 U
Toxaphene	91 U	96 U	97 U	91 U	100 U	96 U	490 U	88 U	90 U
Aroclor-1016	46 U	48 U	49 U	45 U	50 U	48 U	240 U	44 U	45 U
Aroclor-1221	46 U	48 U	49 U	45 U	50 U	48 U	240 U	44 U	45 U
Aroclor-1232	46 U	48 U	49 U	45 U	50 U	48 U	240 U	44 U	45 U
Aroclor-1242	46 U	48 U	49 U	45 U	50 U	48 U	240 U	44 U	45 U
Aroclor-1248	46 U	48 U	49 U	45 U	50 U	48 U	240 U	44 U	45 U
Aroclor-1254	91 U	96 U	97 U	91 U	100 U	96 U	490 U	88 U	90 U
Aroclor-1260	91 U	96 U	97 U	91 U	100 U	96 U	490 U	88 U	90 U

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SS01	1SS02	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample ID	1SS01	1SS02	1SS02D	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample Date	10/13/96	10/11/96	10/11/96	10/10/96	10/10/96	10/11/96	10/11/96	10/13/96	10/21/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
CHLORINATED HERBICIDES (ug/kg)									
2,4,5-T	38 U	40 U	40 U	38 U	42 U	40 U	41 U	38 U	38 U
2,4,5-TP (Silvex)	38 U	40 U	40 U	38 U	42 U	40 U	41 U	38 U	38 U
2,4-D	380 U	400 U	400 U	380 U	420 U	400 U	410 U	380 U	380 U
OP-PESTICIDES (ug/kg)									
Dimethoate	75 U	80 U	80 U	76 U	83 U	80 U	81 U	75 U	75 U
Disulfoton	75 U	80 U	80 U	76 U	83 U	80 U	81 U	75 U	75 U
Famphur	75 U	80 U	80 U	76 U	83 U	80 U	81 U	75 U	75 U
Methyl parathion	75 U	80 U	80 U	76 U	83 U	80 U	81 U	75 U	75 U
O,O,O-Triethylphosphorothioate	75 U	80 U	80 U	76 U	83 U	80 U	81 U	75 U	75 U
Parathion	75 U	80 U	80 U	76 U	83 U	80 U	81 U	75 U	75 U
Phorate	75 U	80 U	80 U	76 U	83 U	80 U	81 U	75 U	75 U
Sulfotepp	75 U	80 U	80 U	76 U	83 U	80 U	81 U	75 U	75 U
Thionazin	75 U	80 U	80 U	76 U	83 U	80 U	81 U	75 U	75 U
DIOXINS (ug/kg)									
2,3,7,8-TCDD	0.03 U	0.07 U	0.04 U	0.03 U	0.04 U	0.04 U	0.03 U	0.04 U	0.03 U
Total HxCDD	0.1 U	0.25 U	0.11 U	0.06 U	0.11 U	0.08 U	0.08 U	0.14 U	0.15 U
Total HxCDF	0.06 U	0.06 U	0.06 U	0.05 U	0.07 U	0.06 U	0.13 U	0.05 U	0.12 U
Total PeCDD	0.08 U	0.07 U	0.05 U	0.05 U	0.11 U	0.06 U	0.04 U	0.04 U	0.13 U
Total PeCDF	0.09 U	0.08 U	0.07 U	0.06 U	0.1 U	0.06 U	0.06 U	0.07 U	0.11 U
Total TCDD	0.03 U	0.07 U	0.04 U	0.03 U	0.04 U	0.04 U	0.03 U	0.04 U	0.03 U
Total TCDF	0.04 U	0.06 U	0.03 U	0.04 U	0.05 U	0.03 U	0.03 U	0.02 U	0.05 U

APPENDIX F.1 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SS01	1SS02	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample ID	1SS01	1SS02	1SS02D	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample Date	10/13/96	10/11/96	10/11/96	10/10/96	10/10/96	10/11/96	10/11/96	10/13/96	10/21/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
EXPLOSIVES (ug/kg)									
1,3,5-Trinitrobenzene	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
1,3-Dinitrobenzene	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-TNT	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4-DNT/2,6-DNT	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
2-Nitrotoluene	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
3-Nitrotoluene	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
4-Nitrotoluene	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U
Amino-DNTs	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
HMX	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U
Nitrobenzene	210 U	210 U	210 U	210 U	210 U	210 U	210 U	210 U	210 U
RDX (Cyclonite)	540 U	540 U	540 U	540 U	540 U	540 U	540 U	540 U	540 U
Tetryl	380 U	380 U	380 U	380 U	380 U	380 U	380 U	380 U	380 U
ASBESTOS									
Asbestos (MFL)	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX F.2
SURFACE SOIL, INORGANICS, SWMU 1

APPENDIX F.2 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW03	1MW04	1SB01	1SB02	1SB03
Sample ID	05SS126	05SS128	05SS130	05SS132	05SS135	05SS138	1MW01-00	1MW02-00	1MW03-00	1MW04-00	1SB01-00	1SB02-00	1SB03-00
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/11/96	10/11/96	10/13/96	10/13/96	10/13/96	10/11/96
Depth Range (ft.)	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Inorganics, Total (mg/kg)													
Aluminum	17,100	18,200	22,600	8,220	38,500	9,180	NA	NA	NA	NA	NA	NA	NA
Antimony	11.1 U	11.5 U	11.2 U	11.9 U	5.9 J	2.3 U	2.4 J	2.8 J	1.9 UJ	2.1 J	2.9 J	1.5 J	1.9 J
Arsenic	0.71 U	0.73 U	0.71 U	0.76 U	0.75 U	0.69 U	0.67	0.78 UJ	0.78 UJ	1.1 J	1.8 U	0.79 U	0.83 UJ
Barium	180	143	174	143	131	46.5	76.2	53.8	158	83.4	127	101	110
Beryllium	0.73 B	1.2	1.2	0.69 B	1.3	0.69 B	0.81	0.32	0.59	0.39	0.51	0.11	0.29
Cadmium	1.3	1.4	1.7	0.71 U	4.6	1.3 UJ	0.77	0.27	0.34	0.41	0.23 U	0.38	0.7
Calcium	9,110	6,030	8,360	10,800	3,420	2,920	NA	NA	NA	NA	NA	NA	NA
Chromium	13.9 J	16.4 J	24.2 J	20.5 J	19.5	13.5	32.4	30.6	29	21.5 J	15 J	40.8 J	17.6
Cobalt	16	24.8	24.1	34.6	24.5	16.6	15.2	13.8	22.7	14.3	25.1	28.2	21.5
Copper	131 J	57.4 J	68.5 J	91.6 J	35.3	19.9	169	19.8	45.9	71.2	41.5	75	57.1
Cyanide	0.12 U	0.12 U	0.12 U	0.13 U	0.12 U	0.11 U	0.55 U	0.56 U	0.57 U	0.54 U	0.55 U	0.61 U	0.51 U
Iron	31,700	41,500	47,900	13,300	69,900	19,700	NA	NA	NA	NA	NA	NA	NA
Lead	39.6	9.1	18.1	2	2.1 J	1.9 J	3.6 R	4.4	13	8.3	5.4	7.5	25.7
Magnesium	4,550	3,710	3,550	5,600	5,250	4,720	NA	NA	NA	NA	NA	NA	NA
Manganese	381 J	1140 J	994 J	776 J	1170	735	NA	NA	NA	NA	NA	NA	NA
Mercury	0.1 UJ	0.12 UJ	0.11 UJ	0.12 UJ	0.11 U	0.11 U	0.02 U	0.05	0.06	0.03	0.07	0.06	0.06
Nickel	9.3 B	4.6 U	10	18.8	4.7 U	4.3 U	16.5	6.8	11.9	11.3	9.5	16.7	10.2
Potassium	315 U	299 U	430 U	462 U	742 B	320 B	NA	NA	NA	NA	NA	NA	NA
Selenium	0.56 UJ	0.59 UJ	0.57 UJ	0.61 UJ	0.6 U	0.55 UJ	0.45 J	0.49	0.54 J	0.32 UJ	0.8 J	0.18 UJ	0.43 J
Silver	1.7 B	1.5 U	1.5 U	2.3 B	1.1 UJ	1 UJ	0.19 UJ	0.21 UJ	0.22 UJ	0.19 UJ	0.2 UJ	0.16 UJ	0.18 UJ
Sodium	1,220	1,400	1,640	3,700	2,440 J	4,840 J	NA	NA	NA	NA	NA	NA	NA
Sulfide	NA	NA	NA	NA	NA	NA	28.6	27.1 UJ	29.9 UJ	29.3 UJ	30.9 UJ	28.4 UJ	29.7 UJ
Thallium	0.35 UJ	0.37 U	0.36 U	0.38 U	0.38 UJ	0.34 UJ	0.15 U	0.16 U	0.16 U	0.14 UJ	0.18 U	0.16 U	0.17 U
Tin	NA	NA	NA	NA	NA	NA	0.94 U	1 U	1.1	0.92 U	0.96 U	0.79 U	1.5
Vanadium	112 J	210 J	239 J	108 J	195	84.5	84.2	157	186	121	188	209	139
Zinc	84.9	31.9	63.8	31.6	44.2	18.8	140 J	13.9 J	38.3 J	40.9	28.3	35.8	61.6 J

APPENDIX F.2 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SS01	1SS02	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample ID	1SS01	1SS02	1SS02D	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample Date	10/3/96	10/11/96	10/11/96	10/10/96	10/10/96	10/11/96	10/11/96	10/13/96	10/22/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Inorganics, Total (mg/kg)									
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	1.3 UJ	1.6 UJ	2 J	1.8 UJ	3.3 J	2.1 J	4 J	9.4 J	1.4 UJ
Arsenic	1.8 U	1.4 UJ	0.79 UJ	0.69 UJ	0.81 UJ	0.72 UJ	0.77 UJ	2.8	0.29 UJ
Barium	90.9	92.9	84.8	64.2	107	164	150	133	103
Beryllium	0.46	0.53	0.57	0.51	0.18	0.29	0.39	0.55	0.58
Cadmium	0.2	0.56	0.26	0.23 U	0.41	0.23 U	0.25 U	83.8	0.19 U
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	5.9 J	14.3	11.5	30	46.6	31.2	26.9	28.9 J	11.7
Cobalt	14.2	15.6	16.4	15.6	30.9	27.5	20.2	15.7	16.5
Copper	35.2	45.9	44.1	37.9	78.2	66.6	359	166	29.8
Cyanide	0.44 U	0.53 U	0.52 U	0.56 U	0.62 U	0.51 U	0.51 U	0.53 U	0.54 U
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	3.4	3	5.9	2	9.3	9.1	79.4	101	6.9 J
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.08	0.06	0.05	0.02 U	0.06	0.05	0.09	0.09	0.11
Nickel	5.4	8.3	7.6	12.7	19.4	14.1	12.5	38.1	6.2
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.23 UJ	0.8 U	0.35 UJ	0.31 U	0.36 UJ	0.51 J	0.48 J	0.64 J	0.81 U
Silver	0.14 UJ	0.18 UJ	0.2 UJ	0.2 UJ	0.17 UJ	0.19 UJ	0.21 UJ	2.6 J	0.16 UJ
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	23 UJ	26.8 UJ	29.6 UJ	28.4 UJ	31.1 UJ	25.7 UJ	29.6 UJ	27.7 UJ	26.2 UJ
Thallium	0.18 U	0.14 U	0.16 U	0.14 U	0.16 U	0.14 U	0.15 U	0.14 U	0.14 U
Tin	0.69 U	0.86 U	1.2	0.95 U	0.8 U	0.94 U	6.7	15.9	0.78 U
Vanadium	91.6	118	124	77.4	237	215	190	97.9	122
Zinc	19.1	26.9 J	26.7 J	23.1 J	29 J	36.9 J	136 J	223	24.8

APPENDIX F.3
SUBSURFACE SOIL, ORGANICS, SWMU 1

APPENDIX F.3

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS104	05SS105	05SS105	05SS106	05SS107	05SS108	05SS109
Sample ID	05SS127	05SS129	05SS131	05SS133	05SS134	05SS136	05SS137	05SS139	05SS140C	05SS140D	05SS140E
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/16/92	11/16/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67
VOLATILES (ug/kg)											
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
1,1,2,2-Tetrachloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
1,1,2-Trichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
1,1-Dichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
1,1-Dichloroethene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
1,2-Dichloroethene (Total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
2-Butanone	11 U	12 UJ	12 UJ	13 UJ	13 UJ	12 UJ	12 UJ	12 UJ	NA	NA	NA
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	11 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	NA	NA	NA
3-Chloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	11 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	NA	NA	NA
Acetone	160 J	12 U	12 U	120 J	260 J	47 J	54 J	12 UJ	NA	NA	NA
Acetonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Bromodichloromethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Bromoform	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Bromomethane	11 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	NA	NA	NA
Carbon disulfide	21	10	10	3 J	2 J	6	3 J	6 U	NA	NA	NA
Carbon tetrachloride	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Chlorobenzene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Chloroethane	11 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	NA	NA	NA
Chloroform	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Chloromethane	11 UJ	12 U	12 U	13 U	13 U	12 U	12 U	12 U	NA	NA	NA

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS104	05SS105	05SS105	05SS106	05SS107	05SS108	05SS109
Sample ID	05SS127	05SS129	05SS131	05SS133	05SS134	05SS136	05SS137	05SS139	05SS140C	05SS140D	05SS140E
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/16/92	11/16/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67
VOLATILES (ug/kg) (cont.)											
cis-1,2-Dichloroethylene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
cis-1,3-Dichloropropene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Dibromochloromethane	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Dibromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene, 1,2-dichloro-, (E)-	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Ethyl methacrylate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Iodomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isobutanol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-xylene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl methacrylate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	19 U	NA	19 U	31 U	27 U	17 U	28 U	6 U	NA	NA	NA
o-Xylene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Tetrachloroethene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Toluene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
trans-1,3-Dichloropropene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Acetate	11 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	NA	NA	NA
Vinyl chloride	11 U	12 U	12 U	13 U	13 U	12 U	12 U	12 U	NA	NA	NA
Xylene (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS104	05SS105	05SS105	05SS106	05SS107	05SS108	05SS109
Sample ID	05SS127	05SS129	05SS131	05SS133	05SS134	05SS136	05SS137	05SS139	05SS140C	05SS140D	05SS140E
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/16/92	11/16/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67
SEMIVOLATILES (ug/kg)											
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
1,2-Dichlorobenzene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
1,4-Dichlorobenzene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	3,800 U	3,800 U	3,800 U	4,300 U	4,300 U	3,900 UJ	4,000 UJ	3,800 UJ	NA	NA	NA
2,4,6-Trichlorophenol	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
2,4-Dichlorophenol	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
2,4-Dimethylphenol	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
2,4-Dinitrophenol	3,800 U	3,800 U	3,800 U	4,300 U	4,300 U	3,900 UJ	4,000 UJ	3,800 UJ	NA	NA	NA
2,4-Dinitrotoluene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
2-Chlorophenol	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
2-Methylnaphthalene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
2-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	3,800 U	3,800 U	3,800 U	4,300 U	4,300 U	3,900 UJ	4,000 UJ	3,800 UJ	NA	NA	NA
2-Nitrophenol	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
2-Picoline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-sec-butyl-4,6-dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS104	05SS105	05SS105	05SS106	05SS107	05SS108	05SS109
Sample ID	05SS127	05SS129	05SS131	05SS133	05SS134	05SS136	05SS137	05SS139	05SS140C	05SS140D	05SS140E
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/16/92	11/16/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67
SEMIVOLATILES (ug/kg) (cont.)											
3-Nitroaniline	3,800 U	3,800 U	3,800 U	4,300 U	4,300 U	3,900 UJ	4,000 UJ	3,800 UJ	NA	NA	NA
4,6-Dinitro-2-methylphenol	3,800 U	3,800 U	3,800 U	4,300 U	4,300 U	3,900 UJ	4,000 UJ	3,800 UJ	NA	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
4-Chloro-3-methylphenol	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
4-Chloroaniline	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
4-Chlorophenyl phenyl ether	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
4-Nitroaniline	3,800 U	3,800 U	3,800 U	4,300 U	4,300 U	3,900 UJ	4,000 UJ	3,800 UJ	NA	NA	NA
4-Nitrophenol	3,800 U	3,800 U	3,800 U	4,300 U	4,300 U	3,900 UJ	4,000 UJ	3,800 UJ	NA	NA	NA
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Acenaphthylene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha, alpha-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Aramite	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Benzo(a)pyrene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Benzo(b)fluoranthene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Benzo(g,h,i)perylene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Benzo(k)fluoranthene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Bis(2-chloroethyl)ether	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Bis(2-ethylhexyl)phthalate	1,500 U	1,500 U	1,500 U	1,900	1,700 U	440 J	400 J	420 J	NA	NA	NA
Butylbenzylphthalate	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS104	05SS105	05SS105	05SS106	05SS107	05SS108	05SS109
Sample ID	05SS127	05SS129	05SS131	05SS133	05SS134	05SS136	05SS137	05SS139	05SS140C	05SS140D	05SS140E
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/16/92	11/16/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67
SEMIVOLATILES (ug/kg) (cont.)											
Carbazole	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Dibenzofuran	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Diethylphthalate	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Dimethylphthalate	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Di-n-butylphthalate	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Di-n-octylphthalate	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Diphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Fluorene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Hexachlorobenzene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Hexachlorobutadiene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Hexachlorocyclopentadiene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Hexachloroethane	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Hexachlorophene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Isophorone	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Isosafrole	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Meta-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Nitrobenzene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS104	05SS105	05SS105	05SS106	05SS107	05SS108	05SS109
Sample ID	05SS127	05SS129	05SS131	05SS133	05SS134	05SS136	05SS137	05SS139	05SS140C	05SS140D	05SS140E
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/16/92	11/16/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67
SEMIVOLATILES (ug/kg) (cont.)											
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
N-Nitrosodiphenylamine (1)	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Cresol	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
o-Toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cresol	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	3,800 U	3,800 U	3,800 U	4,300 U	4,300 U	3,900 UJ	4,000 UJ	3,800 UJ	NA	NA	NA
Phenacetin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Phenol	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
p-Phenylenediamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pronamide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1,500 U	1,500 U	1,500 U	1,700 U	1,700 U	1,500 UJ	1,600 UJ	1,500 UJ	NA	NA	NA
Pyridine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Safrole	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sym-Trinitrobenzene									NA	NA	NA

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS104	05SS105	05SS105	05SS106	05SS107	05SS108	05SS109
Sample ID	05SS127	05SS129	05SS131	05SS133	05SS134	05SS136	05SS137	05SS139	05SS140C	05SS140D	05SS140E
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/16/92	11/16/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67
PESTICIDES/PCBS (ug/kg)											
4,4'-DDD	3.7 U	4.1 U	44 NJ	1 NJ	0.23 J	3.8 U	3.8 U	3.8 U	3.6 U	3.5 U	3.6 U
4,4'-DDE	0.49 J	1.2 J	210	5.8	1.2 J	3.8 U	3.8 U	3.8 UJ	3.6 UJ	3.5 UJ	3.6 U
4,4'-DDT	0.31 NJ	2.6 J	1,500 CD	5.4	1.2 J	3.8 U	3.8 U	3.8 U	0.2 J	0.16 J	3.6 U
Aldrin	1.9 U	2.1 U	20 U	2.1 U	2.1 U	2 U	2 U	2 U	1.9 U	1.8 U	1.8 U
alpha-BHC	1.9 U	2.1 U	20 U	2.1 U	2.1 U	2 U	2 U	2 U	1.9 U	1.8 U	1.8 U
alpha-Chlordane	1.9 UJ	2.1 UJ	20 UJ	2.1 UJ	2.1 U	2 UJ	2 UJ	2 U	1.9 U	1.8 U	1.8 U
beta-BHC	1.9 U	2.1 U	20 U	2.1 U	2.1 U	2 U	2 U	2 U	1.9 U	1.8 U	1.8 U
Chlordane, gamma-	1.9 U	2.1 UJ	20 U	0.086 J	2.1 U	2 U	2 U	2 U	1.9 UJ	1.8 U	0.24 J
delta-BHC	1.9 U	0.19 J	20 U	2.1 U	2.1 U	2 U	2 U	2 UJ	1.9 U	1.8 U	1.8 U
Dieldrin	3.7 U	4.1 U	38 U	4.2 U	4.2 U	3.8 U	3.8 U	3.8 UJ	3.6 U	3.5 U	3.6 U
Endosulfan I	1.9 U	2.1 U	20 U	2.1 U	2.1 U	2 U	2 U	2 UJ	1.9 UJ	1.8 UJ	1.8 UJ
Endosulfan II	3.7 U	4.1 U	38 U	4.2 U	4.2 U	3.8 UJ	3.8 U	3.8 U	3.6 U	3.5 UJ	3.6 UJ
Endosulfan sulfate	3.7 U	4.1 UJ	38 U	4.2 UJ	4.2 U	3.8 U	3.8 U	3.8 U	3.6 U	3.5 U	3.6 U
Endrin	3.7 U	0.39 J	38 U	4.2 U	4.2 U	3.8 U	3.8 U	3.8 U	0.12 J	3.5 U	3.6 U
Endrin aldehyde	3.7 U	4.1 U	38 U	4.2 U	4.2 U	3.8 U	3.8 U	3.8 U	3.6 U	0.14 J	3.6 U
Endrin ketone	3.7 U	4.1 U	38 U	4.2 U	4.2 U	3.8 U	3.8 U	3.8 U	3.6 U	3.5 UJ	3.6 U
gamma-BHC (Lindane)	1.9 U	2.1 U	20 U	2.1 U	2.1 U	2 U	2 U	2 U	1.9 UJ	1.8 UJ	1.8 UJ
gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	1.9 UJ	2.1 UJ	20 U	2.1 UJ	2.1 UJ	2 UJ	2 UJ	2 U	1.9 U	1.8 U	1.8 UJ
Heptachlor epoxide	1.9 U	2.1 U	20 U	2.1 U	2.1 U	2 UJ	2 U	2 U	1.9 UJ	1.8 U	1.8 U
Isodrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	19 U	21 U	200 U	22 UJ	22 UJ	20 U	20 U	20 UJ	19 U	1.9 UJ	0.23 NJ
Toxaphene	190 U	210 U	2,000 U	210 U	210 U	200 U	200 U	200 U	190 U	180 U	180 U
Aroclor-1016	37 U	41 U	380 U	42 U	42 U	38 U	38 U	38 U	36 U	35 U	36 U
Aroclor-1221	75 U	82 U	780 U	85 U	85 U	78 U	77 U	77 U	74 U	72 U	73 U
Aroclor-1232	37 U	41 U	380 U	42 U	42 U	38 U	38 U	38 U	36 U	35 U	36 U
Aroclor-1242	37 U	41 U	380 U	42 U	42 U	38 U	38 U	38 U	36 U	35 U	36 U
Aroclor-1248	37 U	41 U	380 U	42 U	42 U	38 U	38 U	38 U	36 U	35 U	36 U
Aroclor-1254	37 U	41 U	380 U	42 U	42 U	38 U	38 U	38 U	36 U	35 U	36 U
Aroclor-1260	37 U	41 U	380 U	42 U	42 U	38 U	38 U	38 U	36 U	35 U	36 U

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS104	05SS105	05SS105	05SS106	05SS107	05SS108	05SS109
Sample ID	05SS127	05SS129	05SS131	05SS133	05SS134	05SS136	05SS137	05SS139	05SS140C	05SS140D	05SS140E
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/16/92	11/16/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67
CHLORINATED HERBICIDES (ug/kg)											
2,4,5-T	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OP-PESTICIDES (ug/kg)											
Dimethoate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Disulfoton	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Famphur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-Triethylphosphorothioate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phorate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfotepp	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thionazin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIOXINS (ug/kg)											
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS104	05SS105	05SS105	05SS106	05SS107	05SS108	05SS109
Sample ID	05SS127	05SS129	05SS131	05SS133	05SS134	05SS136	05SS137	05SS139	05SS140C	05SS140D	05SS140E
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/16/92	11/16/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67
EXPLOSIVES (ug/kg)											
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TNT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DNT/2,6-DNT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Amino-4,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Amino-2,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Amino-DNTs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX (Cyclonite)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetryl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ASBESTOS											
Asbestos (MFL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW01	1MW01	1MW02	1MW02	1MW02	1MW03	1MW03	1MW04	1MW04	1SB01
Sample ID	1MW01-02	1MW01-02D	1MW02-03	1MW02-03D	1MW02-11/12	1MW03-03	1MW03-05	1MW04-02	1MW04-04	1SB01-02/05
Sample Date	10/29/96	10/29/96	10/28/96	10/28/96	10/28/96	10/22/96	10/22/96	10/15/96	10/15/96	10/25/96
Depth Range (ft.)	4.00-6.00	4.00-6.00	6.00-8.00	6.00-8.00	22.00-26.00	6.00-8.00	10.00-12.00	4.00-6.00	8.00-10.00	4.00-12.00
VOLATILES (ug/kg)										
1,1,1,2-Tetrachloroethane	12 U	12 U	12 U	11 U	11 U	12 U	13 U	12 UJ	11 UJ	11 U
1,1,1-Trichloroethane	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	6 UJ	6 UJ	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1,2-Trichloroethane	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1-Dichloroethane	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1-Dichloroethene	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
1,2,3-Trichloropropane	12 U	12 U	12 U	11 U	11 U	12 U	13 U	12 UJ	11 UJ	11 U
1,2-Dibromo-3-chloropropane	23 UJ	24 UJ	25 U	22 UJ	22 U	25 U	26 U	24 UJ	23 UJ	2 J
1,2-Dibromoethane	23 U	24 U	25 U	22 U	22 U	25 U	26 U	24 UJ	23 UJ	22 U
1,2-Dichloroethane	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
1,2-Dichloroethene (Total)	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
1,2-Dichloropropane	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
2-Butanone	12 UJ	12 UJ	12 U	11 U	11 U	12 UJ	13 UJ	12 U	11 U	11 U
2-Chloro-1,3-butadiene	120 R	120 R	120 R	110 R	110 R	120 R	130 R	120 UJ	110 UJ	110 R
2-Hexanone	12 UJ	12 UJ	12 U	11 U	11 U	12 UJ	13 UJ	12 U	11 U	11 U
3-Chloropropene	23 U	24 U	25 U	22 U	22 U	25 U	26 U	24 UJ	23 UJ	22 U
4-Methyl-2-pentanone	12 U	12 U	12 U	11 U	11 U	12 UJ	13 UJ	12 U	11 U	11 U
Acetone	12 U	12 U	12 U	11 U	11 U	12 UJ	13 UJ	12 UJ	11 UJ	11 U
Acetonitrile	120 U	120 U	120 U	110 U	110 U	120 UJ	130 UJ	120 U	110 U	110 U
Acrolein	580 U	600 U	620 U	550 U	560 U	630 U	660 U	590 U	570 U	550 U
Acrylonitrile	120 U	120 U	120 U	110 U	110 U	120 U	130 U	120 U	110 U	110 U
Benzene	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
Bromodichloromethane	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 UJ	6 UJ	6 U
Bromoform	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 UJ	6 UJ	6 U
Bromomethane	12 U	12 U	12 U	11 U	11 U	12 UJ	13 UJ	12 U	11 U	11 U
Carbon disulfide	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
Carbon tetrachloride	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
Chlorobenzene	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
Chloroethane	12 U	12 U	12 U	11 U	11 U	12 U	13 U	12 U	11 U	11 U
Chloroform	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
Chloromethane	12 U	12 U	12 UJ	11 U	11 UJ	12 UJ	13 UJ	12 U	11 U	11 UJ

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW01	1MW01	1MW02	1MW02	1MW02	1MW03	1MW03	1MW04	1MW04	1SB01
Sample ID	1MW01-02	1MW01-02D	1MW02-03	1MW02-03D	1MW02-11/12	1MW03-03	1MW03-05	1MW04-02	1MW04-04	1SB01-02/05
Sample Date	10/29/96	10/29/96	10/28/96	10/28/96	10/28/96	10/22/96	10/22/96	10/15/96	10/15/96	10/25/96
Depth Range (ft.)	4.00-6.00	4.00-6.00	6.00-8.00	6.00-8.00	22.00-26.00	6.00-8.00	10.00-12.00	4.00-6.00	8.00-10.00	4.00-12.00
VOLATILES (ug/kg) (cont.)										
cis-1,2-Dichloroethylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 UJ	6 UJ	6 U
Dibromochloromethane	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 UJ	6 UJ	6 U
Dibromomethane	12 U	12 U	12 U	11 U	11 U	12 U	13 U	12 U	11 U	11 U
Dichlorodifluoromethane	23 UJ	24 UJ	25 UJ	22 UJ	22 UJ	25 UJ	26 UJ	24 U	23 U	22 UJ
Ethene, 1,2-dichloro-, (E)-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	23 UJ	24 UJ	25 U	22 UJ	22 U	25 U	26 U	24 U	23 U	22 U
Ethylbenzene	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
Iodomethane	12 U	12 U	12 U	11 U	11 U	12 U	13 U	12 UJ	11 UJ	11 U
Isobutanol	2,300 R	2,400 R	2,500 R	2,200 R	2,200 R	2,500 R	2,600 R	2,400 R	2,300 R	2,200 R
m/p-xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methacrylonitrile	23 U	24 U	25 U	22 U	22 U	25 U	26 U	24 U	23 U	22 U
Methyl methacrylate	23 U	24 U	25 U	22 U	22 U	25 UJ	26 UJ	24 U	23 U	22 U
Methylene chloride	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
o-Xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloroethane	23 U	24 U	25 U	22 U	22 U	25 UJ	26 UJ	24 U	23 U	22 U
Propionitrile	58 R	60 R	62 R	55 R	56 R	63 R	66 R	59 R	57 R	55 R
Styrene	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
Tetrachloroethene	6 U	6 U	6 U	5 U	6 U	6 UJ	7 UJ	6 UJ	6 UJ	2 J
Toluene	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
trans-1,3-Dichloropropene	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 UJ	6 UJ	6 U
trans-1,4-Dichloro-2-butene	23 UJ	24 UJ	25 U	22 UJ	22 U	25 UJ	26 UJ	24 U	23 U	22 U
Trichloroethene	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U
Trichlorofluoromethane	12 U	12 U	12 U	11 U	11 U	12 UJ	13 UJ	12 U	11 U	11 U
Vinyl Acetate	12 UJ	12 UJ	12 U	11 U	11 U	12 U	13 U	12 U	11 U	11 U
Vinyl chloride	12 U	12 U	12 UJ	11 U	11 UJ	12 U	13 U	12 U	11 U	11 UJ
Xylene (total)	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U	6 U	6 U

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW01	1MW01	1MW02	1MW02	1MW02	1MW03	1MW03	1MW04	1MW04	1SB01
Sample ID	1MW01-02	1MW01-02D	1MW02-03	1MW02-03D	1MW02-11/12	1MW03-03	1MW03-05	1MW04-02	1MW04-04	1SB01-02/05
Sample Date	10/29/96	10/29/96	10/28/96	10/28/96	10/28/96	10/22/96	10/22/96	10/15/96	10/15/96	10/25/96
Depth Range (ft.)	4.00-6.00	4.00-6.00	6.00-8.00	6.00-8.00	22.00-26.00	6.00-8.00	10.00-12.00	4.00-6.00	8.00-10.00	4.00-12.00
SEMIVOLATILES (ug/kg)										
1,2,4,5-Tetrachlorobenzene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 UJ	380 UJ	360 U
1,2,4-Trichlorobenzene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
1,2-Dichlorobenzene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
1,2-Diphenylhydrazine	380 U	390 U	410 UJ	360 UJ	370 UJ	410 UJ	440 UJ	400 U	380 U	360 UJ
1,3-Dichlorobenzene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
1,4-Dichlorobenzene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
1,4-Dioxane	770 U	780 U	810 U	730 U	730 U	830 U	880 U	790 U	760 U	720 U
1,4-Naphthoquinone	1,900 U	2,000 U	2,000 U	1,800 U	1,800 U	2,100 U	2,200 U	2,000 UJ	1,900 UJ	1,800 U
1-Naphthylamine	770 U	780 U	810 U	730 U	730 U	830 U	880 U	790 U	760 UJ	720 U
2,2'-Oxybis(1-Chloropropane)	380 U	390 U	410 UJ	360 UJ	370 UJ	410 UJ	440 UJ	400 U	380 UJ	360 UJ
2,3,4,6-Tetrachlorophenol	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 UJ	380 UJ	360 U
2,4,5-Trichlorophenol	1,900 U	2,000 U	2,000 U	1,800 U	1,800 U	2,100 U	2,200 U	2,000 U	1,900 U	1,800 U
2,4,6-Trichlorophenol	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
2,4-Dichlorophenol	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
2,4-Dimethylphenol	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
2,4-Dinitrophenol	1,900 U	2,000 U	2,000 U	1,800 U	1,800 U	2,100 U	2,200 U	2,000 UJ	1,900 UJ	1,800 U
2,4-Dinitrotoluene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
2,6-Dichlorophenol	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 UJ	380 UJ	360 U
2,6-Dinitrotoluene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
2-Acetylaminofluorene	770 U	780 U	810 U	730 U	730 U	830 U	880 U	790 U	760 UJ	720 U
2-Chloronaphthalene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
2-Chlorophenol	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
2-Methylnaphthalene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
2-Naphthylamine	960 U	980 U	1,000 U	910 U	920 U	1,000 U	1,100 U	990 UJ	940 UJ	900 U
2-Nitroaniline	1,900 U	2,000 U	2,000 UJ	1,800 UJ	1,800 UJ	2,100 UJ	2,200 UJ	2,000 U	1,900 U	1,800 UJ
2-Nitrophenol	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
2-Picoline	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
2-sec-butyl-4,6-dinitrophenol	770 U	780 U	810 U	730 U	730 U	830 U	880 U	790 UJ	760 UJ	720 U
3,3'-Dichlorobenzidine	770 U	780 U	810 U	730 U	730 U	830 U	880 U	790 U	760 U	720 U
3,3'-Dimethylbenzidine	1,900 U	2,000 U	2,000 UJ	1,800 UJ	1,800 UJ	2,100 UJ	2,200 UJ	2,000 UJ	1,900 R	1,800 UJ
3-Methylcholanthrene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 UJ	380 UJ	360 U

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW01	1MW01	1MW02	1MW02	1MW02	1MW03	1MW03	1MW04	1MW04	1SB01
Sample ID	1MW01-02	1MW01-02D	1MW02-03	1MW02-03D	1MW02-11/12	1MW03-03	1MW03-05	1MW04-02	1MW04-04	1SB01-02/05
Sample Date	10/29/96	10/29/96	10/28/96	10/28/96	10/28/96	10/22/96	10/22/96	10/15/96	10/15/96	10/25/96
Depth Range (ft.)	4.00-6.00	4.00-6.00	6.00-8.00	6.00-8.00	22.00-26.00	6.00-8.00	10.00-12.00	4.00-6.00	8.00-10.00	4.00-12.00
SEMIVOLATILES (ug/kg) (cont.)										
3-Nitroaniline	1,900 U	2,000 U	2,000 U	1,800 U	1,800 U	2,100 U	2,200 U	2,000 UJ	1,900 UJ	1,800 U
4,6-Dinitro-2-methylphenol	1,900 U	2,000 U	2,000 UJ	1,800 UJ	1,800 UJ	2,100 UJ	2,200 UJ	2,000 U	1,900 U	1,800 UJ
4-Aminobiphenyl	770 U	780 U	810 U	730 U	730 U	830 U	880 U	790 UJ	760 UJ	720 U
4-Bromophenyl phenyl ether	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
4-Chloro-3-methylphenol	770 U	780 U	810 U	730 U	730 U	830 U	880 U	790 U	760 U	720 U
4-Chloroaniline	770 U	780 U	810 U	730 U	730 U	830 U	880 U	790 U	760 U	720 U
4-Chlorophenyl phenyl ether	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
4-Nitroaniline	1,900 U	2,000 U	2,000 UJ	1,800 UJ	1,800 UJ	2,100 UJ	2,200 UJ	2,000 UJ	1,900 UJ	1,800 UJ
4-Nitrophenol	1,900 U	2,000 U	2,000 UJ	1,800 UJ	1,800 UJ	2,100 UJ	2,200 UJ	2,000 UJ	1,900 UJ	1,800 UJ
4-Nitroquinoline-1-oxide	1,900 U	2,000 U	2,000 R	1,800 R	1,800 R	2,100 R	2,200 R	2,000 R	1,900 R	1,800 R
5-Nitro-o-toluidine	770 U	780 U	810 U	730 U	730 U	830 U	880 U	790 U	760 U	720 U
7,12-Dimethylbenz(a)anthracene	770 U	780 U	810 U	730 U	730 U	830 U	880 U	790 UJ	760 UJ	720 U
Acenaphthene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Acenaphthylene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Acetophenone	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
alpha, alpha-Dimethylphenethylamine	1,900 UJ	2,000 UJ	2,000 UJ	1,800 UJ	1,800 UJ	2,100 UJ	2,200 UJ	2,000 UJ	1,900 UJ	1,800 UJ
Aniline	1,900 U	2,000 U	2,000 UJ	1,800 UJ	1,800 UJ	2,100 UJ	2,200 UJ	2,000 U	1,900 U	1,800 UJ
Anthracene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Aramite	770 U	780 U	810 U	730 U	730 U	830 U	880 U	790 U	760 U	720 U
Benzidine	3,800 U	3,900 U	4,100 U	3,600 U	3,700 U	4,100 U	4,400 U	4,000 UJ	3,800 UJ	3,600 U
Benzo(a)anthracene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Benzo(a)pyrene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Benzo(b)fluoranthene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Benzo(g,h,i)perylene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Benzo(k)fluoranthene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Benzoic acid	1,900 U	2,000 U	2,000 U	1,800 U	1,800 U	2,100 U	2,200 U	2,000 UJ	1,900 U	1,800 U
Benzyl alcohol	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 UJ	380 UJ	360 U
Bis(2-chloroethoxy)methane	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Bis(2-chloroethyl)ether	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Bis(2-ethylhexyl)phthalate	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Butylbenzylphthalate	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW01	1MW01	1MW02	1MW02	1MW02	1MW03	1MW03	1MW04	1MW04	1SB01
Sample ID	1MW01-02	1MW01-02D	1MW02-03	1MW02-03D	1MW02-11/12	1MW03-03	1MW03-05	1MW04-02	1MW04-04	1SB01-02/05
Sample Date	10/29/96	10/29/96	10/28/96	10/28/96	10/28/96	10/22/96	10/22/96	10/15/96	10/15/96	10/25/96
Depth Range (ft.)	4.00-6.00	4.00-6.00	6.00-8.00	6.00-8.00	22.00-26.00	6.00-8.00	10.00-12.00	4.00-6.00	8.00-10.00	4.00-12.00
SEMIVOLATILES (ug/kg) (cont.)										
Carbazole	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Chlorobenzilate	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 UJ	380 UJ	360 U
Chrysene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Diallate	380 UJ	390 UJ	410 UJ	360 UJ	370 UJ	410 UJ	440 UJ	400 U	380 U	360 UJ
Dibenzo(a,h)anthracene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Dibenzofuran	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Diethylphthalate	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Dimethylphthalate	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Di-n-butylphthalate	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Di-n-octylphthalate	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Diphenylamine	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Ethyl methanesulfonate	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 UJ	380 UJ	360 U
Fluoranthene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Fluorene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Hexachlorobenzene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Hexachlorobutadiene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Hexachlorocyclopentadiene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Hexachloroethane	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Hexachlorophene	3,800 R	3,900 R	4,100 U	3,600 U	3,700 U	4,100 U	4,400 U	4,000 R	3,800 R	3,600 U
Hexachloropropene	1,900 U	2,000 U	2,000 U	1,800 U	1,800 U	2,100 U	2,200 U	2,000 UJ	1,900 UJ	1,800 U
Indeno(1,2,3-cd)pyrene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Isophorone	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Isosafrole	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
m&p Cresol	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
m-Dinitrobenzene	120 U	780 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Meta-Dinitrobenzene	770 U	780 U	810 U	730 U	730 U	830 U	880 U	790 UJ	760 UJ	720 U
Methapyrilene	960 UJ	980 UJ	1,000 UJ	910 UJ	920 UJ	1,000 UJ	1.100 UJ	990 UJ	940 UJ	900 UJ
Methyl methanesulfonate	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 UJ	380 UJ	360 U
Naphthalene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Nitrobenzene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
N-Nitrosodiethylamine	380 UJ	390 UJ	410 UJ	360 UJ	370 UJ	410 UJ	440 UJ	400 UJ	380 UJ	360 UJ

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW01	1MW01	1MW02	1MW02	1MW02	1MW03	1MW03	1MW04	1MW04	1SB01
Sample ID	1MW01-02	1MW01-02D	1MW02-03	1MW02-03D	1MW02-11/12	1MW03-03	1MW03-05	1MW04-02	1MW04-04	1SB01-02/05
Sample Date	10/29/96	10/29/96	10/28/96	10/28/96	10/28/96	10/22/96	10/22/96	10/15/96	10/15/96	10/25/96
Depth Range (ft.)	4.00-6.00	4.00-6.00	6.00-8.00	6.00-8.00	22.00-26.00	6.00-8.00	10.00-12.00	4.00-6.00	8.00-10.00	4.00-12.00
SEMIVOLATILES (ug/kg) (cont.)										
N-Nitrosodimethylamine	380 U	390 U	410 UJ	360 UJ	370 UJ	410 UJ	440 UJ	400 UJ	380 UJ	360 UJ
N-Nitroso-di-n-butylamine	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
N-Nitroso-di-n-propylamine	380 U	390 U	410 UJ	360 UJ	370 UJ	410 UJ	440 UJ	400 U	380 U	360 UJ
N-Nitrosodiphenylamine (1)	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
N-Nitrosomethylethylamine	380 UJ	390 UJ	410 UJ	360 UJ	370 UJ	410 UJ	440 UJ	400 UJ	380 UJ	360 UJ
N-Nitrosomorpholine	770 UJ	780 UJ	810 UJ	730 UJ	730 UJ	830 UJ	880 UJ	790 UJ	760 UJ	720 UJ
N-Nitrosopiperidine	380 UJ	390 UJ	410 UJ	360 UJ	370 UJ	410 UJ	440 UJ	400 UJ	380 UJ	360 UJ
N-Nitrosopyrrolidine	1,900 U	2,000 U	2,000 U	1,800 U	1,800 U	2,100 U	2,200 U	2,000 U	1,900 U	1,800 U
o-Cresol	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
o-Toluidine	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
p-Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	770 UJ	780 UJ	810 UJ	730 UJ	730 UJ	830 UJ	880 UJ	790 U	760 U	720 UJ
Pentachlorobenzene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 UJ	380 UJ	360 U
Pentachloronitrobenzene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 R	380 R	360 U
Pentachlorophenol	1,900 U	2,000 U	2,000 U	1,800 U	1,800 U	2,100 U	2,200 U	2,000 U	1,900 U	1,800 U
Phenacetin	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Phenanthrene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Phenol	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U+	360 U
p-Phenylenediamine	770 U	780 U	810 R	730 R	730 R	830 R	880 R	790 R	760 R	720 R
Pronamide	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Pyrene	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
Pyridine	770 U	780 U	810 U	730 U	730 U	830 U	880 U	790 U	760 U	720 U
Safrole	380 U	390 U	410 U	360 U	370 U	410 U	440 U	400 U	380 U	360 U
sym-Trinitrobenzene	3,800 U	3,900 U	4,100 U	3,600 U	3,700 U	4,100 U	4,400 U	4,000 UJ	3,800 UJ	3,600 U

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW01	1MW01	1MW02	1MW02	1MW02	1MW03	1MW03	1MW04	1MW04	1SB01
Sample ID	1MW01-02	1MW01-02D	1MW02-03	1MW02-03D	1MW02-11/12	1MW03-03	1MW03-05	1MW04-02	1MW04-04	1SB01-02/05
Sample Date	10/29/96	10/29/96	10/28/96	10/28/96	10/28/96	10/22/96	10/22/96	10/15/96	10/15/96	10/25/96
Depth Range (ft.)	4.00-6.00	4.00-6.00	6.00-8.00	6.00-8.00	22.00-26.00	6.00-8.00	10.00-12.00	4.00-6.00	8.00-10.00	4.00-12.00
PESTICIDES/PCBS (ug/kg)										
4,4'-DDD	9.1 U	9.5 U	9.8 UJ	8.7 UJ	8.6 UJ	9.9 U	10 U	9.5 UJ	9 UJ	8.6 UJ
4,4'-DDE	9.1 U	9.5 U	9.8 U	8.7 U	8.6 U	9.9 U	10 U	9.5 U	9 U	8.6 U
4,4'-DDT	9.1 U	9.5 U	9.8 UJ	8.7 UJ	8.6 UJ	9.9 U	10 U	9.5 U	32	8.6 UJ
Aldrin	4.5 U	4.7 U	4.9 U	4.3 U	4.3 U	4.9 U	5.2 U	4.7 U	4.5 U	4.3 U
alpha-BHC	4.5 U	4.7 U	4.9 U	4.3 U	4.3 U	4.9 U	5.2 U	4.7 U	4.5 U	4.3 U
alpha-Chlordane	45 U	47 U	49 U	43 U	43 U	49 U	52 U	47 U	45 U	43 U
beta-BHC	4.5 U	4.7 U	4.9 UJ	4.3 UJ	4.3 UJ	4.9 U	5.2 U	4.7 U	4.5 U	4.3 UJ
Chlordane, gamma-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC	4.5 U	4.7 U	4.9 UJ	4.3 UJ	4.3 UJ	4.9 U	5.2 U	4.7 U	4.5 U	4.3 UJ
Dieldrin	9.1 U	9.5 U	9.8 U	8.7 U	8.6 U	9.9 U	10 U	9.5 U	14	8.6 U
Endosulfan I	4.5 U	4.7 U	4.9 U	4.3 U	4.3 U	4.9 U	5.2 U	4.7 U	7.5	4.3 U
Endosulfan II	9.1 U	9.5 U	9.8 U	8.7 U	8.6 U	9.9 U	10 U	9.5 U	9 U	8.6 U
Endosulfan sulfate	9.1 U	9.5 U	9.8 UJ	8.7 UJ	8.6 UJ	9.9 U	10 U	9.5 U	9 U	8.6 UJ
Endrin	9.1 U	9.5 U	9.8 U	8.7 U	8.6 U	9.9 U	10 U	9.5 U	9 U	8.6 U
Endrin aldehyde	9.1 U	9.5 U	9.8 UJ	8.7 UJ	8.6 UJ	9.9 U	10 U	9.5 U	9 U	8.6 UJ
Endrin ketone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	4.5 U	4.7 U	4.9 U	4.3 U	4.3 U	4.9 U	5.2 U	4.7 U	4.5 U	4.3 U
gamma-Chlordane	45 U	47 U	49 U	43 U	43 U	49 U	52 U	47 U	45 U	43 U
Heptachlor	4.5 U	4.7 U	4.9 U	4.3 U	4.3 U	4.9 U	5.2 U	4.7 U	4.5 U	4.3 U
Heptachlor epoxide	4.5 U	4.7 U	4.9 U	4.3 U	4.3 U	4.9 U	5.2 U	4.7 U	4.5 U	4.3 U
Isodrin	4.5 U	4.7 U	4.9 U	4.3 U	4.3 U	4.9 U	5.2 U	4.7 U	4.5 U	4.3 U
Kepone	9.1 UJ	9.5 UJ	9.8 UJ	8.7 UJ	8.6 UJ	9.9 U	10 U	9.5 UJ	9 UJ	8.6 UJ
Methoxychlor	45 U	47 U	49 UJ	43 UJ	43 UJ	49 U	52 U	47 U	45 U	43 UJ
Toxaphene	91 U	95 U	98 U	87 U	86 U	99 U	100 U	95 U	90 U	86 U
Aroclor-1016	45 U	47 U	49 U	43 U	43 U	49 U	52 U	47 U	45 U	43 U
Aroclor-1221	45 U	47 U	49 U	43 U	43 U	49 U	52 U	47 U	45 U	43 U
Aroclor-1232	45 U	47 U	49 U	43 U	43 U	49 U	52 U	47 U	45 U	43 U
Aroclor-1242	45 U	47 U	49 U	43 U	43 U	49 U	52 U	47 U	45 U	43 U
Aroclor-1248	45 U	47 U	49 U	43 U	43 U	49 U	52 U	47 U	45 U	43 U
Aroclor-1254	91 U	95 U	98 U	87 U	86 U	99 U	100 U	95 U	90 U	86 U
Aroclor-1260	91 U	95 U	98 U	87 U	86 U	99 U	100 U	95 U	90 U	86 U

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW01	1MW01	1MW02	1MW02	1MW02	1MW03	1MW03	1MW04	1MW04	1SB01
Sample ID	1MW01-02	1MW01-02D	1MW02-03	1MW02-03D	1MW02-11/12	1MW03-03	1MW03-05	1MW04-02	1MW04-04	1SB01-02/05
Sample Date	10/29/96	10/29/96	10/28/96	10/28/96	10/28/96	10/22/96	10/22/96	10/15/96	10/15/96	10/25/96
Depth Range (ft.)	4.00-6.00	4.00-6.00	6.00-8.00	6.00-8.00	22.00-26.00	6.00-8.00	10.00-12.00	4.00-6.00	8.00-10.00	4.00-12.00
CHLORINATED HERBICIDES (ug/kg)										
2,4,5-T	38 U	40 U	40 U	36 U	36 U	42 U	44 U	38 U	38 U	36 U
2,4,5-TP (Silvex)	38 U	40 U	40 U	36 U	36 U	42 U	44 U	38 U	38 U	36 U
2,4-D	380 U	400 U	400 U	360 U	360 U	420 U	440 U	380 U	380 U	360 U
OP-PESTICIDES (ug/kg)										
Dimethoate	76 U	78 U	82 U	73 U	72 U	82 U	87 U	77 U	76 U	72 U
Disulfoton	76 U	78 U	82 U	73 U	72 U	82 U	87 U	77 U	76 U	72 U
Famphur	76 U	78 U	82 U	73 U	72 U	82 U	87 U	77 U	76 U	72 U
Methyl parathion	76 U	78 U	82 U	73 U	72 U	82 U	87 U	77 U	76 U	72 U
O,O,O-Triethylphosphorothioate	76 U	78 U	82 U	73 U	72 U	82 U	87 U	77 U	76 U	72 U
Parathion	76 U	78 U	82 U	73 U	72 U	82 U	87 U	77 U	76 U	72 U
Phorate	76 U	78 U	82 U	73 U	72 U	82 U	87 U	77 U	76 U	72 U
Sulfotepp	76 U	78 U	82 U	73 U	72 U	82 U	87 U	77 U	76 U	72 U
Thionazin	76 U	78 U	82 U	73 U	72 U	82 U	87 U	77 U	76 U	72 U
DIOXINS (ug/kg)										
2,3,7,8-TCDD	0.04 U	0.07 U	0.1 U	0.03 U	0.03 U	0.09 U	0.06 U	0.03 U	0.03 U	0.05 U
Total HxCDD	0.14 U	0.14 U	0.3 U	0.06 U	0.07 U	0.23 U	0.12 U	0.12 U	0.1 U	0.21 U
Total HxCDF	0.07 U	0.12 U	0.12 U	0.05 U	0.05 U	0.16 U	0.13 U	0.1 U	0.07 U	0.19 U
Total PeCDD	0.06 U	0.11 U	0.14 U	0.06 U	0.06 U	0.18 U	0.13 U	0.09 U	0.03 U	0.15 U
Total PeCDF	0.06 U	0.13 U	0.09 U	0.05 U	0.04 U	0.12 U	0.14 U	0.05 U	0.05 U	0.21 U
Total TCDD	0.04 U	0.07 U	0.1 U	0.03 U	0.03 U	0.09 U	0.06 U	0.03 U	0.03 U	0.05 U
Total TCDF	0.09 J	0.05 U	0.07 U	0.04 U	0.03 U	0.08 U	0.07 U	0.03 U	0.05 U	0.06 U

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW01	1MW01	1MW02	1MW02	1MW02	1MW03	1MW03	1MW04	1MW04	1SB01
Sample ID	1MW01-02	1MW01-02D	1MW02-03	1MW02-03D	1MW02-11/12	1MW03-03	1MW03-05	1MW04-02	1MW04-04	1SB01-02/05
Sample Date	10/29/96	10/29/96	10/28/96	10/28/96	10/28/96	10/22/96	10/22/96	10/15/96	10/15/96	10/25/96
Depth Range (ft.)	4.00-6.00	4.00-6.00	6.00-8.00	6.00-8.00	22.00-26.00	6.00-8.00	10.00-12.00	4.00-6.00	8.00-10.00	4.00-12.00
EXPLOSIVES (ug/kg)										
1,3,5-Trinitrobenzene	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
1,3-Dinitrobenzene	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-TNT	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DNT/2,6-DNT	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Amino-4,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrotoluene	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
3-Nitrotoluene	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
4-Amino-2,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrotoluene	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U
Amino-DNTs	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
HMX	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U
Nitrobenzene	210 U	210 U	210 U	210 U	210 U	210 U	210 U	210 U	210 U	210 U
RDX (Cyclonite)	540 U	540 U	540 U	540 U	540 U	540 U	540 U	540 U	540 U	540 U
Tetryl	380 U	380 U	380 U	380 U	380 U	380 U	380 U	380 U	380 U	380 U
ASBESTOS										
Asbestos (MFL)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SB02	1SB02	1SB03	1SB03	1MW05	1MW05-05	5GW02	5GW02
Sample ID	1SB02-03/04	1SB02-10/11/12	1SB03-03	1SB03-06	1MW05-01	1MW05-05	5GW02-03	5GW02-05
Sample Date	10/26/96	10/26/96	10/24/96	10/24/96	09/18/97	09/18/97	09/18/97	09/18/97
Depth Range (ft.)	6.00-10.00	20.00-24.00	6.00-8.00	12.00-14.00	1.00-3.00	10.00-12.00	5.00-7.00	10.00-12.00
VOLATILES (ug/kg)								
1,1,1,2-Tetrachloroethane	11 U	11 U	13 U	11 U	11 U	12 UJ	12 U	12 UJ
1,1,1-Trichloroethane	5 U	6 U	6 U	6 U	6 U	6 UJ	6 U	6 UJ
1,1,2,2-Tetrachloroethane	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2,3-Trichloropropane	11 U	11 U	13 U	11 U	11 U	12 U	12 U	12 U
1,2-Dibromo-3-chloropropane	21 U	22 U	26 U	23 U	22 U	24 U	24 U	23 U
1,2-Dibromoethane	21 U	22 U	26 U	23 U	22 U	24 UJ	24 U	23 UJ
1,2-Dichloroethane	5 U	6 U	6 U	6 U	6 U	6 UJ	6 U	6 UJ
1,2-Dichloroethene (Total)	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	11 U	11 U	13 U	11 U	11 UJ	12 U	12 U	12 U
2-Chloro-1,3-butadiene	110 R	110 R	130 R	110 R	110 U	120 U	120 U	120 U
2-Hexanone	11 U	11 U	13 U	11 U	11 UJ	12 U	12 U	12 U
3-Chloropropene	21 U	22 U	26 U	23 U	22 U	24 U	24 U	23 U
4-Methyl-2-pentanone	11 U	11 U	13 U	11 U	11 U	12 U	12 U	12 U
Acetone	11 U	11 U	13 U	11 U	11 UJ	12 U	12 U	12 U
Acetonitrile	110 U	110 U	130 U	110 U	110 UJ	120 U	120 U	120 U
Acrolein	530 U	560 U	640 U	570 U	550 U	600 U	600 U	580 U
Acrylonitrile	110 U	110 U	130 U	110 U	110 U	120 U	120 U	120 U
Benzene	5 U	6 U	6 U	2 J	6 U	6 U	6 U	6 U
Bromodichloromethane	5 U	6 U	6 U	6 U	6 U	6 UJ	6 U	6 UJ
Bromoform	5 U	6 U	6 U	6 U	6 U	6 UJ	6 U	6 UJ
Bromomethane	11 U	11 U	13 U	11 U	11 U	12 U	12 U	12 U
Carbon disulfide	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Carbon tetrachloride	5 U	6 U	6 U	6 U	6 U	6 UJ	6 U	6 UJ
Chlorobenzene	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Chloroethane	11 U	11 U	13 U	11 U	11 U	12 U	12 U	12 U
Chloroform	5 U	6 U	6 U	6 U	6 U	6 UJ	6 U	6 UJ
Chloromethane	11 UJ	11 UJ	13 UJ	11 UJ	11 U	12 U	12 U	12 U

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SB02	1SB02	1SB03	1SB03	1MW05	1MW05-05	5GW02	5GW02
Sample ID	1SB02-03/04	1SB02-10/11/12	1SB03-03	1SB03-06	1MW05-01	1MW05-05	5GW02-03	5GW02-05
Sample Date	10/26/96	10/26/96	10/24/96	10/24/96	09/18/97	09/18/97	09/18/97	09/18/97
Depth Range (ft.)	6.00-10.00	20.00-24.00	6.00-8.00	12.00-14.00	1.00-3.00	10.00-12.00	5.00-7.00	10.00-12.00
VOLATILES (ug/kg) (cont.)								
cis-1,2-Dichloroethylene	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	5 U	6 U	6 U	6 U	6 U	6 UJ	6 U	6 UJ
Dibromomethane	11 U	11 U	13 U	11 U	11 U	12 UJ	12 U	12 UJ
Dichlorodifluoromethane	21 UJ	22 UJ	26 UJ	23 UJ	22 U	24 U	24 U	23 U
Ethene, 1,2-dichloro-, (E)-	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	21 U	22 U	26 U	23 U	22 U	24 U	24 U	23 U
Ethylbenzene	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Iodomethane	11 U	11 U	13 U	11 U	11 U	12 U	12 U	12 U
Isobutanol	2,100 R	2,200 R	2,600 R	2,300 R	2,200 R	2,400 R	2,400 U	2,300 R
m/p-xylene	NA	NA	NA	NA	NA	NA	NA	NA
Methacrylonitrile	21 U	22 U	26 U	23 U	22 U	24 U	24 U	23 U
Methyl methacrylate	21 U	22 U	26 U	23 U	22 U	24 UJ	24 U	23 UJ
Methylene chloride	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
o-Xylene	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloroethane	21 U	22 U	26 U	23 U	22 U	24 UJ	24 U	23 UJ
Propionitrile	53 R	55 R	64 R	57 R	55 UJ	60 R	60 U	58 R
Styrene	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Tetrachloroethene	5 U	6 U	6 U	6 U	6 UJ	6 R	6 U	6 R
Toluene	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
trans-1,3-Dichloropropene	5 U	6 U	6 U	6 U	6 U	6 UJ	6 U	6 UJ
trans-1,4-Dichloro-2-butene	21 U	22 U	26 U	23 U	22 U	24 U	24 U	23 U
Trichloroethene	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Trichlorofluoromethane	11 U	11 U	13 U	11 U	11 U	12 UJ	12 U	12 UJ
Vinyl Acetate	11 U	11 U	13 U	11 U	11 U	12 UJ	12 U	12 UJ
Vinyl chloride	11 UJ	11 UJ	13 UJ	11 UJ	11 U	12 UJ	12 U	12 UJ
Xylene (total)	5 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SB02	1SB02	1SB03	1SB03	1MW05	1MW05-05	5GW02	5GW02
Sample ID	1SB02-03/04	1SB02-10/11/12	1SB03-03	1SB03-06	1MW05-01	1MW05-05	5GW02-03	5GW02-05
Sample Date	10/26/96	10/26/96	10/24/96	10/24/96	09/18/97	09/18/97	09/18/97	09/18/97
Depth Range (ft.)	6.00-10.00	20.00-24.00	6.00-8.00	12.00-14.00	1.00-3.00	10.00-12.00	5.00-7.00	10.00-12.00
SEMIVOLATILES (ug/kg)								
1,2,4,5-Tetrachlorobenzene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
1,2,4-Trichlorobenzene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
1,2-Dichlorobenzene	350 U	360 U	410 U	370 U	370 UJ	390 UJ	390 UJ	380 UJ
1,2-Diphenylhydrazine	350 UJ	360 UJ	410 UJ	370 UJ	370 U	390 U	390 U	380 U
1,3-Dichlorobenzene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
1,4-Dichlorobenzene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
1,4-Dioxane	710 U	720 U	830 U	750 U	740 UJ	780 UJ	780 UJ	760 UJ
1,4-Naphthoquinone	1,800 U	1,800 U	2,100 U	1,900 U	1,800 R	1,900 R	2,000 R	1,900 R
1-Naphthylamine	710 U	720 U	830 U	750 U	740 UJ	780 UJ	780 UJ	760 UJ
2,2'-Oxybis(1-Chloropropane)	350 UJ	360 UJ	410 UJ	370 UJ	370 UJ	390 UJ	390 UJ	380 UJ
2,3,4,6-Tetrachlorophenol	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
2,4,5-Trichlorophenol	1,800 U	1,800 U	2,100 U	1,900 U	1,800 U	1,900 U	2,000 U	1,900 U
2,4,6-Trichlorophenol	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
2,4-Dichlorophenol	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
2,4-Dimethylphenol	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
2,4-Dinitrophenol	1,800 U	1,800 U	2,100 U	1,900 U	1,800 UJ	1,900 UJ	2,000 UJ	1,900 UJ
2,4-Dinitrotoluene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
2,6-Dichlorophenol	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
2,6-Dinitrotoluene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
2-Acetylaminofluorene	710 U	720 U	830 U	750 U	740 UJ	780 UJ	780 UJ	760 UJ
2-Chloronaphthalene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
2-Chlorophenol	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
2-Methylnaphthalene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
2-Naphthylamine	880 U	900 U	1,000 U	940 U	920 U	970 U	980 U	940 U
2-Nitroaniline	1,800 UJ	1,800 UJ	2,100 UJ	1,900 UJ	1,800 U	1,900 U	2,000 U	1,900 U
2-Nitrophenol	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
2-Picoline	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
2-sec-butyl-4,6-dinitrophenol	710 U	720 U	830 U	750 U	740 UJ	780 UJ	780 UJ	760 UJ
3,3'-Dichlorobenzidine	710 U	720 U	830 U	750 U	740 U	780 U	780 U	760 U
3,3'-Dimethylbenzidine	1,800 UJ	1,800 UJ	2,100 UJ	1,900 UJ	1,800 UJ	1,900 UJ	2,000 UJ	1,900 UJ
3-Methylcholanthrene	350 U	360 U	410 U	370 U	370 UJ	390 UJ	390 UJ	380 UJ

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SB02	1SB02	1SB03	1SB03	1MW05	1MW05-05	5GW02	5GW02
Sample ID	1SB02-03/04	1SB02-10/11/12	1SB03-03	1SB03-06	1MW05-01	1MW05-05	5GW02-03	5GW02-05
Sample Date	10/26/96	10/26/96	10/24/96	10/24/96	09/18/97	09/18/97	09/18/97	09/18/97
Depth Range (ft.)	6.00-10.00	20.00-24.00	6.00-8.00	12.00-14.00	1.00-3.00	10.00-12.00	5.00-7.00	10.00-12.00
SEMIVOLATILES (ug/kg) (cont.)								
3-Nitroaniline	1,800 U	1,800 U	2,100 U	1,900 U	1,800 U	1,900 U	2,000 U	1,900 U
4,6-Dinitro-2-methylphenol	1,800 UJ	1,800 UJ	2,100 UJ	1,900 UJ	1,800 UJ	1,900 UJ	2,000 UJ	1,900 UJ
4-Aminobiphenyl	710 U	720 U	830 U	750 U	740 UJ	780 UJ	780 UJ	760 UJ
4-Bromophenyl phenyl ether	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
4-Chloro-3-methylphenol	710 U	720 U	830 U	750 U	740 U	780 U	780 U	760 U
4-Chloroaniline	710 U	720 U	830 U	750 U	740 U	780 U	780 U	760 U
4-Chlorophenyl phenyl ether	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
4-Nitroaniline	1,800 UJ	1,800 UJ	2,100 UJ	1,900 UJ	1,800 U	1,900 U	2,000 U	1,900 U
4-Nitrophenol	1,800 UJ	1,800 UJ	2,100 UJ	1,900 UJ	1,800 U	1,900 U	2,000 U	1,900 U
4-Nitroquinoline-1-oxide	1,800 R	1,800 R	2,100 R	1,900 R	1,800 R	1,900 UJ	2,000 R	1,900 R
5-Nitro-o-toluidine	710 U	720 U	830 U	750 U	740 UJ	780 UJ	780 UJ	760 UJ
7,12-Dimethylbenz(a)anthracene	710 U	720 U	830 U	750 U	740 U	780 U	780 U	760 U
Acenaphthene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Acenaphthylene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Acetophenone	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
alpha, alpha-Dimethylphenethylamine	1,800 UJ	1,800 UJ	2,100 UJ	1,900 UJ	1,800 U	1,900 U	2,000 U	1,900 U
Aniline	1,800 UJ	1,800 UJ	2,100 UJ	1,900 UJ	1,800 U	1,900 U	2,000 U	1,900 U
Anthracene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Aramite	710 U	720 U	830 U	750 U	740 U	780 U	780 U	760 U
Benzidine	3,500 U	3,600 U	4,100 U	3,700 U	3,700 UJ	3,900 UJ	3,900 UJ	3,800 UJ
Benzo(a)anthracene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Benzo(a)pyrene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Benzo(b)fluoranthene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Benzo(g,h,i)perylene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Benzo(k)fluoranthene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Benzoic acid	1,800 U	1,800 U	2,100 U	1,900 U	1,800 U	1,900 U	2,000 U	1,900 U
Benzyl alcohol	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Bis(2-chloroethoxy)methane	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Bis(2-chloroethyl)ether	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Bis(2-ethylhexyl)phthalate	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Butylbenzylphthalate	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SB02	1SB02	1SB03	1SB03	1MW05	1MW05-05	5GW02	5GW02
Sample ID	1SB02-03/04	1SB02-10/11/12	1SB03-03	1SB03-06	1MW05-01	1MW05-05	5GW02-03	5GW02-05
Sample Date	10/26/96	10/26/96	10/24/96	10/24/96	09/18/97	09/18/97	09/18/97	09/18/97
Depth Range (ft.)	6.00-10.00	20.00-24.00	6.00-8.00	12.00-14.00	1.00-3.00	10.00-12.00	5.00-7.00	10.00-12.00
SEMIVOLATILES (ug/kg) (cont.)								
Carbazole	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Chlorobenzilate	350 U	360 U	410 U	370 U	370 UJ	390 UJ	390 UJ	380 UJ
Chrysene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Diallate	350 UJ	360 UJ	410 UJ	370 UJ	370 UJ	390 UJ	390 UJ	380 UJ
Dibenzo(a,h)anthracene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Dibenzofuran	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Diethylphthalate	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Dimethylphthalate	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Di-n-butylphthalate	350 U	360 U	410 U	370 U	90 J	45 J	390 U	64 J
Di-n-octylphthalate	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Diphenylamine	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Ethyl methanesulfonate	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Fluoranthene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Fluorene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Hexachlorobenzene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Hexachlorobutadiene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Hexachlorocyclopentadiene	350 U	360 U	410 U	370 U	370 UJ	390 UJ	390 UJ	380 UJ
Hexachloroethane	350 U	360 U	410 U	370 U	370 UJ	390 UJ	390 UJ	380 UJ
Hexachlorophene	3,500 U	3,600 U	4,100 U	3,700 U	3,700 UJ	3,900 UJ	3,900 UJ	3,800 UJ
Hexachloropropene	1,800 U	1,800 U	2,100 U	1,900 U	1,800 UJ	1,900 UJ	2,000 UJ	1,900 UJ
Indeno(1,2,3-cd)pyrene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Isophorone	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Isosafrole	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
m&p Cresol	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
m-Dinitrobenzene	120 U	120 U	120 U	120 U	740 UJ	780 UJ	780 UJ	760 U
Meta-Dinitrobenzene	710 U	720 U	830 U	750 U	NA	NA	NA	NA
Methapyrilene	880 UJ	900 UJ	1,000 UJ	940 UJ	920 UJ	970 U	980 UJ	940 UJ
Methyl methanesulfonate	350 U	360 U	410 U	370 U	370 UJ	390 UJ	390 UJ	380 UJ
Naphthalene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Nitrobenzene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
N-Nitrosodiethylamine	350 UJ	360 UJ	410 UJ	370 UJ	370 UJ	390 UJ	390 UJ	380 UJ

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SB02	1SB02	1SB03	1SB03	1MW05	1MW05-05	5GW02	5GW02
Sample ID	1SB02-03/04	1SB02-10/11/12	1SB03-03	1SB03-06	1MW05-01	1MW05-05	5GW02-03	5GW02-05
Sample Date	10/26/96	10/26/96	10/24/96	10/24/96	09/18/97	09/18/97	09/18/97	09/18/97
Depth Range (ft.)	6.00-10.00	20.00-24.00	6.00-8.00	12.00-14.00	1.00-3.00	10.00-12.00	5.00-7.00	10.00-12.00
SEMIVOLATILES (ug/kg) (cont.)								
N-Nitrosodimethylamine	350 UJ	360 UJ	410 UJ	370 UJ	370 UJ	390 UJ	390 UJ	380 UJ
N-Nitroso-di-n-butylamine	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
N-Nitroso-di-n-propylamine	350 UJ	360 UJ	410 UJ	370 UJ	370 U	390 U	390 U	380 U
N-Nitrosodiphenylamine (1)	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
N-Nitrosomethylethylamine	350 UJ	360 UJ	410 UJ	370 UJ	370 U	390 U	390 U	380 U
N-Nitrosomorpholine	710 UJ	720 UJ	830 UJ	750 UJ	740 U	780 U	780 U	760 U
N-Nitrosopiperidine	350 UJ	360 UJ	410 UJ	370 UJ	370 UJ	390 UJ	390 UJ	380 UJ
N-Nitrosopyrrolidine	1,800 U	1,800 U	2,100 U	1,900 U	1,800 U	1,900 U	2,000 U	1,900 U
o-Cresol	350 U	360 U	410 U	370 U	370 UJ	390 UJ	390 UJ	380 UJ
o-Toluidine	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
p-Cresol	NA	NA	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	710 UJ	720 UJ	830 UJ	750 UJ	740 U	780 U	780 U	760 U
Pentachlorobenzene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Pentachloronitrobenzene	350 U	360 U	410 U	370 U	370 R	390 R	390 R	380 R
Pentachlorophenol	1,800 U	1,800 U	2,100 U	1,900 U	1,800 U	1,900 U	2,000 U	1,900 U
Phenacetin	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Phenanthrene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Phenol	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
p-Phenylenediamine	710 R	720 R	830 R	750 R	740 R	780 R	780 R	760 R
Pronamide	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Pyrene	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
Pyridine	710 U	720 U	830 U	750 U	740 U	780 U	780 U	760 U
Safrole	350 U	360 U	410 U	370 U	370 U	390 U	390 U	380 U
sym-Trinitrobenzene	3,500 U	3,600 U	4,100 U	3,700 U	3,700 UJ	3,900 UJ	3,900 UJ	3,800 UJ

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SB02	1SB02	1SB03	1SB03	1MW05	1MW05-05	5GW02	5GW02
Sample ID	1SB02-03/04	1SB02-10/11/12	1SB03-03	1SB03-06	1MW05-01	1MW05-05	5GW02-03	5GW02-05
Sample Date	10/26/96	10/26/96	10/24/96	10/24/96	09/18/97	09/18/97	09/18/97	09/18/97
Depth Range (ft.)	6.00-10.00	20.00-24.00	6.00-8.00	12.00-14.00	1.00-3.00	10.00-12.00	5.00-7.00	10.00-12.00
PESTICIDES/PCBS (ug/kg)								
4,4'-DDD	8.3 UJ	8.8 UJ	10 U	9.1 UJ	18 U	19 U	9.5 U	9.2 U
4,4'-DDE	8.3 U	8.8 U	10 U	9.1 U	18 U	19 U	9.5 U	9.2 U
4,4'-DDT	8.3 UJ	8.8 UJ	10 U	9.1 UJ	18 U	19 U	9.5 U	9.2 U
Aldrin	4.1 U	4.4 U	5 U	4.5 U	8.8 UJ	9.3 U	4.8 UJ	4.6 UJ
alpha-BHC	4.1 U	4.4 U	5 U	4.5 U	8.8 U	9.3 U	4.8 U	4.6 U
alpha-Chlordane	41 U	44 U	50 U	45 U	88 U	93 U	48 U	46 U
beta-BHC	4.1 UJ	4.4 UJ	5 U	4.5 UJ	8.8 U	9.3 U	4.8 U	4.6 U
Chlordane, gamma-	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC	4.1 UJ	4.4 UJ	5 U	4.5 UJ	8.8 U	9.3 U	4.8 U	4.6 U
Dieldrin	8.3 U	8.8 U	10 U	9.1 U	18 U	19 U	9.5 U	9.2 U
Endosulfan I	4.1 U	4.4 U	5 U	4.5 U	8.8 U	9.3 U	4.8 U	4.6 U
Endosulfan II	8.3 U	8.8 U	10 U	9.1 U	18 U	19 U	9.5 U	9.2 U
Endosulfan sulfate	8.3 UJ	8.8 UJ	10 U	9.1 UJ	18 U	19 U	9.5 U	9.2 U
Endrin	8.3 U	8.8 U	10 U	9.1 U	18 U	19 U	9.5 U	9.2 U
Endrin aldehyde	8.3 UJ	8.8 UJ	10 U	9.1 UJ	18 U	19 U	9.5 U	9.2 U
Endrin ketone	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	4.1 U	4.4 U	5 U	4.5 U	8.8 U	9.3 U	4.8 U	4.6 U
gamma-Chlordane	41 U	44 U	50 U	45 U	88 U	93 U	48 U	46 U
Heptachlor	4.1 U	4.4 U	5 U	4.5 U	8.8 U	9.3 U	4.8 U	4.6 U
Heptachlor epoxide	4.1 U	4.4 U	5 U	4.5 U	8.8 U	9.3 U	4.8 U	4.6 U
Isodrin	4.1 U	4.4 U	5 U	4.5 U	8.8 U	9.3 U	4.8 U	4.6 U
Kepone	8.3 UJ	8.8 UJ	10 U	9.1 UJ	22 U	23 UJ	12 U	12 U
Methoxychlor	41 UJ	44 UJ	50 U	45 UJ	88 U	93 U	48 U	46 U
Toxaphene	83 U	88 U	100 U	91 U	180 U	190 U	95 U	92 U
Aroclor-1016	41 U	44 U	50 U	45 U	88 U	93 U	48 U	46 U
Aroclor-1221	41 U	44 U	50 U	45 U	88 U	93 U	48 U	46 U
Aroclor-1232	41 U	44 U	50 U	45 U	88 U	93 U	48 U	46 U
Aroclor-1242	41 U	44 U	50 U	45 U	88 U	93 U	48 U	46 U
Aroclor-1248	41 U	44 U	50 U	45 U	88 U	93 U	48 U	46 U
Aroclor-1254	83 U	88 U	100 U	91 U	180 U	190 U	95 U	92 U
Aroclor-1260	83 U	88 U	100 U	91 U	180 U	190 U	95 U	92 U

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SB02	1SB02	1SB03	1SB03	1MW05	1MW05-05	5GW02	5GW02
Sample ID	1SB02-03/04	1SB02-10/11/12	1SB03-03	1SB03-06	1MW05-01	1MW05-05	5GW02-03	5GW02-05
Sample Date	10/26/96	10/26/96	10/24/96	10/24/96	09/18/97	09/18/97	09/18/97	09/18/97
Depth Range (ft.)	6.00-10.00	20.00-24.00	6.00-8.00	12.00-14.00	1.00-3.00	10.00-12.00	5.00-7.00	10.00-12.00
CHLORINATED HERBICIDES (ug/kg)								
2,4,5-T	34 U	36 U	42 U	38 U	37 U	39 U	40 U	38 U
2,4,5-TP (Silvex)	34 U	36 U	42 U	38 U	37 U	39 U	40 U	38 U
2,4-D	340 U	360 U	420 U	380 U	370 U	390 U	400 U	380 U
OP-PESTICIDES (ug/kg)								
Dimethoate	70 U	74 U	84 U	75 U	74 U	78 U	78 U	78 U
Disulfoton	70 U	74 U	84 U	75 U	74 U	78 U	78 U	78 U
Famphur	70 U	74 U	84 U	75 U	74 U	78 U	78 U	78 U
Methyl parathion	70 U	74 U	84 U	75 U	74 U	78 U	78 U	78 U
O,O,O-Triethylphosphorothioate	70 U	74 U	84 U	75 U	74 U	78 U	78 U	78 U
Parathion	70 U	74 U	84 U	75 U	74 U	78 U	78 U	78 U
Phorate	70 U	74 U	84 U	75 U	74 U	78 U	78 U	78 U
Sulfotepp	70 U	74 U	84 U	75 U	74 U	78 U	78 U	78 U
Thionazin	70 U	74 U	84 U	75 U	74 U	78 U	78 U	78 U
DIOXINS (ug/kg)								
2,3,7,8-TCDD	0.03 U	0.04 U	0.15 U	0.07 U	0.01 U	0.01 U	0.02 U	0.01 U
Total HxCDD	0.07 U	0.07 U	0.3 J	0.28 U	0.04 U	0.04 U	0.03 U	0.03 U
Total HxCDF	0.06 U	0.04 U	0.17 J	0.11 U	0.02 U	0.14 J	0.02 U	0.02 U
Total PeCDD	0.06 U	0.06 U	0.23 U	0.14 U	0.03 U	0.03 U	0.02 U	0.03 U
Total PeCDF	0.05 U	0.06 U	0.15 U	0.24 U	0.05 U	0.04 U	0.04 U	0.02 U
Total TCDD	0.03 U	0.04 U	0.15 U	0.07 U	0.01 U	0.01 U	0.02 U	0.01 U
Total TCDF	0.02 U	0.03 U	0.04 U	0.09 U	0.02 U	0.01 U	0.01 U	0.01 U

APPENDIX F.3 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SB02	1SB02	1SB03	1SB03	1MW05	1MW05-05	5GW02	5GW02
Sample ID	1SB02-03/04	1SB02-10/11/12	1SB03-03	1SB03-06	1MW05-01	1MW05-05	5GW02-03	5GW02-05
Sample Date	10/26/96	10/26/96	10/24/96	10/24/96	09/18/97	09/18/97	09/18/97	09/18/97
Depth Range (ft.)	6.00-10.00	20.00-24.00	6.00-8.00	12.00-14.00	1.00-3.00	10.00-12.00	5.00-7.00	10.00-12.00
EXPLOSIVES (ug/kg)								
1,3,5-Trinitrobenzene	130 U	130 U	130 U	130 U	1,000 U	1,000 U	1,000 U	1,000 U
1,3-Dinitrobenzene	120 U	120 U	120 U	120 U	1,000 U	1,000 U	1,000 U	1,000 U
2,4,6-TNT	120 U	120 U	120 U	120 U	1,000 UJ	1,000 UJ	1,000 UJ	1,000 UJ
2,4-Dinitrotoluene	NA	NA	NA	NA	1,000 U	1,000 U	1,000 U	1,000 U
2,4-DNT/2,6-DNT	200 U	200 U	200 U	200 U	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	2,000 U	2,000 U	2,000 U	2,000 U
2-Amino-4,6-dinitrotoluene	NA	NA	NA	NA	2,000 U	2,000 U	2,000 U	2,000 U
2-Nitrotoluene	500 U	500 U	500 U	500 U	2,000 U	2,000 U	2,000 U	2,000 U
3-Nitrotoluene	500 U	500 U	500 U	500 U	2,000 U	2,000 U	2,000 U	2,000 U
4-Amino-2,6-dinitrotoluene	NA	NA	NA	NA	2,000 U	2,000 U	2,000 U	2,000 U
4-Nitrotoluene	1,500 U	1,500 U	1,500 U	1500 U	2,000 U	2,000 U	2,000 U	2,000 U
Amino-DNTs	200 U	200 U	200 U	200 U	NA	NA	NA	NA
HMX	1,100 U	1,100 U	1,100 U	1,100 U	1,000 U	1,000 U	1,000 U	1,000 U
Nitrobenzene	210 U	210 U	210 U	210 U	1,000 U	1,000 U	1,000 U	1,000 U
RDX (Cyclonite)	540 U	540 U	540 U	540 U	1,000 U	1,000 U	1,000 U	1,000 U
Tetryl	380 U	380 U	380 U	380 U	2,000 UJ	2,000 UJ	2,000 UJ	2,000 UJ
ASBESTOS								
Asbestos (MFL)	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX F.4
SUBSURFACE SOIL, INORGANICS, SWMU 1

APPENDIX F.4

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	05SS101	05SS102	05SS103	05SS104	05SS104	05SS105	05SS105	05SS106	05SS107	05SS108	05SS109
Sample ID	05SS127	05SS129	05SS131	05SS133	05SS134	05SS136	05SS137	05SS139	05SS140C	05SS140D	05SS140E
Sample Date	11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/16/92	11/16/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67
Inorganics, Total (mg/kg)											
Aluminum	6,240	40,700	6,920	12,800	9,430	14,000	32,800	17,700	6,880	8,720	5,770
Antimony	10.6 U	11 U	11.4 U	12.1 U	12.1 U	3 J	3.2 J	2.3 U	10.6 U	10.6 U	10.6 U
Arsenic	0.67 UJ	0.7 UJ	0.72 U	0.77 U	0.77 U	0.71 U	0.71 U	0.69 U	0.67 U	0.67 U	0.67 U
Barium	144	166	123	114	195	385	366	132	92.5	141	101
Beryllium	0.2 B	0.86 B	0.84 B	0.96 B	0.72 B	0.9 B	1 B	0.63 B	0.39 B	0.46 B	0.42 B
Cadmium	0.63 U	1.7	0.72 B	0.9 B	0.72 U	2.4	4.2	1.3 UJ	0.63 U	0.63 U	0.63 U
Calcium	5,430	12,500	6,320	5,660	11,200	2,210	2,750	6,000	4,520	4,730	3,390
Chromium	2.8 J	35.7 J	14.9 J	33.3 J	21.3 J	9.6	15.3	51.7	9 J	8 J	5.8 J
Cobalt	18.8	23.8	22.5	35.5	33.8	16.5	17.5	16	15.6	19.3	15.8
Copper	53.3 J	106 J	25.8 J	141 J	93.6 J	31.6	45.4	33.4	19.6 J	28.8 J	16.1 J
Cyanide	0.11 U	0.12 U	0.12 U	0.13 U	0.13 U	0.12 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U
Iron	8,630	48,800	19,400	25,900	17,900	38,600	62,200	27,200	10,300	12,700	9,250
Lead	5.9	4.6	4.7	3.1	25.4	2 J	1.9 J	1.6 J	4.1	4.7	3.1
Magnesium	5,510	5,730	3,360	6,910	5,340	5,350	6,310	10,200	2,930	2,860	2,470
Manganese	620 J	848 J	876 J	971 J	1,450 J	508	407	656	696 J	976 J	764 J
Mercury	0.11 UJ	0.1 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.1 U	0.11 U	0.11 U	0.11 UJ	0.11 UJ	0.1 UJ
Nickel	4.2 U	13.3	4.9 B	20.8	17.5	4.5 U	4.4 U	10.8	4.2 U	4.2 U	5.2 B
Potassium	245 U	371 U	316 U	606 U	569 U	580 B	633 B	205 U	1,020 B	923 B	1,310
Selenium	0.54 UJ	0.56 UJ	0.58 UJ	0.62 UJ	0.62 UJ	0.57 U	0.56 UJ	0.55 UJ	0.54 UJ	0.6 J	0.54 UJ
Silver	1.7 B	1.5 U	1.6 B	1.6 U	1.6 U	1.1 UJ	1.1 UJ	1 UJ	1.9 B	1.4 U	2.4
Sodium	750 B	2,810	730 B	3,010	2,230	4,370 J	4,830 J	6,520 J	500 U	575 U	507 U
Sulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	0.34 U	0.35 U	0.36 U	0.38 U	0.38 U	0.36 UJ	0.35 UJ	0.34 UJ	0.34 U	0.34 U	0.34 UJ
Tin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	39.1 J	223 J	131 J	160 J	116 J	134	176	80.7	43.4 J	49.4 J	44.4 J
Zinc	28.6	42.2	20.2	44.7	68.8	28.5	37.3	49.4	24.6	38.6	22.4

APPENDIX F.4

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW01	1MW01	1MW02	1MW02	1MW02	1MW03	1MW03	1MW04	1MW04	1SB01	1SB02
Sample ID	1MW01-02	1MW01-02D	1MW02-03	1MW02-03D	1MW02-11/12	1MW03-03	1MW03-05	1MW04-02	1MW04-04	1SB01-02/05	1SB02-03/04
Sample Date	10/29/96	10/29/96	10/28/96	10/28/96	10/28/96	10/22/96	10/22/96	10/15/96	10/15/96	10/25/96	10/26/96
Depth Range (ft.)	4.00-6.00	4.00-6.00	6.00-8.00	6.00-8.00	22.00-26.00	6.00-8.00	10.00-12.00	4.00-6.00	8.00-10.00	4.00-12.00	6.00-10.00
Inorganics, Total (mg/kg)											
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	2.7 J	3 J	2.6 J	1.4 UJ	2.1 J	2.7 J	3.6 J	1.8 UJ	2.8 J	1.4 UJ	3.8 J
Arsenic	0.31	0.36 J	0.16 UJ	0.14 UJ	0.14 UJ	1.6 UJ	1.8 UJ	0.91 U	1.3 U	0.7 UJ	0.7 UJ
Barium	76.5	66.6	87.9	70.2	53.1	291	152	137	191	156	89.5
Beryllium	0.54	0.51	0.87	0.81	0.87	1.2	0.62	0.36	0.15	0.5	0.47
Cadmium	0.19 U	0.25	0.21 U	0.19 U	0.19 U	0.21 U	0.22 U	0.24 U	0.21	0.19 U	0.18 U
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	37.1	36.6	19.1	19.6	9.5	20.8	26.9	29.3 J	9.3 J	5.4	28.6
Cobalt	19.9	16.3	13.7	11.6	13.7	33.1	22	22.9	16.9	16.5	18.4
Copper	52.6	46.7	58.4	50.7	266	81.9	79.1	106	544	113	85.5
Cyanide	0.46 U	0.51 U	0.49 U	0.49 U	0.52 U	0.54 U	0.55 U	0.51 U	0.41 U	0.52 U	0.48 U
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1.4 R	2 R	0.91 J	1.2 J	4.1 J	0.72 J	1.1 J	1.7	35.8	1.2 J	0.47 J
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.03 U	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.03	1.1	0.02 U	0.02 U
Nickel	16.5	13.9	8.2	6.9	7.3	13.6	10.1	14.5	9	7	19.2
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.31 J	0.5 J	0.36 UJ	0.32 UJ	0.32 UJ	0.36 UJ	0.4 UJ	0.21 UJ	0.75 UJ	1.6 UJ	1.6 UJ
Silver	0.16 UJ	0.16 UJ	0.18 UJ	0.16 UJ	0.33 UJ	0.36 UJ	0.19 UJ	0.2 UJ	0.16 UJ	0.16 UJ	0.16 UJ
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	26.9 U	22.9 U	27.8 UJ	26.4 UJ	25.6 UJ	29.4 UJ	29.6 UJ	29.4 UJ	27.9 UJ	27 UJ	25.6 UJ
Thallium	0.16 U	0.12 U	0.16 U	0.14 U	0.14 U	0.16 U	0.18 U	0.18 U	0.13 U	0.14 U	0.14 U
Tin	0.78 U	0.78 U	0.85 U	0.78 U	0.79 U	0.87 U	0.92 U	18.5	11.5	0.79 U	0.76 U
Vanadium	111	103	141	126	111	187	163	196	164	142	150
Zinc	27.8 J	24.1 J	27.5	24.9	46	72.7	72.8	141	58.8	34	27.7

APPENDIX F.4

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1SB02	1SB03	1SB03	1MW05	1MW05-05	5GW02	5GW02
Sample ID	1SB02-10/11/12	1SB03-03	1SB03-06	1MW05-01	1MW05-05	5GW02-03	5GW02-05
Sample Date	10/26/96	10/24/96	10/24/96	09/18/97	09/18/97	09/18/97	09/18/97
Depth Range (ft.)	20.00-24.00	6.00-8.00	12.00-14.00	1.00-3.00	10.00-12.00	5.00-7.00	10.00-12.00
Inorganics, Total (mg/kg)							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Antimony	1.5 UJ	2.3 J	1.4 UJ	0.17 J	0.14 UJ	0.32 J	0.26 J
Arsenic	0.74 UJ	0.17 UJ	0.71 UJ	0.56 U	0.68 U	0.68 U	0.52 UJ
Barium	95.6	112	102	28.8	44	123	129
Beryllium	0.53	0.58	0.43	0.12 J	0.15 J	0.19 J	0.2 J
Cadmium	0.19 U	0.21 U	0.19 U	0.17 U	0.15 U	0.24 U	0.22 U
Calcium	NA	NA	NA	NA	NA	NA	NA
Chromium	24.8	8.9	6.8	45.1	78	27.5	40.1
Cobalt	17.3	12.3	9.4	25.7 J	28.2 J	15.3 J	18.2 J
Copper	88.9	63.6	54.3	19.5	42.8	55	69.1
Cyanide	0.48 U	0.59 U	0.55 U	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA
Lead	0.48 J	18.2 J	0.92 J	1.4	1.1	1.3	0.99
Magnesium	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA
Mercury	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	16	6.6	5.8	21.9 J	31.8 J	11.2 J	11.8 J
Potassium	NA	NA	NA	NA	NA	NA	NA
Selenium	1.7 UJ	0.38 UJ	0.32 UJ	0.15 UJ	0.19 UJ	0.19 U	0.29 UJ
Silver	0.17 UJ	0.18 UJ	0.16 UJ	0.1 J	0.3 J	0.1 J	0.06 U
Sodium	NA	NA	NA	NA	NA	NA	NA
Sulfide	26.2 UJ	29.8 UJ	27.7 UJ	NA	NA	NA	NA
Thallium	0.15 U	0.17 U	0.14 U	0.18 U	0.79 U	1.2 U	0.23 U
Tin	0.8 U	6.3	0.79 U	1.6 J	1.9 J	1.8 J	2 J
Vanadium	134	134	97.1	101	121	91.9	92.6
Zinc	34.1	35.2	19.2	33	37	30	34.5

APPENDIX F.5
SEDIMENT, ORGANICS, SWMU 1

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE1	5SE2	5SE3
Sample ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE01	5SE02	5SE03
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
VOLATILES (ug/kg)									
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	290 U	510 U	360 U	450 U	280 U	300 U	410 U	780 U	770 U
1,1,2,2-Tetrachloroethane	150 U	270 U	190 U	230 U	140 U	190 U	450 U	840 U	830 U
1,1,2-Trichloroethane	300 U	520 U	370 U	460 U	280 U	350 U	550 U	1,000 U	1,000 U
1,1-Dichloroethane	120 U	210 U	150 U	270 U	110 U	170 U	510 U	960 U	960 U
1,1-Dichloroethene	300 U	520 U	370 U	460 U	280 U	380 U	310 U	570 U	570 U
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	6 U	10 U	7 U	9 U	5 U	4 U	0.643 U	1.17 U	1.17 U
1,2-Dichloroethane	250 U	440 U	310 U	390 U	240 U	290 U	310 U	570 U	570 U
1,2-Dichloroethene (Total)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	170 U	300 U	210 U	260 U	160 U	240 U	660 U	1,200 U	1,200 U
2-Butanone	3,100 U	5,600 U	3,900 U	5,000 U	3,000 U	2,100 U	5,200 U	9,800 U	9,800 U
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	0.2 U	0.35 U	0.25 U	0.32 U	0.19 U	340 U	1,300 U	2,400 U	2,400 U
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	80 U	130 U	100 U	120 U	70 U	100 U	480 U	900 U	890 U
Bromodichloromethane	170 U	300 U	210 U	260 U	160 U	190 U	240 U	450 U	450 U
Bromoform	410 U	710 U	500 U	620 U	390 U	340 U	510 U	960 U	960 U
Bromomethane	360 U	620 U	440 U	540 U	340 U	290 U	610 U	1,100 U	1,100 U
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	370 U	630 U	450 U	560 U	350 U	350 U	310 U	570 U	570 U
Chlorobenzene	130 U	230 U	160 U	200 U	120 U	150 U	660 U	1,200 U	1,200 U
Chloroethane	460 U	800 U	570 U	710 U	440 U	520 U	900 U	1,700 U	1,700 U
Chloroform	156 U	270 U	192 U	238 U	148 U	178 U	170 U	330 U	330 U
Chloromethane	290 U	510 U	360 U	450 U	280 U	530 U	470 U	880 U	870 U

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE1	5SE2	5SE3
Sample ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE01	5SE02	5SE03
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
VOLATILES (ug/kg) (cont.)									
cis-1,3-Dichloropropene	120 U	210 U	150 U	190 U	110 U	150 U	550 U	1,000 U	1,000 U
Dibromochloromethane	320 U	560 U	400 U	490 U	300 U	300 U	340 U	630 U	630 U
Dibromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene, (2-chloroethoxy)-	330 U	570 U	410 U	500 U	310 U	450 U	1,100 U	2,000 U	2,000 U
Ethene, 1,2-dichloro-, (E)-	280 U	490 U	350 U	430 U	260 U	320 U	170 U	330 U	330 U
Ethyl methacrylate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	290 U	500 U	350 U	440 U	270 U	310 U	790 U	1,500 U	1,500 U
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
Methyl methacrylate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	240 U	420 U	290 U	380 U	220 U	280 U	3,600	4,100	4,100
m-Xylene	210 U	370 U	270 U	330 U	200 U	310 U	660 U	1,200 U	1,200 U
Pentachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	480 U	840 U	600 U	730 U	460 U	450 U	450 U	840 U	830 U
Toluene	130 U	240 U	170 U	220 U	130 U	160 U	660 U	1,200 U	1,200 U
trans-1,3-Dichloropropene	320 U	560 U	400 U	490 U	310 U	400 U	700 U	1,300 U	1,300 U
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	320 U	550 U	400 U	490 U	300 U	330 U	210 U	390 U	390 U
Trichlorofluoromethane	260 U	450 U	320 U	390 U	240 U	320 U	350 U	650 U	650 U
Vinyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	270 U	470 U	340 U	420 U	260 U	300 U	530 U	1,000 U	1,000 U
Xylene (total)	220 U	390 U	280 U	340 U	210 U	240 U	660 U	1,200 U	1,200 U

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE1	5SE2	5SE3
Sample ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE01	5SE02	5SE03
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
SEMIVOLATILES (ug/kg)									
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
1,2-Dichlorobenzene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
1,4-Dichlorobenzene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
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)	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
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	240 U	350 U	240 U	320 U	270 U	NA	260 U	490 U	490 U
2,4-Dichlorophenol	190 U	330 U	230 U	300 U	270 U	NA	260 U	490 U	490 U
2,4-Dimethylphenol	190 U	330 U	230 U	300 U	270 U	NA	1,300 U	2,400 U	2,400 U
2,4-Dinitrophenol	740 U	1,100 U	740 U	1,000 U	1,300 U	NA	2,800 U	5,300 U	5,300 U
2,4-Dinitrotoluene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	300 U	400 U	300 U	400 U	300 U	NA	130 U	240 U	240 U
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
2-Chlorophenol	190 U	330 U	230 U	300 U	270 U	NA	220 U	410 U	410 U
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	210 U	330 U	230 U	300 U	270 U	NA	220 U	410 U	410 U
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	200 U	700 U	500 U	600 U	1,000 U	NA	220 U	410 U	410 U
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE1	5SE2	5SE3
Sample ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE01	5SE02	5SE03
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
SEMIVOLATILES (ug/kg) (cont.)									
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	500 U	730 U	500 U	680 U	540 U	NA	2,200 U	4,100 U	4,100 U
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	300 U	400 U	300 U	400 U	300 U	NA	130 U	240 U	240 U
4-Chloro-3-methylphenol	190 U	330 U	230 U	320 U	270 U	NA	260 U	490 U	490 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	410 U	600 U	410 U	550 U	540 U	NA	1,300 U	2,400 U	2,400 U
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-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Acenaphthylene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha, alpha-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Aramite	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzidine	NA	NA	NA	NA	NA	NA	1,100 U	2,000 U	2,000 U
Benzo(a)anthracene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Benzo(a)pyrene	200 U	300 U	200 U	300 U	700 U	NA	200 U	370 U	370 U
Benzo(b)fluoranthene	200 U	300 U	200 U	300 U	600 U	NA	200 U	370 U	370 U
Benzo(g,h,i)perylene	410 U	600 U	410 U	550 U	800 U	NA	260 U	490 U	490 U
Benzo(k)fluoranthene	200 U	300 U	200 U	300 U	500 U	NA	200 U	370 U	370 U
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	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Bis(2-chloroethyl)ether	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Bis(2-ethylhexyl)phthalate	100	300 U	200 U	300 U	200 U	NA	170 U	330 U	330 U

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE1	5SE2	5SE3
Sample ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE01	5SE02	5SE03
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
SEMIVOLATILES (ug/kg) (cont.)									
Butylbenzylphthalate	200 U	300 U	200 U	300 U	300 U	NA	130 U	240 U	240 U
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Cresols	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	400 U	600 U	400 U	500 U	800 U	NA	260 U	490 U	490 U
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorobenzenes	210 U	370 U	260 U	320 U	200 U	190 U	NA	NA	NA
Diethylphthalate	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Dimethylphthalate	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Di-n-butylphthalate	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Di-n-octylphthalate	1,000	4,000	500	300 U	500	NA	190 U	350 U	350 U
Diphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Fluorene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Hexachlorobenzene	200 U	400 U	200 U	300 U	300 U	NA	130 U	240 U	240 U
Hexachlorobutadiene	400 U	500 U	400 U	500 U	300 U	NA	130 U	240 U	240 U
Hexachlorocyclopentadiene	500 U	700 U	500 U	600 U	400 U	NA	2,200 U	4,100 U	4,100 U
Hexachloroethane	300 U	400 U	300 U	400 U	200 U	NA	160 U	310 U	300 U
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	400 U	500 U	400 U	500 U	800 U	NA	260 U	490 U	490 U
Isophorone	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
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
Meta-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 F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE1	5SE2	5SE3
Sample ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE01	5SE02	5SE03
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
SEMIVOLATILES (ug/kg) (cont.)									
Naphthalene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Nitrobenzene	186 U	332 U	231 U	299 U	177 U	NA	150 U	290 U	280 U
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	200 U	300 U	200 U	300 U	200 U	NA	220 U	410 U	410 U
N-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
N-Nitrosodiphenylamine (1)	800 U	1,000 U	1,000 U	800 U	900 U	NA	130 U	240 U	240 U
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	480 U	700 U	480 U	650 U	540 U	NA	660 U	1,200 U	1,200 U
Phenacetin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
Phenol	190 U	330 U	230 U	300 U	270 U	NA	240 U	450 U	450 U
p-Phenylenediamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pronamide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U
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
Total Phenols	NA	NA	NA	NA	NA	NA	73 U	29,800	5,980

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE1	5SE2	5SE3
Sample ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE01	5SE02	5SE03
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
PESTICIDES/PCBs (ug/kg)									
4,4'-DDD	562 U	1,010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
4,4'-DDE	562 U	1,010 U	701 U	907 U	536 U	NA	32.4	57.1 U	56.9 U
4,4'-DDT	562 U	1,010 U	701 U	907 U	536 U	NA	43.5 U	81.6 U	138 U
Aldrin	562 U	1,010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
alpha-BHC	562 U	1,010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
alpha-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	562 U	1,010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
Chlordane	4,500 U	8,050 U	5,610 U	7,250 U	4,280 U	NA	30.5 U	57.1 U	56.9 U
delta-BHC	562 U	1,030	701	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
Dieldrin	562 U	1,010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
Endosulfan I	562 U	1,010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
Endosulfan II	562 U	1,010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
Endosulfan sulfate	562 U	1,010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
Endrin	562 U	1,010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
Endrin aldehyde	562 U	1,010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
gamma-BHC (Lindane)	562 U	1,010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	562 U	1,010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
Heptachlor epoxide	562 U	1,010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U
Isodrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	22,500 U	40,200 U	28,000 U	36,300 U	21,400 U	NA	30.5 U	57.1 U	56.9 U
Aroclor-1016	2,810 U	5,030 U	2,100 U	2,720 U	1,610 U	NA	448 U	840 U	837 U
Aroclor-1221	2,810 U	5,030 U	2,100 U	2,720 U	1,610 U	NA	450 U	840 U	840 U
Aroclor-1232	2,810 U	5,030 U	2,100 U	2,720 U	1,610 U	NA	450 U	840 U	840 U
Aroclor-1242	2,810 U	5,030 U	2,100 U	2,720 U	1,610 U	NA	450 U	840 U	840 U
Aroclor-1248	3,000 U	5,000 U	2,000 U	3,000 U	2,000 U	NA	450 U	840 U	840 U
Aroclor-1254	2,810 U	5,030 U	2,100 U	2,720 U	1,610 U	NA	450 U	840 U	840 U
Aroclor-1260	2,810 U	5,030 U	2,100 U	2,720 U	1,610 U	NA	450 U	840 U	840 U

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE1	5SE2	5SE3
Sample ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE01	5SE02	5SE03
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
CHLORINATED HERBICIDES (ug/kg)									
2,4,5-T	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	NA	NA	NA	NA	NA	NA	NA	NA	NA
OP-PESTICIDES (ug/kg)									
Dimethoate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Disulfoton	NA	NA	NA	NA	NA	NA	NA	NA	NA
Famphur	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-Triethylphosphorothioate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phorate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfotepp	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thionazin	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIOXINS (ug/kg)									
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE1	5SE2	5SE3
Sample ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE01	5SE02	5SE03
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
EXPLOSIVES (ug/kg)									
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TNT	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DNT/2,6-DNT	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Amino-DNTs	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX (Cyclonite)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetryl	NA	NA	NA	NA	NA	NA	NA	NA	NA
ASBESTOS									
Asbestos	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS									
Oil & Grease (mg/kg)	NA	NA	NA	NA	NA	2,080	NA	NA	NA

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE4	5SE5	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample ID	5SE04	5SE05	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample Date	10/06/87	10/06/87	10/30/95	10/30/95	10/30/95	10/22/96	10/22/96	11/10/96
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg)								
1,1,1,2-Tetrachloroethane	NA	NA	12 U	14 U	16 U	13 U	15 U	12 U
1,1,1-Trichloroethane	510 U	850 U	6 U	7 U	8 U	6 U	7 U	6 U
1,1,2,2-Tetrachloroethane	560 U	920 U	6 U	7 U	8 U	6 U	7 U	6 UJ
1,1,2-Trichloroethane	680 U	1,100 U	6 U	7 U	8 U	6 U	7 U	6 U
1,1-Dichloroethane	640 U	1,100 U	6 U	7 U	8 U	6 U	7 U	6 U
1,1-Dichloroethene	380 U	630 U	6 U	7 U	8 U	6 U	7 U	6 U
1,2,3-Trichloropropane	NA	NA	12 U	14 U	16 U	13 U	15 U	12 U
1,2-Dibromo-3-chloropropane	NA	NA	25 U	28 U	32 U	26 U	30 U	25 UJ
1,2-Dibromoethane	0.778 U	1.29 U	25 U	28 U	32 U	26 U	30 U	25 U
1,2-Dichloroethane	380 U	630 U	6 U	7 U	8 U	6 U	7 U	6 U
1,2-Dichloroethene (Total)	NA	NA	6 U	7 U	8 U	6 U	7 U	6 U
1,2-Dichloropropane	810 U	1,300 U	6 U	7 U	8 U	6 U	7 U	6 U
2-Butanone	6,500 U	11,000 U	12 U	14 U	16 U	13 UJ	15 U	12 U
2-Chloro-1,3-butadiene	NA	NA	120 U	140 U	160 U	130 R	150 R	120 R
2-Hexanone	NA	NA	12 U	14 U	16 U	13 UJ	15 U	12 U
3-Chloropropene	NA	NA	25 U	28 U	32 U	26 U	30 U	25 U
4-Methyl-2-pentanone	1,600 U	2,700 U	12 U	14 U	16 U	13 UJ	15 U	12 UJ
Acetone	NA	NA	18 U	14 U	22 U	13 UJ	15 U	12 U
Acetonitrile	NA	NA	120 U	140 U	160 U	130 UJ	150 U	120 U
Acrolein	NA	NA	620 R	710 R	800 R	660 U	750 U	620 UJ
Acrylonitrile	NA	NA	120 U	140 U	160 U	130 U	150 U	120 UJ
Benzene	600 U	990 U	6 U	7 U	8 U	6 U	7 U	6 U
Bromodichloromethane	300 U	490 U	6 U	7 U	8 U	6 U	7 U	6 U
Bromoform	640 U	1,100 U	6 U	7 U	8 U	6 U	7 U	6 U
Bromomethane	760 U	1,300 U	12 U	14 U	16 U	13 UJ	15 U	12 U
Carbon disulfide	NA	NA	6 U	7 U	8 U	6 U	7 U	6 U
Carbon tetrachloride	380 U	630 U	6 U	7 U	8 U	6 U	7 U	6 U
Chlorobenzene	810 U	1,300 U	6 U	7 U	8 U	6 U	7 U	6 U
Chloroethane	1,100 U	1,800 U	12 U	14 U	16 U	13 U	15 U	12 U
Chloroform	220 U	360 U	6 U	7 U	8 U	6 U	7 U	6 U
Chloromethane	580 U	960 U	12 U	14 U	16 U	13 UJ	15 UJ	12 UJ

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE4	5SE5	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample ID	5SE04	5SE05	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample Date	10/06/87	10/06/87	10/30/95	10/30/95	10/30/95	10/22/96	10/22/96	11/10/96
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg) (cont.)								
cis-1,3-Dichloropropene	680 U	1,100 U	6 U	7 U	8 U	6 U	7 U	6 U
Dibromochloromethane	420 U	700 U	6 U	7 U	8 U	6 U	7 U	6 U
Dibromomethane	NA	NA	12 U	14 U	16 U	13 U	15 U	12 U
Dichlorodifluoromethane	NA	NA	25 U	28 U	32 U	26 UJ	30 UJ	25 UJ
Ethene, (2-chloroethoxy)-	1,400 U	2,200 U	NA	NA	NA	NA	NA	NA
Ethene, 1,2-dichloro-, (E)-	220 U	360 U	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	NA	NA	25 U	28 U	32 U	26 U	30 U	25 U
Ethylbenzene	980 U	1,600 U	6 U	7 U	8 U	6 U	7 U	6 U
Iodomethane	NA	NA	12 U	14 U	16 U	13 U	15 U	12 U
Isobutanol	NA	NA	2,500 U	2,800 U	3,200 R	2,600 R	3,000 R	2,500 R
Methacrylonitrile	NA	NA	25 U	28 U	32 U	26 U	30 U	25 U
Methyl methacrylate	NA	NA	25 U	28 U	32 U	26 UJ	30 U	25 U
Methylene chloride	2,700	4,500	6 U	7 U	8 U	6 U	7 U	6 U
m-Xylene	810 U	1,300 U	NA	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	25 U	28 U	32 U	26 UJ	30 U	25 U
Propionitrile	NA	NA	62 U	71 U	80 U	66 R	75 R	62 R
Styrene	NA	NA	6 U	7 U	8 U	6 U	7 U	6 U
Tetrachloroethene	560 U	920 U	6 U	2 J	2 J	6 UJ	7 U	6 UJ
Toluene	810 U	1,300 U	6 U	7 U	8 U	6 U	7 U	6 U
trans-1,3-Dichloropropene	870 U	1,400 U	6 U	7 U	8 U	6 U	7 U	6 U
trans-1,4-Dichloro-2-butene	NA	NA	25 U	28 U	32 U	26 UJ	30 U	25 U
Trichloroethene	260 U	430 U	6 U	7 U	8 U	6 U	7 U	6 U
Trichlorofluoromethane	430 U	720 U	12 U	14 U	16 U	13 UJ	15 U	12 UJ
Vinyl Acetate	NA	NA	12 U	14 U	16 U	13 U	15 U	12 U
Vinyl chloride	660 U	1,100 U	12 U	14 U	16 U	13 U	15 UJ	12 U
Xylene (total)	810 U	1,300 U	6 U	7 U	8 U	6 U	7 U	2 J

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE4	5SE5	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample ID	5SE04	5SE05	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample Date	10/06/87	10/06/87	10/30/95	10/30/95	10/30/95	10/22/96	10/22/96	11/10/96
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg)								
1,2,4,5-Tetrachlorobenzene	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
1,2,4-Trichlorobenzene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
1,2-Dichlorobenzene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	440 U	500 U	410 U
1,3-Dichlorobenzene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
1,4-Dichlorobenzene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
1,4-Dioxane	NA	NA	1,700 U	1,900 U	2,100 U	870 UJ	1,000 UJ	810 U
1,4-Naphthoquinone	NA	NA	2,100 U	2,300 U	2,700 U	2,200 U	2,500 U	2,000 U
1-Naphthylamine	NA	NA	410 U	470 U	530 U	870 UJ	1,000 UJ	810 U
2,2'-Oxybis(1-Chloropropane)	160 U	270 U	410 U	470 U	530 U	440 UJ	500 UJ	410 U
2,3,4,6-Tetrachlorophenol	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
2,4,5-Trichlorophenol	NA	NA	2,100 U	2,300 U	2,700 U	2,200 U	2,500 U	2,000 U
2,4,6-Trichlorophenol	330 U	540 U	410 U	470 U	530 U	440 U	500 U	410 U
2,4-Dichlorophenol	330 U	540 U	410 U	470 U	530 U	440 U	500 U	410 U
2,4-Dimethylphenol	1,600 U	2,700 U	410 U	470 U	530 U	440 U	500 U	410 U
2,4-Dinitrophenol	3,500 U	5,800 U	2,100 U	2,300 U	2,700 U	2,200 U	2,500 U	2,000 U
2,4-Dinitrotoluene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
2,6-Dichlorophenol	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
2,6-Dinitrotoluene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
2-Acetylaminofluorene	NA	NA	830 U	930 U	1,100 U	870 U	1,000 U	810 U
2-Chloronaphthalene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
2-Chlorophenol	270 U	450 U	410 U	470 U	530 U	440 U	500 U	410 U
2-Methylnaphthalene	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
2-Naphthylamine	NA	NA	410 U	470 U	530 U	1,100 U	1,200 U	1,000 U
2-Nitroaniline	NA	NA	2,100 U	2,300 U	2,700 U	2,200 U	2,500 U	2,000 U
2-Nitrophenol	270 U	450 U	410 U	470 U	530 U	440 U	500 U	410 U
2-Picoline	NA	NA	410 U	470 U	530 U	440 UJ	500 UJ	410 UJ
2-sec-butyl-4,6-dinitrophenol	NA	NA	830 U	930 U	1,100 U	870 U	1,000 U	810 U
3,3'-Dichlorobenzidine	270 U	450 U	830 U	930 U	1,100 U	870 U	1,000 U	810 U
3,3'-Dimethylbenzidine	NA	NA	830 R	930 U	1,100 R	2,200 UJ	2,500 UJ	2,000 U

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE4	5SE5	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample ID	5SE04	5SE05	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample Date	10/06/87	10/06/87	10/30/95	10/30/95	10/30/95	10/22/96	10/22/96	11/10/96
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)								
3-Methylcholanthrene	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
3-Nitroaniline	NA	NA	2,100 U	2,300 U	2,700 U	2,200 U	2,500 U	2,000 U
4,6-Dinitro-2-methylphenol	2,700 U	4,500 U	2,100 U	2,300 U	2,700 U	2,200 U	2,500 U	2,000 U
4-Aminobiphenyl	NA	NA	410 U	470 U	530 U	870 UJ	1,000 UJ	810 U
4-Bromophenyl phenyl ether	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
4-Chloro-3-methylphenol	330 U	540 U	410 U	470 U	530 U	870 U	1,000 U	810 U
4-Chloroaniline	NA	NA	410 U	470 U	530 U	870 U	1,000 U	810 UJ
4-Chlorophenyl phenyl ether	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
4-Nitroaniline	NA	NA	2,100 U	2,300 U	2,700 U	2,200 U	2,500 U	2,000 U
4-Nitrophenol	1,600 U	2,700 U	2,100 U	2,300 U	2,700 U	2,200 U	2,500 U	2,000 U
4-Nitroquinoline-1-oxide	NA	NA	2,100 R	2,300 U	2,700 R	2,200 U	2,500 U	2,000 R
5-Nitro-o-toluidine	NA	NA	830 U	930 U	1,100 U	870 U	1,000 U	810 UJ
7,12-Dimethylbenz(a)anthracene	NA	NA	830 U	930 U	1,100 U	870 U	1,000 U	810 U
Acenaphthene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Acenaphthylene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Acetophenone	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
alpha, alpha-Dimethylphenethylamine	NA	NA	2,100 U	2,300 U	2,700 U	2,200 U	2,500 U	2,000 UJ
Aniline	NA	NA	2,100 U	2,300 U	2,700 U	2,200 U	2,500 U	2,000 U
Anthracene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Aramite	NA	NA	830 U	930 U	1,100 U	870 UJ	1,000 UJ	810 U
Benzidine	1,400 U	2,200 U	NA	NA	NA	4,400 U	5,000 U	4,100 U
Benzo(a)anthracene	160 U	270 U	410 U	470 U	530 U	120 J	500 U	410 U
Benzo(a)pyrene	240 U	400 U	410 U	470 U	530 U	160 J	500 U	410 U
Benzo(b)fluoranthene	240 U	400 U	410 U	470 U	530 U	310 J	500 U	410 U
Benzo(g,h,i)perylene	330 U	540 U	410 U	470 U	530 U	140 J	500 U	410 U
Benzo(k)fluoranthene	240 U	400 U	410 U	470 U	530 U	130 J	500 U	410 U
Benzoic acid	NA	NA	2,100 U	2,300 U	2,700 U	2,200 U	2,500 U	2,000 U
Benzyl alcohol	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
Bis(2-chloroethoxy)methane	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Bis(2-chloroethyl)ether	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Bis(2-ethylhexyl)phthalate	220 U	360 U	130 J	470 U	110 J	200 J	500 U	410 U

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE4	5SE5	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample ID	5SE04	5SE05	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample Date	10/06/87	10/06/87	10/30/95	10/30/95	10/30/95	10/22/96	10/22/96	11/10/96
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)								
Butylbenzylphthalate	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Carbazole	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
Chlorobenzilate	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
Chrysene	160 U	270 U	410 U	470 U	530 U	180 J	500 U	410 U
Cresols	NA	NA	410 U	470 U	530 U	NA	NA	NA
Diallate	NA	NA	410 U	470 U	530 U	440 UJ	500 UJ	410 U
Dibenzo(a,h)anthracene	330 U	540 U	410 U	470 U	530 U	440 U	500 U	410 U
Dibenzofuran	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
Dichlorobenzenes	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Dimethylphthalate	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Di-n-butylphthalate	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Di-n-octylphthalate	230 U	380 U	410 U	470 U	530 U	440 U	500 U	410 U
Diphenylamine	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
Ethyl methanesulfonate	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
Fluoranthene	160 U	270 U	410 U	470 U	530 U	130 J	500 U	410 U
Fluorene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Hexachlorobenzene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Hexachlorobutadiene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Hexachlorocyclopentadiene	2,700 U	4,500 U	410 U	470 U	530 U	440 U	500 U	410 U
Hexachloroethane	200 U	340 U	410 U	470 U	530 U	440 U	500 U	410 U
Hexachlorophene	NA	NA	4,100 U	4,700 U	5,300 U	4,400 U	5,000 U	4,100 U
Hexachloropropene	NA	NA	830 U	930 U	1,100 U	2,200 U	2,500 U	2,000 U
Indeno(1,2,3-cd)pyrene	330 U	540 U	410 U	470 U	530 U	140 J	500 U	410 U
Isophorone	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Isosafrole	NA	NA	410 U	470 U	530 U	440 UJ	500 UJ	410 U
m&p Cresol	NA	NA	NA	NA	NA	440 U	500 U	410 U
m-Dinitrobenzene	NA	NA	830 U	930 U	1,100 U	120 U	120 U	120 U
Meta-Dinitrobenzene	NA	NA	NA	NA	NA	870 U	1,000 U	810 U
Methapyrilene	NA	NA	1,000 U	1,200 U	1,300 U	1,100 U	1,200 U	1,000 UJ
Methyl methanesulfonate	NA	NA	410 U	470 U	530 U	440 U	500 U	410 UJ

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE4	5SE5	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample ID	5SE04	5SE05	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample Date	10/06/87	10/06/87	10/30/95	10/30/95	10/30/95	10/22/96	10/22/96	11/10/96
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)								
Naphthalene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Nitrobenzene	190 U	310 U	410 U	470 U	530 U	440 U	500 U	410 U
N-Nitrosodiethylamine	NA	NA	410 U	470 U	530 U	440 UJ	500 UJ	410 UJ
N-Nitrosodimethylamine	270 U	450 U	410 U	470 U	530 U	440 UJ	500 UJ	410 U
N-Nitroso-di-n-butylamine	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
N-Nitroso-di-n-propylamine	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
N-Nitrosodiphenylamine (1)	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
N-Nitrosomethylethylamine	NA	NA	410 U	470 U	530 U	440 UJ	500 UJ	410 UJ
N-Nitrosomorpholine	NA	NA	830 U	930 U	1,100 U	870 UJ	1,000 UJ	810 UJ
N-Nitrosopiperidine	NA	NA	410 U	470 U	530 U	440 UJ	500 UJ	410 UJ
N-Nitrosopyrrolidine	NA	NA	2,100 U	2,300 U	2,700 U	2,200 U	2,500 U	2,000 U
o-Cresol	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
o-Toluidine	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
p-Dimethylaminoazobenzene	NA	NA	830 U	930 U	1,100 U	870 UJ	1,000 UJ	810 U
Pentachlorobenzene	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
Pentachloronitrobenzene	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
Pentachlorophenol	810 U	1,300 U	2,100 U	2,300 U	2,700 U	2,200 U	2,500 U	2,000 U
Phenacetin	NA	NA	410 U	470 U	530 U	440 UJ	500 UJ	410 U
Phenanthrene	160 U	270 U	410 U	470 U	530 U	440 U	500 U	410 U
Phenol	300 U	490 U	410 U	470 U	530 U	440 U	500 U	410 U
p-Phenylenediamine	NA	NA	830 U	930 U	1,100 U	870 U	1,000 U	810 U
Pronamide	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
Pyrene	160 U	270 U	410 U	470 U	530 U	180 J	62 J	410 U
Pyridine	NA	NA	830 U	930 U	1,100 U	870 U	1,000 U	810 U
Safrole	NA	NA	410 U	470 U	530 U	440 U	500 U	410 U
sym-Trinitrobenzene	NA	NA	4,100 U	4,700 U	5,300 U	4,400 R	5,000 R	4,100 U
Total Phenols	2,500	5,710	NA	NA	NA	NA	NA	NA

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE4	5SE5	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample ID	5SE04	5SE05	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample Date	10/06/87	10/06/87	10/30/95	10/30/95	10/30/95	10/22/96	10/22/96	11/10/96
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
PESTICIDES/PCBs (ug/kg)								
4,4'-DDD	37.8 U	62.6 U	9.7 U	11 U	64 U	42	97	9.9 U
4,4'-DDE	272	62.6 U	9.7 U	11 U	64 U	930	370	9.9 U
4,4'-DDT	54 U	89.4 U	9.7 U	11 U	64 U	130	63	9.9 U
Aldrin	37.8 U	62.6 U	4.8 U	5.6 U	32 U	10 U	12 U	5 U
alpha-BHC	37.8 U	62.6 U	4.8 U	5.6 U	32 U	10 U	12 U	5 U
alpha-Chlordane	NA	NA	48 U	56 U	320 U	100 U	120 U	50 U
beta-BHC	37.8 U	62.6 U	4.8 U	5.6 U	32 U	10 U	12 U	5 U
Chlordane	37.8 U	62.6 U	NA	NA	NA	NA	NA	NA
delta-BHC	37.8 U	62.6 U	4.8 U	5.6 U	32 U	10 U	12 U	5 U
Dieldrin	37.8 U	62.6 U	9.7 U	11 U	64 U	20 U	23 U	9.9 U
Endosulfan I	37.8 U	62.6 U	4.8 U	5.6 U	32 U	10 U	12 U	5 U
Endosulfan II	37.8 U	62.6 U	9.7 U	11 U	64 U	20 U	23 U	9.9 U
Endosulfan sulfate	37.8 U	62.6 U	9.7 U	11 U	64 U	20 U	23 U	9.9 U
Endrin	37.8 U	62.6 U	9.7 U	11 U	64 U	20 U	23 U	9.9 U
Endrin aldehyde	37.8 U	62.6 U	9.7 U	11 U	64 U	20 U	23 U	9.9 U
gamma-BHC (Lindane)	37.8 U	62.6 U	4.8 U	5.6 U	32 U	10 U	12 U	5 U
gamma-Chlordane	NA	NA	48 U	56 U	320 U	100 U	120 U	50 U
Heptachlor	37.8 U	62.6 U	4.8 U	5.6 U	32 U	10 U	12 U	5 U
Heptachlor epoxide	37.8 U	62.6 U	4.8 U	5.6 U	32 U	10 U	12 U	5 U
Isodrin	NA	NA	4.8 UJ	5.6 UJ	32 UJ	10 U	12 U	5 U
Kepone	NA	NA	9.7 UJ	11 UJ	64 UJ	20 U	23 U	9.9 UJ
Methoxychlor	NA	NA	48 U	56 U	320 U	100 U	120 U	50 U
Toxaphene	37.8 U	62.6 U	97 U	110 U	640 U	200 U	230 U	99 U
Aroclor-1016	557 U	921 U	48 U	56 U	320 U	100 U	120 U	50 U
Aroclor-1221	560 U	920 U	48 U	56 U	320 U	100 U	120 U	50 U
Aroclor-1232	560 U	920 U	48 U	56 U	320 U	100 U	120 U	50 U
Aroclor-1242	560 U	920 U	48 U	56 U	320 U	100 U	120 U	50 U
Aroclor-1248	560 U	920 U	48 U	56 U	320 U	100 U	120 U	50 U
Aroclor-1254	560 U	920 U	97 U	110 U	640 U	200 U	230 U	99 U
Aroclor-1260	560 U	920 U	97 U	110 U	640 U	200 U	440	99 U

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE4	5SE5	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample ID	5SE04	5SE05	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample Date	10/06/87	10/06/87	10/30/95	10/30/95	10/30/95	10/22/96	10/22/96	11/10/96
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
CHLORINATED HERBICIDES (ug/kg)								
2,4,5-T	NA	NA	83 U	93 U	110 U	43 U	50 U	41 U
2,4,5-TP (Silvex)	NA	NA	83 U	93 U	110 U	43 U	50 U	41 U
2,4-D	NA	NA	410 U	460 U	530 U	430 U	500 U	410 U
OP-PESTICIDES (ug/kg)								
Dimethoate	NA	NA	82 U	93 U	110 U	87 U	100 U	82 U
Disulfoton	NA	NA	82 U	93 U	110 U	87 U	100 U	82 U
Famphur	NA	NA	82 U	93 U	110 U	87 U	100 U	82 U
Methyl parathion	NA	NA	82 U	93 U	110 U	87 U	100 U	82 U
O,O,O-Triethylphosphorothioate	NA	NA	82 U	93 U	110 U	87 U	100 U	82 U
Parathion	NA	NA	82 U	93 U	110 U	87 U	100 U	82 U
Phorate	NA	NA	82 U	93 U	110 U	87 U	100 U	82 U
Sulfotepp	NA	NA	82 U	93 U	110 U	87 U	100 U	82 U
Thionazin	NA	NA	82 U	93 U	110 U	87 U	100 U	82 U
DIOXINS (ug/kg)								
2,3,7,8-TCDD	NA	NA	0.12 U	0.12 U	0.21 U	0.07 U	0.12 U	NA
Total HxCDD	NA	NA	0.15 U	0.19 U	0.24 U	0.64 J	2.4 J	NA
Total HxCDF	NA	NA	0.13 U	0.13 U	0.22 U	0.31 J	2.2 J	NA
Total PeCDD	NA	NA	0.14 U	0.15 U	0.21 U	0.13 U	0.1 U	NA
Total PeCDF	NA	NA	0.15 U	0.12 U	0.14 U	0.13 U	0.34 J	NA
Total TCDD	NA	NA	0.12 U	0.12 U	0.21 U	0.07 U	0.12 U	NA
Total TCDF	NA	NA	0.1 U	0.1 U	0.1 U	0.05 U	0.13 J	NA

APPENDIX F.5

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE4	5SE5	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample ID	5SE04	5SE05	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample Date	10/06/87	10/06/87	10/30/95	10/30/95	10/30/95	10/22/96	10/22/96	11/10/96
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
EXPLOSIVES (ug/kg)								
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	130 U	130 U	130 U
1,3-Dinitrobenzene	NA	NA	NA	NA	NA	120 U	120 U	120 U
2,4,6-TNT	NA	NA	NA	NA	NA	120 U	120 U	120 U
2,4-DNT/2,6-DNT	NA	NA	NA	NA	NA	200 U	200 U	200 U
2-Nitrotoluene	NA	NA	NA	NA	NA	500 U	500 U	500 U
3-Nitrotoluene	NA	NA	NA	NA	NA	500 U	500 U	500 U
4-Nitrotoluene	NA	NA	NA	NA	NA	1,500 U	1,500 U	1,500 U
Amino-DNTs	NA	NA	NA	NA	NA	200 U	200 U	200 U
HMX	NA	NA	NA	NA	NA	1,100 U	1,100 U	1,100 U
Nitrobenzene	NA	NA	NA	NA	NA	210 U	210 U	210 U
RDX (Cyclonite)	NA	NA	NA	NA	NA	540 U	540 U	540 U
Tetryl	NA	NA	NA	NA	NA	380 U	380 U	380 U
ASBESTOS								
Asbestos	NA	NA	NA	NA	NA			
MISCELLANEOUS								
Oil & Grease (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.6
SEDIMENT, INORGANICS, SWMU 1

APPENDIX F.6

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - INORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE1	5SE2	5SE3
Sample ID	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE01	5SE02	5SE03
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
Inorganics (mg/kg)									
Antimony	3.8	5.2	5.1	24	7.3	NA	7.9 U	15 U	16 U
Arsenic	14.4	11.6 U	13.4	32	22	NA	4.47	6.05	5.58
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	0.415 U	0.776 U	0.526 U	1.33	0.954	NA	0.587 U	1.13 U	1.16 U
Cadmium	0.623 U	1.16 U	0.788 U	0.91 U	0.595 U	NA	3.04	3.13	2.4
Chromium (Hexavalent)	NA	NA	NA	NA	NA	NA	2.18 U	0.0102 U	0.0138
Chromium	21.9	28.4	29.3	54.1	33.5	NA	51.4	23.8	19.6
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	36.8	54.7	43.4	119	78.8	NA	72.1	97.3	73.5
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	76.4	24.4 U	21	19.1 U	12.5 U	3.34 U	10.1	19.2	21.6
Mercury	0.109	0.187 U	0.131 U	0.174 U	0.1 U	NA	0.095 U	0.173 U	0.186 U
Nickel	6.72	11.8	8.77	22.3	15.6	NA	14.4	12.9 U	13.2 U
Selenium	19.8	31.3	27.4	85.4	49.7	NA	3.47	6.5	1.12 U
Silver	1.08 U	1.94 U	1.33 U	2.03 U	1.36 U	NA	0.547 U	1.06 U	1.2
Sulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	0.394 U	0.63 U	0.466 U	0.618 U	0.344 U	NA	0.486 U	1.01 U	0.9 U
Tin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	25.9	42.8	32.8	72.8	50.8	NA	75.7	98.1	89.5

APPENDIX F.6

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - INORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SE4	5SE5	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample ID	5SE04	5SE05	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample Date	10/06/87	10/06/87	10/30/95	10/30/95	10/30/95	10/22/96	10/22/96	11/10/96
Depth Range (ft.)	0.00-0.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Inorganics (mg/kg)								
Antimony	10 U	16 U	2.2 UJ	2.5 UJ	2.9 UJ	23.6 J	14.5 J	1.4 UJ
Arsenic	3.78	3.45	0.19 UJ	0.43 J	0.32 J	4.8 J	5.5 J	0.19 J
Barium	NA	NA	122	147	129	143	165	196 J
Beryllium	0.743 U	1.18 U	0.1 U	0.1 U	0.12 U	0.44	0.56	0.22
Cadmium	1.28	1.63	0.4 U	0.44 U	0.52 U	4.7	2.4	0.34
Chromium (Hexavalent)	0.00271 U	0.0112 U	NA	NA	NA	NA	NA	NA
Chromium	10.2	34.7	15.1	38.9	18.3	49.2	43.2	22.4
Cobalt	NA	NA	6.4	28	4.6	18.8	14.7	13.5
Copper	36.1	54.7	14.5	110	21.5	1,020	608	50.8
Cyanide	NA	NA	NA	NA	NA	0.61 U	0.61 U	0.47 U
Lead	11	13.9 U	1.5	2.9	4.3	659 J	966 J	1.3 J
Mercury	0.129 U	0.198 U	0.06 U	0.06 U	0.05 U	0.85	0.2	0.03 U
Nickel	8.45	13.5 U	3.1	16.7	5	63.3	31.6	8.7
Selenium	1.09	5.51	0.18 UJ	0.35 J	0.41 J	0.24 J	0.45 UJ	0.16 UJ
Silver	0.691 U	1.1 U	0.31 U	0.37	0.39 U	0.38 J	0.21 UJ	0.15 U
Sulfide	NA	NA	31.1 U	33.8 UJ	45.2 J	30.7 UJ	35.7 UJ	28.8 R
Thallium	0.59 U	0.957 U	0.16 UJ	0.15 UJ	0.18 UJ	0.17 UJ	0.2 UJ	0.15 U
Tin	NA	NA	1.7 U	1.9 U	2.2 U	181	33.9	0.74 U
Vanadium	NA	NA	65.3	220	101	115	128	133
Zinc	51.5	50.2	9.9	32.3	21.6	1,780	1,100	15.6

APPENDIX F.7
GROUNDWATER, ORGANICS, SWMU 1

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	1MW01	1MW01
Sample ID	5GW1	5GW2	5GW3	5GW4	5GW5	5GW01	5GW02	5GW03	5GW04	5GW05	05GW101	1MW01	1MW01D
Sample Date	03/06/86	03/06/86	03/06/86	03/06/86	03/12/86	10/12/87	10/12/87	10/13/87	10/13/87	10/12/87	12/1/92	11/05/96	11/05/96
VOLATILES (ug/l)													
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U
1,1,1-Trichloroethane	0.82 U	0.82 U	0.87 U	0.86 U	0.86 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	NA	5 U	5 U
1,1,2,2-Tetrachloroethane	1.1	0.49 U	0.52 U	0.51 U	0.51 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	NA	5 U	5 U
1,1,2-Trichloroethane	0.93 U	0.93 U	0.98 U	0.97 U	1 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U
1,1-Dichloroethane	0.35 U	0.35 U	0.4 U	0.4 U	0.42 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	NA	5 U	5 U
1,1-Dichloroethene	0.98 U	0.98 U	1 U	1 U	1.1 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	NA	5 U	5 U
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 UJ	20 UJ
1,2-Dibromoethane	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.013 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	20 U	20 U
1,2-Dichloroethane	0.75 U	0.75 U	0.79 U	0.79 U	0.81 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	NA	5 UJ	5 UJ
1,2-Dichloroethene (Total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5 U	5 U
1,2-Dichloropropane	0.51 U	0.51 U	0.54 U	0.54 U	0.57 U	6 U	6 U	6 U	6 U	6 U	NA	5 U	5 U
1,4-Dichlorobenzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
2-Butanone	4.7 U	4.7 U	4.7 U	4.7 U	4.2 U	48 U	48 U	48 U	48 U	48 U	NA	10 U	10 U
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 R	100 R
2-Chloroethyl vinyl ether	1 U	1 U	1.1 U	1.1 U	1.1 U	15 U	15 U	15 U	15 U	15 U	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U
3-Chloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	20 U
4-Methyl-2-pentanone	0.6 U	0.6 U	0.6 U	0.6 U	0.61 U	12 U	12 U	12 U	12 U	12 U	NA	10 U	10 U
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 UJ	10 UJ
Acetonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 U	100 U
Acrolein	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500 U	500 U
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 U	100 U
Benzene	0.23 U	0.23 U	0.25 U	0.24 U	0.26 U	1 U	1 U	1 U	1 U	1 U	NA	5 U	5 U
Bromodichloromethane	0.49 U	0.49 U	0.52 U	0.51 U	0.54 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	NA	5 U	5 U
Bromoform	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	NA	5 U	5 U
Bromomethane	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U	NA	10 U	10 U
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5 U	5 U
Carbon tetrachloride	0.87 U	0.87 U	0.92 U	0.91 U	0.93 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	NA	5 U	5 U
VOLATILES (ug/l) (cont.)													
Chlorobenzene	0.4 U	0.4 U	0.43 U	0.42 U	0.45 U	6 U	6 U	6 U	6 U	6 U	NA	5 U	5 U

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	1MW01	1MW01
Sample ID	5GW1	5GW2	5GW3	5GW4	5GW5	5GW01	5GW02	5GW03	5GW04	5GW05	05GW101	1MW01	1MW01D
Sample Date	03/06/86	03/06/86	03/06/86	03/06/86	03/12/86	10/12/87	10/12/87	10/13/87	10/13/87	10/12/87	12/1/92	11/05/96	11/05/96
Chloroethane	1.4 U	1.4 U	1.5 U	1.4 U	1.5 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	NA	10 U	10 U
Chloroform	0.54	0.43 U	0.46 U	0.46 U	0.48 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	NA	5 U	5 U
Chloromethane	1 U	1 U	1.1 U	1.1 U	1.6 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	NA	10 U	10 U
cis-1,3-Dichloropropene	0.36 U	0.36 U	0.38 U	0.38 U	0.4 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U
Dibromochloromethane	0.879 U	0.879 U	0.93 U	0.923 U	0.97 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	NA	5 U	5 U
Dibromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	20 U
Ethyl methacrylate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 UJ	20 UJ
Ethylbenzene	0.83 U	0.83 U	0.88 U	0.87 U	0.92 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	NA	5 U	5 U
Iodomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 UJ	10 UJ
Isobutanol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,000 R	2,000 R
Methacrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	20 U
Methyl methacrylate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	20 U
Methylene chloride	0.6 U	0.6 U	0.6 U	0.6 U	0.65 U	50 U	50 U	50 U	50 U	50 U	NA	5 U	5 U
m-Xylene	0.67 U	0.67 U	0.7 U	0.7 U	0.7 U	12 U	12 U	12 U	12 U	12 U	NA	NA	NA
o + p xylene	0.68 U	0.68 U	0.72 U	0.72 U	0.71 U	12 U	12 U	12 U	12 U	12 U	NA	5 U	5 U
Pentachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 UJ	20 UJ
Propionitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 R	50 R
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5 U	5 U
Tetrachloroethene	1.4 U	1.4 U	1.5 U	1.5 U	1.5 U	3 U	3 U	3 U	3 U	3 U	NA	5 U	5 U
Toluene	0.6 U	0.35 U	0.35 U	0.36 U	0.4 U	6 U	6 U	6 U	6 U	6 U	NA	5 U	5 U
trans-1,2-Dichloroethene	0.84 U	0.84 U	0.88 U	0.88 U	0.92 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	NA	NA	NA
trans-1,3-Dichloropropene	1 U	1 U	1.1 U	1.1 U	1.1 U	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U	NA	5 U	5 U
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 UJ	20 UJ
Trichloroethene	0.95 U	0.95 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	NA	5 U	5 U
Trichlorofluoromethane	0.77 U	0.77 U	0.82 U	0.81 U	0.87 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	NA	10 U	10 U
Vinyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 UJ	10 UJ
Vinyl chloride	0.94 U	0.94 U	0.99 U	0.98 U	1.1 U	1 U	1 U	1 U	1 U	1 U	NA	10 U	10 U

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	1MW01	1MW01
Sample ID	5GW1	5GW2	5GW3	5GW4	5GW5	5GW01	5GW02	5GW03	5GW04	5GW05	05GW101	1MW01	1MW01D
Sample Date	03/06/86	03/06/86	03/06/86	03/06/86	03/12/86	10/12/87	10/12/87	10/13/87	10/13/87	10/12/87	12/1/92	11/05/96	11/05/96
SEMIVOLATILES (ug/l)													
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
1,2,4-Trichlorobenzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
1,2-Dichlorobenzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
1,3-Dichlorobenzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 R	20 U
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 R	50 U
1-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 R	20 U
2,2'-Oxybis(1-Chloropropane)	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	52 U	50 U	50 U
2,4,6-Trichlorophenol	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	21 U	10 U	10 U
2,4-Dichlorophenol	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	21 U	10 U	10 U
2,4-Dimethylphenol	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	21 U	10 U	10 U
2,4-Dinitrophenol	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	52 U	50 U	50 U
2,4-Dinitrotoluene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U
2,6-Dinitrotoluene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	10 R	10 U
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 R	20 U
2-Chloronaphthalene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
2-Chlorophenol	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	21 U	10 U	10 U
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21 U	10 R	10 U
2-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25 R	25 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	52 U	50 R	50 U
2-Nitrophenol	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	21 U	10 U	10 U
2-Picoline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
2-sec-butyl-4,6-dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	20 U
3,3'-Dichlorobenzidine	2 U	2 U	2 U	2 U	2 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	21 U	20 R	20 U
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 R	50 U

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	1MW01	1MW01
Sample ID	5GW1	5GW2	5GW3	5GW4	5GW5	5GW01	5GW02	5GW03	5GW04	5GW05	05GW101	1MW01	1MW01D
Sample Date	03/06/86	03/06/86	03/06/86	03/06/86	03/12/86	10/12/87	10/12/87	10/13/87	10/13/87	10/12/87	12/1/92	11/05/96	11/05/96
SEMIVOLATILES (ug/l) (cont.)													
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	52 U	50 R	50 U
4,6-Dinitro-2-methylphenol	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	52 U	50 U	50 U
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 R	20 U
4-Bromophenyl phenyl ether	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
4-Chloro-3-methylphenol	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	21 U	20 U	20 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21 U	20 R	20 U
4-Chlorophenyl phenyl ether	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	52 U	50 R	50 U
4-Nitrophenol	5 U	5 U	5 U	5 U	5 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	52 U	50 U	50 U
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 R	50 U
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 R	20 U
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 R	20 U
Acenaphthene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Acenaphthylene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
alpha, alpha-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 R	50 UJ
Aniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 R	50 U
Anthracene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Aramite	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 R	20 U
Benzidine	NA	NA	NA	NA	NA	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	NA	100 R	100 U
Benzo(a)anthracene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Benzo(a)pyrene	2 U	2 U	2 U	2 U	2 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	21 U	10 R	10 U
Benzo(b)fluoranthene	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	21 U	10 R	10 U
Benzo(g,h,i)perylene	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	21 U	10 R	10 U
Benzo(k)fluoranthene	2 U	2 U	2 U	2 U	2 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	21 U	10 R	10 U
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 U	50 U
Benzyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U
Bis(2-chloroethoxy)methane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	1MW01	1MW01
Sample ID	5GW1	5GW2	5GW3	5GW4	5GW5	5GW01	5GW02	5GW03	5GW04	5GW05	05GW101	1MW01	1MW01D
Sample Date	03/06/86	03/06/86	03/06/86	03/06/86	03/12/86	10/12/87	10/12/87	10/13/87	10/13/87	10/12/87	12/1/92	11/05/96	11/05/96
SEMIVOLATILES (ug/l) (cont.)													
Bis(2-chloroethyl)ether	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Bis(2-ethylhexyl)phthalate	1	1	1 U	1	2	1 U	1 U	1.5	1	22	3 J	2 R	10 U
Butylbenzylphthalate	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21 U	10 R	10 U
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
Chrysene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Diallate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 UJ
Dibenzo(a,h)anthracene	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	21 U	10 R	10 U
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21 U	10 R	10 U
Dichlorobenzenes	0.6 U	0.6 U	0.7 U	0.6 U	0.7 U	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Dimethylphthalate	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Di-n-butylphthalate	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Di-n-octylphthalate	1 U	1 U	1 U	1 U	1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	21 U	10 R	10 U
Diphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
Fluoranthene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Fluorene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Hexachlorobenzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Hexachlorobutadiene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Hexachlorocyclopentadiene	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	21 U	10 R	10 U
Hexachloroethane	2 U	2 U	2 U	2 U	2 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	21 U	10 R	10 U
Hexachlorophene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 R	100 U
Hexachloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 R	50 U
Indeno(1,2,3-cd)pyrene	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	21 U	10 R	10 U
Isophorone	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Isosafrole	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
m&p Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U
m-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.41 U	0.3 U

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	1MW01	1MW01
Sample ID	5GW1	5GW2	5GW3	5GW4	5GW5	5GW01	5GW02	5GW03	5GW04	5GW05	05GW101	1MW01	1MW01D
Sample Date	03/06/86	03/06/86	03/06/86	03/06/86	03/12/86	10/12/87	10/12/87	10/13/87	10/13/87	10/12/87	12/1/92	11/05/96	11/05/96
SEMIVOLATILES (ug/l) (cont.)													
Meta-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 R	20 U
Methapyrilene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25 R	25 UJ
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
Naphthalene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Nitrobenzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 UJ
N-Nitrosodimethylamine	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	10 R	10 U
N-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
N-Nitroso-di-n-propylamine	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
N-Nitrosodiphenylamine (1)	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 UJ
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 R	20 UJ
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 UJ
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 R	50 U
o-Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21 U	10 U	10 U
o-Toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
p-Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21 U	NA	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 R	20 U
Pentachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
Pentachlorophenol	22	11	12	25	10 U	10 U	10 U	10 U	10 U	10 U	52 U	50 U	50 U
Phenacetin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
Phenanthrene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Phenol	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	21 U	10 U	10 U
p-Phenylenediamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 R	20 U
Pronamide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
Pyrene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21 U	10 R	10 U
Pyridine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 R	20 U
Safrole	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 R	10 U
sym-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 R	100 U
Total Phenols	NA	NA	NA	NA	NA	76	30	350	800	220	NA	NA	NA

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	1MW01	1MW01
Sample ID	5GW1	5GW2	5GW3	5GW4	5GW5	5GW01	5GW02	5GW03	5GW04	5GW05	05GW101	1MW01	1MW01D
Sample Date	03/06/86	03/06/86	03/06/86	03/06/86	03/12/86	10/12/87	10/12/87	10/13/87	10/13/87	10/12/87	12/1/92	11/05/96	11/05/96
PESTICIDES/PCBs (ug/l)													
4,4'-DDD	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.008 U	0.008 U	0.008 U	0.008 U	0.008 U	0.1 U	0.1 U	0.1 UJ
4,4'-DDE	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.1 U	0.1 U	0.1 UJ
4,4'-DDT	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.1 U	0.1 U	0.1 UJ
Aldrin	0.045	0.013 U	0.013 U	0.013 U	0.014 U	0.008 U	0.008 U	0.008 U	0.008 U	0.824 U	0.05 U	0.03	0.02 J
alpha-BHC	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.012 U	0.012 U	0.012 U	0.012 U	1.18 U	0.05 U	0.05 U	0.05 UJ
alpha-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.5 U	0.5 UJ
beta-BHC	0.013 U	0.02	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.471 U	0.05 U	0.05 U	0.05 UJ
Chlordane	1.25 U	1.25 U	1.25 U	1.25 U	1.36 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	NA	NA	NA
Chlordane, gamma-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	NA	NA
delta-BHC	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.008 U	0.008 U	0.008 U	0.008 U	0.824 U	0.05 U	0.05 U	0.05 UJ
Dieldrin	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.1 UJ	0.1 U	0.1 UJ
Endosulfan I	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.471 U	0.05 U	0.05 U	0.05 UJ
Endosulfan II	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.1 U	0.1 U	0.1 UJ
Endosulfan sulfate	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.1 U	0.1 U	0.1 UJ
Endrin	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.1 U	0.1 U	0.1 UJ
Endrin aldehyde	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.1 U	0.1 U	0.1 UJ
Endrin ketone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	NA	NA
gamma-BHC (Lindane)	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.012 U	0.012 U	0.012 U	0.012 U	1.18 U	0.05 U	0.05 U	0.05 UJ
gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5 U	0.5 UJ
Heptachlor	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.471 U	0.0032 J	0.05 U	0.05 UJ
Heptachlor epoxide	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.471 U	0.05 U	0.05 U	0.05 UJ
Isodrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 UJ
Kepone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 R	0.1 R
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5 UJ	0.5 U	0.5 UJ
Toxaphene	1.56 U	1.56 U	1.56 U	1.56 U	1.7 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	5 U	1 U	1 UJ

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	1MW01	1MW01
Sample ID	5GW1	5GW2	5GW3	5GW4	5GW5	5GW01	5GW02	5GW03	5GW04	5GW05	05GW101	1MW01	1MW01D
Sample Date	03/06/86	03/06/86	03/06/86	03/06/86	03/12/86	10/12/87	10/12/87	10/13/87	10/13/87	10/12/87	12/1/92	11/05/96	11/05/96
PESTICIDES/PCBs (ug/l) (cont.)													
Aroclor-1016	1.5 U	1.5 U	1.5 U	1.5 U	1.63 U	0.121 U	0.121 U	0.121 U	0.121 U	0.121 U	1 U	0.5 U	0.5 UJ
Aroclor-1221	1.5 U	1.5 U	1.5 U	1.5 U	1.63 U	0.121 U	0.121 U	0.121 U	0.121 U	0.121 U	2 U	0.5 U	0.5 UJ
Aroclor-1232	1.5 U	1.5 U	1.5 U	1.5 U	1.63 U	0.121 U	0.121 U	0.121 U	0.121 U	0.121 U	1 U	0.5 U	0.5 UJ
Aroclor-1242	1.5 U	1.5 U	1.5 U	1.5 U	1.63 U	0.121 U	0.121 U	0.121 U	0.121 U	0.121 U	1 U	0.5 U	0.5 UJ
Aroclor-1248	1.5 U	1.5 U	1.5 U	1.5 U	1.63 U	0.121 U	0.121 U	0.121 U	0.121 U	0.121 U	1 U	0.5 U	0.5 UJ
Aroclor-1254	1.5 U	1.5 U	1.5 U	1.5 U	1.63 U	0.121 U	0.121 U	0.121 U	0.121 U	0.121 U	1 U	1 U	1 UJ
Aroclor-1260	1.5 U	1.5 U	1.5 U	1.5 U	1.63 U	0.121 U	0.121 U	0.121 U	0.121 U	0.121 U	1 U	1 U	1 UJ
CHLORINATED HERBICIDES (ug/l)													
2,4,5-T	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2 U	1.2 U
2,4,5-TP (Silvex)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2 U	1.2 U
2,4-D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U
OP-PESTICIDES (ug/l)													
Dimethoate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	1.9 U
Disulfoton	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	1.9 U
Famphur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	1.9 U
Methyl parathion	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	1.9 U
O,O,O-Triethylphosphorothioate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	1.9 U
Parathion	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	1.9 U
Phorate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	1.9 U
Sulfotepp	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	1.9 U
Thionazin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	1.9 U
DIOXINS (ug/l)													
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	0.0002 U
Total HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0004 U	0.0004 U
Total HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0003 U	0.0003 U
Total PeCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0003 U	0.0002 U
Total PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0003 U	0.0002 U
Total TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	0.0002 U
Total TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	0.0001 U

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	1MW01	1MW01
Sample ID	5GW1	5GW2	5GW3	5GW4	5GW5	5GW01	5GW02	5GW03	5GW04	5GW05	05GW101	1MW01	1MW01D
Sample Date	03/06/86	03/06/86	03/06/86	03/06/86	03/12/86	10/12/87	10/12/87	10/13/87	10/13/87	10/12/87	12/1/92	11/05/96	11/05/96
EXPLOSIVES (ug/l)													
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.44 U	0.3 U
1,3-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.41 U	0.11 U
2,4,6-TNT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43 U	0.31 U
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DNT/2,6-DNT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.68 U	0.49 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Amino-4,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7 U	1.2 U
3-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7 U	1.2 U
4-Amino-2,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1 U	3.7 U
Amino-DNTs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.68 U	0.49 U
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.8 U	2.7 U
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.72 U	0.52 U
RDX (Cyclonite)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8 U	1.3 U
Tetryl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3 U	0.94 U
ASBESTOS													
Asebestos	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW03R
Sample ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW03R
Sample Date	11/05/96	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
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 U	5 U	5 U
1,1,2-Trichloroethane	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
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dibromo-3-chloropropane	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 U	20 U
1,2-Dibromoethane	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
1,2-Dichloroethane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	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
1,4-Dichlorobenzene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
2-Butanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloro-1,3-butadiene	100 R	100 R	100 R	100 R	100 R	100 R	100 U	100 U
2-Chloroethyl vinyl ether	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Chloropropene	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4-Methyl-2-pentanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	27 U
Acetonitrile	100 U	100 U	100 U	100 U	100 U	100 U	100 UJ	100 UJ
Acrolein	500 UJ	500 U	500 U	500 U	500 U	500 U	500 U	500 U
Acrylonitrile	100 U	100 U	100 U	100 U	100 U	100 U	100 UJ	100 UJ
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 U	5 U	5 U
Bromomethane	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 U	5 U	5 U
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
VOLATILES (ug/l) (cont.)								
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW03R
Sample ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW03R
Sample Date	11/05/96	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
Chloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	5 U	5 U	2 J	5 U	5 U	5 U	5 U	5 U
Chloromethane	10 U	10 U	10 U	10 U	10 U	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 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Ethyl methacrylate	20 U	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 U	20 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Iodomethane	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Isobutanol	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R
Methacrylonitrile	20 UJ	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Methyl methacrylate	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Methylene chloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
m-Xylene	NA	NA	NA	NA	NA	NA	NA	NA
o + p xylene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Pentachloroethane	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ
Propionitrile	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R
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-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
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 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 U	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 U	10 U
Vinyl chloride	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW03R
Sample ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW03R
Sample Date	11/05/96	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
SEMIVOLATILES (ug/l)								
1,2,4,5-Tetrachlorobenzene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
1,2-Diphenylhydrazine	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
1,4-Dioxane	22 U	22 U	22 U	23 U	20 U	20 U	21 U	21 U
1,4-Naphthoquinone	54 U	56 U	56 U	57 U	50 U	50 U	53 UJ	52 UJ
1-Naphthylamine	22 U	22 U	22 U	23 U	20 U	20 U	21 U	21 U
2,2'-Oxybis(1-Chloropropane)	11 U	11 U	11 U	11 U	10 U	10 U	10 UJ	10 UJ
2,3,4,6-Tetrachlorophenol	11 U	11 U	11 U	11 U	10 U	10 U	10 UJ	10 UJ
2,4,5-Trichlorophenol	54 U	56 U	56 U	57 U	50 U	50 U	53 U	52 U
2,4,6-Trichlorophenol	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	54 U	56 U	56 U	57 U	50 U	50 U	53 U	52 U
2,4-Dinitrotoluene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
2,6-Dichlorophenol	11 U	11 U	11 U	11 U	10 U	10 U	10 UJ	10 UJ
2,6-Dinitrotoluene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
2-Acetylaminofluorene	22 UJ	22 UJ	22 UJ	23 UJ	20 UJ	20 U	21 U	21 U
2-Chloronaphthalene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
2-Chlorophenol	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
2-Naphthylamine	27 U	28 U	28 U	29 U	25 U	25 U	26 U	26 U
2-Nitroaniline	54 U	56 U	56 U	57 U	50 U	50 U	53 U	52 U
2-Nitrophenol	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
2-Picoline	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
2-sec-butyl-4,6-dinitrophenol	22 U	22 U	22 U	23 U	20 U	20 U	21 U	21 U
3,3'-Dichlorobenzidine	22 U	22 U	22 U	23 U	20 U	20 U	21 U	21 U
3,3'-Dimethylbenzidine	54 U	56 U	56 U	57 U	50 U	50 U	53 UJ	52 UJ

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW03R
Sample ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW03R
Sample Date	11/05/96	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
SEMIVOLATILES (ug/l) (cont.)								
3-Methylcholanthrene	11 U	11 U	11 U	11 U	10 U	10 U	10 UJ	10 UJ
3-Nitroaniline	54 U	56 U	56 U	57 U	50 U	50 U	53 UJ	52 UJ
4,6-Dinitro-2-methylphenol	54 U	56 U	56 U	57 U	50 U	50 U	53 U	52 U
4-Aminobiphenyl	22 U	22 U	22 U	23 U	20 U	20 U	21 UJ	21 UJ
4-Bromophenyl phenyl ether	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	22 U	22 U	22 U	23 U	20 U	20 U	21 U	21 U
4-Chloroaniline	22 U	22 U	22 U	23 U	20 U	20 U	21 UJ	21 UJ
4-Chlorophenyl phenyl ether	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
4-Nitroaniline	54 U	56 U	56 U	57 U	50 U	50 U	53 UJ	52 UJ
4-Nitrophenol	54 U	56 U	56 U	57 U	50 U	50 U	53 U	52 U
4-Nitroquinoline-1-oxide	54 U	56 U	56 U	57 U	50 U	50 U	53 U	52 R
5-Nitro-o-toluidine	22 U	22 U	22 U	23 U	20 U	20 U	21 UJ	21 UJ
7,12-Dimethylbenz(a)anthracene	22 U	22 U	22 U	23 U	20 U	20 U	21 U	21 U
Acenaphthene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Acenaphthylene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Acetophenone	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
alpha, alpha-Dimethylphenethylamine	54 UJ	56 UJ	56 UJ	57 UJ	50 UJ	50 UJ	53 UJ	52 UJ
Aniline	54 U	56 U	56 U	57 U	50 U	50 U	53 U	52 U
Anthracene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Aramite	22 U	22 U	22 U	23 U	20 U	20 U	21 UJ	21 UJ
Benzidine	110 U	110 U	110 U	110 U	100 U	100 U	100 UJ	100 UJ
Benzo(a)anthracene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Benzoic acid	54 U	56 U	56 U	57 U	50 U	50 U	53 U	52 U
Benzyl alcohol	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Bis(2-chloroethoxy)methane	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW03R
Sample ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW03R
Sample Date	11/05/96	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
SEMIVOLATILES (ug/l) (cont.)								
Bis(2-chloroethyl)ether	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	81 U	11 U	11 U	11 U	14 U	10 U	10 U	10 U
Butylbenzylphthalate	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Carbazole	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Chlorobenzilate	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Chrysene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Diallate	11 U	11 U	11 U	11 U	10 U	10 UJ	10 U	10 U
Dibenzo(a,h)anthracene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Dibenzofuran	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Dichlorobenzenes	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Dimethylphthalate	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Diphenylamine	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Ethyl methanesulfonate	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Fluoranthene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Fluorene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Hexachloroethane	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Hexachlorophene	110 R	110 R	110 R	110 R	100 R	100 U	100 UJ	100 UJ
Hexachloropropene	54 U	56 U	56 U	57 U	50 U	50 U	53 U	52 U
Indeno(1,2,3-cd)pyrene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Isophorone	11 UJ	11 UJ	11 UJ	11 UJ	10 UJ	10 U	10 U	10 U
Isosafrole	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
m&p Cresol	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
m-Dinitrobenzene	0.1 U	0.13 U	0.11 U	0.094 U	0.48 U	0.37 U	21 U	21 U

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW03R
Sample ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW03R
Sample Date	11/05/96	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
SEMIVOLATILES (ug/l) (cont.)								
Meta-Dinitrobenzene	22 U	22 U	22 U	23 U	20 U	20 U	NA	NA
Methapyrilene	27 UJ	28 UJ	28 UJ	29 UJ	25 UJ	25 UJ	26 U	26 U
Methyl methanesulfonate	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Naphthalene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Nitrobenzene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
N-Nitrosodiethylamine	11 UJ	11 UJ	11 UJ	11 UJ	10 UJ	10 UJ	10 U	10 U
N-Nitrosodimethylamine	11 UJ	11 UJ	11 UJ	11 UJ	10 UJ	10 U	10 UJ	10 UJ
N-Nitroso-di-n-butylamine	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine (1)	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
N-Nitrosomethylethylamine	11 UJ	11 UJ	11 UJ	11 UJ	10 UJ	10 UJ	10 U	10 U
N-Nitrosomorpholine	22 U	22 U	22 U	23 U	20 U	20 UJ	21 U	21 U
N-Nitrosopiperidine	11 UJ	11 UJ	11 UJ	11 UJ	10 UJ	10 UJ	10 U	10 U
N-Nitrosopyrrolidine	54 U	56 U	56 U	57 U	50 U	50 U	53 U	52 U
o-Cresol	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
o-Toluidine	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
p-Cresol	NA	NA	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	22 U	22 U	22 U	23 U	20 U	20 U	21 U	21 U
Pentachlorobenzene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Pentachloronitrobenzene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 R
Pentachlorophenol	54 U	56 U	56 U	57 U	50 U	50 U	53 U	52 U
Phenacetin	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Phenanthrene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Phenol	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
p-Phenylenediamine	22 U	22 U	22 U	23 U	20 U	20 U	21 R	21 R
Pronamide	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Pyrene	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
Pyridine	22 U	22 U	22 U	23 U	20 U	20 U	21 U	21 U
Safrole	11 U	11 U	11 U	11 U	10 U	10 U	10 U	10 U
sym-Trinitrobenzene	110 U	110 U	110 U	110 U	100 U	100 U	100 U	100 U
Total Phenols	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW03R
Sample ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW03R
Sample Date	11/05/96	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
PESTICIDES/PCBs (ug/l)								
4,4'-DDD	0.11 UJ	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.53 U	0.12 U
4,4'-DDE	0.056 J	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.53 U	0.12 U
4,4'-DDT	0.11 UJ	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	1.1 U	0.12 U
Aldrin	0.1 J	0.05 U	0.05 U	0.048 U	0.05 U	0.05 U	0.11 U	0.059 U
alpha-BHC	0.056 UJ	0.05 U	0.05 U	0.048 U	0.05 U	0.05 U	0.11 U	0.059 U
alpha-Chlordane	0.56 UJ	0.5 U	0.5 U	0.48 U	0.5 U	0.5 U	0.053 U	0.59 U
beta-BHC	0.056 UJ	0.05 U	0.05 U	0.048 U	0.05 U	0.05 U	0.53 UJ	0.059 U
Chlordane	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane, gamma-	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC	0.056 UJ	0.05 U	0.05 U	0.048 U	0.05 U	0.05 U	0.11 U	0.059 U
Dieldrin	0.11 UJ	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.53 U	0.12 U
Endosulfan I	0.056 UJ	0.05 U	0.05 U	0.048 U	0.05 U	0.05 U	0.053 U	0.059 U
Endosulfan II	0.11 UJ	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	1.1 U	0.12 U
Endosulfan sulfate	0.11 UJ	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.053 U	0.12 U
Endrin	0.11 UJ	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.53 U	0.12 U
Endrin aldehyde	0.11 UJ	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.053 U	0.12 U
Endrin ketone	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	0.056 UJ	0.05 U	0.05 U	0.048 U	0.05 U	0.05 U	1.1 U	0.059 U
gamma-Chlordane	0.56 UJ	0.5 U	0.5 U	0.48 U	0.5 U	0.5 U	0.053 U	0.59 U
Heptachlor	0.056 UJ	0.05 U	0.05 U	0.048 U	0.05 U	0.05 U	0.11 U	0.059 U
Heptachlor epoxide	0.056 UJ	0.05 U	0.05 U	0.048 U	0.05 U	0.05 U	0.32 U	0.059 U
Isodrin	0.056 UJ	0.05 U	0.05 U	0.048 U	0.05 U	0.05 U	0.11 U	0.059 U
Kepone	0.11 R	0.1 R	0.1 R	0.095 R	0.1 R	0.1 R	0.053 U	0.35 U
Methoxychlor	0.56 UJ	0.5 U	0.5 U	0.48 U	0.5 U	0.5 U	0.53 U	0.59 UJ
Toxaphene	1.1 UJ	1 U	1 U	0.95 U	1 U	1 U	0.053 U	1.2 U

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW03R
Sample ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW03R
Sample Date	11/05/96	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
PESTICIDES/PCBs (ug/l) (cont.)								
Aroclor-1016	0.56 UJ	0.5 U	0.5 U	0.48 U	0.5 U	0.5 U	0.11 U	0.59 U
Aroclor-1221	0.56 UJ	0.5 U	0.5 U	0.48 U	0.5 U	0.5 U	0.11 U	0.59 U
Aroclor-1232	0.56 UJ	0.5 U	0.5 U	0.48 U	0.5 U	0.5 U	0.53 U	0.59 U
Aroclor-1242	0.56 UJ	0.5 U	0.5 U	0.48 U	0.5 U	0.5 U	0.11 U	0.59 U
Aroclor-1248	0.56 UJ	0.5 U	0.5 U	0.48 U	0.5 U	0.5 U	0.53 U	0.59 U
Aroclor-1254	1.1 UJ	1 U	1 U	0.95 U	1 U	1 U	0.053 U	1.2 U
Aroclor-1260	1.1 UJ	1 U	1 U	0.95 U	1 U	1 U	0.053 U	1.2 U
CHLORINATED HERBICIDES (ug/l)								
2,4,5-T	0.26	0.12 U	0.11 U	0.11 U	1.1 U	1.2 U	0.11 U	0.11 U
2,4,5-TP (Silvex)	0.11 U	0.081 J	0.11 U	0.11 U	1.1 U	1.2 U	0.11 U	0.11 U
2,4-D	1.1 U	1.2 U	1.1 U	1.1 U	11 U	12 U	1.1 U	1.1 U
OP-PESTICIDES (ug/l)								
Dimethoate	2 U	1.9 U	2 U	1.9 U	1.9 U	2 U	2.3 U	2.1 U
Disulfoton	2 U	1.9 U	2 U	1.9 U	1.9 U	2 U	2.3 U	2.1 U
Famphur	2 U	1.9 U	2 U	1.9 U	1.9 U	2 U	2.3 U	2.1 U
Methyl parathion	2 U	1.9 U	2 U	1.9 U	1.9 U	2 U	2.3 U	2.1 U
O,O,O-Triethylphosphorothioate	2 U	1.9 U	2 U	1.9 U	1.9 U	2 U	2.3 U	2.1 U
Parathion	2 U	1.9 U	2 U	1.9 U	1.9 U	2 U	2.3 U	2.1 U
Phorate	2 U	1.9 U	2 U	1.9 U	1.9 U	2 U	2.3 U	2.1 U
Sulfotepp	2 U	1.9 U	2 U	1.9 U	1.9 U	2 U	2.3 U	2.1 U
Thionazin	2 U	1.9 U	2 U	1.9 U	1.9 U	2 U	2.3 U	2.1 U
DIOXINS (ug/l)								
2,3,7,8-TCDD	0.0001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00013 U	0.00023 U
Total HxCDD	0.0004 U	0.0003 U	0.0006 U	0.0005 U	0.0005 J	0.0006 U	0.0004 U	0.00036 U
Total HxCDF	0.0002 U	0.0003 U	0.0002 U	0.0003 U	0.0003 U	0.0005 U	0.00028 U	0.00025 U
Total PeCDD	0.0003 U	0.0004 U	0.0003 U	0.0003 U	0.0003 U	0.0005 U	0.0003 U	0.00027 U
Total PeCDF	0.0003 U	0.0003 U	0.0002 U	0.0003 U	0.0004 U	0.0003 U	0.00031 U	0.00041 U
Total TCDD	0.0001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00013 U	0.00023 U
Total TCDF	0.0002 U	0.0001 U	0.0003 U	0.0001 U	0.0002 U	0.0002 U	0.00013 U	0.00014 U

APPENDIX F.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW03R
Sample ID	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW03R
Sample Date	11/05/96	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
EXPLOSIVES (ug/l)								
1,3,5-Trinitrobenzene	0.11 U	0.14 U	0.12 U	0.1 U	0.52 U	0.4 U	1.6 U	1.6 U
1,3-Dinitrobenzene	0.1 U	0.13 U	0.11 U	0.094 U	0.48 U	0.37 U	1.6 U	1.6 U
2,4,6-TNT	0.1 U	0.14 U	0.11 U	0.097 U	0.5 U	0.39 U	1.6 UJ	1.6 UJ
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	1.6 U	1.6 U
2,4-DNT/2,6-DNT	0.17 U	0.22 U	0.18 U	0.16 U	0.8 U	0.62 U	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	3.1 U	3.1 U
2-Amino-4,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	3.1 U	3.1 U
2-Nitrotoluene	0.42 U	0.56 U	0.45 U	0.39 U	2 U	1.6 U	3.1 U	3.1 U
3-Nitrotoluene	0.42 U	0.56 UJ	0.45 U	0.39 UJ	2 UJ	1.6 UJ	3.1 U	3.1 U
4-Amino-2,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	3.1 U	3.1 U
4-Nitrotoluene	1.2 U	1.7 U	1.4 U	1.2 U	6 U	4.7 U	3.1 U	3.1 U
Amino-DNTs	0.17 U	0.22 U	0.18 U	0.16 U	0.8 U	0.62 U	NA	NA
HMX	0.91 U	1.2 U	1 U	0.86 U	4.4 U	3.4 U	1.6 U	1.6 U
Nitrobenzene	0.17 U	0.23 U	0.19 U	0.16 U	0.84 U	0.65 U	1.6 U	1.6 U
RDX (Cyclonite)	0.45 U	0.6 U	0.49 U	0.42 U	2.2 U	1.7 U	1.6 U	1.6 U
Tetryl	0.32 U	0.42 U	0.34 U	0.3 U	1.5 U	1.2 U	3.1 UJ	3.1 UJ
ASBESTOS								
Asebestos								

APPENDIX F.8
GROUNDWATER, INORGANICS, SWMU 1

APPENDIX F.8 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - INORGANICS (TOTAL)
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	1MW01	1MW01D	1MW02
Sample ID	5GW1	5GW2	5GW3	5GW4	5GW5	5GW01	5GW02	5GW03	5GW04	5GW05	05GW101	1MW01	1MW01D	1MW02
Sample Date	03/06/86	03/06/86	03/06/86	03/06/86	03/12/86	10/12/87	10/12/87	10/13/87	10/13/87	10/12/87	12/1/92	11/05/96	11/05/96	11/05/96
Inorganics, Total (ug/l)														
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	598 J	NA	NA	NA
Antimony	24 U	24 U	24 U	24 U	18 U	21 U	21 U	21 U	21 U	21 U	47.2 U	80 U	86.7	16 U
Arsenic	20.5	15 U	93.4	88.6	83.9	2.5	3.2 U	3.2 U	3.2 U	3.2 U	3 U	26 R	26 R	26 R
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	164 B	723	745	47.5
Beryllium	3 U	3 U	3 U	5.06	3 U	1 U	1 U	1 U	1 U	1 U	0.6 U	2 U	2 U	0.4 U
Cadmium	3 U	3 U	3 U	3 U	3 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.8 U	30.9 J	23.4 J	2.1 UJ
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	158,000	NA	NA	NA
Chromium	3.25	6.05	18.1	26.9	28.4	16	9.7	205	178	163	10.3 UJ	50.6	48.2	1.7 U
Chromium (Hexavalent)	20 U	20 U	22	20 U	34.6	10 U	10 U	10 U	10 U	110	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.6 U	86.5	92.2	2.8 U
Copper	23.9	58.2	1,850	113	55.8	2.8 U	9.2	1,780	2.8 U	154	5.9 B	1,010	1,030	6.2
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 UJ	10 U	10 U	10 U
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	857 J	NA	NA	NA
Lead	24 U	24 U	24 U	24 U	21 U	20 U	20 U	4,000 U	2,000 U	2,000 U	1.8 U	37.7 J	13 R	13 R
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150,000	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	162 J	NA	NA	NA
Mercury	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.62	0.28	0.1 U
Nickel	3 U	4.32	46.3	48	12.6	8.6 U	8.6 U	34.1	17.8	20.5	18.7 U	53.7	43.5	6.7 U
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,220 U	NA	NA	NA
Selenium	21 U	21 U	21 U	21 U	21 U	10.5	9.5	359	310	122	2.4 UJ	36 R	36 R	36 R
Silver	3 U	3 U	3 U	3 U	3 U	3.6 U	3.7	37.7	24.7	37.6	6.3 U	9 UJ	9 UJ	1.8 UJ
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,040,000 J	197,000 J	194,000 J	157,000 J
Sulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,000 U	1,000 U	1,000 U
Thallium	10.6	9.64	4,310	3,860	3,450	5 U	5 U	10 U	10 U	69.4	1.5 UJ	16 UJ	16 UJ	16 UJ
Tin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43.5 U	43.5 U	8.7 U
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	41.7 B	511	519	21.3
Zinc	33.2	55.1	124	4,580	76.3	35	1.8 U	222	2	192	25.8	138	144	5.3

APPENDIX F.8 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - INORGANICS (TOTAL)
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW03R
Sample ID	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW03R
Sample Date	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
Inorganics, Total (ug/l)							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Antimony	16 U	25.1	16 U	80 U	80 U	2.5 J	1.4 J
Arsenic	26 R	26 R	26 R	26 R	26 R	2.1 U	2.1 U
Barium	248	806	177	45.5	69.7	350	690
Beryllium	0.4 U	4.8	0.4 U	2 U	2 U	0.82 J	0.67 J
Cadmium	2.1 UJ	2.1 UJ	5.5 J	20.4 J	24.6 J	0.3 U	0.3 U
Calcium	NA	NA	NA	NA	NA	NA	NA
Chromium	2.3	259	1.7 U	8.5 U	8.5 U	113	59.1
Chromium (Hexavalent)	NA	NA	NA	NA	NA	NA	NA
Cobalt	3.5	354	2.8 U	157	77.2	104	59.1
Copper	15.5	2,950	9.8	1,720	8.5	81.9	199
Cyanide	10 U	10 U	10 U	10 U	10 U	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA
Lead	13 R	144 J	26 R	26 R	26 R	6.3	4.9
Magnesium	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA
Mercury	0.1 U	6.5	0.1 U	0.1	0.1 U	0.1 U	0.1 U
Nickel	9.8	188	6.7 U	33.5 U	35.9	86.9	41.5
Potassium	NA	NA	NA	NA	NA	NA	NA
Selenium	36 R	36 R	36 R	36 R	36 R	2 UJ	2 UJ
Silver	1.8 UJ	1.8 UJ	1.8 UJ	9 UJ	9 UJ	0.82 J	0.7 U
Sodium	370,000 J	206,000 J	938,000 J	210,000 J	170,000 J	153,000	864,000
Sulfide	1,000 U	1,000 U	1,000 U	1,000 U	1,000 U	NA	NA
Thallium	16 UJ	16 UJ	16 UJ	16 UJ	16 UJ	1.9 U	1.9 U
Tin	8.7 U	43.8	8.7 U	43.5 U	43.5 U	2.5 J	2.8 J
Vanadium	32.1	913	50.4	8.5 U	8.5 U	330	344
Zinc	16.6	760	12.5	67.5	23.8	182	134

APPENDIX F.8 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - INORGANICS (DISSOLVED)
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5GW01	1MW01	1MW01D	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW03R
Sample ID	05GW101B	1MW01	1MW01D	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW03R
Sample Date	12/1/92	11/05/96	11/05/96	11/05/96	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
Inorganics, Dissolved (ug/l)											
Aluminum	79.9 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	47.2 U	80 U	80 U	16 U	16 U	16 U	16 U	80 U	80 U	1.4 J	1.3 J
Arsenic	3 U	26 R	26 R	26 R	26 R	26 R	26 R	26 R	26 R	2.1 U	2.1 U
Barium	155 B	127	121	44	232	29.2	158	36.1	53.9	19.8 J	74.3 J
Beryllium	0.6 U	2 U	2 U	0.4 U	0.4 U	0.4 U	0.4 U	2 U	2 U	0.3 U	0.3 U
Cadmium	2.8 U	42.1 J	35.4 J	4.7 J	2.1 UJ	4.3 J	2.1 UJ	30.2 J	33.8 J	0.3 U	0.3 U
Calcium	145,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	10.3 UJ	8.5 U	8.5 U	1.7 U	1.7 U	1.7 U	1.7 U	8.5 U	8.5 U	3.2 J	4.3 J
Cobalt	9.6 U	41.2	31.8	3.6	2.8 U	2.8 U	2.8 U	144	83.8	0.93 J	0.8 U
Copper	6.8 B	11.2	11.2	3.2	2.2	3.4	3.3	1,680	7.5 U	1.3 U	1.3 U
Iron	51.8 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1.8 U	13 R	13 R	13 R	13 R	26 R	26 R	26 R	26 R	1.3 U	1.3 U
Magnesium	143,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	97.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.2 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	18.7 U	33.5 U	38.2	6.7 U	6.7 U	6.7 U	6.7 U	74	71.7	0.91 J	0.6 U
Potassium	1180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	4.8 U	36 R	36 R	36 R	36 R	36 R	36 R	36 R	36 R	2 UJ	2 UJ
Silver	6.3 U	9 UJ	9 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	9 UJ	9 UJ	0.7 U	0.7 U
Sodium	1,030,000 J	21,700,000 J	205,000 J	152,000 J	375,000 J	175,000 J	935,000 J	20,400,000 J	18,800,000 J	NA	NA
Thallium	16.5 J	16 UJ	16 UJ	16 UJ	16 UJ	16 UJ	16 UJ	16 UJ	16 UJ	1.9 U	1.9 U
Tin	NA	43.5 U	43.5 U	8.7 U	8.7 U	8.7 U	8.7 U	43.5 U	43.5 U	2.4 U	2.4 U
Vanadium	20.3 B	8.5 U	9.1	16.6	28.9	17.5	42.2	8.5 U	8.5 U	32.6 J	71.1
Zinc	12.1 U	26.2	20.6	3.5	3.3	3.3	6.8	41.9	26.6	5.4 J	1.6 J

APPENDIX F.9
SURFACE WATER, ORGANICS, SWMU 1

APPENDIX F.9 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW1	5SW2	5SW3	5SW4	5SW5
Sample ID	5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW01	5SW02	5SW03	5SW04	5SW05
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87	10/06/87	10/06/87
VOLATILES (ug/l)											
1,1,1-Trichloroethane	0.26 U	0.26 U	0.3 U	0.29 U	0.27 U	0.34 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U
1,1,2,2-Tetrachloroethane	0.91 U	0.89 U	1 U	1 U	0.95 U	1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U
1,1,2-Trichloroethane	0.76 U	0.74 U	0.86 U	0.85 U	0.79 U	0.81 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	0.44 U	0.43 U	0.5 U	0.5 U	0.46 U	0.46 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U
1,1-Dichloroethene	0.8 U	0.79 U	0.91 U	0.9 U	0.83 U	0.83 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
1,2-Dibromoethane	NA	NA	NA	NA	NA	0.01 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U
1,2-Dichloroethane	0.34 U	0.34 U	0.39 U	0.38 U	0.36 U	0.39 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
1,2-Dichloropropane	0.9 U	0.88 U	1 U	1 U	0.93 U	0.88 U	6 U	6 U	6 U	6 U	6 U
1,4-Dichlorobenzene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
2-Butanone	14 U	14 U	17 U	13 U	14 U	9 U	NA	48 U	48 U	48 U	48 U
4-Methyl-2-pentanone	1.9 U	1.8 U	2.1 U	2.1 U	1.9 U	1.6 U	NA	12 U	12 U	12 U	12 U
Benzene	0.98 U	0.87 U	0.29 U	1.1 U	0.98 U	0.3 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	0.29 U	0.29 U	0.33 U	0.33 U	0.3 U	0.37 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Bromoform	0.72 U	0.7 U	0.81 U	0.8 U	0.74 U	1.1 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U
Bromomethane	0.53 U	0.52 U	0.6 U	0.6 U	0.55 U	0.77 U	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U
Carbon tetrachloride	0.25 U	0.25 U	0.29 U	0.28 U	0.26 U	0.32 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
Chlorobenzene	0.22 U	0.22 U	0.25 U	0.25 U	0.23 U	0.25 U	6 U	6 U	6 U	6 U	6 U
Chloroethane	1.3 U	1.2 U	1.4 U	1.4 U	1.3 U	1.7 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U
Chloroform	0.27 U	0.26 U	0.3 U	0.3 U	0.28 U	0.3 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
Chloromethane	0.75 U	0.73 U	0.84 U	0.84 U	0.77 U	0.66 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
cis-1,3-Dichloropropene	0.97 U	0.29 U	0.34 U	0.34 U	0.31 U	0.37 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	0.488 U	0.476 U	0.551 U	0.546 U	0.505 U	0.616 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
Ethylbenzene	0.46 U	0.45 U	0.52 U	0.51 U	0.47 U	0.55 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U
Methylene chloride	2.4 U	2.9 U	3.2 U	2.5 U	2.1 U	0.74 U	50 U	50 U	50 U	50 U	50 U
m-Xylene	0.15 U	0.14 U	0.17 U	0.16 U	0.15 U	0.14 U	NA	12 U	12 U	12 U	12 U
o + p xylene	0.14 U	0.14 U	0.16 U	0.16 U	0.15 U	0.14 U	NA	12 U	12 U	12 U	12 U

APPENDIX F.9 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW1	5SW2	5SW3	5SW4	5SW5
Sample ID	5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW01	5SW02	5SW03	5SW04	5SW05
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87	10/06/87	10/06/87
VOLATILES (ug/l) (cont.)											
Tetrachloroethene	0.46 U	0.45 U	0.52 U	0.52 U	0.48 U	0.54 U	3 U	3 U	3 U	3 U	3 U
Toluene	0.32 U	0.32 U	0.37 U	0.36 U	0.34 U	0.39 U	6 U	6 U	6 U	6 U	6 U
trans-1,2-Dichloroethene	0.7 U	0.69 U	0.8 U	0.79 U	0.73 U	0.82 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
trans-1,3-Dichloropropene	0.3 U	0.3 U	0.34 U	0.34 U	0.61 U	0.37 U	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U
Trichloroethene	0.44 U	0.43 U	0.49 U	0.49 U	0.45 U	0.53 U	NA	1 U	1 U	1 U	1 U
Trichlorofluoromethane	0.93 U	0.91 U	1.1 U	1.1 U	0.97 U	1 U	NA	3.2 U	3.2 U	3.2 U	3.2 U
Vinyl chloride	0.54 U	0.53 U	0.62 U	0.61 U	0.56 U	0.68 U	NA	1 U	1 U	1 U	1 U

APPENDIX F.9 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW1	5SW2	5SW3	5SW4	5SW5
Sample ID	5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW01	5SW02	5SW03	5SW04	5SW05
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87	10/06/87	10/06/87
SEMIVOLATILES (ug/l)											
1,2,4-Trichlorobenzene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
2,2'-Oxybis(1-Chloropropane)	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
2,4,6-Trichlorophenol	1 U	1 U	1 U	1 U	1 U	NA	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
2,4-Dichlorophenol	1 U	1 U	1 U	1 U	1 U	NA	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
2,4-Dimethylphenol	1 U	1 U	1 U	1 U	1 U	NA	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
2,4-Dinitrophenol	2 U	2.1 U	1.9 U	2 U	2.2 U	NA	30 U	30 U	30 U	30 U	30 U
2,4-Dinitrotoluene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
2,6-Dinitrotoluene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
2-Chloroethyl vinyl ether	1.4 U	1.4 U	1.6 U	1.6 U	1.5 U	1.6 U	15 U	15 U	15 U	15 U	15 U
2-Chloronaphthalene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
2-Chlorophenol	1 U	1 U	1 U	1 U	1 U	NA	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
2-Nitrophenol	1 U	1 U	1 U	1 U	1 U	NA	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
3,3'-Dichlorobenzidine	1 U	1 U	1 U	1 U	1 U	NA	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
4,6-Dinitro-2-methylphenol	1.4 U	1.4 U	1.3 U	1.3 U	1.5 U	NA	5 U	5 U	5 U	5 U	5 U
4-Bromophenyl phenyl ether	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
4-Chloro-3-methylphenol	1 U	1 U	1 U	1 U	1 U	NA	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
4-Chlorophenyl phenyl ether	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
4-Nitrophenol	1.1 U	1.2 U	1 U	1.1 U	1.2 U	NA	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U
Acenaphthene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Acenaphthylene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Anthracene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Benzidine	NA	NA	NA	NA	NA	NA	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Benzo(a)anthracene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Benzo(a)pyrene	1 U	1 U	1 U	1 U	1 U	NA	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U

APPENDIX F.9 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW1	5SW2	5SW3	5SW4	5SW5
Sample ID	5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW01	5SW02	5SW03	5SW04	5SW05
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87	10/06/87	10/06/87
SEMIVOLATILES (ug/l) (cont.)											
Benzo(b)fluoranthene	1 U	1 U	1 U	1 U	1 U	NA	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Benzo(g,h,i)perylene	1 U	1 U	1 U	1 U	1 U	NA	2 U	2 U	2 U	2 U	2 U
Benzo(k)fluoranthene	1 U	1 U	1 U	1 U	1 U	NA	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Bis(2-chloroethoxy)methane	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Bis(2-chloroethyl)ether	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Bis(2-ethylhexyl)phthalate	1	1	2	1 U	1	NA	1.7	1 U	1.6	2.4	10
Butylbenzylphthalate	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Chrysene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Dibenzo(a,h)anthracene	1 U	1 U	1 U	1 U	1 U	NA	2 U	2 U	2 U	2 U	2 U
Dichlorobenzenes	0.4 U	0.4 U	0.5 U	0.5 U	0.5 U	0.2 U	NA	NA	NA	NA	NA
Diethylphthalate	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Dimethylphthalate	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Di-n-butylphthalate	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Di-n-octylphthalate	1	7	4	1 U	2	NA	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Fluoranthene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Fluorene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Hexachlorobenzene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Hexachlorobutadiene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Hexachlorocyclopentadiene	1 U	1 U	1 U	1 U	1 U	NA	2 U	2 U	2 U	2 U	2 U
Hexachloroethane	1 U	1 U	1 U	1 U	1 U	NA	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Indeno(1,2,3-cd)pyrene	1 U	1 U	1 U	1 U	1 U	NA	2 U	2 U	2 U	2 U	2 U
Isophorone	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Naphthalene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Nitrobenzene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
N-Nitrosodimethylamine	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
N-Nitroso-di-n-propylamine	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
N-Nitrosodiphenylamine (1)	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Pentachlorophenol	1.3 U	1.4 U	1.2 U	1.3 U	1.4 U	NA	10 U	10 U	10 U	10 U	10 U
Phenanthrene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Phenol	1 U	1 U	1 U	1 U	1 U	NA	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Pyrene	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Total Phenols	NA	NA	NA	NA	NA	NA	540	29	57	33	130

APPENDIX F.9 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW1	5SW2	5SW3	5SW4	5SW5
Sample ID	5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW01	5SW02	5SW03	5SW04	5SW05
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87	10/06/87	10/06/87
PESTICIDES/PCBs (ug/l)											
4,4'-DDD	0.208 U	0.208 U	0.208 U	0.208 U	0.208 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
4,4'-DDE	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
4,4'-DDT	0.096 U	0.096 U	0.096 U	0.096 U	0.096 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
Aldrin	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
alpha-BHC	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
beta-BHC	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
Chlordane	0.184 U	0.184 U	0.184 U	0.184 U	0.184 U	NA	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U
delta-BHC	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
Dieldrin	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
Endosulfan I	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
Endosulfan II	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
Endosulfan sulfate	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
Endrin	0.078 U	0.078 U	0.078 U	0.078 U	0.078 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
Endrin aldehyde	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
gamma-BHC (Lindane)	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
Heptachlor	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
Heptachlor epoxide	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	NA	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
Toxaphene	2.14 U	2.14 U	2.14 U	2.14 U	2.14 U	NA	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Aroclor-1016	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	NA	0.247 U	0.247 U	0.247 U	0.247 U	0.247 U
PESTICIDES/PCBs (ug/l) (cont.)											
Aroclor-1221	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	NA	0.247 U	0.247 U	0.247 U	0.247 U	0.247 U
Aroclor-1232	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	NA	0.247 U	0.247 U	0.247 U	0.247 U	0.247 U
Aroclor-1242	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	NA	0.247 U	0.247 U	0.247 U	0.247 U	0.247 U
Aroclor-1248	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	NA	0.247 U	0.247 U	0.247 U	0.247 U	0.247 U
Aroclor-1254	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	NA	0.247 U	0.247 U	0.247 U	0.247 U	0.247 U
Aroclor-1260	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	NA	0.247 U	0.247 U	0.247 U	0.247 U	0.247 U
MISCELLANEOUS											
Oil & Grease (mg/l)	NA	NA	NA	NA	NA	0.6	NA	NA	NA	NA	NA

APPENDIX F.10
SURFACE WATER, INORGANICS (TOTAL), SWMU 1

APPENDIX F.10

SUMMARY OF ANALYTICAL RESULTS, SURFACE WATER - INORGANICS (TOTAL)
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW1	5SW2	5SW3	5SW4	5SW5
Sample ID	5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW01	5SW02	5SW03	5SW04	5SW05
Sample Date	11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87	10/06/87	10/06/87
Inorganics, Total (ug/l)											
Antimony	18 U	24 U	24 U	24 U	24 U	NA	21 U	21 U	21 U	21 U	21 U
Arsenic	102	105	97	96	104	NA	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U
Beryllium	1 U	3 U	3 U	3 U	3 U	NA	1 U	1 U	1 U	1 U	1 U
Cadmium	3 U	3 U	3 U	3 U	3 U	NA	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
Chromium (Hexavalent)	20 U	31.9	20 U	20 U	20 U	NA	10 U	10 U	10 U	10 U	10 U
Chromium	3 U	6 U	7.49	6	6.39	NA	108	3.7	12.4	7.7	105
Copper	2	3 U	3 U	3 U	3 U	NA	2.8 U	2.8 U	24.8	2.8 U	2.8 U
Lead	24 U	24 U	24 U	24 U	24 U	27 U	200 U	400 U	20 U	20 U	400 U
Mercury	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	5 U	6 U	6 U	6 U	33.6 U	NA	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U
Selenium	39 U	39 U	39 U	39 U	39 U	NA	181	11	14.9	8	221
Silver	6 U	6 U	6 U	6 U	6 U	NA	28.8	3.6 U	3.8	3.6 U	28.9
Thallium	83.3	86.7	89.1	116	111	NA	10 U	5 U	5 U	5 U	10 U
Zinc	15	16.1	4.31	19.9	5.01	NA	1.8 U	1.8 U	20.8	1.8 U	1.8 U

APPENDIX F.11
SURFACE SOIL, ORGANICS, SWMU 2

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg)										
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	300 U	130 U	330 U	280 U	30 U	270 U	240 U	280 U	140 U	110 U
1,1,2,2-Tetrachloroethane	160 U	70 U	170 U	140 U	10 U	150 U	130 U	150 U	400 U	320 U
1,1,2-Trichloroethane	270 U	110 U	300 U	250 U	30 U	270 U	240 U	280 U	360 U	280 U
1,1-Dichloroethane	130 U	480 U	150 U	140 U	130 U	140 U	130 U	150 U	220 U	180 U
1,1-Dichloroethene	280 U	120 U	310 U	260 U	30 U	270 U	250 U	290 U	400 U	320 U
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	3 U	4 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
1,2-Dichloroethane	270 U	120 U	300 U	260 U	270 U	260 U	230 U	270 U	160 U	130 U
1,2-Dichloroethene (Total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	190 U	80 U	210 U	180 U	20 U	200 U	180 U	210 U	430 U	350 U
2-Butanone	1,900 U	570 U	1,000 U	970 U	920 U	1,400 U	1,700 U	2,000 U	1,500 U	1,300 U
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Chloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	250 U	2,000 U	280 U	260 U	250 U	260 U	240 U	270 U	480 U	380 U
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	90 U	40 U	100 U	90 U	8 U	80 U	80 U	90 U	130 U	110 U
Bromodichloromethane	180 U	80 U	200 U	170 U	20 U	170 U	150 U	170 U	150 U	120 U
Bromoform	350 U	150 U	370 U	320 U	30 U	300 U	270 U	320 U	300 U	240 U
Bromomethane	340 U	140 U	340 U	290 U	30 U	280 U	250 U	290 U	270 U	210 U
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg) (cont.)										
Carbon tetrachloride	310 U	130 U	340 U	290 U	300 U	300 U	270 U	320 U	120 U	100 U
Chlorobenzene	120 U	50 U	130 U	110 U	10 U	120 U	110 U	120 U	110 U	90 U
Chloroethane	480 U	200 U	540 U	460 U	50 U	440 U	390 U	460 U	670 U	540 U
Chloroform	146 U	186 U	166 U	139 U	149 U	147 U	133 U	154 U	131 U	105 U
Chloromethane	450 U	190 U	1,000 U	880 U	90 U	400 U	360 U	420 U	480 U	390 U
cis-1,2-Dichloroethylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	130 U	220 U	150 U	130 U	10 U	130 U	120 U	140 U	140 U	110 U
Dibromochloromethane	260 U	110 U	290 U	250 U	20 U	260 U	240 U	270 U	220 U	180 U
Dibromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene, (2-chloroethoxy)-	360 U	380 U	390 U	330 U	30 U	380 U	350 U	400 U	1,100 U	890 U
Ethene, 1,2-dichloro-, (E)-	280 U	120 U	310 U	270 U	30 U	260 U	230 U	270 U	370 U	300 U
Ethyl methacrylate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	290 U	120 U	310 U	270 U	30 U	260 U	230 U	270 U	240 U	190 U
Iodomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isobutanol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl methacrylate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	270 U	570 U	250 U	230 U	220 U	250 U	230 U	270 U	620 U	520 U
m-Xylene	240 U	40 U	220 U	190 U	20 U	230 U	210 U	240 U	70 U	50 U
o-Xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	390 U	170 U	420 U	360 U	40 U	360 U	330 U	380 U	220 U	170 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg) (cont.)										
Toluene	150 U	1,300 U	170 U	160 U	150 U	130 U	120 U	140 U	170 U	140 U
trans-1,3-Dichloropropene	370 U	160 U	400 U	340 U	30 U	350 U	320 U	370 U	140 U	110 U
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	270 U	120 U	300 U	260 U	30 U	260 U	240 U	280 U	220 U	170 U
Trichlorofluoromethane	260 U	110 U	280 U	240 U	20 U	260 U	240 U	270 U	460 U	370 U
Vinyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	300 U	110 U	350 U	300 U	30 U	280 U	250 U	290 U	330 U	270 U
Xylene (total)	100 U	40 U	230 U	190 U	20 U	100 U	90 U	100 U	70 U	50 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg)										
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70 U	80 U	60 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
1,2-Dichlorobenzene	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
1,4-Dichlorobenzene	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	100 U	120 U	100 U	40 U	40 U	60 U	40 U	40 U	80 U	40 U
2,4-Dichlorophenol	70 U	80 U	60 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
2,4-Dimethylphenol	60 U	70 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
2,4-Dinitrophenol	310 U	360 U	290 U	140 U	110 U	170 U	130 U	130 U	240 U	120 U
2,4-Dinitrotoluene	90 U	100 U	80 U	40 U	40 U	50 U	40 U	40 U	70 U	40 U
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	100 U	100 U	100 U	50 U	40 U	70 U	50 U	50 U	90 U	50 U
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
2-Chlorophenol	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	90 U	100 U	80 U	40 U	40 U	50 U	40 U	40 U	70 U	40 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)										
2-Picoline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-sec-butyl-4,6-dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	200 U	200 U	200 U	90 U	70 U	100 U	80 U	80 U	100 U	70 U
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	210 U	250 U	200 U	90 U	70 U	120 U	90 U	90 U	160 U	80 U
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	100 U	100 U	100 U	50 U	40 U	60 U	40 U	40 U	80 U	40 U
4-Chloro-3-methylphenol	70 U	80 U	60 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	60 U	70 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	180 U	200 U	160 U	80 U	60 U	90 U	70 U	70 U	130 U	70 U
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
Acenaphthylene	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha, alpha-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
Aramite	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	50 U	60 U	50 U	40 U	70	100	40 U	40 U	50 U	40 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)										
Benzo(a)pyrene	100 U	100 U	90 U	40 U	40	200	40 U	40 U	70 U	40 U
Benzo(b)fluoranthene	70 U	90 U	70 U	40 U	60	200	40 U	40 U	60 U	40 U
Benzo(g,h,i)perylene	180 U	200 U	160 U	80 U	60 U	80	70 U	70 U	130 U	70 U
Benzo(k)fluoranthene	80 U	90 U	70 U	40 U	40	90	40 U	40 U	60 U	40 U
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
Bis(2-chloroethyl)ether	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
Bis(2-ethylhexyl)phthalate	50 U	60 U	50	40 U	60	200	50	40 U	80	40 U
Butylbenzylphthalate	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	50 U	60 U	50 U	40 U	80	100	40 U	40 U	50 U	40 U
Diallate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	200 U	200 U	200 U	80 U	60 U	90 U	70 U	70 U	100 U	70 U
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorobenzenes	170 U	80 U	200 U	170 U	20 U	160 U	140 U	160 U	100 U	80 U
Diethylphthalate	50 U	60 U	50 U	50 U	40 U	40 U	40 U	40 U	50 U	40 U
Dimethylphthalate	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
Di-n-butylphthalate	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
Di-n-octylphthalate	50 U	100	50 U	40 U	100	40 U	100	200	50 U	80 U
Diphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	50 U	60 U	50 U	40 U	60	200	20	40 U	50 U	40 U
Fluorene	50 U	60 U	50 U	40 U	40 U	30 U	40 U	40 U	50 U	40 U
Hexachlorobenzene	100 U	100 U	100 U	50 U	40 U	60 U	40 U	40 U	80 U	40 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)										
Hexachlorobutadiene	200 U	200 U	100 U	70 U	50 U	80 U	60 U	60 U	100 U	60 U
Hexachlorocyclopentadiene	200 U	200 U	200 U	90 U	70 U	100 U	80 U	80 U	100 U	70 U
Hexachloroethane	100 U	100 U	100 U	50 U	40 U	60 U	50 U	50 U	90 U	50 U
Hexachlorophene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	200 U	200 U	100 U	70 U	50 U	60 U	60 U	70 U	100 U	60 U
Isophorone	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
Isosafrole	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Meta-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
Nitrobenzene	48 U	57 U	47 U	44 U	42 U	42 U	37 U	43 U	46 U	39 U
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	60 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
N-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	60 U	70 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
N-Nitrosodiphenylamine (1)	90 U	100 U	100 U	90 U	90 U	80 U	70 U	90 U	90 U	80 U
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)										
p-Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	210 U	240 U	190 U	90 U	70 U	110 U	80 U	90 U	160 U	80 U
Phenacetin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	50 U	60 U	50 U	40 U	40 U	30	40 U	40 U	50 U	40 U
Phenol	50 U	60 U	50 U	40 U	40 U	40 U	40 U	40 U	50 U	40 U
p-Phenylenediamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pronamide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	50 U	60 U	50 U	40 U	60	200	20	40 U	50 U	40 U
Pyridine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Safrole	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sym-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/kg)										
4,4'-DDD	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
4,4'-DDE	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
4,4'-DDT	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
Aldrin	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
alpha-BHC	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
alpha-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
Chlordane	1,580 U	1,900 U	1,550 U	1,460 U	1,380 U	1,400 U	1,230 U	1,430 U	1,540 U	1,310 U
Chlordane, gamma-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
PESTICIDES/PCBs (ug/kg) (cont.)										
Dieldrin	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
Endosulfan I	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
Endosulfan II	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
Endosulfan sulfate	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
Endrin	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
Endrin aldehyde	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
Endrin ketone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
Heptachlor epoxide	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U	327 U
Isodrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	15,800 U	19,000 U	15,500 U	14,600 U	13,800 U	14,000 U	12,300 U	14,300 U	15,400 U	13,100 U
Aroclor-1016	949 U	1,140 U	930 U	874 U	829 U	839 U	739 U	860 U	924 U	784 U
Aroclor-1221	949 U	1,140 U	930 U	874 U	829 U	839 U	739 U	860 U	924 U	784 U
Aroclor-1232	949 U	1,140 U	930 U	874 U	829 U	839 U	739 U	860 U	924 U	784 U
Aroclor-1242	949 U	1,140 U	930 U	874 U	829 U	839 U	739 U	860 U	924 U	784 U
Aroclor-1248	900 U	1,000 U	900 U	900 U	800 U	800 U	700 U	900 U	900 U	800 U
Aroclor-1254	949 U	1,140 U	930 U	874 U	829 U	839 U	739 U	860 U	924 U	784 U
Aroclor-1260	949 U	1,140 U	930 U	874 U	829 U	839 U	739 U	860 U	924 U	784 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
CHLORINATED HERBICIDES (ug/kg)										
2,4,5-T	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OP-PESTICIDES (ug/kg)										
Dimethoate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Disulfoton	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Famphur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-Triethylphosphorothioate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phorate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfotepp	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thionazin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIOXINS (ug/kg)										
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EXPLOSIVES (ug/kg)										
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TNT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
EXPLOSIVES (ug/kg) (cont.)										
2,4-DNT/2,6-DNT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Amino-4,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Amino-2,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Amino-DNTs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX (Cyclonite)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetryl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ASBESTOS										
Asbestos	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS101	06SS102	06SS103	06SS104	06SS105
Sample ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS141	06SS143	06SS145	06SS147	06SS150
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50	0.5-1.5	0.5-1.5
VOLATILES (ug/kg)										
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	130 U	110 U	100 U	270 U	590 U	8 U	10 U	7 U	6 U	10 U
1,1,2,2-Tetrachloroethane	440 U	370 U	360 U	150 U	260 U	8 U	10 U	7 U	6 U	10 U
1,1,2-Trichloroethane	310 U	270 U	260 U	240 U	550 U	8 U	10 U	7 U	6 U	10 U
1,1-Dichloroethane	210 U	170 U	170 U	120 U	260 U	8 U	10 U	7 U	6 U	10 U
1,1-Dichloroethene	340 U	290 U	280 U	260 U	590 U	8 U	10 U	7 U	6 U	10 U
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	3 U	3 U	2 U	3 U	3 U	NA	NA	NA	NA	NA
1,2-Dichloroethane	150 U	130 U	130 U	250 U	480 U	8 U	10 U	7 U	6 U	10 U
1,2-Dichloroethene (Total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	410 U	340 U	330 U	170 U	340 U	8 U	10 U	7 U	6 U	10 U
2-Butanone	1,000 U	850 U	2,000 U	1,700 U	2,600 U	16 UJ	19 UJ	14 UJ	12 UJ	20 UJ
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	16 U	19 U	14 U	12 U	20 U
3-Chloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	600 U	510 U	490 U	230 U	380 U	16 U	19 U	14 U	12 U	20 U
Acetone	NA	NA	NA	NA	NA	16 UJ	180 J	370 J	370 J	560 J
Acetonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	120 U	100 U	100 U	80 U	150 U	8 U	10 U	7 U	6 U	10 U
Bromodichloromethane	140 U	120 U	110 U	160 U	320 U	8 U	10 U	7 U	6 U	10 U
Bromoform	310 U	260 U	260 U	320 U	640 U	8 U	10 U	7 U	6 U	10 U
Bromomethane	300 U	250 U	250 U	310 U	700 U	16 U	19 U	14 U	12 U	20 U
Carbon disulfide	NA	NA	NA	NA	NA	17 U	10 U	7 U	3 J	10 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS101	06SS102	06SS103	06SS104	06SS105
Sample ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS141	06SS143	06SS145	06SS147	06SS150
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50	0.5-1.5	0.5-1.5
VOLATILES (ug/kg) (cont.)										
Carbon tetrachloride	120 U	100 U	100 U	280 U	620 U	8 U	10 U	7 U	6 U	10 U
Chlorobenzene	110 U	90 U	90 U	110 U	240 U	8 U	10 U	7 U	6 U	10 U
Chloroethane	650 U	550 U	530 U	430 U	970 U	16 U	19 U	14 U	12 U	20 U
Chloroform	122 U	103 U	100 U	133 U	296 U	8 U	10 U	7 U	6 U	10 U
Chloromethane	390 U	330 U	320 U	410 U	690 U	16 U	19 U	14 U	12 U	20 U
cis-1,2-Dichloroethylene	NA	NA	NA	NA	NA	8 U	10 U	7 U	6 U	10 U
cis-1,3-Dichloropropene	140 U	120 U	120 U	120 U	230 U	8 U	10 U	7 U	6 U	10 U
Dibromochloromethane	210 U	180 U	170 U	240 U	520 U	8 U	10 U	7 U	6 U	10 U
Dibromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene, (2-chloroethoxy)-	660 U	560 U	550 U	330 U	620 U	NA	NA	NA	NA	NA
Ethene, 1,2-dichloro-, (E)-	320 U	270 U	270 U	260 U	540 U	8 U	10 U	7 U	6 U	10 U
Ethyl methacrylate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	220 U	190 U	180 U	260 U	550 U	8 U	10 U	7 U	6 U	10 U
Iodomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isobutanol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-xylene	NA	NA	NA	NA	NA	8 U	10 U	7 U	6 U	10 U
Methacrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl methacrylate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	290 U	260 U	2,500 U	240 U	8,200 U	24	9 J	65	39 U	40
m-Xylene	60 U	50 U	50 U	220 U	500 U	NA	NA	NA	NA	NA
o-Xylene	NA	NA	NA	NA	NA	8 U	10 U	7 U	6 U	10 U
Pentachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	8 U	10 U	7 U	6 U	10 U
Tetrachloroethene	210 U	180 U	170 U	350 U	830 U	8 U	10 U	7 U	6 U	10 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS101	06SS102	06SS103	06SS104	06SS105
Sample ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS141	06SS143	06SS145	06SS147	06SS150
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50	0.5-1.5	0.5-1.5
VOLATILES (ug/kg) (cont.)										
Toluene	150 U	130 U	130 U	130 U	260 U	8 U	10 U	7	6 U	10 U
trans-1,3-Dichloropropene	460 U	390 U	380 U	340 U	610 U	8 U	10 U	7 U	6 U	10 U
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	200 U	170 U	160 U	250 U	580 U	8 U	10 U	7 U	6 U	10 U
Trichlorofluoromethane	460 U	390 U	380 U	240 U	460 U	NA	NA	NA	NA	NA
Vinyl Acetate	NA	NA	NA	NA	NA	16 U	19 U	14 U	12 U	20 U
Vinyl chloride	300 U	250 U	250 U	280 U	610 U	16 U	19 U	14 U	12 U	20 U
Xylene (total)	60 U	50 U	50 U	90 U	400 U	NA	NA	NA	NA	NA

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS101	06SS102	06SS103	06SS104	06SS105
Sample ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS141	06SS143	06SS145	06SS147	06SS150
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50	0.5-1.5	0.5-1.5
SEMIVOLATILES (ug/kg)										
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
1,2-Dichlorobenzene	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
1,4-Dichlorobenzene	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	40 U	40 U	40 U	40 U	40 U	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	2,000 R	6,300 U	1,900 R	3,800 U	6,800 U
2,4,6-Trichlorophenol	50 U	40 U	40 U	40 U	40 U	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
2,4-Dichlorophenol	40 U	40 U	40 U	40 U	40 U	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
2,4-Dimethylphenol	40 U	40 U	40 U	40 U	40 U	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
2,4-Dinitrophenol	170 U	120 U	120 U	120 U	130 U	2,000 R	6,300 U	1,900 R	3,800 U	6,800 U
2,4-Dinitrotoluene	50 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	70 U	50 U	50 U	50 U	50 U	NA	NA	NA	NA	NA
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
2-Chlorophenol	40 U	40 U	40 U	40 U	40 U	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
2-Methylnaphthalene	NA	NA	NA	NA	NA	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
2-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	5,000 U	6,300 U	4,800 U	3,800 U	6,800 U
2-Nitrophenol	50 U	40 U	40 U	40 U	40 U	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS101	06SS102	06SS103	06SS104	06SS105
Sample ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS141	06SS143	06SS145	06SS147	06SS150
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50	0.5-1.5	0.5-1.5
SEMIVOLATILES (ug/kg) (cont.)										
2-Picoline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-sec-butyl-4,6-dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	100 U	70 U	70 U	70 U	80 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	5,000 U	6,300 U	4,800 U	3,800 U	6,800 U
4,6-Dinitro-2-methylphenol	110 U	80 U	80 U	80 U	90 U	2,000 R	6,300 U	1,900 R	3,800 U	6,800 U
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	60 U	40 U	40 U	40 U	50 U	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
4-Chloro-3-methylphenol	40 U	40 U	40 U	40 U	40 U	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
4-Chloroaniline	NA	NA	NA	NA	NA	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
4-Chlorophenyl phenyl ether	40 U	40 U	40 U	40 U	40 U	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
4-Nitroaniline	NA	NA	NA	NA	NA	5,000 U	6,300 U	4,800 U	3,800 U	6,800 U
4-Nitrophenol	90 U	70 U	70 U	70 U	70 U	2,000 R	6,300 U	1,900 R	3,800 U	6,800 U
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Acenaphthylene	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha, alpha-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Aramite	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	40 U	40 U	40 U	30	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS101	06SS102	06SS103	06SS104	06SS105
Sample ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS141	06SS143	06SS145	06SS147	06SS150
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50	0.5-1.5	0.5-1.5
SEMIVOLATILES (ug/kg) (cont.)										
Benzo(a)pyrene	50 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	180 J	1,500 U	2,700 U
Benzo(b)fluoranthene	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	180 J	1,500 U	2,700 U
Benzo(g,h,i)perylene	90 U	70 U	70 U	70 U	70 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Benzo(k)fluoranthene	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	260 J	1,500 U	2,700 U
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Bis(2-chloroethyl)ether	40 U	40 U	40 U	40 U	40 U	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
Bis(2-ethylhexyl)phthalate	40 U	40 U	40 U	300	4,000	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Butylbenzylphthalate	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Carbazole	NA	NA	NA	NA	NA	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	150 J	1,500 U	2,700 U
Diallate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	90 U	70 U	60 U	60 U	70 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Dibenzofuran	NA	NA	NA	NA	NA	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Dichlorobenzenes	100 U	80 U	80 U	160 U	370 U	NA	NA	NA	NA	NA
Diethylphthalate	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Dimethylphthalate	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Di-n-butylphthalate	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Di-n-octylphthalate	40 U	40 U	40 U	100	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Diphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	40 U	40 U	40 U	30	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Fluorene	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Hexachlorobenzene	60 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS101	06SS102	06SS103	06SS104	06SS105
Sample ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS141	06SS143	06SS145	06SS147	06SS150
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50	0.5-1.5	0.5-1.5
SEMIVOLATILES (ug/kg) (cont.)										
Hexachlorobutadiene	80 U	60 U	60 U	60 U	60 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Hexachlorocyclopentadiene	100 U	70 U	70 U	70 U	80 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Hexachloroethane	60 U	40 U	40 U	40 U	50 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Hexachlorophene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	90 U	60 U	60 U	60 U	70 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Isophorone	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Isosafrole	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Meta-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	40 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Nitrobenzene	44 U	39 U	35 U	43 U	39 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	40 U	40 U	40 U	40 U	40 U	NA	NA	NA	NA	NA
N-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	40 U	40 U	40 U	40 U	40 U	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
N-Nitrosodiphenylamine (1)	90 U	80 U	70 U	90 U	90 U	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Cresol	NA	NA	NA	NA	NA	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
o-Toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS101	06SS102	06SS103	06SS104	06SS105
Sample ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS141	06SS143	06SS145	06SS147	06SS150
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50	0.5-1.5	0.5-1.5
SEMIVOLATILES (ug/kg) (cont.)										
p-Cresol	NA	NA	NA	NA	NA	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	110 U	80 U	80 U	80 U	90 U	2,000 R	6,300 U	1,900 R	3,800 U	6,800 U
Phenacetin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	50 U	40 U	40 U	40 U	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Phenol	40 U	40 U	40 U	40 U	40 U	2,000 R	2,500 U	1,900 R	1,500 U	2,700 U
p-Phenylenediamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pronamide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	40 U	40 U	40 U	30	40 U	2,000 U	2,500 U	1,900 U	1,500 U	2,700 U
Pyridine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Safrole	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sym-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/kg)					NA	NA	NA	NA	NA	NA
4,4'-DDD	364 U	326 U	294 U	354 U	324 U	5.1	0.75 NJ	4.5 UJ	4.2 U	4.7 UJ
4,4'-DDE	364 U	326 U	294 U	354 U	324 U	3 NJ	4.3 U	5.3 J	4.2 U	4.7 U
4,4'-DDT	364 U	326 U	294 U	354 U	324 U	1 NJ	4.3 U	1.1 J	4.2 UJ	0.74 J
Aldrin	364 U	326 U	294 U	354 U	324 U	2.5 U	2.2 U	2.3 U	2.2 U	2.4 U
alpha-BHC	364 U	326 U	294 U	354 U	324 U	0.085 NJ	2.2 U	2.3 UJ	2.2 U	2.4 U
alpha-Chlordane	NA	NA	NA	NA	NA	2.5 UJ	2.2 U	2.3 U	2.2 UJ	2.4 UJ
beta-BHC	364 U	326 U	294 U	354 U	324 U	0.8 NJ	2.2 U	2.3 U	2.2 U	2.4 U
Chlordane	1,450 U	1,310 U	1,180 U	1,420 U	1,290 U	NA	NA	NA	NA	NA
Chlordane, gamma-	NA	NA	NA	NA	NA	2.5 UJ	2.2 U	2.3 U	2.2 U	2.4 UJ
delta-BHC	364 U	326 U	294 U	354 U	324 U	0.39 NJ	2.2 U	2.3 U	2.2 U	2.4 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS101	06SS102	06SS103	06SS104	06SS105
Sample ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS141	06SS143	06SS145	06SS147	06SS150
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50	0.5-1.5	0.5-1.5
PESTICIDES/PCBs (ug/kg) (cont.)										
Dieldrin	364 U	326 U	294 U	354 U	324 U	4.9 U	2 J	4.5 UJ	4.2 U	4.7 U
Endosulfan I	364 U	326 U	294 U	354 U	324 U	2.5 U	2.8 NJ	2.3 UJ	2.2 U	2.4 U
Endosulfan II	364 U	326 U	294 U	354 U	324 U	4.9 U	4.3 U	0.15 NJ	4.2 U	4.7 U
Endosulfan sulfate	364 U	326 U	294 U	354 U	324 U	1 NJ	4.3 U	4.5 U	4.2 U	4.7 U
Endrin	364 U	326 U	294 U	354 U	324 U	4.9 UJ	4.3 U	0.15 NJ	4.2 U	4.7 U
Endrin aldehyde	364 U	326 U	294 U	354 U	324 U	4.9 U	4.3 U	0.71 J	4.2 U	4.7 U
Endrin ketone	NA	NA	NA	NA	NA	4.9 UJ	4.3 U	0.25 NJ	4.2 U	4.7 U
gamma-BHC (Lindane)	364 U	326 U	294 U	354 U	324 U	2.5 U	2.2 U	1.2 NJ	2.2 U	2.4 U
gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	364 U	326 U	294 U	354 U	324 U	0.36 J	2.2 U	0.17 J	0.11 J	2.4 UJ
Heptachlor epoxide	364 U	326 U	294 U	354 U	324 U	2.5 UJ	0.46 NJ	2.3 UJ	2.2 U	2.4 U
Isodrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	25 U	22 UJ	24 UJ	22 U	24 U
Toxaphene	14,500 U	13,000 U	11,800 U	14,200 U	12,900 U	250 U	220 U	230 U	220 U	240 U
Aroclor-1016	873 U	783 U	706 U	850 U	777 U	49 U	43 U	45 U	42 U	47 U
Aroclor-1221	873 U	783 U	706 U	850 U	777 U	100 U	86 U	92 U	90 U	94 U
Aroclor-1232	873 U	783 U	706 U	850 U	777 U	49 U	43 U	45 U	42 U	47 U
Aroclor-1242	873 U	783 U	706 U	850 U	777 U	49 U	43 U	45 U	42 U	47 U
Aroclor-1248	900 U	800 U	700 U	800 U	800 U	49 U	43 U	45 U	42 U	47 U
Aroclor-1254	873 U	783 U	706 U	850 U	777 U	49 U	43 U	45 U	42 U	47 U
Aroclor-1260	873 U	783 U	706 U	850 U	777 U	49 U	43 U	45 U	42 U	47 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS101	06SS102	06SS103	06SS104	06SS105
Sample ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS141	06SS143	06SS145	06SS147	06SS150
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50	0.5-1.5	0.5-1.5
CHLORINATED HERBICIDES (ug/kg)										
2,4,5-T	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OP-PESTICIDES (ug/kg)										
Dimethoate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Disulfoton	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Famphur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-Triethylphosphorothioate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phorate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfotepp	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thionazin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIOXINS (ug/kg)										
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EXPLOSIVES (ug/kg)										
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TNT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS101	06SS102	06SS103	06SS104	06SS105
Sample ID	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS141	06SS143	06SS145	06SS147	06SS150
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50	0.5-1.5	0.5-1.5
EXPLOSIVES (ug/kg) (cont.)										
2,4-DNT/2,6-DNT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Amino-4,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Amino-2,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Amino-DNTs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX (Cyclonite)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetryl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ASBESTOS										
Asbestos	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS106	06SS108	2MW01	2MW02	2MW03	2SB01	2SB02	2SB02	2SB03	2SB04	2SB05
Sample ID	06SS153	06SS155D	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00	2SB02-00D	2SB03-00	2SB04-00	2SB05-00
Sample Date	11/17/92	33925	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	0.5-1.5	0.5-1.67	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg)											
1,1,1,2-Tetrachloroethane	NA	NA	13 U	12 U	12 U	12 U	12 U	12 U	15 U	12 U	12 UJ
1,1,1-Trichloroethane	7 U	NA	9	6 U	6 U	6 U	12 J	6 U	8 U	6 U	6 UJ
1,1,2,2-Tetrachloroethane	7 U	NA	6 U	6 U	6 U	6 U	6 UJ	6 U	8 U	6 U	6 UJ
1,1,2-Trichloroethane	7 U	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 UJ
1,1-Dichloroethane	7 U	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 U
1,1-Dichloroethene	7 U	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 U
1,2,3-Trichloropropane	NA	NA	13 U	12 U	12 U	12 U	12 UJ	12 U	15 U	12 U	12 UJ
1,2-Dibromo-3-chloropropane	NA	NA	25 U	23 U	24 U	25 U	24 UJ	24 U	30 U	24 U	23 UJ
1,2-Dibromoethane	NA	NA	25 U	23 U	24 U	25 U	24 U	24 U	30 U	24 U	23 UJ
1,2-Dichloroethane	7 U	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 U
1,2-Dichloroethene (Total)	NA	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 U
1,2-Dichloropropane	7 U	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 UJ
2-Butanone	13 UJ	NA	13 UJ	12 U	12 U	12 U	12 UJ	12 U	15 U	12 U	12 UJ
2-Chloro-1,3-butadiene	NA	NA	130 U	120 U	120 U	120 U	120 U	120 U	150 U	120 U	120 U
2-Hexanone	13 U	NA	13 UJ	12 UJ	12 U	12 UJ	12 UJ	12 U	15 U	12 U	12 UJ
3-Chloropropene	NA	NA	25 U	23 U	24 UJ	25 U	24 U	24 UJ	30 UJ	24 UJ	23 UJ
4-Methyl-2-pentanone	13 U	NA	13 U	12 UJ	12 U	12 UJ	12 UJ	12 U	15 U	12 U	12 UJ
Acetone	220 J	NA	13 U	12 UJ	12 U	12 UJ	12 U	12 U	15 U	12 U	12 U
Acetonitrile	NA	NA	130 U	120 U	120 U	120 U	120 U	120 U	150 U	120 U	120 U
Acrolein	NA	NA	630 UJ	580 UJ	590 UJ	620 UJ	610 UJ	610 UJ	760 UJ	600 UJ	580 UJ
Acrylonitrile	NA	NA	130 U	120 UJ	120 U	120 UJ	120 U	120 U	150 U	120 U	120 U
Benzene	7 U	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 UJ
Bromodichloromethane	7 U	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 UJ
Bromoform	7 U	NA	6 U	6 U	6 UJ	6 U	6 UJ	6 UJ	8 UJ	6 UJ	6 UJ
Bromomethane	13 U	NA	13 U	12 U	12 U	12 U	12 U	12 U	15 U	12 U	12 U
Carbon disulfide	7 U	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS106	06SS108	2MW01	2MW02	2MW03	2SB01	2SB02	2SB02	2SB03	2SB04	2SB05
Sample ID	06SS153	06SS155D	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00	2SB02-00D	2SB03-00	2SB04-00	2SB05-00
Sample Date	11/17/92	33925	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	0.5-1.5	0.5-1.67	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg) (cont.)											
Carbon tetrachloride	7 U	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 UJ
Chlorobenzene	7 U	NA	6 U	6 U	6 U	6 U	6 UJ	6 U	8 U	6 U	6 UJ
Chloroethane	13 U	NA	13 UJ	12 UJ	12 U	12 UJ	12 UJ	12 U	15 U	12 U	12 U
Chloroform	7 U	NA	6 U	6 UJ	6 U	6 UJ	6 U	6 U	8 U	6 U	6 U
Chloromethane	13 U	NA	13 U	12 UJ	12 UJ	12 UJ	12 U	12 UJ	15 UJ	12 UJ	12 UJ
cis-1,2-Dichloroethylene	7 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	7 U	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 UJ
Dibromochloromethane	7 U	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 UJ
Dibromomethane	NA	NA	13 U	12 U	12 U	12 U	12 U	12 U	15 U	12 U	12 UJ
Dichlorodifluoromethane	NA	NA	25 UJ	23 UJ	24 U	25 UJ	24 UJ	24 U	30 U	24 U	23 U
Ethene, (2-chloroethoxy)-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene, 1,2-dichloro-, (E)-	7 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	NA	NA	25 U	23 UJ	24 U	25 UJ	24 UJ	24 U	30 U	24 U	23 UJ
Ethylbenzene	7 U	NA	6 U	6 U	6 U	6 U	6 UJ	6 U	8 U	6 U	6 UJ
Iodomethane	NA	NA	13 U	12 UJ	12 UJ	12 UJ	12 U	12 UJ	15 UJ	12 UJ	12 UJ
Isobutanol	NA	NA	2,500 R	2,300 R	2,400 R	2,500 R	2,400 R	2,400 R	3,000 R	2,400 R	2,300 R
m/p-xylene	7 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methacrylonitrile	NA	NA	25 U	23 U	24 U	25 U	24 U	24 U	30 U	24 U	23 U
Methyl methacrylate	NA	NA	25 U	23 U	24 U	25 U	24 U	24 U	30 U	24 U	23 UJ
Methylene chloride	32	NA	6 U	6 U	6 UJ	6 U	6 U	6 UJ	8 UJ	6 UJ	6 UJ
m-Xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	7 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	25 U	23 U	24 U	25 U	24 UJ	24 U	30 U	24 U	23 UJ
Propionitrile	NA	NA	63 U	58 R	59 U	62 R	61 U	61 U	76 U	60 U	58 U
Styrene	7 U	NA	6 U	6 U	6 U	6 U	6 UJ	6 U	8 U	6 U	6 UJ
Tetrachloroethene	7 U	NA	6 U	6 U	6 UJ	6 U	6 UJ	6 UJ	8 UJ	6 UJ	6 UJ

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS106	06SS108	2MW01	2MW02	2MW03	2SB01	2SB02	2SB02	2SB03	2SB04	2SB05
Sample ID	06SS153	06SS155D	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00	2SB02-00D	2SB03-00	2SB04-00	2SB05-00
Sample Date	11/17/92	33925	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	0.5-1.5	0.5-1.67	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg) (cont.)											
Toluene	7 U	NA	6 U	6 U	6 U	6 U	6 UJ	6 U	8 U	6 U	6 UJ
trans-1,3-Dichloropropene	7 U	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 UJ
trans-1,4-Dichloro-2-butene	NA	NA	25 U	23 U	24 U	25 U	24 UJ	24 U	30 U	24 U	23 UJ
Trichloroethene	7 U	NA	6 U	6 U	6 U	6 U	6 U	6 U	8 U	6 U	6 UJ
Trichlorofluoromethane	NA	NA	13 UJ	12 UJ	12 UJ	12 UJ	12 UJ	12 UJ	15 UJ	12 UJ	12 UJ
Vinyl Acetate	13 U	NA	13 U	12 U	12 U	12 U	12 U	12 U	15 U	12 U	12 UJ
Vinyl chloride	13 U	NA	13 U	12 U	12 UJ	12 U	12 U	12 UJ	15 UJ	12 UJ	12 UJ
Xylene (total)	NA	NA	6 U	6 U	6 U	6 U	6 UJ	6 U	8 U	6 U	6 UJ

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS106	06SS108	2MW01	2MW02	2MW03	2SB01	2SB02	2SB02	2SB03	2SB04	2SB05
Sample ID	06SS153	06SS155D	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00	2SB02-00D	2SB03-00	2SB04-00	2SB05-00
Sample Date	11/17/92	33925	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	0.5-1.5	0.5-1.67	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg)											
1,2,4,5-Tetrachlorobenzene	NA	NA	420 UJ	390 UJ	390 UJ	410 UJ	410 UJ	400 UJ	490 UJ	400 UJ	390 UJ
1,2,4-Trichlorobenzene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
1,2-Dichlorobenzene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
1,2-Diphenylhydrazine	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
1,3-Dichlorobenzene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
1,4-Dichlorobenzene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
1,4-Dioxane	NA	NA	830 U	770 U	780 U	810 U	820 U	800 U	990 U	800 U	780 U
1,4-Naphthoquinone	NA	NA	2,100 UJ	1,900 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,000 UJ	2,500 UJ	2,000 UJ	1,900 UJ
1-Naphthylamine	NA	NA	830 U	770 U	780 U	810 U	820 U	800 U	990 U	800 U	780 U
2,2'-Oxybis(1-Chloropropane)	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
2,3,4,6-Tetrachlorophenol	NA	NA	420 UJ	390 UJ	390 UJ	410 UJ	410 UJ	400 UJ	490 UJ	400 UJ	390 UJ
2,4,5-Trichlorophenol	4,300 U	NA	2,100 U	1,900 U	1,900 U	2,000 U	2,000 U	2,000 U	2,500 U	2,000 U	1,900 U
2,4,6-Trichlorophenol	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
2,4-Dichlorophenol	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
2,4-Dimethylphenol	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
2,4-Dinitrophenol	4,300 U	NA	2,100 UJ	1,900 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,000 UJ	2,500 UJ	2,000 UJ	1,900 UJ
2,4-Dinitrotoluene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
2,6-Dichlorophenol	NA	NA	420 UJ	390 UJ	390 UJ	410 UJ	410 UJ	400 UJ	490 UJ	400 UJ	390 UJ
2,6-Dinitrotoluene	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
2-Acetylaminofluorene	NA	NA	830 UJ	770 UJ	780 UJ	810 UJ	820 UJ	800 UJ	990 UJ	800 UJ	780 UJ
2-Chloronaphthalene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
2-Chlorophenol	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
2-Methylnaphthalene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
2-Naphthylamine	NA	NA	1,000 UJ	970 UJ	970 UJ	1,000 UJ	1,000 UJ	1,000 UJ	1,200 UJ	1,000 UJ	970 UJ
2-Nitroaniline	4,300 U	NA	2,100 U	1,900 U	1,900 U	2,000 U	2,000 U	2,000 U	2,500 U	2,000 U	1,900 U
2-Nitrophenol	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS106	06SS108	2MW01	2MW02	2MW03	2SB01	2SB02	2SB02	2SB03	2SB04	2SB05
Sample ID	06SS153	06SS155D	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00	2SB02-00D	2SB03-00	2SB04-00	2SB05-00
Sample Date	11/17/92	33925	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	0.5-1.5	0.5-1.67	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)											
2-Picoline	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
2-sec-butyl-4,6-dinitrophenol	NA	NA	830 UJ	770 UJ	780 UJ	810 UJ	820 UJ	800 UJ	990 UJ	800 UJ	780 UJ
3,3'-Dichlorobenzidine	1,700 U	NA	830 U	770 U	780 U	810 U	820 U	800 U	990 U	800 U	780 U
3,3'-Dimethylbenzidine	NA	NA	2,100 UJ	1,900 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,000 UJ	2,500 UJ	2,000 UJ	1,900 UJ
3-Methylcholanthrene	NA	NA	420 UJ	390 UJ	390 UJ	410 UJ	410 UJ	400 UJ	490 UJ	400 UJ	390 UJ
3-Nitroaniline	4,300 U	NA	2,100 UJ	1,900 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,000 UJ	2,500 UJ	2,000 UJ	1,900 UJ
4,6-Dinitro-2-methylphenol	4,300 U	NA	2,100 UJ	1,900 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,000 UJ	2,500 UJ	2,000 UJ	1,900 UJ
4-Aminobiphenyl	NA	NA	830 U	770 U	780 U	810 U	820 U	800 U	990 U	800 U	780 U
4-Bromophenyl phenyl ether	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
4-Chloro-3-methylphenol	1,700 U	NA	830 U	770 U	780 U	810 U	820 U	800 U	990 U	800 U	780 U
4-Chloroaniline	1,700 U	NA	830 UJ	770 UJ	780 UJ	810 UJ	820 UJ	800 UJ	990 UJ	800 UJ	780 UJ
4-Chlorophenyl phenyl ether	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
4-Nitroaniline	4,300 U	NA	2,100 UJ	1,900 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,000 UJ	2,500 UJ	2,000 UJ	1,900 UJ
4-Nitrophenol	4,300 U	NA	2,100 UJ	1,900 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,000 UJ	2,500 UJ	2,000 UJ	1,900 UJ
4-Nitroquinoline-1-oxide	NA	NA	2,100 R	1,900 R	1,900 R	2,000 R	2,000 R	2,000 R	2,500 R	2,000 R	1,900 R
5-Nitro-o-toluidine	NA	NA	830 U	770 U	780 U	810 U	820 U	800 U	990 U	800 U	780 U
7,12-Dimethylbenz(a)anthracene	NA	NA	830 UJ	770 UJ	780 UJ	810 UJ	820 UJ	800 UJ	990 UJ	800 UJ	780 UJ
Acenaphthene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Acenaphthylene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Acetophenone	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
alpha, alpha-Dimethylphenethylamine	NA	NA	2,100 U	1,900 U	1,900 U	2,000 U	2,000 U	2,000 U	2,500 U	2,000 U	1,900 U
Aniline	NA	NA	2,100 UJ	1,900 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,000 UJ	2,500 UJ	2,000 UJ	1,900 UJ
Anthracene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Aramite	NA	NA	830 U	770 U	780 U	810 U	820 U	800 U	990 U	800 U	780 U
Benzidine	NA	NA	4,200 UJ	3,900 UJ	3,900 UJ	4,100 UJ	4,100 UJ	4,000 UJ	4,900 UJ	4,000 UJ	3,900 UJ
Benzo(a)anthracene	1,700 U	NA	420 U	41 J	390 U	410 U	410 U	400 U	210 J	160 J	69 J

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS106	06SS108	2MW01	2MW02	2MW03	2SB01	2SB02	2SB02	2SB03	2SB04	2SB05
Sample ID	06SS153	06SS155D	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00	2SB02-00D	2SB03-00	2SB04-00	2SB05-00
Sample Date	11/17/92	33925	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	0.5-1.5	0.5-1.67	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)											
Benzo(a)pyrene	1,700 U	NA	420 U	52 J	390 U	410 U	410 U	43 J	340 J	150 J	79 J
Benzo(b)fluoranthene	1,700 U	NA	420 U	150 J	390 U	410 U	72 J	83 J	510	280 J	130 J
Benzo(g,h,i)perylene	1,700 U	NA	420 U	78 J	390 U	410 U	410 U	400 U	300 J	82 J	72 J
Benzo(k)fluoranthene	1,700 U	NA	420 U	58 J	390 U	410 U	410 U	400 U	220 J	110 J	53 J
Benzoic acid	NA	NA	2,100 UJ	1,900 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,000 UJ	2,500 UJ	2,000 UJ	1,900 UJ
Benzyl alcohol	NA	NA	420 UJ	390 UJ	390 UJ	410 UJ	410 UJ	400 UJ	490 UJ	400 UJ	390 UJ
Bis(2-chloroethoxy)methane	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Bis(2-chloroethyl)ether	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Bis(2-ethylhexyl)phthalate	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Butylbenzylphthalate	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Carbazole	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Chlorobenzilate	NA	NA	420 UJ	390 UJ	390 UJ	410 UJ	410 UJ	400 UJ	490 UJ	400 UJ	390 UJ
Chrysene	1,700 U	NA	420 U	71 J	390 U	410 U	43 J	57 J	280 J	240 J	81 J
Diallate	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Dibenzo(a,h)anthracene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	80 J	41 J	390 U
Dibenzofuran	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Dichlorobenzenes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Dimethylphthalate	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Di-n-butylphthalate	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Di-n-octylphthalate	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Diphenylamine	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Ethyl methanesulfonate	NA	NA	420 UJ	390 UJ	390 UJ	410 UJ	410 UJ	400 UJ	490 UJ	400 UJ	390 UJ
Fluoranthene	1,700 U	NA	420 U	58 J	390 U	410 U	50 J	61 J	220 J	420	100 J
Fluorene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Hexachlorobenzene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS106	06SS108	2MW01	2MW02	2MW03	2SB01	2SB02	2SB02	2SB03	2SB04	2SB05
Sample ID	06SS153	06SS155D	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00	2SB02-00D	2SB03-00	2SB04-00	2SB05-00
Sample Date	11/17/92	33925	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	0.5-1.5	0.5-1.67	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)											
Hexachlorobutadiene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Hexachlorocyclopentadiene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Hexachloroethane	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Hexachlorophene	NA	NA	4,200 R	3,900 R	3,900 R	4,100 R	4,100 R	4,000 R	4,900 R	4,000 R	3,900 R
Hexachloropropene	NA	NA	2,100 UJ	1,900 UJ	1,900 UJ	2,000 UJ	2,000 UJ	2,000 UJ	2,500 UJ	2,000 UJ	1,900 UJ
Indeno(1,2,3-cd)pyrene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	44 J	290 J	110 J	69 J
Isophorone	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Isosafrole	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
m&p Cresol	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
m-Dinitrobenzene	NA	NA	120 U	120 U	120 U	120 U	120 U	800 UJ	120 U	120 U	120 U
Meta-Dinitrobenzene	NA	NA	830 UJ	770 UJ	780 UJ	810 UJ	820 UJ	800 UJ	990 UJ	800 UJ	780 UJ
Methapyrilene	NA	NA	1,000 UJ	970 UJ	970 UJ	1,000 UJ	1,000 UJ	1,000 UJ	1,200 UJ	1,000 UJ	970 UJ
Methyl methanesulfonate	NA	NA	420 UJ	390 UJ	390 UJ	410 UJ	410 UJ	400 UJ	490 UJ	400 UJ	390 UJ
Naphthalene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Nitrobenzene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
N-Nitrosodiethylamine	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
N-Nitrosodimethylamine	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
N-Nitroso-di-n-butylamine	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
N-Nitroso-di-n-propylamine	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
N-Nitrosodiphenylamine (1)	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
N-Nitrosomethylethylamine	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
N-Nitrosomorpholine	NA	NA	830 U	770 U	780 U	810 U	820 U	800 U	990 U	800 U	780 U
N-Nitrosopiperidine	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
N-Nitrosopyrrolidine	NA	NA	2,100 U	1,900 U	1,900 U	2,000 U	2,000 U	2,000 U	2,500 U	2,000 U	1,900 U
o-Cresol	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
o-Toluidine	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS106	06SS108	2MW01	2MW02	2MW03	2SB01	2SB02	2SB02	2SB03	2SB04	2SB05
Sample ID	06SS153	06SS155D	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00	2SB02-00D	2SB03-00	2SB04-00	2SB05-00
Sample Date	11/17/92	33925	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	0.5-1.5	0.5-1.67	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)											
p-Cresol	1,700 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	830 U	770 U	780 U	810 U	820 U	800 U	990 U	800 U	780 U
Pentachlorobenzene	NA	NA	420 UJ	390 UJ	390 UJ	410 UJ	410 UJ	400 UJ	490 UJ	400 UJ	390 UJ
Pentachloronitrobenzene	NA	NA	420 R	390 R	390 R	410 R	410 R	400 R	490 R	400 R	390 R
Pentachlorophenol	4,300 U	NA	2,100 U	1,900 U	1,900 U	2,000 U	2,000 U	2,000 U	2,500 U	2,000 U	1,900 U
Phenacetin	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Phenanthrene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	240 J	390 U
Phenol	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
p-Phenylenediamine	NA	NA	830 R	770 R	780 R	810 R	820 R	800 R	990 R	800 R	780 R
Pronamide	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
Pyrene	1,700 U	NA	420 U	390 U	390 U	410 U	410 U	42 J	150 J	220 J	67 J
Pyridine	NA	NA	830 UJ	770 UJ	780 UJ	810 UJ	820 UJ	800 UJ	990 UJ	800 UJ	780 UJ
Safrole	NA	NA	420 U	390 U	390 U	410 U	410 U	400 U	490 U	400 U	390 U
sym-Trinitrobenzene	NA	NA	4,200 U	3,900 U	3,900 U	4,100 U	4,100 U	4,000 U	4,900 U	4,000 U	3,900 U
PESTICIDES/PCBs (ug/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	4 U	4.2 U	10 U	9.3 U	9.2 U	9.8 UJ	9.8 UJ	9.7 UJ	59 UJ	9.6 U	46 U
4,4'-DDE	4 U	4.2 U	12	9.3 U	9.2 U	9.8 U	9.8 U	9.7 U	8.9 J	3.2	8.1
4,4'-DDT	4 U	4.2 U	12	9.3 U	9.2 U	9.8 U	9.8 U	9.7 U	5.9 J	2.4	3.9 J
Aldrin	0.27 J	2.2 U	5 U	4.6 U	4.6 U	4.9 U	4.9 U	4.8 U	30 U	4.8 U	23 U
alpha-BHC	2.1 U	2.2 U	5 U	4.6 U	4.6 U	4.9 U	4.9 U	4.8 U	30 U	4.8 U	23 U
alpha-Chlordane	2.1 U	2.2 U	50 U	46 U	46 U	49 U	49 U	48 U	300 U	48 U	230 U
beta-BHC	2.1 U	2.2 U	5 U	4.6 U	4.6 U	4.9 U	4.9 U	4.8 U	30 U	4.8 U	23 U
Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane, gamma-	2.1 U	2.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC	2.1 U	2.2 U	5 U	4.6 U	4.6 U	4.9 U	4.9 U	4.8 U	30 U	4.8 U	23 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS106	06SS108	2MW01	2MW02	2MW03	2SB01	2SB02	2SB02	2SB03	2SB04	2SB05
Sample ID	06SS153	06SS155D	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00	2SB02-00D	2SB03-00	2SB04-00	2SB05-00
Sample Date	11/17/92	33925	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	0.5-1.5	0.5-1.67	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
PESTICIDES/PCBs (ug/kg) (cont.)											
Dieldrin	4 U	4.2 U	10 U	9.3 U	9.2 U	9.8 U	9.8 U	9.7 U	59 U	9.6 U	46 U
Endosulfan I	2.1 U	2.2 U	5 U	4.6 U	4.6 U	4.9 U	4.9 U	4.8 U	30 U	4.8 U	23 U
Endosulfan II	4 U	4.2 U	10 U	9.3 U	9.2 U	9.8 U	9.8 U	9.7 U	59 U	9.6 U	46 U
Endosulfan sulfate	4 U	4.2 U	10 U	9.3 U	9.2 U	9.8 U	9.8 U	9.7 U	59 U	9.6 U	46 U
Endrin	4 U	4.2 U	10 U	9.3 U	9.2 U	9.8 U	9.8 U	9.7 U	59 U	9.6 U	46 U
Endrin aldehyde	4 U	4.2 U	10 U	9.3 U	9.2 U	9.8 U	9.8 U	9.7 U	59 U	9.6 U	46 U
Endrin ketone	4 U	4.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	2.1 U	2.2 U	5 U	4.6 U	4.6 U	4.9 U	4.9 U	4.8 U	30 U	4.8 U	23 U
gamma-Chlordane	NA	NA	50 U	46 U	46 U	49 U	49 U	48 U	300 U	48 U	230 U
Heptachlor	2.1 UJ	2.2 UJ	5 U	4.6 U	4.6 U	4.9 U	4.9 U	4.8 U	30 U	4.8 U	23 U
Heptachlor epoxide	2.1 U	2.2 U	5 U	4.6 U	4.6 U	4.9 U	4.9 U	4.8 U	30 U	4.8 U	23 U
Isodrin	NA	NA	5 U	4.6 U	4.6 U	4.9 U	4.9 U	4.8 U	30 U	4.8 U	23 U
Kepone	NA	NA	10 UJ	9.3 UJ	9.2 UJ	9.8 UJ	9.8 UJ	9.7 UJ	59 UJ	9.6 UJ	46 UJ
Methoxychlor	21 U	22 U	50 U	46 U	46 U	49 U	49 U	48 U	300 U	48 U	230 U
Toxaphene	210 U	220 U	100 U	93 U	92 U	98 U	98 U	97 U	590 U	96 U	460 U
Aroclor-1016	40 U	42 U	50 U	46 U	46 U	49 U	49 U	48 U	300 U	48 U	230 U
Aroclor-1221	81 U	85 U	50 U	46 U	46 U	49 U	49 U	48 U	300 U	48 U	230 U
Aroclor-1232	40 U	42 U	50 U	46 U	46 U	49 U	49 U	48 U	300 U	48 U	230 U
Aroclor-1242	40 U	42 U	50 U	46 U	46 U	49 U	49 U	48 U	300 U	48 U	230 U
Aroclor-1248	40 U	42 U	50 U	46 U	46 U	49 U	49 U	48 U	300 U	48 U	230 U
Aroclor-1254	40 U	42 U	100 U	93 U	92 U	98 U	98 U	97 U	590 U	96 U	460 U
Aroclor-1260	40 U	42 U	100 U	93 U	92 U	98 U	98 U	97 U	590 U	96 U	460 U

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS106	06SS108	2MW01	2MW02	2MW03	2SB01	2SB02	2SB02	2SB03	2SB04	2SB05
Sample ID	06SS153	06SS155D	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00	2SB02-00D	2SB03-00	2SB04-00	2SB05-00
Sample Date	11/17/92	33925	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	0.5-1.5	0.5-1.67	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
CHLORINATED HERBICIDES (ug/kg)											
2,4,5-T	NA	NA	42 U	38 U	39 U	41 U	41 U	40 U	50 U	39 U	38 U
2,4,5-TP (Silvex)	NA	NA	42 U	38 U	39 U	41 U	41 U	40 U	50 U	39 U	38 U
2,4-D	NA	NA	420 U	380 U	390 U	410 U	410 U	400 U	500 U	390 U	380 U
OP-PESTICIDES (ug/kg)											
Dimethoate	NA	NA	82 U	78 U	78 U	80 U	82 U	79 U	98 U	80 U	76 U
Disulfoton	NA	NA	82 U	78 U	78 U	80 U	82 U	79 U	98 U	80 U	76 U
Famphur	NA	NA	82 U	78 U	78 U	80 U	82 U	79 U	98 U	80 U	76 U
Methyl parathion	NA	NA	82 U	78 U	78 U	80 U	82 U	79 U	98 U	80 U	76 U
O,O,O-Triethylphosphorothioate	NA	NA	82 U	78 U	78 U	80 U	82 U	79 U	98 U	80 U	76 U
Parathion	NA	NA	82 U	78 U	78 U	80 U	82 U	79 U	98 U	80 U	76 U
Phorate	NA	NA	82 U	78 U	78 U	80 U	82 U	79 U	98 U	80 U	76 U
Sulfotepp	NA	NA	82 U	78 U	78 U	80 U	82 U	79 U	98 U	80 U	76 U
Thionazin	NA	NA	82 U	78 U	78 U	80 U	82 U	79 U	98 U	80 U	76 U
DIOXINS (ug/kg)											
2,3,7,8-TCDD	NA	NA	0.07 U	0.05 U	0.04 U	0.07 U	0.05 U	0.04 U	0.04 U	0.05 U	0.05 U
Total HxCDD	NA	NA	0.14 U	0.12 U	0.29 U	0.33 U	0.27 U	0.38 U	0.37 J	0.16 U	0.22 U
Total HxCDF	NA	NA	0.17 U	0.14 U	0.12 U	0.12 U	0.2 U	0.12 U	0.17 J	0.1 U	0.53 U
Total PeCDD	NA	NA	0.11 U	0.17 U	0.09 U	0.22 U	0.16 U	0.18 U	0.04 U	0.13 U	0.26 U
Total PeCDF	NA	NA	0.12 U	0.1 U	0.13 U	0.23 U	0.09 U	0.12 U	0.04 U	0.07 U	0.11 U
Total TCDD	NA	NA	0.07 U	0.05 U	0.04 U	0.07 U	0.05 U	0.04 U	0.04 U	0.05 U	0.05 U
Total TCDF	NA	NA	0.05 U	0.03 U	0.04 U	0.04 U	0.06 U	0.03 U	0.03 U	0.04 U	0.05 U
EXPLOSIVES (ug/kg)											
1,3,5-Trinitrobenzene	NA	NA	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
1,3-Dinitrobenzene	NA	NA	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-TNT	NA	NA	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4-Dinitrotoluene	NA	NA									

APPENDIX F.11

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS106	06SS108	2MW01	2MW02	2MW03	2SB01	2SB02	2SB02	2SB03	2SB04	2SB05
Sample ID	06SS153	06SS155D	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00	2SB02-00D	2SB03-00	2SB04-00	2SB05-00
Sample Date	11/17/92	33925	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	0.5-1.5	0.5-1.67	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
EXPLOSIVES (ug/kg) (cont.)											
2,4-DNT/2,6-DNT	NA	NA	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Amino-4,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrotoluene	NA	NA	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
3-Nitrotoluene	NA	NA	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
4-Amino-2,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrotoluene	NA	NA	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U
Amino-DNTs	NA	NA	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
HMX	NA	NA	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U
Nitrobenzene	NA	NA	210 U	210 U	210 U	210 U	210 U	210 U	210 U	210 U	210 U
RDX (Cyclonite)	NA	NA	540 U	540 U	540 U	540 U	540 U	540 U	540 U	540 U	540 U
Tetryl	NA	NA	380 U	380 U	380 U	380 U	380 U	380 U	380 U	380 U	380 U
ASBESTOS											
Asbestos	NA	NA									

APPENDIX F.12
SURFACE SOIL, INORGANICS, SWMU 2

APPENDIX F.12 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A	R6S11A
Sample ID	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A	R6S10A	R6S11A
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Inorganics, Total (mg/kg)											
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	11	10	10	9.4	18	28	27	51	15	17	9.5
Arsenic	16.6	57.1	15.9	22.5	35.5	12.7	134	30.9	54.1	35.7	25.5
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	0.221 U	1.01	0.276	0.623	1.11	0.289	3.31	2.18	1.17	2.52	1.59
Cadmium	0.332 U	2.88	0.361 U	0.323 U	0.881	0.729	2.41	1.54	1.12	1.69	0.872
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	16.9	23.7	17.9	17.5	34.9	13.8	39	36	78.2	39.2	50
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	22.6	50.3	20.6	26.2	380	51	823	163	107	383	211
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	6.97 U	8.62 U	7.59 U	6.77 U	222	6.13 U	76.5	92.8	180	3,040	568
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.052	0.075 U	0.061 U	0.048 U	0.714	0.991	0.261	0.136	0.105	1.54	0.356
Nickel	6.32	12.5	6.35	6.59	14.5	5.07	30.3	22.2	56.1	33.4	17.2
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	13.9	55.8	16.1	21	49.3	13.5	80.5	65.1	44.6	93.9	65.4
Silver	0.853 U	0.841 U	0.819 U	0.739 U	0.697 U	0.831 U	0.612 U	0.656 U	0.885 U	0.68 U	0.759 U
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	0.191 U	0.224 U	0.184 U	0.189 U	0.162 U	0.17 U	0.162 U	0.191 U	0.205 U	0.155 U	0.191 U
Tin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	28.3	71.7	31.9	48.2	329	81.5	439	520	339	758	475

APPENDIX F.12 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S12A	R6S13A	R6S14A	R6S15A	R6S4A	R6S5A	R6S9A	R6S10A	R6S11A	R6S12A
Sample ID	R6S12A	R6S13A	R6S14A	R6S15A	R6S04A	R6S05A	R6S09A	R6S010A	R6S011A	R6S012A
Sample Date	12/05/85	12/05/85	12/05/85	12/05/85	11/04/87	11/04/87	11/04/87	11/04/87	11/04/87	11/04/87
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Inorganics, Total (mg/kg)										
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	9.1	20	9.4	6.5	NA	NA	NA	NA	NA	NA
Arsenic	88.2	2.63 U	72.4	34.9	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	6.14	14.9	1.61	1.39	NA	NA	NA	NA	NA	NA
Cadmium	2.41	0.762	2.41	0.577	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	58.4	75.2	35.2	18.6	NA	NA	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	527	383	332	101	NA	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	197	58	466	169	316	376	988	250	35.1	214
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.352	0.041 U	0.449	0.898	NA	NA	NA	NA	NA	NA
Nickel	68.1	165	32.3	23.3	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	426	2.63 U	68.5	60	NA	NA	NA	NA	NA	NA
Silver	0.629 U	0.558 U	0.772 U	0.692 U	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	0.154 U	0.155 U	0.178 U	0.161 U	NA	NA	NA	NA	NA	NA
Tin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	949	181	426	210	NA	NA	NA	NA	NA	NA

APPENDIX F.12 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S14A	R6S15A	R6S16A	R6S17A	R6S18A	R6S19A	R6S20A	06SS101	06SS102	06SS103
Sample ID	R6S014A	R6S015A	R6S016A	R6S017A	R6S018A	R6S019A	R6S020A	06SS141	06SS143	06SS145
Sample Date	11/04/87	11/04/87	11/04/87	11/04/87	11/04/87	11/04/87	11/04/87	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50
Inorganics, Total (mg/kg)										
Aluminum	NA	NA	NA	NA	NA	NA	NA	21,600	20,000	15,100
Antimony	NA	NA	NA	NA	NA	NA	NA	17.9 J	6.3 J	20.1 J
Arsenic	NA	NA	NA	NA	NA	NA	NA	17.5	1.2 U	19.6
Barium	NA	NA	NA	NA	NA	NA	NA	156	100	410
Beryllium	NA	NA	NA	NA	NA	NA	NA	0.47 B	0.51 B	0.77 B
Cadmium	NA	NA	NA	NA	NA	NA	NA	8.7	2.1 UJ	3.9
Calcium	NA	NA	NA	NA	NA	NA	NA	51,900	9,920	48,200
Chromium	NA	NA	NA	NA	NA	NA	NA	59.8	19	40.6
Cobalt	NA	NA	NA	NA	NA	NA	NA	10.7 B	23.7	16.8
Copper	NA	NA	NA	NA	NA	NA	NA	5,850	227	739
Cyanide	NA	NA	NA	NA	NA	NA	NA	0.16 U	0.19 U	0.14 U
Iron	NA	NA	NA	NA	NA	NA	NA	168,000	43,400	38,000
Lead	236	116	71.1	79	46.3	233	187	1,210 J	130 J	4,760 J
Magnesium	NA	NA	NA	NA	NA	NA	NA	9,980	12,200	10,900
Manganese	NA	NA	NA	NA	NA	NA	NA	972	808	596
Mercury	NA	NA	NA	NA	NA	NA	NA	0.15 U	0.15 U	0.45
Nickel	NA	NA	NA	NA	NA	NA	NA	49.9	10.2 B	19.4
Potassium	NA	NA	NA	NA	NA	NA	NA	1,540 B	2,760	2,350
Selenium	NA	NA	NA	NA	NA	NA	NA	0.75 U	0.92 U	0.7 U
Silver	NA	NA	NA	NA	NA	NA	NA	2.8 UJ	1.7 UJ	1.3 UJ
Sodium	NA	NA	NA	NA	NA	NA	NA	13,100 J	13,100 J	4,940 J
Sulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA	0.47 UJ	0.58 UJ	0.43 UJ
Tin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	90.6	118	122
Zinc	NA	NA	NA	NA	NA	NA	NA	3,350	200	1,440

APPENDIX F.12 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS104	06SS105	06SS106	06SS108	2MW01	2MW02	2MW03	2SB01	2SB02	2SB02	2SB03	2SB04	2SB05
Sample ID	06SS147	06SS150	06SS153	06SS155D	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00	2SB02-00D	2SB03-00	2SB04-00	2SB05-00
Sample Date	11/17/92	11/17/92	11/17/92	11/17/92	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.67	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Inorganics, Total (mg/kg)													
Aluminum	1,660 J	36,600 J	23,900 J	27,200 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	2.4 UJ	4 UJ	2.6 UJ	3 J	1.7 UJ	1.9 J	1.5 UJ	1.5 UJ	1.6 UJ	1.5 UJ	13.3 J	1.6 UJ	2.4 J
Arsenic	3.3	1.2 U	6.9	0.82 U	1.5	6.2	1.1	0.83 U	5.1	4.7	18.6	2.1	6.1
Barium	24 B	189	263	83.1	92.5	183	129	106	170	132	161	131	1,060
Beryllium	0.15 U	1.5 B	0.41 B	1.4	0.08	0.54	0.33	0.04 U	0.08	0.16	0.38	0.36	0.53
Cadmium	1.3 UJ	6.3	1.5 UJ	3.9	0.22 U	0.2 U	0.2 U	0.2 U	0.21 U	0.2 U	3.1	0.21 U	0.72
Calcium	487,000	6,460	166,000	1,880	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	6.1	13.5	42.7	40.7	43.2 J	25.6 J	31.7 J	37.4 J	30.4 J	36.9 J	55.3 J	26.3 J	59.5 J
Cobalt	2.3 U	45.5	11.5 B	41.1	38.9 J	32.4 J	23.1 J	50.2 J	58.8 J	43.7 J	22.7 J	21.1 J	22.1 J
Copper	4.3 B	136	77.8	54.5	55.1 J	110 J	109 J	54.7 J	73.6 J	72 J	374 J	180 J	919 J
Cyanide	0.12 U	0.2 U	0.13 U	0.14 U	0.35 U	0.5 U	0.46 U	0.39 U	0.58 U	0.58 U	0.7 U	0.43 U	0.47 U
Iron	4,040 J	107,000 J	20,800 J	62,700 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	3.1	7.5	77.4	5.6	11.6	13	60.6	16.1	35.2	34.8	1,000	156	512
Magnesium	3,290	5,450	8,600	4740	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	75.5	1,090	842	598	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.12 U	0.16 U	0.12 U	0.13 U	0.05 J	0.04 J	0.07 J	0.07 J	0.16 J	0.12 J	0.33 J	0.09 J	0.37 J
Nickel	4.6 UJ	7.6 UJ	12 J	5.1 UJ	18.4	17.1	16.1	18.1	15.9	18.5	34.6	13.5	17.1
Potassium	347 U	676 U	2,000	375 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.59 UJ	0.98 UJ	0.64 UJ	0.66 UJ	0.7 J	0.84 UJ	0.7 UJ	0.93 UJ	1.1 J	1.1 J	1.1 UJ	0.9 UJ	0.84 UJ
Silver	1.1 UJ	1.8 UJ	1.2 UJ	1.2 UJ	0.19 U	0.17 U	0.17 U	0.17 U	0.18 U	0.17 U	0.23 U	0.18 U	0.17 U
Sodium	2,800 J	7,830 J	6,900 J	5,630 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	NA	NA	NA	NA	30.4 UJ	27.3 UJ	28.8 UJ	29.6 UJ	30.1 UJ	30 UJ	37.1 UJ	29.6 UJ	28.3 UJ
Thallium	0.37 UJ	0.61 UJ	0.4 UJ	0.41 UJ	0.13 U	0.12 U	0.13 U	0.13 U	0.13 U	0.13 U	0.16 UJ	0.13 U	0.12 UJ
Tin	NA	NA	NA	NA	0.9 U	0.83 U	2.2	0.84 U	0.89 U	0.83 U	9.9	0.88 U	3.6
Vanadium	9.3 B	386	65.8	210	281 J	176 J	153 J	225 J	195 J	216 J	122 J	133 J	133 J
Zinc	8.3	89.2	206	40.7	52	107	108	62	96.3	89.8	845	231	1,260

APPENDIX F.13
SUBSURFACE SOIL, ORGANICS, SWMU 2

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS101	06SS103	06SS104	06SS104	06SS105	06SS105	06SS106	2MW01	2MW02	2MW02	2MW03
Sample ID	06SS142	06SS146	06SS148	06SS149-DUP	06SS151	06SS152-DUP	06SS154	2MW01-01	2MW02-02	2MW02-05	2MW03-01
Sample Date	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/8/96	11/06/96	11/06/96	11/09/96
Depth Range (ft.)	1.5-2.67	0.5-1.5	1.5-2.67	1.5-2.67	2.0-3.0	2.0-3.0	1.5-2.67	2.00-4.00	4.00-6.00	10.00-12.00	2.00-4.00
VOLATILES (ug/kg)											
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	14 U	13 U	12 U	18 U
1,1,1-Trichloroethane	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
1,1,2,2-Tetrachloroethane	18 UJ	7 U	6 U	6 U	7 U	NA	7 R	7 UJ	6 UJ	6 UJ	9 UJ
1,1,2-Trichloroethane	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
1,1-Dichloroethane	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
1,1-Dichloroethene	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	NA	14 U	13 U	12 U	18 UJ
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA	NA	28 UJ	26 UJ	24 UJ	37 U
1,2-Dibromoethane	NA	NA	NA	NA	NA	NA	NA	28 U	26 U	24 U	37 U
1,2-Dichloroethane	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
1,2-Dichloroethene (Total)	NA	NA	NA	NA	NA	NA	NA	7 U	6 U	6 U	9 U
1,2-Dichloropropane	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
2-Butanone	410 J	15 UJ	12 UJ	12 UJ	14 UJ	NA	13 J	14 U	13 U	12 U	18 UJ
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA	NA	140 R	130 R	120 R	180 R
2-Hexanone	36 UJ	15 U	12 U	12 U	14 U	NA	7 R	14 U	13 U	12 U	18 UJ
3-Chloropropene	NA	NA	NA	NA	NA	NA	NA	28 U	26 U	24 U	37 UJ
4-Methyl-2-pentanone	36 UJ	15 U	12 U	12 U	14 U	NA	11 J	14 UJ	13 UJ	12 UJ	18 UJ
Acetone	2,500 R	39 J	99 J	62 J	450 J	NA	350 EJ	22 U	13 U	12 U	48 U
Acetonitrile	NA	NA	NA	NA	NA	NA	NA	140 U	130 U	120 U	180 UJ
Acrolein	NA	NA	NA	NA	NA	NA	NA	710 UJ	650 UJ	610 UJ	930 UJ
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	140 UJ	130 UJ	120 UJ	180 UJ
Benzene	18 U	7 U	6 U	6 U	7 U	NA	1 J	7 U	6 U	6 U	9 U
Bromodichloromethane	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
Bromoform	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
Bromomethane	36 U	15 U	12 U	12 U	14 U	NA	7 R	14 U	13 U	12 U	18 U
Carbon disulfide	110 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
Carbon tetrachloride	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
Chlorobenzene	18 UJ	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
Chloroethane	36 U	15 U	12 U	12 U	14 U	NA	7 R	14 U	13 U	12 U	18 U
Chloroform	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS101	06SS103	06SS104	06SS104	06SS105	06SS105	06SS106	2MW01	2MW02	2MW02	2MW03
Sample ID	06SS142	06SS146	06SS148	06SS149-DUP	06SS151	06SS152-DUP	06SS154	2MW01-01	2MW02-02	2MW02-05	2MW03-01
Sample Date	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/8/96	11/06/96	11/06/96	11/09/96
Depth Range (ft.)	1.5-2.67	0.5-1.5	1.5-2.67	1.5-2.67	2.0-3.0	2.0-3.0	1.5-2.67	2.00-4.00	4.00-6.00	10.00-12.00	2.00-4.00
VOLATILES (ug/kg) (cont.)											
Chloromethane	36 U	15 U	12 U	12 U	14 U	NA	7 R	14 UJ	13 UJ	12 UJ	18 U
cis-1,2-Dichloroethylene	18 U	7 U	6 U	6 U	7 U	NA	7 R	NA	NA	NA	NA
cis-1,3-Dichloropropene	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
Dibromochloromethane	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
Dibromomethane	NA	NA	NA	NA	NA	NA	NA	14 U	13 U	12 U	18 U
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	28 UJ	26 UJ	24 UJ	37 U
Ethene, 1,2-dichloro-, (E)-	18 U	7 U	6 U	6 U	7 U	NA	7 R	NA	NA	NA	NA
Ethyl methacrylate	NA	NA	NA	NA	NA	NA	NA	28 U	26 U	24 U	37 U
Ethylbenzene	18 UJ	7 U	6 U	6 U	7 U	NA	2 J	7 U	6 U	6 U	9 U
Iodomethane	NA	NA	NA	NA	NA	NA	NA	14 U	13 U	12 U	18 UJ
Isobutanol	NA	NA	NA	NA	NA	NA	NA	2,800 R	2,600 R	2,400 R	3,700 R
m/p-xylene	18 UJ	7 U	6 U	6 U	7 U	NA	5 J	NA	NA	NA	NA
Methacrylonitrile	NA	NA	NA	NA	NA	NA	NA	28 U	26 U	24 U	37 UJ
Methyl methacrylate	NA	NA	NA	NA	NA	NA	NA	28 U	26 U	24 U	37 U
Methylene chloride	590	11	23	15	27	NA	300 EJ	7 U	6 U	6 U	9 U
o-Xylene	18 UJ	7 U	6 U	6 U	7 U	NA	3 J	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	NA	NA	28 U	26 U	24 U	37 U
Propionitrile	NA	NA	NA	NA	NA	NA	NA	71 R	65 R	61 R	93 R
Styrene	18 UJ	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
Tetrachloroethene	31 UJ	7 U	6 U	6 U	7 U	NA	7 R	7 UJ	6 UJ	6 UJ	9 U
Toluene	14 J	7 U	6 U	6 U	7 U	NA	18 J	7 U	6 U	6 U	9 U
trans-1,3-Dichloropropene	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	NA	28 U	26 U	24 U	37 U
Trichloroethene	18 U	7 U	6 U	6 U	7 U	NA	7 R	7 U	6 U	6 U	9 U
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	14 UJ	13 UJ	12 UJ	18 U
Vinyl Acetate	36 U	15 U	12 U	12 U	14 U	NA	7 R	14 U	13 U	12 U	18 U
Vinyl chloride	36 U	15 U	12 U	12 U	14 U	NA	7 R	14 U	13 U	12 U	18 U
Xylene (total)	NA	NA	NA	NA	NA	NA	NA	7 U	6 U	6 U	9 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS101	06SS103	06SS104	06SS104	06SS105	06SS105	06SS106	2MW01	2MW02	2MW02	2MW03
Sample ID	06SS142	06SS146	06SS148	06SS149-DUP	06SS151	06SS152-DUP	06SS154	2MW01-01	2MW02-02	2MW02-05	2MW03-01
Sample Date	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/8/96	11/06/96	11/06/96	11/09/96
Depth Range (ft.)	1.5-2.67	0.5-1.5	1.5-2.67	1.5-2.67	2.0-3.0	2.0-3.0	1.5-2.67	2.00-4.00	4.00-6.00	10.00-12.00	2.00-4.00
SEMIVOLATILES (ug/kg)											
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
1,2,4-Trichlorobenzene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
1,2-Dichlorobenzene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
1,3-Dichlorobenzene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
1,4-Dichlorobenzene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	950 U	870 U	810 U	1,200 U
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA	NA	2,400 U	2,200 U	2,000 U	3,100 U
1-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	950 U	870 U	810 U	1,200 U
2,2'-Oxybis(1-Chloropropane)	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
2,4,5-Trichlorophenol	11,000 U	1,700 R	4,000 U	4,000 U	4,500 U	NA	3,500 U	2,400 U	2,200 U	2,000 U	3,100 U
2,4,6-Trichlorophenol	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
2,4-Dichlorophenol	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
2,4-Dimethylphenol	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
2,4-Dinitrophenol	11,000 U	1,700 R	4,000 U	4,000 U	4,500 U	NA	3,500 U	2,400 U	2,200 U	2,000 U	3,100 U
2,4-Dinitrotoluene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA	NA	950 U	870 U	810 U	1,200 U
2-Chloronaphthalene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
2-Chlorophenol	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
2-Methylnaphthalene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
2-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	1,200 U	1,100 U	1,000 U	1,500 U
2-Nitroaniline	11,000 U	4,300 U	4,000 U	4,000 U	4,500 U	NA	3,500 U	2,400 U	2,200 U	2,000 U	3,100 U
2-Nitrophenol	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
2-Picoline	NA	NA	NA	NA	NA	NA	NA	470 UJ	430 UJ	400 U	620 UJ
2-sec-butyl-4,6-dinitrophenol	NA	NA	NA	NA	NA	NA	NA	950 U	870 U	810 U	1,200 U
3,3'-Dichlorobenzidine	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	950 U	870 U	810 U	1,200 U
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA	NA	2,400 U	2,200 U	2,000 U	3,100 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS101	06SS103	06SS104	06SS104	06SS105	06SS105	06SS106	2MW01	2MW02	2MW02	2MW03
Sample ID	06SS142	06SS146	06SS148	06SS149-DUP	06SS151	06SS152-DUP	06SS154	2MW01-01	2MW02-02	2MW02-05	2MW03-01
Sample Date	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/8/96	11/06/96	11/06/96	11/09/96
Depth Range (ft.)	1.5-2.67	0.5-1.5	1.5-2.67	1.5-2.67	2.0-3.0	2.0-3.0	1.5-2.67	2.00-4.00	4.00-6.00	10.00-12.00	2.00-4.00
SEMIVOLATILES (ug/kg) (cont.)											
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
3-Nitroaniline	11,000 U	4,300 U	4,000 U	4,000 U	4,500 U	NA	3,500 U	2,400 U	2,200 U	2,000 U	3,100 U
4,6-Dinitro-2-methylphenol	11,000 U	1,700 R	4,000 U	4,000 U	4,500 U	NA	3,500 U	2,400 U	2,200 U	2,000 U	3,100 U
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA	NA	950 U	870 U	810 U	1,200 U
4-Bromophenyl phenyl ether	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
4-Chloro-3-methylphenol	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	950 U	870 U	810 U	1,200 U
4-Chloroaniline	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	950 UJ	870 UJ	810 UJ	1,200 UJ
4-Chlorophenyl phenyl ether	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
4-Nitroaniline	11,000 U	4,300 U	4,000 U	4,000 U	4,500 U	NA	3,500 U	2,400 U	2,200 U	2,000 U	3,100 U
4-Nitrophenol	11,000 U	1,700 R	4,000 U	4,000 U	4,500 U	NA	3,500 U	2,400 U	2,200 U	2,000 U	3,100 U
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA	NA	2,400 R	2,200 R	2,000 R	3,100 R
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA	NA	950 UJ	870 UJ	810 UJ	1,200 UJ
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	950 U	870 U	810 U	1,200 U
Acenaphthene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Acenaphthylene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Acetophenone	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
alpha, alpha-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA	NA	2,400 UJ	2,200 UJ	2,000 UJ	3,100 UJ
Aniline	NA	NA	NA	NA	NA	NA	NA	2,400 U	2,200 U	2,000 U	3,100 U
Anthracene	4,400 U	110 J	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Aramite	NA	NA	NA	NA	NA	NA	NA	950 U	870 U	810 U	1,200 U
Benzidine	NA	NA	NA	NA	NA	NA	NA	4,700 U	4,300 U	4,000 U	6,200 U
Benzo(a)anthracene	4,400 U	1,000 J	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Benzo(a)pyrene	4,400 U	270 J	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Benzo(b)fluoranthene	4,400 U	1,300 J	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Benzo(g,h,i)perylene	4,400 U	350 J	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Benzo(k)fluoranthene	4,400 U	2,000	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	2,400 U	2,200 U	2,000 U	3,100 U
Benzyl alcohol	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
Bis(2-chloroethoxy)methane	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Bis(2-chloroethyl)ether	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS101	06SS103	06SS104	06SS104	06SS105	06SS105	06SS106	2MW01	2MW02	2MW02	2MW03
Sample ID	06SS142	06SS146	06SS148	06SS149-DUP	06SS151	06SS152-DUP	06SS154	2MW01-01	2MW02-02	2MW02-05	2MW03-01
Sample Date	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/8/96	11/06/96	11/06/96	11/09/96
Depth Range (ft.)	1.5-2.67	0.5-1.5	1.5-2.67	1.5-2.67	2.0-3.0	2.0-3.0	1.5-2.67	2.00-4.00	4.00-6.00	10.00-12.00	2.00-4.00
SEMIVOLATILES (ug/kg) (cont.)											
Bis(2-ethylhexyl)phthalate	15,000	1,700 U	1,600 U	1,600 U	3300	NA	630 J	470 U	430 U	400 U	620 U
Butylbenzylphthalate	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Carbazole	4,400 U	92 J	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
Chrysene	4,400 U	1,400 J	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Diallate	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
Dibenzo(a,h)anthracene	4,400 U	450 J	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Dibenzofuran	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Diethylphthalate	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Dimethylphthalate	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Di-n-butylphthalate	4,400 U	94 J	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Di-n-octylphthalate	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Diphenylamine	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 UJ	620 U
Fluoranthene	4,400 U	3,200	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Fluorene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Hexachlorobenzene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Hexachlorobutadiene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Hexachlorocyclopentadiene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Hexachloroethane	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Hexachlorophene	NA	NA	NA	NA	NA	NA	NA	4,700 U	4,300 U	4000 U	6,200 U
Hexachloropropene	NA	NA	NA	NA	NA	NA	NA	2,400 U	2,200 U	2000 U	3,100 U
Indeno(1,2,3-cd)pyrene	4,400 U	700 J	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Isophorone	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Isosafrole	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
m&p Cresol	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
m-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	950 U	870 U	810 U	1,200 U
Meta-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	950 U	870 U	810 U	1,200 U
Methapyrilene	NA	NA	NA	NA	NA	NA	NA	1,200 UJ	1,100 UJ	1,000 UJ	1,500 UJ
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	470 UJ	430 UJ	400 UJ	620 UJ

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS101	06SS103	06SS104	06SS104	06SS105	06SS105	06SS106	2MW01	2MW02	2MW02	2MW03
Sample ID	06SS142	06SS146	06SS148	06SS149-DUP	06SS151	06SS152-DUP	06SS154	2MW01-01	2MW02-02	2MW02-05	2MW03-01
Sample Date	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/8/96	11/06/96	11/06/96	11/09/96
Depth Range (ft.)	1.5-2.67	0.5-1.5	1.5-2.67	1.5-2.67	2.0-3.0	2.0-3.0	1.5-2.67	2.00-4.00	4.00-6.00	10.00-12.00	2.00-4.00
SEMIVOLATILES (ug/kg) (cont.)											
Naphthalene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Nitrobenzene	4,400 U	1,700 U	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA	NA	470 UJ	430 UJ	400 UJ	620 UJ
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
N-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
N-Nitroso-di-n-propylamine	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
N-Nitrosodiphenylamine (1)	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA	NA	470 UJ	430 UJ	400 UJ	620 UJ
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA	NA	950 UJ	870 UJ	810 UJ	1,200 UJ
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA	NA	470 UJ	430 UJ	400 UJ	620 UJ
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA	NA	2,400 U	2,200 U	2,000 U	3,100 U
o-Cresol	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
o-Toluidine	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
p-Cresol	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	NA	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA	NA	950 U	870 U	810 U	1,200 U
Pentachlorobenzene	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
Pentachlorophenol	11,000 U	1,700 R	4,000 U	4,000 U	4,500 U	NA	3,500 U	2,400 U	2,200 U	2,000 U	3,100 U
Phenacetin	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
Phenanthrene	4,400 U	1,900	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Phenol	4,400 U	1,700 R	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
p-Phenylenediamine	NA	NA	NA	NA	NA	NA	NA	950 U	870 U	810 U	1,200 U
Pronamide	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
Pyrene	4,400 U	2,100	1,600 U	1,600 U	1,800 U	NA	1,400 U	470 U	430 U	400 U	620 U
Pyridine	NA	NA	NA	NA	NA	NA	NA	950 U	870 U	810 U	1,200 U
Safrole	NA	NA	NA	NA	NA	NA	NA	470 U	430 U	400 U	620 U
sym-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	4,700 U	4,300 U	4000 U	6,200 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS101	06SS103	06SS104	06SS104	06SS105	06SS105	06SS106	2MW01	2MW02	2MW02	2MW03
Sample ID	06SS142	06SS146	06SS148	06SS149-DUP	06SS151	06SS152-DUP	06SS154	2MW01-01	2MW02-02	2MW02-05	2MW03-01
Sample Date	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/8/96	11/06/96	11/06/96	11/09/96
Depth Range (ft.)	1.5-2.67	0.5-1.5	1.5-2.67	1.5-2.67	2.0-3.0	2.0-3.0	1.5-2.67	2.00-4.00	4.00-6.00	10.00-12.00	2.00-4.00
PESTICIDES/PCBs (ug/kg)											
4,4'-DDD	8.2 U	5.2 U	4.3 U	4 U	4.7 U	4.8 U	4.1 U	22 U	10 U	9.6 U	30 U
4,4'-DDE	8.2 U	5.2 U	4.3 U	4 U	0.68 J	4.8 U	4.1 U	22 U	10 U	9.6 U	30 U
4,4'-DDT	8.2 U	5.2 U	4.3 U	4 U	1.7 J	0.22 NJ	4.1 UJ	22 U	10 U	9.6 U	30 U
Aldrin	4.2 U	0.35 J	2.2 U	2.1 U	2.4 U	2.5 U	2.1 U	11 U	5.1 U	4.8 U	15 U
alpha-BHC	4.2 U	2.7 U	2.2 U	2.1 U	2.4 U	2.5 U	2.1 U	11 U	5.1 U	4.8 U	15 U
alpha-Chlordane	4.2 UJ	2.7 U	2.2 U	2.1 U	2.4 U	2.5 U	1.5 NJ	110 U	51 U	48 U	150 U
beta-BHC	1.1 J	2.7 U	2.2 U	0.48 J	2.4 UJ	0.43 NJ	2.1 U	11 U	5.1 U	4.8 U	15 U
Chlordane, gamma-	4.2 U	2.7 U	2.2 U	2.1 U	2.4 U	2.5 U	2.1 U	NA	NA	NA	NA
delta-BHC	0.86 J	2.7 U	2.2 U	2.1 U	2.4 U	2.5 U	2.1 U	11 U	5.1 U	4.8 U	15 U
Dieldrin	4.2 UJ	5.2 U	4.3 U	4 U	0.064 NJ	0.44 J	4.1 U	22 U	10 U	9.6 U	30 U
Endosulfan I	1.5 NJ	2.7 U	2.2 U	2.1 U	2.4 UJ	2.5 U	2.1 U	11 U	5.1 U	4.8 U	15 U
Endosulfan II	8.2 UJ	5.2 U	4.3 U	4 U	0.33 J	4.8 U	4.1 U	22 U	10 U	9.6 U	30 U
Endosulfan sulfate	8.2 UJ	5.2 U	4.3 U	4 U	4.7 U	4.8 U	4.1 U	22 U	10 U	9.6 U	30 U
Endrin	8.2 UJ	5.2 U	4.3 U	4 U	4.7 U	0.31 J	1.6 J	22 U	10 U	9.6 U	30 U
Endrin aldehyde	8.2 U	5.2 U	4.3 U	4 U	4.7 U	4.8 U	4.1 U	22 U	10 U	9.6 U	30 U
Endrin ketone	8.2 U	5.2 U	4.3 U	4 U	4.7 U	4.8 U	4.1 U	NA	NA	NA	NA
gamma-BHC (Lindane)	0.13 NJ	2.7 U	2.2 U	2.1 U	2.4 UJ	2.5 U	2.1 U	11 U	5.1 U	4.8 U	15 U
gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	110 U	51 U	48 U	150 U
Heptachlor	0.42 J	2.7 U	2.2 UJ	2.1 U	2.4 UJ	2.5 U	2.1 UJ	11 U	5.1 U	4.8 U	15 U
Heptachlor epoxide	4.2 UJ	2.7 U	2.2 U	2.1 U	2.4 U	2.5 U	0.35 J	11 U	5.1 U	4.8 U	15 U
Isodrin	NA	NA	NA	NA	NA	NA	NA	11 U	5.1 U	4.8 U	15 U
Kepone	NA	NA	NA	NA	NA	NA	NA	22 U	10 UJ	9.6 UJ	30 UJ
Methoxychlor	1.5 J	27 U	22 U	21 U	25 UJ	25 U	21 U	110 U	51 U	48 U	150 U
Toxaphene	420 U	270 U	220 U	210 U	240 U	250 U	210 U	220 U	100 U	96 U	300 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS101	06SS103	06SS104	06SS104	06SS105	06SS105	06SS106	2MW01	2MW02	2MW02	2MW03
Sample ID	06SS142	06SS146	06SS148	06SS149-DUP	06SS151	06SS152-DUP	06SS154	2MW01-01	2MW02-02	2MW02-05	2MW03-01
Sample Date	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/8/96	11/06/96	11/06/96	11/09/96
Depth Range (ft.)	1.5-2.67	0.5-1.5	1.5-2.67	1.5-2.67	2.0-3.0	2.0-3.0	1.5-2.67	2.00-4.00	4.00-6.00	10.00-12.00	2.00-4.00
PESTICIDES/PCBs (ug/kg) (cont.)											
Aroclor-1016	82 U	52 U	43 U	40 U	47 U	48 U	41 U	110 U	51 U	48 U	150 U
Aroclor-1221	170 U	110 U	86 U	81 U	94 U	97 U	82 U	110 U	51 U	48 U	150 U
Aroclor-1232	82 U	52 U	43 U	40 U	47 U	48 U	41 U	110 U	51 U	48 U	150 U
Aroclor-1242	82 U	52 U	43 U	40 U	47 U	48 U	41 U	110 U	51 U	48 U	150 U
Aroclor-1248	82 U	52 U	43 U	40 U	47 U	48 U	41 U	110 U	51 U	48 U	150 U
Aroclor-1254	82 U	52 U	43 U	40 U	47 U	48 U	41 U	220 U	100 U	96 U	300 U
Aroclor-1260	82 U	52 U	43 U	40 U	47 U	48 U	41 U	220 U	100 U	96 U	300 U
CHLORINATED HERBICIDES (ug/kg)											
2,4,5-T	NA	NA	NA	NA	NA	NA	NA	46 U	43 U	40 U	310 U
2,4,5-TP (Silvex)	NA	NA	NA	NA	NA	NA	NA	46 U	43 U	40 U	310 U
2,4-D	NA	NA	NA	NA	NA	NA	NA	460 U	430 U	400 U	3,100 U
OP-PESTICIDES (ug/kg)											
Dimethoate	NA	NA	NA	NA	NA	NA	NA	95 U	86 U	78 U	120 U
Disulfoton	NA	NA	NA	NA	NA	NA	NA	95 U	86 U	78 U	120 U
Famphur	NA	NA	NA	NA	NA	NA	NA	95 U	86 U	78 U	120 U
Methyl parathion	NA	NA	NA	NA	NA	NA	NA	95 U	86 U	78 U	120 U
O,O,O-Triethylphosphorothioate	NA	NA	NA	NA	NA	NA	NA	95 U	86 U	78 U	120 U
Parathion	NA	NA	NA	NA	NA	NA	NA	95 U	86 U	78 U	120 U
Phorate	NA	NA	NA	NA	NA	NA	NA	95 U	86 U	78 U	120 U
Sulfotepp	NA	NA	NA	NA	NA	NA	NA	95 U	86 U	78 U	120 U
Thionazin	NA	NA	NA	NA	NA	NA	NA	95 U	86 U	78 U	120 U
DIOXINS (ug/kg)											
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	0.03 U	0.04 U	0.04 U	0.05 U
Total HxCDD	NA	NA	NA	NA	NA	NA	NA	0.08 U	0.05 U	0.06 U	0.09 U
Total HxCDF	NA	NA	NA	NA	NA	NA	NA	0.03 U	0.05 U	0.05 U	0.08 U
Total PeCDD	NA	NA	NA	NA	NA	NA	NA	0.06 U	0.05 U	0.06 U	0.07 U
Total PeCDF	NA	NA	NA	NA	NA	NA	NA	0.04 U	0.07 U	0.07 U	0.06 U
Total TCDD	NA	NA	NA	NA	NA	NA	NA	0.03 U	0.04 U	0.04 U	0.05 U
Total TCDF	NA	NA	NA	NA	NA	NA	NA	0.02 U	0.03 U	0.03 U	0.04 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	06SS101	06SS103	06SS104	06SS104	06SS105	06SS105	06SS106	2MW01	2MW02	2MW02	2MW03
Sample ID	06SS142	06SS146	06SS148	06SS149-DUP	06SS151	06SS152-DUP	06SS154	2MW01-01	2MW02-02	2MW02-05	2MW03-01
Sample Date	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/8/96	11/06/96	11/06/96	11/09/96
Depth Range (ft.)	1.5-2.67	0.5-1.5	1.5-2.67	1.5-2.67	2.0-3.0	2.0-3.0	1.5-2.67	2.00-4.00	4.00-6.00	10.00-12.00	2.00-4.00
EXPLOSIVES (ug/kg)											
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	130 U	130 U	130 U	130 U
1,3-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	120 U
2,4,6-TNT	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	120 U
2,4-DNT/2,6-DNT	NA	NA	NA	NA	NA	NA	NA	200 U	200 U	200 U	200 U
2-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	500 U	500 U	500 U	500 U
3-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	500 U	500 U	500 U	500 U
4-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	1,500 U	1,500 U	1,500 U	1,500 U
Amino-DNTs	NA	NA	NA	NA	NA	NA	NA	200 U	200 U	200 U	200 U
HMX	NA	NA	NA	NA	NA	NA	NA	1,100 U	1,100 U	1,100 U	1,100 U
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	210 U	210 U	210 U	210 U
RDX (Cyclonite)	NA	NA	NA	NA	NA	NA	NA	540 U	540 U	540 U	540 U
Tetryl	NA	NA	NA	NA	NA	NA	NA	380 U	380 U	380 U	380 U
ASBESTOS											
Asbestos (MFL)	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2MW03	2SB01	2SB01	2SB04	2SB05	2SB05
Sample ID	2MW03-01D	2SB01-02	2SB01-05	2SB04-02	2SB05-01/02	2SB05-01/02D
Sample Date	11/09/96	11/18/96	11/18/96	11/10/96	11/10/96	11/10/96
Depth Range (ft.)	2.00-4.00	4.00-6.00	10.00-12.00	4.00-6.00	2.00-6.00	2.00-6.00
VOLATILES (ug/kg)						
1,1,1,2-Tetrachloroethane	16 UJ	13 U	14 U	15 U	14 U	14 U
1,1,1-Trichloroethane	8 UJ	7 UJ	7 UJ	7 U	7 U	7 U
1,1,2,2-Tetrachloroethane	8 UJ	7 UJ	7 UJ	7 UJ	7 UJ	7 UJ
1,1,2-Trichloroethane	8 UJ	7 U	7 U	7 U	7 U	7 U
1,1-Dichloroethane	8 U	7 U	7 U	7 U	7 U	7 U
1,1-Dichloroethene	8 U	7 U	7 U	7 U	7 U	7 U
1,2,3-Trichloropropane	16 UJ	13 U	14 U	15 UJ	14 UJ	14 UJ
1,2-Dibromo-3-chloropropane	32 UJ	27 U	28 U	30 U	28 U	28 U
1,2-Dibromoethane	32 UJ	27 U	28 U	30 U	28 U	28 U
1,2-Dichloroethane	8 UJ	7 U	7 U	7 U	7 U	7 U
1,2-Dichloroethene (Total)	8 U	7 U	7 U	7 U	7 U	7 U
1,2-Dichloropropane	8 UJ	7 U	7 U	7 U	7 U	7 U
2-Butanone	16 UJ	13 UJ	14 UJ	15 UJ	14 UJ	14 UJ
2-Chloro-1,3-butadiene	160 R	130 R	140 R	150 R	140 R	140 R
2-Hexanone	16 UJ	13 UJ	14 UJ	15 UJ	14 UJ	14 UJ
3-Chloropropene	32 UJ	27 U	28 U	30 UJ	28 UJ	28 UJ
4-Methyl-2-pentanone	16 UJ	13 U	14 U	15 UJ	14 UJ	14 UJ
Acetone	35 U	13 U	14 U	21	14 U	14 U
Acetonitrile	160 UJ	130 U	140 U	150 UJ	140 UJ	140 UJ
Acrolein	810 UJ	670 UJ	690 UJ	740 UJ	690 UJ	710 UJ
Acrylonitrile	160 UJ	130 U	140 U	150 UJ	140 UJ	140 UJ
Benzene	8 UJ	7 U	7 U	7 U	7 U	7 U
Bromodichloromethane	8 UJ	7 U	7 U	7 U	7 U	7 U
Bromoform	8 UJ	7 U	7 U	7 U	7 U	7 U
Bromomethane	16 U	13 U	14 U	15 U	14 U	14 U
Carbon disulfide	4 J	7 U	7 U	7 U	7 U	7 U
Carbon tetrachloride	8 UJ	7 UJ	7 UJ	7 U	7 U	7 U
Chlorobenzene	8 UJ	7 U	7 U	7 U	7 U	7 U
Chloroethane	16 U	13 U	14 U	15 U	14 U	14 U
Chloroform	8 U	7 U	7 U	7 U	7 U	7 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2MW03	2SB01	2SB01	2SB04	2SB05	2SB05
Sample ID	2MW03-01D	2SB01-02	2SB01-05	2SB04-02	2SB05-01/02	2SB05-01/02D
Sample Date	11/09/96	11/18/96	11/18/96	11/10/96	11/10/96	11/10/96
Depth Range (ft.)	2.00-4.00	4.00-6.00	10.00-12.00	4.00-6.00	2.00-6.00	2.00-6.00
VOLATILES (ug/kg) (cont.)						
Chloromethane	16 U	13 U	14 U	15 U	14 U	14 U
cis-1,2-Dichloroethylene	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	8 UJ	7 U	7 U	7 U	7 U	7 U
Dibromochloromethane	8 UJ	7 U	7 U	7 U	7 U	7 U
Dibromomethane	16 UJ	13 U	14 U	15 U	14 U	14 U
Dichlorodifluoromethane	32 U	27 UJ	28 UJ	30 U	28 U	28 U
Ethene, 1,2-dichloro-, (E)-	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	32 UJ	27 U	28 U	30 U	28 U	28 U
Ethylbenzene	8 UJ	7 U	7 U	7 U	7 U	7 U
Iodomethane	16 UJ	13 U	14 U	15 UJ	14 UJ	14 UJ
Isobutanol	3,200 R	2,700 R	2,800 R	3,000 R	2,800 R	2,800 R
m/p-xylene	NA	NA	NA	NA	NA	NA
Methacrylonitrile	32 UJ	27 U	28 U	30 UJ	28 UJ	28 UJ
Methyl methacrylate	32 UJ	27 U	28 U	30 U	28 U	28 U
Methylene chloride	8 U	7 U	7 U	7 U	7 U	7 U
o-Xylene	NA	NA	NA	NA	NA	NA
Pentachloroethane	32 UJ	27 U	28 U	30 U	28 U	28 U
Propionitrile	81 R	67 R	69 R	74 R	69 R	71 R
Styrene	8 UJ	7 U	7 U	7 U	7 U	7 U
Tetrachloroethene	8 UJ	7 UJ	7 UJ	7 U	7 U	7 U
Toluene	8 UJ	7 U	7 U	7 U	7 U	7 U
trans-1,3-Dichloropropene	8 UJ	7 U	7 U	7 U	7 U	7 U
trans-1,4-Dichloro-2-butene	32 UJ	27 U	28 U	30 U	28 U	28 U
Trichloroethene	8 UJ	7 U	7 U	7 U	7 U	7 U
Trichlorofluoromethane	16 U	13 UJ	14 UJ	15 U	14 U	14 U
Vinyl Acetate	16 U	13 U	14 U	15 U	14 U	14 U
Vinyl chloride	16 U	13 U	14 U	15 U	14 U	14 U
Xylene (total)	8 UJ	7 U	7 U	7 U	7 U	7 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2MW03	2SB01	2SB01	2SB04	2SB05	2SB05
Sample ID	2MW03-01D	2SB01-02	2SB01-05	2SB04-02	2SB05-01/02	2SB05-01/02D
Sample Date	11/09/96	11/18/96	11/18/96	11/10/96	11/10/96	11/10/96
Depth Range (ft.)	2.00-4.00	4.00-6.00	10.00-12.00	4.00-6.00	2.00-6.00	2.00-6.00
SEMIVOLATILES (ug/kg)						
1,2,4,5-Tetrachlorobenzene	540 U	440 U	450 U	480 U	450 UJ	460 U
1,2,4-Trichlorobenzene	540 U	440 U	450 U	480 U	450 UJ	460 U
1,2-Dichlorobenzene	540 U	440 U	450 U	480 U	450 UJ	460 U
1,2-Diphenylhydrazine	540 U	440 U	450 U	480 U	450 UJ	460 U
1,3-Dichlorobenzene	540 U	440 U	450 U	480 U	450 UJ	460 U
1,4-Dichlorobenzene	540 U	440 U	450 U	480 U	450 UJ	460 U
1,4-Dioxane	1,100 U	890 UJ	910 UJ	970 U	900 UJ	920 U
1,4-Naphthoquinone	2,700 U	2,200 U	2,300 U	2,400 U	2,200 UJ	2,300 U
1-Naphthylamine	1,100 U	890 U	910 U	970 U	900 UJ	920 U
2,2'-Oxybis(1-Chloropropane)	540 U	440 U	450 U	480 U	450 UJ	460 U
2,3,4,6-Tetrachlorophenol	540 U	440 U	450 U	480 U	450 UJ	460 U
2,4,5-Trichlorophenol	2,700 U	2,200 U	2,300 U	2,400 U	2,200 UJ	2,300 U
2,4,6-Trichlorophenol	540 U	440 U	450 U	480 U	450 UJ	460 U
2,4-Dichlorophenol	540 U	440 U	450 U	480 U	450 UJ	460 U
2,4-Dimethylphenol	540 U	440 U	450 U	480 U	450 UJ	460 U
2,4-Dinitrophenol	2,700 U	2,200 U	2,300 U	2,400 U	2,200 UJ	2,300 U
2,4-Dinitrotoluene	540 U	440 U	450 U	480 U	450 UJ	460 U
2,6-Dichlorophenol	540 U	440 U	450 U	480 U	450 UJ	460 U
2,6-Dinitrotoluene	540 U	440 U	450 U	480 U	450 UJ	460 U
2-Acetylaminofluorene	1,100 U	890 U	910 U	970 U	900 UJ	920 U
2-Chloronaphthalene	540 U	440 U	450 U	480 U	450 UJ	460 U
2-Chlorophenol	540 U	440 U	450 U	480 U	450 UJ	460 U
2-Methylnaphthalene	540 U	83 J	450 U	480 U	450 UJ	460 U
2-Naphthylamine	1,400 U	1,100 U	1,100 U	1,200 U	1,100 UJ	1,100 U
2-Nitroaniline	2,700 U	2,200 U	2,300 U	2,400 U	2,200 UJ	2,300 U
2-Nitrophenol	540 U	440 U	450 U	480 U	450 UJ	460 U
2-Picoline	540 UJ	440 U	450 U	480 UJ	450 UJ	460 UJ
2-sec-butyl-4,6-dinitrophenol	1,100 U	890 U	910 U	970 U	900 UJ	920 U
3,3'-Dichlorobenzidine	1,100 U	890 U	910 U	970 U	900 UJ	920 U
3,3'-Dimethylbenzidine	2,700 U	2,200 U	2,300 U	2,400 U	2,200 UJ	2,300 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2MW03	2SB01	2SB01	2SB04	2SB05	2SB05
Sample ID	2MW03-01D	2SB01-02	2SB01-05	2SB04-02	2SB05-01/02	2SB05-01/02D
Sample Date	11/09/96	11/18/96	11/18/96	11/10/96	11/10/96	11/10/96
Depth Range (ft.)	2.00-4.00	4.00-6.00	10.00-12.00	4.00-6.00	2.00-6.00	2.00-6.00
SEMIVOLATILES (ug/kg) (cont.)						
3-Methylcholanthrene	540 U	440 UJ	450 U	480 U	450 UJ	460 U
3-Nitroaniline	2,700 U	2,200 UJ	2,300 UJ	2,400 U	2,200 UJ	2,300 U
4,6-Dinitro-2-methylphenol	2,700 U	2,200 U	2,300 U	2,400 U	2,200 UJ	2,300 U
4-Aminobiphenyl	1,100 U	890 U	910 U	970 U	900 UJ	920 U
4-Bromophenyl phenyl ether	540 U	440 U	450 U	480 U	450 UJ	460 U
4-Chloro-3-methylphenol	1,100 U	890 U	910 U	970 U	900 UJ	920 U
4-Chloroaniline	1,100 UJ	890 U	910 U	970 UJ	900 UJ	920 UJ
4-Chlorophenyl phenyl ether	540 U	440 U	450 U	480 U	450 UJ	460 U
4-Nitroaniline	2,700 U	2,200 U	2,300 U	2,400 U	2,200 UJ	2,300 U
4-Nitrophenol	2,700 U	2,200 U	2,300 U	2,400 U	2,200 UJ	2,300 U
4-Nitroquinoline-1-oxide	2,700 R	2,200 U	2,300 U	2,400 R	2,200 UJ	2,300 R
5-Nitro-o-toluidine	1,100 UJ	890 U	910 U	970 UJ	900 UJ	920 UJ
7,12-Dimethylbenz(a)anthracene	1,100 U	890 UJ	910 U	970 U	900 UJ	920 U
Acenaphthene	540 U	440 U	450 U	480 U	450 UJ	460 U
Acenaphthylene	540 U	440 U	450 U	480 U	450 UJ	460 U
Acetophenone	540 U	440 U	450 U	480 U	450 UJ	460 U
alpha, alpha-Dimethylphenethylamine	2,700 UJ	2,200 UJ	2,300 UJ	2,400 UJ	2,200 UJ	2,300 UJ
Aniline	2,700 U	2,200 U	2,300 U	2,400 U	2,200 UJ	2,300 U
Anthracene	540 U	440 U	450 U	480 U	450 UJ	460 U
Aramite	1,100 U	890 U	910 U	970 U	900 UJ	920 U
Benzidine	5,400 U	4,400 U	4,500 UJ	4,800 U	4,500 UJ	4,600 U
Benzo(a)anthracene	540 U	440 U	450 U	480 U	450 UJ	460 U
Benzo(a)pyrene	540 U	440 UJ	450 U	480 U	450 UJ	460 U
Benzo(b)fluoranthene	540 U	440 UJ	450 U	480 U	450 UJ	460 U
Benzo(g,h,i)perylene	540 U	440 UJ	450 U	480 U	450 UJ	460 U
Benzo(k)fluoranthene	540 U	440 UJ	450 U	480 U	450 UJ	460 U
Benzoic acid	2,700 U	2,200 U	2,300 U	2,400 U	2,200 UJ	2,300 U
Benzyl alcohol	540 U	440 U	450 U	480 U	450 UJ	460 U
Bis(2-chloroethoxy)methane	540 U	440 U	450 U	480 U	450 UJ	460 U
Bis(2-chloroethyl)ether	540 U	440 U	450 U	480 U	450 UJ	460 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2MW03	2SB01	2SB01	2SB04	2SB05	2SB05
Sample ID	2MW03-01D	2SB01-02	2SB01-05	2SB04-02	2SB05-01/02	2SB05-01/02D
Sample Date	11/09/96	11/18/96	11/18/96	11/10/96	11/10/96	11/10/96
Depth Range (ft.)	2.00-4.00	4.00-6.00	10.00-12.00	4.00-6.00	2.00-6.00	2.00-6.00
SEMIVOLATILES (ug/kg) (cont.)						
Bis(2-ethylhexyl)phthalate	540 U	150 J	450 U	480 U	450 UJ	460 U
Butylbenzylphthalate	540 U	440 U	450 U	480 U	450 UJ	460 U
Carbazole	540 U	440 U	450 U	480 U	450 UJ	460 U
Chlorobenzilate	540 U	440 U	450 U	480 U	450 UJ	460 U
Chrysene	540 U	440 U	450 U	480 U	450 UJ	460 U
Diallate	540 U	440 U	450 U	480 U	450 UJ	460 U
Dibenzo(a,h)anthracene	540 U	440 UJ	450 U	480 U	450 UJ	460 U
Dibenzofuran	540 U	440 U	450 U	480 U	450 UJ	460 U
Diethylphthalate	540 U	440 U	450 U	480 U	450 UJ	460 U
Dimethylphthalate	540 U	440 U	450 U	480 U	450 UJ	460 U
Di-n-butylphthalate	540 U	440 U	450 U	480 U	450 UJ	460 U
Di-n-octylphthalate	540 U	440 UJ	450 U	480 U	450 UJ	460 U
Diphenylamine	540 U	440 U	450 U	480 U	450 UJ	460 U
Ethyl methanesulfonate	540 U	440 UJ	450 UJ	480 U	450 UJ	460 U
Fluoranthene	540 U	440 U	450 U	480 U	450 UJ	460 U
Fluorene	540 U	240 J	450 U	480 U	450 UJ	460 U
Hexachlorobenzene	540 U	440 U	450 U	480 U	450 UJ	460 U
Hexachlorobutadiene	540 U	440 U	450 U	480 U	450 UJ	460 U
Hexachlorocyclopentadiene	540 U	440 U	450 U	480 U	450 UJ	460 U
Hexachloroethane	540 U	440 U	450 U	480 U	450 UJ	460 U
Hexachlorophene	5,400 U	4,400 UJ	4,500 U	4,800 U	4,500 UJ	4,600 U
Hexachloropropene	2,700 U	2,200 U	2,300 U	2,400 U	2,200 UJ	2,300 U
Indeno(1,2,3-cd)pyrene	540 U	440 UJ	450 U	480 U	450 UJ	460 U
Isophorone	540 U	440 U	450 U	480 U	450 UJ	460 U
Isosafrole	540 U	440 U	450 U	480 U	450 UJ	460 U
m&p Cresol	540 U	440 U	450 U	480 U	450 UJ	460 U
m-Dinitrobenzene	1,100 U	890 U	910 U	970 U	900 UJ	920 U
Meta-Dinitrobenzene	1,100 U	890 U	910 U	970 U	900 UJ	920 U
Methapyrilene	1,400 UJ	1,100 U	1,100 U	1,200 UJ	1,100 UJ	1,100 UJ
Methyl methanesulfonate	540 UJ	440 U	450 U	480 UJ	450 UJ	460 UJ

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2MW03	2SB01	2SB01	2SB04	2SB05	2SB05
Sample ID	2MW03-01D	2SB01-02	2SB01-05	2SB04-02	2SB05-01/02	2SB05-01/02D
Sample Date	11/09/96	11/18/96	11/18/96	11/10/96	11/10/96	11/10/96
Depth Range (ft.)	2.00-4.00	4.00-6.00	10.00-12.00	4.00-6.00	2.00-6.00	2.00-6.00
SEMIVOLATILES (ug/kg) (cont.)						
Naphthalene	540 U	440 U	450 U	480 U	450 UJ	460 U
Nitrobenzene	540 U	440 U	450 U	480 U	450 UJ	460 U
N-Nitrosodiethylamine	540 UJ	440 U	450 U	480 UJ	450 UJ	460 UJ
N-Nitrosodimethylamine	540 U	440 U	450 U	480 U	450 UJ	460 U
N-Nitroso-di-n-butylamine	540 U	440 U	450 U	480 U	450 UJ	460 U
N-Nitroso-di-n-propylamine	540 U	440 U	450 U	480 U	450 UJ	460 U
N-Nitrosodiphenylamine (1)	540 U	440 U	450 U	480 U	450 UJ	460 U
N-Nitrosomethylethylamine	540 UJ	440 U	450 U	480 UJ	450 UJ	460 UJ
N-Nitrosomorpholine	1,100 UJ	890 U	910 U	970 UJ	900 UJ	920 UJ
N-Nitrosopiperidine	540 UJ	440 U	450 U	480 UJ	450 UJ	460 UJ
N-Nitrosopyrrolidine	2,700 U	2,200 UJ	2,300 UJ	2,400 U	2,200 UJ	2,300 U
o-Cresol	540 U	440 U	450 U	480 U	450 UJ	460 U
o-Toluidine	540 U	440 UJ	450 UJ	480 U	450 UJ	460 U
p-Cresol	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	1,100 U	890 U	910 U	970 U	900 UJ	920 U
Pentachlorobenzene	540 U	440 U	450 U	480 U	450 UJ	460 U
Pentachloronitrobenzene	540 U	440 U	450 U	480 U	450 UJ	460 U
Pentachlorophenol	2,700 U	2,200 U	2,300 U	2,400 U	2,200 UJ	2,300 U
Phenacetin	540 U	440 UJ	450 UJ	480 U	450 UJ	460 U
Phenanthrene	540 U	56 J	450 U	480 U	450 UJ	460 U
Phenol	540 U	440 U	450 U	480 U	450 UJ	460 U
p-Phenylenediamine	1,100 U	890 R	910 R	970 U	900 UJ	920 U
Pronamide	540 U	440 U	450 U	480 U	450 UJ	460 U
Pyrene	540 U	440 UJ	450 UJ	480 U	450 UJ	460 U
Pyridine	1,100 U	890 U	910 U	970 U	900 UJ	920 U
Safrole	540 U	440 U	450 U	480 U	450 UJ	460 U
sym-Trinitrobenzene	5,400 U	4,400 R	4,500 R	4,800 U	4,500 UJ	4,600 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2MW03	2SB01	2SB01	2SB04	2SB05	2SB05
Sample ID	2MW03-01D	2SB01-02	2SB01-05	2SB04-02	2SB05-01/02	2SB05-01/02D
Sample Date	11/09/96	11/18/96	11/18/96	11/10/96	11/10/96	11/10/96
Depth Range (ft.)	2.00-4.00	4.00-6.00	10.00-12.00	4.00-6.00	2.00-6.00	2.00-6.00
PESTICIDES/PCBs (ug/kg)						
4,4'-DDD	26 U	11 U	11 U	12 U	11 U	11 U
4,4'-DDE	26 U	11 U	11 U	12 U	11 U	11 U
4,4'-DDT	26 U	11 U	11 U	12 U	11 U	11 U
Aldrin	13 U	5.4 U	5.5 U	5.9 U	5.4 U	5.6 U
alpha-BHC	13 U	5.4 U	5.5 U	5.9 U	5.4 U	5.6 U
alpha-Chlordane	130 U	54 U	55 U	59 U	54 U	56 U
beta-BHC	13 U	5.4 U	5.5 U	5.9 U	5.4 U	5.6 U
Chlordane, gamma-	NA	NA	NA	NA	NA	NA
delta-BHC	13 U	5.4 U	5.5 U	5.9 U	5.4 U	5.6 U
Dieldrin	26 U	11 U	11 U	12 U	11 U	11 U
Endosulfan I	13 U	5.4 U	5.5 U	5.9 U	5.4 U	5.6 U
Endosulfan II	26 U	11 U	11 U	12 U	11 U	11 U
Endosulfan sulfate	26 U	11 U	11 U	12 U	11 U	11 U
Endrin	26 U	11 U	11 U	12 U	11 U	11 U
Endrin aldehyde	26 U	11 U	11 U	12 U	11 U	11 U
Endrin ketone	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	13 U	5.4 U	5.5 U	5.9 U	5.4 U	5.6 U
gamma-Chlordane	130 U	54 U	55 U	59 U	54 U	56 U
Heptachlor	13 U	5.4 U	5.5 U	5.9 U	5.4 U	5.6 U
Heptachlor epoxide	13 U	5.4 U	5.5 U	5.9 U	5.4 U	5.6 U
Isodrin	13 U	5.4 UJ	5.5 UJ	5.9 U	5.4 U	5.6 U
Kepone	26 UJ	11 R	11 R	12 UJ	11 UJ	11 UJ
Methoxychlor	130 U	54 U	55 U	59 U	54 U	56 U
Toxaphene	260 U	110 U	110 U	120 U	110 U	110 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2MW03	2SB01	2SB01	2SB04	2SB05	2SB05
Sample ID	2MW03-01D	2SB01-02	2SB01-05	2SB04-02	2SB05-01/02	2SB05-01/02D
Sample Date	11/09/96	11/18/96	11/18/96	11/10/96	11/10/96	11/10/96
Depth Range (ft.)	2.00-4.00	4.00-6.00	10.00-12.00	4.00-6.00	2.00-6.00	2.00-6.00
PESTICIDES/PCBs (ug/kg) (cont.)						
Aroclor-1016	130 U	54 U	55 U	59 U	54 U	56 U
Aroclor-1221	130 U	54 U	55 U	59 U	54 U	56 U
Aroclor-1232	130 U	54 U	55 U	59 U	54 U	56 U
Aroclor-1242	130 U	54 U	55 U	59 U	54 U	56 U
Aroclor-1248	130 U	54 U	55 U	59 U	54 U	56 U
Aroclor-1254	260 U	110 U	110 U	120 U	110 U	110 U
Aroclor-1260	260 U	110 U	110 U	120 U	110 U	110 U
CHLORINATED HERBICIDES (ug/kg)						
2,4,5-T	270 U	44 U	45 U	48 U	45 U	46 U
2,4,5-TP (Silvex)	270 U	44 U	45 U	48 U	45 U	46 U
2,4-D	2,700 U	440 U	450 U	480 U	450 U	460 U
OP-PESTICIDES (ug/kg)						
Dimethoate	110 U	88 U	92 U	96 U	92 U	94 U
Disulfoton	110 U	88 U	92 U	96 U	92 U	94 U
Famphur	110 U	88 U	92 U	96 U	92 U	94 U
Methyl parathion	110 U	88 U	92 U	96 U	92 U	94 U
O,O,O-Triethylphosphorothioate	110 U	88 U	92 U	96 U	92 U	94 U
Parathion	110 U	88 U	92 U	96 U	92 U	94 U
Phorate	110 U	88 U	92 U	96 U	92 U	94 U
Sulfotepp	110 U	88 U	92 U	96 U	92 U	94 U
Thionazin	110 U	88 U	92 U	96 U	92 U	94 U
DIOXINS (ug/kg)						
2,3,7,8-TCDD	0.04 U	0.02	0.02	0.04 U	0.03 U	0.03 U
Total HxCDD	0.08 U	0.11	0.11	0.21 JS	0.09 U	0.07 U
Total HxCDF	0.06 U	0.02	0.02	0.05 U	0.05 U	0.04 U
Total PeCDD	0.06 U	0.02	0.02	0.06 U	0.04 U	0.05 U
Total PeCDF	0.05 U	0.04	0.04	0.03 U	0.04 U	0.04 U
Total TCDD	0.04 U	0.02	0.02	0.04 U	0.03 U	0.03 U
Total TCDF	0.03 U	0.04	0.04	0.28 JS	0.07 JS	0.02 U

APPENDIX F.13 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2MW03	2SB01	2SB01	2SB04	2SB05	2SB05
Sample ID	2MW03-01D	2SB01-02	2SB01-05	2SB04-02	2SB05-01/02	2SB05-01/02D
Sample Date	11/09/96	11/18/96	11/18/96	11/10/96	11/10/96	11/10/96
Depth Range (ft.)	2.00-4.00	4.00-6.00	10.00-12.00	4.00-6.00	2.00-6.00	2.00-6.00
EXPLOSIVES (ug/kg)						
1,3,5-Trinitrobenzene	130 U	130 U	130 U	130 U	130 U	130 U
1,3-Dinitrobenzene	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-TNT	120 U	120 U	120 U	120 U	120 U	120 U
2,4-DNT/2,6-DNT	200 U	200 U	200 U	200 U	200 U	200 U
2-Nitrotoluene	500 U	500 U	500 U	500 U	500 U	500 U
3-Nitrotoluene	500 U	500 U	500 U	500 U	500 U	500 U
4-Nitrotoluene	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U	1,500 U
Amino-DNTs	200 U	200 U	200 U	200 U	200 U	200 U
HMX	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U	1,100 U
Nitrobenzene	210 U	210 U	210 U	210 U	210 U	210 U
RDX (Cyclonite)	540 U	540 U	540 U	540 U	540 U	540 U
Tetryl	380 U	380 U	380 U	380 U	380 U	380 U
ASBESTOS						
Asbestos (MFL)	ND	ND	ND	ND	ND	ND

APPENDIX F.14
SUBSURFACE SOIL, INORGANICS, SWMU 2

APPENDIX F.14 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	R6S10	R6S10	06SS101	06SS103	06SS104	06SS104	06SS105	06SS106	2MW01	2MW02
Sample ID	R6S010B	R6S010C	06SS142	06SS146	06SS148	06SS149-DUP	06SS151	06SS154	2MW01-01	2MW02-02
Sample Date	11/04/87	11/04/87	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/08/96	11/06/96
Depth Range (ft.)	1.00-2.00	2.00-3.00	1.5-2.67	0.5-1.5	1.5-2.67	1.5-2.67	2.0-3.0	1.5-2.67	2.00-4.00	4.00-6.00
Inorganics (ug/kg)										
Aluminum	NA	NA	12,400	18,600	7,220 J	13,700 J	38,600 J	22,800 J	NA	NA
Antimony	NA	NA	21.4 J	19.8 J	2.4 UJ	2.4 UJ	2.8 UJ	2.9 J	4.6 J	3.6 J
Arsenic	NA	NA	21.4	18.7	0.95 B	1.7 B	1.5 J	10.5	1.6 J	0.73 J
Barium	NA	NA	25.1 U	509	32.4 B	41.9 B	213	173	67.8 J	90.8 J
Beryllium	NA	NA	0.82 B	0.57 B	0.16 B	0.22 B	1.3 B	0.42 B	0.05 U	0.05 U
Cadmium	NA	NA	9.3	5	1.3 UJ	1.3 UJ	5.1	1.5 UJ	0.33	0.24 U
Calcium	NA	NA	15,900	61,000	20,100 B	337,000	10,700	154,000	NA	NA
Chromium	NA	NA	110	39.4	15.4	21.7	2.8	26.4	38.5	28.8
Cobalt	NA	NA	6.9 U	15.7	3.5 B	4.9 B	14.1	14.2	42.5	35.6
Copper	NA	NA	1,490	774	13.2	17.6	86.3	60.7	44.8	40.1
Cyanide	NA	NA	0.36 U	0.15 U	0.12 U	0.12 U	0.14 U	0.14 U	0.7 U	0.37 U
Iron	NA	NA	238,000	44,900	9,050 J	16,000 J	84,100 J	24,400 J	NA	NA
Lead	199	63.6	546 J	5,850 J	7.4	3.4	5	89.5	7.8	14.2
Magnesium	NA	NA	14,600	12,700	5,890	8,250	10,900	9,220	NA	NA
Manganese	NA	NA	766	601	212	458	245	615	NA	NA
Mercury	NA	NA	0.3 U	0.68	0.1 U	0.09 U	0.13 U	0.13 U	0.06	0.03 U
Nickel	NA	NA	108	17.4	4.5 UJ	4.6 UJ	5.3 UJ	5.1 UJ	16.8	11.1
Potassium	NA	NA	3,690	2,200	549 U	788 B	1,200 B	1880	NA	NA
Selenium	NA	NA	2.1 J	0.72 J	0.58 UJ	0.59 UJ	0.68 UJ	0.65 UJ	1 J	0.21 J
Silver	NA	NA	3.2 UJ	1.3 UJ	1.1 UJ	1.1 UJ	1.3 UJ	1.2 UJ	0.22 U	0.2 U
Sodium	NA	NA	50,100 J	7,540 J	3,830 J	5630 J	11300 J	7470 J	NA	NA
Sulfide	NA	NA	NA	NA	NA	NA	NA	NA	34.2 R	31 R
Thallium	NA	NA	1.1 UJ	0.44 UJ	0.36 UJ	0.37 UJ	0.42 UJ	0.41 UJ	0.18 U	0.18 U
Tin	NA	NA	NA	NA	NA	NA	NA	NA	1.1 U	0.99 U
Vanadium	NA	NA	145	116	22.8	33.7	257	70.5	232	210
Zinc	NA	NA	592	2010	24.3	33.8	80.7	102	42.6	36.3

APPENDIX F.14 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2MW02	2MW03	2MW03	2SB01	2SB01	2SB04	2SB05	2SB05
Sample ID	2MW02-05	2MW03-01	2MW03-01D	2SB01-02	2SB01-05	2SB04-02	2SB05-01/02	2SB05-01/02D
Sample Date	11/06/96	11/09/96	11/09/96	11/18/96	11/18/96	11/10/96	11/10/96	11/10/96
Depth Range (ft.)	10.00-12.00	2.00-4.00	2.00-4.00	4.00-6.00	10.00-12.00	4.00-6.00	2.00-6.00	2.00-6.00
Inorganics (ug/kg)								
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	1.9 UJ	3.3 J	3.3 J	3.9 J	4.9 J	5 J	5.1 J	9.4 J
Arsenic	0.2 UJ	4.2 J	2.6 UJ	0.37 J	0.21 UJ	1.6 J	1.3 J	1 J
Barium	367 J	209 J	193 J	56.9	33.5	490 J	357 J	222 J
Beryllium	0.05 U	0.13	0.21	0.19	0.11	0.06	0.04 U	0.14
Cadmium	0.3	0.49	0.58	0.29	0.39	0.62	0.64	0.47 U
Calcium	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	6.3	39.9	31.2	36.7	20.8	35.9	39.8	31.3
Cobalt	73.4	25.7	15.8	27.1 J	22.1 J	70.3	102	112
Copper	50.3	205	69.6	63.2 J	97.4 J	55.4	39.5	38.4
Cyanide	0.42 U	0.79 U	0.61 U	0.54 U	0.65 U	0.45 U	0.51 U	0.54 U
Iron	NA	NA	NA	NA	NA	NA	NA	NA
Lead	3.5	350	82.4	4.5 R	2.2 R	23.4	10	10.3
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.02 U	0.06	0.07	0.03 U	0.03 U	0.06	0.04	0.04
Nickel	13.5	20.4	16.3	20.3	16.9	17.7	19.7	22
Potassium	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.18 UJ	1.3 J	0.61 J	0.17 UJ	0.19 UJ	0.67 J	1 UJ	1.1 J
Silver	0.21 U	0.23 U	0.26 U	0.21 U	0.21 U	0.22 U	0.2 U	1.6
Sodium	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	27.6 R	952 J	1750 J	32.2 U	34.5 U	34.9 R	32.1 R	35.1 R
Thallium	0.16 U	0.25 UJ	0.21 UJ	0.15 U	0.17 U	0.18 U	0.18 U	0.18 U
Tin	1 U	62.5	12.9	1 U	1 U	4.2	0.94 U	2 U
Vanadium	141	142	132	191 J	222 J	240	253	261
Zinc	36.1	180	66.7	60.3 J	29.5 J	57.5	36.9	37.1

APPENDIX F.15
SEDIMENT, ORGANICS, SWMU 2

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SE1	6SE2	6SE3	14SE10	6SE1	6SE2	6SE3	2SD01	2SD02	2SD03	2SD03	2SD01	2SD02	2SD
Sample ID	R6SE1	R6SE2	R6SE3	14SE10	R6SE01	R6SE02	R6SE03	2SD01	2SD02	2SD03	2SD03 DUP	2SD01	2SD02	2SD
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87	10/31/95	10/31/95	10/31/95	10/31/95	11/11/96	11/11/96	11/11
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1
VOLATILES (ug/kg)														
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	17 U	24 U	16 U	14 U	15 U	15 U	12
1,1,1-Trichloroethane	170 U	240 U	170 U	220 U	550 U	360 U	480 U	9 U	12 U	8 U	7 U	8 U	8 U	6
1,1,2,2-Tetrachloroethane	590 U	870 U	620 U	650 U	590 U	390 U	510 U	9 U	12 U	8 U	7 U	8 UJ	8 U	6
1,1,2-Trichloroethane	380 U	560 U	400 U	490 U	720 U	480 U	630 U	9 U	12 U	8 U	7 U	8 U	8 U	6
1,1-Dichloroethane	270 U	400 U	280 U	280 U	680 U	450 U	590 U	9 U	12 U	8 U	7 U	8 U	8 U	6
1,1-Dichloroethene	450 U	660 U	470 U	510 U	400 U	270 U	350 U	9 U	12 U	8 U	7 U	8 U	8 U	6
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	NA	17 U	24 U	16 U	14 U	15 U	15 U	12
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA	NA	35 U	47 U	33 U	29 U	31 UJ	30 U	24
1,2-Dibromoethane	4 U	4 U	4 U	4 U	0.816 U	0.558 U	0.706 U	35 U	47 U	33 U	29 U	31 U	30 U	24
1,2-Dichloroethane	210 U	320 U	220 U	250 U	400 U	270 U	350 U	9 U	12 U	8 U	7 U	8 U	8 U	6
1,2-Dichloroethene (Total)	NA	NA	NA	NA	NA	NA	NA	9 U	12 U	8 U	7 U	8 U	8 U	6
1,2-Dichloropropane	500 U	740 U	520 U	520 U	860 U	570 U	750 U	9 U	12 U	8 U	7 U	8 U	8 U	6
2-Butanone	1,500 U	2,200 U	1,600	1,100 U	6,900 U	4,600 U	6,000 U	17 U	24 U	16 U	11 J	15 U	15 U	12
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA	NA	170 U	240 U	160 U	140	150 R	150 R	120
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	17 U	24 U	16 U	14 U	15 U	15 U	12
3-Chloropropene	NA	NA	NA	NA	NA	NA	NA	35 U	47 U	33 U	29 U	31 U	30 U	24
4-Methyl-2-pentanone	1,000 U	1,500 U	1,100 U	1,200 U	1,700 U	1,100 U	1,500 U	17 U	24 U	16 U	14 U	15 UJ	15 U	12
Acetone	NA	NA	NA	NA	NA	NA	NA	30 U	42 U	33 U	51 U	15 U	15 UJ	12
Acetonitrile	NA	NA	NA	NA	NA	NA	NA	170 U	240 U	160 U	140 U	150 U	150 U	120
Acrolein	NA	NA	NA	NA	NA	NA	NA	860 R	1,200 R	820 R	720 R	770 UJ	760 UJ	600
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	170 U	240 U	160 U	140 U	150 UJ	150 U	120
Benzene	150 U	230 U	160 U	170 U	630 U	420 U	550 U	9 U	12 U	8 U	7 U	8 U	8 U	6
Bromodichloromethane	180 U	260 U	180 U	220 U	320 U	210 U	280 U	9 U	12 U	8 U	7 U	8 U	8 U	6
Bromoform	400 U	590 U	420 U	580 U	680 U	450 U	590 U	9 U	12 U	8 U	7 U	8 U	8 U	6
Bromomethane	370 U	550 U	390 U	460 U	800 U	540 U	700 U	17 U	24 U	16 U	14 U	15 U	15 U	12
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	9 U	12 U	8 U	7 U	8 U	8 U	6

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SE1	6SE2	6SE3	14SE10	6SE1	6SE2	6SE3	2SD01	2SD02	2SD03	2SD03	2SD01	2SD02	2SD
Sample ID	R6SE1	R6SE2	R6SE3	14SE10	R6SE01	R6SE02	R6SE03	2SD01	2SD02	2SD03	2SD03 DUP	2SD01	2SD02	2SD
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87	10/31/95	10/31/95	10/31/95	10/31/95	11/11/96	11/11/96	11/11
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1
VOLATILES (ug/kg) (cont.)														
Carbon tetrachloride	140 U	200 U	150 U	200 U	400 U	270 U	350 U	9 U	12 U	8 U	7 U	8 U	8 U	6
Chlorobenzene	130 U	190 U	130 U	160 U	860 U	570 U	750 U	9 U	12 U	8 U	7 U	8 U	8 U	6
Chloroethane	830 U	1,200 U	860 U	1,000 U	1,200 U	790 U	1,000 U	17 U	24 U	16 U	14 U	15 U	15 U	12
Chloroform	153 U	224 U	159 U	180 U	230 U	150 U	200 U	9 U	12 U	8 U	7 U	8 U	8 U	6
Chloromethane	590 U	870 U	610 U	400 U	620 U	410 U	540 U	17 U	24 U	16 U	14 U	15 UJ	15 U	12
cis-1,3-Dichloropropene	180 U	270 U	190 U	220 U	720 U	480 U	630 U	9 U	12 U	8 U	7 U	8 U	8 U	6
Dibromochloromethane	260 U	380 U	270 U	360 U	450 U	300 U	390 U	9 U	12 U	8 U	7 U	8 U	8 U	6
Dibromomethane	NA	NA	NA	NA	NA	NA	NA	17 U	24 U	16 U	14 U	15 U	15 U	12
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	35 U	47 U	33 U	29 U	31 UJ	30 UJ	24
Ethene, (2-chloroethoxy)-	800 U	1,200 U	830 U	1,000 U	1,400 U	960 U	1,300 U	NA	NA	NA	NA	NA	NA	NA
Ethene, 1,2-dichloro-, (E)-	440 U	650 U	460 U	470 U	230 U	150 U	200 U	NA	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	NA	NA	NA	NA	NA	NA	NA	35 U	47 U	33 U	29 U	31 U	30 UJ	24
Ethylbenzene	280 U	420 U	290 U	350 U	1,000 U	690 U	900 U	9 U	12 U	8 U	7 U	8 U	8 U	6
Iodomethane	NA	NA	NA	NA	NA	NA	NA	17 U	24 U	16 U	14 U	15 U	15 UJ	12
Isobutanol	NA	NA	NA	NA	NA	NA	NA	3,500 U	4,700 U	3,300 U	2900 U	3100 R	3000 R	2400
Methacrylonitrile	NA	NA	NA	NA	NA	NA	NA	35 U	47 U	33 U	29 U	31 U	30 U	24
Methyl methacrylate	NA	NA	NA	NA	NA	NA	NA	35 U	47 U	33 U	29 U	31 U	30 U	24
Methylene chloride	390 U	580 U	410 U	400 U	2,900 U	1,900 U	2,500 U	9 U	12 U	8 U	7 U	8 U	8 U	6
m-Xylene	80 U	120 U	80 U	100 U	860 U	570 U	750 U	NA	NA	NA	NA	NA	NA	NA
Pentachloroethane	NA	NA	NA	NA	NA	NA	NA	35 U	47 U	33 U	29 U	31 U	30 UJ	24
Propionitrile	NA	NA	NA	NA	NA	NA	NA	86 U	120 U	82 U	72 U	77 R	76 U	60
Styrene	NA	NA	NA	NA	NA	NA	NA	9 U	12 U	8 U	7 U	8 U	8 U	6
Tetrachloroethene	250 U	370 U	260 U	350 U	590 U	390 U	510 U	9 U	12 U	8 U	7 U	8 UJ	8 U	6
Toluene	200 U	290 U	210 U	230 U	860 U	570 U	750 U	9 U	12 U	8 U	7 U	8 U	8 U	6
trans-1,3-Dichloropropene	180 U	270 U	190 U	220 U	920 U	610 U	800 U	9 U	12 U	8 U	7 U	8 U	8 U	6
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	NA	35 U	47 U	33 U	29 U	31 U	30 U	24
Trichloroethene	290 U	430 U	300 U	320 U	270 U	180 U	240 U	9 U	12 U	8 U	7 U	8 U	8 U	6
Trichlorofluoromethane	540 U	800 U	560 U	610 U	460 U	310 U	400 U	17 U	24 U	16 U	14 U	15 UJ	15 UJ	12
Vinyl Acetate	NA	NA	NA	NA	NA	NA	NA	17 U	24 U	16 U	14 U	15 U	15 UJ	12
Vinyl chloride	420 U	620 U	440 U	430 U	700 U	470 U	610 U	17 U	24 U	16 U	14 U	15 U	15 U	12

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SE1	6SE2	6SE3	14SE10	6SE1	6SE2	6SE3	2SD01	2SD02	2SD03	2SD03	2SD01	2SD02	2SD
Sample ID	R6SE1	R6SE2	R6SE3	14SE10	R6SE01	R6SE02	R6SE03	2SD01	2SD02	2SD03	2SD03 DUP	2SD01	2SD02	2SD
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87	10/31/95	10/31/95	10/31/95	10/31/95	11/11/96	11/11/96	11/11
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1
Xylene (total)	80 U	110 U	80 U	100 U	860 U	570 U	750 U	9 U	12 U	8 U	7 U	8 U	8 U	6
SEMIVOLATILES (ug/kg)														
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
1,2,4-Trichlorobenzene	60 U	70 U	100 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
1,2-Dichlorobenzene	60 U	60 U	80 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500 U	500 U	400
1,3-Dichlorobenzene	60 U	60 U	80 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
1,4-Dichlorobenzene	60 U	60 U	70 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	2300 U	3100 U	2100 U	1900 U	1000 U	1000 U	800
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA	NA	2800 U	3900 U	2700 U	2300 U	2500 U	2500 U	2000
1-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	1000 U	1000 U	800
2,2'-Oxybis(1-Chloropropane)	60 U	60 U	100 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	2800 U	3900 U	2700 U	2300 U	2500 U	2500 U	2000
2,4,6-Trichlorophenol	70 U	100 U	180 U	NA	340 U	230 U	300 U	560 U	780 U	540 U	470 U	500 U	500 U	400
2,4-Dichlorophenol	60 U	70 U	120 U	NA	340 U	230 U	300 U	560 U	780 U	540 U	470 U	500 U	500 U	400
2,4-Dimethylphenol	60 U	60 U	100 U	NA	1700 U	1100 U	1500 U	560 U	780 U	540 U	470 U	500 U	500 UJ	400
2,4-Dinitrophenol	220 U	300 U	970 U	NA	3700 U	2500 U	3300 U	2800 U	3900 U	2700 U	2300 U	2500 U	2500 U	2000
2,4-Dinitrotoluene	60 U	80 U	200 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
2,6-Dinitrotoluene	90 U	100 U	200 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA	NA	1100 U	1600 U	1100 U	940 U	1000 U	1000 UJ	800
2-Chloronaphthalene	60 U	60 U	60 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
2-Chlorophenol	60 U	60 U	80 U	NA	290 U	190 U	250 U	560 U	780 U	540 U	470 U	500 U	500 U	400
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
2-Naphthylamine	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	1200 U	1200 U	1000
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	2800 U	3900 U	2700 U	2300 U	2500 U	2500 U	2000
2-Nitrophenol	60 U	80 U	180 U	NA	290 U	190 U	250 U	560 U	780 U	540 U	470 U	500 U	500 U	400
2-Picoline	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 UJ	500 U	400

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SE1	6SE2	6SE3	14SE10	6SE1	6SE2	6SE3	2SD01	2SD02	2SD03	2SD03	2SD01	2SD02	2SD
Sample ID	R6SE1	R6SE2	R6SE3	14SE10	R6SE01	R6SE02	R6SE03	2SD01	2SD02	2SD03	2SD03 DUP	2SD01	2SD02	2SD
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87	10/31/95	10/31/95	10/31/95	10/31/95	11/11/96	11/11/96	11/11
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1
SEMIVOLATILES (ug/kg) (cont.)														
2-sec-butyl-4,6-dinitrophenol	NA	NA	NA	NA	NA	NA	NA	1100 U	1600 U	1100 U	940 U	1000 U	1000 U	800
3,3'-Dichlorobenzidine	100 U	200 U	800 U	NA	290 U	190 U	250 U	1100 U	1600 U	1100 U	940 U	1000 U	1000 U	800
3,3'-Dimethylbenzidine	NA	NA	NA	NA	NA	NA	NA	1100 R	1600 R	1100 R	940 U	2500 U	2500 U	2000
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	2800 U	3900 U	2700 U	2300 U	2500 U	2500 U	2000
4,6-Dinitro-2-methylphenol	150 U	200 U	510 U	NA	2900 U	1900 U	2500 U	2800 U	3900 U	2700 U	2300 U	2500 U	2500 U	2000
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	1000 U	1000 UJ	800
4-Bromophenyl phenyl ether	80 U	100 U	300 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
4-Chloro-3-methylphenol	60 U	60 U	120 U	NA	340 U	230 U	300 U	560 U	780 U	540 U	470 U	1000 U	1000 U	800
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	1000 UJ	1000 U	800
4-Chlorophenyl phenyl ether	60 U	60 U	100 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	2800 U	3900 U	2700 U	2300 U	2500 U	2500 U	2000
4-Nitrophenol	120 U	170 U	390 U	NA	1700 U	1100 U	1500 U	2800 U	3900 U	2700 U	2300 U	2500 U	2500 U	2000
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA	NA	2800 R	3900 R	2700 R	2300 U	2500 R	2500 U	2000
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA	NA	1100 U	1600 U	1100 U	940 U	1000 UJ	1000 U	800
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	1100 U	1600 U	1100 U	940 U	1000 U	1000 U	800
Acenaphthene	60 U	60 U	60 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
Acenaphthylene	20 U	20 U	30 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
Acetophenone	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
alpha, alpha-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA	NA	2800 U	3900 U	2700 U	2300 U	2500 UJ	2500 UJ	2000
Aniline	NA	NA	NA	NA	NA	NA	NA	2800 U	3900 U	2700 U	2300 U	2500 U	2500 U	2000
Anthracene	60 U	60 U	60 U	NA	170 U	110 U	150 U	560 U	780 U	95 J	300 J	500 U	500 U	400
Aramite	NA	NA	NA	NA	NA	NA	NA	1100 U	1600 U	1100 U	940 U	1000 U	1000 UJ	800
Benzidine	NA	NA	NA	NA	1400 U	960 U	1300 U	NA	NA	NA	NA	5000 U	5000 UJ	4000
Benzo(a)anthracene	60 U	60 U	200 U	NA	170 U	110 U	150 U	560 U	530 J	970	2200	500 U	500 U	400
Benzo(a)pyrene	70 U	90 U	500 U	NA	260 U	170 U	230 U	560 U	780 U	920	1900	500 U	500 U	400
Benzo(b)fluoranthene	60 U	70 U	500 U	NA	260 U	170 U	230 U	560 U	780 U	1800	2700	500 U	63 J	400

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SE1	6SE2	6SE3	14SE10	6SE1	6SE2	6SE3	2SD01	2SD02	2SD03	2SD03	2SD01	2SD02	2SD
Sample ID	R6SE1	R6SE2	R6SE3	14SE10	R6SE01	R6SE02	R6SE03	2SD01	2SD02	2SD03	2SD03 DUP	2SD01	2SD02	2SD
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87	10/31/95	10/31/95	10/31/95	10/31/95	11/11/96	11/11/96	11/11
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1
SEMIVOLATILES (ug/kg) (cont.)														
Benzo(g,h,i)perylene	120 U	170 U	1200 U	NA	340 U	230 U	300 U	560 U	780 U	540 U	870	500 U	500 U	400
Benzo(k)fluoranthene	60 U	70 U	400 U	NA	260 U	170 U	230 U	560 U	780 U	140 J	1400	500 U	500 U	400
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	2800 U	3900 U	2700 U	2300 U	2500 U	2500 U	2000
Benzyl alcohol	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 UJ	400
Bis(2-chloroethoxy)methane	60 U	60 U	60 U	NA	171 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
Bis(2-chloroethyl)ether	60 U	60 U	60 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
Bis(2-ethylhexyl)phthalate	90	60 U	200 U	NA	13000	150 U	10000	200 J	880	540 U	470 U	500 U	500 U	400
Butylbenzylphthalate	60 U	60 U	100 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
Carbazole	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	65 J	500 U	500 U	400
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
Chrysene	60 U	60 U	200 U	NA	170 U	110 U	150 U	560 U	720 J	1200	2600	500 U	500 U	400
Cresols	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
Dibenzo(a,h)anthracene	100 U	200 U	1000 U	NA	340 U	230 U	300 U	560 U	780 U	540 U	260 J	500 U	500 U	400
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
Dichlorobenzenes	110 U	160 U	110 U	130 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	60 U	60 U	60 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
Dimethylphthalate	60 U	60 U	60 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
Di-n-butylphthalate	60 U	60 U	60 U	NA	170 U	110 U	150 U	560 U	910 U	540 U	710 U	500 U	500 U	400
Di-n-octylphthalate	300	200	200	NA	240 U	160 U	210 U	560 U	780 U	540 U	470 U	500 U	500 U	400
Diphenylamine	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
Fluoranthene	60 U	60 U	80 U	NA	170 U	110 U	150 U	560 U	960	1900	3500	500 U	500 U	400
Fluorene	60 U	60 U	60 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	62 J	500 U	500 U	400
Hexachlorobenzene	70 U	100 U	200 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
Hexachlorobutadiene	100 U	100 U	200 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
Hexachlorocyclopentadiene	100 U	200 U	300 U	NA	2900 U	1900 U	2500 U	560 U	780 U	540 U	470 U	500 U	500 U	400

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SE1	6SE2	6SE3	14SE10	6SE1	6SE2	6SE3	2SD01	2SD02	2SD03	2SD03	2SD01	2SD02	2SD(
Sample ID	R6SE1	R6SE2	R6SE3	14SE10	R6SE01	R6SE02	R6SE03	2SD01	2SD02	2SD03	2SD03 DUP	2SD01	2SD02	2SD(
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87	10/31/95	10/31/95	10/31/95	10/31/95	11/11/96	11/11/96	11/11
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1
SEMIVOLATILES (ug/kg) (cont.)														
Hexachloroethane	80 U	100 U	200 U	NA	220 U	140 U	190 U	560 U	780 U	540 U	470 U	500 U	500 U	400
Hexachlorophene	NA	NA	NA	NA	NA	NA	NA	5600 U	7800 U	5400 U	4700 U	5000 U	5000 U	4000
Hexachloropropene	NA	NA	NA	NA	NA	NA	NA	1100 U	1600 U	1100 U	940 U	2500 U	2500 U	2000
Indeno(1,2,3-cd)pyrene	100 U	200 U	1000 U	NA	340 U	230 U	300 U	560 U	780 U	90 J	1000	500 U	500 U	400
Isophorone	60 U	60 U	60 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
Isosafrole	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
m&p Cresol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	470 U	500 U	500 U	400
m-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	1100 U	1600 U	1100 U	940	120 U	120 U	120
Meta-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1000 U	1000 UJ	800
Methapyrilene	NA	NA	NA	NA	NA	NA	NA	1400 U	1900 U	1300 U	1200 U	1200 UJ	1200 UJ	1000
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 UJ	500 U	400
Naphthalene	60 U	60 U	60 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
Nitrobenzene	56 U	60 U	85 U	NA	200 U	130 U	180 U	560 U	780 U	540 U	470 U	500 U	500 U	400
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 UJ	500 U	400
N-Nitrosodimethylamine	60 U	60 U	100 U	NA	290 U	190 U	250 U	560 U	780 U	540 U	470 U	500 U	500 U	400
N-Nitroso-di-n-butylamine	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
N-Nitroso-di-n-propylamine	60 U	60 U	100 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
N-Nitrosodiphenylamine (1)	70 U	100 U	100 U	NA	170 U	110 U	150 U	560 U	780 U	540 U	470 U	500 U	500 U	400
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 UJ	500 U	400
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA	NA	1100 U	1600 U	1100 U	940 U	1000 UJ	1000 U	800
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 UJ	500 U	400
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA	NA	2800 U	3900 U	2700 U	2300 U	2500 U	2500 U	2000
o-Cresol	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
o-Toluidine	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA	NA	1100 U	1600 U	1100 U	940 U	1000 U	1000 U	800
Pentachlorobenzene	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SE1	6SE2	6SE3	14SE10	6SE1	6SE2	6SE3	2SD01	2SD02	2SD03	2SD03	2SD01	2SD02	2SD(
Sample ID	R6SE1	R6SE2	R6SE3	14SE10	R6SE01	R6SE02	R6SE03	2SD01	2SD02	2SD03	2SD03 DUP	2SD01	2SD02	2SD(
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87	10/31/95	10/31/95	10/31/95	10/31/95	11/11/96	11/11/96	11/11
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1
SEMIVOLATILES (ug/kg) (cont.)														
Pentachlorophenol	150 U	200 U	490 U	NA	860 U	570 U	750 U	2800 U	3900 U	2700 U	2300 U	2500 U	2500 U	2000
Phenacetin	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
Phenanthrene	60 U	60 U	60 U	NA	170 U	110 U	150 U	560 U	290 J	630	1900	500 U	500 U	400
Phenol	60 U	60 U	60 U	NA	320 U	210 U	280 U	560 U	780 U	540 U	470 U	500 U	500 U	400
p-Phenylenediamine	NA	NA	NA	NA	NA	NA	NA	1100 U	1600 U	1100 U	940 U	1000 U	1000 U	800
Pronamide	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
Pyrene	60 U	60 U	80 U	NA	170 U	110 U	150 U	560 U	1200	2200	5500	500 U	500 U	400
Pyridine	NA	NA	NA	NA	NA	NA	NA	1100 U	1600 U	1100 U	940	1000 U	1000 U	800
Safrole	NA	NA	NA	NA	NA	NA	NA	560 U	780 U	540 U	470 U	500 U	500 U	400
sym-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	5600 U	7800 U	5400 U	4700 U	5000 U	5000 U	4000
Total Phenols	NA	NA	NA	NA	6590 U	3670 U	5410 U	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SE1	6SE2	6SE3	14SE10	6SE1	6SE2	6SE3	2SD01	2SD02	2SD03	2SD03	2SD01	2SD02	2SD
Sample ID	R6SE1	R6SE2	R6SE3	14SE10	R6SE01	R6SE02	R6SE03	2SD01	2SD02	2SD03	2SD03 DUP	2SD01	2SD02	2SD
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87	10/31/95	10/31/95	10/31/95	10/31/95	11/11/96	11/11/96	11/11
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1
PESTICIDES/PCBs (ug/kg)														
4,4'-DDD	466 U	496 U	487 U	NA	40.1 U	26.8 U	35.1 U	68 U	180 U	130 U	110 U	24 U	60 U	19
4,4'-DDE	466 U	496 U	487 U	NA	40.1 U	26.8 U	35.1 U	68 U	180 U	29	33	24 U	60 U	19
4,4'-DDT	466 U	496 U	487 U	NA	57.2 U	38.3 U	50.1 U	68 U	180 U	130 U	110 U	24 U	60 U	19
Aldrin	466 U	496 U	487 U	NA	401 U	26.8 U	35.1 U	34 U	92 U	65 U	57 U	12 U	30 U	9.7
alpha-BHC	466 U	496 U	487 U	NA	401 U	26.8 U	35.1 U	34 U	92 U	65 U	57 U	12 U	30 U	9.7
alpha-Chlordane	NA	NA	NA	NA	NA	NA	NA	340 U	920 U	650 U	570 U	120 U	300 U	97
beta-BHC	466 U	496 U	487 U	NA	401 U	26.8 U	35.1 U	34 U	92 U	65 U	22	12 U	30 U	9.7
Chlordane	1860 U	1980 U	1950 U	NA	40.1 U	26.8 U	35.1 U	NA	NA	NA	NA	NA	NA	NA
delta-BHC	466 U	496 U	487 U	NA	401 U	26.8 U	35.1 U	34 U	92 U	65 U	57 U	12 U	30 U	9.7
Dieldrin	466 U	496 U	487 U	NA	40.1 U	26.8 U	35.1 U	68 U	180 U	130 U	110 U	24 U	60 U	19
Endosulfan I	466 U	496 U	487 U	NA	40.1 U	26.8 U	35.1 U	34 U	92 U	65 U	57 U	12 U	30 U	9.7
Endosulfan II	466 U	496 U	487 U	NA	40.1 U	26.8 U	35.1 U	68 U	180 U	130 U	110 U	24 U	60 U	19
Endosulfan sulfate	466 U	496 U	487 U	NA	40.1 U	26.8 U	35.1 U	68 U	180 U	130 U	110 U	24 U	60 U	19
Endrin	466 U	496 U	487 U	NA	40.1 U	26.8 U	35.1 U	68 U	180 U	130 U	110 U	24 U	60 U	19
Endrin aldehyde	466 U	496 U	487 U	NA	40.1 U	26.8 U	35.1 U	68 U	180 U	130 U	110 U	24 U	60 U	19
gamma-BHC (Lindane)	466 U	496 U	487 U	NA	401 U	26.8 U	35.1 U	34 U	92 U	65 U	57 U	12 U	30 U	9.7
gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	340 U	920 U	650 U	570 U	120 U	300 U	97
Heptachlor	466 U	496 U	487 U	NA	401 U	26.8 U	35.1 U	34 U	92 U	65 U	57 U	12 U	30 U	9.7
Heptachlor epoxide	466 U	496 U	487 U	NA	401 U	26.8 U	35.1 U	34 U	92 U	65 U	57 U	12 U	30 U	9.7
Isodrin	NA	NA	NA	NA	NA	NA	NA	34 UJ	92 UJ	65 UJ	57 UJ	12 U	30 U	9.7
Kepone	NA	NA	NA	NA	NA	NA	NA	68 UJ	180 UJ	130 UJ	110 UJ	24 U	60 UJ	19
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	340 U	920 U	650 U	570 U	120 U	300 U	97
Toxaphene	18600 U	19800 U	19500 U	NA	40.1 U	26.8 U	35.1 U	680 U	1800 U	1300 U	1100 U	240 U	600 U	190
Aroclor-1016	1120 U	1190 U	1170 U	NA	590 U	395 U	516 U	340 U	920 U	650 U	570 U	120 U	300 U	97
Aroclor-1221	1120 U	1190 U	1170 U	NA	590 U	390 U	520 U	340 U	920 U	650 U	570 U	120 U	300 U	97
Aroclor-1232	1120 U	1190 U	1170 U	NA	590 U	390 U	520 U	340 U	920 U	650 U	570 U	120 U	300 U	97
Aroclor-1242	1120 U	1190 U	1170 U	NA	590 U	390 U	520 U	340 U	920 U	650 U	570 U	120 U	300 U	97

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SE1	6SE2	6SE3	14SE10	6SE1	6SE2	6SE3	2SD01	2SD02	2SD03	2SD03	2SD01	2SD02	2SD(
Sample ID	R6SE1	R6SE2	R6SE3	14SE10	R6SE01	R6SE02	R6SE03	2SD01	2SD02	2SD03	2SD03 DUP	2SD01	2SD02	2SD(
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87	10/31/95	10/31/95	10/31/95	10/31/95	11/11/96	11/11/96	11/11
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1
PESTICIDES/PCBs (ug/kg) (cont.)														
Aroclor-1248	1000 U	1000 U	1000 U	NA	590 U	390 U	520 U	340 U	920 U	650 U	570 U	120 U	300 U	97
Aroclor-1254	1120 U	1190 U	1170 U	NA	590 U	390 U	520 U	680 U	1800 U	1300 U	1100 U	240 U	600 U	190
Aroclor-1260	1120 U	1190 U	1170 U	NA	590 U	390 U	520 U	680 U	1800 U	1300 U	1100 U	240 U	600 U	190
CHLORINATED HERBICIDES (ug/kg)														
2,4,5-T	NA	NA	NA	NA	NA	NA	NA	110 U	150 U	110 U	93 U	50 U	50 U	40
2,4,5-TP (Silvex)	NA	NA	NA	NA	NA	NA	NA	110 U	150 U	110 U	93 U	50 U	50 U	40
2,4-D	NA	NA	NA	NA	NA	NA	NA	560 U	760 U	540 U	470 U	500 U	500 U	400
OP-PESTICIDES (ug/kg)														
Dimethoate	NA	NA	NA	NA	NA	NA	NA	110 U	150 U	110 U	95 U	100 U	100 U	79
Disulfoton	NA	NA	NA	NA	NA	NA	NA	110 U	150 U	110 U	95 U	100 U	100 U	79
Famphur	NA	NA	NA	NA	NA	NA	NA	110 U	150 U	110 U	95 U	100 U	100 U	79
Methyl parathion	NA	NA	NA	NA	NA	NA	NA	110 U	150 U	110 U	95 U	100 U	100 U	79
O,O,O-Triethylphosphorothioate	NA	NA	NA	NA	NA	NA	NA	110 U	150 U	110 U	95 U	100 U	100 U	79
Parathion	NA	NA	NA	NA	NA	NA	NA	110 U	150 U	110 U	95 U	100 U	100 U	79
Phorate	NA	NA	NA	NA	NA	NA	NA	110 U	150 U	110 U	95 U	100 U	100 U	79
Sulfotepp	NA	NA	NA	NA	NA	NA	NA	110 U	150 U	110 U	95 U	100 U	100 U	79
Thionazin	NA	NA	NA	NA	NA	NA	NA	110 U	150 U	110 U	95 U	100 U	100 U	79
DIOXINS (ug/kg)														
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	0.14 U	0.17 U	0.1 U	0.17 U	0.05 U	0.03 U	0.05
Total HxCDD	NA	NA	NA	NA	NA	NA	NA	0.2 U	0.23 U	2.5	3.3	0.1 U	0.16 U	0.07
Total HxCDF	NA	NA	NA	NA	NA	NA	NA	0.19 U	0.2 U	0.91 J	1 J	0.05 U	0.09 U	0.06
Total PeCDD	NA	NA	NA	NA	NA	NA	NA	0.19 U	0.2 U	0.24 U	0.26 J	0.08 U	0.06 U	0.05
Total PeCDF	NA	NA	NA	NA	NA	NA	NA	0.16 U	0.19 U	0.11 U	0.17 U	0.04 U	0.04 U	0.04
Total TCDD	NA	NA	NA	NA	NA	NA	NA	0.14 U	0.17 U	0.1 U	0.17 U	0.05 U	0.04 U	0.05
Total TCDF	NA	NA	NA	NA	NA	NA	NA	0.06 U	0.12 U	0.08 U	0.13 U	0.03 U	0.04 U	0.02

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SE1	6SE2	6SE3	14SE10	6SE1	6SE2	6SE3	2SD01	2SD02	2SD03	2SD03	2SD01	2SD02	2SD(
Sample ID	R6SE1	R6SE2	R6SE3	14SE10	R6SE01	R6SE02	R6SE03	2SD01	2SD02	2SD03	2SD03 DUP	2SD01	2SD02	2SD(
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87	10/31/95	10/31/95	10/31/95	10/31/95	11/11/96	11/11/96	11/11
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1
EXPLOSIVES (ug/kg)														
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	240 U	240 U	230 U	240 U	130 U	130 U	130
1,3-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	240 U	240 U	230 U	240 U	120 U	120 U	120
2,4,6-TNT	NA	NA	NA	NA	NA	NA	NA	240 U	240 U	230 U	240 U	120 U	120 U	120
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	240 U	240 U	230 U	240 U	NA	NA	NA
2,4-DNT/2,6-DNT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200 U	200 U	200
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	250 U	250 U	240 U	250 U	NA	NA	NA
2-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	970 U	940 U	900 U	960 U	500 U	500 U	500
3-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	970 U	940 U	900 U	960 U	500 U	500 U	500
4-Nitrotoluene	NA	NA	NA	NA	NA	NA	NA	2900 U	2800 U	2700 U	2900 U	1500 U	1500 U	1500
Amino-DNTs	NA	NA	NA	NA	NA	NA	NA	490 U	470 U	450 U	480 U	200 U	200 U	200
HMX	NA	NA	NA	NA	NA	NA	NA	2100 U	2100 U	2000 U	2100 U	1100 U	1100 U	1100
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	250 U	250 U	240 U	250 U	210 U	210 U	210
RDX (Cyclonite)	NA	NA	NA	NA	NA	NA	NA	1000 U	1000 U	980 U	1000 U	540 U	540 U	540
Tetryl	NA	NA	NA	NA	NA	NA	NA	730 U	710 U	680 U	720 U	380 U	380 U	380
ASBESTOS														
Asbestos (MFL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
MISCELLANEOUS														
Oil & Grease (mg/kg)	NA	NA	NA	1670	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	03
Sample ID	03
Sample Date	/96
Depth Range (ft.)	.00
VOLATILES (ug/kg)	
1,1,1,2-Tetrachloroethane	U
1,1,1-Trichloroethane	U
1,1,2,2-Tetrachloroethane	U
1,1,2-Trichloroethane	U
1,1-Dichloroethane	U
1,1-Dichloroethene	U
1,2,3-Trichloropropane	U
1,2-Dibromo-3-chloropropane	U
1,2-Dibromoethane	U
1,2-Dichloroethane	U
1,2-Dichloroethene (Total)	U
1,2-Dichloropropane	U
2-Butanone	U
2-Chloro-1,3-butadiene	R
2-Hexanone	U
3-Chloropropene	U
4-Methyl-2-pentanone	U
Acetone	UJ
Acetonitrile	U
Acrolein	UJ
Acrylonitrile	U
Benzene	U
Bromodichloromethane	U
Bromoform	U
Bromomethane	U
Carbon disulfide	U

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	03
Sample ID	03
Sample Date	/96
Depth Range (ft.)	.00
VOLATILES (ug/kg) (cont.)	
Carbon tetrachloride	U
Chlorobenzene	U
Chloroethane	U
Chloroform	U
Chloromethane	U
cis-1,3-Dichloropropene	U
Dibromochloromethane	U
Dibromomethane	U
Dichlorodifluoromethane	UJ
Ethene, (2-chloroethoxy)-	
Ethene, 1,2-dichloro-, (E)-	
Ethyl methacrylate	UJ
Ethylbenzene	U
Iodomethane	UJ
Isobutanol	R
Methacrylonitrile	U
Methyl methacrylate	U
Methylene chloride	U
m-Xylene	
Pentachloroethane	UJ
Propionitrile	U
Styrene	U
Tetrachloroethene	U
Toluene	U
trans-1,3-Dichloropropene	U
trans-1,4-Dichloro-2-butene	U
Trichloroethene	U
Trichlorofluoromethane	UJ
Vinyl Acetate	UJ
Vinyl chloride	U

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	03
Sample ID	03
Sample Date	/96
Depth Range (ft.)	.00
Xylene (total)	U
SEMIVOLATILES (ug/kg)	
1,2,4,5-Tetrachlorobenzene	U
1,2,4-Trichlorobenzene	U
1,2-Dichlorobenzene	U
1,2-Diphenylhydrazine	U
1,3-Dichlorobenzene	U
1,4-Dichlorobenzene	U
1,4-Dioxane	U
1,4-Naphthoquinone	U
1-Naphthylamine	U
2,2'-Oxybis(1-Chloropropane)	U
2,3,4,6-Tetrachlorophenol	U
2,4,5-Trichlorophenol	U
2,4,6-Trichlorophenol	U
2,4-Dichlorophenol	U
2,4-Dimethylphenol	UJ
2,4-Dinitrophenol	U
2,4-Dinitrotoluene	U
2,6-Dichlorophenol	U
2,6-Dinitrotoluene	U
2-Acetylaminofluorene	UJ
2-Chloronaphthalene	U
2-Chlorophenol	U
2-Methylnaphthalene	U
2-Naphthylamine	U
2-Nitroaniline	U
2-Nitrophenol	U
2-Picoline	U

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	03
Sample ID	03
Sample Date	/96
Depth Range (ft.)	.00
SEMIVOLATILES (ug/kg) (cont.)	
2-sec-butyl-4,6-dinitrophenol	U
3,3'-Dichlorobenzidine	U
3,3'-Dimethylbenzidine	U
3-Methylcholanthrene	U
3-Nitroaniline	U
4,6-Dinitro-2-methylphenol	U
4-Aminobiphenyl	UJ
4-Bromophenyl phenyl ether	U
4-Chloro-3-methylphenol	U
4-Chloroaniline	U
4-Chlorophenyl phenyl ether	U
4-Nitroaniline	U
4-Nitrophenol	U
4-Nitroquinoline-1-oxide	U
5-Nitro-o-toluidine	U
7,12-Dimethylbenz(a)anthracene	U
Acenaphthene	U
Acenaphthylene	U
Acetophenone	U
alpha, alpha-Dimethylphenethylamine	UJ
Aniline	U
Anthracene	U
Aramite	UJ
Benzidine	UJ
Benzo(a)anthracene	U
Benzo(a)pyrene	U
Benzo(b)fluoranthene	U

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	03
Sample ID	03
Sample Date	/96
Depth Range (ft.)	.00
SEMIVOLATILES (ug/kg) (cont.)	
Benzo(g,h,i)perylene	U
Benzo(k)fluoranthene	U
Benzoic acid	U
Benzyl alcohol	UJ
Bis(2-chloroethoxy)methane	U
Bis(2-chloroethyl)ether	U
Bis(2-ethylhexyl)phthalate	U
Butylbenzylphthalate	U
Carbazole	U
Chlorobenzilate	U
Chrysene	U
Cresols	
Diallate	U
Dibenzo(a,h)anthracene	U
Dibenzofuran	U
Dichlorobenzenes	
Diethylphthalate	U
Dimethylphthalate	U
Di-n-butylphthalate	U
Di-n-octylphthalate	U
Diphenylamine	U
Ethyl methanesulfonate	U
Fluoranthene	U
Fluorene	U
Hexachlorobenzene	U
Hexachlorobutadiene	U
Hexachlorocyclopentadiene	U

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	03
Sample ID	03
Sample Date	/96
Depth Range (ft.)	.00
SEMIVOLATILES (ug/kg) (cont.)	
Hexachloroethane	U
Hexachlorophene	U
Hexachloropropene	U
Indeno(1,2,3-cd)pyrene	U
Isophorone	U
Isosafrole	U
m&p Cresol	U
m-Dinitrobenzene	U
Meta-Dinitrobenzene	UJ
Methapyrilene	UJ
Methyl methanesulfonate	U
Naphthalene	U
Nitrobenzene	U
N-Nitrosodiethylamine	U
N-Nitrosodimethylamine	U
N-Nitroso-di-n-butylamine	U
N-Nitroso-di-n-propylamine	U
N-Nitrosodiphenylamine (1)	U
N-Nitrosomethylethylamine	U
N-Nitrosomorpholine	U
N-Nitrosopiperidine	U
N-Nitrosopyrrolidine	U
o-Cresol	U
o-Toluidine	U
p-Dimethylaminoazobenzene	U
Pentachlorobenzene	U
Pentachloronitrobenzene	U

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	03
Sample ID	03
Sample Date	/96
Depth Range (ft.)	.00
SEMIVOLATILES (ug/kg) (cont.)	
Pentachlorophenol	U
Phenacetin	U
Phenanthrene	U
Phenol	U
p-Phenylenediamine	U
Pronamide	U
Pyrene	U
Pyridine	U
Safrole	U
sym-Trinitrobenzene	U
Total Phenols	

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	03
Sample ID	03
Sample Date	/96
Depth Range (ft.)	.00
PESTICIDES/PCBs (ug/kg)	
4,4'-DDD	U
4,4'-DDE	U
4,4'-DDT	U
Aldrin	U
alpha-BHC	U
alpha-Chlordane	U
beta-BHC	U
Chlordane	
delta-BHC	U
Dieldrin	U
Endosulfan I	U
Endosulfan II	U
Endosulfan sulfate	U
Endrin	U
Endrin aldehyde	U
gamma-BHC (Lindane)	U
gamma-Chlordane	U
Heptachlor	U
Heptachlor epoxide	U
Isodrin	U
Kepone	UJ
Methoxychlor	U
Toxaphene	U
Aroclor-1016	U
Aroclor-1221	U
Aroclor-1232	U
Aroclor-1242	U

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	03
Sample ID	03
Sample Date	/96
Depth Range (ft.)	.00
PESTICIDES/PCBs (ug/kg) (cont.)	
Aroclor-1248	U
Aroclor-1254	U
Aroclor-1260	U
CHLORINATED HERBICIDES (ug/kg)	
2,4,5-T	U
2,4,5-TP (Silvex)	U
2,4-D	U
OP-PESTICIDES (ug/kg)	
Dimethoate	U
Disulfoton	U
Famphur	U
Methyl parathion	U
O,O,O-Triethylphosphorothioate	U
Parathion	U
Phorate	U
Sulfotepp	U
Thionazin	U
DIOXINS (ug/kg)	
2,3,7,8-TCDD	U
Total HxCDD	U
Total HxCDF	U
Total PeCDD	U
Total PeCDF	U
Total TCDD	U
Total TCDF	U

APPENDIX F.15 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	03
Sample ID	03
Sample Date	/96
Depth Range (ft.)	.00
EXPLOSIVES (ug/kg)	
1,3,5-Trinitrobenzene	U
1,3-Dinitrobenzene	U
2,4,6-TNT	U
2,4-Dinitrotoluene	
2,4-DNT/2,6-DNT	U
2,6-Dinitrotoluene	
2-Nitrotoluene	U
3-Nitrotoluene	U
4-Nitrotoluene	U
Amino-DNTs	U
HMX	U
Nitrobenzene	U
RDX (Cyclonite)	U
Tetryl	U
ASBESTOS	
Asbestos (MFL)	
MISCELLANEOUS	
Oil & Grease (mg/kg)	

APPENDIX F.16
SEDIMENT, INORGANICS, SWMU 2

APPENDIX F.16

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - INORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SE1	6SE2	6SE3	14SE10	6SE1	6SE2	6SE3	2SD01	2SD02	2SD03	2SD03	2SD01	2SD02	2SD03
Sample ID	R6SE1	R6SE2	R6SE3	14SE10	R6SE01	R6SE02	R6SE03	2SD01	2SD02	2SD03	2SD03D	2SD01	2SD02	2SD03
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87	10/31/95	10/31/95	10/31/95	10/31/95	11/11/96	11/11/96	11/11/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Inorganics (mg/kg)														
Antimony	5.9	6.9	7.4	NA	11 U	6.8 U	9.7 U	2.6 UJ	5 UJ	2.6 UJ	3.1 UJ	1.7 UJ	4.8 J	3.3 J
Arsenic	7.76	15.1	16.4	NA	3.76	1.94	4.75	2 J	7 J	6.2 J	7.6 J	5.2 J	5.3 J	2.6 J
Barium	NA	NA	NA	NA	NA	NA	NA	12.1	55.9 J	49.8	59.4	19.8 J	486 J	136 J
Beryllium	0.278 U	0.36	0.392	NA	0.825 U	0.502 U	0.722 U	0.11 U	0.21 UJ	0.11 U	0.13 U	0.15	0.48	0.07
Cadmium	0.417 U	0.404 U	0.407 U	NA	1.71	0.52	0.747	0.46 U	1.2 J	0.47 U	0.55 U	0.23 U	1.5	0.32
Chromium	6.71	11.7	18	NA	14.2	6.58	13.9	6.6	18.7 J	23.1	34.7	15	45.9 J	25.3 J
Cobalt	NA	NA	NA	NA	NA	NA	NA	1.2	4.6 J	7.9	7.9	4.2	24.9	34.7
Copper	9.1	20.4	26.4	NA	35.9	10.9	57.5	8.2	332 J	384	830	16.9	399	62.4
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.61 U	NA	0.66 U	0.61 U	0.46 U
Lead	8.75 U	8.49 U	8.54 U	3.94 U	12.2	6.06	21.2	3.8	339 J	144 J	202 J	4	390 J	49.7 J
Mercury	0.065 U	0.067 U	0.084	NA	0.144 U	0.075 U	0.174 U	0.06 U	0.8 J	2.6	2.7	0.04	0.14	0.05
Nickel	3.46	5.62	7.45	NA	9.39 U	5.71 U	8.22 U	2.4	7.8 J	6.7	9.1	5.7	24.1	14
Selenium	7.02	16.3	19.4	NA	1.92	0.851	0.742 U	0.25 UJ	0.35 UJ	0.34 J	0.15 J	0.23 J	0.22 UJ	0.45 J
Silver	0.838 U	1.05 U	0.779 U	NA	0.768 U	0.468 U	0.673 U	0.35 U	0.69 UJ	0.36 U	0.42 U	0.19 U	0.25 UJ	0.12 UJ
Sulfide	NA	NA	NA	NA	NA	NA	NA	41.9 UJ	296 J	55 J	34.8 UJ	38 R	37 U	29.7 U
Thallium	0.251 U	0.216 U	0.238 U	NA	0.696 U	0.462 U	0.594 U	0.22 UJ	0.3 UJ	0.58 UJ	0.59 UJ	0.19 UJ	0.2 U	0.14 U
Tin	NA	NA	NA	NA	NA	NA	NA	2 U	13.5 J	9.4	13.7	0.93 U	32.1	0.59 U
Vanadium	NA	NA	NA	NA	NA	NA	NA	15	37.1 J	57.1	79.2	31.5	112 J	154 J
Zinc	14.1	23.3	29.8	NA	53.5	22.2	67	9.6	432 J	281	401	15.1	841	92.8

APPENDIX F.17
GROUNDWATER, ORGANICS, SWMU 2

APPENDIX F.17 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6GW01	6GW01	2MW01	2MW02	2MW02	2MW03	6GW01
Sample ID	R6GW01	06GW101	2MW01	2MW02	2MW02D	2MW03	6GW01
Sample Date	11/02/87	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96	11/12/96
VOLATILES (ug/l)							
1,1,1,2-Tetrachloroethane	NA	NA	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	3.8 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	4.1 U	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	5 U
1,1-Dichloroethane	4.7 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	2.8 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	NA	NA	10 U	10 U	10 U	10 U	10 U
1,2-Dibromo-3-chloropropane	NA	NA	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ
1,2-Dibromoethane	0.01 U	NA	20 U	20 U	20 U	20 U	20 U
1,2-Dichloroethane	2.8 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (Total)	NA	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	6 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
2-Butanone	48 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloro-1,3-butadiene	NA	NA	100 R	100 R	100 R	100 R	100 R
2-Chloroethyl vinyl ether	15 U	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
3-Chloropropene	NA	NA	20 U	20 U	20 U	20 U	20 U
4-Methyl-2-pentanone	12 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	NA	10 U	10 U	10 U	10 U	10 U	10 U
Acetonitrile	NA	NA	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
Acrolein	NA	NA	500 U	500 U	500 U	500 U	500 U
Acrylonitrile	NA	NA	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
Benzene	1 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	2.2 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	4.7 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	5.8 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon disulfide	NA	5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	2.8 U	5 U	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ

APPENDIX F.17 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6GW01	6GW01	2MW01	2MW02	2MW02	2MW03	6GW01
Sample ID	R6GW01	06GW101	2MW01	2MW02	2MW02D	2MW03	6GW01
Sample Date	11/02/87	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96	11/12/96
VOLATILES (ug/l) (cont.)							
Chlorobenzene	6 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	8.2 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	1.7	5 U	4 J	7	6	5 U	5 U
Chloromethane	4.3 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	3.1 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromomethane	NA	NA	10 U	10 U	10 U	10 U	10 U
Dichlorodifluoromethane	NA	NA	20 U	20 U	20 U	20 U	20 U
Ethyl methacrylate	NA	NA	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ
Ethylbenzene	7.2 U	5 U	5 U	5 U	5 U	5 U	5 U
Iodomethane	NA	NA	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Isobutanol	NA	NA	2000 R	2000 R	2000 R	2000 R	2000 R
Methacrylonitrile	NA	NA	20 U	20 U	20 U	20 U	20 U
Methyl methacrylate	NA	NA	20 U	20 U	20 U	20 U	20 U
Methylene chloride	50 U	5 U	5 U	5 U	5 U	5 U	5 U
m-Xylene	12 U	NA	NA	NA	NA	NA	NA
o + p xylene	12 U	5 U	5 U	5 U	5 U	5 U	5 U
Pentachloroethane	NA	NA	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ
Propionitrile	NA	NA	50 R	50 R	50 R	50 R	50 R
Styrene	NA	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	3 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	6 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	1.6 U	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	6.4 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,4-Dichloro-2-butene	NA	NA	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ
Trichloroethene	1 U	5 U	5 U	6	5	5 U	7
Trichlorofluoromethane	3.2 U	NA	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Vinyl Acetate	NA	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Vinyl chloride	1 U	10 U	10 U	10 U	10 U	10 U	10 U

APPENDIX F.17 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6GW01	6GW01	2MW01	2MW02	2MW02	2MW03	6GW01
Sample ID	R6GW01	06GW101	2MW01	2MW02	2MW02D	2MW03	6GW01
Sample Date	11/02/87	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96	11/12/96
SEMIVOLATILES (ug/l)							
1,2,4,5-Tetrachlorobenzene	NA	NA	10 U	10 U	10 U	10 U	12 U
1,2,4-Trichlorobenzene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
1,2-Dichlorobenzene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
1,2-Diphenylhydrazine	NA	NA	10 U	10 U	10 U	10 U	12 U
1,3-Dichlorobenzene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
1,4-Dioxane	NA	NA	20 U	20 U	20 U	20 U	23 U
1,4-Naphthoquinone	NA	NA	49 U	50 U	50 U	50 U	58 U
1-Naphthylamine	NA	NA	20 U	20 U	20 U	20 U	23 U
2,2'-Oxybis(1-Chloropropane)	1 U	21 U	10 U	10 U	10 U	10 U	12 U
2,3,4,6-Tetrachlorophenol	NA	NA	10 U	10 U	10 U	10 U	12 U
2,4,5-Trichlorophenol	NA	53 U	49 U	50 U	50 U	50 U	58 U
2,4,6-Trichlorophenol	1.8 U	21 U	10 U	10 U	10 U	10 U	12 U
2,4-Dichlorophenol	1.4 U	21 U	10 U	10 U	10 U	10 U	12 U
2,4-Dimethylphenol	1.4 U	21 U	10 U	10 U	10 U	10 U	12 U
2,4-Dinitrophenol	30 U	53 U	49 U	50 U	50 U	50 U	58 U
2,4-Dinitrotoluene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
2,6-Dichlorophenol	NA	NA	10 U	10 U	10 U	10 U	12 U
2,6-Dinitrotoluene	1 U	NA	10 U	10 U	10 U	10 U	12 U
2-Acetylaminofluorene	NA	NA	20 U	20 U	20 U	20 U	23 U
2-Chloronaphthalene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
2-Chlorophenol	1.7 U	21 U	10 U	10 U	10 U	10 U	12 U
2-Methylnaphthalene	NA	21 U	10 U	10 U	10 U	10 U	12 U
2-Naphthylamine	NA	NA	24 U	25 U	25 U	25 U	29 U
2-Nitroaniline	NA	53 U	49 U	50 U	50 U	50 U	58 U
2-Nitrophenol	1.4 U	21 U	10 U	10 U	10 U	10 U	12 U
2-Picoline	NA	NA	10 U	10 U	10 U	10 U	12 U
2-sec-butyl-4,6-dinitrophenol	NA	NA	20 U	20 U	20 U	20 U	23 U
3,3'-Dichlorobenzidine	1.5 U	21 U	20 U	20 U	20 U	20 U	23 U
3,3'-Dimethylbenzidine	NA	NA	49 U	50 U	50 U	50 U	58 U

APPENDIX F.17 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6GW01	6GW01	2MW01	2MW02	2MW02	2MW03	6GW01
Sample ID	R6GW01	06GW101	2MW01	2MW02	2MW02D	2MW03	6GW01
Sample Date	11/02/87	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96	11/12/96
SEMIVOLATILES (ug/l) (cont.)							
3-Methylcholanthrene	NA	NA	10 U	10 U	10 U	10 U	12 U
3-Nitroaniline	NA	53 U	49 U	50 U	50 U	50 U	58 U
4,6-Dinitro-2-methylphenol	5 U	53 U	49 U	50 U	50 U	50 U	58 U
4-Aminobiphenyl	NA	NA	20 UJ	20 UJ	20 UJ	20 UJ	23 UJ
4-Bromophenyl phenyl ether	1 U	21 U	10 U	10 U	10 U	10 U	12 U
4-Chloro-3-methylphenol	1.4 U	21 U	20 U	20 U	20 U	20 U	23 U
4-Chloroaniline	NA	21 U	20 U	20 U	20 U	20 U	23 U
4-Chlorophenyl phenyl ether	1 U	21 U	10 U	10 U	10 U	10 U	12 U
4-Nitroaniline	NA	53 U	49 U	50 U	50 U	50 U	58 U
4-Nitrophenol	3.3 U	53 U	49 U	50 U	50 U	50 U	58 U
4-Nitroquinoline-1-oxide	NA	NA	49 U	50 U	50 U	50 U	58 U
5-Nitro-o-toluidine	NA	NA	20 U	20 U	20 U	20 U	23 U
7,12-Dimethylbenz(a)anthracene	NA	NA	20 U	20 U	20 U	20 U	23 U
Acenaphthene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Acenaphthylene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Acetophenone	NA	NA	10 U	10 U	10 U	10 U	12 U
alpha, alpha-Dimethylphenethylamine	NA	NA	49 UJ	50 UJ	50 UJ	50 UJ	58 UJ
Aniline	NA	NA	49 U	50 U	50 U	50 U	58 U
Anthracene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Aramite	NA	NA	20 UJ	20 UJ	20 UJ	20 UJ	23 UJ
Benzidine	2.1 U	NA	98 UJ	100 UJ	100 UJ	100 UJ	120 UJ
Benzo(a)anthracene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Benzo(a)pyrene	1.5 U	21 U	10 U	10 U	10 U	10 U	12 U
Benzo(b)fluoranthene	1.5 U	21 U	10 U	10 U	10 U	10 U	12 U
Benzo(g,h,i)perylene	2 U	21 U	10 U	10 U	10 U	10 U	12 U

APPENDIX F.17 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6GW01	6GW01	2MW01	2MW02	2MW02	2MW03	6GW01
Sample ID	R6GW01	06GW101	2MW01	2MW02	2MW02D	2MW03	6GW01
Sample Date	11/02/87	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96	11/12/96
SEMIVOLATILES (ug/l) (cont.)							
Benzo(k)fluoranthene	1.5 U	21 U	10 U	10 U	10 U	10 U	12 U
Benzoic acid	NA	NA	49 U	50 U	50 U	50 U	58 U
Benzyl alcohol	NA	NA	10 U	10 U	10 U	10 U	12 U
Bis(2-chloroethoxy)methane	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Bis(2-chloroethyl)ether	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Bis(2-ethylhexyl)phthalate	1.9	2 J	10 U	10 U	10 U	10 U	12 U
Butylbenzylphthalate	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Carbazole	NA	21 U	10 U	10 U	10 U	10 U	12 U
Chlorobenzilate	NA	NA	10 U	10 U	10 U	10 U	12 U
Chrysene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Diallate	NA	NA	10 U	10 U	10 U	10 U	12 U
Dibenzo(a,h)anthracene	2 U	21 U	10 U	10 U	10 U	10 U	12 U
Dibenzofuran	NA	21 U	10 U	10 U	10 U	10 U	12 U
Diethylphthalate	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Dimethylphthalate	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Di-n-butylphthalate	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Di-n-octylphthalate	1.1 U	21 U	10 U	10 U	10 U	10 U	12 U
Diphenylamine	NA	NA	10 U	10 U	10 U	10 U	12 U
Ethyl methanesulfonate	NA	NA	10 U	10 U	10 U	10 U	12 U
Fluoranthene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Fluorene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Hexachlorobenzene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Hexachlorobutadiene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Hexachlorocyclopentadiene	2 U	21 U	10 U	10 U	10 U	10 U	12 U
Hexachloroethane	1.5 U	21 U	10 U	10 U	10 U	10 U	12 U
Hexachlorophene	NA	NA	98 U	100 U	100 U	100 U	120 U
Hexachloropropene	NA	NA	49 U	50 U	50 U	50 U	58 U
Indeno(1,2,3-cd)pyrene	2 U	21 U	10 U	10 U	10 U	10 U	12 U
Isophorone	1 U	21 U	10 U	10 U	10 U	10 U	12 U

APPENDIX F.17 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6GW01	6GW01	2MW01	2MW02	2MW02	2MW03	6GW01
Sample ID	R6GW01	06GW101	2MW01	2MW02	2MW02D	2MW03	6GW01
Sample Date	11/02/87	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96	11/12/96
SEMIVOLATILES (ug/l) (cont.)							
Isosafrole	NA	NA	10 U	10 U	10 U	10 U	12 U
m&p Cresol	NA	NA	10 U	10 U	10 U	10 U	12 U
m-Dinitrobenzene	NA	NA	0.094 U	0.18 U	0.11 U	0.2 U	0.24 U
Meta-Dinitrobenzene	NA	NA	20 U	20 U	20 U	20 U	23 U
Methapyrilene	NA	NA	24 UJ	25 UJ	25 UJ	25 UJ	29 UJ
Methyl methanesulfonate	NA	NA	10 U	10 U	10 U	10 U	12 U
Naphthalene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Nitrobenzene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
N-Nitrosodiethylamine	NA	NA	10 UJ	10 UJ	10 UJ	10 UJ	12 UJ
N-Nitrosodimethylamine	1 U	NA	10 U	10 U	10 U	10 U	12 U
N-Nitroso-di-n-butylamine	NA	NA	10 U	10 U	10 U	10 U	12 U
N-Nitroso-di-n-propylamine	1 U	21 U	10 U	10 U	10 U	10 U	12 U
N-Nitrosodiphenylamine (1)	1 U	21 U	10 U	10 U	10 U	10 U	12 U
N-Nitrosomethylethylamine	NA	NA	10 UJ	10 UJ	10 UJ	10 UJ	12 UJ
N-Nitrosomorpholine	NA	NA	20 U	20 U	20 U	20 U	23 U
N-Nitrosopiperidine	NA	NA	10 U	10 U	10 U	10 U	12 U
N-Nitrosopyrrolidine	NA	NA	49 U	50 U	50 U	50 U	58 U
o-Cresol	NA	21 U	10 U	10 U	10 U	10 U	12 U
o-Toluidine	NA	NA	10 U	10 U	10 U	10 U	12 U
p-Cresol	NA	21 U	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	20 UJ	20 UJ	20 UJ	20 UJ	23 UJ
Pentachlorobenzene	NA	NA	10 U	10 U	10 U	10 U	12 U
Pentachloronitrobenzene	NA	NA	10 U	10 U	10 U	10 U	12 U
Pentachlorophenol	11	53 U	49 U	50 U	50 U	50 U	5 J
Phenacetin	NA	NA	10 U	10 U	10 U	10 U	12 U
Phenanthrene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Phenol	1.3 U	21 U	10 U	10 U	10 U	10 U	12 U
p-Phenylenediamine	NA	NA	20 R	20 R	20 R	20 R	23 R
Pronamide	NA	NA	10 U	10 U	10 U	10 U	12 U

APPENDIX F.17 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6GW01	6GW01	2MW01	2MW02	2MW02	2MW03	6GW01
Sample ID	R6GW01	06GW101	2MW01	2MW02	2MW02D	2MW03	6GW01
Sample Date	11/02/87	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96	11/12/96
SEMIVOLATILES (ug/l) (cont.)							
Pyrene	1 U	21 U	10 U	10 U	10 U	10 U	12 U
Pyridine	NA	NA	20 U	20 U	20 U	20 U	23 U
Safrole	NA	NA	10 U	10 U	10 U	10 U	12 U
sym-Trinitrobenzene	NA	NA	98 U	100 U	100 U	100 U	120 U
Total Phenols	58	NA	NA	NA	NA	NA	NA

APPENDIX F.17 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6GW01	6GW01	2MW01	2MW02	2MW02	2MW03	6GW01
Sample ID	R6GW01	06GW101	2MW01	2MW02	2MW02D	2MW03	6GW01
Sample Date	11/02/87	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96	11/12/96
PESTICIDES/PCBs (ug/l)							
4,4'-DDD	0.0012 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.005 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.012 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aldrin	0.006	0.05 U	0.13	0.05 U	0.05 U	0.084	0.05 U
alpha-BHC	0.005 U	0.05 U	0.05 U	0.05 U	0.05 U	0.053 U	0.05 U
alpha-Chlordane	NA	0.05 U	0.5 U	0.5 U	0.5 U	0.53 U	0.5 U
beta-BHC	0.005 U	0.05 U	0.05 U	0.05 U	0.05 U	0.053 U	0.05 U
Chlordane	0.006 U	NA	NA	NA	NA	NA	NA
Chlordane, gamma-	NA	0.05 UJ	NA	NA	NA	NA	NA
delta-BHC	0.005 U	0.05 U	0.05 U	0.05 U	0.05 U	0.053 U	0.05 U
Dieldrin	0.005 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan I	0.005 U	0.05 U	0.05 U	0.05 U	0.05 U	0.053 U	0.05 U
Endosulfan II	0.012 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.012 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.005 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin aldehyde	0.012 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin ketone	NA	0.1 U	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	0.005 U	0.05 U	0.05 U	0.05 U	0.05 U	0.053 U	0.05 U
gamma-Chlordane	NA	NA	0.5 U	0.5 U	0.5 U	0.53 U	0.5 U
Heptachlor	0.005 U	0.0017 NJ	0.05 U	0.05 U	0.05 U	0.053 U	0.05 U
Heptachlor epoxide	0.005 U	0.05 U	0.04	0.05 U	0.05 U	0.053 U	0.05 U
Isodrin	NA	NA	0.05	0.02	0.01 J	0.032	0.05 U
Kepone	NA	NA	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ
Methoxychlor	NA	0.05 UJ	0.5 U	0.5 U	0.5 U	0.53 U	0.5 U
Toxaphene	0.006 U	5 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1016	0.121 U	1 U	0.5 U	0.5 U	0.5 U	0.53 U	0.5 U
Aroclor-1221	0.121 U	2 U	0.5 U	0.5 U	0.5 U	0.53 U	0.5 U
Aroclor-1232	0.121 U	1 U	0.5 U	0.5 U	0.5 U	0.53 U	0.5 U
Aroclor-1242	0.121 U	1 U	0.5 U	0.5 U	0.5 U	0.53 U	0.5 U

APPENDIX F.17 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6GW01	6GW01	2MW01	2MW02	2MW02	2MW03	6GW01
Sample ID	R6GW01	06GW101	2MW01	2MW02	2MW02D	2MW03	6GW01
Sample Date	11/02/87	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96	11/12/96
PESTICIDES/PCBs (ug/l) (cont.)							
Aroclor-1248	0.121 U	1 U	0.5 U	0.5 U	0.5 U	0.53 U	0.5 U
Aroclor-1254	0.121 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1260	0.121 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLORINATED HERBICIDES (ug/l)							
2,4,5-T	NA	NA	0.11 U	0.11 U	0.11 U	0.13	0.11 U
2,4,5-TP (Silvex)	NA	NA	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
2,4-D	NA	NA	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
OP-PESTICIDES (ug/l)							
Dimethoate	NA	NA	1.9 U	2 U	1.9 U	1.9 U	1.9 U
Disulfoton	NA	NA	1.9 U	2 U	1.9 U	1.9 U	1.9 U
Famphur	NA	NA	1.9 U	2 U	1.9 U	1.9 U	1.9 U
Methyl parathion	NA	NA	1.9 U	2 U	1.9 U	1.9 U	1.9 U
O,O,O-Triethylphosphorothioate	NA	NA	1.9 U	2 U	1.9 U	1.9 U	1.9 U
Parathion	NA	NA	1.9 U	2 U	1.9 U	1.9 U	1.9 U
Phorate	NA	NA	1.9 U	2 U	1.9 U	1.9 U	1.9 U
Sulfotepp	NA	NA	1.9 U	2 U	1.9 U	1.9 U	1.9 U
Thionazin	NA	NA	1.9 U	2 U	1.9 U	1.9 U	1.9 U
DIOXINS (ug/l)							
2,3,7,8-TCDD	NA	NA	0.0001 U	0.0001 U	0.0004 U	0.0002 U	0.0002 U
Total HxCDD	NA	NA	0.0007 U	0.0006 U	0.0006 U	0.0006 U	0.0005 U
Total HxCDF	NA	NA	0.0004 U	0.0004 U	0.0004 U	0.0005 U	0.0004 U
Total PeCDD	NA	NA	0.0003 U	0.0003 U	0.0004 U	0.0004 U	0.0004 U
Total PeCDF	NA	NA	0.0002 U	0.0003 U	0.0003 U	0.0003 U	0.0003 U
Total TCDD	NA	NA	0.0002 U	0.0002 U	0.0004 U	0.0002 U	0.0002 U
Total TCDF	NA	NA	0.0001 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U

APPENDIX F.17 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6GW01	6GW01	2MW01	2MW02	2MW02	2MW03	6GW01
Sample ID	R6GW01	06GW101	2MW01	2MW02	2MW02D	2MW03	6GW01
Sample Date	11/02/87	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96	11/12/96
EXPLOSIVES (ug/l)							
1,3,5-Trinitrobenzene	NA	NA	0.1 U	0.2 U	0.12 U	0.22 U	0.26 U
1,3-Dinitrobenzene	NA	NA	0.094 U	0.18 U	0.11 U	0.2 U	0.24 U
2,4,6-TNT	NA	NA	0.097 U	0.19 U	0.12 U	0.21 U	0.25 U
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA
2,4-DNT/2,6-DNT	NA	NA	0.16 U	0.3 U	0.19 U	0.34 U	0.4 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA
2-Amino-4,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA
2-Nitrotoluene	NA	NA	0.39 U	0.75 U	0.47 U	0.84 U	1 U
3-Nitrotoluene	NA	NA	0.39 U	0.75 U	0.47 U	0.84 U	1 U
4-Amino-2,6-dinitrotoluene	NA	NA	NA	NA	NA	NA	NA
4-Nitrotoluene	NA	NA	1.2 U	2.2 U	1.4 U	2.5 U	3 U
Amino-DNTs	NA	NA	0.16 U	0.3 U	0.19 U	0.34 U	0.4 U
HMX	NA	NA	0.86 U	1.6 U	1 U	1.8 U	2.2 U
Nitrobenzene	NA	NA	0.16 U	0.32 U	0.2 U	0.35 U	0.42 U
RDX (Cyclonite)	NA	NA	0.42 U	0.81 U	0.5 U	0.91 U	1.1 U
Tetryl	NA	NA	0.3 U	0.57 U	0.36 U	0.64 U	0.76 U
ASBESTOS							
Asbestos (MFL)	NA	NA	ND	ND	ND	ND	ND
MISCELLANEOUS							
Total Organic Carbon (mg/l)	NA	NA	NA	NA	NA	NA	46000
COD (mg/l)	NA	NA	NA	NA	NA	NA	210000
Total Suspended Solids (mg/l)	NA	NA	NA	NA	NA	NA	63000

APPENDIX F.18
GROUNDWATER, INORGANICS, SWMU 2

APPENDIX F.18

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - INORGANICS (TOTAL)
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6GW01	6GW01	2MW01	2MW02	2MW02	2MW03	6GW01
Sample ID	R6GW01	06GW101	2MW01	2MW02	2MW02D	2MW03	6GW01
Sample Date	11/02/87	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96	11/12/96
Inorganics, Total (ug/l)							
Aluminum	NA	1200	NA	NA	NA	NA	NA
Antimony	21 U	47.2 U	16 R	16.1 J	16 R	19.6 J	16 R
Arsenic	6.4 U	3 U	2 U	2.7	2 U	2.8	2 U
Barium	NA	22.5 U	363	663	624	455	1.8
Beryllium	1 U	1.5 B	0.72	1	0.58	0.4 U	0.4 U
Cadmium	2.4 U	2.8 U	3.2	2.1 U	2.1 U	2.2	2.1 U
Calcium	NA	62500	NA	NA	NA	NA	NA
Chromium	3.3 U	10.4 UJ	21	57.4	48	19.2	1.7 U
Cobalt	NA	15.5 UJ	51	131	123	37.9	2.8 U
Copper	6.1	5.1 UJ	72	212	175	79.2	1.5 U
Cyanide	NA	10 U	10 U	10 U	10 U	10 U	10 U
Iron	NA	1730	NA	NA	NA	NA	NA
Lead	121	1.5 UJ	4.4	16.9	13.5	10.8	0.7 U
Magnesium	NA	80700	NA	NA	NA	NA	NA
Mercury	0.2 U	0.2 UJ	0.1 U	0.71	0.68	0.1 U	0.1 U
Nickel	8.6 U	7.8 UJ	22.2	66.3	53.2	15.5	6.7 U
Potassium	NA	2180 U	NA	NA	NA	NA	NA
Selenium	2.5 U	4.8 J	1.8 UJ	9 U	9 U	1.8 UJ	4.2
Silver	3.6 U	6.3 U	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ
Sodium	NA	801000 J	936000	676000	677000	230000	593000
Sulfide	NA	NA	1000 U	1000 U	1000 U	1000 U	1000 U
Thallium	3.4 U	0 R	1.6 U	1.6 U	1.6 U	1.6 UJ	1.6 U
Tin	NA	NA	8.7 U	8.7 U	8.7 U	8.7 U	8.7 U
Vanadium	NA	30 J	147	631	539	160	46.2
Zinc	40.1	20.2 J	112	252	223	88.8	8.9

APPENDIX F.18 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - INORGANICS (DISSOLVED)
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6GW01	2MW01	2MW02	2MW02	2MW03	6GW01
Sample ID	06GW101	2MW01	2MW02	2MW02D	2MW03	6GW01
Sample Date	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96	11/12/96
Inorganics, Dissolved (ug/l)						
Aluminum	48.9 J	NA	NA	NA	NA	NA
Antimony	47.2 U	16 R	16 R	21.2 J	16 R	16 R
Arsenic	3 U	2 U	2 U	2 U	2 U	2 U
Barium	35.2 U	246	99.6	94.7	262	3.4
Beryllium	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Cadmium	2.8 U	2.1 U	2.1 U	2.1 U	3.2	3
Calcium	58700	NA	NA	NA	NA	NA
Chromium	10.4 UJ	1.7 U	2	1.7 U	1.7 U	1.7 U
Cobalt	15.5 UJ	15.9	3.2	2.8 U	4	2.8 U
Copper	8.5 J	1.5 U	5.9	6.2	3.3	1.6
Cyanide	0	NA	NA	NA	NA	NA
Iron	14.5 UJ	NA	NA	NA	NA	NA
Lead	1.8 U	0.7 U	0.7 U	0.7 U	0.7 UJ	0.7 U
Magnesium	77500	NA	NA	NA	NA	NA
Manganese	0 R	NA	NA	NA	NA	NA
Mercury	0.2 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	7.8 UJ	6.7 U	6.7 U	6.7 U	6.7 U	6.7 U
Potassium	2250 BU	NA	NA	NA	NA	NA
Selenium	9.2 J	1.8 U	1.8 J	1.8 U	1.8 UJ	5.2
Silver	6.3 U	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ
Sodium	786000 J	838000	648000	643000	223000	583000
Thallium	1.5 UJ	1.6 U	1.6 U	1.6 U	1.6 UJ	1.6 U
Tin	NA	8.7 U	8.7 U	8.7 U	8.7 U	8.7 U
Vanadium	17.9 J	7.9	30.6	23.6	25.5	45.8
Zinc	16.5 B	16	5.2	4	9.9	6.4

APPENDIX F.19
SURFACE WATER, ORGANICS, SWMU 2

APPENDIX F.19 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SW1	6SW2	6SW3	14SW10	6SW1	6SW2	6SW3
Sample ID	R6SW1	R6SW2	R6SW3	14SW10	R6SW01	R6SW02	R6SW03
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87
VOLATILES (ug/l)							
1,1,1-Trichloroethane	0.34 U	0.34 U	0.33 U	0.33 U	3.8 U	3.8 U	3.8 U
1,1,2,2-Tetrachloroethane	1.1 U	1.1 U	1.1 U	0.98 U	4.1 U	4.1 U	4.1 U
1,1,2-Trichloroethane	0.78 U	0.79 U	0.77 U	0.78 U	5 U	5 U	5 U
1,1-Dichloroethane	0.5 U	0.51 U	0.5 U	0.44 U	4.7 U	4.7 U	4.7 U
1,1-Dichloroethene	0	0.85 U	0.83 U	0.8 U	2.8 U	2.8 U	2.8 U
1,2-Dibromoethane	NA	NA	NA	0.01 U	0.013 U	0.013 U	0.013 U
1,2-Dichloroethane	0.42 U	0.42 U	0.41 U	0.38 U	2.8 U	2.8 U	2.8 U
1,2-Dichloropropane	0.97 U	0.98 U	0.95 U	0.84 U	6 U	6 U	6 U
1,4-Dichlorobenzene	0.4 U	0.3 U	0.3 U	NA	1 U	1 U	1 U
2-Butanone	16 U	16 U	14 U	8.1 U	48 U	48 U	48 U
2-Chloroethyl vinyl ether	3.1 U	3.1 U	3.1 U	1.6 U	15 U	15 U	15 U
4-Methyl-2-pentanone	1.8 U	1.8 U	1.7 U	1.5 U	12 U	12 U	12 U
Benzene	1 U	0.29 U	0.93 U	0.3 U	1 U	1 U	1 U
Bromodichloromethane	0.36 U	0.37 U	0.36 U	0.35 U	2.2 U	2.2 U	2.2 U
Bromoform	0.91 U	0.92 U	0.9 U	1 U	4.7 U	4.7 U	4.7 U
Bromomethane	0.77 U	0.78 U	0.76 U	0.74 U	5.8 U	5.8 U	5.8 U
Carbon tetrachloride	0.3 U	0.31 U	0.3 U	0.31 U	2.8 U	2.8 U	2.8 U
Chlorobenzene	0.25 U	0.26 U	0.25 U	0.24 U	6 U	6 U	6 U
Chloroethane	1.6 U	1.7 U	1.6 U	1.6 U	8.2 U	8.2 U	8.2 U
Chloroform	0.3 U	0.3 U	0.3 U	0.29 U	1.6 U	1.6 U	1.6 U
Chloromethane	0.96 U	0.99 U	0.96 U	0.63 U	4.3 U	4.3 U	4.3 U
cis-1,3-Dichloropropene	0.36 U	0.37 U	0.36 U	0.35 U	5 U	5 U	5 U
Dibromochloromethane	0.566 U	0.572 U	0.559 U	0.591 U	3.1 U	3.1 U	3.1 U
Ethylbenzene	0.57 U	0.57 U	0.56 U	0.53 U	7.2 U	7.2 U	7.2 U
Methylene chloride	0.77 U	2.5 U	0.76 U	0.71 U	50 U	50 U	50 U
m-Xylene	0.16 U	0.17 U	0.16 U	0.14 U	12 U	12 U	12 U
o + p xylene	0.16 U	0.16 U	0.16 U	0.13 U	12 U	12 U	12 U
VOLATILES (ug/l) (cont.)							
Tetrachloroethene	0.51 U	0.52 U	0.51 U	0.52 U	3 U	3 U	3 U

APPENDIX F.19 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SW1	6SW2	6SW3	14SW10	6SW1	6SW2	6SW3
Sample ID	R6SW1	R6SW2	R6SW3	14SW10	R6SW01	R6SW02	R6SW03
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87
Toluene	0.39 U	0.39 U	0.38 U	0.37 U	6 U	6 U	6 U
trans-1,2-Dichloroethene	0.82 U	0.83 U	0.81 U	0.79 U	1.6 U	1.6 U	1.6 U
trans-1,3-Dichloropropene	0.36 U	0.37 U	0.36 U	0.35 U	6.4 U	6.4 U	6.4 U
Trichloroethene	0.48 U	0.48 U	0.47 U	0.51 U	1 U	1 U	1 U
Trichlorofluoromethane	1 U	1 U	1 U	0.98 U	3.2 U	3.2 U	3.2 U
Vinyl chloride	0.78 U	0.78 U	0.77 U	0.65 U	1 U	1 U	1 U

APPENDIX F.19 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SW1	6SW2	6SW3	14SW10	6SW1	6SW2	6SW3
Sample ID	R6SW1	R6SW2	R6SW3	14SW10	R6SW01	R6SW02	R6SW03
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87
SEMIVOLATILES (ug/l)							
1,2,4-Trichlorobenzene	0.6 U	0.4 U	0.4 U	NA	1 U	1 U	1 U
1,2-Dichlorobenzene	0.4 U	0.3 U	0.3 U	NA	1 U	1 U	1 U
1,3-Dichlorobenzene	0.4 U	0.3 U	0.3 U	NA	1 U	1 U	1 U
2,2'-Oxybis(1-Chloropropane)	0.3 U	0.2 U	0.2 U	NA	1 U	1 U	1 U
2,4,6-Trichlorophenol	0.82 U	0.62 U	0.62 U	NA	1.8 U	1.8 U	1.8 U
2,4-Dichlorophenol	0.57 U	0.42 U	0.42 U	NA	1.4 U	1.4 U	1.4 U
2,4-Dimethylphenol	0.48 U	0.36 U	0.35 U	NA	1.4 U	1.4 U	1.4 U
2,4-Dinitrophenol	2.6 U	1.9 U	1.9 U	NA	30 U	30 U	30 U
2,4-Dinitrotoluene	0.73 U	0.539 U	0.534 U	NA	1 U	1 U	1 U
2,6-Dinitrotoluene	1.01 U	0.742 U	0.736 U	NA	1 U	1 U	1 U
2-Chloronaphthalene	0.2 U	0.2 U	0.2 U	NA	1 U	1 U	1 U
2-Chlorophenol	0.4 U	0.3 U	0.29 U	NA	1.7 U	1.7 U	1.7 U
2-Nitrophenol	0.73 U	0.54 U	0.54 U	NA	1.4 U	1.4 U	1.4 U
3,3'-Dichlorobenzidine	2 U	1 U	1 U	NA	1.5 U	1.5 U	1.5 U
4,6-Dinitro-2-methylphenol	1.8 U	1.3 U	1.3 U	NA	5 U	5 U	5 U
4-Bromophenyl phenyl ether	0.9 U	0.7 U	0.7 U	NA	1 U	1 U	1 U
4-Chloro-3-methylphenol	0.55 U	0.41 U	0.41 U	NA	1.4 U	1.4 U	1.4 U
4-Chlorophenyl phenyl ether	0.5 U	0.3 U	0.3 U	NA	1 U	1 U	1 U
4-Nitrophenol	1.5 U	1.1 U	1.1 U	NA	3.3 U	3.3 U	3.3 U
Acenaphthene	0.2 U	0.2 U	0.2 U	NA	1 U	1 U	1 U
Acenaphthylene	0.1 U	0.1 U	0.1 U	NA	1 U	1 U	1 U
Anthracene	0.2 U	0.1 U	0.1 U	NA	1 U	1 U	1 U
Benzidine	NA	NA	NA	NA	2.1 U	2.1 U	2.1 U
Benzo(a)anthracene	0.4 U	0.3 U	0.3 U	NA	1 U	1 U	1 U
Benzo(a)pyrene	0.8 U	0.6 U	0.6 U	NA	1.5 U	1.5 U	1.5 U
Benzo(b)fluoranthene	0.611 U	0.451 U	0.447 U	NA	1.5 U	1.5 U	1.5 U
Benzo(g,h,i)perylene	1 U	1 U	1 U	NA	2 U	2 U	2 U
SEMIVOLATILES (ug/l) (cont.)							
Benzo(k)fluoranthene	0.6 U	0.5 U	0.5 U	NA	1.5 U	1.5 U	1.5 U

APPENDIX F.19 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SW1	6SW2	6SW3	14SW10	6SW1	6SW2	6SW3
Sample ID	R6SW1	R6SW2	R6SW3	14SW10	R6SW01	R6SW02	R6SW03
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87
Bis(2-chloroethoxy)methane	0.2 U	0.2 U	0.2 U	NA	1 U	1 U	1 U
Bis(2-chloroethyl)ether	0.3 U	0.2 U	0.2 U	NA	1 U	1 U	1 U
Bis(2-ethylhexyl)phthalate	1	1	0.3 U	NA	1	2.4	1.3
Butylbenzylphthalate	0.4 U	0.3 U	0.3 U	NA	1 U	1 U	1 U
Chrysene	0.3 U	0.3 U	0.3 U	NA	1 U	1 U	1 U
Dibenzo(a,h)anthracene	1 U	1 U	1 U	NA	2 U	2 U	2 U
Dichlorobenzenes	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA
Diethylphthalate	0.2 U	0.2 U	0.2 U	NA	1 U	1 U	1 U
Dimethylphthalate	0.2 U	0.1 U	0.1 U	NA	1 U	1 U	1 U
Di-n-butylphthalate	0.1 U	0.1 U	0.1 U	NA	1 U	1 U	1 U
Di-n-octylphthalate	2	0.2 U	2	NA	1.1 U	1.1 U	1.1 U
Fluoranthene	0.2 U	0.1 U	0.1 U	NA	1 U	1 U	1 U
Fluorene	0.2 U	0.1 U	0.1 U	NA	1 U	1 U	1 U
Hexachlorobenzene	0.9 U	0.6 U	0.6 U	NA	1 U	1 U	1 U
Hexachlorobutadiene	1 U	0.9 U	0.9 U	NA	1 U	1 U	1 U
Hexachlorocyclopentadiene	2 U	1 U	1 U	NA	2 U	2 U	2 U
Hexachloroethane	1 U	0.7 U	0.7 U	NA	1.5 U	1.5 U	1.5 U
Indeno(1,2,3-cd)pyrene	1 U	1 U	1 U	NA	2 U	2 U	2 U
Isophorone	0.2 U	0.15 U	0.15 U	NA	1 U	1 U	1 U
Naphthalene	0.1 U	0.1 U	0.1 U	NA	1 U	1 U	1 U
Nitrobenzene	0.399 U	0.295 U	0.292 U	NA	1 U	1 U	1 U
N-Nitrosodimethylamine	0.5 U	0.3 U	0.3 U	NA	1 U	1 U	1 U
N-Nitroso-di-n-propylamine	0.5 U	0.4 U	0.3 U	NA	1 U	1 U	1 U
N-Nitrosodiphenylamine (1)	5 U	3 U	3 U	NA	1 U	1 U	1 U

APPENDIX F.19 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SW1	6SW2	6SW3	14SW10	6SW1	6SW2	6SW3
Sample ID	R6SW1	R6SW2	R6SW3	14SW10	R6SW01	R6SW02	R6SW03
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87
SEMIVOLATILES (ug/l) (cont.)							
Pentachlorophenol	1.7 U	1.3 U	1.3 U	NA	10 U	10 U	10 U
Phenanthrene	0.2 U	0.1 U	0.1 U	NA	1 U	1 U	1 U
Phenol	0.28 U	0.21 U	0.21 U	NA	1.3 U	1.3 U	1.3 U
Pyrene	0.2 U	0.1 U	0.1 U	NA	1 U	1 U	1 U
Total Phenols	NA	NA	NA	NA	70	40	1200

APPENDIX F.19 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE WATER - ORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SW1	6SW2	6SW3	14SW10	6SW1	6SW2	6SW3
Sample ID	R6SW1	R6SW2	R6SW3	14SW10	R6SW01	R6SW02	R6SW03
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87
PESTICIDES/PCBs (ug/l)							
4,4'-DDD	0.062 U	0.062 U	0.062 U	NA	0.009 U	0.009 U	0.009 U
4,4'-DDE	0.011 U	0.011 U	0.011 U	NA	0.009 U	0.009 U	0.009 U
4,4'-DDT	0.037 U	0.037 U	0.037 U	NA	0.009 U	0.009 U	0.009 U
Aldrin	0.005 U	0.005 U	0.005 U	NA	0.009 U	0.009 U	0.009 U
BHCALPHA	0.003 U	0.003 U	0.003 U	NA	0.009 U	0.009 U	0.009 U
BHCBETA	0.007 U	0.007 U	0.007 U	NA	0.009 U	0.009 U	0.009 U
BHCDELTA	0.009 U	0.009 U	0.009 U	NA	0.009 U	0.009 U	0.009 U
BHCGAMMA	0.007 U	0.007 U	0.007 U	NA	0.009 U	0.009 U	0.009 U
Chlordane	0.087 U	0.087 U	0.087 U	NA	0.012 U	0.012 U	0.012 U
Dieldrin	0.013 U	0.013 U	0.013 U	NA	0.009 U	0.009 U	0.009 U
Endosulfan I	0.011 U	0.011 U	0.011 U	NA	0.009 U	0.009 U	0.009 U
Endosulfan II	0.028 U	0.028 U	0.028 U	NA	0.009 U	0.009 U	0.009 U
Endosulfan sulfate	0.208 U	0.208 U	0.208 U	NA	0.009 U	0.009 U	0.009 U
Endrin	0.031 U	0.031 U	0.031 U	NA	0.009 U	0.009 U	0.009 U
Endrin aldehyde	0.035 U	0.035 U	0.035 U	NA	0.009 U	0.009 U	0.009 U
Heptachlor	0.004 U	0.004 U	0.004 U	NA	0.009 U	0.009 U	0.009 U
Heptachlor epoxide	0.007 U	0.007 U	0.007 U	NA	0.009 U	0.009 U	0.009 U
Toxaphene	1.02 U	1.02 U	1.02 U	NA	1.2 U	1.2 U	1.2 U
Aroclor-1016	0.2 U	0.2 U	0.2 U	NA	0.247 U	0.247 U	0.247 U
Aroclor-1221	0.2 U	0.2 U	0.2 U	NA	0.247 U	0.247 U	0.247 U
Aroclor-1232	0.2 U	0.2 U	0.2 U	NA	0.247 U	0.247 U	0.247 U
Aroclor-1242	0.2 U	0.2 U	0.2 U	NA	0.247 U	0.247 U	0.247 U
Aroclor-1248	0.2 U	0.2 U	0.2 U	NA	0.247 U	0.247 U	0.247 U
Aroclor-1254	0.2 U	0.2 U	0.2 U	NA	0.247 U	0.247 U	0.247 U
Aroclor-1260	0.2 U	0.2 U	0.2 U	NA	0.247 U	0.247 U	0.247 U
MISCELLANEOUS							
Oil & Grease (mg/l)	NA	NA	NA	500	NA	NA	NA

APPENDIX F.20
SURFACE WATER, INORGANICS (TOTAL), SWMU 2

APPENDIX F.20

SUMMARY OF ANALYTICAL RESULTS, SURFACE WATER - INORGANICS
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	6SW1	6SW2	6SW3	14SW10	6SW1	6SW2	6SW3
Sample ID	R6SW1	R6SW2	R6SW3	14SW10	R6SW01	R6SW02	R6SW03
Sample Date	12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87
Inorganics (ug/l)							
Antimony	24 U	24 U	24 U	NA	21 U	21 U	21 U
Arsenic	18 U	18 U	18 U	NA	10 U	10 U	10 U
Beryllium	23.6	50.6	24.7	NA	1 U	1 U	1 U
Cadmium	4.42	8.4	3.35	NA	2.4 U	2.4 U	2.4 U
Chromium	318	611	339	NA	97.4	107	106
Chromium (Hexavalent)	20 U	34.4 U	36.7 U	NA	NA	NA	NA
Copper	354	966	516	NA	2.8 U	2.8 U	67.8
Lead	211	526	244	27 U	400 U	400 U	400 U
Mercury	0.856	0.997	0.997	NA	0.2 U	0.2 U	0.2 U
Nickel	138	252	147	NA	8.6 U	8.6 U	8.6 U
Selenium	278	39 U	549	NA	162	191	241
Silver	6 U	6 U	6 U	NA	32.2	31.1	28.7
Thallium	29.3	28.6	19.2	NA	6.8 U	6.8 U	6.8 U
Zinc	558	1310	818	NA	1.8 U	1.8 U	52.5

APPENDIX F.21
SURFACE SOIL, ORGANICS, SWMU 45

APPENDIX F.21 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW02	45MW03	45MW04	45MW04
Sample ID	45MW01-00	45MW02-00	45MW03-00	45MW04-00	45MW04-00D
Sample Date	11/22/96	11/21/96	11/21/96	11/22/96	11/22/96
Depth Range (ft.)	0.00-1.00	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	11 U	11 U	12 U
1,1,1-Trichloroethane	5 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	5 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	5 U	6 U	6 U	6 U	6 U
1,2,3-Trichloropropane	11 U	11 U	11 U	11 U	12 U
1,2-Dibromo-3-chloropropane	22 U	22 U	23 U	23 U	23 U
1,2-Dibromoethane	22 U	22 U	23 U	23 U	23 U
1,2-Dichloroethane	5 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (Total)	5 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	5 U	6 U	6 U	6 U	6 U
2-Butanone	11 U	11 U	11 U	11 U	12 U
2-Chloro-1,3-butadiene	110 R	110 R	110 R	110 R	120 R
2-Hexanone	11 U	11 U	11 U	11 U	12 U
3-Chloropropene	22 UJ	22 UJ	23 UJ	23 UJ	23 UJ
4-Methyl-2-pentanone	11 U	11 U	11 U	11 U	12 U
Acetone	11 UJ	11 UJ	11 UJ	11 UJ	12 UJ
Acetonitrile	110 UJ	110 UJ	110 UJ	110 UJ	120 UJ
Acrolein	550 UJ	560 UJ	570 U	570 U	580 U
Acrylonitrile	110 UJ	110 UJ	110 UJ	110 UJ	120 UJ
Benzene	5 U	6 U	6 U	6 U	6 U
Bromodichloromethane	5 U	6 U	6 U	6 U	6 U
Bromoform	5 UJ	6 UJ	6 UJ	6 UJ	6 UJ
Bromomethane	11 U	11 U	11 U	11 U	12 U
Carbon disulfide	5 U	6 U	6 UJ	6 UJ	6 UJ
Carbon tetrachloride	5 U	6 U	6 U	6 U	6 U
Chlorobenzene	5 U	6 U	6 U	6 U	6 U
Chloroethane	11 U	11 U	11 UJ	11 UJ	12 UJ
Chloroform	5 U	6 U	6 U	6 U	6 U
Chloromethane	11 U	11 U	11 U	11 U	12 U
cis-1,3-Dichloropropene	5 U	6 U	6 U	6 U	6 U

APPENDIX F.21 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW02	45MW03	45MW04	45MW04
Sample ID	45MW01-00	45MW02-00	45MW03-00	45MW04-00	45MW04-00D
Sample Date	11/22/96	11/21/96	11/21/96	11/22/96	11/22/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg) (cont.)					
Dibromochloromethane	5 UJ	6 UJ	6 U	6 U	6 U
Dibromomethane	11 UJ	11 U	11 U	11 UJ	12 UJ
Dichlorodifluoromethane	22 U	22 U	23 U	23 U	23 U
Ethyl methacrylate	22 UJ	22 UJ	23 UJ	23 UJ	23 UJ
Ethylbenzene	5 U	6 U	6 U	6 U	6 U
Iodomethane	11 U	11 U	11 U	11 U	12 U
Isobutanol	2200 R	2200 R	2300 R	2300 R	2300 R
Methacrylonitrile	22 UJ	22 UJ	23 UJ	23 U	23 UJ
Methyl methacrylate	22 U	22 UJ	23 UJ	23 UJ	23 U
Methylene chloride	5 U	6 U	6 U	6 U	6 U
Pentachloroethane	22 UJ	22 UJ	23 UJ	23 UJ	23 UJ
Propionitrile	55 U	56 U	57 U	57 U	58 U
Styrene	5 U	6 U	6 U	6 U	6 U
Tetrachloroethene	5 UJ	6 UJ	6 UJ	6 UJ	6 UJ
Toluene	5 U	6 U	6 U	6 U	6 U
trans-1,3-Dichloropropene	5 U	6 U	6 U	6 U	6 U
trans-1,4-Dichloro-2-butene	22 UJ	22 UJ	23 UJ	23 UJ	23 UJ
Trichloroethene	5 UJ	6 UJ	6 UJ	6 UJ	6 UJ
Trichlorofluoromethane	11 U	11 U	11 U	11 U	12 U
Vinyl Acetate	11 UJ	11 UJ	11 UJ	11 UJ	12 UJ
Vinyl chloride	11 U	11 U	11 U	11 U	12 U
Xylene (total)	5 U	6 U	6 U	6 U	6 U

APPENDIX F.21 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW02	45MW03	45MW04	45MW04
Sample ID	45MW01-00	45MW02-00	45MW03-00	45MW04-00	45MW04-00D
Sample Date	11/22/96	11/21/96	11/21/96	11/22/96	11/22/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg)					
1,2,4,5-Tetrachlorobenzene	360 U	370 U	380 U	370 U	380 U
1,2,4-Trichlorobenzene	360 U	370 U	380 U	370 U	380 U
1,2-Dichlorobenzene	360 U	370 U	380 U	370 U	380 U
1,2-Diphenylhydrazine	360 U	370 U	380 U	370 U	380 U
1,3-Dichlorobenzene	360 U	370 U	380 U	370 U	380 U
1,4-Dichlorobenzene	360 U	370 U	380 U	370 U	380 U
1,4-Dioxane	730 U	740 U	760 U	740 UJ	760 UJ
1,4-Naphthoquinone	1800 U	1800 U	1900 U	1800 U	1900 U
1-Naphthylamine	730 U	740 UJ	760 UJ	740 UJ	760 UJ
2,2'-Oxybis(1-Chloropropane)	360 U	370 UJ	380 U	370 U	380 U
2,3,4,6-Tetrachlorophenol	360 U	370 U	380 U	370 U	380 U
2,4,5-Trichlorophenol	1800 U	1800 U	1900 U	1800 U	1900 U
2,4,6-Trichlorophenol	360 U	370 U	380 U	370 U	380 U
2,4-Dichlorophenol	360 U	370 U	380 U	370 U	380 U
2,4-Dimethylphenol	360 U	370 U	380 U	370 U	380 U
2,4-Dinitrophenol	1800 U	1800 U	1900 U	1800 U	1900 U
2,4-Dinitrotoluene	360 U	370 U	380 U	370 U	380 U
2,6-Dichlorophenol	360 U	370 U	380 U	370 U	380 U
2,6-Dinitrotoluene	360 U	370 U	380 U	370 U	380 U
2-Acetylaminofluorene	730 U	740 UJ	760 UJ	740 U	760 U
2-Chloronaphthalene	360 U	370 U	380 U	370 U	380 U
2-Chlorophenol	360 U	370 U	380 U	370 U	380 U
2-Methylnaphthalene	360 U	370 U	380 U	370 U	380 U
2-Naphthylamine	910 U	920 U	950 U	920 U	960 U
2-Nitroaniline	1800 U	1800 U	1900 U	1800 U	1900 U
2-Nitrophenol	360 U	370 U	380 U	370 U	380 U
2-Picoline	360 U	370 U	380 U	370 UJ	380 UJ
2-sec-butyl-4,6-dinitrophenol	730 U	740 U	760 U	740 U	760 U
3,3'-Dichlorobenzidine	730 U	740 UJ	760 UJ	740 U	760 U
3,3'-Dimethylbenzidine	1800 UJ	1800 UJ	1900 UJ	1800 UJ	1900 UJ
3-Methylcholanthrene	360 U	370 UJ	380 UJ	370 U	380 U
3-Nitroaniline	1800 U	1800 U	1900 U	1800 UJ	1900 UJ

APPENDIX F.21 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW02	45MW03	45MW04	45MW04
Sample ID	45MW01-00	45MW02-00	45MW03-00	45MW04-00	45MW04-00D
Sample Date	11/22/96	11/21/96	11/21/96	11/22/96	11/22/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)					
4,6-Dinitro-2-methylphenol	1800 U	1800 U	1900 U	1800 U	1900 U
4-Aminobiphenyl	730 U	740 UJ	760 UJ	740 U	760 U
4-Bromophenyl phenyl ether	360 U	370 U	380 U	370 U	380 U
4-Chloro-3-methylphenol	730 U	740 U	760 U	740 U	760 U
4-Chloroaniline	730 U	740 U	760 U	740 U	760 U
4-Chlorophenyl phenyl ether	360 U	370 U	380 U	370 U	380 U
4-Nitroaniline	1800 U	1800 UJ	1900 UJ	1800 U	1900 U
4-Nitrophenol	1800 U	1800 U	1900 U	1800 U	1900 U
4-Nitroquinoline-1-oxide	1800 U	1800 U	1900 U	1800 U	1900 U
5-Nitro-o-toluidine	730 UJ	740 UJ	760 UJ	740 UJ	760 UJ
7,12-Dimethylbenz(a)anthracene	730 U	740 UJ	760 UJ	740 U	760 U
Acenaphthene	360 U	370 U	380 U	370 U	380 U
Acenaphthylene	360 U	370 U	380 U	370 U	380 U
Acetophenone	360 U	370 U	380 U	370 U	380 U
alpha, alpha-Dimethylphenethylamine	1800 UJ	1800 UJ	1900 UJ	1800 UJ	1900 UJ
Aniline	1800 U	1800 U	1900 U	1800 U	1900 U
Anthracene	360 U	370 U	380 U	370 U	380 U
Aramite	730 UJ	740 U	760 U	740 U	760 U
Benzidine	3600 U	3700 U	3800 U	3700 U	3800 U
Benzo(a)anthracene	360 U	370 UJ	380 UJ	370 U	380 U
Benzo(a)pyrene	360 U	370 UJ	380 UJ	370 U	380 U
Benzo(b)fluoranthene	360 U	370 UJ	380 UJ	370 U	380 U
Benzo(g,h,i)perylene	360 U	370 UJ	380 UJ	370 U	380 U
Benzo(k)fluoranthene	360 U	370 UJ	380 UJ	370 U	380 U
Benzoic acid	1800 U	1800 U	1900 U	1800 UJ	1900 UJ
Benzyl alcohol	360 U	370 U	380 U	370 UJ	380 UJ
Bis(2-chloroethoxy)methane	360 U	370 U	380 U	370 U	380 U
Bis(2-chloroethyl)ether	360 U	370 U	380 U	370 U	380 U
Bis(2-ethylhexyl)phthalate	360 U	370 UJ	380 UJ	370 U	380 U
Butylbenzylphthalate	360 U	370 UJ	380 UJ	370 U	380 U
Carbazole	360 U	370 U	380 U	370 U	380 U
Chlorobenzilate	360 U	370 U	380 U	370 U	380 U

APPENDIX F.21 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW02	45MW03	45MW04	45MW04
Sample ID	45MW01-00	45MW02-00	45MW03-00	45MW04-00	45MW04-00D
Sample Date	11/22/96	11/21/96	11/21/96	11/22/96	11/22/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)					
Chrysene	360 U	370 UJ	380 UJ	370 U	380 U
Diallate	360 UJ	370 U	380 U	370 U	380 U
Dibenzo(a,h)anthracene	360 U	370 UJ	380 UJ	370 U	380 U
Dibenzofuran	360 U	370 U	380 U	370 U	380 U
Diethylphthalate	360 U	370 U	380 U	370 U	380 U
Dimethylphthalate	360 U	370 U	380 U	370 U	380 U
Di-n-butylphthalate	360 U	370 U	380 U	370 U	380 U
Di-n-octylphthalate	360 U	370 UJ	380 UJ	370 U	380 U
Diphenylamine	360 U	370 U	380 U	370 U	380 U
Ethyl methanesulfonate	360 U	370 U	380 U	370 UJ	380 UJ
Fluoranthene	360 U	370 U	380 U	370 U	380 U
Fluorene	360 U	370 U	380 U	370 U	380 U
Hexachlorobenzene	360 U	370 U	380 U	370 U	380 U
Hexachlorobutadiene	360 U	370 U	380 U	370 U	380 U
Hexachlorocyclopentadiene	360 U	370 U	380 U	370 U	380 U
Hexachloroethane	360 U	370 U	380 U	370 U	380 U
Hexachlorophene	3600 U	3700 UJ	3800 UJ	3700 U	3800 U
Hexachloropropene	1800 U	1800 U	1900 U	1800 U	1900 U
Indeno(1,2,3-cd)pyrene	360 U	370 UJ	380 UJ	370 U	380 U
Isophorone	360 U	370 U	380 U	370 U	380 U
Isosafrole	360 U	370 U	380 U	370 U	380 U
m&p Cresol	360 U	370 U	380 U	370 U	380 U
m-Dinitrobenzene	NA	NA	NA	NA	760 U
Meta-Dinitrobenzene	730 U	740 U	760 U	740 U	760 U
Methapyrilene	910 U	920 U	950 U	920 U	960 U
Methyl methanesulfonate	360 U	370 U	380 U	370 U	380 U

APPENDIX F.21 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW02	45MW03	45MW04	45MW04
Sample ID	45MW01-00	45MW02-00	45MW03-00	45MW04-00	45MW04-00D
Sample Date	11/22/96	11/21/96	11/21/96	11/22/96	11/22/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
SEMIVOLATILES (ug/kg) (cont.)					
Naphthalene	360 U	370 U	380 U	370 U	380 U
Nitrobenzene	360 U	370 U	380 U	370 U	380 U
N-Nitrosodiethylamine	360 U	370 U	380 U	370 U	380 U
N-Nitrosodimethylamine	360 U	370 U	380 U	370 U	380 U
N-Nitroso-di-n-butylamine	360 U	370 U	380 U	370 U	380 U
N-Nitroso-di-n-propylamine	360 U	370 U	380 U	370 U	380 U
N-Nitrosodiphenylamine (1)	360 U	370 U	380 U	370 U	380 U
N-Nitrosomethylethylamine	360 UJ	370 UJ	380 UJ	370 U	380 U
N-Nitrosomorpholine	730 U	740 U	760 U	740 U	760 U
N-Nitrosopiperidine	360 U	370 U	380 U	370 U	380 U
N-Nitrosopyrrolidine	1800 U	1800 UJ	1900 UJ	1800 UJ	1900 UJ
o-Cresol	360 U	370 U	380 U	370 U	380 U
o-Toluidine	360 UJ	370 UJ	380 UJ	370 UJ	380 UJ
p-Dimethylaminoazobenzene	730 U	740 U	760 U	740 U	760 U
Pentachlorobenzene	360 U	370 U	380 U	370 U	380 U
Pentachloronitrobenzene	360 U	370 U	380 U	370 U	380 U
Pentachlorophenol	1800 U	1800 U	1900 U	1800 U	1900 U
Phenacetin	360 U	370 U	380 U	370 UJ	380 UJ
Phenanthrene	360 U	370 U	380 U	370 U	380 U
Phenol	360 U	370 U	380 U	370 U	380 U
p-Phenylenediamine	730 R	740 R	760 R	740 R	760 R
Pronamide	360 U	370 U	380 U	370 U	380 U
Pyrene	360 U	370 UJ	380 UJ	370 U	380 U
Pyridine	730 U	740 UJ	760 UJ	740 U	760 U
Safrole	360 U	370 UJ	380 UJ	370 U	380 U
sym-Trinitrobenzene	3600 R	3700 UJ	3800 UJ	3700 R	3800 R

APPENDIX F.21 (continued)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW02	45MW03	45MW04	45MW04
Sample ID	45MW01-00	45MW02-00	45MW03-00	45MW04-00	45MW04-00D
Sample Date	11/22/96	11/21/96	11/21/96	11/22/96	11/22/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
PCBs (ug/kg)					
Aroclor-1016	44 U	45 U	45 U	46 U	45 U
Aroclor-1221	44 U	45 U	45 U	46 U	45 U
Aroclor-1232	44 U	45 U	45 U	46 U	45 U
Aroclor-1242	44 U	45 U	45 U	46 U	45 U
Aroclor-1248	44 U	45 U	45 U	46 U	45 U
Aroclor-1254	87 U	90 U	90 U	91 U	91 U
Aroclor-1260	87 U	100	90 U	150	130

APPENDIX F.22
SURFACE SOIL, INORGANICS, SWMU 45

APPENDIX F.22

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW02	45MW03	45MW04	45MW04
Sample ID	45MW01-00	45MW02-00	45MW03-00	45MW04-00	45MW04-00D
Sample Date	11/22/96	11/21/96	11/21/96	11/22/96	11/22/96
Depth Range (ft.)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
RCRA Metals (mg/kg)					
Arsenic, Total	0.7 UJ	3.3 J	2.6 J	2.3 J	1.1 J
Barium, Total	284	277	233	108	218
Cadmium, Total	0.25	0.25	0.42	0.41	0.19 U
Chromium, Total	24.6	23.2	29.9	10.9	19.5
Lead, Total	2.8 J	8.2	5.2 J	7.4 J	4.8 J
Mercury, Total	0.03	0.03	0.03	0.04	0.03
Selenium, Total	0.79 UJ	0.15 UJ	0.63 U	0.12 UJ	0.19 UJ
Silver, Total	0.7 U	0.64 U	0.64 U	0.17 U	0.8 U

APPENDIX F.23
SUBSURFACE SOIL, ORGANICS, SWMU 45

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW01	45MW02	45MW02	45MW03	45MW03	45MW03	45MW04	45MW04	11-SB01
Sample ID	45MW01-02	45MW01-03	45MW02-01	45MW02-02	45MW03-03	45MW03-03D	45MW03-04	45MW04-01	45MW04-02	11SB01-02
Sample Date	11/22/96	11/22/96	11/21/96	11/21/96	11/21/96	11/21/96	11/21/96	11/22/96	11/22/96	09/17/97
Depth Range (ft.)	4.00-6.00	6.00-8.00	2.00-4.00	4.00-6.00	6.00-8.00	6.00-8.00	8.00-10.00	2.00-4.00	4.00-6.00	2.00-8.00
VOLATILES (ug/kg)										
1,1,1,2-Tetrachloroethane	12 U	11 U	12 U	13 U	11 U	11 U	12 UJ	12 U	15 U	12 U
1,1,1-Trichloroethane	6 U	6 U	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U
1,1,2,2-Tetrachloroethane	6 U	6 U	6 U	6 U	6 U	5 U	6 UJ	6 U	7 U	6 U
1,1,2-Trichloroethane	6 U	6 U	6 U	6 U	6 U	5 U	6 UJ	6 U	7 U	6 U
1,1-Dichloroethane	6 U	6 U	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U
1,1-Dichloroethene	6 U	6 U	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U
1,2,3-Trichloropropane	12 U	11 U	12 U	13 U	11 U	11 U	12 UJ	12 U	15 U	12 U
1,2-Dibromo-3-chloropropane	24 U	23 U	25 U	25 U	22 U	22 U	23 UJ	23 U	30 U	24 U
1,2-Dibromoethane	24 U	23 U	25 U	25 U	22 U	22 U	23 U	23 U	30 U	24 U
1,2-Dichloroethane	6 U	6 U	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U
1,2-Dichloroethene (Total)	6 U	6 U	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U
1,2-Dichloropropane	6 U	6 U	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U
2-Butanone	12 U	11 U	12 U	13 U	11 U	11 U	12 UJ	12 U	15 U	12 U
2-Chloro-1,3-butadiene	120 R	110 R	120 R	130 R	110 R	110 R	120 R	120 R	150 R	120 U
2-Hexanone	12 U	11 U	12 U	13 U	11 U	11 U	12 UJ	12 U	15 U	12 U
3-Chloropropene	24 UJ	23 UJ	25 UJ	25 UJ	22 UJ	22 UJ	23 U	23 UJ	30 UJ	24 U
4-Methyl-2-pentanone	12 U	11 U	12 U	13 U	11 U	11 U	12 UJ	12 U	15 U	12 U
Acetone	12 UJ	11 UJ	12 UJ	13 UJ	11 UJ	11 UJ	35 J	12 UJ	15 UJ	48
Acetonitrile	120 UJ	110 UJ	120 UJ	130 UJ	110 UJ	110 UJ	120 U	120 UJ	150 UJ	120 U
Acrolein	600 UJ	570 U	620 UJ	630 UJ	550 U	550 U	580 UJ	580 U	750 UJ	610 UJ
Acrylonitrile	120 UJ	110 UJ	120 UJ	130 UJ	110 UJ	110 UJ	120 U	120 UJ	150 UJ	120 U
Benzene	6 U	6 U	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U
Bromodichloromethane	6 U	6 U	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U
Bromoform	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	5 UJ	6 UJ	6 UJ	7 UJ	6 U
Bromomethane	12 U	11 U	12 U	13 U	11 U	11 U	12 U	12 U	15 U	12 U
Carbon disulfide	6 U	6 UJ	6 U	6 U	6 UJ	5 UJ	6 U	6 UJ	7 U	6 U
Carbon tetrachloride	6 U	6 U	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U
Chlorobenzene	6 U	6 U	6 U	6 U	6 U	5 U	6 UJ	6 U	7 U	6 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW01	45MW02	45MW02	45MW03	45MW03	45MW03	45MW04	45MW04	11-SB01
Sample ID	45MW01-02	45MW01-03	45MW02-01	45MW02-02	45MW03-03	45MW03-03D	45MW03-04	45MW04-01	45MW04-02	11SB01-02
Sample Date	11/22/96	11/22/96	11/21/96	11/21/96	11/21/96	11/21/96	11/21/96	11/22/96	11/22/96	09/17/97
Depth Range (ft.)	4.00-6.00	6.00-8.00	2.00-4.00	4.00-6.00	6.00-8.00	6.00-8.00	8.00-10.00	2.00-4.00	4.00-6.00	2.00-8.00
VOLATILES (ug/kg) (cont.)										
Chloroethane	12 U	11 UJ	12 U	13 U	11 UJ	11 UJ	12 U	12 UJ	15 U	12 U
Chloroform	6 U	6 U	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U
Chloromethane	12 U	11 U	12 U	13 U	11 U	11 U	12 U	12 U	15 U	12 U
cis-1,3-Dichloropropene	6 U	6 U	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U
Dibromochloromethane	6 UJ	6 U	6 UJ	6 UJ	6 U	5 U	6 UJ	6 U	7 UJ	6 U
Dibromomethane	12 UJ	11 U	12 U	13 U	11 U	11 U	12 U	12 UJ	15 UJ	12 U
Dichlorodifluoromethane	24 U	23 U	25 U	25 U	22 U	22 U	23 U	23 U	30 U	24 UJ
Ethyl methacrylate	24 UJ	23 UJ	25 UJ	25 UJ	22 UJ	22 UJ	23 UJ	23 UJ	30 UJ	24 U
Ethylbenzene	6 U	6 U	6 U	6 U	6 U	5 U	6 UJ	6 U	7 U	6 U
Iodomethane	12 U	11 U	12 U	13 U	11 U	11 U	12 U	12 U	15 U	12 U
Isobutanol	2400 R	2300 R	2500 R	2500 R	2200 R	2200 R	2300 R	2300 R	3000 R	2400 R
Methacrylonitrile	24 UJ	23 UJ	25 UJ	25 UJ	22 UJ	22 UJ	23 U	23 UJ	30 UJ	24 U
Methyl methacrylate	24 U	23 UJ	25 UJ	25 UJ	22 UJ	22 UJ	23 U	23 U	30 U	24 U
Methylene chloride	6 U	6 U	6 U	6 U	6 U	5 U	6 U	6 U	7 U	6 U
Pentachloroethane	24 UJ	23 UJ	25 UJ	25 UJ	22 UJ	22 UJ	23 UJ	23 UJ	30 UJ	24 U
Propionitrile	60 U	57 U	62 U	63 U	55 U	55 U	58 R	58 U	75 U	61 R
Styrene	6 U	6 U	6 U	6 U	6 U	5 U	6 UJ	6 U	7 U	6 U
Tetrachloroethene	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	5 UJ	6 UJ	6 UJ	7 UJ	6 UJ
Toluene	6 U	6 U	6 U	6 U	6 U	5 U	6 UJ	6 U	7 U	24
trans-1,3-Dichloropropene	6 U	6 U	6 U	6 U	6 U	5 U	6 UJ	6 U	7 U	6 U
trans-1,4-Dichloro-2-butene	24 UJ	23 UJ	25 UJ	25 UJ	22 UJ	22 UJ	23 UJ	23 UJ	30 UJ	24 U
Trichloroethene	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ	5 UJ	6 U	6 UJ	7 UJ	6 U
Trichlorofluoromethane	12 U	11 U	12 U	13 U	11 U	11 U	12 UJ	12 U	15 U	12 U
Vinyl Acetate	12 UJ	11 UJ	12 UJ	13 UJ	11 UJ	11 UJ	12 U	12 UJ	15 UJ	12 U
Vinyl chloride	12 U	11 U	12 U	13 U	11 U	11 U	12 U	12 U	15 U	12 U
Xylene (total)	6 U	6 U	6 U	6 U	6 U	5 U	6 UJ	6 U	7 U	6 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW01	45MW02	45MW02	45MW03	45MW03	45MW03	45MW04	45MW04	11-SB01
Sample ID	45MW01-02	45MW01-03	45MW02-01	45MW02-02	45MW03-03	45MW03-03D	45MW03-04	45MW04-01	45MW04-02	11SB01-02
Sample Date	11/22/96	11/22/96	11/21/96	11/21/96	11/21/96	11/21/96	11/21/96	11/22/96	11/22/96	09/17/97
Depth Range (ft.)	4.00-6.00	6.00-8.00	2.00-4.00	4.00-6.00	6.00-8.00	6.00-8.00	8.00-10.00	2.00-4.00	4.00-6.00	2.00-8.00
SEMIVOLATILES (ug/kg)										
1,2,4,5-Tetrachlorobenzene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
1,2,4-Trichlorobenzene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
1,2-Dichlorobenzene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
1,2-Diphenylhydrazine	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
1,3-Dichlorobenzene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
1,4-Dichlorobenzene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
1,4-Dioxane	790 U	740 U	820 U	830 U	730 U	710 U	760 U	770 U	980 U	760 U
1,4-Naphthoquinone	2000 U	1800 U	2100 U	2100 U	1800 U	1800 U	1900 U	1900 U	2400 U	1900 R
1-Naphthylamine	790 U	740 U	820 UJ	830 UJ	730 UJ	710 UJ	760 UJ	770 U	980 U	760 UJ
2,2'-Oxybis(1-Chloropropane)	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
2,3,4,6-Tetrachlorophenol	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
2,4,5-Trichlorophenol	2000 U	1800 U	2100 U	2100 U	1800 U	1800 U	1900 U	1900 U	2400 U	1900 U
2,4,6-Trichlorophenol	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
2,4-Dichlorophenol	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
2,4-Dimethylphenol	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
2,4-Dinitrophenol	2000 U	1800 U	2100 U	2100 U	1800 U	1800 U	1900 U	1900 U	2400 U	1900 U
2,4-Dinitrotoluene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 UJ
2,6-Dichlorophenol	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
2,6-Dinitrotoluene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
2-Acetylaminofluorene	790 U	740 U	820 U	830 U	730 U	710 U	760 UJ	770 U	980 U	760 UJ
2-Chloronaphthalene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
2-Chlorophenol	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
2-Methylnaphthalene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
2-Naphthylamine	990 U	920 U	1000 U	1000 U	920 U	880 U	950 U	960 U	1200 U	950 U
2-Nitroaniline	2000 U	1800 U	2100 U	2100 U	1800 U	1800 U	1900 U	1900 U	2400 U	1900 U
2-Nitrophenol	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
2-Picoline	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
2-sec-butyl-4,6-dinitrophenol	790 U	740 U	820 U	830 U	730 U	710 U	760 U	770 U	980 U	760 UJ

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW01	45MW02	45MW02	45MW03	45MW03	45MW03	45MW04	45MW04	11-SB01
Sample ID	45MW01-02	45MW01-03	45MW02-01	45MW02-02	45MW03-03	45MW03-03D	45MW03-04	45MW04-01	45MW04-02	11SB01-02
Sample Date	11/22/96	11/22/96	11/21/96	11/21/96	11/21/96	11/21/96	11/21/96	11/22/96	11/22/96	09/17/97
Depth Range (ft.)	4.00-6.00	6.00-8.00	2.00-4.00	4.00-6.00	6.00-8.00	6.00-8.00	8.00-10.00	2.00-4.00	4.00-6.00	2.00-8.00
SEMIVOLATILES (ug/kg) (cont.)										
3,3'-Dichlorobenzidine	790 U	740 U	820 U	830 U	730 U	710 U	760 UJ	770 U	980 U	760 U
3,3'-Dimethylbenzidine	2000 UJ	1800 UJ	2100 UJ	2100 UJ	1800 UJ	1800 UJ	1900 UJ	1900 UJ	2400 UJ	1900 R
3-Methylcholanthrene	400 U	370 U	410 U	420 U	370 UJ	350 UJ	380 UJ	380 U	490 U	380 UJ
3-Nitroaniline	2000 U	1800 U	2100 U	2100 U	1800 U	1800 U	1900 U	1900 U	2400 U	1900 UJ
4,6-Dinitro-2-methylphenol	2000 U	1800 U	2100 U	2100 U	1800 U	1800 U	1900 U	1900 U	2400 U	1900 U
4-Aminobiphenyl	790 U	740 U	820 UJ	830 UJ	730 UJ	710 UJ	760 UJ	770 U	980 U	760 UJ
4-bromophenyl-phenylether	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
4-Chloro-3-methylphenol	790 U	740 U	820 U	830 U	730 U	710 U	760 U	770 U	980 U	760 U
4-Chloroaniline	790 U	740 U	820 U	830 U	730 U	710 U	760 U	770 U	980 U	760 U
4-Chlorophenyl phenyl ether	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
4-Nitroaniline	2000 U	1800 U	2100 UJ	2100 UJ	1800 UJ	1800 UJ	1900 UJ	1900 U	2400 U	1900 UJ
4-Nitrophenol	2000 U	1800 U	2100 U	2100 U	1800 U	1800 U	1900 U	1900 U	2400 U	1900 U
4-Nitroquinoline-1-oxide	2000 U	1800 U	2100 U	2100 U	1800 U	1800 U	1900 U	1900 U	2400 U	1900 R
5-Nitro-o-toluidine	790 UJ	740 UJ	820 UJ	830 UJ	730 UJ	710 UJ	760 UJ	770 UJ	980 UJ	760 UJ
7,12-Dimethylbenz(a)anthracene	790 U	740 U	820 U	830 U	730 UJ	710 UJ	760 UJ	770 U	980 U	760 UJ
Acenaphthene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Acenaphthylene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Acetophenone	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
alpha, alpha-Dimethylphenethylamine	2000 UJ	1800 UJ	2100 UJ	2100 UJ	1800 UJ	1800 UJ	1900 UJ	1900 UJ	2400 UJ	1900 U
Aniline	2000 U	1800 U	2100 U	2100 U	1800 U	1800 U	1900 U	1900 U	2400 U	1900 U
Anthracene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Aramite	790 UJ	740 UJ	820 U	830 U	730 U	710 U	760 U	770 UJ	980 UJ	760 U
Benzidine	4000 U	3700 U	4100 U	4200 U	3700 U	3500 U	3800 U	3800 U	4900 U	3800 R
Benzo(a)anthracene	400 U	370 U	410 U	420 U	370 U	350 U	380 UJ	380 U	490 U	110 J
Benzo(a)pyrene	400 U	370 U	410 U	420 U	370 UJ	350 UJ	380 UJ	380 U	490 U	110 J
Benzo(b)fluoranthene	400 U	370 U	410 U	420 U	370 UJ	350 UJ	380 UJ	380 U	490 U	380 U
Benzo(g,h,i)perylene	400 U	370 U	410 U	420 U	370 UJ	61 J	380 UJ	380 U	490 U	380 U
Benzo(k)fluoranthene	400 U	370 U	410 U	420 U	370 UJ	350 UJ	380 UJ	380 U	490 U	380 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW01	45MW02	45MW02	45MW03	45MW03	45MW03	45MW04	45MW04	11-SB01
Sample ID	45MW01-02	45MW01-03	45MW02-01	45MW02-02	45MW03-03	45MW03-03D	45MW03-04	45MW04-01	45MW04-02	11SB01-02
Sample Date	11/22/96	11/22/96	11/21/96	11/21/96	11/21/96	11/21/96	11/21/96	11/22/96	11/22/96	09/17/97
Depth Range (ft.)	4.00-6.00	6.00-8.00	2.00-4.00	4.00-6.00	6.00-8.00	6.00-8.00	8.00-10.00	2.00-4.00	4.00-6.00	2.00-8.00
SEMIVOLATILES (ug/kg) (cont.)										
Benzoic acid	2000 U	1800 U	2100 U	2100 U	1800 U	1800 U	1900 U	1900 U	2400 U	1900 U
Benzyl alcohol	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Bis(2-chloroethoxy)methane	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Bis(2-chloroethyl)ether	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Bis(2-ethylhexyl)phthalate	400 U	370 U	410 U	420 U	370 U	350 U	380 UJ	380 U	490 U	380 U
Butylbenzylphthalate	400 U	370 U	410 U	420 U	370 U	350 U	380 UJ	380 U	490 U	380 U
Carbazole	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Chlorobenzilate	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 UJ
Chrysene	400 U	370 U	410 U	420 U	370 U	350 U	380 UJ	380 U	490 U	380 U
Diallate	400 UJ	370 UJ	410 U	420 U	370 U	350 U	380 U	380 UJ	490 UJ	380 UJ
Dibenzo(a,h)anthracene	400 U	370 U	410 U	420 U	370 UJ	350 UJ	380 UJ	380 U	490 U	380 U
Dibenzofuran	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Diethylphthalate	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Dimethylphthalate	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Di-n-butylphthalate	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	84 J
Di-n-octylphthalate	400 U	370 U	410 U	420 U	370 UJ	350 UJ	380 UJ	380 U	490 U	380 U
Diphenylamine	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Ethyl methanesulfonate	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 UJ
Fluoranthene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Fluorene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Hexachlorobenzene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Hexachlorobutadiene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Hexachlorocyclopentadiene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 UJ
Hexachloroethane	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Hexachlorophene	4000 U	3700 U	4100 U	4200 U	3700 UJ	3500 UJ	3800 UJ	3800 U	4900 U	3800 UJ
Hexachloropropene	2000 U	1800 U	2100 U	2100 U	1800 U	1800 U	1900 U	1900 U	2400 U	1900 U
Indeno(1,2,3-cd)pyrene	400 U	370 U	410 U	420 U	370 UJ	350 UJ	380 UJ	380 U	490 U	380 U
Isophorone	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW01	45MW02	45MW02	45MW03	45MW03	45MW03	45MW04	45MW04	11-SB01
Sample ID	45MW01-02	45MW01-03	45MW02-01	45MW02-02	45MW03-03	45MW03-03D	45MW03-04	45MW04-01	45MW04-02	11SB01-02
Sample Date	11/22/96	11/22/96	11/21/96	11/21/96	11/21/96	11/21/96	11/21/96	11/22/96	11/22/96	09/17/97
Depth Range (ft.)	4.00-6.00	6.00-8.00	2.00-4.00	4.00-6.00	6.00-8.00	6.00-8.00	8.00-10.00	2.00-4.00	4.00-6.00	2.00-8.00
SEMIVOLATILES (ug/kg) (cont.)										
Isosafrole	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
m&p Cresol	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
m-Dinitrobenzene	790 U	740 U	820 U	830 U	730 U	710 U	760 U	770 U	980 U	760 UJ
Methapyrilene	990 U	920 U	1000 U	1000 U	920 U	880 U	950 U	960 U	1200 U	950 UJ
Methyl methanesulfonate	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 UJ
Naphthalene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Nitrobenzene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
N-Nitrosodiethylamine	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
N-Nitrosodimethylamine	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
N-Nitroso-di-n-butylamine	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
N-Nitroso-di-n-propylamine	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
N-Nitrosodiphenylamine (1)	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
N-Nitrosomethylethylamine	400 UJ	370 UJ	410 UJ	420 UJ	370 UJ	350 UJ	380 UJ	380 UJ	490 UJ	380 U
N-Nitrosomorpholine	790 U	740 U	820 U	830 U	730 U	710 U	760 U	770 U	980 U	760 U
N-Nitrosopiperidine	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
N-Nitrosopyrrolidine	2000 U	1800 U	2100 UJ	2100 UJ	1800 UJ	1800 UJ	1900 UJ	1900 U	2400 U	1900 U
o-Cresol	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
o-Toluidine	400 UJ	370 UJ	410 UJ	420 UJ	370 UJ	350 UJ	380 UJ	380 UJ	490 UJ	380 U
p-Dimethylaminoazobenzene	790 U	740 U	820 U	830 U	730 U	710 U	760 U	770 U	980 U	760 UJ
Pentachlorobenzene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Pentachloronitrobenzene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 R
Pentachlorophenol	2000 U	1800 U	2100 U	2100 U	1800 U	1800 U	1900 U	1900 U	2400 U	1900 U
Phenacetin	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 UJ
Phenanthrene	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Phenol	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
p-Phenylenediamine	790 R	740 R	820 R	830 R	730 R	710 R	760 R	770 R	980 R	760 R

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW01	45MW02	45MW02	45MW03	45MW03	45MW03	45MW04	45MW04	11-SB01
Sample ID	45MW01-02	45MW01-03	45MW02-01	45MW02-02	45MW03-03	45MW03-03D	45MW03-04	45MW04-01	45MW04-02	11SB01-02
Sample Date	11/22/96	11/22/96	11/21/96	11/21/96	11/21/96	11/21/96	11/21/96	11/22/96	11/22/96	09/17/97
Depth Range (ft.)	4.00-6.00	6.00-8.00	2.00-4.00	4.00-6.00	6.00-8.00	6.00-8.00	8.00-10.00	2.00-4.00	4.00-6.00	2.00-8.00
SEMIVOLATILES (ug/kg) (cont.)										
Pronamide	400 U	370 U	410 U	420 U	370 U	350 U	380 U	380 U	490 U	380 U
Pyrene	400 U	370 U	410 UJ	420 UJ	370 UJ	350 UJ	380 UJ	380 U	490 U	47 J
Pyridine	790 U	740 U	820 UJ	830 UJ	730 UJ	710 UJ	760 UJ	770 U	980 U	760 U
Safrole	400 U	370 U	410 UJ	420 UJ	370 UJ	350 U	380 U	380 U	490 U	380 U
sym-Trinitrobenzene	4000 R	3700 R	4100 UJ	4200 UJ	3700 UJ	3500 U	3800 UJ	3800 R	4900 R	3800 UJ
PCBs (ug/kg)										
Aroclor-1016	48 U	45 U	49 U	50 U	43 U	42 U	46 U	46 U	58 U	460 U
Aroclor-1221	48 U	45 U	49 U	50 U	43 U	42 U	46 U	46 U	58 U	460 U
Aroclor-1232	48 U	45 U	49 U	50 U	43 U	42 U	46 U	46 U	58 U	460 U
Aroclor-1242	48 U	45 U	49 U	50 U	43 U	42 U	46 U	46 U	58 U	460 U
Aroclor-1248	48 U	45 U	49 U	50 U	43 U	42 U	46 U	46 U	58 U	460 U
Aroclor-1254	96 U	90 U	97 U	100 U	86 U	85 U	91 U	92 U	120 U	920 U
Aroclor-1260	96 U	90 U	97 U	100 U	86 U	85 UJ	91 UJ	92 U	120 U	320 J
TPH (ug/kg)										
Gasoline Range Organics	NA	NA	NA	NA	NA	NA	NA	NA	NA	140
Diesel Range Organics	NA	NA	NA	NA	NA	NA	NA	NA	NA	250000

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB04	11-SB04	11-SB05	11-SB06	11-SB07	11-SB08	11-SB09	11-SB11	11-SB11	11-SB14	11-SB15	11-SB16
Sample ID	11SB04-01	11SB04-01D	11SB05-02	11SB06-02	11SB07-02	11SB08-02	11SB09-02	11SB11-02	11SB11-02D	11SB14-01	11SB15-02	11SB16-04
Sample Date	09/24/97	09/24/97	09/17/97	09/18/97	09/18/97	09/18/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97
Depth Range (ft.)	2.00-4.00	2.00-4.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-4.00	2.00-4.00	4.00-8.00
VOLATILES (ug/kg)												
1,1,1,2-Tetrachloroethane	12 U	12 U	11 U	10 U	11 U	11 U	11 U	11 U	11 UJ	11 U	13 U	15 U
1,1,1-Trichloroethane	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 UJ	5 U	6 U	8 U
1,1,2,2-Tetrachloroethane	6 U	6 U	5 U	5 U	5 U	5 U	5 UJ	6 U	6 U	5 UJ	6 U	8 U
1,1,2-Trichloroethane	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U
1,1-Dichloroethane	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U
1,1-Dichloroethene	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U
1,2,3-Trichloropropane	12 U	12 U	11 U	10 U	11 U	11 U	11 UJ	11 U	11 U	11 UJ	13 U	15 U
1,2-Dibromo-3-chloropropane	24 UJ	23 UJ	22 U	21 UJ	21 UJ	22 UJ	21 UJ	22 U	22 U	21 UJ	25 U	30 U
1,2-Dibromoethane	24 U	23 U	22 U	21 U	21 U	22 U	21 U	22 U	22 UJ	21 U	25 U	30 U
1,2-Dichloroethane	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 UJ	5 U	6 U	8 U
1,2-Dichloroethene (Total)	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U
1,2-Dichloropropane	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U
2-Butanone	12 U	12 U	11 U	10 U	11 U	11 U	11 UJ	11 UJ	14	11 UJ	13 UJ	15 UJ
2-Chloro-1,3-butadiene	120 U	120 U	110 U	100 U	110 U	110 U	110 U	110 U	110 U	110 U	130 U	150 U
2-Hexanone	12 U	12 U	11 U	10 U	11 U	11 U	11 UJ	11 UJ	11 U	11 UJ	13 UJ	15 UJ
3-Chloropropene	24 U	23 U	22 U	21 U	21 U	22 U	21 U	22 U	22 U	21 U	25 U	30 U
4-Methyl-2-pentanone	12 U	12 U	11 U	10 U	11 U	11 U	11 UJ	11 U	11 U	11 UJ	13 U	15 U
Acetone	12 UJ	12 UJ	11 U	10 U	11 U	11 U	12 J	11 UJ	65	11 UJ	13 UJ	83 J
Acetonitrile	120 U	120 U	110 U	100 U	110 U	110 U	110 U	110 UJ	110 U	110 U	130 UJ	150 UJ
Acrolein	590 UJ	580 UJ	550 UJ	520 UJ	540 UJ	540 UJ	530 U	550 U	560 U	540 U	630 U	760 U
Acrylonitrile	120 U	120 U	110 U	100 U	110 U	110 U	110 UJ	110 U	110 U	110 UJ	130 U	150 U
Benzene	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U
Bromodichloromethane	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 UJ	5 U	6 U	8 U
Bromoform	6 U	6 U	5 U	5 U	5 U	5 U	5 UJ	6 U	6 UJ	5 UJ	6 U	8 U
Bromomethane	12 UJ	12 UJ	11 U	10 U	11 U	11 U	11 U	11 U	11 U	11 U	13 U	15 U
Carbon disulfide	6 UJ	6 UJ	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U
Carbon tetrachloride	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 UJ	5 U	6 U	8 U
Chlorobenzene	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB04	11-SB04	11-SB05	11-SB06	11-SB07	11-SB08	11-SB09	11-SB11	11-SB11	11-SB14	11-SB15	11-SB16
Sample ID	11SB04-01	11SB04-01D	11SB05-02	11SB06-02	11SB07-02	11SB08-02	11SB09-02	11SB11-02	11SB11-02D	11SB14-01	11SB15-02	11SB16-04
Sample Date	09/24/97	09/24/97	09/17/97	09/18/97	09/18/97	09/18/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97
Depth Range (ft.)	2.00-4.00	2.00-4.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-4.00	2.00-4.00	4.00-8.00
VOLATILES (ug/kg) (cont.)												
Chloroethane	12 UJ	12 UJ	11 U	10 U	11 U	11 U	11 U	11 UJ	11 U	11 U	13 U	15 U
Chloroform	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 UJ	5 U	6 U	8 U
Chloromethane	12 UJ	12 UJ	11 U	10 U	11 U	11 U	11 U	11 U	11 U	11 U	13 U	15 U
cis-1,3-Dichloropropene	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U
Dibromochloromethane	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 UJ	5 U	6 U	8 U
Dibromomethane	12 U	12 U	11 U	10 U	11 U	11 U	11 U	11 U	11 UJ	11 U	13 U	15 U
Dichlorodifluoromethane	24 UJ	23 UJ	22 UJ	21 UJ	21 UJ	22 UJ	21 UJ	22 U	22 U	21 UJ	25 U	30 U
Ethyl methacrylate	24 UJ	23 UJ	22 U	21 UJ	21 UJ	22 UJ	21 UJ	22 UJ	22 U	21 UJ	25 U	30 U
Ethylbenzene	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U
Iodomethane	12 UJ	12 UJ	11 U	10 U	11 U	11 U	11 U	11 U	11 U	11 U	13 U	15 U
Isobutanol	2400 R	2300 R	2200 R	2100 R	2100 R	2200 R	2100 R	2200 R	2200 R	2100 R	2500 R	3000 R
Methacrylonitrile	24 U	23 U	22 U	21 U	21 U	22 U	21 UJ	22 U	22 U	21 UJ	25 U	30 U
Methyl methacrylate	24 U	23 U	22 U	21 U	21 U	22 U	21 UJ	22 U	22 UJ	21 UJ	25 U	30 U
Methylene chloride	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U
Pentachloroethane	24 UJ	23 UJ	22 U	21 U	21 U	22 U	21 U	22 U	22 UJ	21 U	25 U	30 U
Propionitrile	59 R	58 R	55 R	52 R	54 R	54 R	53 R	55 U	56 R	54 R	63 UJ	76 UJ
Styrene	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U
Tetrachloroethene	6 U	6 U	5 UJ	5 UJ	5 UJ	5 UJ	5 U	6 U	6 R	5 U	6 UJ	8 UJ
Toluene	6 U	6 U	5 U	8	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U
trans-1,3-Dichloropropene	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 UJ	5 U	6 U	8 U
trans-1,4-Dichloro-2-butene	24 UJ	23 UJ	22 U	21 UJ	21 UJ	22 UJ	21 UJ	22 U	22 U	21 UJ	25 U	30 U
Trichloroethene	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U
Trichlorofluoromethane	12 UJ	12 UJ	11 U	10 U	11 U	11 U	11 U	11 U	11 UJ	11 U	13 U	15 U
Vinyl Acetate	12 U	12 U	11 U	10 U	11 U	11 U	11 UJ	11 U	11 UJ	11 UJ	13 U	15 U
Vinyl chloride	12 UJ	12 UJ	11 U	10 U	11 U	11 U	11 U	11 U	11 UJ	11 U	13 U	15 U
Xylene (total)	6 U	6 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB04	11-SB04	11-SB05	11-SB06	11-SB07	11-SB08	11-SB09	11-SB11	11-SB11	11-SB14	11-SB15	11-SB16
Sample ID	11SB04-01	11SB04-01D	11SB05-02	11SB06-02	11SB07-02	11SB08-02	11SB09-02	11SB11-02	11SB11-02D	11SB14-01	11SB15-02	11SB16-04
Sample Date	09/24/97	09/24/97	09/17/97	09/18/97	09/18/97	09/18/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97
Depth Range (ft.)	2.00-4.00	2.00-4.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-4.00	2.00-4.00	4.00-8.00
SEMIVOLATILES (ug/kg)												
1,2,4,5-Tetrachlorobenzene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
1,2,4-Trichlorobenzene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
1,2-Dichlorobenzene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
1,2-Diphenylhydrazine	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
1,3-Dichlorobenzene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
1,4-Dichlorobenzene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
1,4-Dioxane	770 U	790 U	720 U	680 U	720 U	730 U	3400 U	720 UJ	740 UJ	710 UJ	820 U	990 U
1,4-Naphthoquinone	1900 UJ	2000 UJ	1800 R	1700 R	1800 R	1800 R	8600 R	1800 UJ	1800 UJ	1800 UJ	2000 UJ	2500 UJ
1-Naphthylamine	770 U	790 U	720 UJ	680 UJ	720 UJ	730 UJ	3400 UJ	720 U	740 U	710 U	820 U	990 U
2,2'-Oxybis(1-Chloropropane)	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
2,3,4,6-Tetrachlorophenol	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
2,4,5-Trichlorophenol	1900 U	2000 U	1800 U	1700 U	1800 U	1800 U	8600 U	1800 U	1800 U	1800 U	2000 U	2500 U
2,4,6-Trichlorophenol	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
2,4-Dichlorophenol	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
2,4-Dimethylphenol	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
2,4-Dinitrophenol	1900 UJ	2000 UJ	1800 U	1700 U	1800 U	1800 U	8600 U	1800 U	1800 U	1800 U	2000 UJ	2500 UJ
2,4-Dinitrotoluene	380 U	390 U	360 UJ	340 UJ	360 UJ	360 UJ	1700 U	360 U	370 U	360 U	410 U	500 U
2,6-Dichlorophenol	380 UJ	390 UJ	360 U	340 U	360 U	360 U	1700 U	360 UJ	370 UJ	360 UJ	410 UJ	500 UJ
2,6-Dinitrotoluene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
2-Acetylaminofluorene	770 U	790 U	720 UJ	680 UJ	720 UJ	730 UJ	3400 UJ	720 U	740 U	710 U	820 U	990 U
2-Chloronaphthalene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
2-Chlorophenol	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
2-Methylnaphthalene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
2-Naphthylamine	960 UJ	980 UJ	900 U	850 U	890 U	910 U	4300 U	900 U	920 U	890 U	1000 UJ	1200 UJ
2-Nitroaniline	1900 U	2000 U	1800 U	1700 U	1800 U	1800 U	8600 U	1800 U	1800 U	1800 U	2000 U	2500 U
2-Nitrophenol	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
2-Picoline	380 U	390 U	360 U	340 U	360 U	360 U	1700 UJ	360 U	370 U	360 U	410 U	500 U
2-sec-butyl-4,6-dinitrophenol	770 U	790 U	720 UJ	680 UJ	720 UJ	730 UJ	3400 UJ	720 U	740 U	710 U	820 U	990 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB04	11-SB04	11-SB05	11-SB06	11-SB07	11-SB08	11-SB09	11-SB11	11-SB11	11-SB14	11-SB15	11-SB16
Sample ID	11SB04-01	11SB04-01D	11SB05-02	11SB06-02	11SB07-02	11SB08-02	11SB09-02	11SB11-02	11SB11-02D	11SB14-01	11SB15-02	11SB16-04
Sample Date	09/24/97	09/24/97	09/17/97	09/18/97	09/18/97	09/18/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97
Depth Range (ft.)	2.00-4.00	2.00-4.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-4.00	2.00-4.00	4.00-8.00
SEMIVOLATILES (ug/kg) (cont.)												
3,3'-Dichlorobenzidine	770 UJ	790 UJ	720 U	680 U	720 U	730 U	3400 U	720 U	740 U	710 U	820 UJ	990 UJ
3,3'-Dimethylbenzidine	1900 U	2000 U	1800 R	1700 R	1800 R	1800 R	8600 R	1800 UJ	1800 UJ	1800 UJ	2000 U	2500 U
3-Methylcholanthrene	380 U	390 U	360 UJ	340 UJ	360 UJ	360 UJ	1700 UJ	360 U	370 U	360 U	410 U	500 U
3-Nitroaniline	1900 U	2000 U	1800 UJ	1700 UJ	1800 UJ	1800 UJ	8600 U	1800 U	1800 U	1800 U	2000 U	2500 U
4,6-Dinitro-2-methylphenol	1900 U	2000 U	1800 U	1700 U	1800 U	1800 U	8600 U	1800 U	1800 U	1800 U	2000 U	2500 U
4-Aminobiphenyl	770 U	790 U	720 UJ	680 UJ	720 UJ	730 UJ	3400 UJ	720 UJ	740 UJ	710 UJ	820 U	990 U
4-bromophenyl-phenylether	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
4-Chloro-3-methylphenol	770 U	790 U	720 U	680 U	720 U	730 U	3400 U	720 U	740 U	710 U	820 U	990 U
4-Chloroaniline	770 U	790 U	720 U	680 U	720 U	730 U	3400 U	720 U	740 U	710 U	820 U	990 U
4-Chlorophenyl phenyl ether	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
4-Nitroaniline	1900 UJ	2000 UJ	1800 UJ	1700 UJ	1800 UJ	1800 UJ	8600 U	1800 U	1800 U	1800 U	2000 UJ	2500 UJ
4-Nitrophenol	1900 U	2000 U	1800 U	1700 U	1800 U	1800 U	8600 U	1800 U	1800 U	1800 U	2000 U	2500 U
4-Nitroquinoline-1-oxide	1900 R	2000 R	1800 R	1700 R	1800 R	1800 R	8600 R	1800 UJ	1800 UJ	1800 UJ	2000 R	2500 R
5-Nitro-o-toluidine	770 U	790 U	720 UJ	680 UJ	720 UJ	730 UJ	3400 UJ	720 U	740 U	710 U	820 U	990 U
7,12-Dimethylbenz(a)anthracene	770 U	790 U	720 UJ	680 UJ	720 UJ	730 UJ	3400 UJ	720 U	740 U	710 U	820 U	990 U
Acenaphthene	380 U	390 U	360 U	340 U	360 U	360 U	180 J	360 U	370 U	360 U	410 U	500 U
Acenaphthylene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Acetophenone	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
alpha, alpha-Dimethylphenethylamine	1900 UJ	2000 UJ	1800 U	1700 U	1800 U	1800 U	8600 UJ	1800 U	1800 U	1800 U	2000 UJ	2500 UJ
Aniline	1900 U	2000 U	1800 U	1700 U	1800 U	1800 U	8600 U	1800 U	1800 U	1800 U	2000 U	2500 U
Anthracene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Aramite	770 R	790 R	720 U	680 U	720 U	730 U	3400 U	720 UJ	740 UJ	710 UJ	820 R	990 R
Benzidine	3800 R	3900 R	3600 R	3400 R	3600 R	3600 R	17000 R	3600 R	3700 R	3600 R	4100 R	5000 R
Benzo(a)anthracene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Benzo(a)pyrene	380 U	390 U	360 UJ	340 U	360 U	360 U	260 J	360 U	370 U	360 U	410 U	500 U
Benzo(b)fluoranthene	380 U	390 U	360 UJ	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Benzo(g,h,i)perylene	380 UJ	390 UJ	100 UJ	340 U	120 J	360 U	1700 U	360 U	370 U	360 U	410 UJ	500 UJ
Benzo(k)fluoranthene	380 U	390 U	360 UJ	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB04	11-SB04	11-SB05	11-SB06	11-SB07	11-SB08	11-SB09	11-SB11	11-SB11	11-SB14	11-SB15	11-SB16
Sample ID	11SB04-01	11SB04-01D	11SB05-02	11SB06-02	11SB07-02	11SB08-02	11SB09-02	11SB11-02	11SB11-02D	11SB14-01	11SB15-02	11SB16-04
Sample Date	09/24/97	09/24/97	09/17/97	09/18/97	09/18/97	09/18/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97
Depth Range (ft.)	2.00-4.00	2.00-4.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-4.00	2.00-4.00	4.00-8.00
SEMIVOLATILES (ug/kg) (cont.)												
Benzoic acid	1900 U	2000 U	1800 U	1700 U	1800 U	1800 U	8600 U	510 J	520 J	510 J	2000 U	2500 U
Benzyl alcohol	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Bis(2-chloroethoxy)methane	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Bis(2-chloroethyl)ether	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Bis(2-ethylhexyl)phthalate	380 U	390 U	360 UJ	340 U	360 U	360 U	1700 U	750 UJ	1000 UJ	360 UJ	410 U	600 U
Butylbenzylphthalate	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Carbazole	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Chlorobenzilate	380 U	390 U	360 UJ	340 UJ	360 UJ	360 UJ	1700 UJ	360 U	370 U	360 U	410 U	500 U
Chrysene	380 U	390 U	360 U	340 U	360 U	360 U	340 J	360 U	370 U	360 U	410 U	500 U
Diallate	380 U	390 U	360 UJ	340 UJ	360 UJ	360 UJ	1700 U	360 U	370 U	360 U	410 U	500 U
Dibenzo(a,h)anthracene	380 UJ	390 UJ	360 UJ	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 UJ	500 UJ
Dibenzofuran	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Diethylphthalate	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Dimethylphthalate	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Di-n-butylphthalate	380 U	390 U	360 U	140 J	240 J	270 J	1700 U	360 U	370 U	360 U	410 U	500 U
Di-n-octylphthalate	380 U	390 U	360 UJ	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Diphenylamine	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Ethyl methanesulfonate	380 U	390 U	360 UJ	340 UJ	360 UJ	360 UJ	1700 UJ	360 U	370 U	360 U	410 U	500 U
Fluoranthene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Fluorene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Hexachlorobenzene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Hexachlorobutadiene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Hexachlorocyclopentadiene	380 U	390 U	360 UJ	340 UJ	360 UJ	360 UJ	1700 U	360 U	370 U	360 U	410 U	500 U
Hexachloroethane	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Hexachlorophene	3800 UJ	3900 UJ	3600 UJ	3400 UJ	3600 UJ	3600 UJ	17000 UJ	3600 R	3700 R	3600 R	4100 UJ	5000 UJ
Hexachloropropene	1900 U	2000 U	1800 U	1700 U	1800 U	1800 U	8600 U	1800 U	1800 U	1800 U	2000 U	2500 U
Indeno(1,2,3-cd)pyrene	380 UJ	390 UJ	360 UJ	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 UJ	500 UJ
Isophorone	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB04	11-SB04	11-SB05	11-SB06	11-SB07	11-SB08	11-SB09	11-SB11	11-SB11	11-SB14	11-SB15	11-SB16
Sample ID	11SB04-01	11SB04-01D	11SB05-02	11SB06-02	11SB07-02	11SB08-02	11SB09-02	11SB11-02	11SB11-02D	11SB14-01	11SB15-02	11SB16-04
Sample Date	09/24/97	09/24/97	09/17/97	09/18/97	09/18/97	09/18/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97
Depth Range (ft.)	2.00-4.00	2.00-4.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-4.00	2.00-4.00	4.00-8.00
SEMIVOLATILES (ug/kg) (cont.)												
Isosafrole	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
m&p Cresol	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 UJ	370 U	360 U	410 U	500 U
m-Dinitrobenzene	770 U	790 U	720 UJ	680 UJ	720 UJ	730 UJ	3400 UJ	720 U	740 U	710 U	820 U	990 U
Methapyrilene	960 U	980 U	900 UJ	850 UJ	890 UJ	910 UJ	4300 UJ	900 U	920 U	890 U	1000 U	1200 U
Methyl methanesulfonate	380 U	390 U	360 UJ	340 UJ	360 UJ	360 UJ	1700 UJ	360 UJ	370 UJ	360 UJ	410 U	500 U
Naphthalene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Nitrobenzene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
N-Nitrosodiethylamine	380 U	390 U	360 U	340 U	360 U	360 U	1700 UJ	360 UJ	370 UJ	360 UJ	410 U	500 U
N-Nitrosodimethylamine	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
N-Nitroso-di-n-butylamine	380 U	390 U	360 U	340 U	360 U	360 U	1700 UJ	360 U	370 U	360 U	410 U	500 U
N-Nitroso-di-n-propylamine	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 UJ	360 UJ	410 U	500 U
N-Nitrosodiphenylamine (1)	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
N-Nitrosomethylethylamine	380 U	390 U	360 U	340 U	360 U	360 U	1700 UJ	360 U	370 U	360 U	410 U	500 U
N-Nitrosomorpholine	770 U	790 U	720 U	680 U	720 U	730 U	3400 UJ	720 UJ	740 UJ	710 UJ	820 U	990 U
N-Nitrosopiperidine	380 U	390 U	360 U	340 U	360 U	360 U	1700 UJ	360 U	370 U	360 U	410 U	500 U
N-Nitrosopyrrolidine	1900 UJ	2000 UJ	1800 U	1700 U	1800 U	1800 U	8600 U	1800 U	1800 U	1800 U	2000 UJ	2500 UJ
o-Cresol	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
o-Toluidine	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
p-Dimethylaminoazobenzene	770 U	790 U	720 UJ	680 UJ	720 UJ	730 UJ	3400 UJ	720 U	740 U	710 U	820 U	990 U
Pentachlorobenzene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Pentachloronitrobenzene	380 R	390 R	360 R	340 R	360 R	360 R	1700 R	360 R	370 R	360 R	410 R	500 R
Pentachlorophenol	1900 U	2000 U	1800 U	1700 U	1800 U	1800 U	8600 U	1800 U	1800 U	1800 U	2000 U	2500 U
Phenacetin	380 U	390 U	360 UJ	340 UJ	360 UJ	360 UJ	1700 UJ	360 U	370 U	360 U	410 U	500 U
Phenanthrene	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Phenol	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	130 J
p-Phenylenediamine	770 R	790 R	720 R	680 R	720 R	730 R	3400 R	720 R	740 R	710 R	820 R	990 R

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB04	11-SB04	11-SB05	11-SB06	11-SB07	11-SB08	11-SB09	11-SB11	11-SB11	11-SB14	11-SB15	11-SB16
Sample ID	11SB04-01	11SB04-01D	11SB05-02	11SB06-02	11SB07-02	11SB08-02	11SB09-02	11SB11-02	11SB11-02D	11SB14-01	11SB15-02	11SB16-04
Sample Date	09/24/97	09/24/97	09/17/97	09/18/97	09/18/97	09/18/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97	09/19/97
Depth Range (ft.)	2.00-4.00	2.00-4.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-4.00	2.00-4.00	4.00-8.00
SEMIVOLATILES (ug/kg) (cont.)												
Pronamide	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
Pyrene	380 U	390 U	360 U	340 U	360 U	360 U	180 J	360 UJ	370 UJ	360 UJ	410 U	500 U
Pyridine	770 UJ	790 UJ	720 U	680 U	720 U	730 U	3400 U	720 U	740 U	710 U	820 UJ	990 UJ
Safrole	380 U	390 U	360 U	340 U	360 U	360 U	1700 U	360 U	370 U	360 U	410 U	500 U
sym-Trinitrobenzene	3800 UJ	3900 UJ	3600 UJ	3400 UJ	3600 UJ	3600 U	17000 UJ	3600 U	3700 U	3600 U	4100 UJ	5000 UJ
PCBs (ug/kg)												
Aroclor-1016	46 U	47 U	440 U	41 U	430 U	44 U	210 U	43 U	44 U	43 U	50 U	60 U
Aroclor-1221	46 U	47 U	440 U	41 U	430 U	44 U	210 U	43 U	44 U	43 U	50 U	60 U
Aroclor-1232	46 U	47 U	440 U	41 U	430 U	44 U	210 U	43 U	44 U	43 U	50 U	60 U
Aroclor-1242	46 U	47 U	440 U	41 U	430 U	44 U	210 U	43 U	44 U	43 U	50 U	60 U
Aroclor-1248	46 U	47 U	440 U	41 U	430 U	44 U	210 U	43 U	44 U	43 U	50 U	60 U
Aroclor-1254	93 U	93 U	870 U	82 U	850 U	87 U	420 UJ	86 UJ	89 UJ	86 UJ	100 U	120 U
Aroclor-1260	93 U	93 U	110 J	60 J	75 J	87 U	420 U	86 U	89 U	86 U	100 U	120 U
TPH (ug/kg)												
Gasoline Range Organics	58 U	59 U	55 U	130	32 J	55 U	540	35 J	46 J	54 U	63 U	76 U
Diesel Range Organics	7000 U	7200 U	68000 U	6700	67000 U	6800 U	110000	6800 U	6900 U	6500 U	7700 U	9100 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB18	11-SB19	11-SB22	11-SB22	11-SB23	11-SB26	11-SB27
Sample ID	11SB18-02	11SB19-04	11SB22-04	11SB22-06	11SB23-03	11SB26-01	11SB27-04
Sample Date	09/20/97	09/20/97	09/21/97	09/21/97	09/21/97	09/21/97	09/21/97
Depth Range (ft.)	2.00-6.00	6.00-10.00	7.50-9.50	11.50-13.50	4.00-6.00	0.00-2.00	6.00-10.00
VOLATILES (ug/kg)							
1,1,1,2-Tetrachloroethane	14 U	13 U	11 UJ	NA	12 UJ	11 UJ	12 UJ
1,1,1-Trichloroethane	7 U	7 U	5 U	NA	6 U	5 U	6 U
1,1,2,2-Tetrachloroethane	7 U	7 U	5 U	NA	6 U	5 U	6 U
1,1,2-Trichloroethane	7 U	7 U	5 U	NA	6 U	5 U	6 U
1,1-Dichloroethane	7 U	7 U	5 UJ	NA	6 UJ	5 UJ	6 UJ
1,1-Dichloroethene	7 U	7 U	5 UJ	NA	6 UJ	5 UJ	6 UJ
1,2,3-Trichloropropane	14 U	13 U	11 UJ	NA	12 UJ	11 UJ	12 UJ
1,2-Dibromo-3-chloropropane	27 U	27 U	22 UJ	NA	25 UJ	22 UJ	24 UJ
1,2-Dibromoethane	27 U	27 U	22 UJ	NA	25 UJ	22 UJ	24 UJ
1,2-Dichloroethane	7 U	7 U	5 U	NA	6 U	5 U	6 U
1,2-Dichloroethene (Total)	7 U	7 U	5 UJ	NA	6 UJ	5 UJ	6 UJ
1,2-Dichloropropane	7 U	7 U	5 U	NA	6 U	5 U	6 U
2-Butanone	14 UJ	13 UJ	11 U	NA	12 U	11 U	12 U
2-Chloro-1,3-butadiene	140 U	130 U	110 U	NA	120 U	110 U	120 U
2-Hexanone	14 UJ	13 UJ	8 J	NA	12 U	11 U	12 U
3-Chloropropene	27 U	27 U	22 U	NA	25 U	22 U	24 U
4-Methyl-2-pentanone	14 U	13 U	4 J	NA	12 U	11 U	12 U
Acetone	14 UJ	46 J	11 U	NA	12 U	11 U	12 U
Acetonitrile	140 UJ	130 UJ	110 U	NA	120 U	110 U	120 U
Acrolein	680 U	670 U	550 UJ	NA	630 UJ	540 UJ	600 UJ
Acrylonitrile	140 U	130 U	110 U	NA	120 U	110 U	120 U
Benzene	7 U	7 U	5 U	NA	6 U	5 U	6 U
Bromodichloromethane	7 U	7 U	5 U	NA	6 U	5 U	6 U
Bromoform	7 U	7 U	5 U	NA	6 U	5 U	6 U
Bromomethane	14 U	13 U	11 U	NA	12 U	11 U	12 U
Carbon disulfide	7 U	7 U	5 UJ	NA	6 UJ	5 UJ	6 UJ
Carbon tetrachloride	7 U	7 U	5 U	NA	6 U	5 U	6 U
Chlorobenzene	7 U	7 U	5 U	NA	6 U	5 U	6 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB18	11-SB19	11-SB22	11-SB22	11-SB23	11-SB26	11-SB27
Sample ID	11SB18-02	11SB19-04	11SB22-04	11SB22-06	11SB23-03	11SB26-01	11SB27-04
Sample Date	09/20/97	09/20/97	09/21/97	09/21/97	09/21/97	09/21/97	09/21/97
Depth Range (ft.)	2.00-6.00	6.00-10.00	7.50-9.50	11.50-13.50	4.00-6.00	0.00-2.00	6.00-10.00
VOLATILES (ug/kg) (cont.)							
Chloroethane	14 U	13 U	11 U	NA	12 U	11 U	12 U
Chloroform	7 U	7 U	5 U	NA	6 U	5 U	6 U
Chloromethane	14 U	13 U	11 UJ	NA	12 UJ	11 UJ	12 UJ
cis-1,3-Dichloropropene	7 U	7 U	5 U	NA	6 U	5 U	6 U
Dibromochloromethane	7 U	7 U	5 U	NA	6 U	5 U	6 U
Dibromomethane	14 U	13 U	11 UJ	NA	12 UJ	11 UJ	12 UJ
Dichlorodifluoromethane	27 U	27 U	22 U	NA	25 U	22 U	24 U
Ethyl methacrylate	27 U	27 U	22 U	NA	25 U	22 U	24 U
Ethylbenzene	7 U	7 U	5 UJ	NA	6 UJ	5 UJ	6 UJ
Iodomethane	14 U	13 U	11 UJ	NA	12 UJ	11 UJ	12 UJ
Isobutanol	2700 R	2700 R	2200 R	NA	2500 R	2200 R	2400 R
Methacrylonitrile	27 U	27 U	22 U	NA	25 U	22 U	24 U
Methyl methacrylate	27 U	27 U	22 UJ	NA	25 UJ	22 UJ	24 UJ
Methylene chloride	7 U	7 U	5 UJ	NA	6 UJ	5 UJ	6 UJ
Pentachloroethane	27 U	27 U	22 UJ	NA	25 UJ	22 UJ	24 UJ
Propionitrile	68 UJ	67 UJ	55 R	NA	63 R	54 R	60 R
Styrene	7 U	7 U	5 U	NA	6 U	5 U	6 U
Tetrachloroethene	7 UJ	7 UJ	5 UJ	NA	6 UJ	5 UJ	6 UJ
Toluene	7 U	7 U	5 U	NA	6 U	5 U	6 U
trans-1,3-Dichloropropene	7 U	7 U	5 U	NA	6 U	5 U	6 U
trans-1,4-Dichloro-2-butene	27 U	27 U	22 U	NA	25 U	22 U	24 U
Trichloroethene	7 U	7 U	5 U	NA	6 U	5 U	6 U
Trichlorofluoromethane	14 U	13 U	11 U	NA	12 U	11 U	12 U
Vinyl Acetate	14 U	13 U	11 UJ	NA	12 UJ	11 UJ	12 UJ
Vinyl chloride	14 U	13 U	11 U	NA	12 U	11 U	12 U
Xylene (total)	7 U	7 U	5 U	NA	6 U	5 U	6 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB18	11-SB19	11-SB22	11-SB22	11-SB23	11-SB26	11-SB27
Sample ID	11SB18-02	11SB19-04	11SB22-04	11SB22-06	11SB23-03	11SB26-01	11SB27-04
Sample Date	09/20/97	09/20/97	09/21/97	09/21/97	09/21/97	09/21/97	09/21/97
Depth Range (ft.)	2.00-6.00	6.00-10.00	7.50-9.50	11.50-13.50	4.00-6.00	0.00-2.00	6.00-10.00
SEMIVOLATILES (ug/kg)							
1,2,4,5-Tetrachlorobenzene	450 U	440 U	360 U	NA	420 U	350 U	400 U
1,2,4-Trichlorobenzene	450 U	440 U	360 U	NA	420 U	350 U	400 U
1,2-Dichlorobenzene	450 U	440 U	360 U	NA	420 U	350 U	400 U
1,2-Diphenylhydrazine	450 U	440 U	360 U	NA	420 U	350 U	400 U
1,3-Dichlorobenzene	450 U	440 U	360 U	NA	420 U	350 U	400 U
1,4-Dichlorobenzene	450 U	440 U	360 U	NA	420 U	350 U	400 U
1,4-Dioxane	900 U	880 U	730 U	NA	830 U	700 U	800 U
1,4-Naphthoquinone	2200 UJ	2200 U	1800 U	NA	2100 UJ	1800 UJ	2000 UJ
1-Naphthylamine	900 U	880 U	730 U	NA	830 U	700 U	800 U
2,2'-Oxybis(1-Chloropropane)	450 U	440 U	360 U	NA	420 U	350 U	400 U
2,3,4,6-Tetrachlorophenol	450 U	440 U	360 UJ	NA	420 U	350 U	400 U
2,4,5-Trichlorophenol	2200 U	2200 U	1800 U	NA	2100 U	1800 U	2000 U
2,4,6-Trichlorophenol	450 U	440 U	360 U	NA	420 U	350 U	400 U
2,4-Dichlorophenol	450 U	440 U	360 U	NA	420 U	350 U	400 U
2,4-Dimethylphenol	450 U	440 U	360 U	NA	420 U	350 U	400 U
2,4-Dinitrophenol	2200 UJ	2200 UJ	1800 U	NA	2100 UJ	1800 UJ	2000 UJ
2,4-Dinitrotoluene	450 U	440 U	360 U	NA	420 U	350 U	400 U
2,6-Dichlorophenol	450 UJ	440 UJ	360 UJ	NA	420 UJ	350 UJ	400 UJ
2,6-Dinitrotoluene	450 U	440 U	360 U	NA	420 U	350 U	400 U
2-Acetylaminofluorene	900 U	880 U	730 UJ	NA	830 U	700 U	800 U
2-Chloronaphthalene	450 U	440 U	360 U	NA	420 U	350 U	400 U
2-Chlorophenol	450 U	440 U	360 U	NA	420 U	350 U	400 U
2-Methylnaphthalene	450 U	440 U	360 U	NA	420 U	350 U	400 U
2-Naphthylamine	1100 UJ	1100 UJ	910 U	NA	1000 UJ	880 UJ	990 UJ
2-Nitroaniline	2200 U	2200 U	1800 U	NA	2100 U	1800 U	2000 U
2-Nitrophenol	450 U	440 U	360 U	NA	420 U	350 U	400 U
2-Picoline	450 U	440 U	360 UJ	NA	420 U	350 U	400 U
2-sec-butyl-4,6-dinitrophenol	900 U	880 U	730 UJ	NA	830 U	700 U	800 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB18	11-SB19	11-SB22	11-SB22	11-SB23	11-SB26	11-SB27
Sample ID	11SB18-02	11SB19-04	11SB22-04	11SB22-06	11SB23-03	11SB26-01	11SB27-04
Sample Date	09/20/97	09/20/97	09/21/97	09/21/97	09/21/97	09/21/97	09/21/97
Depth Range (ft.)	2.00-6.00	6.00-10.00	7.50-9.50	11.50-13.50	4.00-6.00	0.00-2.00	6.00-10.00
SEMIVOLATILES (ug/kg) (cont.)							
3,3'-Dichlorobenzidine	900 UJ	880 UJ	730 U	NA	830 UJ	700 UJ	800 UJ
3,3'-Dimethylbenzidine	2200 U	2200 U	1800 UJ	NA	2100 U	1800 U	2000 U
3-Methylcholanthrene	450 U	440 U	360 UJ	NA	420 U	350 U	400 U
3-Nitroaniline	2200 U	2200 U	1800 U	NA	2100 U	1800 U	2000 U
4,6-Dinitro-2-methylphenol	2200 U	2200 U	1800 U	NA	2100 U	1800 U	2000 U
4-Aminobiphenyl	900 U	880 U	730 UJ	NA	830 U	700 U	800 U
4-bromophenyl-phenylether	450 U	440 U	360 U	NA	420 U	350 U	400 U
4-Chloro-3-methylphenol	900 U	880 U	730 U	NA	830 U	700 U	800 U
4-Chloroaniline	900 U	880 U	730 U	NA	830 U	700 U	800 U
4-Chlorophenyl phenyl ether	450 U	440 U	360 U	NA	420 U	350 U	400 U
4-Nitroaniline	2200 UJ	2200 UJ	1800 U	NA	2100 UJ	1800 UJ	2000 UJ
4-Nitrophenol	2200 U	2200 U	1800 U	NA	2100 U	1800 U	2000 U
4-Nitroquinoline-1-oxide	2200 R	2200 R	1800 R	NA	2100 R	1800 R	2000 R
5-Nitro-o-toluidine	900 U	880 U	730 UJ	NA	830 U	700 U	800 U
7,12-Dimethylbenz(a)anthracene	900 U	880 U	730 UJ	NA	830 U	700 U	800 U
Acenaphthene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Acenaphthylene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Acetophenone	450 U	440 U	360 U	NA	420 U	350 U	400 U
alpha, alpha-Dimethylphenethylamine	2200 UJ	2200 UJ	1800 UJ	NA	2100 UJ	1800 UJ	2000 UJ
Aniline	2200 U	2200 U	1800 U	NA	2100 U	1800 U	2000 U
Anthracene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Aramite	900 R	880 R	730 R	NA	830 R	700 R	800 R
Benzidine	4500 R	4400 R	3600 UJ	NA	4200 R	3500 R	4000 R
Benzo(a)anthracene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Benzo(a)pyrene	450 U	57 J	360 U	NA	420 U	350 U	140 J
Benzo(b)fluoranthene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Benzo(g,h,i)perylene	450 UJ	440 UJ	360 U	NA	420 UJ	350 UJ	400 UJ
Benzo(k)fluoranthene	450 U	440 U	360 U	NA	420 U	350 U	400 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB18	11-SB19	11-SB22	11-SB22	11-SB23	11-SB26	11-SB27
Sample ID	11SB18-02	11SB19-04	11SB22-04	11SB22-06	11SB23-03	11SB26-01	11SB27-04
Sample Date	09/20/97	09/20/97	09/21/97	09/21/97	09/21/97	09/21/97	09/21/97
Depth Range (ft.)	2.00-6.00	6.00-10.00	7.50-9.50	11.50-13.50	4.00-6.00	0.00-2.00	6.00-10.00
SEMIVOLATILES (ug/kg) (cont.)							
Benzoic acid	2200 U	2200 U	1800 U	NA	2100 U	1800 U	2000 U
Benzyl alcohol	450 U	440 U	360 U	NA	420 U	350 U	400 U
Bis(2-chloroethoxy)methane	450 U	440 U	360 U	NA	420 U	350 U	400 U
Bis(2-chloroethyl)ether	450 U	440 U	360 U	NA	420 U	350 U	400 U
Bis(2-ethylhexyl)phthalate	450 U	440 U	360 U	NA	420 U	350 U	1100 U
Butylbenzylphthalate	450 U	440 U	360 U	NA	420 U	350 U	400 U
Carbazole	450 U	440 U	360 U	NA	420 U	350 U	400 U
Chlorobenzilate	450 U	440 U	360 UJ	NA	420 U	350 U	400 U
Chrysene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Diallate	450 U	440 U	360 UJ	NA	420 U	350 U	400 U
Dibenzo(a,h)anthracene	450 UJ	440 UJ	360 U	NA	420 UJ	350 UJ	400 UJ
Dibenzofuran	450 U	440 U	360 U	NA	420 U	350 U	400 U
Diethylphthalate	450 U	44 J	360 U	NA	420 U	350 U	400 U
Dimethylphthalate	450 U	440 U	360 U	NA	420 U	350 U	400 U
Di-n-butylphthalate	450 U	440 U	360 U	NA	420 U	350 U	400 U
Di-n-octylphthalate	450 U	440 U	360 U	NA	420 U	350 U	400 U
Diphenylamine	450 U	440 U	360 U	NA	420 U	350 U	400 U
Ethyl methanesulfonate	450 U	440 U	360 UJ	NA	420 U	350 U	400 U
Fluoranthene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Fluorene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Hexachlorobenzene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Hexachlorobutadiene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Hexachlorocyclopentadiene	450 U	440 U	360 UJ	NA	420 U	350 U	400 U
Hexachloroethane	450 U	440 U	360 U	NA	420 U	350 U	400 U
Hexachlorophene	4500 UJ	4400 UJ	3600 U	NA	4200 UJ	3500 UJ	4000 UJ
Hexachloropropene	2200 U	2200 U	1800 U	NA	2100 U	1800 U	2000 U
Indeno(1,2,3-cd)pyrene	450 UJ	440 UJ	360 U	NA	420 UJ	350 UJ	400 UJ
Isophorone	450 U	440 U	360 U	NA	420 U	350 U	400 U

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB18	11-SB19	11-SB22	11-SB22	11-SB23	11-SB26	11-SB27
Sample ID	11SB18-02	11SB19-04	11SB22-04	11SB22-06	11SB23-03	11SB26-01	11SB27-04
Sample Date	09/20/97	09/20/97	09/21/97	09/21/97	09/21/97	09/21/97	09/21/97
Depth Range (ft.)	2.00-6.00	6.00-10.00	7.50-9.50	11.50-13.50	4.00-6.00	0.00-2.00	6.00-10.00
SEMIVOLATILES (ug/kg) (cont.)							
Isosafrole	450 U	440 UJ	360 U	NA	420 U	350 U	400 U
m&p Cresol	450 U	440 U	360 U	NA	420 U	350 U	400 U
m-Dinitrobenzene	900 U	880 U	730 UJ	NA	830 U	700 U	800 U
Methapyrilene	1100 U	1100 U	910 UJ	NA	1000 U	880 U	990 U
Methyl methanesulfonate	450 U	440 U	360 UJ	NA	420 U	350 U	400 U
Naphthalene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Nitrobenzene	450 U	440 U	360 U	NA	420 U	350 U	400 U
N-Nitrosodiethylamine	450 U	440 U	360 UJ	NA	420 U	350 U	400 U
N-Nitrosodimethylamine	450 U	440 U	360 U	NA	420 U	350 U	400 U
N-Nitroso-di-n-butylamine	450 U	440 U	360 UJ	NA	420 U	350 U	400 U
N-Nitroso-di-n-propylamine	450 U	440 U	360 U	NA	420 U	350 U	400 U
N-Nitrosodiphenylamine (1)	450 U	440 U	360 U	NA	420 U	350 U	400 U
N-Nitrosomethylethylamine	450 U	440 U	360 UJ	NA	420 U	350 U	400 U
N-Nitrosomorpholine	900 U	880 U	730 UJ	NA	830 U	700 U	800 U
N-Nitrosopiperidine	450 U	440 U	360 U	NA	420 U	350 U	400 U
N-Nitrosopyrrolidine	2200 UJ	2200 UJ	1800 UJ	NA	2100 UJ	1800 UJ	2000 UJ
o-Cresol	450 U	440 U	360 U	NA	420 U	350 U	400 U
o-Toluidine	450 U	440 U	360 U	NA	420 U	350 U	400 U
p-Dimethylaminoazobenzene	900 U	880 U	730 U	NA	830 U	700 U	800 U
Pentachlorobenzene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Pentachloronitrobenzene	450 R	440 R	360 R	NA	420 R	350 R	400 R
Pentachlorophenol	2200 U	2200 U	1800 U	NA	2100 U	1800 U	2000 U
Phenacetin	450 U	440 U	360 UJ	NA	420 U	350 U	400 U
Phenanthrene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Phenol	450 U	440 U	360 U	NA	420 U	350 U	400 U
p-Phenylenediamine	900 R	880 R	730 R	NA	830 R	700 R	800 R

APPENDIX F.23 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUIDLING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB18	11-SB19	11-SB22	11-SB22	11-SB23	11-SB26	11-SB27
Sample ID	11SB18-02	11SB19-04	11SB22-04	11SB22-06	11SB23-03	11SB26-01	11SB27-04
Sample Date	09/20/97	09/20/97	09/21/97	09/21/97	09/21/97	09/21/97	09/21/97
Depth Range (ft.)	2.00-6.00	6.00-10.00	7.50-9.50	11.50-13.50	4.00-6.00	0.00-2.00	6.00-10.00
SEMIVOLATILES (ug/kg) (cont.)							
Pronamide	450 U	440 U	360 U	NA	420 U	350 U	400 U
Pyrene	450 U	440 U	360 U	NA	420 U	350 U	400 U
Pyridine	900 UJ	880 UJ	730 U	NA	830 UJ	700 UJ	800 UJ
Safrole	450 U	440 U	360 U	NA	420 U	350 U	400 U
sym-Trinitrobenzene	4500 UJ	4400 UJ	3600 UJ	NA	4200 UJ	3500 UJ	4000 UJ
PCBs (ug/kg)							
Aroclor-1016	54 U	53 U	220 U	55 U	50 U	43 U	48 U
Aroclor-1221	54 U	53 U	220 U	55 U	50 U	43 U	48 U
Aroclor-1232	54 U	53 U	220 U	55 U	50 U	43 U	48 U
Aroclor-1242	54 U	53 U	220 U	55 U	50 U	43 U	48 U
Aroclor-1248	54 U	53 U	220 U	55 U	50 U	43 U	48 U
Aroclor-1254	110 U	110 U	440 U	110 U	100 U	85 U	95 U
Aroclor-1260	46	110 U	440 U	110 U	100 U	85 U	95 U
TPH (ug/kg)							
Gasoline Range Organics	68 U	67 U	42 J	NA	63 U	57	60 U
Diesel Range Organics	8200 U	8200 U	120000	NA	7800 U	6700 U	7400 U

APPENDIX F.24
SUBSURFACE SOIL, INORGANICS, SWMU 45

APPENDIX F.24

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
1996 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45MW01	45MW01	45MW02	45MW02	45MW03	45MW03	45MW03	45MW04	45MW04
Sample ID	45MW01-02	45MW01-03	45MW02-01	45MW02-02	45MW03-03	45MW03-03D	45MW03-04	45MW04-01	45MW04-02
Sample Date	11/22/96	11/22/96	11/21/96	11/21/96	11/21/96	11/21/96	11/21/96	11/22/96	11/22/96
Depth Range (ft.)	4.00-6.00	6.00-8.00	2.00-4.00	4.00-6.00	6.00-8.00	6.00-8.00	8.00-10.00	2.00-4.00	4.00-6.00
RCRA Metals (mg/kg)									
Arsenic, Total	3.4 J	0.49 J	2.6 J	3.4 J	3.1 J	3.6 J	2.4 J	3.9 J	1.9 J
Barium, Total	19.4	30.6	16.6	19.2	8.7	13.8	6.7	8.7	7.4
Cadmium, Total	0.35	0.33	0.25	0.47	0.29	0.41	0.21	0.39	0.23 U
Chromium, Total	9.2	36.1	13.2	8.9	7.2	6.4	4.3	2.7	4.5
Lead, Total	1.1 J	2 J	2 J	1.3 J	1.4 J	1.1 J	0.67 J	0.54 J	1 J
Mercury, Total	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U
Selenium, Total	0.89 UJ	0.15 UJ	0.82 U	1 U	0.12 UJ	0.71 UJ	0.74 UJ	0.96 UJ	0.24 UJ
Silver, Total	0.21 U	0.12 U	0.21 U	0.2 U	0.12 U	0.17 U	0.11 U	0.18 U	0.19 U

APPENDIX F.24 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB01	11-SB04	11-SB04	11-SB05	11-SB06	11-SB07	11-SB08	11-SB09	11-SB11	11-SB11	11-SB14
Sample ID	11SB01-02	11SB04-01	11SB04-01D	11SB05-02	11SB06-02	11SB07-02	11SB08-02	11SB09-02	11SB11-02	11SB11-02D	11SB14-01
Sample Date	09/17/97	09/24/97	09/24/97	09/17/97	09/18/97	09/18/97	09/18/97	09/19/97	09/19/97	09/19/97	09/19/97
Depth Range (ft.)	2.00-8.00	2.00-4.00	2.00-4.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-4.00
Inorganics, Total (mg/kg)											
Antimony	0.42 J	0.36 UJ	0.36 UJ	0.68 UJ	0.16 UJ	0.71 UJ	0.19 UJ	0.38 UJ	0.33 UJ	0.39 UJ	0.36 UJ
Arsenic	2.7 J	3.2 J	3 J	4.5 J	0.66 U	2.7 J	0.94 J	3.3 J	3.1 J	5.4	2.1 J
Barium	119	12.9 J	15.7 J	9 J	30.4	9.8 J	80.9	10 J	8.9 J	9.9 J	26 J
Beryllium	0.28 J	0.06 U	0.06 U	0.11 U	0.06 J	0.11 U	0.09 J	0.06 U	0.05 U	0.06 U	0.06 U
Cadmium	0.67	0.07 U	0.08 U	0.14 U	0.33 J	0.15 U	0.42 J	0.08 U	0.07 U	0.09 J	0.23 J
Chromium	16.4	18.3	24.4	5.6	27.1	4.7	10.3	5.4	5.6	5.3	11.8
Cobalt	9.4	6 J	7.2 J	0.65 J	12.5	0.62 J	10.7	0.84 J	0.65 J	0.92 J	5.4 J
Copper	75 R	28.4 J	39.3 J	4.5 R	114 R	3.8 R	46 R	3 R	5.8 R	6.3 R	31.5 R
Lead	7.7 J	3.8 J	4.8 J	0.79	1.5	1.4 J	1.1	0.59	0.49	0.76	2.5
Mercury	0.04 J	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	11.4	6.2 J	8	1.7 J	13.2	1.7 J	4.2	0.85 J	1.5 J	1.1 J	4.4 J
Selenium	0.24 UJ	0.41 R	0.42 R	0.79 UJ	0.19 UJ	0.82 UJ	0.21 UJ	0.44 UJ	0.38 UJ	0.45 UJ	0.41 UJ
Silver	0.36 J	0.11 U	0.11 U	0.22 U	0.1 J	0.22 U	0.1 J	0.12 U	0.1 U	0.12 U	0.11 U
Thallium	0.23 U	0.39 UJ	0.4 UJ	0.75 U	0.18 U	0.78 U	0.2 U	0.42 U	0.37 U	0.43 U	0.4 U
Tin	2.7 J	1.7 J	2.1 J	0.87 J	1.4 J	0.67 U	1.2 J	1.2 J	1 J	1.1 J	1.3 J
Vanadium	68.8 J	52.5	74.7	13.2 J	89.3 J	12 J	51 J	7 J	10.1 J	13.8 J	35 J
Zinc	59 R	17.5 R	25.5 R	5.2 R	41.7 R	5.4 R	35.8 R	4.3 R	5.3 R	6.9 R	19 R

APPENDIX F.24 (continued)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB15	11-SB16	11-SB18	11-SB19	11-SB22	11-SB23	11-SB26	11-SB27
Sample ID	11SB15-02	11SB16-04	11SB18-02	11SB19-04	11SB22-04	11SB23-03	11SB26-01	11SB27-04
Sample Date	09/19/97	09/19/97	09/20/97	09/20/97	09/21/97	09/21/97	09/21/97	09/21/97
Depth Range (ft.)	2.00-4.00	4.00-8.00	2.00-6.00	6.00-10.00	7.50-9.50	4.00-6.00	0.00-2.00	6.00-10.00
Inorganics, Total (mg/kg)								
Antimony	0.38 UJ	0.24 UJ	0.41 UJ	0.19 UJ	0.43 J	0.38 UJ	0.32 UJ	0.22 J
Arsenic	2.3 J	3 J	2.9 J	0.71 U	2.5 J	3.7 J	2.6 J	0.7 U
Barium	33	8.7 J	10.4 J	116	85.7	88.1	16 J	42.7
Beryllium	0.06 U	0.04 U	0.07 U	0.18	0.16 J	0.17 J	0.05 U	0.13
Cadmium	0.08 U	0.05 J	0.09 U	0.86	0.07 U	0.08 U	0.79 J	0.51
Chromium	15.1	7.1	3.8	21.9	9.7	320	39.3	35.3
Cobalt	9.7 J	0.46 J	0.31 J	14.4	20.4	17.8	11.6	10.5
Copper	59.4 J	5.1 J	2.4 J	131 J	101 J	126 J	62.8 J	70.2 J
Lead	1.4 J	0.42 J	0.5 J	1.4 J	0.94 J	0.55 J	1.3 J	1.1 J
Mercury	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U
Nickel	7 J	1.4 J	1.1 J	9.8	10.6	17	13.7	11.9
Selenium	0.44 R	0.33 R	0.48 R	0.23 R	0.4 R	0.44 R	0.38 R	0.27 R
Silver	0.12 U	0.08 U	0.13 U	0.07 J	0.13 J	0.17 J	0.1 U	0.08 J
Thallium	0.42 UJ	0.26 UJ	0.46 UJ	0.22 UJ	0.38 UJ	0.42 UJ	0.36 UJ	0.2 UJ
Tin	2.2 J	1.8 J	1.8 J	2.6 J	2.1 J	2.4 J	2.1 J	1.9 J
Vanadium	63.4	22.1	5.6 J	135	158	137	109	87.4
Zinc	29.3 R	4.2 R	2.5 R	42.6	90.9	61.2	27.5 R	25.6 R

APPENDIX F.25
SEDIMENT, ORGANICS, SWMU 45

APPENDIX F.25 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
1997 RFI INVESTIGATION
SWMU 02 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SD01	11-SD01	11-SD02	11-SD03	11-SD03	11-SD04	11-SD05	11-SD06	11-SD07	11-SD08	11-SD09
Sample ID	11SD01	11SD01D	11SD02	11SD03	11SD03D	11SD04	11SD05	11SD06	11SD07	11SD08	11SD09
Sample Date	09/19/97	09/19/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97
Depth Range (ft.)	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00
VOLATILES (ug/kg)											
1,1,1,2-Tetrachloroethane	16 U	17 U	19 U	22 U	24 U	20 U	22 U	26 U	22 U	20 U	21 U
1,1,1-Trichloroethane	8 U	8 U	10 U	11 UJ	12 UJ	10 U	11 U	13 U	11 UJ	10 UJ	11 UJ
1,1,2,2-Tetrachloroethane	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
1,1,2-Trichloroethane	8 U	8 U	10 UJ	11 U	12 U	10 UJ	11 UJ	13 UJ	11 U	10 U	11 U
1,1-Dichloroethane	8 U	8 U	10 UJ	11 UJ	12 UJ	10 UJ	11 UJ	13 UJ	11 UJ	10 UJ	11 UJ
1,1-Dichloroethene	8 U	8 U	10 UJ	11 U	12 U	10 UJ	11 UJ	13 UJ	11 U	10 U	11 U
1,2,3-Trichloropropane	16 U	17 U	19 U	22 U	24 U	20 U	22 U	26 U	22 U	20 U	21 U
1,2-Dibromo-3-chloropropane	33 U	33 U	38 UJ	44 UJ	47 UJ	40 UJ	45 UJ	51 UJ	43 UJ	39 UJ	42 UJ
1,2-Dibromoethane	33 U	33 U	38 U	44 U	47 U	40 U	45 U	51 U	43 U	39 U	42 U
1,2-Dichloroethane	8 U	8 U	10 UJ	11 UJ	12 UJ	10 UJ	11 UJ	13 UJ	11 UJ	10 UJ	11 UJ
1,2-Dichloroethene (Total)	8 U	8 U	10 UJ	11 UJ	12 UJ	10 UJ	11 UJ	13 UJ	11 UJ	10 UJ	11 UJ
1,2-Dichloropropane	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
2-Butanone	16 UJ	17 UJ	19 UJ	22 UJ	24 UJ	20 UJ	22 UJ	26 UJ	22 UJ	20 UJ	21 UJ
2-Chloro-1,3-butadiene	160 U	170 U	190 U	220 U	240 U	200 U	220 U	260 U	220 U	200 U	210 U
2-Hexanone	16 UJ	17 UJ	19 U	22 UJ	24 UJ	20 U	22 U	26 U	22 UJ	20 UJ	21 UJ
3-Chloropropene	33 U	33 U	38 U	44 U	47 U	40 U	45 U	51 U	43 U	39 U	42 U
4-Methyl-2-pentanone	16 U	17 U	19 U	22 U	24 U	20 U	22 U	26 U	22 U	20 U	21 U
Acetone	97 J	23 J	28 J	47 J	140 J	43 J	63 J	55 J	30 J	38 J	41 J
Acetonitrile	160 UJ	170 UJ	190 UJ	220 UJ	240 UJ	200 UJ	220 UJ	260 UJ	220 UJ	200 UJ	210 UJ
Acrolein	820 U	830 U	950 UJ	1100 UJ	1200 UJ	990 UJ	1100 UJ	1300 UJ	1100 UJ	980 UJ	1100 UJ
Acrylonitrile	160 U	170 U	190 UJ	220 UJ	240 UJ	200 UJ	220 UJ	260 UJ	220 UJ	200 UJ	210 UJ
Benzene	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
Bromodichloromethane	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
Bromoform	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
Bromomethane	16 U	17 U	19 UJ	22 U	24 U	20 UJ	22 UJ	26 UJ	22 U	20 U	21 U
Carbon disulfide	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
Carbon tetrachloride	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
Chlorobenzene	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
Chloroethane	16 UJ	17 UJ	19 UJ	22 UJ	24 UJ	20 UJ	22 UJ	26 UJ	22 UJ	20 UJ	21 UJ

APPENDIX F.25 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
1997 RFI INVESTIGATION
SWMU 02 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SD01	11-SD01	11-SD02	11-SD03	11-SD03	11-SD04	11-SD05	11-SD06	11-SD07	11-SD08	11-SD09
Sample ID	11SD01	11SD01D	11SD02	11SD03	11SD03D	11SD04	11SD05	11SD06	11SD07	11SD08	11SD09
Sample Date	09/19/97	09/19/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97
Depth Range (ft.)	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00
VOLATILES (ug/kg) (cont.)											
Chloroform	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
Chloromethane	16 U	17 U	19 U	22 U	24 U	20 U	22 U	26 U	22 U	20 U	21 U
cis-1,3-Dichloropropene	8 U	8 U	10 U	11 UJ	12 UJ	10 U	11 U	13 U	11 UJ	10 UJ	11 UJ
Dibromochloromethane	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
Dibromomethane	16 U	17 U	19 U	22 U	24 U	20 U	22 U	26 U	22 U	20 U	21 U
Dichlorodifluoromethane	33 U	33 U	38 U	44 U	47 U	40 U	45 U	51 U	43 U	39 U	42 U
Ethyl methacrylate	33 UJ	33 UJ	38 U	44 U	47 U	40 U	45 U	51 U	43 U	39 U	42 U
Ethylbenzene	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
Iodomethane	16 U	17 U	19 UJ	22 UJ	24 UJ	20 UJ	22 UJ	26 UJ	22 UJ	20 UJ	21 UJ
Isobutanol	3300 R	3300 R	3800 R	4400 R	4700 R	4000 R	4500 R	5100 R	4300 R	3900 R	4200 R
Methacrylonitrile	33 U	33 U	38 U	44 U	47 U	40 U	45 U	51 U	43 U	39 U	42 U
Methyl methacrylate	33 U	33 U	38 U	44 U	47 U	40 U	45 U	51 U	43 U	39 U	42 U
Methylene chloride	8 U	8 U	10 UJ	11 UJ	12 UJ	10 UJ	11 UJ	13 UJ	11 UJ	10 UJ	11 UJ
Pentachloroethane	33 U	33 U	38 U	44 U	47 U	40 U	45 U	51 U	43 U	39 U	42 U
Propionitrile	82 U	83 U	95 U	110 U	120 U	99 U	110 U	130 U	110 U	98 U	110 U
Styrene	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
Tetrachloroethene	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
Toluene	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
trans-1,3-Dichloropropene	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
trans-1,4-Dichloro-2-butene	33 U	33 U	38 U	44 U	47 U	40 U	45 U	51 U	43 U	39 U	42 U
Trichloroethene	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U
Trichlorofluoromethane	16 U	17 U	19 UJ	22 U	24 U	20 UJ	22 UJ	26 UJ	22 U	20 U	21 U
Vinyl Acetate	16 U	17 U	19 U	22 U	24 U	20 U	22 U	26 U	22 U	20 U	21 U
Vinyl chloride	16 U	17 U	19 UJ	22 U	24 U	20 UJ	22 UJ	26 UJ	22 U	20 U	21 U
Xylene (total)	8 U	8 U	10 U	11 U	12 U	10 U	11 U	13 U	11 U	10 U	11 U

APPENDIX F.25 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
1997 RFI INVESTIGATION
SWMU 02 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SD01	11-SD01	11-SD02	11-SD03	11-SD03	11-SD04	11-SD05	11-SD06	11-SD07	11-SD08	11-SD09
Sample ID	11SD01	11SD01D	11SD02	11SD03	11SD03D	11SD04	11SD05	11SD06	11SD07	11SD08	11SD09
Sample Date	09/19/97	09/19/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97
Depth Range (ft.)	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00
SEMIVOLATILES (ug/kg)											
1,2,4,5-Tetrachlorobenzene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
1,2,4-Trichlorobenzene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
1,2-Dichlorobenzene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
1,2-Diphenylhydrazine	530 U	550 U	630 UJ	730 UJ	780 UJ	660 UJ	730 UJ	830 UJ	720 UJ	640 UJ	700 UJ
1,3-Dichlorobenzene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
1,4-Dichlorobenzene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
1,4-Dioxane	1100 U	1100 UJ	1200 U	1400 U	1600 U	1300 U	1400 UJ	1700 U	1400 U	1300 U	1400 U
1,4-Naphthoquinone	2700 R	2800 UJ	3100 U	3600 U	3900 U	3300 U	3600 U	4200 U	3600 U	3200 U	3500 U
1-Naphthylamine	1100 UJ	1100 U	1200 U	1400 U	1600 U	1300 U	1400 U	1700 U	1400 U	1300 U	1400 U
2,2'-Oxybis(1-Chloropropane)	530 U	550 U	630 UJ	730 UJ	780 UJ	660 UJ	730 UJ	830 UJ	720 UJ	640 UJ	700 UJ
2,3,4,6-Tetrachlorophenol	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
2,4,5-Trichlorophenol	2700 U	2800 U	3100 U	3600 U	3900 U	3300 U	3600 U	4200 U	3600 U	3200 U	3500 U
2,4,6-Trichlorophenol	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
2,4-Dichlorophenol	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
2,4-Dimethylphenol	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
2,4-Dinitrophenol	2700 U	2800 U	3100 UJ	3600 UJ	3900 UJ	3300 UJ	3600 UJ	4200 UJ	3600 UJ	3200 UJ	3500 UJ
2,4-Dinitrotoluene	530 UJ	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
2,6-Dichlorophenol	530 U	550 UJ	630 UJ	730 UJ	780 UJ	660 UJ	730 UJ	830 UJ	720 UJ	640 UJ	700 UJ
2,6-Dinitrotoluene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
2-Acetylaminofluorene	1100 UJ	1100 U	1200 U	1400 U	1600 U	1300 U	1400 U	1700 U	1400 U	1300 U	1400 U
2-Chloronaphthalene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
2-Chlorophenol	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
2-Methylnaphthalene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
2-Naphthylamine	1300 U	1400 U	1600 UJ	1800 UJ	2000 UJ	1600 UJ	1800 UJ	2100 UJ	1800 UJ	1600 UJ	1800 UJ
2-Nitroaniline	2700 U	2800 U	3100 UJ	3600 UJ	3900 UJ	3300 UJ	3600 UJ	4200 UJ	3600 UJ	3200 UJ	3500 UJ
2-Nitrophenol	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
2-Picoline	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
2-sec-butyl-4,6-dinitrophenol	1100 UJ	1100 U	1200 UJ	1400 UJ	1600 UJ	1300 UJ	1400 UJ	1700 UJ	1400 UJ	1300 UJ	1400 UJ
3,3'-Dichlorobenzidine	1100 U	1100 U	1200 U	1400 U	1600 U	1300 U	1400 U	1700 U	1400 U	1300 U	1400 U

APPENDIX F.25 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
1997 RFI INVESTIGATION
SWMU 02 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SD01	11-SD01	11-SD02	11-SD03	11-SD03	11-SD04	11-SD05	11-SD06	11-SD07	11-SD08	11-SD09
Sample ID	11SD01	11SD01D	11SD02	11SD03	11SD03D	11SD04	11SD05	11SD06	11SD07	11SD08	11SD09
Sample Date	09/19/97	09/19/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97
Depth Range (ft.)	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00
SEMIVOLATILES (ug/kg) (cont.)											
3,3'-Dimethylbenzidine	2700 R	2800 UJ	3100 R	3600 R	3900 R	3300 R	3600 R	4200 R	3600 R	3200 R	3500 R
3-Methylcholanthrene	530 UJ	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
3-Nitroaniline	2700 UJ	2800 U	3100 UJ	3600 UJ	3900 UJ	3300 UJ	3600 UJ	4200 UJ	3600 UJ	3200 UJ	3500 UJ
4,6-Dinitro-2-methylphenol	2700 U	2800 U	3100 UJ	3600 UJ	3900 UJ	3300 UJ	3600 UJ	4200 UJ	3600 UJ	3200 UJ	3500 UJ
4-Aminobiphenyl	1100 UJ	1100 UJ	1200 UJ	1400 UJ	1600 UJ	1300 UJ	1400 UJ	1700 UJ	1400 UJ	1300 UJ	1400 UJ
4-bromophenyl-phenylether	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
4-Chloro-3-methylphenol	1100 U	1100 U	1200 U	1400 U	1600 U	1300 U	1400 U	1700 U	1400 U	1300 U	1400 U
4-Chloroaniline	1100 U	1100 U	1200 UJ	1400 UJ	1600 UJ	1300 UJ	1400 UJ	1700 UJ	1400 UJ	1300 UJ	1400 UJ
4-Chlorophenyl phenyl ether	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
4-Nitroaniline	2700 UJ	2800 U	3100 UJ	3600 UJ	3900 UJ	3300 UJ	3600 UJ	4200 UJ	3600 UJ	3200 UJ	3500 UJ
4-Nitrophenol	2700 U	2800 U	3100 UJ	3600 UJ	3900 UJ	3300 UJ	3600 UJ	4200 UJ	3600 UJ	3200 UJ	3500 UJ
4-Nitroquinoline-1-oxide	2700 R	2800 UJ	3100 R	3600 R	3900 R	3300 R	3600 R	4200 R	3600 R	3200 R	3500 R
5-Nitro-o-toluidine	1100 UJ	1100 U	1200 U	1400 U	1600 U	1300 U	1400 U	1700 U	1400 U	1300 U	1400 U
7,12-Dimethylbenz(a)anthracene	1100 UJ	1100 U	1200 U	1400 U	1600 U	1300 U	1400 U	1700 U	1400 U	1300 U	1400 U
Acenaphthene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Acenaphthylene	81 J	550 U	630 U	100 J	180 J	660 U	730 U	830 U	720 U	640 U	700 U
Acetophenone	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
alpha, alpha-Dimethylphenethylamine	2700 U	2800 U	3100 UJ	3600 UJ	3900 UJ	3300 UJ	3600 UJ	4200 UJ	3600 UJ	3200 UJ	3500 UJ
Aniline	2700 U	2800 U	3100 UJ	3600 UJ	3900 UJ	3300 UJ	3600 UJ	4200 UJ	3600 UJ	3200 UJ	3500 UJ
Anthracene	98 J	550 U	630 U	160 J	320 J	660 U	730 U	830 U	720 U	640 U	96 J
Aramite	1100 U	1100 UJ	1200 UJ	1400 UJ	1600 UJ	1300 UJ	1400 UJ	1700 UJ	1400 UJ	1300 UJ	1400 UJ
Benzidine	5300 R	5500 R	6300 UJ	7300 UJ	7800 UJ	6600 UJ	7300 UJ	8300 UJ	7200 UJ	6400 UJ	7000 UJ
Benzo(a)anthracene	190 J	160 J	630 U	320 J	640 J	180 J	730 U	85 J	93 J	640 U	310 J
Benzo(a)pyrene	170 J	1300	96 J	1800	3200	220 J	730 U	160 J	120 J	640 U	360 J
Benzo(b)fluoranthene	1900	2000	140 J	2700	5000	330 J	730 U	250 J	160 J	640 U	520 J
Benzo(g,h,i)perylene	560	690	630 U	1100	1800	160 J	730 U	120 J	720 U	640 U	230 J
Benzo(k)fluoranthene	720	710	630 U	1200	2000	160 J	730 U	830 U	720 U	640 U	540 J
Benzoic acid	2700 U	790 J	3100 UJ	3600 UJ	3900 UJ	3300 UJ	3600 UJ	4200 UJ	3600 UJ	3200 UJ	3500 UJ
Benzyl alcohol	530 U	550 U	630 UJ	730 UJ	780 UJ	660 UJ	730 UJ	830 UJ	720 UJ	640 UJ	700 UJ

APPENDIX F.25 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
1997 RFI INVESTIGATION
SWMU 02 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SD01	11-SD01	11-SD02	11-SD03	11-SD03	11-SD04	11-SD05	11-SD06	11-SD07	11-SD08	11-SD09
Sample ID	11SD01	11SD01D	11SD02	11SD03	11SD03D	11SD04	11SD05	11SD06	11SD07	11SD08	11SD09
Sample Date	09/19/97	09/19/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97
Depth Range (ft.)	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00
SEMIVOLATILES (ug/kg) (cont.)											
Bis(2-chloroethoxy)methane	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Bis(2-chloroethyl)ether	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Bis(2-ethylhexyl)phthalate	530 U	550 UJ	260 J	320 J	480 J	280 J	240 J	370 J	700 J	200 J	590 J
Butylbenzylphthalate	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Carbazole	530 U	550 U	630 U	350 J	390 J	330 J	730 U	390 J	350 J	640 U	390 J
Chlorobenzilate	530 UJ	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Chrysene	610	490 J	76 J	1000	1900	210 J	730 U	130 J	100 J	640 U	390 J
Diallate	530 UJ	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Dibenzo(a,h)anthracene	180 J	200 J	630 U	380 J	580 J	660 U	730 U	830 U	720 U	640 U	75 J
Dibenzofuran	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Diethylphthalate	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Dimethylphthalate	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Di-n-butylphthalate	120 J	550 U	89 J	730 U	190 J	99 J	110 J	170 J	460 J	88 J	120 J
Di-n-octylphthalate	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Diphenylamine	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Ethyl methanesulfonate	530 UJ	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Fluoranthene	93 J	550 U	83 J	120 J	230 J	330 J	730 U	110 J	180 J	640 U	680 J
Fluorene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Hexachlorobenzene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Hexachlorobutadiene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Hexachlorocyclopentadiene	530 UJ	550 U	630 UJ	730 UJ	780 UJ	660 UJ	730 UJ	830 UJ	720 UJ	640 UJ	700 UJ
Hexachloroethane	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Hexachlorophene	5300 UJ	5500 R	6300 R	7300 R	7800 R	6600 R	7300 R	8300 R	7200 R	6400 R	7000 R
Hexachloropropene	2700 U	2800 U	3100 U	3600 U	3900 U	3300 U	3600 U	4200 U	3600 U	3200 U	3500 U
Indeno(1,2,3-cd)pyrene	650	740	75 J	1300	2100	170 J	730 U	150 J	94 J	640 U	260 J
Isophorone	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Isosafrole	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
m&p Cresol	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
m-Dinitrobenzene	1100 UJ	1100 U	1200 U	1400 U	1600 U	1300 U	1400 U	1700 U	1400 U	1300 U	1400 U

APPENDIX F.25 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
1997 RFI INVESTIGATION
SWMU 02 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SD01	11-SD01	11-SD02	11-SD03	11-SD03	11-SD04	11-SD05	11-SD06	11-SD07	11-SD08	11-SD09
Sample ID	11SD01	11SD01D	11SD02	11SD03	11SD03D	11SD04	11SD05	11SD06	11SD07	11SD08	11SD09
Sample Date	09/19/97	09/19/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97
Depth Range (ft.)	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00
SEMIVOLATILES (ug/kg) (cont.)											
Methapyrilene	1300 UJ	1400 U	1600 U	1800 U	2000 U	1600 U	1800 U	2100 U	1800 U	1600 U	1800 U
Methyl methanesulfonate	530 UJ	550 UJ	630 UJ	730 UJ	780 UJ	660 UJ	730 UJ	830 UJ	720 UJ	640 UJ	700 UJ
Naphthalene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Nitrobenzene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
N-Nitrosodiethylamine	530 U	550 UJ	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
N-Nitrosodimethylamine	530 U	550 U	630 UJ	730 UJ	780 UJ	660 UJ	730 UJ	830 UJ	720 UJ	640 UJ	700 UJ
N-Nitroso-di-n-butylamine	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
N-Nitroso-di-n-propylamine	530 U	550 UJ	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
N-Nitrosodiphenylamine (1)	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
N-Nitrosomethylethylamine	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
N-Nitrosomorpholine	1100 U	1100 UJ	1200 U	1400 U	1600 U	1300 U	1400 U	1700 U	1400 U	1300 U	1400 U
N-Nitrosopiperidine	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
N-Nitrosopyrrolidine	2700 U	2800 U	3100 U	3600 U	3900 U	3300 U	3600 U	4200 U	3600 U	3200 U	3500 U
o-Cresol	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
o-Toluidine	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
p-Dimethylaminoazobenzene	1100 UJ	1100 U	1200 U	1400 U	1600 U	1300 U	1400 U	1700 U	1400 U	1300 U	1400 U
Pentachlorobenzene	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Pentachloronitrobenzene	530 R	550 R	630 R	730 R	780 R	660 R	730 R	830 R	720 R	640 R	700 R
Pentachlorophenol	2700 U	2800 U	3100 U	3600 U	3900 U	3300 U	3600 U	4200 U	3600 U	3200 U	3500 U
Phenacetin	530 UJ	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Phenanthrene	530 U	550 U	630 U	78 J	160 J	200 J	730 U	830 U	140 J	640 U	470 J
Phenol	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
p-Phenylenediamine	1100 R	1100 R	1200 R	1400 R	1600 R	1300 R	1400 R	1700 R	1400 R	1300 R	1400 R
Pronamide	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
Pyrene	140 J	550 UJ	79 J	210 J	370 J	320 J	730 U	110 J	180 J	640 U	680 J
Pyridine	1100 U	1100 U	1200 UJ	1400 UJ	1600 UJ	1300 UJ	1400 UJ	1700 UJ	1400 UJ	1300 UJ	1400 UJ
Safrole	530 U	550 U	630 U	730 U	780 U	660 U	730 U	830 U	720 U	640 U	700 U
sym-Trinitrobenzene	5300 UJ	5500 U	6300 U	7300 U	7800 U	6600 U	7300 U	8300 U	7200 U	6400 U	7000 U

APPENDIX F.25 (continued)

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - ORGANICS
1997 RFI INVESTIGATION
SWMU 02 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SD01	11-SD01	11-SD02	11-SD03	11-SD03	11-SD04	11-SD05	11-SD06	11-SD07	11-SD08	11-SD09
Sample ID	11SD01	11SD01D	11SD02	11SD03	11SD03D	11SD04	11SD05	11SD06	11SD07	11SD08	11SD09
Sample Date	09/19/97	09/19/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97
Depth Range (ft.)	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00
PCBs (ug/kg)											
Aroclor-1016	64 U	66 U	74 U	88 U	94 U	78 U	90 U	100 U	84 U	77 U	85 U
Aroclor-1221	64 U	66 U	74 U	88 U	94 U	78 U	90 U	100 U	84 U	77 U	85 U
Aroclor-1232	64 U	66 U	74 U	88 U	94 U	78 U	90 U	100 U	84 U	77 U	85 U
Aroclor-1242	64 U	66 U	74 U	88 U	94 U	78 U	90 U	100 U	84 U	77 U	85 U
Aroclor-1248	64 U	66 U	74 U	88 U	94 U	78 U	90 U	100 U	84 U	77 U	85 U
Aroclor-1254	130 U	130 UJ	150 U	180 U	190 U	160 U	180 U	200 U	170 U	150 U	170 U
Aroclor-1260	28 J	34 J	42	44	46	53	42	62	51	33	130
TPH (ug/kg)											
Diesel Range Organics	26000	55000	23000	65000	65000	35000	19000	46000	18000	12000 U	31000
Gasoline Range Organics	82 U	83 U	95 U	110 U	120 U	99 U	110 U	130 U	110 U	98 U	110 U

APPENDIX F.26
SEDIMENT, INORGANICS, SWMU 45

APPENDIX F.26

SUMMARY OF ANALYTICAL RESULTS, SEDIMENT - INORGANICS
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SD01	11-SD01	11-SD02	11-SD03	11-SD03	11-SD04	11-SD05	11-SD06	11-SD07	11-SD08	11-SD09
Sample ID	11SD01	11SD01D	11SD02	11SD03	11SD03D	11SD04	11SD05	11SD06	11SD07	11SD08	11SD09
Sample Date	09/19/97	09/19/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97
Depth Range (ft.)	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00
Inorganics (mg/kg)											
Antimony	0.57 UJ	0.51 UJ	0.7 J	0.4 J	0.68 J	0.41 J	0.63 J	0.36 UJ	0.3 UJ	0.37 J	0.63 J
Arsenic	11.9	12	3.3 J	4.9 J	5.4 J	3.7 J	5.8 J	5.6 J	4.8 J	7.8 J	5.4 J
Barium	20.9 J	15.6 J	14.2 J	18.1 J	17.3 J	16.5 J	15.7 J	26.1 J	19.1 J	13 J	24.4 J
Beryllium	0.09 U	0.08 UJ	0.05 U	0.06 U	0.06 J	0.05 U	0.06 U	0.06 J	0.05 U	0.04 U	0.06 J
Cadmium	0.66 J	0.4 J	0.07 U	0.08 U	0.08 J	0.07 U	0.07 U	0.08 U	0.06 U	0.06 U	0.06 U
Chromium	12.7	9.8	9.6	11.9	12.7 J	9.4	9.1	14.4	8.6	8	13.8
Cobalt	7.3 J	5.4 J	2.3 J	3.1 J	3.1 UJ	2.4 J	2.6 J	4.1 J	2.8 J	1.8 J	4.1 J
Copper	84.1 R	41.6 R	21.8 J	30.9 J	31.3 J	25.6 J	25 J	40.1 J	27.1 J	18.1 J	44.6 J
Lead	20.2	30.4	8.7	15.4	17.2	13.6	11.9	18.8	17.4	9.7	22
Mercury	0.31	0.42	0.04 U	0.04 U	0.06 U	0.04 U	0.05 U	0.04 U	0.04 U	0.03 U	0.04 U
Nickel	5 J	3.5 J	2.3 J	3.1 J	3	2.3 J	2.8 J	4.7 J	2.5 J	1.7 J	3.8 J
Selenium	0.78 J	0.59 UJ	0.37 U	0.42 U	0.44 U	0.36 U	0.41 U	0.42 U	0.35 U	0.32 U	0.35 U
Silver	0.36 J	0.16 U	0.1 U	0.11 U	0.12 U	0.1 U	0.11 U	0.13 J	0.1 U	0.09 U	0.13 J
Thallium	0.63 U	0.57 U	0.36 UJ	0.4 UJ	0.42 U	0.34 UJ	0.39 UJ	0.4 UJ	0.33 UJ	0.3 UJ	0.33 UJ
Tin	5.5 J	5 J	2.9 J	3.7 J	4	3.3 J	3.5 J	4.3 J	3.1 J	2.2 J	3.2 J
Vanadium	73.4 J	29 J	17.9	22.2	22.4	18.9	22.3	29.5	21.2	15.8	31.7
Zinc	130 R	83 R	33	56.6	62.7	48.9	37.3	68.8	44.8	26.1	83.9

APPENDIX F.27
GROUNDWATER, ORGANICS, SWMU 45

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01	45MW02	45MW03	45MW04	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10
Sample ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01D	45MW02	45MW03	45MW04	11GW01	11GW02	11GW05	11GW07	11GW08	11GW10
Sample Date	11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96	11/25/96	09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97
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	10 UJ	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	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 U	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	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	5 U	5 U	5 U	5 UJ	5 UJ	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U
1,2-Dibromo-3-chloropropane	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 U	20 U	20 U	20 U	20 U
1,2-Dibromoethane	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 UJ	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 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U
1,2-Dichloroethene (Total)	5 U	5 U	5 U	5 U	5 U	5 U	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	5 U	5 U	5 U	5 UJ	5 UJ	5 U
2-Butanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U
2-Chloro-1,3-butadiene	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R	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 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U
3-Chloropropene	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4-Methyl-2-pentanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U
Acetone	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	12 J	10 UJ	10 U	10 U	10 UJ	16 J	34
Acetonitrile	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 U	100 U	100 U	100 UJ	100 UJ	100 UJ	100 UJ	100 U
Acrolein	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 UJ	500 UJ	500 U	500 U	500 UJ	500 UJ	500 UJ	500 U
Acrylonitrile	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 UJ	100 UJ	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	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	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 U	5 U	5 U	5 U	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	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon disulfide	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
VOLATILES (ug/l) (cont.)															
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01	45MW02	45MW03	45MW04	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10
Sample ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01D	45MW02	45MW03	45MW04	11GW01	11GW02	11GW05	11GW07	11GW08	11GW10
Sample Date	11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96	11/25/96	09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	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	10 U	10 U	10 U	10 UJ	10 U	10 U	10 UJ	10 UJ	10 U
Chloroform	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U
Chloromethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	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	5 U	5 U	5 U	5 U	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	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U
Dichlorodifluoromethane	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ
Ethyl methacrylate	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 U	20 UJ	20 U	20 U	20 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	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	10 UJ	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 R	2000 R	2000 R	2000 R	2000 R	2000 R	2000 R	2000 R
Methacrylonitrile	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 UJ	20 U
Methyl methacrylate	20 U	20 U	20 U	20 U	20 U	20 U	20 U	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	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U
o + p xylene	5 U	5 U	5 U	5 U	5 U	5 U	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 U	20 U	20 UJ	20 UJ	20 UJ	20 U	20 U	20 UJ	20 UJ	20 U
Propionitrile	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	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	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01	45MW02	45MW03	45MW04	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10
Sample ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01D	45MW02	45MW03	45MW04	11GW01	11GW02	11GW05	11GW07	11GW08	11GW10
Sample Date	11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96	11/25/96	09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97
VOLATILES (ug/l) (cont.)															
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	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 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	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	5 U	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	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 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U
Vinyl chloride	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01	45MW02	45MW03	45MW04	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10
Sample ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01D	45MW02	45MW03	45MW04	11GW01	11GW02	11GW05	11GW07	11GW08	11GW10
Sample Date	11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96	11/25/96	09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97
SEMIVOLATILES (ug/l)															
1,2,4,5-Tetrachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 UJ	50 U	13 U	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
1,2-Diphenylhydrazine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
1,4-Dioxane	20 UJ	20 UJ	21 UJ	20 UJ	20 U	20 U	20 U	20 U	20 U	19 UJ	22 UJ	100 U	26 UJ	20 UJ	20 UJ
1,4-Naphthoquinone	50 U	51 U	52 U	50 U	50 U	50 U	50 U	50 U	50 U	48 R	54 R	250 R	66 UJ	50 UJ	50 U
1-Naphthylamine	20 UJ	20 UJ	21 UJ	20 UJ	20 U	20 U	20 UJ	20 U	20 UJ	19 UJ	22 UJ	100 UJ	26 U	20 U	20 U
2,2'-Oxybis(1-Chloropropane)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 UJ	50 U	13 U	10 U	10 U
2,3,4,6-Tetrachlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 UJ
2,4,5-Trichlorophenol	50 U	51 U	52 U	50 U	50 U	50 U	50 U	50 U	50 U	48 U	54 U	250 U	66 U	50 U	50 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	2 J	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
2,4-Dinitrophenol	50 U	51 U	52 U	50 U	50 U	50 U	50 U	50 U	50 U	48 UJ	54 UJ	250 U	66 U	50 U	50 UJ
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
2,6-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 UJ	10 UJ	10 UJ
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
2-Acetylaminofluorene	20 U	20 U	21 U	20 U	20 U	20 U	20 UJ	20 U	20 U	19 UJ	22 UJ	100 UJ	26 U	20 U	20 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
2-Naphthylamine	25 U	26 U	26 U	25 U	25 U	25 U	25 U	25 U	25 U	24 U	27 UJ	120 U	33 U	25 U	25 U
2-Nitroaniline	50 U	51 U	52 U	50 U	50 U	50 U	50 U	50 U	50 U	48 U	54 U	250 U	66 U	50 U	50 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
SEMIVOLATILES (ug/l) (cont.)															
2-Picoline	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	11 UJ	50 UJ	13 U	10 U	10 UJ

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01	45MW02	45MW03	45MW04	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10
Sample ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01D	45MW02	45MW03	45MW04	11GW01	11GW02	11GW05	11GW07	11GW08	11GW10
Sample Date	11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96	11/25/96	09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97
2-sec-butyl-4,6-dinitrophenol	20 U	20 U	21 U	20 U	20 U	20 U	20 UJ	20 U	20 U	19 UJ	22 UJ	100 UJ	26 U	20 U	20 U
3,3'-Dichlorobenzidine	20 U	20 U	21 U	20 U	20 U	20 U	20 UJ	20 U	20 U	19 U	22 U	100 U	26 U	20 U	20 U
3,3'-Dimethylbenzidine	50 UJ	51 UJ	52 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	48 U	54 R	250 R	66 UJ	50 UJ	50 U
3-Methylcholanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 UJ	11 U	50 UJ	13 U	10 U	10 U
3-Nitroaniline	50 UJ	51 UJ	52 UJ	50 UJ	50 U	50 U	50 U	50 U	50 U	48 U	54 UJ	250 U	66 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	51 U	52 U	50 U	50 U	50 U	50 U	50 U	50 U	48 UJ	54 UJ	250 U	66 U	50 U	50 U
4-Aminobiphenyl	20 U	20 U	21 U	20 U	20 U	20 U	20 UJ	20 U	20 UJ	19 UJ	22 UJ	100 UJ	26 UJ	20 UJ	20 U
4-bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
4-Chloro-3-methylphenol	20 U	20 U	21 U	20 U	20 U	20 U	20 U	20 U	20 U	19 U	22 U	100 U	26 U	20 U	20 U
4-Chloroaniline	20 U	20 U	21 U	20 U	20 U	20 U	20 U	20 U	20 U	19 UJ	22 UJ	100 U	26 U	20 U	20 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
4-Nitroaniline	50 U	51 U	52 U	50 U	50 U	50 U	50 UJ	50 U	50 UJ	48 U	54 U	250 U	66 U	50 U	50 U
4-Nitrophenol	50 U	51 U	52 U	50 U	50 U	50 U	50 U	50 U	50 U	48 U	54 U	250 U	66 U	50 U	50 U
4-Nitroquinoline-1-oxide	50 U	51 U	52 U	50 U	50 U	50 U	50 UJ	50 U	50 U	48 R	54 R	250 R	66 UJ	50 UJ	50 R
5-Nitro-o-toluidine	20 UJ	20 UJ	21 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	19 UJ	22 UJ	100 UJ	26 U	20 U	20 U
7,12-Dimethylbenz(a)anthracene	20 U	20 U	21 U	20 U	20 U	20 U	20 UJ	20 U	20 U	19 UJ	22 UJ	100 UJ	26 U	20 U	20 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2 J	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Acetophenone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
alpha, alpha-Dimethylphenethylamine	50 UJ	51 UJ	52 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	48 UJ	54 UJ	250 UJ	66 U	50 U	50 UJ
Aniline	50 U	51 U	52 U	50 U	50 U	50 U	50 U	50 U	50 U	48 U	54 U	250 U	66 U	50 U	50 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	5 J	11 U	9 J	13 U	10 U	10 U
Aramite	20 U	20 U	21 U	20 U	20 UJ	20 UJ	20 UJ	20 UJ	20 U	19 U	22 R	100 U	26 UJ	20 U	20 UJ
Benzidine	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	96 U	110 U	500 UJ	130 U	100 U	100 R
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	6 J	13 U	10 U	10 U
SEMIVOLATILES (ug/l) (cont.)															
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	7 J	13 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01	45MW02	45MW03	45MW04	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10
Sample ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01D	45MW02	45MW03	45MW04	11GW01	11GW02	11GW05	11GW07	11GW08	11GW10
Sample Date	11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96	11/25/96	09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Benzoic acid	50 UJ	51 UJ	52 UJ	50 UJ	50 U	50 U	50 U	50 U	50 U	48 U	54 UJ	250 U	23 J	26 J	50 U
Benzyl alcohol	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Bis(2-chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10 U	10 U	10 U	10 U	10 U	10 U	64 J	10 U	10 U	10 U	10 U	50 U	13 UJ	10 UJ	47 U
Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Carbazole	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 UJ	50 U	13 U	10 U	10 U
Chlorobenzilate	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 UJ	11 UJ	50 UJ	13 U	10 UJ	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	13 J	13 U	10 U	10 U
Diallate	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	11 U	50 U	13 U	10 U	10 UJ
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 UJ
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	34
Dimethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	27
Di-n-butylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 UJ	50 U	13 U	10 U	10 U
Di-n-octylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Diphenylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	18 J	13 U	10 U	10 U
Ethyl methanesulfonate	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	11 UJ	50 UJ	13 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
SEMIVOLATILES (ug/l) (cont.)															
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	11 U	50 U	13 U	10 U	10 UJ
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Hexachlorophene	100 U	100 U	100 U	100 U	100 U	100 U	100 UJ	100 U	100 U	96 UJ	110 UJ	500 UJ	130 R	100 R	100 UJ
Hexachloropropene	50 U	51 U	52 U	50 U	50 U	50 U	50 U	50 U	50 U	48 U	54 U	250 U	66 U	50 U	50 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 UJ

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01	45MW02	45MW03	45MW04	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10
Sample ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01D	45MW02	45MW03	45MW04	11GW01	11GW02	11GW05	11GW07	11GW08	11GW10
Sample Date	11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96	11/25/96	09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Isosafrole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 UJ
m&p Cresol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	2 J	10 U
m-Dinitrobenzene	20 U	20 U	21 U	20 U	20 U	20 U	20 U	20 U	20 U	19 UJ	22 UJ	100 UJ	26 U	20 U	20 U
Methapyrilene	25 U	26 U	26 U	25 U	25 U	25 U	25 UJ	25 U	25 U	24 UJ	27 UJ	120 UJ	33 U	25 U	25 U
Methyl methanesulfonate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	11 UJ	50 UJ	13 UJ	10 UJ	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
N-Nitrosodiethylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 UJ	50 UJ	13 UJ	10 UJ	10 U
N-Nitrosodimethylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
N-Nitroso-di-n-butylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 UJ	50 UJ	13 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 UJ	10 UJ	10 U
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
N-Nitrosomethylethylamine	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	11 UJ	50 UJ	13 U	10 U	10 UJ
N-Nitrosomorpholine	20 U	20 U	21 U	20 U	20 U	20 U	20 U	20 U	20 U	19 U	22 U	100 UJ	26 UJ	20 UJ	20 U
N-Nitrosopiperidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 UJ	50 UJ	13 U	10 U	10 UJ
N-Nitrosopyrrolidine	50 UJ	51 UJ	52 UJ	50 UJ	50 U	50 U	50 UJ	50 U	50 UJ	48 U	54 U	250 U	66 U	50 U	50 U
o-Cresol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
o-Toluidine	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	11 U	50 U	13 U	10 U	10 U
p-Dimethylaminoazobenzene	20 U	20 U	21 U	20 U	20 U	20 U	20 UJ	20 U	20 U	19 U	22 UJ	100 UJ	26 U	20 U	20 U
Pentachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
SEMIVOLATILES (ug/l) (cont.)															
Pentachloronitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 R	11 U	50 R	13 R	10 R	10 R
Pentachlorophenol	50 U	51 U	52 U	50 U	50 U	50 U	50 UJ	50 U	50 U	48 U	54 U	250 U	66 U	50 U	50 U
Phenacetin	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	11 UJ	50 UJ	13 U	10 U	10 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U
Phenol	4 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	50 U	2 J	3 J	10 U
p-Phenylenediamine	20 R	20 R	21 R	20 R	20 R	20 R	20 R	20 R	20 R	19 R	22 R	100 R	26 R	20 R	20 R
Pronamide	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	11 U	50 U	13 U	10 U	10 U

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01	45MW02	45MW03	45MW04	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10
Sample ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01D	45MW02	45MW03	45MW04	11GW01	11GW02	11GW05	11GW07	11GW08	11GW10
Sample Date	11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96	11/25/96	09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 UJ	5 J	11 U	15 J	13 UJ	10 UJ	10 U
Pyridine	20 U	20 U	21 U	20 U	20 U	20 U	20 UJ	20 U	20 UJ	19 UJ	22 UJ	100 U	26 U	20 U	20 U
Safrole	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 UJ	10 U	11 U	50 U	13 U	10 U	10 U
sym-Trinitrobenzene	100 R	100 R	100 R	100 R	100 R	100 R	100 UJ	100 R	100 UJ	96 UJ	110 UJ	500 UJ	130 U	100 U	100 U

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01	45MW02	45MW03	45MW04	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10
Sample ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01D	45MW02	45MW03	45MW04	11GW01	11GW02	11GW05	11GW07	11GW08	11GW10
Sample Date	11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96	11/25/96	09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97
PCBs (ug/l)															
Aroclor-1016	0.51 U	0.5 U	0.51 U	0.5 U	0.51 U	0.5 U	0.5 U	0.5 U	0.5 U	0.48 U	0.52 U	0.48 U	0.49 U	2.9 U	0.5 U
Aroclor-1221	0.51 U	0.5 U	0.51 U	0.5 U	0.51 U	0.5 U	0.5 U	0.5 U	0.5 U	0.48 U	0.52 U	0.48 U	0.49 U	2.9 U	0.5 U
Aroclor-1232	0.51 U	0.5 U	0.51 U	0.5 U	0.51 U	0.5 U	0.5 U	0.5 U	0.5 U	0.48 U	0.52 U	0.48 U	0.49 U	2.9 U	0.5 U
Aroclor-1242	0.51 U	0.5 U	0.51 U	0.5 U	0.51 U	0.5 U	0.5 U	0.5 U	0.5 U	0.48 U	0.52 U	0.48 U	0.49 U	2.9 U	0.5 U
Aroclor-1248	0.51 U	0.5 U	0.51 U	0.5 U	0.51 U	0.5 U	0.5 U	0.5 U	0.5 U	0.48 U	0.52 U	0.48 U	0.49 U	2.9 U	0.5 U
Aroclor-1254	1 U	1 U	1 U	1 U	1 U	0.99 U	1 U	1 U	1 U	0.96 U	1 U	0.96 U	0.98 U	5.9 U	1 U
Aroclor-1260	1 U	0.35	1 U	1 U	1 U	0.99 U	1 U	1 U	1 U	0.96 U	1 U	0.96 U	0.98 U	5.9 U	1 U
TPH (ug/l)															
Diesel Range Organics	NA	NA	NA	NA	NA	NA	NA	NA	NA	68000	140 U	2800	1200	130 J	140 U
Gasoline Range Organics	NA	NA	NA	NA	NA	NA	NA	NA	NA	2100	50 U	550	54	50 U	110
TOC															
Total organic carbon (mg/l)	NA	NA	NA	NA	NA	NA	NA	NA	NA	60800	1000 U	20800	27100	26900	1000 U

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB11	11-SB12	11-SB13	11-SB16	11-SB16	11-SB18	11-SB19	11-SB24	11-SB24	11-SB25
Sample ID	11GW11	11GW12	11GW13	11GW16	11GW16D	11GW18	11GW19	11GW24	11GW24D	11GW25
Sample Date	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97	09/22/97
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	10 U
1,1,1-Trichloroethane	5 U	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 U	5 U
1,1,2-Trichloroethane	5 U	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	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dibromo-3-chloropropane	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
1,2-Dibromoethane	20 U	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 U	5 U
1,2-Dichloroethene (Total)	5 U	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	5 U
2-Butanone	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	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	100 U
2-Hexanone	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 UJ
3-Chloropropene	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4-Methyl-2-pentanone	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 UJ
Acetone	17	24	12	13	10 U	10 U	10 U	10 U	10 U	10 U
Acetonitrile	100 U	100 U	100 U	100 U	100 U	100 UJ	100 UJ	100 R	100 UJ	100 UJ
Acrolein	500 U	500 U	500 U	500 U	500 U	500 U	500 R	500 U	500 U	500 R
Acrylonitrile	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Benzene	5 U	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	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 U	5 U	5 U	5 U	5 U
Bromomethane	10 U	10 U	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	5 U	5 U
VOLATILES (ug/l) (cont.)										
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB11	11-SB12	11-SB13	11-SB16	11-SB16	11-SB18	11-SB19	11-SB24	11-SB24	11-SB25
Sample ID	11GW11	11GW12	11GW13	11GW16	11GW16D	11GW18	11GW19	11GW24	11GW24D	11GW25
Sample Date	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97	09/22/97
Chlorobenzene	5 U	5 U	5 U	5 U	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	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	5 U	5 U
Chloromethane	10 U	10 U	10 U	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	5 U
Dibromochloromethane	5 U	5 U	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	10 U	10 U
Dichlorodifluoromethane	20 UJ	20 U	20 U	20 U	20 U	20 UJ	20 U	20 UJ	20 UJ	20 UJ
Ethyl methacrylate	20 U	20 U	20 U	20 U	20 U	20 U	20 UJ	20 U	20 U	20 UJ
Ethylbenzene	5 U	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	10 U
Isobutanol	2000 R	2000 R	2000 R	2000 R	2000 R	2000 R	2000 R	2000 R	2000 R	2000 R
Methacrylonitrile	20 U	20 U	20 U	20 U	20 U	20 U	20 UJ	20 U	20 U	20 UJ
Methyl methacrylate	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Methylene chloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
o + p xylene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U
Pentachloroethane	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Propionitrile	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 U	50 R	50 R
Styrene	5 U	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 UJ	5 U	5 U	5 UJ
Toluene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB11	11-SB12	11-SB13	11-SB16	11-SB16	11-SB18	11-SB19	11-SB24	11-SB24	11-SB25
Sample ID	11GW11	11GW12	11GW13	11GW16	11GW16D	11GW18	11GW19	11GW24	11GW24D	11GW25
Sample Date	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97	09/22/97
VOLATILES (ug/l) (cont.)										
trans-1,3-Dichloropropene	5 U	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	20 U
Trichloroethene	5 U	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	10 U
Vinyl Acetate	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 UJ	10 UJ	10 U
Vinyl chloride	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB11	11-SB12	11-SB13	11-SB16	11-SB16	11-SB18	11-SB19	11-SB24	11-SB24	11-SB25
Sample ID	11GW11	11GW12	11GW13	11GW16	11GW16D	11GW18	11GW19	11GW24	11GW24D	11GW25
Sample Date	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97	09/22/97
SEMIVOLATILES (ug/l)										
1,2,4,5-Tetrachlorobenzene	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	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	10 U	10 U	10 U	10 U
1,2-Diphenylhydrazine	10 U	10 U	10 U	10 U	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	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dioxane	20 UJ	20 U	20 U	20 U	20 U	21 UJ	21 UJ	20 UJ	20 UJ	19 UJ
1,4-Naphthoquinone	50 R	50 UJ	49 UJ	51 UJ	50 UJ	52 UJ	53 R	50 R	49 U	48 U
1-Naphthylamine	20 UJ	20 U	20 U	20 U	20 U	21 U	21 UJ	20 UJ	20 U	19 U
2,2'-Oxybis(1-Chloropropane)	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U
2,3,4,6-Tetrachlorophenol	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 UJ	10 UJ
2,4,5-Trichlorophenol	50 U	50 U	49 U	51 U	50 U	52 U	53 U	50 U	49 U	48 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	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	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50 UJ	50 UJ	49 UJ	51 UJ	50 UJ	52 UJ	53 UJ	50 UJ	49 UJ	48 UJ
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dichlorophenol	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Acetylaminofluorene	20 UJ	20 U	20 U	20 U	20 U	21 U	21 UJ	20 UJ	20 U	19 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	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	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Naphthylamine	25 UJ	25 UJ	24 UJ	26 UJ	25 UJ	26 U	26 UJ	25 UJ	24 U	24 U
2-Nitroaniline	50 U	50 U	49 U	51 U	50 U	52 U	53 U	50 U	49 U	48 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES (ug/l) (cont.)										
2-Picoline	10 UJ	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB11	11-SB12	11-SB13	11-SB16	11-SB16	11-SB18	11-SB19	11-SB24	11-SB24	11-SB25
Sample ID	11GW11	11GW12	11GW13	11GW16	11GW16D	11GW18	11GW19	11GW24	11GW24D	11GW25
Sample Date	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97	09/22/97
2-sec-butyl-4,6-dinitrophenol	20 UJ	20 U	20 U	20 U	20 U	21 U	21 UJ	20 UJ	20 U	19 U
3,3'-Dichlorobenzidine	20 U	20 UJ	20 UJ	20 UJ	20 UJ	21 U	21 U	20 U	20 U	19 U
3,3'-Dimethylbenzidine	50 R	50 U	49 U	51 U	50 U	52 U	53 R	50 R	49 U	48 U
3-Methylcholanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50 UJ	50 U	49 U	51 U	50 U	52 U	53 UJ	50 UJ	49 U	48 U
4,6-Dinitro-2-methylphenol	50 UJ	50 U	49 U	51 U	50 U	52 U	53 UJ	50 UJ	49 U	48 U
4-Aminobiphenyl	20 UJ	20 U	20 U	20 U	20 U	21 U	21 UJ	20 UJ	20 U	19 U
4-bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	20 U	20 U	20 U	20 U	20 U	21 U	21 U	20 U	20 U	19 U
4-Chloroaniline	20 UJ	20 U	20 U	20 U	20 U	21 U	21 UJ	20 UJ	20 U	19 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	50 UJ	49 UJ	51 UJ	50 UJ	52 U	53 U	50 U	49 U	48 U
4-Nitrophenol	50 U	50 U	49 U	51 U	50 U	52 U	53 U	50 U	49 U	48 U
4-Nitroquinoline-1-oxide	50 R	50 R	49 R	51 R	50 R	52 R	53 UJ	50 R	49 R	48 R
5-Nitro-o-toluidine	20 UJ	20 U	20 U	20 U	20 U	21 U	21 UJ	20 UJ	20 U	19 U
7,12-Dimethylbenz(a)anthracene	20 UJ	20 U	20 U	20 U	20 U	21 U	21 UJ	20 UJ	20 U	19 U
Acenaphthene	10 U	10 U	10 U	10 U	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	10 U	10 U	10 U	10 U
Acetophenone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
alpha, alpha-Dimethylphenethylamine	50 U	50 UJ	49 UJ	51 UJ	50 UJ	52 UJ	53 UJ	50 UJ	49 UJ	48 UJ
Aniline	50 U	50 U	49 U	51 U	50 U	52 U	53 U	50 U	49 U	48 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aramite	20 R	20 R	20 R	20 R	20 R	21 UJ	21 R	20 R	20 UJ	19 UJ
Benzidine	100 U	99 R	98 R	100 R	100 R	100 R	100 U	100 U	98 R	97 R
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES (ug/l) (cont.)										
Benzo(a)pyrene	10 U	10 U	10 U	10 U	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	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB11	11-SB12	11-SB13	11-SB16	11-SB16	11-SB18	11-SB19	11-SB24	11-SB24	11-SB25
Sample ID	11GW11	11GW12	11GW13	11GW16	11GW16D	11GW18	11GW19	11GW24	11GW24D	11GW25
Sample Date	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97	09/22/97
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50 UJ	50 U	49 U	51 U	50 U	52 U	25 J	50 UJ	49 U	48 U
Benzyl alcohol	10 U	10 U	10 U	10 U	10 U	10 U	3 J	10 U	10 U	10 U
Bis(2-chloroethoxy)methane	10 U	10 U	10 U	10 U	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	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10 U	120 U	10 U	24	45 U	25 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U
Chlorobenzilate	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diallate	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ
Dibenzo(a,h)anthracene	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10 U	12	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dimethylphthalate	10 U	2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U
Di-n-octylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diphenylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethyl methanesulfonate	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	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	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	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	10 U	10 U	10 U	10 U
SEMIVOLATILES (ug/l) (cont.)										
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 UJ	10 UJ
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorophene	100 UJ	99 UJ	98 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	98 UJ	97 UJ
Hexachloropropene	50 U	50 U	49 U	51 U	50 U	52 U	53 U	50 U	49 U	48 U
Indeno(1,2,3-cd)pyrene	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB11	11-SB12	11-SB13	11-SB16	11-SB16	11-SB18	11-SB19	11-SB24	11-SB24	11-SB25
Sample ID	11GW11	11GW12	11GW13	11GW16	11GW16D	11GW18	11GW19	11GW24	11GW24D	11GW25
Sample Date	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97	09/22/97
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isosafrole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ
m&p Cresol	10 U	10 U	10 U	10 U	10 U	10 U	7 J	10 U	10 U	10 U
m-Dinitrobenzene	20 UJ	20 U	20 U	20 U	20 U	21 U	21 UJ	20 UJ	20 U	19 U
Methapyrilene	25 UJ	25 U	24 U	26 U	25 U	26 U	26 UJ	25 UJ	24 U	24 U
Methyl methanesulfonate	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	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	10 U	10 U	10 U	10 U
N-Nitrosodiethylamine	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U
N-Nitrosodimethylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-butylamine	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosomethylethylamine	10 UJ	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
N-Nitrosomorpholine	20 U	20 U	20 U	20 U	20 U	21 U	21 U	20 U	20 U	19 U
N-Nitrosopiperidine	10 UJ	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
N-Nitrosopyrrolidine	50 U	50 UJ	49 UJ	51 UJ	50 UJ	52 U	53 U	50 U	49 U	48 U
o-Cresol	10 U	10 U	10 U	10 U	10 U	10 U	1 J	10 U	10 U	10 U
o-Toluidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
p-Dimethylaminoazobenzene	20 UJ	20 U	20 U	20 U	20 U	21 U	21 UJ	20 UJ	20 U	19 U
Pentachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES (ug/l) (cont.)										
Pentachloronitrobenzene	10 U	10 R	10 R	10 R	10 R	10 R	10 R	10 U	10 R	10 R
Pentachlorophenol	50 U	50 U	49 U	51 U	50 U	52 U	53 U	50 U	49 U	48 U
Phenacetin	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U
Phenanthrene	10 U	10 U	10 U	10 U	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	10 U	10 U	10 U	10 U
p-Phenylenediamine	20 R	20 R	20 R	20 R	20 R	21 R	21 R	20 R	20 R	19 R
Pronamide	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB11	11-SB12	11-SB13	11-SB16	11-SB16	11-SB18	11-SB19	11-SB24	11-SB24	11-SB25
Sample ID	11GW11	11GW12	11GW13	11GW16	11GW16D	11GW18	11GW19	11GW24	11GW24D	11GW25
Sample Date	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97	09/22/97
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1 J
Pyridine	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	21 U	21 UJ	20 UJ	20 U	19 U
Safrole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
sym-Trinitrobenzene	100 UJ	99 UJ	98 UJ	100 UJ	100 UJ	100 U	100 UJ	100 UJ	98 U	97 U

APPENDIX F.27 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
1996 AND 1997 RFI INVESTIGATIONS
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB11	11-SB12	11-SB13	11-SB16	11-SB16	11-SB18	11-SB19	11-SB24	11-SB24	11-SB25
Sample ID	11GW11	11GW12	11GW13	11GW16	11GW16D	11GW18	11GW19	11GW24	11GW24D	11GW25
Sample Date	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97	09/22/97
PCBs (ug/l)										
Aroclor-1016	0.5 U	0.49 U	0.5 U	0.48 U	0.5 U	0.48 U	0.5 U	0.53 U	0.49 U	0.48 U
Aroclor-1221	0.5 U	0.49 U	0.5 U	0.48 U	0.5 U	0.48 U	0.5 U	0.53 U	0.49 U	0.48 U
Aroclor-1232	0.5 U	0.49 U	0.5 U	0.48 U	0.5 U	0.48 U	0.5 U	0.53 U	0.49 U	0.48 U
Aroclor-1242	0.5 U	0.49 U	0.5 U	0.48 U	0.5 U	0.48 U	0.5 U	0.53 U	0.49 U	0.48 U
Aroclor-1248	0.5 U	0.49 U	0.5 U	0.48 U	0.5 U	0.48 U	0.5 U	0.53 U	0.49 U	0.48 U
Aroclor-1254	1 U	0.98 U	0.99 U	0.97 U	1 U	0.96 U	1 U	1 U	0.98 U	0.96 U
Aroclor-1260	1 U	0.98 U	0.99 U	0.97 U	1 U	0.96 U	1 U	1 U	0.98 U	0.96 U
TPH (ug/l)										
Diesel Range Organics	120 U	120 U	120 U	120 U	120 U	140	120 U	130 U	120 U	120 U
Gasoline Range Organics	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
TOC										
Total organic carbon (mg/l)	8100	6800	1000 U	43200	46200	72200	12900	9500	1000 U	1000 U

APPENDIX F.28
GROUNDWATER, INORGANICS, SWMU 45

APPENDIX F.28

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - INORGANICS (TOTAL)
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01	45MW02	45MW03	45MW04
Sample ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01D	45MW02	45MW03	45MW04
Sample Date	11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96	11/25/96
RCRA Metals (ug/l)									
Arsenic, Total	103	96.8	16 U	8 U	13.4 J	1.6 UJ	39.2 J	14.5 J	11.3 J
Barium, Total	113	197	282	155	483	382	470	173	220
Cadmium, Total	6.4	6.2	2.5	2.3	5.4 J	2.4 J	6.6 J	3.5 J	27.8
Chromium, Total	136	127	175	84.2	182	127	104	61.7	39.8
Lead, Total	16.2	30	9	2.6	22.8	18.7	29.7	12.1	4 J
Mercury, Total	0.23	0.24	0.1 U	0.1 U	0.1 U	0.1 U	0.11	0.1 U	0.1 U
Selenium, Total	18 UJ	18 UJ	18 UJ	9 UJ	9 R	9 R	9 R	9 R	9 R
Silver, Total	1.8 U	1.8 U	1.8 U	1.8 U	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ

APPENDIX F.28 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - INORGANICS (TOTAL)
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10	11-SB11	11-SB12	11-SB13	11-SB16	11-SB16	11-SB18	11-SB19	11-SB24	11-SB24	11-SB25
Sample ID	11GW01	11GW02	11GW05	11GW07	11GW08	11GW10	11GW11	11GW12	11GW13	11GW16	11GW16D	11GW18	11GW19	11GW24	11GW24D	11GW25
Sample Date	09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97	09/22/97
Inorganics, Total (ug/l)																
Antimony	2.3 J	3.3 J	1.9 U	2.7 J	2.2 J	3.7 J	2 J	1.9 U	1.9 U	1.9 U	3.1 J	1.9 U	2.4 J	3.1 J	2 J	2.8 J
Arsenic	1.3 U	8.3 J	1.7 J	9.5 J	15.2	16.5 J	5 J	6.5 UJ	6.5 UJ	6.5 U	1.3 UJ	3.5 J	18.9	2.8 J	2.5 J	4.4 J
Barium	43.7 J	19.2 J	60.9 J	15 J	91.3 J	10.8 J	52.4 J	71.4 J	118 J	10.4 J	6.1 J	8.8 J	391	25.6 J	23.1 J	34.6 J
Beryllium	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Cadmium	0.4 U	0.4 U	0.4 U	0.4 U	0.54 J	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Chromium	1.5 J	24.1	0.7 J	11.7	14.3	4.7 J	7.1 J	0.7 U	0.7 U	27	15.9	6.4 J	10	1.2 J	0.7 U	0.87 J
Cobalt	0.7 U	4.6 J	0.7 U	1.2 J	1.8 J	0.7 U	1.3 J	4.8 J	0.7 U	3.7 J	1.3 J	0.7 U	3.5 J	0.7 U	0.7 U	0.7 U
Copper	4.2 J	49.2	1.1 J	11.5 J	14 J	1.8 J	15.8 J	2.8 J	0.5 U	98.9 J	42.1 J	0.78 J	46.1	0.5 U	0.5 U	2.6 J
Lead	1 U	4.4 R	1 UJ	1.5 J	1 UJ	1.5 U	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Mercury	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.53	0.1 U	0.1 U	0.1 U	0.1 J	0.1 U	0.34	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	0.92 J	5.5 J	0.96 J	0.8 U	2.3 J	0.8 U	0.8 U	0.8 U	0.8 U	7.9 J	3 J	0.8 U	1.8 J	0.8 U	0.8 U	0.8 U
Selenium	1.8 UJ	2.2 U	36 UJ	9 UJ	9 UJ	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Silver	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Thallium	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Tin	1.8 U	1.8 U	1.8 U	1.8 U	2 J	1.8 U	2 J	1.8 U	1.8 U	1.8 U	1.8 U	2 J	1.8 U	1.8 U	1.8 U	2.1 J
Vanadium	20.7 J	39 J	10.1 J	19.2 J	40.6 J	10.2 J	16.6 J	2.3 J	0.8 U	67.8	46 J	11.6 J	27.3 J	1.7 J	0.8 U	2.6 J
Zinc	7.2 J	23.1	8.4 J	24.8	16 J	5.8 J	11.7 J	4.8 J	4.2 J	15.8 J	7 J	7.3 J	24	3.1 J	1.3 J	7.6 J

APPENDIX F.28 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - INORGANICS (DISSOLVED)
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01	45MW02	45MW03	45MW04
Sample ID	45HP01	45HP02	45HP03	45HP04	45MW01	45MW01D	45MW02	45MW03	45MW04
Sample Date	11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96	11/25/96
RCRA Metals (ug/l)									
Arsenic, Soluble	16.1 J	4.3	1.6 U	1.6 U	2.5 J	2 J	2.9 J	1.6 UJ	1.6 UJ
Barium, Soluble	19.2	4.9	7.8	3.7	50.6	50.7	101	49.6	162
Cadmium, Solunle	5.6	2.1 U	2.1 U	2.4	2.1 U	2.1 U	2.1 U	2.1 U	5 J
Chromium, Soluble	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Lead, Soluble	0.7 UJ	0.7 U	0.7 U	0.7 U	1.6	1.3 U	1.3 U	1.3 U	1.3 UJ
Mercury, Soluble	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Selenium, Soluble	18 U	9 U	9 UJ	9 U	1.8 R	1.8 R	1.8 R	1.8 R	1.8 R
Silver, Soluble	1.8 U	1.8 U	1.8 U	1.8 U	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ

APPENDIX F.28 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - INORGANICS (DISSOLVED)
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10	11-SB11	11-SB12	11-SB13	11-SB16	11-SB16	11-SB18	11-SB19	11-SB24	11-SB24	11-SB25
Sample ID	11GW01	11GW02	11GW05	11GW07	11GW08	11GW10	11GW11	11GW12	11GW13	11GW16	11GW16D	11GW18	11GW19	11GW24	11GW24D	11GW25
Sample Date	09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97	09/22/97
Inorganics, Dissolved (ug/l)																
Antimony	2.3 J	3.3 J	1.9 U	2.7 J	2.2 J	3.7 J	2 J	1.9 U	1.9 U	1.9 U	3.1 J	1.9 U	2.4 J	3.1 J	2 J	2.8 J
Arsenic	1.3 U	8.3 J	1.7 J	9.5 J	15.2	16.5 J	5 J	6.5 UJ	6.5 UJ	6.5 U	1.3 UJ	3.5 J	18.9	2.8 J	2.5 J	4.4 J
Barium	43.7 J	19.2 J	60.9 J	15 J	91.3 J	10.8 J	52.4 J	71.4 J	118 J	10.4 J	6.1 J	8.8 J	391	25.6 J	23.1 J	34.6 J
Beryllium	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Cadmium	0.4 U	0.4 U	0.4 U	0.4 U	0.54 J	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Chromium	1.5 J	24.1	0.7 J	11.7	14.3	4.7 J	7.1 J	0.7 U	0.7 U	27	15.9	6.4 J	10	1.2 J	0.7 U	0.87 J
Cobalt	0.7 U	4.6 J	0.7 U	1.2 J	1.8 J	0.7 U	1.3 J	4.8 J	0.7 U	3.7 J	1.3 J	0.7 U	3.5 J	0.7 U	0.7 U	0.7 U
Copper	4.2 J	49.2	1.1 J	11.5 J	14 J	1.8 J	15.8 J	2.8 J	0.5 U	98.9 J	42.1 J	0.78 J	46.1	0.5 U	0.5 U	2.6 J
Lead	1 U	4.4 R	1 UJ	1.5 J	1 UJ	1.5 U	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Mercury	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.53	0.1 U	0.1 U	0.1 U	0.1 J	0.1 U	0.34	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	0.92 J	5.5 J	0.96 J	0.8 U	2.3 J	0.8 U	0.8 U	0.8 U	0.8 U	7.9 J	3 J	0.8 U	1.8 J	0.8 U	0.8 U	0.8 U
Selenium	1.8 UJ	2.2 U	36 UJ	9 UJ	9 UJ	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Silver	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Thallium	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Tin	1.8 U	1.8 U	1.8 U	1.8 U	2 J	1.8 U	2 J	1.8 U	1.8 U	1.8 U	1.8 U	2 J	1.8 U	1.8 U	1.8 U	2.1 J
Vanadium	20.7 J	39 J	10.1 J	19.2 J	40.6 J	10.2 J	16.6 J	2.3 J	0.8 U	67.8	46 J	11.6 J	27.3 J	1.7 J	0.8 U	2.6 J
Zinc	7.2 J	23.1	8.4 J	24.8	16 J	5.8 J	11.7 J	4.8 J	4.2 J	15.8 J	7 J	7.3 J	24	3.1 J	1.3 J	7.6 J

APPENDIX F.29
SURFACE SOIL, ORGANICS, BACKGROUND

APPENDIX F.29 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01-00	BGMW02-00	BGMW03-00	BGMW04-00
Sample Date	04/04/96	04/04/96	04/04/96	04/04/96
Depth Range (ft.)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
VOLATILES (ug/kg)				
1,1,1,2-Tetrachloroethane	12 UJ	12 U	12 U	12 U
1,1,1-Trichloroethane	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	6 UJ	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	12 UJ	12 U	12 U	12 U
1,2-Dibromo-3-chloropropane	24 UJ	23 UJ	24 U	24 U
1,2-Dibromoethane	24 UJ	23 U	24 U	24 U
1,2-Dichloroethane	6 U	6 U	6 U	6 U
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	12 U	12 UJ	12 U	12 U
2-Chloro-1,3-butadiene	120 UJ	120 U	120 U	120 U
2-Hexanone	12 UJ	12 U	12 U	12 U
3-Chloropropene	24 UJ	23 U	24 U	24 U
4-Methyl-2-pentanone	12 U	12 U	12 U	12 U
Acetone	12 UJ	12 UJ	12 UJ	12 U
Acetonitrile	120 UJ	120 U	120 U	120 U
Acrolein	600 UJ	580 UJ	610 U	590 U
Acrylonitrile	120 UJ	120 U	120 U	120 U
Benzene	6 U	6 U	6 U	6 U
Bromodichloromethane	6 U	6 U	6 U	6 U
Bromoform	6 UJ	6 U	6 U	6 U
Bromomethane	12 U	12 U	12 U	12 U
Carbon disulfide	6 UJ	6 UJ	6 UJ	6 U
Carbon tetrachloride	6 U	6 U	6 U	6 U
Chlorobenzene	6 UJ	6 U	6 U	6 U
Chloroethane	12 U	12 U	12 U	12 U
Chloroform	6 U	6 U	6 U	6 U
Chloromethane	12 U	12 U	12 UJ	12 U
cis-1,3-Dichloropropene	6 U	6 UJ	6 U	6 U
VOLATILES (ug/kg) (cont.)				
Dibromochloromethane	6 UJ	6 U	6 U	6 U

APPENDIX F.29 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01-00	BGMW02-00	BGMW03-00	BGMW04-00
Sample Date	04/04/96	04/04/96	04/04/96	04/04/96
Depth Range (ft.)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Dibromomethane	12 UJ	12 U	12 U	12 U
Dichlorodifluoromethane	24 U	23 UJ	24 UJ	24 U
Ethyl methacrylate	24 UJ	23 U	24 U	24 U
Ethylbenzene	6 UJ	6 U	6 U	6 U
Iodomethane	12 UJ	12 UJ	12 U	12 U
Isobutanol	2,400 R	2,300 R	2,400 R	2,400 U
Methacrylonitrile	24 UJ	23 U	24 U	24 U
Methyl methacrylate	24 UJ	23 U	24 U	24 U
Methylene chloride	6 U	6 UJ	6 U	6 U
Pentachloroethane	24 UJ	23 U	24 U	24 U
Propionitrile	60 UJ	58 R	61 U	59 U
Styrene	6 UJ	6 U	6 U	6 U
Tetrachloroethene	6 U	6 U	6 UJ	6 U
Toluene	6 U	6 U	6 U	6 U
trans-1,3-Dichloropropene	6 U	6 UJ	6 U	6 U
trans-1,4-Dichloro-2-butene	24 UJ	23 U	24 U	24 U
Trichloroethene	6 U	6 U	6 U	6 U
Trichlorofluoromethane	12 UJ	12 U	12 UJ	12 U
Vinyl Acetate	12 UJ	12 UJ	12 UJ	12 U
Vinyl chloride	12 U	12 U	12 UJ	12 U
Xylene (total)	6 UJ	6 U	6 U	6 U
SEMIVOLATILES (ug/kg)				
1,2,4,5-Tetrachlorobenzene	390 U	380 U	400 U	380 U
1,2,4-Trichlorobenzene	390 U	380 U	400 U	380 U
1,2-Dichlorobenzene	390 U	380 U	400 U	380 U
1,2-Diphenylhydrazine	390 U	380 U	400 U	380 U
1,3-Dichlorobenzene	390 U	380 U	400 U	380 U
1,4-Dichlorobenzene	390 U	380 U	400 U	380 U
1,4-Dioxane	780 UJ	760 UJ	810 UJ	770 UJ
1,4-Naphthoquinone	2,000 UJ	1,900 UJ	2,000 UJ	1,900 UJ
1-Naphthylamine	390 U	380 U	810 U	380 U
SEMIVOLATILES (ug/kg) (cont.)				
2,2'-Oxybis(1-Chloropropane)	390 UJ	380 UJ	400 UJ	380 UJ
2,3,4,6-Tetrachlorophenol	390 UJ	380 UJ	400 UJ	380 UJ
2,4,5-Trichlorophenol	2,000 U	1,900 U	2,000 U	1,900 U

APPENDIX F.29 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01-00	BGMW02-00	BGMW03-00	BGMW04-00
Sample Date	04/04/96	04/04/96	04/04/96	04/04/96
Depth Range (ft.)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
2,4,6-Trichlorophenol	390 U	380 U	400 U	380 U
2,4-Dichlorophenol	390 U	380 U	400 U	380 U
2,4-Dimethylphenol	390 U	380 U	400 U	380 U
2,4-Dinitrophenol	2,000 UJ	1,900 U	2,000 U	1,900 UJ
2,4-Dinitrotoluene	390 U	380 U	400 U	380 U
2,6-Dichlorophenol	390 UJ	380 UJ	400 UJ	380 UJ
2,6-Dinitrotoluene	390 U	380 U	400 U	380 U
2-Acetylaminofluorene	780 U	760 U	810 U	770 U
2-Chloronaphthalene	390 U	380 U	400 U	380 U
2-Chlorophenol	390 U	380 U	400 U	380 U
2-Methylnaphthalene	390 UJ	380 UJ	400 UJ	380 UJ
2-Naphthylamine	390 UJ	380 UJ	1,000 UJ	380 UJ
2-Nitroaniline	2,000 U	1,900 UJ	2,000 UJ	1,900 U
2-Nitrophenol	390 U	380 U	400 U	380 U
2-Picoline	390 UJ	380 U	400 UJ	380 UJ
2-sec-butyl-4,6-dinitrophenol	780 UJ	760 UJ	810 UJ	770 UJ
3,3'-Dichlorobenzidine	780 U	760 U	810 U	770 U
3,3'-Dimethylbenzidine	780 U	760 UJ	2,000 U	770 U
3-Methylcholanthrene	390 U	380 U	400 U	380 U
3-Nitroaniline	2,000 U	1,900 U	2,000 U	1,900 U
4,6-Dinitro-2-methylphenol	2,000 U	1,900 U	2,000 U	1,900 U
4-Aminobiphenyl	390 U	760 U	810 U	770 U
4-Bromophenyl phenyl ether	390 U	380 U	400 U	380 U
4-Chloro-3-methylphenol	780 U	760 U	810 U	770 U
4-Chloroaniline	780 U	760 U	810 U	770 U
4-Chlorophenyl phenyl ether	390 U	380 U	400 U	380 U
4-Nitroaniline	2,000 U	1,900 U	2,000 U	1,900 U
4-Nitrophenol	2,000 U	1,900 UJ	2,000 UJ	1,900 U
4-Nitroquinoline-1-oxide				
SEMIVOLATILES (ug/kg) (cont.)				
5-Nitro-o-toluidine	780 U	760 U	810 U	770 U
7,12-Dimethylbenz(a)anthracene	780 U	760 U	810 U	770 U
Acenaphthene	390 U	380 U	400 U	380 U
Acenaphthylene	390 U	380 U	400 U	380 U
Acetophenone	390 UJ	380 U	400 UJ	380 UJ

APPENDIX F.29 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01-00	BGMW02-00	BGMW03-00	BGMW04-00
Sample Date	04/04/96	04/04/96	04/04/96	04/04/96
Depth Range (ft.)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
alpha, alpha-Dimethylphenethylamine	2,000 UJ	1,900 UJ	2,000 UJ	1,900 UJ
Aniline	2,000 UJ	1,900 UJ	2,000 UJ	1,900 UJ
Anthracene	390 U	380 U	400 U	380 U
Aramite	780 UJ	760 UJ	810 UJ	770 UJ
Benzidine	3,900 U	3,800 UJ	4,000 U	3,800 U
Benzo(a)anthracene	390 U	380 U	400 U	380 U
Benzo(a)pyrene	390 U	380 U	400 U	380 U
Benzo(b)fluoranthene	390 U	380 U	400 U	380 U
Benzo(g,h,i)perylene	390 U	380 U	400 U	380 U
Benzo(k)fluoranthene	390 U	380 U	400 U	380 U
Benzoic acid	2,000 U	1,900 U	2,000 U	1,900 U
Benzyl alcohol	390 U	380 UJ	400 UJ	380 U
Bis(2-chloroethoxy)methane	390 U	380 U	400 U	380 U
Bis(2-chloroethyl)ether	390 U	380 U	400 U	380 U
Bis(2-ethylhexyl)phthalate	92 J	380 U	400 U	380 U
Butylbenzylphthalate	62 J	380 U	400 U	380 U
Carbazole	390 U	380 U	400 U	380 U
Chlorobenzilate	390 UJ	380 UJ	400 UJ	380 UJ
Chrysene	390 U	380 U	400 U	380 U
Diallate	390 U	380 UJ	400 U	380 U
Dibenzo(a,h)anthracene	390 U	380 U	400 U	380 U
Dibenzofuran	390 U	380 U	400 U	380 U
Diethylphthalate	390 U	380 U	400 U	380 U
Dimethylphthalate	390 U	380 U	400 U	380 U
Di-n-butylphthalate	390 U	380 U	400 U	380 U
Di-n-octylphthalate	390 U	380 U	400 U	380 U
Diphenylamine	390 U	380 U	400 U	380 U
SEMIVOLATILES (ug/kg) (cont.)				
Ethyl methanesulfonate	390 U	380 U	400 U	380 U
Fluoranthene	46 J	380 U	400 U	380 U
Fluorene	390 U	380 U	400 U	380 U
Hexachlorobenzene	390 U	380 U	400 U	380 U
Hexachlorobutadiene	390 U	380 U	400 U	380 U
Hexachlorocyclopentadiene	390 U	380 U	400 U	380 U
Hexachloroethane	390 U	380 U	400 U	380 U

APPENDIX F.29 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01-00	BGMW02-00	BGMW03-00	BGMW04-00
Sample Date	04/04/96	04/04/96	04/04/96	04/04/96
Depth Range (ft.)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Hexachlorophene	3,900 UJ	3,800 UJ	4,000 R	3,800 UJ
Hexachloropropene	780 R	760 R	2,000 U	770 R
Indeno(1,2,3-cd)pyrene	390 U	380 U	400 U	380 U
Isophorone	390 U	380 U	400 U	380 U
Isosafrole	390 U	380 U	400 U	380 U
m&p Cresol	390 U	380 U	400 U	380 U
Meta-Dinitrobenzene	780 U	760 U	810 U	770 U
Methapyrilene	980 U	950 U	1,000 UJ	960 U
Methyl methanesulfonate	390 U	380 U	400 U	380 U
Naphthalene	390 U	380 U	400 U	380 U
Nitrobenzene	390 U	380 UJ	400 U	380 U
N-Nitrosodiethylamine	390 U	380 UJ	400 U	380 U
N-Nitrosodimethylamine	390 UJ	380 UJ	400 U	380 UJ
N-Nitroso-di-n-butylamine	390 UJ	380 U	400 U	380 UJ
N-Nitroso-di-n-propylamine	390 U	380 UJ	400 U	380 U
N-Nitrosodiphenylamine (1)	390 U	380 U	400 U	380 U
N-Nitrosomethylethylamine	390 UJ	380 UJ	400 U	380 UJ
N-Nitrosomorpholine	780 UJ	760 U	810 UJ	770 UJ
N-Nitrosopiperidine	390 U	380 UJ	400 U	380 U
N-Nitrosopyrrolidine	2,000 UJ	1,900 U	2,000 UJ	1,900 UJ
o-Cresol	390 U	380 U	400 U	380 U
o-Toluidine	390 R	380 R	400 R	380 R
p-Dimethylaminoazobenzene	780 U	760 U	810 UJ	770 U
Pentachlorobenzene	390 U	380 U	400 U	380 U
Pentachloronitrobenzene	390 U	380 U	400 U	380 U
SEMIVOLATILES (ug/kg) (cont.)				
Pentachlorophenol	2,000 U	1,900 U	2,000 U	1,900 U
Phenacetin	390 UJ	380 U	400 U	380 UJ
Phenanthrene	390 U	380 U	400 U	380 U
Phenol	390 U	380 U	400 U	380 U
p-Phenylenediamine	780 R	760 R	810 R	770 R
Pronamide	390 U	380 U	400 U	380 U
Pyrene	390 U	380 U	400 U	380 U
Pyridine	780 UJ	760 UJ	810 U	770 UJ
Safrole	390 U	380 UJ	400 U	380 U

APPENDIX F.29 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01-00	BGMW02-00	BGMW03-00	BGMW04-00
Sample Date	04/04/96	04/04/96	04/04/96	04/04/96
Depth Range (ft.)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
sym-Trinitrobenzene	3,900 U	3,800 U	4,000 UJ	3,800 U
PESTICIDES/PCBS (ug/kg)				
4,4'-DDD	19 U	9.2 U	9.6 U	19 U
4,4'-DDE	19 U	9.2 U	9.6 U	19 U
4,4'-DDT	19 U	9.2 U	9.6 U	19 U
Aldrin	9.3 U	4.6 U	4.8 U	9.4 U
alpha-BHC	9.3 U	4.6 U	4.8 U	9.4 U
alpha-Chlordane	93 U	46 U	48 U	94 U
beta-BHC	9.3 U	4.6 U	4.8 U	9.4 U
delta-BHC	9.3 U	4.6 U	4.8 U	9.4 U
Dieldrin	19 U	9.2 U	9.6 U	19 U
Endosulfan I	9.3 U	4.6 U	4.8 U	9.4 U
Endosulfan II	19 U	9.2 U	9.6 U	19 U
Endosulfan sulfate	19 U	9.2 U	9.6 U	19 U
Endrin	19 U	9.2 U	9.6 U	19 U
Endrin aldehyde	19 U	9.2 U	9.6 U	19 U
gamma-BHC (Lindane)	9.3 U	4.6 U	4.8 U	9.4 U
gamma-Chlordane	93 U	46 U	48 U	94 U
Heptachlor	9.3 U	4.6 U	4.8 U	9.4 U
Heptachlor epoxide	9.3 U	4.6 U	4.8 U	9.4 U
Isodrin	9.3 U	4.6 U	4.8 U	9.4 U
Kepone	19 U	9.2 U	9.6 U	19 U

APPENDIX F.29 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01-00	BGMW02-00	BGMW03-00	BGMW04-00
Sample Date	04/04/96	04/04/96	04/04/96	04/04/96
Depth Range (ft.)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
PESTICIDES/PCBS (ug/kg) (cont.)				
Methoxychlor	93 U	46 U	48 U	94 U
Toxaphene	190 U	92 U	96 U	190 U
Aroclor-1016	93 U	46 U	48 U	94 U
Aroclor-1221	93 U	46 U	48 U	94 U
Aroclor-1232	93 U	46 U	48 U	94 U
Aroclor-1242	93 U	46 U	48 U	94 U
Aroclor-1248	93 U	46 U	48 U	94 U
Aroclor-1254	190 U	92 U	96 U	190 U
Aroclor-1260	190 U	92 U	96 U	190 U
CHLORINATED HERBICIDES (ug/kg)				
2,4,5-T	39 U	39 U	40 U	39 U
2,4,5-TP (Silvex)	39 U	39 U	40 U	39 U
2,4-D	390 U	390 U	400 U	390 U
OP-PESTICIDES (ug/kg)				
Dimethoate	79 U	77 U	80 U	78 U
Disulfoton	79 U	77 U	80 U	78 U
Famphur	79 U	77 U	80 U	78 U
Methyl parathion	79 U	77 U	80 U	78 U
O,O,O-Triethylphosphorothioate	79 U	77 U	80 U	78 U
Parathion	79 U	77 U	80 U	78 U
Phorate	79 U	77 U	80 U	78 U
Sulfotepp	79 U	77 U	80 U	78 U
Thionazin	79 U	77 U	80 U	78 U
DIOXINS (ug/kg)				
2,3,7,8-TCDD	0.06 U	0.13 U	0.07 U	0.09 U
Total HxCDD	0.16 U	0.26 U	0.21 U	0.18 U
Total HxCDF	0.09 U	0.14 U	0.13 U	0.14 U
Total PeCDD	0.17 U	0.3 U	0.19 U	0.17 U
Total PeCDF	0.15 U	0.21 U	0.17 U	0.22 U
Total TCDD	0.08 U	0.13 U	0.1 U	0.11 U
Total TCDF	0.09 U	0.1 U	0.11 U	0.09 U

APPENDIX F.30
SURFACE SOIL, INORGANICS, BACKGROUND

APPENDIX F.30

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01-00	BGMW02-00	BGMW03-00	BGMW04-00
Sample Date	04/04/96	04/04/96	04/04/96	04/04/96
Depth Range (ft.)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Inorganics, Total (mg/kg)				
Antimony	2.4 UJ	2.2 UJ	2.3 UJ	2.3 UJ
Arsenic	1.2	0.35 J	1.5	1.8
Barium	169	94.1	35.6	63.7
Beryllium	0.36	0.1 U	0.28	0.21
Cadmium	0.28 U	0.26 U	0.27 U	0.27 U
Chromium	44.1 J	11 J	33.6 J	29.9 J
Cobalt	30.2	27	9.5	21.2
Copper	98.5	250	57	62.9
Lead	9.6	2.4	6.6	11.9
Mercury	0.06	0.04 U	0.07	0.07
Nickel	10.9	7.8	5.8	8.6
Selenium	0.56 J	0.13 UJ	1.2 J	1.1 J
Silver	0.39 U	0.35 U	0.37 U	0.37 U
Sulfide	29.2 U	28.8 U	29.2 U	26.7 U
Thallium	0.1 J	0.08 U	0.09 UJ	0.09 UJ
Tin	1.3 U	1.2 U	1.4	2.2
Vanadium	227	123	189	170
Zinc	106 J	66.2 J	34.2 J	43.9 J
Cyanide	0.47 U	0.57 U	0.46 U	0.56 U

APPENDIX F.31
SUBSURFACE SOIL, ORGANICS, BACKGROUND

APPENDIX F. 31 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS

Sample ID	BGMW01-04	BGMW01-06	BGMW02-05	BGMW02-08	BGMW03-03	BGMW03-04	BGMW03-04D	BGMW04-02	BGMW04-04
Sample Date	04/23/96	04/23/96	04/22/96	04/22/96	04/12/96	04/12/96	04/12/96	04/24/96	04/24/96
Depth Range (ft.)	8.0-10.0	12.0-14.0	10.0-12.0	16.0-18.0	6.0-8.0	8.0-10.0	8.0-10.0	4.0-6.0	8.0-10.0
VOLATILES (ug/kg)									
1,1,1,2-Tetrachloroethane	13 U	15 U	16 U	14 U	14 U	14 U	15 U	13 U	14 U
1,1,1-Trichloroethane	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
1,1,2,2-Tetrachloroethane	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
1,1,2-Trichloroethane	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
1,1-Dichloroethane	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
1,1-Dichloroethene	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
1,2,3-Trichloropropane	13 U	15 U	16 U	14 U	14 U	14 U	15 U	13 U	14 U
1,2-Dibromo-3-chloropropane	27 UJ	30 UJ	33 UJ	28 UJ	28 U	27 U	30 U	26 UJ	27 UJ
1,2-Dibromoethane	27 U	30 U	33 U	28 U	28 U	27 U	30 U	26 U	27 U
1,2-Dichloroethane	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
1,2-Dichloroethene (Total)	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
1,2-Dichloropropane	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
2-Butanone	13 UJ	15 UJ	16 UJ	14 UJ	14 UJ	14 UJ	15 UJ	13 UJ	14 U
2-Chloro-1,3-butadiene	130 U	150 U	160 U	140 U	140 U	140 U	150 U	130 U	140 U
2-Hexanone	13 U	15 U	16 U	14 U	14 UJ	14 UJ	15 UJ	13 U	14 U
3-Chloropropene	27 U	30 U	33 U	28 U	28 U	27 U	30 U	26 U	27 U
4-Methyl-2-pentanone	13 U	15 U	16 U	14 U	14 U	14 U	15 U	13 U	14 U
Acetone	13 UJ	15 UJ	16 UJ	14 UJ	14 UJ	14 UJ	15 UJ	13 UJ	14 U
Acetonitrile	130 U	150 U	160 U	140 U	140 U	140 U	150 U	130 U	140 U
Acrolein	670 UJ	740 UJ	820 UJ	710 UJ	690 U	680 U	760 U	640 UJ	680 UJ
Acrylonitrile	130 U	150 U	160 U	140 U	140 UJ	140 UJ	150 UJ	130 U	140 U
Benzene	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
Bromodichloromethane	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
Bromoform	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
Bromomethane	13 U	15 U	16 U	14 U	14 U	14 U	15 U	13 U	14 UJ
Carbon disulfide	7 U	7 U	8 U	7 U	7 UJ	7 UJ	8 UJ	6 U	7 U
Carbon tetrachloride	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
Chlorobenzene	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
Chloroethane	13 U	15 U	16 U	14 U	14 U	14 U	15 U	13 U	14 U
Chloroform	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
Chloromethane	13 U	15 U	16 U	14 U	14 UJ	14 UJ	15 UJ	13 U	14 U
cis-1,3-Dichloropropene	7 UJ	7 UJ	8 UJ	7 UJ	7 U	7 U	8 U	6 UJ	7 U
Dibromochloromethane	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
Dibromomethane	13 UJ	15 UJ	16 UJ	14 UJ	14 U	14 U	15 U	13 UJ	14 UJ

APPENDIX F. 31 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS

Sample ID	BGMW01-04	BGMW01-06	BGMW02-05	BGMW02-08	BGMW03-03	BGMW03-04	BGMW03-04D	BGMW04-02	BGMW04-04
Sample Date	04/23/96	04/23/96	04/22/96	04/22/96	04/12/96	04/12/96	04/12/96	04/24/96	04/24/96
Depth Range (ft.)	8.0-10.0	12.0-14.0	10.0-12.0	16.0-18.0	6.0-8.0	8.0-10.0	8.0-10.0	4.0-6.0	8.0-10.0
VOLATILES (ug/kg) (cont.)									
Dichlorodifluoromethane	27 UJ	30 UJ	33 UJ	28 UJ	28 UJ	27 UJ	30 UJ	26 UJ	27 UJ
Ethyl methacrylate	27 U	30 U	33 U	28 U	28 UJ	27 UJ	30 UJ	26 U	27 U
Ethylbenzene	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
Iodomethane	13 UJ	15 UJ	16 UJ	14 UJ	14 U	14 U	15 U	13 UJ	14 UJ
Isobutanol	2,700 R	3,000 R	3,300 R	2,800 R	2,800 R	2,700 R	3,000 R	2,600 R	2,700 R
Methacrylonitrile	27 U	30 U	33 U	28 U	28 U	27 U	30 U	26 U	27 U
Methyl methacrylate	27 U	30 U	33 U	28 U	28 U	27 U	30 U	26 U	27 U
Methylene chloride	7 UJ	7 UJ	8 UJ	7 UJ	7 UJ	7 UJ	8 UJ	6 UJ	7 UJ
Pentachloroethane	27 U	30 U	33 U	28 U	28 UJ	27 UJ	30 UJ	26 U	27 U
Propionitrile	67 U	74 U	82 U	71 U	69 R	68 R	76 R	64 U	68 R
Styrene	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
Tetrachloroethene	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
Toluene	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
trans-1,3-Dichloropropene	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
trans-1,4-Dichloro-2-butene	27 U	30 U	33 U	28 U	28 U	27 U	30 U	26 U	27 U
Trichloroethene	7 U	7 U	8 U	7 U	7 U	7 U	8 U	6 U	7 U
Trichlorofluoromethane	13 U	15 U	16 U	14 U	14 U	14 U	15 U	13 U	14 U
Vinyl Acetate	13 UJ	15 UJ	16 UJ	14 UJ	14 UJ	14 UJ	15 UJ	13 UJ	14 U
Vinyl chloride	13 U	15 U	16 U	14 U	14 U	14 U	15 U	13 U	14 U
Xylene (total)	2 J	3 J	8 U	7 U	7 U	2 J	8 U	6 U	7 U

APPENDIX F. 31 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS

Sample ID	BGMW01-04	BGMW01-06	BGMW02-05	BGMW02-08	BGMW03-03	BGMW03-04	BGMW03-04D	BGMW04-02	BGMW04-04
Sample Date	04/23/96	04/23/96	04/22/96	04/22/96	04/12/96	04/12/96	04/12/96	04/24/96	04/24/96
Depth Range (ft.)	8.0-10.0	12.0-14.0	10.0-12.0	16.0-18.0	6.0-8.0	8.0-10.0	8.0-10.0	4.0-6.0	8.0-10.0
SEMIVOLATILES (ug/kg)									
1,2,4,5-Tetrachlorobenzene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
1,2,4-Trichlorobenzene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
1,2-Dichlorobenzene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
1,2-Diphenylhydrazine	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
1,3-Dichlorobenzene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
1,4-Dichlorobenzene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
1,4-Dioxane	880 R	980 R	1,100 R	940 R	910 U	880 U	970 U	840 R	850 R
1,4-Naphthoquinone	2,200 UJ	2,400 UJ	2,700 UJ	2,300 UJ	2,300 UJ	2,200 UJ	2,400 UJ	2,100 UJ	2,100 UJ
1-Naphthylamine	880 U	980 U	1,100 U	940 U	910 U	880 U	970 U	840 U	850 U
2,2'-Oxybis(1-Chloropropane)	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
2,3,4,6-Tetrachlorophenol	440 UJ	490 UJ	540 UJ	470 UJ	460 U	440 U	490 U	420 UJ	420 UJ
2,4,5-Trichlorophenol	2,200 U	2,400 U	2,700 U	2,300 U	2,300 U	2,200 U	2,400 U	2,100 U	2,100 U
2,4,6-Trichlorophenol	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
2,4-Dichlorophenol	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
2,4-Dimethylphenol	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
2,4-Dinitrophenol	2,200 U	2,400 U	2,700 U	2,300 U	2,300 U	2,200 U	2,400 U	2,100 U	2,100 U
2,4-Dinitrotoluene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
2,6-Dichlorophenol	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
2,6-Dinitrotoluene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
2-Acetylaminofluorene	880 U	980 U	1,100 U	940 U	910 U	880 U	970 U	840 U	850 U
2-Chloronaphthalene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
2-Chlorophenol	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
2-Methylnaphthalene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
2-Naphthylamine	1,100 U	1,200 U	1,300 U	1,200 U	1,100 U	1,100 U	1,200 U	1,000 U	1,000 U
2-Nitroaniline	2,200 U	2,400 U	2,700 U	2,300 U	2,300 U	2,200 U	2,400 U	2,100 U	2,100 U
2-Nitrophenol	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
2-Picoline	440 UJ	490 UJ	540 UJ	470 UJ	460 U	440 U	490 U	420 UJ	420 UJ
2-sec-butyl-4,6-dinitrophenol	880 UJ	980 UJ	1,100 UJ	940 UJ	910 U	880 U	970 U	840 UJ	850 UJ
3,3'-Dichlorobenzidine	880 U	980 U	1,100 U	940 U	910 U	880 U	970 U	840 U	850 U
3,3'-Dimethylbenzidine	2,200 U	2,400 U	2,700 U	2,300 U	2,300 R	2,200 R	2,400 R	2,100 U	2,100 U
3-Methylcholanthrene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
3-Nitroaniline	2,200 U	2,400 U	2,700 U	2,300 U	2,300 U	2,200 U	2,400 U	2,100 U	2,100 U
4,6-Dinitro-2-methylphenol	2,200 U	2,400 U	2,700 U	2,300 U	2,300 U	2,200 U	2,400 U	2,100 U	2,100 U
4-Aminobiphenyl	880 U	980 U	1,100 U	940 U	910 U	880 U	970 U	840 U	850 U

APPENDIX F. 31 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS

Sample ID	BGMW01-04	BGMW01-06	BGMW02-05	BGMW02-08	BGMW03-03	BGMW03-04	BGMW03-04D	BGMW04-02	BGMW04-04
Sample Date	04/23/96	04/23/96	04/22/96	04/22/96	04/12/96	04/12/96	04/12/96	04/24/96	04/24/96
Depth Range (ft.)	8.0-10.0	12.0-14.0	10.0-12.0	16.0-18.0	6.0-8.0	8.0-10.0	8.0-10.0	4.0-6.0	8.0-10.0
SEMIVOLATILES (ug/kg) (cont.)									
4-Bromophenyl phenyl ether	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
4-Chloro-3-methylphenol	880 U	980 U	1,100 U	940 U	910 U	880 U	970 U	840 U	850 U
4-Chloroaniline	880 U	980 U	1,100 U	940 U	910 U	880 U	970 U	840 U	850 U
4-Chlorophenyl phenyl ether	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
4-Nitroaniline	2,200 U	2,400 U	2,700 U	2,300 U	2,300 U	2,200 U	2,400 U	2,100 U	2,100 U
4-Nitrophenol	2,200 UJ	2,400 UJ	2,700 UJ	2,300 UJ	2,300 U	2,200 U	2,400 U	2,100 UJ	2,100 UJ
4-Nitroquinoline-1-oxide	2,200 R	2,400 R	2,700 R	2,300 R	2,300 R	2,200 R	2,400 R	2,100 R	2,100 R
5-Nitro-o-toluidine	880 U	980 U	1,100 U	940 U	910 U	880 U	970 U	840 U	850 U
7,12-Dimethylbenz(a)anthracene	880 U	980 U	1,100 U	940 U	910 U	880 U	970 U	840 U	850 U
Acenaphthene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Acenaphthylene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Acetophenone	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
alpha, alpha-Dimethylphenethylamine	2,200 UJ	2,400 UJ	2,700 UJ	2,300 UJ	2,300 UJ	2,200 UJ	2,400 UJ	2,100 UJ	2,100 UJ
Aniline	2,200 U	2,400 U	2,700 U	2,300 U	2,300 U	2,200 U	2,400 U	2,100 U	2,100 U
Anthracene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Aramite	880 UJ	980 UJ	1,100 UJ	940 UJ	910 U	880 U	970 U	840 UJ	850 UJ
Benzidine	4,400 U	4,900 U	5,400 U	4,700 U	4,600 UJ	4,400 UJ	4,900 UJ	4,200 U	4,200 U
Benzo(a)anthracene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Benzo(a)pyrene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Benzo(b)fluoranthene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Benzo(g,h,i)perylene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Benzo(k)fluoranthene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Benzoic acid	2,200 U	2,400 U	2,700 U	2,300 U	2,300 U	2,200 U	2,400 U	2,100 U	2,100 U
Benzyl alcohol	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Bis(2-chloroethoxy)methane	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Bis(2-chloroethyl)ether	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Bis(2-ethylhexyl)phthalate	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Butylbenzylphthalate	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Carbazole	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Chlorobenzilate	440 UJ	490 UJ	540 UJ	470 UJ	460 U	440 U	490 U	420 UJ	420 UJ
Chrysene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Cresols									
Diallate	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Dibenzo(a,h)anthracene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U

APPENDIX F. 31 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS

Sample ID	BGMW01-04	BGMW01-06	BGMW02-05	BGMW02-08	BGMW03-03	BGMW03-04	BGMW03-04D	BGMW04-02	BGMW04-04
Sample Date	04/23/96	04/23/96	04/22/96	04/22/96	04/12/96	04/12/96	04/12/96	04/24/96	04/24/96
Depth Range (ft.)	8.0-10.0	12.0-14.0	10.0-12.0	16.0-18.0	6.0-8.0	8.0-10.0	8.0-10.0	4.0-6.0	8.0-10.0
SEMIVOLATILES (ug/kg) (cont.)									
Dibenzofuran	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Diethylphthalate	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Dimethylphthalate	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Di-n-butylphthalate	440 U	490 U	320 J	470 U	460 U	440 U	490 U	420 U	420 U
Di-n-octylphthalate	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Diphenylamine	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Ethyl methanesulfonate	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Fluoranthene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Fluorene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Hexachlorobenzene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Hexachlorobutadiene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Hexachlorocyclopentadiene	440 U	490 U	540 U	470 U	460 UJ	440 UJ	490 UJ	420 U	420 U
Hexachloroethane	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Hexachlorophene	4,400 R	4,900 R	5,400 R	4,700 R	4,600 U	4,400 U	4,900 U	4,200 R	4,200 R
Hexachloropropene	2,200 U	2,400 U	2,700 U	2,300 U	2,300 U	2,200 U	2,400 U	2,100 U	2,100 U
Indeno(1,2,3-cd)pyrene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Isophorone	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Isosafrole	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
m&p Cresol	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Meta-Dinitrobenzene	880 U	980 U	1,100 U	940 U	910 U	880 U	970 U	840 U	850 U
Methapyrilene	1,100 UJ	1,200 UJ	1,300 UJ	1,200 UJ	1,100 U	1,100 U	1,200 U	1,000 UJ	1,000 UJ
Methyl methanesulfonate	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Naphthalene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Nitrobenzene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
N-Nitrosodiethylamine	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
N-Nitrosodimethylamine	440 UJ	490 UJ	540 UJ	470 UJ	460 U	440 U	490 U	420 UJ	420 UJ
N-Nitroso-di-n-butylamine	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
N-Nitroso-di-n-propylamine	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
N-Nitrosodiphenylamine (1)	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
N-Nitrosomethylethylamine	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
N-Nitrosomorpholine	880 U	980 U	1,100 U	940 U	910 U	880 U	970 U	840 U	850 U
N-Nitrosopiperidine	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
N-Nitrosopyrrolidine	2,200 U	2,400 U	2,700 U	2,300 U	2,300 U	2,200 U	2,400 U	2,100 U	2,100 U
o-Cresol	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U

APPENDIX F. 31 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS

Sample ID	BGMW01-04	BGMW01-06	BGMW02-05	BGMW02-08	BGMW03-03	BGMW03-04	BGMW03-04D	BGMW04-02	BGMW04-04
Sample Date	04/23/96	04/23/96	04/22/96	04/22/96	04/12/96	04/12/96	04/12/96	04/24/96	04/24/96
Depth Range (ft.)	8.0-10.0	12.0-14.0	10.0-12.0	16.0-18.0	6.0-8.0	8.0-10.0	8.0-10.0	4.0-6.0	8.0-10.0
SEMIVOLATILES (ug/kg) (cont.)									
o-Toluidine	440 R	490 R	540 R	470 R	460 U	440 U	490 U	420 R	420 R
p-Dimethylaminoazobenzene	880 UJ	980 UJ	1,100 UJ	940 UJ	910 U	880 U	970 U	840 UJ	850 UJ
Pentachlorobenzene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Pentachloronitrobenzene	440 U	490 U	540 U	470 U	460 R	440 R	490 R	420 U	420 U
Pentachlorophenol	2,200 U	2,400 U	2,700 U	2,300 U	2,300 U	2,200 U	2,400 U	2,100 U	2,100 U
Phenacetin	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Phenanthrene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Phenol	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
p-Phenylenediamine	880 R	980 R	1,100 R	940 R	910 UJ	880 UJ	970 UJ	840 R	850 R
Pronamide	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Pyrene	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
Pyridine	880 U	980 U	1,100 U	940 U	910 U	880 U	970 U	840 U	850 U
Safrole	440 U	490 U	540 U	470 U	460 U	440 U	490 U	420 U	420 U
sym-Trinitrobenzene	4,400 U	4,900 U	5,400 U	4,700 U	4,600 U	4,400 U	4,900 U	4,200 U	4,200 U

APPENDIX F. 31 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS

Sample ID	BGMW01-04	BGMW01-06	BGMW02-05	BGMW02-08	BGMW03-03	BGMW03-04	BGMW03-04D	BGMW04-02	BGMW04-04
Sample Date	04/23/96	04/23/96	04/22/96	04/22/96	04/12/96	04/12/96	04/12/96	04/24/96	04/24/96
Depth Range (ft.)	8.0-10.0	12.0-14.0	10.0-12.0	16.0-18.0	6.0-8.0	8.0-10.0	8.0-10.0	4.0-6.0	8.0-10.0
PESTICIDES/PCBS (ug/kg)									
4,4'-DDD	10 U	12 U	13 U	11 U	11 U	11 U	12 U	10 U	10 U
4,4'-DDE	10 U	12 U	13 U	11 U	11 U	11 U	12 U	10 U	10 U
4,4'-DDT	10 U	12 U	13 U	11 U	11 U	11 U	12 U	10 U	10 U
Aldrin	5.3 U	5.8 U	6.4 U	5.6 U	5.4 U	5.5 U	6 U	5 U	5.3 U
alpha-BHC	5.3 U	5.8 U	6.4 U	5.6 U	5.4 U	5.5 U	6 U	5 U	5.3 U
alpha-Chlordane	53 U	58 U	64 U	56 U	54 U	55 U	60 U	50 U	53 U
beta-BHC	5.3 U	5.8 U	6.4 U	5.6 U	5.4 U	5.5 U	6 U	5 U	5.3 U
delta-BHC	5.3 U	5.8 U	6.4 U	5.6 U	5.4 U	5.5 U	6 U	5 U	5.3 U
Dieldrin	10 U	12 U	13 U	11 U	11 U	11 U	12 U	10 U	10 U
Endosulfan I	5.3 U	5.8 U	6.4 U	5.6 U	5.4 U	5.5 U	6 U	5 U	5.3 U
Endosulfan II	10 U	12 U	13 U	11 U	11 U	11 U	12 U	10 U	10 U
Endosulfan sulfate	10 U	12 U	13 U	11 U	11 U	11 U	12 U	10 U	10 U
Endrin	10 U	12 U	13 U	11 U	11 U	11 U	12 U	10 U	10 U
Endrin aldehyde	10 U	12 U	13 U	11 U	11 U	11 U	12 U	10 U	10 U
gamma-BHC (Lindane)	5.3 U	5.8 U	6.4 U	5.6 U	5.4 U	5.5 U	6 U	5 U	5.3 U
gamma-Chlordane	53 U	58 U	64 U	56 U	54 U	55 U	60 U	50 U	53 U
Heptachlor	5.3 U	5.8 U	6.4 U	5.6 U	5.4 U	5.5 U	6 U	5 U	5.3 U
Heptachlor epoxide	5.3 U	5.8 U	6.4 U	5.6 U	5.4 U	5.5 U	6 U	5 U	5.3 U
Isodrin	5.3 U	5.8 U	6.4 U	5.6 U	5.4 U	5.5 U	6 U	5 U	5.3 U
Kepone	10 U	12 U	13 U	11 U	11 UJ	11 UJ	12 UJ	10 U	10 U
Methoxychlor	53 U	58 U	64 U	56 U	54 U	55 U	60 U	50 U	53 U
Toxaphene	100 U	120 U	130 U	110 U	110 U	110 U	120 U	100 U	100 U
Aroclor-1016	53 U	58 U	64 U	56 U	54 U	55 U	60 U	50 U	53 U
Aroclor-1221	53 U	58 U	64 U	56 U	54 U	55 U	60 U	50 U	53 U
Aroclor-1232	53 U	58 U	64 U	56 U	54 U	55 U	60 U	50 U	53 U
Aroclor-1242	53 U	58 U	64 U	56 U	54 U	55 U	60 U	50 U	53 U
Aroclor-1248	53 U	58 U	64 U	56 U	54 U	55 U	60 U	50 U	53 U
Aroclor-1254	100 U	120 U	130 U	110 U	110 U	110 U	120 U	100 U	100 U
Aroclor-1260	100 U	120 U	130 U	110 U	110 U	110 U	120 U	100 U	100 U

APPENDIX F. 31 (cont.)

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS

Sample ID	BGMW01-04	BGMW01-06	BGMW02-05	BGMW02-08	BGMW03-03	BGMW03-04	BGMW03-04D	BGMW04-02	BGMW04-04
Sample Date	04/23/96	04/23/96	04/22/96	04/22/96	04/12/96	04/12/96	04/12/96	04/24/96	04/24/96
Depth Range (ft.)	8.0-10.0	12.0-14.0	10.0-12.0	16.0-18.0	6.0-8.0	8.0-10.0	8.0-10.0	4.0-6.0	8.0-10.0
HERBICIDES (ug/kg)									
2,4,5-TP (Silvex)	44 U	48 U	53 U	47 U	46 U	45 U	50 U	42 U	45 U
2,4,5-T	44 U	27 J	53 U	47 U	46 U	45 U	50 U	42 U	45 U
2,4-D	440 U	480 U	530 U	470 U	460 U	450 U	500 U	420 U	450 U
O-PEST (ug/kg)									
O,O,O-Triethylphosphorothioate	89 U	98 U	110 U	93 U	92 U	91 U	99 U	84 U	90 U
Phorate	89 U	98 U	110 U	93 U	92 U	91 U	99 U	84 U	90 U
Thionazin	89 U	98 U	110 U	93 U	92 U	91 U	99 U	84 U	90 U
Disulfoton	89 U	98 U	110 U	93 U	92 U	91 U	99 U	84 U	90 U
Sulfotepp	89 U	98 U	110 U	93 U	92 U	91 U	99 U	84 U	90 U
Dimethoate	89 U	98 U	110 U	93 U	92 U	91 U	99 U	84 U	90 U
Methyl parathion	89 U	98 U	110 U	93 U	92 U	91 U	99 U	84 U	90 U
Parathion	89 U	98 U	110 U	93 U	92 U	91 U	99 U	84 U	90 U
Famphur	89 U	98 U	110 U	93 U	92 U	91 U	99 U	84 U	90 U
DIOXINS (ug/kg)									
2,3,7,8-TCDD	0.11 U	0.11 U	0.13 U	0.1 U	0.22 U	0.26 U	0.24 U	0.38 U	0.24 U
Total TCDF	0.1 U	0.14 U	0.17 U	0.1 U	0.22 U	0.21 U	0.32 U	0.32 U	0.34 U
Total PeCDF	0.16 U	0.2 U	0.21 U	0.15 U	0.26 U	0.33 U	0.33 U	0.48 U	0.39 U
Total HxCDD	0.14 U	0.23 U	0.3 U	0.13 U	0.31 J	0.26 U	0.38 U	0.35 U	0.42 U
Total PeCDD	0.16 U	0.28 U	0.29 U	0.22 U	0.32 U	0.39 U	0.38 U	0.47 U	0.47 U
Total TCDD	0.11 U	0.11 U	0.13 U	0.1 U	0.22 U	0.26 U	0.24 U	0.38 U	0.24 U
Total HxCDF	0.12 U	0.19 U	0.16 U	0.09 U	0.25 U	0.29 U	0.26 U	0.34 U	0.39 U

APPENDIX F.32
SUBSURFACE SOIL, INORGANICS, BACKGROUND

APPENDIX F. 32

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01-04	BGMW01-06	BGMW02-05	BGMW02-08	BGMW03-03	BGMW03-04	BGMW03-04D	BGMW04-02	BGMW04-04
Sample Date	04/23/96	04/23/96	04/22/96	04/22/96	04/12/96	04/12/96	04/12/96	04/24/96	04/24/96
Depth Range (ft.)	8.0-10.0	12.0-14.0	10.0-12.0	16.0-18.0	6.0-8.0	8.0-10.0	8.0-10.0	4.0-6.0	8.0-10.0
Inorganics, Total (mg/kg)									
Antimony	2.6 R	3 R	3.4 R	2.8 R	2.8 UJ	2.8 UJ	3 UJ	2.6 R	2.7 R
Arsenic	1.7	0.22 UJ	0.71 J	1	2.4 J	0.76 J	0.94 J	0.72	0.79
Barium	13 J	243 J	178 J	178 J	9.7	3.5	10	246 J	17.3 J
Beryllium	0.29	0.7	0.37	0.74	0.15	0.25	0.26	0.33	0.13
Cadmium	0.46	0.44	0.4 U	0.62	0.33 UJ	0.33 UJ	0.36 UJ	0.48	0.43
Chromium	101 J	84.1 J	148 J	29.1 J	58.9 R	63.6 R	45.9 R	34.7 J	10.9 J
Cobalt	3.7	14	15.7	42.4	2	4.3	3.8	33.8	4.1
Copper	65.3	120	144	131	72.9 R	94.5 R	90.1 R	107	37.6
Lead	4.8	4.9	3.3	2.6	4.1 J	3.4 J	2.4 J	5	6.6
Mercury	0.05 U	0.06 U	0.06 U	0.05 U	0.06 UJ	0.17 J	0.25 J	0.06 U	0.06 U
Nickel	7.2	39.9	35.6	23	3.7	5.8	5.7	10.2	2.2
Selenium	0.22 J	0.17 UJ	0.19 UJ	0.16 UJ	1.2 J	0.3 UJ	0.32 UJ	0.37 J	0.16 UJ
Silver	0.42 U	0.48 U	0.55 U	0.46 U	0.46 U	0.45 U	0.9	0.42 U	0.43 U
Sulfide	30.4 U	32.7 U	36.1 U	33.6 U	33.1 U	33.9 U	37.8 U	28.3 U	32.5 U
Thallium	0.59 UJ	0.13 UJ	0.15 UJ	0.13 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.12 UJ	0.12 UJ
Tin	1.4 UJ	3.1 J	1.9 UJ	3.4 J	1.5 UJ	1.5 UJ	1.7 UJ	1.4 UJ	1.5 J
Vanadium	206	256	373	232	204	260	236	234	83.9
Zinc	24.1 J	64.6 J	55.7 J	98.5 J	14 J	23 J	20.1 J	56.2 J	18.4 J
Cyanide	0.57 U	0.7 U	0.76 U	0.69 U	0.46 U	0.61 U	0.69 U	0.59 U	0.64 U

APPENDIX F.33
GROUNDWATER, ORGANICS, BACKGROUND

APPENDIX F. 33 (cont.)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01	BGMW02	BGMW03	BGMW04
Sample Date	04/27/96	04/27/96	04/16/96	04/27/96
VOLATILES (ug/l)				
1,1,1,2-Tetrachloroethane	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 UJ	5 UJ	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
1,2,3-Trichloropropane	10 UJ	10 UJ	10 U	10 U
1,2-Dibromo-3-chloropropane	20 UJ	20 UJ	20 U	20 U
1,2-Dibromoethane	20 UJ	20 UJ	20 U	20 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U
1,2-Dichloroethene (Total)	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U
2-Butanone	10 UJ	10 UJ	10 U	10 U
2-Chloro-1,3-butadiene	100 U	100 U	100 U	100 U
2-Hexanone	10 UJ	10 UJ	10 U	10 U
3-Chloropropene	20 U	20 U	20 U	20 U
4-Methyl-2-pentanone	10 UJ	10 UJ	10 U	10 U
Acetone	10 UJ	10 UJ	10 U	10 UJ
Acetonitrile	100 UJ	100 UJ	100 U	100 U
Acrolein	500 UJ	500 UJ	500 U	500 U
Acrylonitrile	100 UJ	100 UJ	100 U	100 UJ
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 UJ
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-1,3-Dichloropropene	5 U	5 U	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U	5 U
Dibromomethane	10 U	10 U	10 U	10 U

APPENDIX F. 33 (cont.)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01	BGMW02	BGMW03	BGMW04
Sample Date	04/27/96	04/27/96	04/16/96	04/27/96
VOLATILES (ug/l) (cont.)				
Dichlorodifluoromethane	20 U	20 U	20 UJ	20 U
Ethyl methacrylate	20 UJ	20 UJ	20 U	20 UJ
Ethylbenzene	5 U	5 U	5 U	5 U
Iodomethane	10 U	10 U	10 U	10 U
Isobutanol	2,000 R	2,000 R	2,000 R	2,000 R
Methacrylonitrile	20 UJ	20 UJ	20 U	20 U
Methyl methacrylate	20 UJ	20 UJ	20 U	20 U
Methylene chloride	5 U	5 U	5 U	5 U
Pentachloroethane	20 U	20 U	20 U	20 U
Propionitrile	50 R	50 R	50 R	50 R
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-1,3-Dichloropropene	5 U	5 U	5 U	5 U
trans-1,4-Dichloro-2-butene	20 UJ	20 UJ	20 U	20 U
Trichloroethene	5 U	5 U	5 U	5 U
Trichlorofluoromethane	10 UJ	10 UJ	10 U	10 U
Vinyl Acetate	10 UJ	10 UJ	10 UJ	10 UJ
Vinyl chloride	10 U	10 U	10 U	10 U
Xylene (total)	5 U	5 U	5 U	5 U

APPENDIX F. 33 (cont.)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01	BGMW02	BGMW03	BGMW04
Sample Date	04/27/96	04/27/96	04/16/96	04/27/96
SEMIVOLATILES (ug/l)				
1,2,4,5-Tetrachlorobenzene	11 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	11 U	10 U	10 U	10 U
1,2-Dichlorobenzene	11 U	10 U	10 U	10 U
1,2-Diphenylhydrazine	11 U	10 U	10 U	10 U
1,3-Dichlorobenzene	11 U	10 U	10 U	10 U
1,4-Dichlorobenzene	11 U	10 U	10 U	10 U
1,4-Dioxane	22 R	21 R	21 U	19 UJ
1,4-Naphthoquinone	54 UJ	53 UJ	52 UJ	48 UJ
1-Naphthylamine	22 U	21 U	21 U	10 U
2,2'-Oxybis(1-Chloropropane)	11 U	10 U	10 U	10 U
2,3,4,6-Tetrachlorophenol	11 U	10 U	10 U	10 UJ
2,4,5-Trichlorophenol	54 U	53 U	52 U	48 U
2,4,6-Trichlorophenol	11 U	10 U	10 U	10 U
2,4-Dichlorophenol	11 U	10 U	10 U	10 U
2,4-Dimethylphenol	11 U	10 U	10 U	10 U
2,4-Dinitrophenol	54 U	53 U	52 R	48 U
2,4-Dinitrotoluene	11 U	10 U	10 U	10 UJ
2,6-Dichlorophenol	11 U	10 U	10 U	10 U
2,6-Dinitrotoluene	11 U	10 U	10 U	10 U
2-Acetylaminofluorene	22 U	21 U	21 U	19 U
2-Chloronaphthalene	11 U	10 U	10 U	10 U
2-Chlorophenol	11 U	10 U	10 U	10 U
2-Methylnaphthalene	11 U	10 U	10 U	10 U
2-Naphthylamine	27 U	26 U	26 U	10 U
2-Nitroaniline	54 U	53 U	52 U	48 U
2-Nitrophenol	11 U	10 U	10 U	10 U
2-Picoline	11 UJ	10 UJ	10 U	10 UJ
2-sec-butyl-4,6-dinitrophenol	22 UJ	21 UJ	21 U	19 UJ
3,3'-Dichlorobenzidine	22 U	21 U	21 U	19 U
3,3'-Dimethylbenzidine	54 U	53 U	52 R	19 U
3-Methylcholanthrene	11 U	10 U	10 U	10 UJ
3-Nitroaniline	54 U	53 U	52 U	48 U
4,6-Dinitro-2-methylphenol	54 U	53 U	52 UJ	48 U
4-Aminobiphenyl	22 U	21 U	21 U	10 U

APPENDIX F. 33 (cont.)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01	BGMW02	BGMW03	BGMW04
Sample Date	04/27/96	04/27/96	04/16/96	04/27/96
SEMIVOLATILES (ug/l) (cont.)				
4-Bromophenyl phenyl ether	11 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	22 U	21 U	21 U	19 U
4-Chloroaniline	22 U	21 U	21 U	19 U
4-Chlorophenyl phenyl ether	11 U	10 U	10 U	10 U
4-Nitroaniline	54 U	53 U	52 U	48 U
4-Nitrophenol	54 U	53 U	52 UJ	48 U
4-Nitroquinoline-1-oxide	54 R	53 R	52 R	48 UJ
5-Nitro-o-toluidine	22 U	21 U	21 U	19 UJ
7,12-Dimethylbenz(a)anthracene	22 U	21 U	21 U	19 UJ
Acenaphthene	11 U	10 U	10 U	10 U
Acenaphthylene	11 U	10 U	10 U	10 U
Acetophenone	11 U	10 U	1 J	10 U
alpha, alpha-Dimethylphenethylamine	54 UJ	53 UJ	52 UJ	48 U
Aniline	54 U	53 U	52 UJ	48 U
Anthracene	11 U	10 U	10 U	10 UJ
Aramite	22 UJ	21 UJ	21 U	19 UJ
Benzidine	110 UJ	100 UJ	100 U	97 UJ
Benzo(a)anthracene	11 U	10 U	10 U	10 U
Benzo(a)pyrene	11 U	10 U	10 U	10 U
Benzo(b)fluoranthene	11 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	11 U	10 U	10 U	10 U
Benzo(k)fluoranthene	11 U	10 U	10 U	10 U
Benzoic acid	54 U	53 U	52 U	48 U
Benzyl alcohol	11 U	10 U	10 UJ	10 UJ
Bis(2-chloroethoxy)methane	11 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	11 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	11 U	10 U	7 J	10 U
Butylbenzylphthalate	11 U	10 U	10 U	10 U
Carbazole	11 U	10 U	10 U	10 U
Chlorobenzilate	11 U	10 U	10 U	10 UJ
Chrysene	11 U	10 U	10 U	10 U
Diallate	11 U	10 U	10 UJ	10 UJ
Dibenzo(a,h)anthracene	11 U	10 U	10 U	10 U
Dibenzofuran	11 U	10 U	10 U	10 U

APPENDIX F. 33 (cont.)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01	BGMW02	BGMW03	BGMW04
Sample Date	04/27/96	04/27/96	04/16/96	04/27/96
SEMIVOLATILES (ug/l) (cont.)				
Diethylphthalate	11 U	10 U	10 U	10 U
Dimethylphthalate	11 U	1 J	3 J	10 U
Di-n-butylphthalate	11 U	10 U	10 U	10 U
Di-n-octylphthalate	11 U	10 U	10 U	10 U
Diphenylamine	11 UJ	10 UJ	10 U	10 U
Ethyl methanesulfonate	11 U	10 U	10 U	10 U
Fluoranthene	11 U	10 U	10 U	10 U
Fluorene	11 U	10 U	10 U	10 U
Hexachlorobenzene	11 U	10 U	10 U	10 U
Hexachlorobutadiene	11 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	11 U	10 U	10 U	10 U
Hexachloroethane	11 U	10 U	10 U	10 U
Hexachlorophene	110 U	100 U	100 UJ	97 R
Hexachloropropene	54 UJ	53 UJ	52 U	19 U
Indeno(1,2,3-cd)pyrene	11 U	10 U	10 U	10 U
Isophorone	11 U	10 U	10 U	10 U
Isosafrole	11 U	10 U	10 U	10 U
m&p Cresol	11 U	10 U	10 U	10 U
Meta-Dinitrobenzene	22 UJ	21 UJ	21 U	19 U
Methapyrilene	27 U	26 U	26 UJ	24 U
Methyl methanesulfonate	11 U	10 U	10 U	10 U
Naphthalene	11 U	10 U	10 U	10 U
Nitrobenzene	11 U	10 U	10 U	10 U
N-Nitrosodiethylamine	11 UJ	10 UJ	10 U	10 U
N-Nitrosodimethylamine	11 U	10 U	10 U	10 U
N-Nitroso-di-n-butylamine	11 UJ	10 UJ	10 U	10 UJ
N-Nitroso-di-n-propylamine	11 U	10 U	10 U	10 UJ
N-Nitrosodiphenylamine (1)	11 U	10 U	10 U	10 U
N-Nitrosomethylethylamine	11 U	10 U	10 U	10 U
N-Nitrosomorpholine	22 UJ	21 UJ	21 U	19 UJ
N-Nitrosopiperidine	11 U	10 U	10 U	10 U
N-Nitrosopyrrolidine	54 UJ	53 UJ	52 U	48 UJ
o-Cresol	11 U	10 U	10 U	10 U
o-Toluidine	11 U	10 U	10 UJ	10 U

APPENDIX F. 33 (cont.)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01	BGMW02	BGMW03	BGMW04
Sample Date	04/27/96	04/27/96	04/16/96	04/27/96
SEMIVOLATILES (ug/l) (cont.)				
p-Dimethylaminoazobenzene	22 U	21 U	21 U	19 U
Pentachlorobenzene	11 U	10 U	10 U	10 U
Pentachloronitrobenzene	11 UJ	10 UJ	10 U	10 U
Pentachlorophenol	54 U	53 U	52 U	48 U
Phenacetin	11 U	10 U	10 U	10 U
Phenanthrene	11 U	10 U	10 U	10 UJ
Phenol	11 U	10 U	10 U	10 U
p-Phenylenediamine	22 R	21 R	21 R	19 R
Pronamide	11 U	10 U	10 U	10 U
Pyrene	11 U	10 U	10 U	10 UJ
Pyridine	22 U	21 U	21 U	19 U
Safrole	11 U	10 U	10 U	10 U
sym-Trinitrobenzene	110 UJ	100 UJ	100 UJ	97 U

APPENDIX F. 33 (cont.)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01	BGMW02	BGMW03	BGMW04
Sample Date	04/27/96	04/27/96	04/16/96	04/27/96
PESTICIDES/PCBS (ug/l)				
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.11 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.11 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.11 U
Aldrin	0.052 U	0.052 U	0.052 U	0.053 U
alpha-BHC	0.052 U	0.052 U	0.052 U	0.053 U
alpha-Chlordane	0.52 U	0.52 U	0.52 U	0.53 U
beta-BHC	0.052 U	0.052 U	0.052 U	0.053 U
delta-BHC	0.052 U	0.052 U	0.052 U	0.053 U
Dieldrin	0.1 U	0.1 U	0.1 U	0.11 U
Endosulfan I	0.052 U	0.052 U	0.052 U	0.053 U
Endosulfan II	0.1 U	0.1 U	0.1 U	0.11 U
Endosulfan sulfate	0.1 U	0.1 U	0.1 UJ	0.11 U
Endrin	0.1 U	0.1 U	0.1 U	0.11 U
Endrin aldehyde	0.1 U	0.1 U	0.1 U	0.11 U
gamma-BHC (Lindane)	0.052 U	0.052 U	0.052 U	0.053 U
gamma-Chlordane	0.52 U	0.52 U	0.52 U	0.53 U
Heptachlor	0.052 U	0.052 U	0.052 U	0.053 U
Heptachlor epoxide	0.052 U	0.052 U	0.052 U	0.053 U
Isodrin	0.052 U	0.052 U	0.052 U	0.053 U
Kepone	0.1 U	0.1 U	0.1 UJ	0.11 U
Methoxychlor	0.52 U	0.52 U	0.52 U	0.53 U
Toxaphene	1 U	1 U	1 U	1.1 U
Aroclor-1016	0.52 U	0.52 U	0.52 U	0.53 U
Aroclor-1221	0.52 U	0.52 U	0.52 U	0.53 U
Aroclor-1232	0.52 U	0.52 U	0.52 U	0.53 U
Aroclor-1242	0.52 U	0.52 U	0.52 U	0.53 U
Aroclor-1248	0.52 U	0.52 U	0.52 U	0.53 U
Aroclor-1254	1 U	1 U	1 U	1.1 U
Aroclor-1260	1 U	1 U	1 U	1.1 U

APPENDIX F. 33 (cont.)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01	BGMW02	BGMW03	BGMW04
Sample Date	04/27/96	04/27/96	04/16/96	04/27/96
HERBICIDES (ug/l)				
2,4-D	1.1 U	1.1 U	1.1 U	1.1 U
2,4,5-T	0.11 U	0.11 U	0.11 U	0.11 U
2,4,5-TP (Silvex)	0.11 U	0.11 U	0.11 U	0.11 U
O-PEST (ug/l)				
Dimethoate	2.1 UJ	2.1 UJ	2 UJ	2.2 UJ
Disulfoton	2.1 UJ	2.1 UJ	2 UJ	2.2 UJ
Famphur	2.1 UJ	2.1 UJ	2 UJ	2.2 UJ
Methyl parathion	2.1 UJ	2.1 UJ	2 UJ	2.2 UJ
O,O,O-Triethylphosphorothioate	2.1 UJ	2.1 UJ	2 UJ	2.2 UJ
Parathion	2.1 UJ	2.1 UJ	2 UJ	2.2 UJ
Phorate	2.1 UJ	2.1 UJ	2 UJ	2.2 UJ
Sulfotepp	2.1 UJ	2.1 UJ	2 UJ	2.2 UJ
Thionazin	2.1 UJ	2.1 UJ	2 UJ	2.2 UJ
DIOXINS (ug/l)				
2,3,7,8-TCDD	0.0018 U	0.0017 U	0.0014 U	0.0024 U
Total HxCDD	0.0018 U	0.002 U	0.0021 U	0.0032 U
Total HxCDF	0.0021 U	0.0019 U	0.0017 U	0.0021 U
Total PeCDD	0.0036 U	0.0034 U	0.0033 U	0.0041 U
Total PeCDF	0.0027 U	0.0023 U	0.0024 U	0.0024 U
Total TCDD	0.0018 U	0.0017 U	0.0014 U	0.0024 U
Total TCDF	0.002 U	0.0019 U	0.0014 U	0.0021 U
TPH (ug/l)				
Gasoline Range Organics	NA	NA	30 U	NA

APPENDIX F.34
GROUNDWATER, INORGANICS, BACKGROUND

APPENDIX F. 34

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - INORGANICS (TOTAL)
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01	BGMW02	BGMW03	BGMW04
Sample Date	04/27/96	04/27/96	04/16/96	04/27/96
Inorganics, Total (ug/l)				
Antimony	24.6 UJ	24.6 UJ	24.6 UJ	24.6 UJ
Arsenic	1.8 U	1.8 U	1.7 J	3.6
Barium	275	212	313	612
Beryllium	2	1.1 U	1.1 U	2.3
Cadmium	7.5	2.9 U	2.9 U	2.9 U
Chromium	54.1	3.1 R	29.4	92
Cobalt	91.8	54.3	55.4	83.4
Copper	120	24	102	352
Cyanide	10 U	10 U	10 R	10 U
Lead	4.3 J	0.9 UJ	2.5 J	7 J
Mercury	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	73.7	40	26.4	39.4
Selenium	2.8 UJ	1.4 UJ	1.4 UJ	3.1 J
Silver	4 U	4 U	4 U	4 U
Sulfide	1,000 U	1,000 U	1,000 U	1,000 U
Thallium	1.6 UJ	1.6 U	1 U	1.6 UJ
Tin	13.5 U	13.5 U	13.5 U	13.5 U
Vanadium	159	26.8	103	549
Zinc	178	95.7	128	320

APPENDIX F. 34 (continued)

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - INORGANICS (DISSOLVED)
BACKGROUND
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	BGMW01	BGMW02	BGMW03	BGMW04
Sample Date	04/27/96	04/27/96	04/16/96	04/27/96
Inorganics, Dissolved (ug/l)				
Antimony	24.6 UJ	24.6 UJ	24.6 UJ	24.6 UJ
Arsenic	1.8 U	1.8 U	1.2 UJ	1.8 U
Barium	82	148	121	126
Beryllium	1.1 U	1.1 U	1.1 U	1.1 U
Cadmium	2.9 U	2.9 U	2.9 U	2.9 U
Chromium	2.6 U	2.6 U	3.7	2.6 U
Cobalt	59.4	44.4	11.5	3.9 U
Copper	32	2.2 U	2.2 U	2.2 U
Lead	0.9 UJ	0.9 UJ	1.2 U	0.9 UJ
Mercury	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	34.1	35.6	11.1 U	11.1 U
Selenium	2.8 UJ	1.4 UJ	1.4 UJ	1.4 UJ
Silver	4 U	4 U	4 U	4 U
Thallium	1.6 U	1.6 U	1 U	1.6 U
Tin	13.5 U	13.5 U	13.5 U	13.5 U
Vanadium	2.6 U	2.6 U	2.6 U	8.1
Zinc	82.6	60.6	4.4 J	3.8

APPENDIX G
QUALITY ASSURANCE/QUALITY CONTROL RESULTS

Data Qualifiers:

U - Not detected. The associated number indicates the approximate sample concentration necessary to be detected.

UJ - Not detected, quantitation limit may be inacurate 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.

APPENDIX G.1
QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 1 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1RB01	1RB02	1RB03	1RB04	1RB05
Sample Date	10/15/96	10/22/96	10/25/96	10/26/96	10/29/96
SAMPLE TIME	00:00	00:00	00:00	00:00	00:00
Volatiles (ug/l)					
1,1,1,2-Tetrachloroethane	10 U	10 U	10 U	10 U	10 U
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
1,2,3-Trichloropropane	10 U	10 U	10 U	10 U	10 U
1,2,4,5-Tetrachlorobenzene	10 UJ	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U
1,2-Dibromo-3-chloropropane	20 U	20 U	20 U	20 UJ	20 U
1,2-Dibromoethane	20 U	20 U	20 U	20 U	20 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 UJ
1,2-Dichloroethene (Total)	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U
1,4-Naphthoquinone	50 UJ	49 U	48 U	48 U	48 U
2,2'-Oxybis(1-Chloropropane)	10 U	10 U	10 U	10 U	10 UJ
2,3,4,6-Tetrachlorophenol	10 UJ	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50 U	49 U	48 U	48 U	48 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50 UJ	49 U	48 U	48 U	48 U
2,6-Dichlorophenol	10 UJ	10 U	10 U	10 U	10 U
2-Acetylaminofluorene	20 U	20 U	19 U	19 U	19 U
2-Butanone	10 UJ	10 U	10 U	10 U	10 U
2-Chloro-1,3-butadiene	100 U	100 R	100 R	100 R	100 R
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 1 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1RB01	1RB02	1RB03	1RB04	1RB05
Sample Date	10/15/96	10/22/96	10/25/96	10/26/96	10/29/96
SAMPLE TIME	00:00	00:00	00:00	00:00	00:00
2-Hexanone	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U
2-Naphthylamine	25 UJ	24 U	24 U	24 U	24 U
2-Nitroaniline	50 U	49 U	48 U	48 U	48 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U
2-Picoline	10 U	10 U	10 UJ	10 U	10 UJ
2-sec-butyl-4,6-dinitrophenol	20 UJ	20 U	19 U	19 U	19 U
3,3'-Dichlorobenzidine	20 U	20 U	19 U	19 U	19 U
3,3'-Dimethylbenzidine	50 UJ	49 U	48 U	48 U	48 UJ
3-Chloropropene	20 U	20 U	20 U	20 U	20 U
3-Methylcholanthrene	10 UJ	10 U	10 U	10 U	10 U
3-Nitroaniline	50 UJ	49 U	48 U	48 U	48 U
4-Aminobiphenyl	20 UJ	20 U	19 UJ	19 U	19 UJ
4-Chloro-3-methylphenol	20 U	20 U	19 U	19 U	19 U
4-Chloroaniline	20 U	20 U	19 U	19 U	19 U
4-Methyl-2-pentanone	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50 UJ	49 U	48 U	48 U	48 U
4-Nitrophenol	50 UJ	49 U	48 U	48 U	48 U
4-Nitroquinoline-1-oxide	50 R	49 U	48 U	48 U	48 U
5-Nitro-o-toluidine	20 U	20 U	19 U	19 U	19 U
7,12-Dimethybenz(a)anthracene	20 UJ	20 U	19 U	19 U	19 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U
Acetone	10 UJ	10 U	10 U	10 U	21
Acetonitrile	100 U	100 U	100 U	100 U	100 U
Acetophenone	10 U	10 U	10 U	10 U	10 U
Acrolein	500 U	500 U	500 U	500 U	500 U
Acrylonitrile	100 UJ	100 U	100 U	100 UJ	100 UJ
Aniline	50 U	49 U	48 U	48 U	48 U
Anthracene	10 U	10 U	10 U	10 U	10 U

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 1 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1RB01	1RB02	1RB03	1RB04	1RB05
Sample Date	10/15/96	10/22/96	10/25/96	10/26/96	10/29/96
SAMPLE TIME	00:00	00:00	00:00	00:00	00:00
Benzene	5 U	5 U	5 U	5 U	5 U
Benzidine	100 UJ	98 U	97 U	96 U	95 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 UJ	5 U	5 U	5 U	5 UJ
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 UJ
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 UJ	10 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
Dibromomethane	10 U	10 U	10 U	10 U	10 UJ
Dichlorodifluoromethane	20 U	20 U	20 U	20 UJ	20 U
Ethyl methacrylate	20 U	20 UJ	20 UJ	20 U	20 UJ
Ethylbenzene	5 U	5 U	5 U	5 U	5 U
Iodomethane	10 U	10 U	10 U	10 U	10 UJ
Isobutyl alcohol	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R
Methacrylonitrile	20 U	20 U	20 U	20 U	20 U
Methyl methacrylate	20 U	20 U	20 U	20 U	20 UJ
Methylene chloride	5 U	5 U	5 U	5 U	5 U
Pentachloroethane	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ
Propionitrile	50 R	50 R	50 R	50 R	50 R
Styrene	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U	5 UJ	5 U
Toluene	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U
trans-1,4-Dichloro-2-butene	20 U	20 UJ	20 UJ	20 U	20 UJ
Trichloroethene	5 U	5 U	5 U	5 U	5 U

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 1 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1RB01	1RB02	1RB03	1RB04	1RB05
Sample Date	10/15/96	10/22/96	10/25/96	10/26/96	10/29/96
SAMPLE TIME	00:00	00:00	00:00	00:00	00:00
Trichlorofluoromethane	10 U	10 U	10 U	10 UJ	10 UJ
Vinyl Acetate	10 UJ	10 UJ	10 UJ	10 U	10 UJ
Vinyl chloride	10 U	10 U	10 U	10 U	10 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U
Semivolatiles (ug/l)					
1,2-Diphenylhydrazine	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U
1,4-Dioxane	20 U	20 U	19 UJ	19 U	19 UJ
1-Naphthylamine	20 U	20 U	19 UJ	19 U	19 UJ
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-o-cresol	50 U	49 U	48 U	48 U	48 U
4-bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U
alpha, alpha-Dimethylphenethylamine	50 UJ	49 UJ	48 UJ	48 UJ	48 U
Aramite	20 U	20 U	19 UJ	19 U	19 UJ
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	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
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50 UJ	49 U	48 U	48 U	48 U
Benzyl alcohol	10 UJ	10 U	10 U	10 U	10 U
Bis(2-chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10 U	2 J	3 J	10 U	10 U
Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U
Carbazole	10 U	10 U	10 U	10 U	10 U

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 1 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1RB01	1RB02	1RB03	1RB04	1RB05
Sample Date	10/15/96	10/22/96	10/25/96	10/26/96	10/29/96
SAMPLE TIME	00:00	00:00	00:00	00:00	00:00
Chlorobenzilate	10 UJ	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U
Diallate	10 U	10 UJ	10 U	10 UJ	10 UJ
Dibenz(a,h)anthracene	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	2 J	4 J	10 U	10 U	10 U
Dimethylphthalate	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10 U	10 U	10 U	10 U	10 U
Diphenylamine	10 U	10 U	10 U	10 U	10 U
Ethyl methanesulfonate	10 UJ	10 U	10 UJ	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U	10 U
Hexachlorophene	100 R	98 U	97 U	96 U	95 U
Hexachloropropene	50 UJ	49 U	48 U	48 U	48 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U	10 U
Isosafrole	10 U	10 U	10 UJ	10 U	10 UJ
m&p Cresol	10 U	10 U	10 U	10 U	10 U
m-Dinitrobenzene	20 UJ	20 U	19 U	19 U	19 U
Methapyrilene	25 UJ	24 UJ	24 U	24 UJ	24 U
Methyl methanesulfonate	10 UJ	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiethylamine	10 UJ	10 UJ	10 U	10 UJ	10 UJ
N-Nitrosodimethylamine	10 UJ	10 U	10 U	10 U	10 UJ

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 1 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1RB01	1RB02	1RB03	1RB04	1RB05
Sample Date	10/15/96	10/22/96	10/25/96	10/26/96	10/29/96
SAMPLE TIME	00:00	00:00	00:00	00:00	00:00
N-Nitroso-di-n-butylamine	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
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U	10 U	10 U
N-Nitrosomethylethylamine	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
N-Nitrosomorpholine	20 UJ	20 UJ	19 U	19 UJ	19 UJ
N-Nitrosopiperidine	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
N-Nitrosopyrrolidine	50 U	49 U	48 UJ	48 U	48 U
o-Cresol	10 U	10 U	10 U	10 U	10 U
o-Toluidine	10 U	10 U	10 UJ	10 U	10 U
p-Dimethylaminoazobenzene	20 U	20 U	19 UJ	19 U	19 UJ
Pentachlorobenzene	10 UJ	10 U	10 U	10 U	10 U
Pentachloronitrobenzene	10 R	10 U	10 U	10 U	10 U
Pentachlorophenol	50 U	49 U	48 U	48 U	48 U
Phenacetin	10 U	10 U	10 UJ	10 U	10 UJ
Phenanthrene	10 U	10 U	10 U	10 U	10 U
Phenol	10 U	1 J	10 U	10 U	10 U
p-Phenylenediamine	20 R	20 U	19 U	19 U	19 U
Pronamide	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U
Pyridine	20 U	20 U	19 U	19 U	19 U
Safrole	10 U	10 U	10 U	10 U	10 U
sym-Trinitrobenzene	100 UJ	98 U	97 R	96 U	95 R

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 1 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1RB01	1RB02	1RB03	1RB04	1RB05
Sample Date	10/15/96	10/22/96	10/25/96	10/26/96	10/29/96
SAMPLE TIME	00:00	00:00	00:00	00:00	00:00
Pesticides/PCBs (ug/l)					
4,4'-DDD	0.1 U	0.099 U	0.094 U	0.097 U	0.095 U
4,4'-DDE	0.1 U	0.099 U	0.094 U	0.097 U	0.095 U
4,4'-DDT	0.1 U	0.099 U	0.094 U	0.097 U	0.095 U
Aldrin	0.051 U	0.05 U	0.047 U	0.048 U	0.048 U
alpha-BHC	0.051 U	0.05 U	0.047 U	0.048 U	0.048 U
alpha-Chlordane	0.51 U	0.5 U	0.47 U	0.48 U	0.48 U
Aroclor-1016	0.51 U	0.5 U	0.47 U	0.48 U	0.48 U
Aroclor-1221	0.51 U	0.5 U	0.47 U	0.48 U	0.48 U
Aroclor-1232	0.51 U	0.5 U	0.47 U	0.48 U	0.48 U
Aroclor-1242	0.51 U	0.5 U	0.47 U	0.48 U	0.48 U
Aroclor-1248	0.51 U	0.5 U	0.47 U	0.48 U	0.48 U
Aroclor-1254	1 U	0.99 U	0.94 U	0.97 U	0.95 U
Aroclor-1260	1 U	0.99 U	0.94 U	0.97 U	0.95 U
beta-BHC	0.051 UJ	0.05 U	0.047 U	0.048 U	0.048 U
delta-BHC	0.051 UJ	0.05 U	0.047 U	0.048 U	0.048 U
Dieldrin	0.1 U	0.099 U	0.094 U	0.097 U	0.095 U
Endosulfan I	0.051 U	0.05 U	0.047 U	0.048 U	0.048 U
Endosulfan II	0.1 U	0.099 U	0.094 U	0.097 U	0.095 U
Endosulfan sulfate	0.1 U	0.099 U	0.094 U	0.097 U	0.095 U
Endrin	0.1 U	0.099 U	0.094 U	0.097 U	0.095 U
Endrin aldehyde	0.1 U	0.099 U	0.094 U	0.097 U	0.095 U
gamma-BHC (Lindane)	0.051 U	0.05 U	0.047 U	0.048 U	0.048 U
gamma-Chlordane	0.51 U	0.5 U	0.47 U	0.48 U	0.48 U
Heptachlor	0.051 U	0.05 U	0.047 U	0.048 U	0.048 U
Heptachlor epoxide	0.051 U	0.05 U	0.047 U	0.048 U	0.048 U
Isodrin	0.051 U	0.05 U	0.047 U	0.048 U	0.048 U
Kepone	0.1 UJ	0.099 UJ	0.094 R	0.097 R	0.095 U
Methoxychlor	0.51 U	0.5 U	0.47 U	0.48 U	0.48 U
Toxaphene	1 U	0.99 U	0.94 U	0.97 U	0.95 U

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 1 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1RB01	1RB02	1RB03	1RB04	1RB05
Sample Date	10/15/96	10/22/96	10/25/96	10/26/96	10/29/96
SAMPLE TIME	00:00	00:00	00:00	00:00	00:00
Herbicides (ug/l)					
2,4,5-T	0.11 UJ	0.11 U	0.11 U	0.11 U	0.11 U
2,4,5-TP (Silvex)	0.11 UJ	0.11 U	0.11 U	0.11 U	0.11 U
2,4-D	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U
Dimethoate	2 U	2 U	1.9 U	1.9 U	2 U
Disulfoton	2 U	2 U	1.9 U	1.9 U	2 U
Famphur	2 U	2 U	1.9 U	1.9 U	2 U
Methyl parathion	2 U	2 U	1.9 U	1.9 U	2 U
O,O,O-Triethylphosphorothioate	2 U	2 U	1.9 U	1.9 U	2 U
Parathion	2 U	2 U	1.9 U	1.9 U	2 U
Phorate	2 U	2 U	1.9 U	1.9 U	2 U
Sulfotep	2 U	2 U	1.9 U	1.9 U	2 U
Thionazin	2 U	2 U	1.9 U	1.9 U	2 U
Dioxins (ug/l)					
2,3,7,8-TCDD	0.0003 U	0.0004 U	0.0003 U	0.0004 U	0.0007 U
Total HxCDD	0.0005 U	0.001 U	0.0009 U	0.0007 U	0.001 U
Total HxCDF	0.0005 U	0.001 U	0.0006 U	0.0007 U	0.0007 U
Total PeCDD	0.0007 U	0.0006 U	0.0007 U	0.0006 U	0.0011 U
Total PeCDF	0.0007 U	0.0006 U	0.0006 U	0.0007 U	0.0011 U
Total TCDD	0.0003 U	0.0004 U	0.0003 U	0.0004 U	0.0007 U
Total TCDF	0.0003 U	0.0003 U	0.0002 U	0.0003 U	0.0003 U

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 1 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1RB01	1RB02	1RB03	1RB04	1RB05
Sample Date	10/15/96	10/22/96	10/25/96	10/26/96	10/29/96
SAMPLE TIME	00:00	00:00	00:00	00:00	00:00
Explosives (ug/l)					
2,4,6-TNT	0.15 U	0.065 U	0.12 U	0.17 UJ	0.071 U
2,4-DNT/2,6-DNT	0.23 U	0.1 U	0.2 U	0.27 UJ	0.11 U
2-Nitrotoluene	0.58 U	0.26 U	0.49 U	0.68 UJ	0.28 U
3-Nitrotoluene	0.58 U	0.26 U	0.49 U	0.68 UJ	0.28 U
4-Nitrotoluene	1.8 U	0.78 U	1.5 U	2 UJ	0.86 U
Amino-DNTs	0.23 U	0.1 U	0.2 U	0.27 UJ	0.11 U
HMX	1.3 U	0.57 U	1.1 U	1.5 UJ	0.63 U
Nitramine	0.44 U	0.2 U	0.38 U	0.51 UJ	0.22 U
RDX	0.63 U	0.28 U	0.53 U	0.73 UJ	0.31 U

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	45RB01		45RB02	
Sample Date	11/22/96		11/22/96	
Volatiles (ug/l)				
1,1,1,2-Tetrachloroethane	10	U	10	U
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
1,2,3-Trichloropropane	10	U	10	UJ
1,2-Dibromo-3-chloropropane	20	UJ	20	UJ
1,2-Dibromoethane	20	U	20	U
1,2-Dichloroethane	5	U	5	U
1,2-Dichloroethene (Total)	5	U	5	U
1,2-Dichloropropane	5	U	5	U
2,4-Dinitrophenol	51	U	48	U
2-Acetylaminofluorene	20	U	19	U
2-Butanone	10	U	10	U
2-Chloro-1,3-butadiene	100	R	100	R
2-Hexanone	10	U	10	U
3-Chloropropene	20	UJ	20	UJ
3-Methylcholanthrene	10	U	10	U
4-Methyl-2-pentanone	10	U	10	U
Acetone	23	J	22	J
Acetonitrile	100	UJ	100	UJ
Acrolein	500	U	500	U
Acrylonitrile	100	U	100	U
Benzene	5	U	5	U
Benzo(a)pyrene	10	U	10	U
Bromodichloromethane	5	U	5	U
Bromoform	5	U	5	U
Bromomethane	10	U	10	U
Carbon disulfide	5	UJ	5	UJ

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	45RB01		45RB02	
Sample Date	11/22/96		11/22/96	
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-1,3-Dichloropropene	5	U	5	U
Dibenz(a,h)anthracene	10	U	10	U
Dibromochloromethane	5	U	5	U
Dibromomethane	10	U	10	U
Dichlorodifluoromethane	20	U	20	U
Ethyl methacrylate	20	UJ	20	UJ
Ethylbenzene	5	U	5	U
Iodomethane	10	U	10	U
Isobutanol	2,000	R	2,000	R
Methacrylonitrile	20	U	20	U
Methyl methacrylate	20	U	20	U
Methylene chloride	5	U	5	U
N-Nitrosodiethylamine	10	U	10	U
Pentachloroethane	20	U	20	U
Propionitrile	50	R	50	R
Styrene	5	U	5	U
Tetrachloroethene	5	UJ	5	U
Toluene	4	J	3	J
trans-1,3-Dichloropropene	5	U	5	U
trans-1,4-Dichloro-2-butene	20	UJ	20	UJ
Trichloroethene	5	U	5	U
Trichlorofluoromethane	10	U	10	UJ
Vinyl Acetate	10	UJ	10	UJ
Vinyl chloride	10	U	10	U
Xylene (total)	5	U	5	U

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	45RB01	45RB02
Sample Date	11/22/96	11/22/96
Semivolatiles (ug/l)		
1,2,4,5-Tetrachlorobenzene	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U
1,2-Diphenylhydrazine	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U
1,4-Dioxane	20 UJ	19 UJ
1,4-Naphthoquinone	51 U	48 U
1-Naphthylamine	20 UJ	19 UJ
2,2'-Oxybis(1-Chloropropane)	10 U	10 U
2,3,4,6-Tetrachlorophenol	10 U	10 U
2,4,5-Trichlorophenol	51 U	48 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-Dinitrotoluene	10 U	10 U
2,6-Dichlorophenol	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-Naphthylamine	26 U	24 U
2-Nitroaniline	51 U	48 U
2-Nitrophenol	10 U	10 U
2-Picoline	10 UJ	10 UJ
2-sec-butyl-4,6-dinitrophenol	20 U	19 U
3,3'-Dichlorobenzidine	20 U	19 U
3,3'-Dimethylbenzidine	51 UJ	48 UJ
3-Nitroaniline	51 UJ	48 UJ
4,6-Dinitro-2-methylphenol	51 U	48 U

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	45RB01		45RB02	
Sample Date	11/22/96		11/22/96	
4-Aminobiphenyl	20	U	19	U
4-bromophenyl-phenylether	10	U	10	U
4-Chloro-3-methylphenol	20	U	19	U
4-Chloroaniline	20	U	19	U
4-Chlorophenyl phenylether	10	U	10	U
4-Nitroaniline	51	U	48	U
4-Nitrophenol	51	U	48	U
4-Nitroquinoline-1-oxide	51	U	48	U
5-Nitro-o-toluidine	20	UJ	19	UJ
7,12-Dimethylbenz(a)anthracene	20	U	19	U
Acenaphthene	10	U	10	U
Acenaphthylene	10	U	10	U
Acetophenone	10	U	10	U
alpha, alpha-Dimethylphenethylamine	51	UJ	48	UJ
Aniline	51	U	48	U
Anthracene	10	U	10	U
Aramite	20	U	19	U
Benzidine	100	U	96	U
Benzo(a)anthracene	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	51	UJ	48	UJ
Benzyl alcohol	10	UJ	10	UJ
Bis(2-chloroethoxy)methane	10	U	10	U
Bis(2-chloroethyl)ether	10	U	10	U
Bis(2-ethylhexyl)phthalate	10	U	10	U
Butylbenzylphthalate	10	U	10	U
Carbazole	10	U	10	U
Chlorobenzilate	10	U	10	U
Chrysene	10	U	10	U

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	45RB01	45RB02
Sample Date	11/22/96	11/22/96
Diallate	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
Ethyl methanesulfonate	10 UJ	10 UJ
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
Hexachlorophene	100 U	96 U
Hexachloropropene	51 U	48 U
Indeno(1,2,3-cd)pyrene	10 U	10 U
Isophorone	10 U	10 U
Isosafrole	10 U	10 U
m&p Cresol	10 U	10 U
m-Dinitrobenzene	20 U	19 U
Methapyrilene	26 U	24 U
Methyl methanesulfonate	10 U	10 U
Naphthalene	10 U	10 U
Nitrobenzene	10 U	10 U
N-Nitrosodimethylamine	10 U	10 U
N-Nitroso-di-n-butylamine	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U
N-Nitrosodiphenylamine (1)	10 U	10 U
N-Nitrosomethylethylamine	10 U	10 U
N-Nitrosomorpholine	20 U	19 U

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	45RB01		45RB02	
Sample Date	11/22/96		11/22/96	
N-Nitrosopiperidine	10	U	10	U
N-Nitrosopyrrolidine	51	UJ	48	UJ
o-Cresol	10	U	10	U
o-Toluidine	10	UJ	10	UJ
p-Dimethylaminoazobenzene	20	U	19	U
Pentachlorobenzene	10	U	10	U
Pentachloronitrobenzene	10	U	10	U
Pentachlorophenol	51	U	48	U
Phenacetin	10	UJ	10	UJ
Phenanthrene	10	U	10	U
Phenol	10	U	10	U
p-Phenylenediamine	20	R	19	R
Pronamide	10	U	10	U
Pyrene	10	U	10	U
Pyridine	20	U	19	U
Safrole	10	U	10	U
sym-Trinitrobenzene	100	R	96	R

APPENDIX G.1

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	45RB01	45RB02
Sample Date	11/22/96	11/22/96
PCBs (ug/l)		
Aroclor-1016	0.48 U	0.53 U
Aroclor-1221	0.48 U	0.53 U
Aroclor-1232	0.48 U	0.53 U
Aroclor-1242	0.48 U	0.53 U
Aroclor-1248	0.48 U	0.53 U
Aroclor-1254	0.97 U	1 U
Aroclor-1260	0.97 U	1 U

APPENDIX G.1 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1ER01	11ER01	11ER02	11EB03	11ER04	11ER05	11ER06	11ER07
Sample Date	09/20/97	09/18/97	09/18/97	09/20/97	09/20/97	09/24/97	09/24/97	10/02/97
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 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U
1,2,3-Trichloropropane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dibromo-3-chloropropane	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
1,2-Dibromoethane	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
1,2-Dichloroethane	5 U	5 UJ	5 UJ	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 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U
2-Butanone	10 U	10 UJ	10 UJ	10 UJ	10 UJ	40 J	10 U	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 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 UJ
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 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 UJ
Acetone	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U
Acetonitrile	100 U	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 U
Acrolein	500 U	500 UJ	500 UJ	500 R	500 R	500 R	500 R	500 R
Acrylonitrile	100 U	100 UJ	100 UJ	100 U	100 U	100 U	100 U	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 U	5 U	5 U
Bromomethane	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U
Carbon disulfide	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	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
Chloroethane	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ

APPENDIX G.1 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1ER01	11ER01	11ER02	11EB03	11ER04	11ER05	11ER06	11ER07
Sample Date	09/20/97	09/18/97	09/18/97	09/20/97	09/20/97	09/24/97	09/24/97	10/02/97
VOLATILES (ug/l) (cont.)								
Chloroform	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U
Chloromethane	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	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 U	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 U
Ethyl methacrylate	20 U	20 U	20 U	20 UJ	20 UJ	20 U	20 U	20 U
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 UJ	10 UJ	10 U
Isobutanol	2000 R	2000 R	2000 R	2000 R	2000 R	2000 R	2000 R	2000 R
Methacrylonitrile	20 U	20 UJ	20 UJ	20 UJ	20 UJ	20 U	20 U	20 U
Methyl methacrylate	20 U	20 UJ	20 UJ	20 U	20 U	20 U	20 U	20 U
Methylene chloride	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U
Pentachloroethane	20 U	20 UJ	20 UJ	20 U	20 U	20 U	20 U	20 UJ
Propionitrile	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R
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 UJ	5 UJ	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 U	20 U	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 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U
Vinyl chloride	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX G.1 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1ER01	11ER01	11ER02	11EB03	11ER04	11ER05	11ER06	11ER07
Sample Date	09/20/97	09/18/97	09/18/97	09/20/97	09/20/97	09/24/97	09/24/97	10/02/97
SEMIVOLATILES (ug/l)								
1,2,4,5-Tetrachlorobenzene	11 U	10 U	10 U	11 UJ	10 UJ	10 UJ	10 UJ	10 U
1,2,4-Trichlorobenzene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
1,2-Diphenylhydrazine	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
1,3-Dinitrobenzene	21 U	19 U	20 U	22 UJ	20 UJ	20 UJ	21 UJ	20 U
1,3,5-Trinitrobenzene	110 UJ	96 U	98 U	110 UJ	100 UJ	100 UJ	100 UJ	99 U
1,4-Dichlorobenzene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
1,4-Dioxane	21 U	19 U	20 U	22 UJ	20 UJ	20 U	21 U	20 U
1,4-Naphthoquinone	53 U	48 UJ	49 UJ	54 R	50 R	51 U	52 U	50 UJ
1-Naphthylamine	21 U	19 U	20 U	22 UJ	20 UJ	20 U	21 U	20 U
2,2'-Oxybis(1-Chloropropane)	11 U	10 U	10 U	11 UJ	10 UJ	10 U	10 U	10 U
2,3,4,6-Tetrachlorophenol	11 U	10 U	10 U	11 U	10 U	10 UJ	10 UJ	10 UJ
2,4,5-Trichlorophenol	53 U	48 U	49 U	54 U	50 U	51 U	52 U	50 U
2,4,6-Trichlorophenol	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	53 U	48 U	49 U	54 UJ	50 UJ	51 U	52 U	50 UJ
2,4-Dinitrotoluene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,6-Dichlorophenol	11 UJ	10 UJ	10 UJ	11 U	10 U	10 U	10 U	10 UJ
2,6-Dinitrotoluene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Acetylaminofluorene	21 U	19 U	20 U	22 UJ	20 UJ	20 U	21 U	20 U
2-Chloronaphthalene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Chlorophenol	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Naphthylamine	26 U	24 U	24 U	27 UJ	25 UJ	26 U	26 U	25 U
2-Nitroaniline	53 U	48 U	49 U	54 U	50 U	51 U	52 U	50 U
2-Nitrophenol	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U

APPENDIX G.1 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1ER01	11ER01	11ER02	11EB03	11ER04	11ER05	11ER06	11ER07
Sample Date	09/20/97	09/18/97	09/18/97	09/20/97	09/20/97	09/24/97	09/24/97	10/02/97
SEMIVOLATILES (ug/l) (cont.)								
2-Picoline	11 U	10 U	10 U	11 UJ	10 UJ	10 U	10 U	10 U
2-sec-butyl-4,6-dinitrophenol	21 U	19 U	20 U	22 UJ	20 UJ	20 U	21 U	20 U
3,3'-Dichlorobenzidine	21 UJ	19 U	20 U	22 U	20 U	20 U	21 U	20 U
3,3'-Dimethylbenzidine	53 U	48 UJ	49 UJ	54 R	50 R	51 UJ	52 UJ	50 R
3-Methylcholanthrene	11 U	10 U	10 U	11 U	10 U	10 UJ	10 UJ	10 U
3-Nitroaniline	53 U	48 UJ	49 UJ	54 UJ	50 UJ	51 U	52 U	50 UJ
4,6-Dinitro-2-methylphenol	53 U	48 U	49 U	54 UJ	50 UJ	51 U	52 U	50 UJ
4-Aminobiphenyl	21 U	19 UJ	20 UJ	22 UJ	20 UJ	20 U	21 U	20 UJ
4-bromophenyl-phenylether	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	21 U	19 U	20 U	22 U	20 U	20 U	21 U	20 U
4-Chloroaniline	21 U	1 J	20 U	22 UJ	20 UJ	20 U	21 U	20 U
4-Chlorophenyl phenyl ether	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
4-Nitroaniline	53 UJ	48 U	49 U	54 U	50 U	51 U	52 U	50 UJ
4-Nitrophenol	53 U	48 U	49 U	54 U	50 U	51 U	52 U	50 UJ
4-Nitroquinoline-1-oxide	53 R	48 UJ	49 UJ	54 R	50 R	51 R	52 R	50 R
5-Nitro-o-toluidine	21 U	19 U	20 U	22 UJ	20 UJ	20 UJ	21 UJ	20 U
7,12-Dimethylbenz(a)anthracene	21 U	19 U	20 U	22 UJ	20 UJ	20 UJ	21 UJ	20 U
Acenaphthene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Acenaphthylene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Acetophenone	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
alpha, alpha-Dimethylphenethylamine	53 UJ	48 U	49 U	54 UJ	50 UJ	51 UJ	52 UJ	50 UJ
Aniline	53 U	48 U	49 U	54 U	50 U	51 UJ	52 UJ	50 U
Anthracene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Aramite	21 R	19 R	20 R	22 R	20 R	20 U	21 U	20 U
Benzidine	110 R	96 UJ	98 UJ	110 U	100 U	100 UJ	100 UJ	99 UJ
Benzo(a)anthracene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U

APPENDIX G.1 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1ER01	11ER01	11ER02	11EB03	11ER04	11ER05	11ER06	11ER07
Sample Date	09/20/97	09/18/97	09/18/97	09/20/97	09/20/97	09/24/97	09/24/97	10/02/97
SEMIVOLATILES (ug/l) (cont.)								
Benzo(g,h,i)perylene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzoic acid	53 U	14 J	49 U	54 UJ	50 UJ	51 U	52 U	50 U
Benzyl alcohol	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Bis(2-chloroethoxy)methane	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	24	26 U	10 U	11 U	10 U	10 U	10 U	19 U
Butylbenzylphthalate	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Carbazole	11 UJ	10 U	10 U	11 UJ	10 UJ	10 U	10 U	10 U
Chlorobenzilate	11 U	10 U	10 U	11 UJ	10 UJ	10 U	10 U	10 U
Chrysene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Diallate	11 UJ	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Dibenzofuran	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Diethylphthalate	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Dimethylphthalate	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	11 U	10 U	10 U	11 UJ	10 UJ	10 U	10 U	10 U
Di-n-octylphthalate	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Diphenylamine	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Ethyl methanesulfonate	11 U	10 U	10 U	11 UJ	10 UJ	10 U	10 U	10 U
Fluoranthene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Fluorene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	11 U	10 U	10 U	11 U	10 U	10 UJ	10 UJ	10 U
Hexachlorobutadiene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	11 U	10 U	10 U	11 U	10 U	10 UJ	10 UJ	10 U
Hexachloroethane	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Hexachlorophene	110 UJ	96 UJ	98 UJ	110 UJ	100 UJ	100 R	100 R	99 U
Hexachloropropene	53 U	48 U	49 U	54 U	50 U	51 UJ	52 UJ	50 UJ

APPENDIX G.1 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1ER01	11ER01	11ER02	11EB03	11ER04	11ER05	11ER06	11ER07
Sample Date	09/20/97	09/18/97	09/18/97	09/20/97	09/20/97	09/24/97	09/24/97	10/02/97
SEMIVOLATILES (ug/l) (cont.)								
Indeno(1,2,3-cd)pyrene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Isophorone	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Isosafrole	11 U	10 U	10 U	11 U	10 U	10 UJ	10 UJ	10 U
m&p Cresol	11 U	10 U	10 U	11 U	10 U	10 UJ	10 UJ	10 U
m-Dinitrobenzene	21 U	19 U	20 U	22 UJ	20 UJ	20 UJ	21 UJ	20 U
Methapyrilene	26 U	24 U	24 U	27 UJ	25 UJ	26 UJ	26 UJ	25 U
Methyl methanesulfonate	11 U	10 U	10 U	11 UJ	10 UJ	10 U	10 U	10 U
Naphthalene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Nitrobenzene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
N-Nitrosodiethylamine	11 U	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	10 UJ	10 U
N-Nitrosodimethylamine	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-butylamine	11 U	10 U	10 U	11 UJ	10 UJ	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine (1)	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
N-Nitrosomethylethylamine	11 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	10 UJ	10 U
N-Nitrosomorpholine	21 U	19 UJ	20 UJ	22 U	20 U	20 UJ	21 UJ	20 U
N-Nitrosopiperidine	11 U	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	10 UJ	10 U
N-Nitrosopyrrolidine	53 UJ	48 U	49 U	54 U	50 U	51 U	52 U	50 U
o-Cresol	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
o-Toluidine	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
p-Dimethylaminoazobenzene	21 U	19 U	20 U	22 UJ	20 UJ	20 U	21 U	20 U
Pentachlorobenzene	11 U	10 U	10 U	11 U	10 U	10 UJ	10 UJ	10 U
Pentachloronitrobenzene	11 R	10 R	10 R	11 U	10 U	10 UJ	10 UJ	10 R
Pentachlorophenol	53 U	48 U	49 U	54 U	50 U	51 U	52 U	50 U
Phenacetin	11 U	10 U	10 U	11 UJ	10 UJ	10 U	10 U	10 U
Phenanthrene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Phenol	11 U	1 J	10 U	11 U	10 U	10 U	10 U	10 U
p-Phenylenediamine	21 R	19 R	20 R	22 R	20 R	20 R	21 R	20 U

APPENDIX G.1 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1ER01	11ER01	11ER02	11EB03	11ER04	11ER05	11ER06	11ER07
Sample Date	09/20/97	09/18/97	09/18/97	09/20/97	09/20/97	09/24/97	09/24/97	10/02/97
SEMIVOLATILES (ug/l) (cont.)								
Pronamide	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Pyrene	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Pyridine	21 U	5 J	20 U	22 UJ	20 UJ	20 UJ	21 UJ	20 U
Safrole	11 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
sym-Trinitrobenzene	110 UJ	96 U	98 U	110 UJ	100 UJ	100 UJ	100 UJ	99 U
PESTICIDES/PCBs (ug/l)								
4,4'-DDD	0.11 U	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	0.11 U	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	0.11 U	NA	NA	NA	NA	NA	NA	NA
Aldrin	0.054 U	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	0.054 U	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	0.54 U	NA	NA	NA	NA	NA	NA	NA
beta-BHC	0.054 U	NA	NA	NA	NA	NA	NA	NA
delta-BHC	0.054 U	NA	NA	NA	NA	NA	NA	NA
Dieldrin	0.11 U	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	0.054 U	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	0.11 U	NA	NA	NA	NA	NA	NA	NA
Endosulfan sulfate	0.11 U	NA	NA	NA	NA	NA	NA	NA
Endrin	0.11 U	NA	NA	NA	NA	NA	NA	NA
Endrin aldehyde	0.11 U	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	0.054 U	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	0.54 U	NA	NA	NA	NA	NA	NA	NA
Heptachlor	0.054 U	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	0.054 U	NA	NA	NA	NA	NA	NA	NA
Isodrin	0.054 U	NA	NA	NA	NA	NA	NA	NA
Kepone	0.32 U	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	0.54 U	NA	NA	NA	NA	NA	NA	NA
Toxaphene	1.1 U	NA	NA	NA	NA	NA	NA	NA

APPENDIX G.1 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1ER01	11ER01	11ER02	11EB03	11ER04	11ER05	11ER06	11ER07
Sample Date	09/20/97	09/18/97	09/18/97	09/20/97	09/20/97	09/24/97	09/24/97	10/02/97
PESTICIDES/PCBs (ug/l) (cont.)								
Aroclor-1016	0.54 U	0.5 U	0.48 U	0.5 U	0.58 U	0.54 U	0.54 U	0.5 U
Aroclor-1221	0.54 U	0.5 U	0.48 U	0.5 U	0.58 U	0.54 U	0.54 U	0.5 U
Aroclor-1232	0.54 U	0.5 U	0.48 U	0.5 U	0.58 U	0.54 U	0.54 U	0.5 U
Aroclor-1242	0.54 U	0.5 U	0.48 U	0.5 U	0.58 U	0.54 U	0.54 U	0.5 U
Aroclor-1248	0.54 U	0.5 U	0.48 U	0.5 U	0.58 U	0.54 U	0.54 U	0.5 U
Aroclor-1254	1.1 U	0.99 U	0.96 U	1 U	1.2 U	1.1 U	1.1 U	0.99 U
Aroclor-1260	1.1 U	0.99 U	0.96 U	1 U	1.2 U	1.1 U	1.1 U	0.99 U
CHLORINATED HERBICIDES (ug/l)								
2,4,5-T	0.1 U	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	0.1 U	NA	NA	NA	NA	NA	NA	NA
2,4-D	1 U	NA	NA	NA	NA	NA	NA	NA
OP-PESTICIDES (ug/l)								
Dimethoate	2 U	NA	NA	NA	NA	NA	NA	NA
Disulfoton	2 U	NA	NA	NA	NA	NA	NA	NA
Famphur	2 U	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	2 U	NA	NA	NA	NA	NA	NA	NA
O,O,O-Triethylphosphorothioate	2 U	NA	NA	NA	NA	NA	NA	NA
Parathion	2 U	NA	NA	NA	NA	NA	NA	NA
Phorate	2 U	NA	NA	NA	NA	NA	NA	NA
Sulfotep	2 U	NA	NA	NA	NA	NA	NA	NA
Thionazin	2 U	NA	NA	NA	NA	NA	NA	NA

APPENDIX G.1 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1ER01	11ER01	11ER02	11EB03	11ER04	11ER05	11ER06	11ER07
Sample Date	09/20/97	09/18/97	09/18/97	09/20/97	09/20/97	09/24/97	09/24/97	10/02/97
DIOXINS (ug/l)								
2,3,7,8-TCDD	0.00017 U	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	0.00033 U	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	0.00021 U	NA	NA	NA	NA	NA	NA	NA
Total PeCDD	0.00034 U	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	0.00026 U	NA	NA	NA	NA	NA	NA	NA
Total TCDD	0.00017 U	NA	NA	NA	NA	NA	NA	NA
Total TCDF	0.00015 U	NA	NA	NA	NA	NA	NA	NA
EXPLOSIVES (ug/l)								
2,4,6-TNT	1.6 U	NA	NA	NA	NA	NA	NA	NA
2,4-DNT/2,6-DNT	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrotoluene	3.1 U	NA	NA	NA	NA	NA	NA	NA
3-Nitrotoluene	3.1 U	NA	NA	NA	NA	NA	NA	NA
4-Nitrotoluene	3.1 U	NA	NA	NA	NA	NA	NA	NA
Amino-DNTs	NA	NA	NA	NA	NA	NA	NA	NA
HMX	1.6 U	NA	NA	NA	NA	NA	NA	NA
RDX (Cyclonite)	1.6 U	NA	NA	NA	NA	NA	NA	NA
Tetryl	3.1 U	NA	NA	NA	NA	NA	NA	NA
TPH (ug/l)								
Diesel Range Organics	NA	120 U	120 U	120 U	140 U	150 U	120 U	120 U
Gasoline Range Organics	NA	50 U	50 U	50 U	50 U	50 U	50 U	50 U
ASBESTOS								
Asbestos (MFL)	8 U	NA	NA	NA	NA	NA	NA	NA

APPENDIX G.2
QA/QC RESULTS, INORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS

APPENDIX G.2

QA/QC RESULTS, INORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 1 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1RB01	1RB02	1RB03	1RB04	1RB05
Sample Date	10/15/96	10/22/96	10/25/96	10/26/96	10/29/96
Inorganics (ug/l)					
Antimony, Soluble	16 U	16 U	16 U	16 U	16 U
Arsenic, Soluble	1.6 U	1.6 UJ	1.6 U	1.6 U	1.6 U
Barium, Soluble	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Beryllium, Soluble	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Cadmium, Soluble	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Chromium, Soluble	1.7 U	1.7 U	2	1.7 U	1.8
Cobalt, Soluble	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
Copper, Soluble	2.2	2.1	1.7	1.5 U	1.5 U
Lead, Soluble	1.3 U	1.3 U	1.3 U	2.3 J	1.3 U
Mercury, Soluble	0.1 U	0.1 J	0.1 U	0.1 U	0.1 U
Nickel, Soluble	6.7 U	6.7 U	6.7 U	6.7 U	6.7 U
Selenium, Soluble	1.8 U	1.8 U	1.8 U	1.8 U	1.4 U
Silver, Soluble	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Thallium, Soluble	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
Tin, Soluble	8.7 U	8.7 U	8.7 U	8.7 U	8.7 U
Vanadium, Soluble	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Zinc, Soluble	13.9	7.1	2.6	4.3	7.7
Properties (ug/l)					
Cyanide	10 U	10 U	10 U	10 U	10 U
Sulfide	1,000 U	1,000 U	1,000 U	1,000 U	1,000 U

APPENDIX G.2

QA/QC RESULTS, INORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 2 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	2RB01	2RB02	2RB03	2RB04	2RB05
Sample Date	11/07/96	11/10/96	11/12/96	11/13/96	11/18/96
Inorganics (ug/l)					
Antimony, Soluble	16 U	16 U	16 R	16 R	16 U
Arsenic, Soluble	1.3 U	1.3 U	2 U	2 U	2 U
Barium, Soluble	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Beryllium, Soluble	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Cadmium, Soluble	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Chromium, Soluble	1.7 U	2.7	1.7 U	1.7 U	1.7 U
Cobalt, Soluble	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
Copper, Soluble	4.2	3.5	1.5 U	1.5 U	1.5 U
Lead, Soluble	1.3 UJ	1.3 UJ	0.7 U	0.7 U	0.7 U
Mercury, Soluble	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel, Soluble	6.7 U	6.7 U	6.7 U	6.7 U	6.7 U
Selenium, Soluble	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Silver, Soluble	1.8 U	1.8 U	1.8 UJ	1.8 UJ	1.8 U
Sodium, Soluble	NA	NA	438	183	175
Thallium, Soluble	1.3 U	1.3 U	1.6 U	1.6 U	1.6 U
Tin, Soluble	8.7 U	8.7 U	8.7 U	8.7 U	8.7 U
Vanadium, Soluble	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Zinc, Soluble	2.7	3.2	1 U	1 U	3.5
Properties					
Cyanide, total	10 U	10 U	10 U	10 U	10 U
Sulfide	1,000 U	1,000 U	1,000 U	1,000 U	500 U

APPENDIX G.2

QA/QC RESULTS, INORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMU 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	45RB01	45RB02
Sample Date	11/22/96	11/22/96
RCRA Metals (ug/l)		
Arsenic, Soluble	1.6 U	1.6 U
Barium, Soluble	1.4 U	1.5
Cadmium, Soluble	2.1 U	2.1 U
Chromium, Soluble	1.7 U	1.7 U
Lead, Soluble	0.7 U	0.83
Mercury, Soluble	0.1 U	0.1 U
Selenium, Soluble	9 U	9 U
Silver, Soluble	1.8 U	1.8 U

APPENDIX G.2

QA/QC RESULTS, INORGANIC COMPOUNDS, EQUIPMENT RINSATE BLANKS
SWMUs 1 AND 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	1ER01	11ER01	11ER02	11EB03	11ER04	11ER05	11ER06	11ER07
Sample Date	09/20/97	09/18/97	09/18/97	09/20/97	09/20/97	09/24/97	09/24/97	10/02/97
Inorganics (ug/l)								
Antimony, Total	1.9 U	1.9 U	1.9 U	2.2 J	1.9 U	1.9 U	1.9 U	1.9 U
Arsenic, Total	2.5 U	1.3 U	1.3 U	1.3 U	1.3 U	2.5 U	2.5 U	2.5 U
Barium, Total	0.43 J	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	1.6 J	0.3 U
Beryllium, Total	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Cadmium, Total	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Chromium, Total	1.2 J	1.1 J	1.1 J	0.96 J	0.83 J	1.2 J	0.92 J	1.7 J
Cobalt, Total	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Copper, Total	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Lead, Total	1.6 J	1 U	1 U	2.9 R	2.5 R	1.5 J	2.4 J	1.5 U
Mercury, Total	0.1 U	0.1 U	0.1 U	3.2	0.12 J	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	0.8 U	0.8 U
Selenium, Total	2.2 U	1.8 UJ	1.8 UJ	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Silver, Total	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Thallium, Total	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Tin, Total	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Vanadium, Total	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Zinc, Total	1.7 J	1.6 J	1 J	1.8 J	1.3 J	6.9 J	2.2 J	1 J
Asbestos (MFL)	8 U	NA	NA	NA	NA	NA	NA	NA

APPENDIX G.3
QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS

APPENDIX G.3

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SWMUs 1 AND 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01		FB02	
Date Sampled	10/23/96		10/29/96	
Volatiles (ug/L)				
1,1,1,2-Tetrachloroethane	10	U	10	U
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
1,2,3-Trichloropropane	10	U	10	U
1,2-Dibromo-3-chloropropane	20	U	20	U
1,2-Dibromoethane	20	U	20	U
1,2-Dichloroethane	5	U	5	UJ
1,2-Dichloroethene (Total)	5	U	5	U
1,2-Dichloropropane	5	U	5	U
2-Butanone	10	U	10	U
2-Chloro-1,3-butadiene	100	R	100	R
2-Hexanone	10	U	10	U
3-Chloropropene	20	U	20	U
4-Methyl-2-pentanone	10	U	10	U
Acetone	10	U	25	
Acetonitrile	100	U	100	U
Acrolein	500	U	500	U
Acrylonitrile	100	U	100	UJ
Benzene	5	U	5	U
Bromodichloromethane	11		5	U
Bromoform	5	U	5	U
Bromomethane	10	U	10	U
Carbon disulfide	5	U	5	UJ
Carbon tetrachloride	5	U	5	UJ
Chlorobenzene	5	U	5	U
Chloroethane	10	U	10	U
Chloroform	66		5	U
Chloromethane	10	U	10	U

APPENDIX G.3

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SWMUs 1 AND 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01		FB02	
Date Sampled	10/23/96		10/29/96	
cis-1,3-Dichloropropene	5	U	5	U
Dibromochloromethane	5	U	5	U
Dibromomethane	10	U	10	UJ
Dichlorodifluoromethane	20	U	20	U
Ethyl methacrylate	5	U	5	U
Ethylbenzene	20	UJ	20	UJ
Iodomethane	10	U	10	UJ
Isobutanol	2,000	R	2,000	R
Isobutyl Alcohol	NA		NA	
Methacrylonitrile	20	U	20	U
Methyl methacrylate	5	U	6	
Methylene chloride	20	U	20	UJ
Pentachloroethane	20	UJ	20	UJ
Propionitrile	50	R	50	R
Propionitrile (Ethyl Cyanide)	NA		NA	
Styrene	5	U	5	U
Tetrachloroethene	5	U	5	U
Toluene	5	U	1	J
trans-1,3-Dichloropropene	5	U	5	U
trans-1,4-Dichloro-2-butene	20	UJ	20	UJ
Trichloroethene	5	U	5	U
Trichlorofluoromethane	10	U	10	UJ
Vinyl Acetate	10	UJ	10	UJ
Vinyl chloride	10	U	10	U
Xylene (total)	5	U	5	U

APPENDIX G.3

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SWMUs 1 AND 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	FB02
Date Sampled	10/23/96	10/29/96
Semivolatiles (ug/L)		
1,2,4,5-Tetrachlorobenzene	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U
1,2-Diphenylhydrazine	10 U	10 U
1,3,5-Trinitrobenzene	NA	NA
1,3-Dichlorobenzene	10 U	10 U
1,3-Dinitrobenzene	NA	NA
1,4-Dichlorobenzene	10 U	10 U
1,4-Dioxane	20 U	20 UJ
1,4-Naphthoquinone	50 U	50 U
1-Naphthylamine	20 U	20 UJ
2,2'-Oxybis(1-Chloropropane)	10 U	10 UJ
2,3,4,6-Tetrachlorophenol	10 U	10 U
2,4,5-Trichlorophenol	50 U	50 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
2,4-Dinitrotoluene	10 U	10 U
2,6-Dichlorophenol	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U
2-Acetylaminofluorene	20 U	20 U
2-Chloronaphthalene	10 U	10 U
2-Chlorophenol	10 U	10 U
2-Methylnaphthalene	10 U	10 U
2-Naphthylamine	25 U	25 U
2-Nitroaniline	50 U	50 U
2-Nitrophenol	10 U	10 U
2-Picoline	10 U	10 UJ
2-sec-butyl-4,6-dinitrophenol	20 U	20 U
3,3'-Dichlorobenzidine	20 U	20 U

APPENDIX G.3

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SWMUs 1 AND 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	FB02
Date Sampled	10/23/96	10/29/96
3,3'-Dimethylbenzidine	50 U	50 UJ
3-Methylcholanthrene	10 U	10 U
3-Nitroaniline	50 U	50 U
4,6-Dinitro-2-Methylphenol	NA	NA
4,6-Dintro-2-Methyphenol	50 U	50 U
4-Aminobiphenyl	20 U	20 UJ
4-bromophenyl-phenylether	10 U	10 U
4-Chloro-3-methylphenol	20 U	20 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
4-Nitroquinoline-1-Oxide	50 U	50 U
5-Nitro-O-Toluidine	20 U	20 U
7,12-Dimethylbenz(a)anthracene	20 U	20 U
A,A-Dimethylphenethylamine	50 UJ	50 U
Acenaphthene	10 U	10 U
Acenaphthylene	10 U	10 U
Acetophenone	10 U	10 U
Aniline	50 U	50 U
Anthracene	10 U	10 U
Aramite	20 U	20 UJ
Benzidine	99 U	99 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

APPENDIX G.3

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SWMUs 1 AND 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	FB02
Date Sampled	10/23/96	10/29/96
Bis(2-ethylhexyl)phthalate	10 U	1 J
Butylbenzylphthalate	10 U	10 U
Carbazole	10 U	10 U
Chlorobenzilate	10 U	10 U
Chrysene	10 U	10 U
Diallate	10 UJ	10 UJ
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	NA	NA
Diphenylamine	10 U	10 U
Ethyl methanesulfonate	10 U	10 U
Fluoranthene	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
Hexachlorophene	99 U	99 U
Hexachloropropene	50 U	50 U
Indeno(1,2,3-cd)pyrene	10 U	10 U
Isophorone	10 U	10 U
Isosafrole	10 U	10 UJ
Meta & Para-Cresol	10 U	10 U
Meta-Dinitrobenzene	20 U	20 U
Methapyrilene	25 UJ	25 U
Methyl methanesulfonate	10 U	10 U
Naphthalene	10 U	10 U
Nitrobenzene	10 U	10 U

APPENDIX G.3

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SWMUs 1 AND 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01		FB02	
Date Sampled	10/23/96		10/29/96	
N-Nitrosodiethylamine	10	UJ	10	UJ
N-Nitrosodimethylamine	10	U	10	UJ
N-Nitroso-di-n-butylamine	10	U	10	U
N-Nitroso-di-n-propylamine	10	U	10	U
N-Nitrosodiphenylamine (1)	10	U	10	U
N-Nitrosomethylethylamine	10	UJ	10	UJ
N-Nitrosomorpholine	20	UJ	20	UJ
N-Nitrosopiperidine	10	UJ	10	UJ
N-Nitrosopyrrolidine	50	U	50	U
o-Cresol	10	U	10	U
o-Toluidine	10	U	10	U
p-Dimethylaminoazobenzene	20	U	20	UJ
Pentachlorobenzene	10	U	10	U
Pentachloronitrobenzene	10	U	10	U
Pentachlorophenol	50	U	50	U
Phenacetin	10	U	10	UJ
Phenanthrene	10	U	10	U
Phenol	10	U	10	U
p-Phenylenediamine	20	U	20	U
Pronamide	10	U	10	U
Pyrene	10	U	10	U
Pyridine	20	U	20	U
Safrole	10	U	10	U
sym-Trinitrobenzene	99	U	99	R
Pesticides/PCBS (ug/L)				
4,4'-DDD	0.1	U	0.1	U
4,4'-DDE	0.1	U	0.1	U
4,4'-DDT	0.1	U	0.1	U
Aldrin	0.05	U	0.05	U
Alpha-BHC	0.05	U	0.05	U
Alpha-Chlordane	0.5	U	0.5	U

APPENDIX G.3

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SWMUs 1 AND 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	FB02
Date Sampled	10/23/96	10/29/96
Aroclor-1016	0.5 U	0.5 U
Aroclor-1221	0.5 U	0.5 U
Aroclor-1232	0.5 U	0.5 U
Aroclor-1242	0.5 U	0.5 U
Aroclor-1248	0.5 U	0.5 U
Aroclor-1254	1 U	1 U
Aroclor-1260	1 U	1 U
Beta-BHC	0.05 U	0.05 U
Delta-BHC	0.05 U	0.05 U
Dieldrin	0.1 U	0.1 U
Endosulfan I	0.05 U	0.05 U
Endosulfan II	0.1 U	0.1 U
Endosulfan sulfate	0.1 U	0.1 U
Endrin	0.1 U	0.1 U
Endrin aldehyde	0.1 U	0.1 U
Gamma-BHC (Lindane)	0.05 U	0.05 U
Gamma-Chlordane	0.5 U	0.5 U
Heptachlor	0.05 U	0.05 U
Heptachlor epoxide	0.05 U	0.05 U
Isodrin	0.05 U	0.05 U
Kepone	0.1 UJ	0.1 U
Methoxychlor	0.5 U	0.5 U
Toxaphene	1 U	1 U
EXPLOSIVES (ug/L)		
1,3,5-Trinitrobenzene	0.16 U	NA
1,3-Dinitrobenzene	0.15 U	NA
2,4,6-TNT	0.16 U	NA
2,4-DNT/2,6-DNT	0.25 U	NA
2-Nitrotoluene	0.64 U	NA
3-Nitrotoluene	0.64 U	NA
4-Nitrotoluene	1.9 U	NA

APPENDIX G.3

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SWMUs 1 AND 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	FB02
Date Sampled	10/23/96	10/29/96
Amino-DNTS	0.25 U	NA
HMX	1.4 U	NA
Nitrobenzene	0.27 U	NA
RDX	0.69 U	NA
Tetryl	0.48 U	NA
Dioxins (ug/L)		
2378-TCDD	0.0006 U	0.0004 U
TotalHxCDD	0.0009 U	0.0012 U
TotalHxCDF	0.0006 U	0.0006 U
TotalPeCDD	0.0005 U	0.0017 U
TotalPeCDF	0.0007 U	0.0018 U
TotalTCDD	0.0006 U	0.0004 U
TotalTCDF	0.0005 U	0.0003 U
Herbicides (ug/L)		
2,4-D	1.1 U	1.1 U
2,4,5-TP (SILVEX)	0.11 U	0.11 U
2,4,5-T	0.11 U	0.11 U
Dimethoate	2 U	1.9 U
Disulfoton	2 U	1.9 U
Famphur	2 U	1.9 U
Methyl parathion	2 U	1.9 U
O,O,O-Triethylphosphorothioate	2 U	1.9 U
Parathion	2 U	1.9 U
Phorate	2 U	1.9 U
Sulfotep	2 U	1.9 U
Thionazin	2 U	1.9 U

APPENDIX G.3 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	11FB01	11FB02
Sample Date	09/19/97	09/24/97	09/24/97
VOLATILES (ug/l)			
1,1,1,2-Tetrachloroethane	10 U	10 U	10 U
1,1,1-Trichloroethane	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U
1,1-Dichloroethane	5 UJ	5 U	2 J
1,1-Dichloroethene	5 U	5 UJ	5 U
1,2,3-Trichloropropane	10 U	10 U	10 U
1,2-Dibromo-3-chloropropane	20 U	20 U	20 U
1,2-Dibromoethane	20 U	20 U	20 U
1,2-Dichloroethane	5 UJ	5 U	5 U
1,2-Dichloroethene (Total)	5 U	5 U	5 U
1,2-Dichloropropane	5 UJ	5 U	5 U
2-Butanone	10 UJ	10 U	10 U
2-Chloro-1,3-butadiene	100 U	100 U	100 U
2-Hexanone	10 UJ	10 U	10 U
3-Chloropropene	20 U	20 UJ	20 UJ
4-Methyl-2-pentanone	10 UJ	10 U	10 U
Acetone	20 J	10 U	10 U
Acetonitrile	100 UJ	100 UJ	100 UJ
Acrolein	500 UJ	500 R	500 R
Acrylonitrile	100 UJ	100 U	100 U
Benzene	5 U	5 U	3 J
Bromodichloromethane	13 J	31 J	15 J
Bromoform	5 U	5 U	5 U
Bromomethane	10 UJ	10 UJ	10 UJ
Carbon disulfide	5 U	5 UJ	5 U
Carbon tetrachloride	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U

APPENDIX G.3 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	11FB01	11FB02
Sample Date	09/19/97	09/24/97	09/24/97
VOLATILES (ug/l) (cont.)			
Chloroethane	10 U	10 UJ	10 UJ
Chloroform	160 J	94 J	140 J
Chloromethane	10 UJ	10 UJ	10 UJ
cis-1,3-Dichloropropene	5 U	5 U	5 U
Dibromochloromethane	5 U	8 J	5 U
Dibromomethane	10 U	10 U	10 U
Dichlorodifluoromethane	20 UJ	20 UJ	20 UJ
Ethyl methacrylate	20 U	20 U	20 U
Ethylbenzene	5 U	5 U	4 J
Iodomethane	10 U	10 UJ	10 UJ
Isobutanol	2000 R	2000 R	2000 R
Methacrylonitrile	20 UJ	20 U	20 U
Methyl methacrylate	20 UJ	20 U	20 U
Methylene chloride	5 UJ	5 U	5 U
Pentachloroethane	20 UJ	20 U	20 U
Propionitrile	50 R	50 R	50 R
Styrene	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U
Toluene	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U
trans-1,4-Dichloro-2-butene	20 U	20 U	20 U
Trichloroethene	5 U	5 U	5 U
Trichlorofluoromethane	10 U	10 U	10 U
Vinyl Acetate	10 UJ	10 U	10 U
Vinyl chloride	10 UJ	10 UJ	10 UJ
Xylene (total)	5 U	5 U	7 J

APPENDIX G.3 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	11FB01	11FB02
Sample Date	09/19/97	09/24/97	09/24/97
SEMIVOLATILES (ug/l)			
1,2,4,5-Tetrachlorobenzene	10 U	10 UJ	10 UJ
1,2,4-Trichlorobenzene	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U
1,2-Diphenylhydrazine	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U
1,4-Dioxane	20 U	19 U	20 U
1,4-Naphthoquinone	49 UJ	48 U	50 U
1-Naphthylamine	20 U	19 U	20 U
2,2'-Oxybis(1-Chloropropane)	10 U	10 U	10 U
2,3,4,6-Tetrachlorophenol	10 U	10 J	10 UJ
2,4,5-Trichlorophenol	49 U	48 U	50 R
2,4,6-Trichlorophenol	10 U	10 U	10 R
2,4-Dichlorophenol	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 R
2,4-Dinitrophenol	49 U	48 U	50 R
2,4-Dinitrotoluene	10 U	10 U	10 U
2,6-Dichlorophenol	10 UJ	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U
2-Acetylaminofluorene	20 U	19 U	20 U
2-Chloronaphthalene	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 R
2-Methylnaphthalene	10 U	10 U	10 U
2-Naphthylamine	24 U	24 U	25 U
2-Nitroaniline	49 U	48 U	50 U
2-Nitrophenol	10 U	10 U	10 R
2-Picoline	10 U	10 U	10 U
2-sec-butyl-4,6-dinitrophenol	20 U	19 U	20 U

APPENDIX G.3 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	11FB01	11FB02
Sample Date	09/19/97	09/24/97	09/24/97
SEMIVOLATILES (ug/l) (cont.)			
3,3'-Dichlorobenzidine	20 U	19 U	20 U
3,3'-Dimethylbenzidine	49 UJ	48 UJ	50 UJ
3-Methylcholanthrene	10 U	10 UJ	10 UJ
3-Nitroaniline	49 UJ	48 U	50 U
4,6-Dinitro-2-methylphenol	49 U	48 U	50 R
4-Aminobiphenyl	20 UJ	19 U	20 U
4-bromophenyl-phenylether	10 U	10 U	10 U
4-Chloro-3-methylphenol	20 U	19 U	20 R
4-Chloroaniline	20 U	19 U	20 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U
4-Nitroaniline	49 U	48 U	50 U
4-Nitrophenol	49 U	48 U	50 R
4-Nitroquinoline-1-oxide	49 UJ	48 R	50 R
5-Nitro-o-toluidine	20 U	19 UJ	20 UJ
7,12-Dimethylbenz(a)anthracene	20 U	19 UJ	20 UJ
Acenaphthene	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U
Acetophenone	2 J	10 U	10 U
alpha, alpha-Dimethylphenethylamine	49 U	48 UJ	50 UJ
Aniline	49 U	48 UJ	50 UJ
Anthracene	10 U	10 U	10 U
Aramite	20 R	19 U	20 U
Benzidine	98 UJ	95 UJ	100 UJ
Benzo(a)anthracene	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U

APPENDIX G.3 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	11FB01	11FB02
Sample Date	09/19/97	09/24/97	09/24/97
SEMIVOLATILES (ug/l) (cont.)			
Benzoic acid	49 U	48 U	50 R
Benzyl alcohol	10 U	10 U	10 R
Bis(2-chloroethoxy)methane	10 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10 U	12	10 U
Butylbenzylphthalate	10 U	10 U	10 U
Carbazole	10 U	10 U	10 U
Chlorobenzilate	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U
Diallate	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U
Dimethylphthalate	10 U	10 U	10 U
Di-n-butylphthalate	10 U	10 U	10 U
Di-n-octylphthalate	10 U	10 U	10 U
Diphenylamine	10 U	10 U	10 U
Ethyl methanesulfonate	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 UJ	10 UJ
Hexachlorobutadiene	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 UJ	10 UJ
Hexachloroethane	10 U	10 U	10 U
Hexachlorophene	98 UJ	95 R	100 R
Hexachloropropene	49 U	48 UJ	50 UJ
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U

APPENDIX G.3 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	11FB01	11FB02
Sample Date	09/19/97	09/24/97	09/24/97
SEMIVOLATILES (ug/l) (cont.)			
Isosafrole	10 U	10 UJ	10 UJ
m&p Cresol	10 U	10 UJ	10 R
m-Dinitrobenzene	20 U	19 UJ	20 UJ
Methapyrilene	24 U	24 UJ	25 UJ
Methyl methanesulfonate	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U
N-Nitrosodiethylamine	10 U	10 UJ	10 UJ
N-Nitrosodimethylamine	10 U	10 U	10 U
N-Nitroso-di-n-butylamine	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U
N-Nitrosomethylethylamine	10 UJ	10 UJ	10 UJ
N-Nitrosomorpholine	20 UJ	19 UJ	20 UJ
N-Nitrosopiperidine	10 U	10 UJ	10 UJ
N-Nitrosopyrrolidine	49 U	48 U	50 U
o-Cresol	10 U	10 U	10 R
o-Toluidine	10 U	10 U	10 U
p-Dimethylaminoazobenzene	20 U	19 U	20 U
Pentachlorobenzene	10 U	10 UJ	10 UJ
Pentachloronitrobenzene	10 R	10 UJ	10 UJ
Pentachlorophenol	49 U	48 U	50 R
Phenacetin	10 U	10 U	10 U
Phenanthrene	10 U	10 U	10 U
Phenol	3 J	10 U	10 R
p-Phenylenediamine	20 U	19 R	20 R
Pronamide	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U

APPENDIX G.3 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	11FB01	11FB02
Sample Date	09/19/97	09/24/97	09/24/97
SEMIVOLATILES (ug/l) (cont.)			
Pyridine	20 U	19 UJ	20 UJ
Safrole	10 U	10 U	10 U
sym-Trinitrobenzene	98 U	95 J	100 UJ
PESTICIDES/PCBs (ug/l)			
4,4'-DDT	0.098 U	NA	NA
4,4'-DDD	0.098 U	NA	NA
4,4'-DDE	0.098 U	NA	NA
Aldrin	0.049 U	NA	NA
alpha-BHC	0.049 U	NA	NA
alpha-Chlordane	0.49 U	NA	NA
beta-BHC	0.049 U	NA	NA
delta-BHC	0.049 U	NA	NA
Dieldrin	0.098 U	NA	NA
Endosulfan I	0.049 U	NA	NA
Endosulfan II	0.098 U	NA	NA
Endosulfan sulfate	0.098 U	NA	NA
Endrin	0.098 U	NA	NA
Endrin aldehyde	0.098 U	NA	NA
gamma-BHC (Lindane)	0.049 U	NA	NA
gamma-Chlordane	0.49 U	NA	NA
Heptachlor	0.049 U	NA	NA
Heptachlor epoxide	0.049 U	NA	NA
Isodrin	0.049 U	NA	NA
Kepone	0.29 UJ	NA	NA
Methoxychlor	0.49 U	NA	NA
Toxaphene	0.98 U	NA	NA

APPENDIX G.3 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	11FB01	11FB02
Sample Date	09/19/97	09/24/97	09/24/97
PESTICIDES/PCBs (ug/l) (cont.)			
Aroclor-1016	0.49 U	0.47 U	0.5 U
Aroclor-1221	0.49 U	0.47 U	0.5 U
Aroclor-1232	0.49 U	0.47 U	0.5 U
Aroclor-1242	0.49 U	0.47 U	0.5 U
Aroclor-1248	0.49 U	0.47 U	0.5 U
Aroclor-1254	0.98 U	0.94 U	1 U
Aroclor-1260	0.98 U	0.94 U	1 U
CHLORINATED HERBICIDES (ug/l)			
2,4,5-T	0.1 U	NA	NA
2,4,5-TP (Silvex)	0.1 U	NA	NA
2,4-D	1 U	NA	NA
OP-PESTICIDES (ug/l)			
Dimethoate	2 U	NA	NA
Disulfoton	2 U	NA	NA
Famphur	2 U	NA	NA
Methyl parathion	2 U	NA	NA
O,O,O-Triethylphosphorothioate	2 U	NA	NA
Parathion	2 U	NA	NA
Phorate	2 U	NA	NA
Sulfotep	2 U	NA	NA
Thionazin	2 U	NA	NA
EXPLOSIVES (ug/l)			
2,4,6-TNT	1.6 UJ	NA	NA
2,4-DNT/2,6-DNT	NA	NA	NA
2-Amino-4,6-dinitrotoluene	3.1 U	NA	NA
2-Nitrotoluene	3.1 U	NA	NA
3-Nitrotoluene	3.1 U	NA	NA
4-Amino-2,6-dinitrotoluene	3.1 U	NA	NA

APPENDIX G.3 (continued)

QA/QC RESULTS, ORGANIC COMPOUNDS, FIELD BLANKS
SMWUs 01 AND 45 - 1997 RFI INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	11FB01	11FB02
Sample Date	09/19/97	09/24/97	09/24/97
EXPLOSIVES (ug/l) (cont.)			
4-Nitrotoluene	3.1 U	NA	NA
Amino-DNTs	NA	NA	NA
HMX	1.6 U	NA	NA
Nitramine	3.1 UJ	NA	NA
RDX (Cyclonite)	1.6 U	NA	NA
DIOXINS (ug/l)			
2,3,7,8-TCDD	0.00027 U	NA	NA
Total HxCDD	0.00025 U	NA	NA
Total HxCDF	0.00013 U	NA	NA
Total PeCDD	0.00024 U	NA	NA
Total PeCDF	0.00034 U	NA	NA
Total TCDD	0.00027 U	NA	NA
Total TCDF	0.00011 U	NA	NA
ASBESTOS			
Asbestos (MFL)	20 U	NA	NA
TPH (ug/l)			
Diesel Range Organics	120 U	120 U	120 U
Gasoline Range Organics	25 J	50 U	50 U

APPENDIX G.4
QA/QC RESULTS, INORGANIC COMPOUNDS, FIELD BLANKS

APPENDIX G.4

QA/QC RESULTS, INORGANIC COMPOUNDS, FIELD BLANKS
SWMUs 1 AND 11/45 - PHASE I
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01		FB02	
Date Sampled	10/23/96		10/29/96	
Inorganic, Total (ug/L)				
Antimony, Total	16	U	16	U
Arsenic, Total	1.6	U	1.6	U
Barium, Total	6.6		1.4	U
Beryllium, Total	0.4	U	0.4	U
Cadmium, Total	2.1	U	2.1	U
Chromium, Total	1.7	U	1.7	U
Cobalt, Total	2.8	U	2.8	U
Copper, Total	2.7		1.9	
Cyanide, Total	10	U	10	U
Lead, Total	2.2	J	15.1	
Mercury, Total	0.11	J	0.1	U
Nickel, Total	6.7	U	6.7	U
Selenium, Total	1.8	U	1.4	U
Silver, Total	1.8	U	1.8	U
Thallium, Total	1.6	U	1.6	U
Tin, Total	8.7	U	8.7	U
Vanadium, Total	1.7	U	1.7	U
Zinc, Total	32.6		7.5	

APPENDIX G.4

QA/QC RESULTS, INORGANIC COMPOUNDS, FIELD BLANKS
SWMUs 1 AND 11/45 - PHASE II
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	FB01	11FB01	11FB02
Sample Date	09/19/97	09/24/97	09/24/97
Inorganics (ug/l)			
Antimony, Total	1.9 U	1.9 U	1.9 U
Arsenic, Total	1.3 U	2.5 U	2.5 U
Barium, Total	3.3 J	28.7 J	4.2 J
Beryllium, Total	0.3 U	0.3 U	0.3 U
Cadmium, Total	0.4 U	0.4 U	0.4 U
Chromium, Total	2.1 J	1.4 J	1.9 J
Cobalt, Total	0.7 U	0.7 U	0.7 U
Copper, Total	0.5 U	22.3 J	0.5 U
Lead, Total	1 U	2.3 J	1.5 J
Mercury, Total	0.1 U	0.1 U	0.1 U
Nickel, Total	0.8 U	0.8 U	0.8 U
Selenium, Total	1.8 U	2.2 U	2.2 U
Silver, Total	0.6 U	0.6 U	0.6 U
Thallium, Total	2.1 U	2.1 U	2.1 U
Tin, Total	1.8 U	1.8 U	1.8 U
Vanadium, Total	1.7 J	1.9 J	1.5 J
Zinc, Total	10.7 J	29.4	3.2 J
Properties			
Asbestos	20 U	NA	NA
Cyanide, total	NA	NA	NA

APPENDIX G.5
QA/QC RESULTS, ORGANIC COMPOUNDS, TRIP BLANKS

APPENDIX G.5

QA/QC RESULTS, ORGANIC COMPOUNDS, TRIP BLANKS
SWMUs 1 AND 11/45 - PHASE II
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	11TB01	11TB02	11TB03	11TB04	13TB01	13TB02	1TB01	TB01	TB02
Sample Date	09/20/97	09/20/97	09/24/97	10/02/97	09/16/97	09/18/97	10/01/97	09/18/97	09/18/97
Volatiles (ug/l)									
1,1,1,2-Tetrachloroethane	10 U	10 U	10 U	10 U	10 UJ	10 UJ	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 U
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 UJ	5 UJ
1,1-Dichloroethene	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dibromo-3-chloropropane	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 U	20 U	20 U
1,2-Dibromoethane	20 U	20 U	20 U	20 U	20 UJ	20 UJ	20 U	20 U	20 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	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 UJ	5 UJ
2-Butanone	10 U	10 UJ	10 U	10 U	10 UJ	10 UJ	10 U	10 UJ	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 UJ	10 U	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ
3-Chloropropene	20 U	20 U	20 UJ	20 U	20 U	20 U	20 U	20 U	20 U
4-Methyl-2-pentanone	10 U	10 UJ	10 U	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ
Acetone	10 U	10 U	10 U	10 U	10 UJ	11 J	10 U	10 UJ	10 UJ
Acetonitrile	100 U	100 UJ	100 UJ	100 U	100 U	100 U	100 UJ	100 UJ	100 UJ
Acrolein	500 U	500 R	500 R	500 R	500 UJ	500 UJ	500 U	500 UJ	500 UJ
Acrylonitrile	100 U	100 U	100 U	100 U	100 UJ	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	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	5 U	5 U	5 U
Bromomethane	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ
Carbon disulfide	5 U	5 U	5 UJ	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	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX G.5

QA/QC RESULTS, ORGANIC COMPOUNDS, TRIP BLANKS
SWMUs 1 AND 11/45 - PHASE II
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	11TB01	11TB02	11TB03	11TB04	13TB01	13TB02	1TB01	TB01	TB02
Sample Date	09/20/97	09/20/97	09/24/97	10/02/97	09/16/97	09/18/97	10/01/97	09/18/97	09/18/97
Chloroethane	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 UJ	10 U
Chloroform	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ
Chloromethane	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U	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	5 U	5 U	5 U	5 U	5 U	5 U
Dibromomethane	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U
Dichlorodifluoromethane	20 U	20 UJ	20 UJ	20 U	20 UJ	20 UJ	20 U	20 UJ	20 UJ
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylmethacrylate	20 U	20 UJ	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Iodomethane	10 U	10 U	10 UJ	10 U	10 UJ	10 UJ	10 U	10 U	10 U
Isobutanol	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R
Methacrylonitrile	20 U	20 UJ	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ
Methyl methacrylate	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 UJ	20 UJ
Methylene chloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ
Pentachloroethane	20 U	20 U	20 U	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ
Propionitrile	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R	50 R
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 U	5 UJ	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 UJ	20 UJ	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 U	10 U	10 U	10 UJ	10 U	10 U	10 UJ	10 UJ
Vinyl chloride	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 UJ	10 UJ
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX H
ANALYTICAL DATA STATISTICS

CRITERIA COMPARISON SUMMARIES

SWMU 1

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW03	1MW04	1SB01
Sample ID			05SS126	05SS128	05SS130	05SS132	05SS135	05SS138	1MW01-00	1MW02-00	1MW03-00	1MW04-00	1SB01-00
Sample Date			11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/11/96	10/11/96	10/13/96	10/13/96
Depth Range (ft.)	(ug/kg)	(ug/kg)	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg)													
Acetone	20,440,000	782,143	73 J	170 UJ	38 J	48 J	13 U	83 J	11 U	15 J	12 UJ	12 UJ	13 U
Carbon disulfide	20,440,000	782,143	14	10	18	10	6 U	6 U	6 U	6 UJ	6 UJ	6 U	6 U
Ethylbenzene	20,440,000	782,143	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U	1 J
Methylene chloride	763,093	85,163	31 U	35 U	28 U	29 U	8	6 U	6 U	6 UJ	6 UJ	6 U	6 U
Tetrachloroethene	110,062	12,283	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 UJ	3 J
Xylene (total)	408,800,000	15,642,857	NA	NA	NA	NA	NA	NA	6 U	6 UJ	6 UJ	6 U	5 J
SEMIVOLATILES (ug/kg)													
2-Methylnaphthalene	4,088,000	156,429	1500 U	1500 U	1560 U	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Acenaphthylene	12,264,000	469,286	1500 U	1500 U	1560 U	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Anthracene	61,320,000	2,346,429	1500 U	1500 U	1560 U	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Benzo(a)anthracene	7,840	875	1500 U	1500 U	1560 U	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Benzo(a)pyrene	784	88	1500 U	1500 U	1560 UJ	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Benzo(b)fluoranthene	7,840	875	1500 U	1500 U	1560 UJ	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Benzo(g,h,i)perylene	6,132,000	234,643	1500 U	1500 U	1560 UJ	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Benzo(k)fluoranthene	78,400	8,750	1500 U	1500 U	1560 UJ	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Bis(2-ethylhexyl)phthalate	408,800	45,623	1500 U	1500 U	430 J	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Butylbenzylphthalate	40,880,000	1,564,286	1500 U	1500 U	1560 U	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Chrysene	784,000	87,497	1500 U	1500 U	1560 U	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Dibenzo(a,h)anthracene	784	88	1500 U	1500 U	1560 UJ	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Fluoranthene	8,176,000	312,857	1500 U	1500 U	1560 U	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Indeno(1,2,3-cd)pyrene	7,840	875	1500 U	1500 U	1560 UJ	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
Pyrene	6,132,000	234,643	1500 U	1500 U	1560 U	1500 U	1600 UJ	1500 U	370 U	400 U	410 U	390 U	420 U
PESTICIDES/PCBs (ug/kg)													
4,4'-DDD	23,847	2,661	1.8 J	0.26 J	180 NJ	4.1 UJ	4 U	3.7 U	9 U	9.6 U	9.8 U	9.4 U	10 U
4,4'-DDE	16,833	1,879	5.5	2.2 J	480 J	0.63 J	4 U	3.7 U	9 U	9.6 U	4.1	7.4	1.2 J
4,4'-DDT	16,833	1,879	2.1 J	2.9 J	**3500** CD	0.49 J	4 U	0.11 NJ	9 U	9.6 U	4.5	14	2.5
Endrin	61,320	2,346	0.12 NJ	3.9 U	40 U	4.1 UJ	4 U	3.7 U	9 U	9.6 U	9.8 U	9.4 U	10 U
Heptachlor	1,272	142	2 UJ	2 UJ	21 U	2.1 NJ	0.12 J	1.9 UJ	4.5 U	4.8 U	4.9 U	4.7 U	5 U
Methoxychlor	1,022,000	39,107	0.44 NJ	21 UJ	210 U	21 UJ	21 U	19 UJ	45 U	48 U	49 U	47 U	50 U
DIOXINS (ug/kg)													
HERBICIDES (ug/kg)													
OP-PEST (ug/kg)													
EXPLOSIVES (ug/kg)													
ASBESTOS (ug/kg)													

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	1SB02	1SB03	1SS01	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample ID			1SB02-00	1SB03-00	1SS01	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample Date			10/13/96	10/11/96	10/13/96	10/11/96	10/10/96	10/10/96	10/11/96	10/11/96	10/13/96	10/21/96
Depth Range (ft.)	(ug/kg)	(ug/kg)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg)												
Acetone	20,440,000	782,143	12 UJ	12 U	12 UJ	12 U	11 U	12 U	12 U	12 U	11 UJ	11 UJ
Carbon disulfide	20,440,000	782,143	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Ethylbenzene	20,440,000	782,143	6 UJ	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U
Methylene chloride	763,093	85,163	6 U	6 U	6 U	6 U	6 U	6 UJ	6 U	6 UJ	6 U	6 U
Tetrachloroethene	110,062	12,283	6 UJ	6 U	6 UJ	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 UJ
Xylene (total)	408,800,000	15,642,857	6 UJ	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ	6 U
SEMIVOLATILES (ug/kg)												
2-Methylnaphthalene	4,088,000	156,429	410 U	71 J	370 U	400 U	380 U	410 UJ	400 U	410 U	370 U	380 U
Acenaphthylene	12,264,000	469,286	410 U	410 U	370 U	400 U	380 U	410 UJ	400 U	45 J	370 U	380 U
Anthracene	61,320,000	2,346,429	410 U	48 J	370 U	400 U	380 U	410 UJ	400 U	110 J	370 U	380 U
Benzo(a)anthracene	7,840	875	410 U	180 J	370 U	400 U	380 U	410 UJ	400 U	**930**	56 J	380 U
Benzo(a)pyrene	784	88	410 U	**260** J	370 U	400 U	380 U	410 UJ	400 U	**590**	68 J	380 U
Benzo(b)fluoranthene	7,840	875	410 U	570	370 U	400 U	380 U	410 UJ	400 U	**1500**	100 J	380 U
Benzo(g,h,i)perylene	6,132,000	234,643	410 U	180 J	370 U	400 U	380 U	410 UJ	400 U	230 J	38 J	380 U
Benzo(k)fluoranthene	78,400	8,750	410 U	260 J	370 U	400 U	380 U	410 UJ	400 U	660	46 J	380 U
Bis(2-ethylhexyl)phthalate	408,800	45,623	410 U	410 U	370 U	400 U	380 U	410 UJ	47 J	410 U	370 U	380 U
Butylbenzylphthalate	40,880,000	1,564,286	410 U	410 U	370 U	400 U	380 U	410 UJ	400 U	410 U	75 J	380 U
Chrysene	784,000	87,497	410 U	270 J	370 U	400 U	380 U	410 UJ	400 U	1000	58 J	380 U
Dibenzo(a,h)anthracene	784	88	410 U	57 J	370 U	400 U	380 U	410 UJ	400 U	**91** J	370 U	380 U
Fluoranthene	8,176,000	312,857	410 U	120 J	370 U	400 U	380 U	410 UJ	400 U	770	62 J	380 U
Indeno(1,2,3-cd)pyrene	7,840	875	410 U	190 J	370 U	400 U	380 U	410 UJ	400 U	300 J	47 J	380 U
Pyrene	6,132,000	234,643	410 U	280 J	370 U	400 U	380 U	410 UJ	400 U	2600	82 J	380 U
PESTICIDES/PCBs (ug/kg)												
4,4'-DDD	23,847	2,661	9.7 U	20 U	9.1 U	9.6 U	9.1 U	10 U	9.6 U	49 U	8.8 U	9 U
4,4'-DDE	16,833	1,879	9.7 U	610	9.1 U	2.4	9.1 U	1.7 J	1.6 J	1300	280	9 U
4,4'-DDT	16,833	1,879	1.2 J	340	9.1 U	1.2 J	9.1 U	1.2 J	3.6	270	140	9 U
Endrin	61,320	2,346	9.7 U	20 U	9.1 U	9.6 U	9.1 U	10 U	9.6 U	49 U	8.8 U	9 U
Heptachlor	1,272	142	4.8 U	9.8 U	4.6 U	4.8 U	4.5 U	5 U	4.8 U	24 U	4.4 U	4.5 U
Methoxychlor	1,022,000	39,107	48 U	98 U	46 U	48 U	45 U	50 U	48 U	240 U	44 U	45 U
DIOXINS (ug/kg)												
HERBICIDES (ug/kg)												
OP-PEST (ug/kg)												
EXPLOSIVES (ug/kg)												
ASBESTOS (ug/kg)												

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Industrial RBCs (ug/kg)	EPA Region III Residential RBCs (ug/kg)	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
VOLATILES (ug/kg)							
Acetone	20,440,000	782,143	0/21		0/21		05SS138
Carbon disulfide	20,440,000	782,143	0/21		0/21		05SS130
Ethylbenzene	20,440,000	782,143	0/21		0/21		1SB01-00
Methylene chloride	763,093	85,163	0/21		0/21		05SS135
Tetrachloroethene	110,062	12,283	0/21		0/21		1SB01-00
Xylene (total)	408,800,000	15,642,857	0/15		0/15		1SB01-00
SEMIVOLATILES (ug/kg)							
2-Methylnaphthalene	4,088,000	156,429	0/21		0/21		1SB03-00
Acenaphthylene	12,264,000	469,286	0/21		0/21		1SS06
Anthracene	61,320,000	2,346,429	0/21		0/21		1SS06
Benzo(a)anthracene	7,840	875	0/21		1/21	930	1SS06
Benzo(a)pyrene	784	88	0/21		2/21	260J-590	1SS06
Benzo(b)fluoranthene	7,840	875	0/21		1/21	1500	1SS06
Benzo(g,h,i)perylene	6,132,000	234,643	0/21		0/21		1SS06
Benzo(k)fluoranthene	78,400	8,750	0/21		0/21		1SS06
Bis(2-ethylhexyl)phthalate	408,800	45,623	0/21		0/21		05SS130
Butylbenzylphthalate	40,880,000	1,564,286	0/21		0/21		1SS07
Chrysene	784,000	87,497	0/21		0/21		1SS06
Dibenzo(a,h)anthracene	784	88	0/21		1/21	91J	1SS06
Fluoranthene	8,176,000	312,857	0/21		0/21		1SS06
Indeno(1,2,3-cd)pyrene	7,840	875	0/21		0/21		1SS06
Pyrene	6,132,000	234,643	0/21		0/21		1SS06
PESTICIDES/PCBs (ug/kg)							
4,4'-DDD	23,847	2,661	0/21		0/21		05SS130
4,4'-DDE	16,833	1,879	0/21		0/21		1SS06
4,4'-DDT	16,833	1,879	0/21		1/21	3500-3500	05SS130
Endrin	61,320	2,346	0/21		0/21		05SS126
Heptachlor	1,272	142	0/21		0/21		05SS132
Methoxychlor	1,022,000	39,107	0/21		0/21		05SS126
DIOXINS (ug/kg)							
HERBICIDES (ug/kg)							
OP-PEST (ug/kg)							
EXPLOSIVES (ug/kg)							
ASBESTOS (ug/kg)							

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	2xAverage Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW03	1MW04
Sample ID				05SS126	05SS128	05SS130	05SS132	05SS135	05SS138	1MW01-00	1MW02-00	1MW03-00	1MW04-00
Sample Date				11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/11/96	10/11/96	10/13/96
Depth Range	(ug/kg)	(ug/kg)	(ug/kg)	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Inorganics, Total (ug/kg)													
Aluminum	NE	204400	7821.42857	17100	18200	22600	8220	38500	9180	NA	NA	NA	NA
Antimony	0	81.76	3.12857	11.1 U	11.5 U	11.2 U	11.9 U	5.9 J	2.3 U	2.4 J	2.8 J	1.9 UJ	2.1 J
Arsenic	2.425	3.81547	0.42582	0.71 U	0.73 U	0.71 U	0.76 U	0.75 U	0.69 U	0.67	0.78 UJ	0.78 UJ	1.1 J
Barium	181.2	14308	547.5	180	143	174	143	131	46.5	76.2	53.8	158	83.4
Beryllium	0.45	410	16	0.73 B	1.2	1.2	0.69 B	1.3	0.69 B	0.31	0.32	0.59	0.39
Cadmium	0	204.4	7.82143	1.3	1.4	1.7	0.71 U	4.6	1.3 UJ	0.77	0.27	0.34	0.41
Calcium	NE	NE	NE	9110	6030	8360	10800	3420	2920	NA	NA	NA	NA
Chromium	59.3	613.2	23.46429	13.9 J	16.4 J	24.2 J	20.5 J	19.5	13.5	32.4	30.6	29	21.5 J
Cobalt	43.95	12264	469.28571	16	24.8	24.1	34.6	24.5	16.6	15.2	13.8	22.7	14.3
Copper	234.2	8176	312.85714	131 J	57.4 J	68.5 J	91.6 J	35.3	19.9	169	19.8	45.9	71.2
Iron	NE	61320	2346.42857	31700	41500	47900	13300	69900	19700	NA	NA	NA	NA
Lead	15.25	NE	400(1)	39.6	9.1	18.1	2	2.1 J	1.9 J	3.6 R	4.4	13	8.3
Magnesium	NE	NE	NE	4550	3710	3550	5600	5250	4720	NA	NA	NA	NA
Manganese	NE	4088	156.42857	381 J	1140 J	994 J	776 J	1170	735	NA	NA	NA	NA
Mercury	0.11	NE	NE	0.1 UJ	0.12 UJ	0.11 UJ	0.12 UJ	0.11 U	0.11 U	0.2 U	0.05	0.06	0.03
Nickel	16.55	4088	156.42857	9.3 B	4.6 U	10	18.8	4.7 U	4.3 U	16.5	6.8	11.9	11.3
Potassium	NE	NE	NE	315 U	299 U	430 U	462 U	742 B	320 B	NA	NA	NA	NA
Selenium	1.4625	1022	39.10714	0.56 UJ	0.59 UJ	0.57 UJ	0.61 UJ	0.6 U	0.55 UJ	0.45 J	0.49	0.54 J	0.32 UJ
Silver	0	1022	39.10714	1.7 B	1.5 U	1.5 U	2.3 B	1.1 UJ	1 UJ	0.19 UJ	0.21 UJ	0.22 UJ	0.19 UJ
Sodium	NE	NE	NE	1220	1400	1640	3700	2440 J	4840 J	NA	NA	NA	NA
Sulfide	NE	NE	NE	NA	NA	NA	NA	NA	NA	28.6	27.1 UJ	29.9 UJ	29.3 UJ
Tin	2.425	122640	4692.85714	NA	NA	NA	NA	NA	NA	0.94 U	1 U	1.1	0.92 U
Vanadium	354.5	1430.8	54.75	112 J	210 J	239 J	108 J	195	84.5	84.2	157	186	121
Zinc	125.15	61320	2346.42857	84.9	31.9	63.8	31.6	44.2	18.8	140 J	13.9 J	38.3 J	40.9

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	2 x Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	1SB01	1SB02	1SB03	1SS01	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample ID				1SB01-00	1SB02-00	1SB03-00	1SS01	1SS02	1SS03	1SS04	1SS05	1SS06	1SS07	1SS08
Sample Date				10/13/96	10/13/96	10/11/96	10/13/96	10/11/96	10/10/96	10/10/96	10/11/96	10/11/96	10/13/96	10/21/96
Depth Range	(ug/kg)	(ug/kg)	(ug/kg)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Inorganics, Total (ug/kg)														
Aluminum	NE	204400	7821.42857	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	0	81.76	3.12857	2.9 J	1.5 J	1.9 J	1.3 UJ	1.6 UJ	1.8 UJ	3.3 J	2.1 J	4 J	9.4 J	1.4 UJ
Arsenic	2.425	3.81547	0.42582	1.8 U	0.79 U	0.83 UJ	1.8 U	1.4 UJ	0.69 UJ	0.81 UJ	0.72 UJ	0.77 UJ	2.8	0.29 UJ
Barium	181.2	14308	547.5	127	101	110	90.9	92.9	64.2	107	164	150	133	103
Beryllium	0.45	410	16	0.51	0.11	0.29	0.46	0.53	0.51	0.18	0.29	0.39	0.55	0.58
Cadmium	0	204.4	7.82143	0.23 U	0.38	0.7	0.2	0.56	0.23 U	0.41	0.23 U	0.25 U	35.8	0.19 U
Calcium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	59.3	613.2	23.46429	15 J	40.8 J	17.6	5.9 J	14.3	30	46.6	31.2	26.9	28.9 J	11.7
Cobalt	43.95	12264	469.28571	25.1	28.2	21.5	14.2	15.6	15.6	30.9	27.5	20.2	15.7	16.5
Copper	234.2	8176	312.85714	41.5	75	57.1	35.2	45.9	37.9	78.2	66.6	359	166	29.8
Iron	NE	61320	2346.42857	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15.25	NE	400(1)	5.4	7.5	25.7	3.4	3	2	9.3	9.1	79.4	101	6.9 J
Magnesium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NE	4088	156.42857	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.11	NE	NE	0.07	0.06	0.06	0.08	0.06	0.02 U	0.06	0.05	0.09	0.09	0.11
Nickel	16.55	4088	156.42857	9.5	16.7	10.2	5.4	8.3	12.7	19.4	14.1	12.5	38.1	6.2
Potassium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1.4625	1022	39.10714	0.8 J	0.18 UJ	0.43 J	0.23 UJ	0.8 U	0.31 U	0.36 UJ	0.51 J	0.48 J	0.64 J	0.81 U
Silver	0	1022	39.10714	0.2 UJ	0.16 UJ	0.18 UJ	0.14 UJ	0.18 UJ	0.2 UJ	0.17 UJ	0.19 UJ	0.21 UJ	2.6 J	0.16 UJ
Sodium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	NE	NE	NE	30.9 UJ	28.4 UJ	29.7 UJ	23 UJ	26.8 UJ	28.4 UJ	31.1 UJ	25.7 UJ	29.6 UJ	27.7 UJ	26.2 UJ
Tin	2.425	122640	4692.85714	0.96 U	0.79 U	1.5	0.69 U	0.86 U	0.95 U	0.8 U	0.94 U	6.7	15.9	0.78 U
Vanadium	354.5	1430.8	54.75	188	209	139	91.6	118	77.4	237	215	190	97.9	122
Zinc	125.15	61320	2346.42857	28.3	35.8	61.6 J	19.1	26.9 J	23.1 J	29 J	36.9 J	136 J	274	24.8

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID Sample Date Depth Range	2 x Average Detected Background (ug/kg)	EPA Region III Industrial RBCs (ug/kg)	EPA Region III Residential RBCs (ug/kg)	Number Exceeding 2 X Average Detected Background	Range Exceeding 2 X Average Detected Background	Number Exceeding EPA Region III RiskInd RBCs	Range Exceeding EPA Region III RiskInd RBCs	Number Exceeding EPA Region III RiskRes RBCs	Range Exceeding EPA Region III RiskRes RBCs	Location Maximum Detect
Inorganics, Total (ug/kg)										
Aluminum	NE	204400	7821.42857	NE		0/6		6/6	8220-38500	05SS135
Antimony	0	81.76	3.12857	11/21	1.5J-9.4J	0/21		4/21	3.3J-9.4J	1SS07
Arsenic	2.425	3.81547	0.42582	1/21	2.8	0/21		3/21	0.67-2.8	1SS07
Barium	181.2	14308	547.5	0/21		0/21		0/21		05SS126
Beryllium	0.45	410	16	14/21	0.46-0.81	0/21		0/21		05SS135
Cadmium	0	204.4	7.82143	14/21	0.2-83.8	0/21		1/21	83.8	1SS07
Calcium	NE	NE	NE	NE		NE		NE		05SS132
Chromium	59.3	613.2	23.46429	0/21		0/21		10/21	24.2J-46.6	1SS04
Cobalt	43.95	12264	469.28571	0/21		0/21		0/21		05SS132
Copper	234.2	8176	312.85714	1/21	359	0/21		1/21	359	1SS06
Iron	NE	61320	2346.42857	NE		1/6	69900	6/6	13300-69900	05SS135
Lead	15.25	NE	400(1)	5/20	18.1-101	NE		0/21		1SS07
Magnesium	NE	NE	NE	NE		NE		NE		05SS132
Manganese	NE	4088	156.42857	NE		0/6		6/6	381J-1170	05SS135
Mercury	0.11	NE	NE	0/21		NE		NE		1SS08
Nickel	16.55	4088	156.42857	4/21	16.7-38.1	0/21		0/21		1SS07
Potassium	NE	NE	NE	NE		NE		NE		05SS135
Selenium	1.4625	1022	39.10714	0/21		0/21		0/21		1SB01-00
Silver	0	1022	39.10714	0/21		0/21		0/21		1SS07
Sodium	NE	NE	NE	NE		NE		NE		05SS138
Sulfide	NE	NE	NE	NE		NE		NE		1MW01-00
Tin	2.425	122640	4692.85714	2/15	6.7-15.9	0/15		0/15		1SS07
Vanadium	354.5	1430.8	54.75	0/21		0/21		21/21	77.4-239J	05SS130
Zinc	125.15	61320	2346.42857	3/21	136J-223	0/21		0/21		1SS07

Notes:

(1) Action level.

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW02	1MW03	1MW03
Sample ID			05SS127	05SS129	05SS131	05SS133	05SS136	05SS139	1MW01-02	1MW02-03	1MW02-11/12	1MW03-03	1MW03-05
Sample Date			11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/28/96	10/28/96	10/22/96	10/22/96
Depth Range (ft.)	(ug/kg)	(ug/kg)	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	4.00-6.00	6.00-8.00	22.00-26.00	6.00-8.00	10.00-12.00
VOLATILES (ug/kg)													
1,2-Dibromo-3-chloropropane	4,088	456	NA	NA	NA	NA	NA	NA	23 UJ	25 U	22 U	25 U	26 U
Acetone	20,440,000	782,143	160 J	12 U	12 U	260 J	54 J	12 UJ	12 U	12 U	11 U	12 UJ	13 UJ
Benzene	197,352	22,025	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	7 U
Carbon disulfide	20,440,000	782,143	21	10	10	2 J	3 J	6 U	6 U	6 U	6 U	6 U	7 U
Tetrachloroethene	110,062	12,283	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 UJ	7 UJ
SEMIVOLATILES (ug/kg)													
Bis(2-ethylhexyl)phthalate	408,800	45,623	1500 U	1500 U	1500 U	1700 U	400 J	420 J	380 U	410 U	370 U	410 U	440 U
Di-n-butylphthalate	20,440,000	782,143	1500 U	1500 U	1500 U	1700 U	1600 UJ	1500 UJ	380 U	410 U	370 U	410 U	440 U
PESTICIDES/PCBS (ug/kg)													
4,4'-DDD	23,847	2,661	3.7 U	4.1 U	44 NJ	0.23 J	3.8 U	3.8 U	9.1 U	9.8 UJ	8.6 UJ	9.9 U	10 U
4,4'-DDE	16,833	1,879	0.49 J	1.2 J	210	1.2 J	3.8 U	3.8 UJ	9.1 U	9.8 U	8.6 U	9.9 U	10 U
4,4'-DDT	16,833	1,879	0.31 NJ	2.6 J	1500 CD	1.2 J	3.8 U	3.8 U	9.1 U	9.8 UJ	8.6 UJ	9.9 U	10 U
delta-BHC	NE	NE	1.9 U	0.19 J	20 U	2.1 U	2 U	2 UJ	4.5 U	4.9 UJ	4.3 UJ	4.9 U	5.2 U
Dieldrin	358	40	3.7 U	4.1 U	38 U	4.2 U	3.8 U	3.8 UJ	9.1 U	9.8 U	8.6 U	9.9 U	10 U
Endosulfan I	1,226,400	46,929	1.9 U	2.1 U	20 U	2.1 U	2 U	2 UJ	4.5 U	4.9 U	4.3 U	4.9 U	5.2 U
Endrin	61,320	2,346	3.7 U	0.39 J	38 U	4.2 U	3.8 U	3.8 U	9.1 U	9.8 U	8.6 U	9.9 U	10 U
DIOXINS (ug/kg)													
Total HxCDD	0.04	0.04	NA	NA	NA	NA	NA	NA	0.14 U	0.3 U	0.07 U	0.23 U	0.12 U
Total HxCDF	0.04	0.04	NA	NA	NA	NA	NA	NA	0.07 U	0.12 U	0.05 U	0.16 U	0.13 U
Total TCDF	0.04	0.04	NA	NA	NA	NA	NA	NA	0.09 J	0.07 U	0.03 U	0.08 U	0.07 U
HERBICIDES (ug/kg)													
OP-PEST (ug/kg)													
EXPLOSIVES (ug/kg)													
ASBESTOS (ug/kg)													

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	1MW04	1MW04	1SB01	1SB02	1SB02	1SB03	1SB03	1MW05	1MW05-05	5GW02
Sample ID			1MW04-02	1MW04-04	1SB01-02/05	1SB02-03/04	1SB02-10/11/12	1SB03-03	1SB03-06	1MW05-01	1MW05-05	5GW02-03
Sample Date			10/15/96	10/15/96	10/25/96	10/26/96	10/26/96	10/24/96	10/24/96	09/18/97	09/18/97	09/18/97
Depth Range (ft.)	(ug/kg)	(ug/kg)	4.00-6.00	8.00-10.00	4.00-12.00	6.00-10.00	20.00-24.00	6.00-8.00	12.00-14.00	1.00-3.00	10.00-12.00	5.00-7.00
VOLATILES (ug/kg)												
1,2-Dibromo-3-chloropropane	4,088	456	24 UJ	23 UJ	2 J	21 U	22 U	26 U	23 U	22 U	24 U	24 U
Acetone	20,440,000	782,143	12 UJ	11 UJ	11 U	11 U	11 U	13 U	11 U	11 UJ	12 U	12 U
Benzene	197,352	22,025	6 U	6 U	6 U	5 U	6 U	6 U	2 J	6 U	6 U	6 U
Carbon disulfide	20,440,000	782,143	6 U	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U	6 U
Tetrachloroethene	110,062	12,283	6 UJ	6 UJ	2 J	5 U	6 U	6 U	6 U	6 UJ	6 R	6 U
SEMIVOLATILES (ug/kg)												
Bis(2-ethylhexyl)phthalate	408,800	45,623	400 U	380 U	360 U	350 U	360 U	410 U	370 U	370 U	390 U	390 U
Di-n-butylphthalate	20,440,000	782,143	400 U	380 U	360 U	350 U	360 U	410 U	370 U	90 J	45 J	390 U
PESTICIDES/PCBS (ug/kg)												
4,4'-DDD	23,847	2,661	9.5 UJ	9 UJ	8.6 UJ	8.3 UJ	8.8 UJ	10 U	9.1 UJ	18 U	19 U	9.5 U
4,4'-DDE	16,833	1,879	9.5 U	9 U	8.6 U	8.3 U	8.8 U	10 U	9.1 U	18 U	19 U	9.5 U
4,4'-DDT	16,833	1,879	9.5 U	32	8.6 UJ	8.3 UJ	8.8 UJ	10 U	9.1 UJ	18 U	19 U	9.5 U
delta-BHC	NE	NE	4.7 U	4.5 U	4.3 UJ	4.1 UJ	4.4 UJ	5 U	4.5 UJ	8.8 U	9.3 U	4.8 U
Dieldrin	358	40	9.5 U	14	8.6 U	8.3 U	8.8 U	10 U	9.1 U	18 U	19 U	9.5 U
Endosulfan I	1,226,400	46,929	4.7 U	7.5	4.3 U	4.1 U	4.4 U	5 U	4.5 U	8.8 U	9.3 U	4.8 U
Endrin	61,320	2,346	9.5 U	9 U	8.6 U	8.3 U	8.8 U	10 U	9.1 U	18 U	19 U	9.5 U
DIOXINS (ug/kg)												
Total HxCDD	0.04	0.04	0.12 U	0.1 U	0.21 U	0.07 U	0.07 U	0.3 J	0.28 U	0.04 U	0.04 U	0.03 U
Total HxCDF	0.04	0.04	0.1 U	0.07 U	0.19 U	0.06 U	0.04 U	0.17 J	0.11 U	0.02 U	0.14 J	0.02 U
Total TCDF	0.04	0.04	0.03 U	0.05 U	0.06 U	0.02 U	0.03 U	0.04 U	0.09 U	0.02 U	0.01 U	0.01 U
HERBICIDES (ug/kg)												
OP-PEST (ug/kg)												
EXPLOSIVES (ug/kg)												
ASBESTOS (ug/kg)												

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	5GW02
Sample ID			5GW02-05
Sample Date			09/18/97
Depth Range (ft.)	(ug/kg)	(ug/kg)	10.00-12.00
VOLATILES (ug/kg)			
1,2-Dibromo-3-chloropropane	4,088	456	23 U
Acetone	20,440,000	782,143	12 U
Benzene	197,352	22,025	6 U
Carbon disulfide	20,440,000	782,143	6 U
Tetrachloroethene	110,062	12,283	6 R
SEMIVOLATILES (ug/kg)			
Bis(2-ethylhexyl)phthalate	408,800	45,623	380 U
Di-n-butylphthalate	20,440,000	782,143	64 J
PESTICIDES/PCBS (ug/kg)			
4,4'-DDD	23,847	2,661	9.2 U
4,4'-DDE	16,833	1,879	9.2 U
4,4'-DDT	16,833	1,879	9.2 U
delta-BHC	NE	NE	4.6 U
Dieldrin	358	40	9.2 U
Endosulfan I	1,226,400	46,929	4.6 U
Endrin	61,320	2,346	9.2 U
DIOXINS (ug/kg)			
Total HxCDD	0.04	0.04	0.03 U
Total HxCDF	0.04	0.04	0.02 U
Total TCDF	0.04	0.04	0.01 U
HERBICIDES (ug/kg)			
OP-PEST (ug/kg)			
EXPLOSIVES (ug/kg)			
ASBESTOS (ug/kg)			

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Industrial RBCs (ug/kg)	EPA Region III Residential RBCs (ug/kg)	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
VOLATILES (ug/kg)							
1,2-Dibromo-3-chloropropane	4,088	456	0/16		0/16		1SB01-02/05
Acetone	20,440,000	782,143	0/22		0/22		05SS133
Benzene	197,352	22,025	0/22		0/22		1SB03-06
Carbon disulfide	20,440,000	782,143	0/22		0/22		05SS127
Tetrachloroethene	110,062	12,283	0/20		0/22		1SB01-02/05
SEMIVOLATILES (ug/kg)							
Bis(2-ethylhexyl)phthalate	408,800	45,623	0/22		0/22		05SS139
Di-n-butylphthalate	20,440,000	782,143	0/22		0/22		1MW05-01
PESTICIDES/PCBS (ug/kg)							
4,4'-DDD	23,847	2,661	0/22		0/22		05SS131
4,4'-DDE	16,833	1,879	0/22		0/22		05SS131
4,4'-DDT	16,833	1,879	0/22		0/22		05SS131
delta-BHC	NE	NE	NE		NE		05SS129
Dieldrin	358	40	0/22		0/22		1MW04-04
Endosulfan I	1,226,400	46,929	0/22		0/22		1MW04-04
Endrin	61,320	2,346	0/22		0/22		05SS129
DIOXINS (ug/kg)							
Total HxCDD	0.04	0.04	1/16	0.3J	1/16	0.3J	1SB03-03
Total HxCDF	0.04	0.04	2/16	0.14J-0.17J	2/16	0.14J-0.17J	1SB03-03
Total TCDF	0.04	0.04	1/16	0.9J	1/16	0.9J	1MW01-02
HERBICIDES (ug/kg)							
OP-PEST (ug/kg)							
EXPLOSIVES (ug/kg)							
ASBESTOS (ug/kg)							

RISK - SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2 x Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	05SS101	05SS102	05SS103	05SS104	05SS105	05SS106	1MW01	1MW02	1MW02
Sample ID				05SS127	05SS129	05SS131	05SS133	05SS136	05SS139	1MW01-02	1MW02-03	1MW02-11/12
Sample Date				11/15/92	11/15/92	11/15/92	11/16/92	11/16/92	11/17/92	10/29/96	10/28/96	10/28/96
Depth Range (ft.)	(mg/kg)	(mg/kg)	(mg/kg)	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	1.5-2.67	4.00-6.00	6.00-8.00	22.00-26.00
Inorganics, Total (mg/kg)												
Aluminum	NE	204,400	7,821	6240	40700	6920	12800	14000	17700	NA	NA	NA
Antimony	0	81.76	3.13	10.6 U	11 U	11.4 U	12.1 U	3 J	2.3 U	2.7 J	2.8 J	2.1 J
Arsenic	2.05	4	0.43	0.67 UJ	0.7 UJ	0.72 U	0.77 U	0.71 U	0.69 U	0.31	0.16 UJ	0.14 UJ
Barium	222	14,308	548	144	166	123	114	385	132	76.5	87.9	53.1
Beryllium	0.74	410	16	0.2 B	0.86 B	0.84 B	0.96 B	0.9 B	0.63 B	0.54	0.87	0.87
Cadmium	0.74	204	7.82	0.63 U	1.7	0.72 B	0.8 B	2.4	1.3 UJ	0.19 U	0.21 U	0.19 U
Calcium	NE	NE	NE	5430	12500	6320	5660	2210	6000	NA	NA	NA
Chromium	133	613	23.46	2.8 J	35.7 J	14.9 J	33.3 J	9.6	51.7	37.1	19.1	9.5
Cobalt	30	12,264	469	18.8	23.8	22.5	35.5	16.5	16	19.9	13.7	13.7
Copper	193	8,176	313	53.3 J	106 J	25.8 J	141 J	31.6	33.4	52.6	58.4	266
Iron	NE	61,320	2,346	8630	48800	19400	25900	38600	27200	NA	NA	NA
Lead	8.68	NE	NE	5.9	4.6	4.7	3.1	2 J	1.6 J	1.4 R	0.91 J	4.1 J
Magnesium	NE	NE	NE	5510	5730	3360	6910	5350	10200	NA	NA	NA
Manganese	NE	4,088	156	620 J	848 J	876 J	971 J	508	656	NA	NA	NA
Mercury	0.09	NE	NE	0.11 UJ	0.1 UJ	0.12 UJ	0.12 UJ	0.1 U	0.11 U	0.03 U	0.02 U	0.02 U
Nickel	31.9	4,088	156	4.2 U	13.3	4.9 B	20.8	4.5 U	10.8	16.5	8.2	7.3
Potassium	NE	NE	NE	245 U	371 U	316 U	606 U	580 B	205 U	NA	NA	NA
Selenium	0.57	1,022	39.11	0.54 UJ	0.56 UJ	0.58 UJ	0.62 UJ	0.57 U	0.55 UJ	0.31 J	0.36 UJ	0.32 UJ
Silver	0	1,022	39.11	1.7 B	1.5 U	1.6 B	1.6 U	1.1 UJ	1 UJ	0.16 UJ	0.18 UJ	0.33 UJ
Sodium	NE	NE	NE	750 B	2810	730 B	3010	4370 J	6520 J	NA	NA	NA
Tin	2.96	122,640	4,693	NA	NA	NA	NA	NA	NA	0.78 U	0.85 U	0.79 U
Vanadium	462	1,431	54.75	39.1 J	223 J	131 J	160 J	134	80.7	111	141	111
Zinc	88.63	61,320	2,346	28.6	42.2	20.2	44.7	28.5	49.4	27.8 J	27.5	46

RISK - SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2 x Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	1MW03	1MW03	1MW04	1MW04	1SB01	1SB02	1SB02
Sample ID				1MW03-03	1MW03-05	1MW04-02	1MW04-04	1SB01-02/05	1SB02-03/04	1SB02-10/11/12
Sample Date				10/22/96	10/22/96	10/15/96	10/15/96	10/25/96	10/26/96	10/26/96
Depth Range (ft.)	(mg/kg)	(mg/kg)	(mg/kg)	6.00-8.00	10.00-12.00	4.00-6.00	8.00-10.00	4.00-12.00	6.00-10.00	20.00-24.00
Inorganics, Total (mg/kg)										
Aluminum	NE	204,400	7,821	NA	NA	NA	NA	NA	NA	NA
Antimony	0	81.76	3.13	2.7 J	3.6 J	1.8 UJ	2.8 J	1.4 UJ	3.8 J	1.5 UJ
Arsenic	2.05	4	0.43	1.6 UJ	1.8 UJ	0.91 U	1.3 U	0.7 UJ	0.7 UJ	0.74 UJ
Barium	222	14,308	548	291	152	137	191	156	89.5	95.6
Beryllium	0.74	410	16	1.2	0.62	0.36	0.15	0.5	0.47	0.53
Cadmium	0.74	204	7.82	0.21 U	0.22 U	0.24 U	0.21	0.19 U	0.18 U	0.19 U
Calcium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA
Chromium	133	613	23.46	20.8	26.9	29.3 J	9.3 J	5.4	28.6	24.8
Cobalt	30	12,264	469	33.1	22	22.9	16.9	16.5	18.4	17.3
Copper	193	8,176	313	81.9	79.1	106	544	113	85.5	88.9
Iron	NE	61,320	2,346	NA	NA	NA	NA	NA	NA	NA
Lead	8.68	NE	NE	0.72 J	1.1 J	1.7	35.8	1.2 J	0.47 J	0.48 J
Magnesium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA
Manganese	NE	4,088	156	NA	NA	NA	NA	NA	NA	NA
Mercury	0.09	NE	NE	0.02 U	0.03 U	0.03	1.1	0.02 U	0.02 U	0.02 U
Nickel	31.9	4,088	156	13.6	10.1	14.5	9	7	19.2	16
Potassium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA
Selenium	0.57	1,022	39.11	0.36 UJ	0.4 UJ	0.21 UJ	0.75 UJ	1.6 UJ	1.6 UJ	1.7 UJ
Silver	0	1,022	39.11	0.36 UJ	0.19 UJ	0.2 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.17 UJ
Sodium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA
Tin	2.96	122,640	4,693	0.87 U	0.92 U	18.5	11.5	0.79 U	0.76 U	0.8 U
Vanadium	462	1,431	54.75	187	163	196	164	142	150	134
Zinc	88.63	61,320	2,346	72.7	72.8	141	58.8	34	27.7	34.1

RISK - SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2 x Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	1SB03	1SB03	1MW05	1MW05-05	5GW02	5GW02
Sample ID				1SB03-03	1SB03-06	1MW05-01	1MW05-05	5GW02-03	5GW02-05
Sample Date				10/24/96	10/24/96	09/18/97	09/18/97	09/18/97	09/18/97
Depth Range (ft.)	(mg/kg)	(mg/kg)	(mg/kg)	6.00-8.00	12.00-14.00	1.00-3.00	10.00-12.00	5.00-7.00	10.00-12.00
Inorganics, Total (mg/kg)									
Aluminum	NE	204,400	7,821	NA	NA	NA	NA	NA	NA
Antimony	0	81.76	3.13	2.3 J	1.4 UJ	0.17 J	0.14 UJ	0.37 J	0.76 J
Arsenic	2.05	4	0.43	0.17 UJ	0.71 UJ	0.56 U	0.68 U	0.68 U	0.52 UJ
Barium	222	14,308	548	112	102	28.8	44	123	129
Beryllium	0.74	410	16	0.58	0.43	0.12 J	0.15 J	0.19 J	0.2 J
Cadmium	0.74	204	7.82	0.21 U	0.19 U	0.17 U	0.15 U	0.24 U	0.22 U
Calcium	NE	NE	NE	NA	NA	NA	NA	NA	NA
Chromium	133	613	23.46	8.9	6.8	45.1	78	27.5	40.1
Cobalt	30	12,264	469	12.3	9.4	25.7 J	28.2 J	15.3 J	18.2 J
Copper	193	8,176	313	63.6	54.3	19.5	42.8	55	69.1
Iron	NE	61,320	2,346	NA	NA	NA	NA	NA	NA
Lead	8.68	NE	NE	18.2 J	0.92 J	1.4	1.1	1.3	0.99
Magnesium	NE	NE	NE	NA	NA	NA	NA	NA	NA
Manganese	NE	4,088	156	NA	NA	NA	NA	NA	NA
Mercury	0.09	NE	NE	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	31.9	4,088	156	6.6	5.8	21.9 J	31.8 J	11.2 J	11.8 J
Potassium	NE	NE	NE	NA	NA	NA	NA	NA	NA
Selenium	0.57	1,022	39.11	0.38 UJ	0.32 UJ	0.15 UJ	0.19 UJ	0.19 U	0.29 UJ
Silver	0	1,022	39.11	0.18 UJ	0.16 UJ	0.1 J	0.3 J	0.1 J	0.06 U
Sodium	NE	NE	NE	NA	NA	NA	NA	NA	NA
Tin	2.96	122,640	4,693	6.3	0.79 U	1.6 J	1.9 J	1.8 J	2 J
Vanadium	462	1,431	54.75	134	97.1	101	121	91.9	92.6
Zinc	88.63	61,320	2,346	35.2	19.2	33	37	30	34.5

RISK - SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	2 x Average Detected Background (mg/kg)	EPA Region III Industrial RBCs (mg/kg)	EPA Region III Residential RBCs (mg/kg)	Number Exceeding 2 X Average Detected Background	Range Exceeding 2 X Average Detected Background	Number Exceeding EPA Region III RiskInd RBCs	Range Exceeding EPA Region III RiskInd RBCs	Number Exceeding EPA Region III RiskRes RBCs	Range Exceeding EPA Region III RiskRes RBCs	Location Maximum Detect
Inorganics, Total (mg/kg)										
Aluminum	NE	204,400	7,821	NE		0/6		4/6	12800-40700	05SS129
Antimony	0	81.76	3.13	12/22	0.17J-3.8J	0/22		2/22	3.6J-3.8J	1SB02-03/04
Arsenic	2.05	4	0.43	0/22		0/22		0/22		1MW01-02
Barium	222	14,308	548	2/22	291-385	0/22		0/22		05SS136
Beryllium	0.74	410	16	7/22	0.84-1.2	0/22		0/22		1MW03-03
Cadmium	0.74	204	7.82	3/22	0.9B-2.4	0/22		0/22		05SS136
Calcium	NE	NE	NE	NE		NE		NE		05SS129
Chromium	133	613	23.46	0/22		0/22		12/22	24.8-78	1MW05-05
Cobalt	30	12,264	469	2/22	33.1-35.5	0/22		0/22		05SS133
Copper	193	8,176	313	2/22	266-544	0/22		1/22	544	1MW04-04
Iron	NE	61,320	2,346	NE		0/6		6/6	8630-48800	05SS129
Lead	8.68	NE	NE	2/22	18.2J-35.8	NE		NE		1MW04-04
Magnesium	NE	NE	NE	NE		NE		NE		05SS139
Manganese	NE	4,088	156	NE		0/6		6/6	508-971J	05SS133
Mercury	0.09	NE	NE	1/22	1.1	NE		NE		1MW04-04
Nickel	31.9	4,088	156	0/22		0/22		0/22		1MW05-05
Potassium	NE	NE	NE	NE		NE		NE		05SS136
Selenium	0.57	1,022	39.11	0/22		0/22		0/22		1MW01-02
Silver	0	1,022	39.11	5/22	0.1J-1.7B	0/22		0/22		05SS127
Sodium	NE	NE	NE	NE		NE		NE		05SS139
Tin	2.96	122,640	4,693	3/16	6.3-18.5	0/16		0/16		1MW04-02
Vanadium	462	1,431	54.75	0/22		0/22		21/22	80.7-223J	05SS129
Zinc	88.63	61,320	2,346	1/22	141	0/22		0/22		1MW04-02

RISK - SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID		EPA Region III	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	1MW01
Sample ID	Federal	Tapwater	5GW1	5GW2	5GW3	5GW4	5GW5	5GW01	5GW02	5GW03	5GW04	5GW05	05GW101	1MW01
Sample Date	MCL *	RBC	03/06/86	03/06/86	03/06/86	03/06/86	03/12/86	10/12/87	10/12/87	10/13/87	10/13/87	10/12/87	12/1/92	11/05/96
	(ug/l)	(ug/l)												
VOLATILES (ug/l)														
Chloroform	0.15	100	0.54	0.43 U	0.46 U	0.46 U	0.48 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	NA	5 U
1,1,2,2-Tetrachloroethane	0.05	NE	1.1	0.49 U	0.52 U	0.51 U	0.51 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	NA	5 U
SEMIVOLATILES (ug/l)														
Pentachlorophenol	0.56	1	22	11	12	25	10 U	10 U	10 U	10 U	10 U	10 U	52 U	50 U
Bis(2-ethylhexyl)phthalate	4.78	6	1	1	1 U	1	2	1 U	1 U	1.5	1	22	3 J	2 R
Phenols	NE	NE	NA	NA	NA	NA	NA	76	30	350	800	220	NA	NA
PESTICIDES/PCBs (ug/l)														
4,4'-DDE	0.20	NE	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.1 U	0.1 U
Heptachlor	0.002	0.4	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.471 U	0.008 J	0.05 U
Aldrin	0.004	NE	0.045	0.013 U	0.013 U	0.013 U	0.014 U	0.008 U	0.008 U	0.008 U	0.008 U	0.824 U	0.05 U	0.05
beta-BHC	0.04	NE	0.013 U	0.02	0.013 U	0.013 U	0.014 U	0.005 U	0.005 U	0.005 U	0.005 U	0.471 U	0.05 U	0.05 U
HERBICIDES (ug/l)														
2,4,5-TP (Silvex)	29.2	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2 U
2,4,5-T	36.5	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2 U
DIOXINS (ug/l)														
Total HxCDD	0	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0004 U

OP-PEST (ug/l)
EXPLOSIVES (ug/l)
ASBESTOS (ug/l)

RISK - SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID		EPA Region III	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW02
Sample ID	Federal	Tapwater	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW02
Sample Date	MCL	RBC	11/05/96	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
	(ug/l)	(ug/l)								
VOLATILES (ug/l)										
Chloroform	0.15	100	5 U	5 U	2 J	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	0.05	NE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
SEMIVOLATILES (ug/l)										
Pentachlorophenol	0.56	1	54 U	56 U	56 U	57 U	50 U	50 U	53 U	52 U
Bis(2-ethylhexyl)phthalate	4.78	6	81 U	11 U	11 U	11 U	14 U	10 U	10 U	10 U
Phenols	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/l)										
4,4'-DDE	0.20	NE	0.056 J	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.11 U	0.12 U
Heptachlor	0.002	0.4	0.056 UJ	0.05 U	0.05 U	0.048 U	0.05 U	0.05 U	0.053 U	0.059 U
Aldrin	0.004	NE	0.1 J	0.05 U	0.05 U	0.048 U	0.05 U	0.05 U	0.053 U	0.059 U
beta-BHC	0.04	NE	0.056 UJ	0.05 U	0.05 U	0.048 U	0.05 U	0.05 U	0.053 U	0.059 U
HERBICIDES (ug/l)										
2,4,5-TP (Silvex)	29.2	50	0.11 U	0.081 J	0.11 U	0.11 U	1.1 U	1.2 U	0.11 U	0.11 U
2,4,5-T	36.5	NE	0.26	0.12 U	0.11 U	0.11 U	1.1 U	1.2 U	0.11 U	0.11 U
DIOXINS (ug/l)										
Total HxCDD	0	NE	0.0004 U	0.0003 U	0.0006 U	0.0005 U	0.0005 J	0.0006 U	0.0004 U	0.00036 U
OP-PEST (ug/l)										
EXPLOSIVES (ug/l)										
ASBESTOS (ug/l)										

RISK - SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal MCL (ug/l)	EPA Region III Tapwater RBC (ug/l)	Number Exceeding Federal MCL	Range Exceeding Federal MCL	Number Exceeding EPA Region III Tapwater RBC	Range Exceeding EPA Region III Tapwater RBC	Location Maximum Detect
VOLATILES (ug/l)							
Chloroform	0.15	100	2/19	0.54 - 2J	0/19		1MW04
1,1,2,2-Tetrachloroethane	0.05	NE	1/19	1.1	NE		5GW1
SEMIVOLATILES (ug/l)							
Pentachlorophenol	0.56	1	4/20	11-25	4/20	11-25	5GW4
Bis(2-ethylhexyl)phthalate	4.78	6	1/20	22	1/20	22	5GW05
Phenols	NE	NE	NE		NE		5GW04
PESTICIDES/PCBs (ug/l)							
4,4'-DDE	0.20	NE	0/20		NE		1MW02
Heptachlor	0.002	0.4	1/20	0.003J	0/20		05GW101
Aldrin	0.004	NE	3/20	0.03-0.1J	NE		1MW02
beta-BHC	0.04	NE	0/20		NE		5GW2
HERBICIDES (ug/l)							
2,4,5-TP (Silvex)	29.2	50	0/9		0/9		1MW03
2,4,5-T	36.5	NE	0/9		NE		1MW02
DIOXINS (ug/l)							
Total HxCDD	0	NE	1/9	0.0005J	NE		5GW02
OP-PEST (ug/l)							
EXPLOSIVES (ug/l)							
ASBESTOS (ug/l)							

RISK - SUMMARY OF INORGANIC (TOTAL) DETECTIONS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal MCL	EPA Region III Risk Tapwater RBC	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01	5GW02	5GW03	5GW04	5GW05	5GW01
Sample ID			5GW1	5GW2	5GW3	5GW4	5GW5	5GW01	5GW02	5GW03	5GW04	5GW05	05GW101A
Sample Date			03/06/86	03/06/86	03/06/86	03/06/86	03/12/86	10/12/87	10/12/87	10/13/87	10/13/87	10/12/87	12/01/92
	(ug/l)	(ug/l)											
Inorganics, Total (ug/l)													
Aluminum	NE	3,650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	598 J
Antimony	6	1.46	24 U	24 U	24 U	24 U	18 U	21 U	21 U	21 U	21 U	21 U	47.2 U
Arsenic	50	0.04	**20.5**	15 U	93.4	88.6	83.9	**2.5**	3.2 U	3.2 U	3.2 U	3.2 U	3 U
Barium	2,000	255.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	164 B
Beryllium	4	7.3	3 U	3 U	3 U	5.06	3 U	1 U	1 U	1 U	1 U	1 U	0.6 U
Cadmium	5	1.83	3 U	3 U	3 U	3 U	3 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.8 U
Calcium	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	158000
Chromium	100	10.95	3.25	6.05	**18.1**	**26.9**	**28.4**	**16**	9.7	205	178	163	10.3 UJ
Chromium (Hexavalent)	NE	10.95	20 U	20 U	**22**	20 U	**34.6**	10 U	10 U	10 U	10 U	**110**	NA
Cobalt	NE	219	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.6 U
Copper	1300(1)	146	23.9	58.2	1850	113	55.8	2.8 U	9.2	1780	2.8 U	**154**	5.9 B
Iron	NE	1,095	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	857 J
Lead	15(1)	NE	24 U	24 U	24 U	24 U	21 U	20 U	20 U	4000 U	2000 U	2000 U	1.8 U
Magnesium	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150000
Manganese	NE	73	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**162** J
Mercury	2	NE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ
Nickel	100	73	3 U	4.32	46.3	48	12.6	8.6 U	8.6 U	34.1	17.8	20.5	18.7 U
Selenium	50	18.25	21 U	21 U	21 U	21 U	21 U	10.5	9.5	359	310	322	2.4 UJ
Silver	NE	18.25	3 U	3 U	3 U	3 U	3 U	3.6 U	3.7	**37.7**	**24.7**	**37.6**	6.3 U
Sodium	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1040000 J
Thallium	2	0.26	10.6	9.64	4310	3860	3450	5 U	5 U	10 U	10 U	69.4	1.5 UJ
Tin	NE	2,190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NE	25.55	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**41.7** B
Zinc	NE	1,095	33.2	55.1	124	**4580**	76.3	35	1.8 U	**222**	2	192	25.8

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC (TOTAL) DETECTIONS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal MCL	EPA Region III	1MW01	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW02
Sample ID		Risk Tapwater	1MW01	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW02
Sample Date		RBC	11/05/96	11/05/96	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
	(ug/l)	(ug/l)									
Inorganics, Total (ug/l)											
Aluminum	NE	3,650	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	6	1.46	80 U	16 U	16 U	251	16 U	80 U	80 U	**2.5** J	1.4 J
Arsenic	50	0.04	26 R	26 R	26 R	26 R	26 R	26 R	26 R	2.1 U	2.1 U
Barium	2,000	255.5	**723**	47.5	248	**806**	177	45.5	69.7	**350**	**690**
Beryllium	4	7.3	2 U	0.4 U	0.4 U	4.8	0.4 U	2 U	2 U	0.82 J	0.67 J
Cadmium	5	1.83	30.9 J	2.1 UJ	2.1 UJ	2.1 UJ	55 J	20.4 J	24.6 J	0.3 U	0.3 U
Calcium	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	10.95	**50.6**	1.7 U	2.3	259	1.7 U	8.5 U	8.5 U	113	**59.1**
Chromium (Hexavalent)	NE	10.95	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NE	219	86.5	2.8 U	3.5	**354**	2.8 U	157	77.2	104	59.1
Copper	1300(1)	146	**1010**	6.2	15.5	2950	9.8	1720	8.5	81.9	**199**
Iron	NE	1,095	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15(1)	NE	37.7 J	13 R	13 R	144 J	26 R	26 R	26 R	6.3	4.9
Magnesium	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NE	73	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NE	0.62	0.1 U	0.1 U	65	0.1 U	0.1	0.1 U	0.1 U	0.1 U
Nickel	100	73	53.7	6.7 U	9.8	188	6.7 U	33.5 U	35.9	**86.9**	41.5
Selenium	50	18.25	36 R	36 R	36 R	36 R	36 R	36 R	36 R	2 UJ	2 UJ
Silver	NE	18.25	9 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	9 UJ	9 UJ	0.82 J	0.7 U
Sodium	NE	NE	197000 J	157000 J	370000 J	206000 J	938000 J	210000 J	170000 J	153000	864000
Thallium	2	0.26	16 UJ	16 UJ	16 UJ	16 UJ	16 UJ	16 UJ	16 UJ	1.9 U	1.9 U
Tin	NE	2,190	43.5 U	8.7 U	8.7 U	43.8	8.7 U	43.5 U	43.5 U	2.5 J	2.8 J
Vanadium	NE	25.55	**511**	21.3	**32.1**	**913**	**50.4**	8.5 U	8.5 U	**330**	**344**
Zinc	NE	1,095	138	5.3	16.6	760	12.5	67.5	23.8	182	134

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC (TOTAL) DETECTIONS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal MCL (ug/l)	EPA Region III Risk Tapwater RBC (ug/l)	Number Exceeding Federal MCL	Range Exceeding Federal MCL	Number Exceeding EPA Region III Risk Tapwater	Range Exceeding EPA Region III Risk Tapwater	Location Maximum Detect
Inorganics, Total (ug/l)							
Aluminum	NE	3,650	NE		0/1		05GW101A
Antimony	6	1.46	1/20	25.1	2/20	2.5J - 25.1	1MW04
Arsenic	50	0.04	3/20	83.9-93.4	5/20	2.5 - 93.4	5GW3
Barium	2,000	255.5	0/10		4/10	350-806	1MW04
Beryllium	4	7.3	2/20	4.8-5.06	0/20		5GW4
Cadmium	5	1.83	4/20	5.5J-30.9J	4/20	5.5J - 30.9J	1MW01
Calcium	NE	NE	NE		NE		05GW101A
Chromium	100	10.95	5/20	113-259	11/20	16-259	1MW04
Chromium (Hexavalent)	NE	10.95	NE		3/10	22-110	5GW05
Cobalt	NE	219	NE		1/10	354	1MW04
Copper	1300(1)	146	4/20	1720-2950	7/20	154-2950	1MW04
Iron	NE	1,095	NE		0/1		05GW101A
Lead	15(1)	NE	2/20	37.7J-144J	NE		1MW04
Magnesium	NE	NE	NE		NE		05GW101A
Manganese	NE	73	NE		1/1	162J	05GW101A
Mercury	2	NE	1/20	6.5	NE		1MW04
Nickel	100	73	1/20	188	2/20	86.9-188	1MW04
Selenium	50	18.25	3/20	122-359	3/20	122-359	5GW03
Silver	NE	18.25	NE		3/20	24.7 - 37.7	5GW03
Sodium	NE	NE	NE		NE		05GW101A
Thallium	2	0.26	6/20	9.64-4310	6/20	9.64-4310	5GW3
Tin	NE	2,190	NE		0/9		1MW04
Vanadium	NE	25.55	NE		7/10	32.1-913	1MW04
Zinc	NE	1,095	NE		1/20	4580	5GW4

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC (DISSOLVED) DETECTIONS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal MCL	EPA Region III Tapwater RBC	5GW01	1MW01	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1MW05	5GW02
Sample ID			05GW101B	1MW01	1MW02	1MW03	1MW04	5GW01	5GW02	5GW04	1GW05	5GW02
Sample Date			12/01/92	11/05/96	11/05/96	11/05/96	11/05/96	11/06/96	11/05/96	11/05/96	10/01/97	10/01/97
	(ug/l)	(ug/l)										
Inorganics, Dissolved (ug/l)												
Antimony, Soluble	6	1.46	47.2 U	80 U	16 U	16 U	16 U	16 U	80 U	80 U	1.4 J	1.3 J
Barium, Soluble	2,000	255.5	155 B	127	44	232	29.2	158	36.1	53.9	19.8 J	74.3 J
Cadmium, Soluble	5	1.83	2.8 U	42.1 J	4.7 J	2.1 UJ	4.3 J	2.1 UJ	30.7 J	33.8 J	0.3 U	0.3 U
Calcium, Soluble	NE	NE	145,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Soluble	100	10.95	10.3 UJ	8.5 U	1.7 U	1.7 U	1.7 U	1.7 U	8.5 U	8.5 U	3.2 J	4.3 J
Cobalt, Soluble	NE	219	9.6 U	41.2	3.6	2.8 U	2.8 U	2.8 U	144	83.8	0.93 J	0.8 U
Copper, Soluble	1300(1)	146	6.8 B	11.2	3.2	2.2	3.4	3.3	1680	7.5 U	1.3 U	1.3 U
Iron, Soluble	NE	1,095	51.8 B	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Soluble	NE	NE	143,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese, Soluble	NE	73	97.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel, Soluble	100	73	18.7 U	33.5 U	6.7 U	6.7 U	6.7 U	6.7 U	74	71.7	0.91 J	0.6 U
Sodium, Soluble	NE	NE	1,030,000 J	21,700,000 J	152,000 J	375,000 J	175,000 J	935,000 J	20,400,000 J	18,800,000 J	NA	NA
Thallium, Soluble	2	0.26	16.5 J	16 UJ	16 UJ	16 UJ	16 UJ	16 UJ	16 UJ	16 UJ	1.9 U	1.9 U
Vanadium, Soluble	NE	25.55	20.3 B	8.5 U	16.6	28.9	17.5	42.2	8.5 U	8.5 U	32.6 J	71.1
Zinc, Soluble	NE	1,095	12.1 U	26.2	3.5	3.3	3.3	6.8	41.9	26.6	5.4 J	1.6 J

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC (DISSOLVED) DETECTIONS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal MCL (ug/l)	EPA Region III Tapwater RBC (ug/l)	Number Exceeding Federal MCL	Range Exceeding Federal MCL	Number Exceeding EPA Region III Tapwater RBC	Range Exceeding EPA Region III Tapwater RBC	Location Maximum Detect
Inorganics, Dissolved (ug/l)							
Antimony, Soluble	6	1.46	0/10		0/10		1MW05
Barium, Soluble	2,000	255.5	0/10		0/10		1MW03
Cadmium, Soluble	5	1.83	3/10	30.2J-42.1J	5/10	4.3J-42.1J	1MW01
Calcium, Soluble	NE	NE	NE		NE		05GW101B
Chromium, Soluble	100	10.95	0/10		0/10		5GW02
Cobalt, Soluble	NE	219	NE		0/10		5GW02
Copper, Soluble	1300(1)	146	1/10	1680	1/10	1680	5GW02
Iron, Soluble	NE	1,095	NE		0/1		05GW101B
Magnesium, Soluble	NE	NE	NE		NE		05GW101B
Manganese, Soluble	NE	73	NE		1/1	97.7	05GW101B
Nickel, Soluble	100	73	0/10		1/10	74	5GW02
Sodium, Soluble	NE	NE	NE		NE		1MW01
Thallium, Soluble	2	0.26	1/10	16.5J	1/10	16.5J	05GW101B
Vanadium, Soluble	NE	25.55	NE		4/10	28.9-71.1	5GW02
Zinc, Soluble	NE	1,095	NE		0/10		5GW02

Notes:

(1) Action level.

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE WATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal AWQC - Water & Organisms (ug/l)	Federal AWQC - Organisms Only (ug/l)	5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW1	5SW2	5SW3	5SW4	5SW5
Sample ID			5SW1	5SW2	5SW3	5SW4	5SW5	14SW9	5SW01	5SW02	5SW03	5SW04	5SW05
Sample Date			11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87	10/06/87	10/06/87
Semivolatiles (ug/l)													
Bis(2-ethylhexyl)phthalate	1.8	5.9	1.7	1 U	1.6	2.4	10	NA	1	1	2	1 U	1
Di-n-octylphthalate	NE	NE	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	NA	1	7	4	1 U	2
Phenols	21,000	4,600,000	540	29	57	33	130	NA	NA	NA	NA	NA	NA

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE WATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal AWQC - Water & Organisms (ug/l)	Federal AWQC - Organisms Only (ug/l)	Number Exceeding AWQC Water & Organisms	Range Exceeding Federal Ambient Water	Number Exceeding AWQC - Organisms Only	Range Exceeding AWQC - Organisms Only	Location Maximum Detection
Semivolatiles (ug/l)							
Bis(2-ethylhexyl)phthalate	1.8	5.9	3/10	2-10	1/10	10	5SW5
Di-n-octylphthalate	NE	NE	NE		NE		5SW02
Phenols	21,000	4,600,000	0/5		0/5		5SW1

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE WATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal AWQC Water & Organisms (ug/l)	Federal AWQC - Organisms Only (ug/l)	5SW1	5SW2	5SW3	5SW4	5SW5	5SW1	5SW2	5SW3	5SW4	5SW5
Sample ID			5SW1	5SW2	5SW3	5SW4	5SW5	5SW01	5SW02	5SW03	5SW04	5SW05
Sample Date			11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	10/07/87	10/06/87	10/06/87	10/06/87	10/06/87
Inorganics, Total (ug/l)												
Arsenic	0.02	0.14	102	105	97	96	104	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U
Chromium	170	3400	3 U	6 U	7.49	6	6.39	108	3.7	12.4	7.7	105
Chromium (Hexavalent)	170	3400	20 U	31.9	20 U	20 U	20 U	10 U	10 U	10 U	10 U	10 U
Copper	1300	NE	2	3 U	3 U	3 U	3 U	2.8 U	2.8 U	24.8	2.8 U	2.8 U
Selenium	104	6800	39 U	39 U	39 U	39 U	39 U	181	11	14.9	8	221
Silver	91	NE	6 U	6 U	6 U	6 U	6 U	28.8	3.6 U	3.8	3.6 U	28.9
Thallium	1.70	6.3	83.3	86.7	89.1	116	111	10 U	5 U	5 U	5 U	10 U
Zinc	NE	NE	15	16.1	4.31	19.9	5.01	1.8 U	1.8 U	20.8	1.8 U	1.8 U

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE WATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal AWQC - Water & Organisms (ug/l)	Federal AWQC - Organisms Only (ug/l)	Number Exceeding AWQC - Water & Organisms	Range Exceeding AWQC - Water & Organisms	Number Exceeding AWQC - Organisms Only	Range Exceeding AWQC - Organisms Only	Location Maximum Detection
Inorganics, Total (ug/l)							
Arsenic	0.02	0.14	5/10	96-105	5/10	96-105	5SW2
Chromium	170	3400	0/10		0/10		5SW01
Chromium (Hexavalent)	170	3400	0/10		0/10		5SW2
Copper	1300	NE	0/10		NE		5SW03
Selenium	104	6800	2/10	181-221	0/10		5SW05
Silver	91	NE	0/10		NE		5SW05
Thallium	1.70	6.3	5/10	83.3-116	5/10	83.3-116	5SW4
Zinc	NE	NE	NE		NE		5SW03

RISK - SUMMARY OF ORGANIC DETECTIONS IN SEDIMENT
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Residential RBCs Value	ERM Sediment Screening Value	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE1	5SE2	5SE3	5SE4	5SE5	1SD01	1SD02
Sample ID			5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE01	5SE02	5SE03	5SE04	5SE05	1SD01	1SD02
Sample Date			11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87	10/06/87	10/06/87	10/30/95	10/30/95
Depth Range (ft.)			0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-1.00	0.00-1.00
	(ug/kg)	(ug/kg)													
VOLATILES (ug/kg)															
Methylene chloride	85,163	NE	240 U	420 U	290 U	380 U	220 U	280 U	3600	4100	4100	2700	4500	6 U	7 U
Tetrachloroethene	12,283	NE	480 U	840 U	600 U	730 U	460 U	450 U	450 U	840 U	830 U	560 U	920 U	6 U	2 J
Xylene (total)	15,642,857	NE	220 U	390 U	280 U	340 U	210 U	240 U	660 U	1200 U	1200 U	810 U	1300 U	6 U	7 U
SEMIVOLATILES (ug/kg)															
Benzo(a)anthracene	875	1,600	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U	160 U	270 U	410 U	470 U
Benzo(a)pyrene	87.5	1,600	200 U	300 U	200 U	300 U	700 U	NA	200 U	370 U	370 U	240 U	400 U	410 U	470 U
Benzo(b)fluoranthene	875	NE	200 U	300 U	200 U	300 U	600 U	NA	200 U	370 U	370 U	240 U	400 U	410 U	470 U
Benzo(g,h,i)perylene	234,643	NE	410 U	600 U	410 U	550 U	800 U	NA	260 U	490 U	490 U	330 U	540 U	410 U	470 U
Benzo(k)fluoranthene	8,750	NE	200 U	300 U	200 U	300 U	500 U	NA	200 U	370 U	370 U	240 U	400 U	410 U	470 U
Bis(2-ethylhexyl)phthalate	45,623	NE	100	300 U	200 U	300 U	200 U	NA	170 U	330 U	330 U	220 U	360 U	130 J	470 U
Chrysene	87,497	2,800	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U	160 U	270 U	410 U	470 U
Di-n-octylphthalate	156,429	NE	1000	4000	500	300 U	500	NA	190 U	350 U	350 U	230 U	380 U	410 U	470 U
Fluoranthene	312,857	5,100	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U	160 U	270 U	410 U	470 U
Indeno(1,2,3-cd)pyrene	875	NE	400 U	500 U	400 U	500 U	800 U	NA	260 U	490 U	490 U	330 U	540 U	410 U	470 U
Phenols	NE	NE	NA	NA	NA	NA	NA	NA	73 U	29800	5980	2500	5710	NA	NA
Pyrene	234,643	2,600	200 U	300 U	200 U	300 U	200 U	NA	130 U	240 U	240 U	160 U	270 U	410 U	470 U
PESTICIDES/PCBs (ug/kg)															
4,4'-DDD	2,661	NE	562 U	1010 U	701 U	907 U	536 U	NA	30.5 U	57.1 U	56.9 U	37.8 U	62.6 U	9.7 U	11 U
4,4'-DDE	1,879	27	562 U	1010 U	701 U	907 U	536 U	NA	**32.4**	57.1 U	56.9 U	**272**	62.6 U	9.7 U	11 U
4,4'-DDT	1,879	NE	562 U	1010 U	701 U	907 U	536 U	NA	43.5 U	81.6 U	138 U	54 U	89.4 U	9.7 U	11 U
Aroclor-1260	319	NE	2810 U	5030 U	2100 U	2720 U	1610 U	NA	450 U	840 U	840 U	560 U	920 U	97 U	110 U
delta-BHC	NE	NE	562 U	1030	701	907 U	536 U	NA	30.5 U	57.1 U	56.9 U	37.8 U	62.6 U	4.8 U	5.6 U
DIOXINS (ug/kg)															
Total HxCDD	0.043	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15 U	0.19 U
Total HxCDF	0.043	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13 U	0.13 U
Total PeCDF	0.0086	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15 U	0.12 U
Total TCDF	0.043	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U
HERBICIDES (ug/kg)															
OP-PEST (ug/kg)															
EXPLOSIVES (ug/kg)															
ASBESTOS (ug/kg)															
TOC (%)															

RISK - SUMMARY OF ORGANIC DETECTIONS IN SEDIMENT
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Residential RBCs Value (ug/kg)	ERM Sediment Screening Value (ug/kg)	1SD03	1SD01	1SD02	1SD03
Sample ID			1SD03	1SD01	1SD02	1SD03
Sample Date			10/30/95	10/22/96	10/22/96	11/10/96
Depth Range (ft.)			0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg)						
Methylene chloride	85,163	NE	8 U	6 U	7 U	6 U
Tetrachloroethene	12,283	NE	2 J	6 UJ	7 U	6 UJ
Xylene (total)	15,642,857	NE	8 U	6 U	7 U	2 J
SEMIVOLATILES (ug/kg)						
Benzo(a)anthracene	875	1,600	530 U	120 J	500 U	410 U
Benzo(a)pyrene	87.5	1,600	530 U	160 J	500 U	410 U
Benzo(b)fluoranthene	875	NE	530 U	310 J	500 U	410 U
Benzo(g,h,i)perylene	234,643	NE	530 U	140 J	500 U	410 U
Benzo(k)fluoranthene	8,750	NE	530 U	130 J	500 U	410 U
Bis(2-ethylhexyl)phthalate	45,623	NE	110 J	200 J	500 U	410 U
Chrysene	87,497	2,800	530 U	180 J	500 U	410 U
Di-n-octylphthalate	156,429	NE	530 U	440 U	500 U	410 U
Fluoranthene	312,857	5,100	530 U	130 J	500 U	410 U
Indeno(1,2,3-cd)pyrene	875	NE	530 U	140 J	500 U	410 U
Phenols	NE	NE	NA	NA	NA	NA
Pyrene	234,643	2,600	530 U	180 J	62 J	410 U
PESTICIDES/PCBs (ug/kg)						
4,4'-DDD	2,661	NE	64 U	42	97	9.9 U
4,4'-DDE	1,879	27	64 U	**930**	**370**	9.9 U
4,4'-DDT	1,879	NE	64 U	130	63	9.9 U
Aroclor-1260	319	NE	640 U	200 U	440	99 U
delta-BHC	NE	NE	32 U	10 U	12 U	5 U
DIOXINS (ug/kg)						
Total HxCDD	0.043	NE	0.24 U	0.64 J	2.4 J	NA
Total HxCDF	0.043	NE	0.22 U	0.31 J	2.2 J	NA
Total PeCDF	0.0086	NE	0.14 U	0.13 U	0.34 J	NA
Total TCDF	0.043	NE	0.1 U	0.05 U	0.13 J	NA
HERBICIDES (ug/kg)						
OP-PEST (ug/kg)						
EXPLOSIVES (ug/kg)						
ASBESTOS (ug/kg)						
TOC (%)						

RISK - SUMMARY OF ORGANIC DETECTIONS IN SEDIMENT
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Residential RBCs Value (ug/kg)	ERM Sediment Screening Value (ug/kg)	Number Exceeding Residential RBCs	Range Exceeding Residential RBCs	Number Exceeding ERM Sediment Screening Value	Range Exceeding ERM Sediment Screening Value	Location Maximum Detect
VOLATILES (ug/kg)							
Methylene chloride	85,163	NE	0/17		NE		5SE05
Tetrachloroethene	12,283	NE	0/17		NE		1SD02, 1SD03
Xylene (total)	15,642,857	NE	0/17		NE		1SD03
SEMIVOLATILES (ug/kg)							
Benzo(a)anthracene	875	1,600	0/16		0/16		1SD01
Benzo(a)pyrene	87.5	1,600	1/16	160J	0/16		1SD01
Benzo(b)fluoranthene	875	NE	0/16		NE		1SD01
Benzo(g,h,i)perylene	234,643	NE	0/16		NE		1SD01
Benzo(k)fluoranthene	8,750	NE	0/16		NE		1SD01
Bis(2-ethylhexyl)phthalate	45,623	NE	0/16		NE		1SD01
Chrysene	87,497	2,800	0/16		0/16		1SD01
Di-n-octylphthalate	156,429	NE	0/16		NE		5SE2
Fluoranthene	312,857	5,100	0/16		0/16		1SD01
Indeno(1,2,3-cd)pyrene	875	NE	0/16		NE		1SD01
Phenols	NE	NE	NE		NE		5SE02
Pyrene	234,643	2,600	0/16		0/16		1SD01
PESTICIDES/PCBs (ug/kg)							
4,4'-DDD	2,661	NE	0/16		NE		1SD02
4,4'-DDE	1,879	27	0/16		4/16	32.4-930	1SD01
4,4'-DDT	1,879	NE	0/16		NE		1SD01
Aroclor-1260	319	NE	1/16	440	NE		1SD02
delta-BHC	NE	NE	NE		NE		5SE2
DIOXINS (ug/kg)							
Total HxCDD	0.043	NE	2/5	0.64J-2.4J	NE		1SD02
Total HxCDF	0.043	NE	2/5	0.31J-2.2J	NE		1SD02
Total PeCDF	0.0086	NE	1/5	0.34J	NE		1SD02
Total TCDF	0.043	NE	1/5	0.13J	NE		1SD02
HERBICIDES (ug/kg)							
OP-PEST (ug/kg)							
EXPLOSIVES (ug/kg)							
ASBESTOS (ug/kg)							
TOC (%)							

RISK - SUMMARY OF INORGANIC DETECTIONS IN SEDIMENT
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Residential RBCs Value (mg/kg)	ERM Sediment Screening Value (mg/kg)	5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE1	5SE2	5SE3
Sample ID			5SE1	5SE2	5SE3	5SE4	5SE5	14SE9	5SE01	5SE02	5SE03
Sample Date			11/28/85	11/28/85	11/28/85	11/28/85	11/28/85	11/22/85	10/07/87	10/06/87	10/06/87
Depth Range (ft.)			0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
Inorganics, Total (mg/kg)											
Antimony	3.13	NE	3.8	5.2	5.1	24	7.3	NA	7.9 U	15 U	16 U
Arsenic	0.426	70	14.4	11.6 U	13.4	32	22	NA	4.47	6.05	4.38
Barium	548	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	16	NE	0.415 U	0.776 U	0.526 U	1.33	0.954	NA	0.587 U	1.13 U	1.16 U
Cadmium	7.82	9.6	0.623 U	1.16 U	0.788 U	0.91 U	0.595 U	NA	3.04	3.13	2.4
Chromium	23.5	370	21.9	28.4	29.3	54.1	33.5	NA	51.4	25.8	19.6
Chromium (Hexavalent)	23.5	NE	NA	NA	NA	NA	NA	NA	2.18 U	0.0102 U	0.0138
Cobalt	469	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	313	270	36.8	54.7	43.4	119	78.8	NA	72.1	97.3	73.5
Lead	400(1)	218	76.4	24.4 U	21	19.1 U	12.5 U	3.34 U	10.1	19.2	21.6
Mercury	NE	0.71	0.109	0.187 U	0.131 U	0.174 U	0.1 U	NA	0.095 U	0.173 U	0.186 U
Nickel	156	51.6	6.72	11.8	8.77	22.3	15.6	NA	14.4	12.9 U	13.2 U
Selenium	39.1	NE	19.8	31.3	27.4	85.4	49.7	NA	3.47	6.5	1.12 U
Silver	39.1	3.7	1.08 U	1.94 U	1.33 U	2.03 U	1.36 U	NA	0.547 U	1.06 U	1.2
Sulfide	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	4,693	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	54.75	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,346	410	25.9	42.8	32.8	72.8	50.8	NA	75.7	98.1	89.5

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC DETECTIONS IN SEDIMENT
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Residential RBCs Value (mg/kg)	ERM Sediment Screening Value (mg/kg)	5SE4	5SE5	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample ID			5SE04	5SE05	1SD01	1SD02	1SD03	1SD01	1SD02	1SD03
Sample Date			10/06/87	10/06/87	10/30/95	10/30/95	10/30/95	10/22/96	10/22/96	11/10/96
Depth Range (ft.)			0.00-0.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
Inorganics, Total (mg/kg)										
Antimony	3.13	NE	10 U	16 U	2.2 UJ	2.5 UJ	2.9 UJ	23.6 J	14.5 J	1.4 UJ
Arsenic	0.426	70	3.78	3.45	0.19 UJ	0.43 J	0.32 J	4.8 J	5.6 J	0.19 J
Barium	548	NE	NA	NA	122	147	129	143	165	196 J
Beryllium	16	NE	0.743 U	1.18 U	0.1 U	0.1 U	0.12 U	0.44	0.56	0.22
Cadmium	7.82	9.6	1.28	1.63	0.4 U	0.44 U	0.52 U	4.7	2.4	0.34
Chromium	23.5	370	10.2	34.7	15.1	38.9	18.3	49.2	43.2	22.4
Chromium (Hexavalent)	23.5	NE	0.00271 U	0.0112 U	NA	NA	NA	NA	NA	NA
Cobalt	469	NE	NA	NA	6.4	28	4.6	18.8	14.7	13.5
Copper	313	270	36.1	54.7	14.5	110	21.5	1020	608	50.8
Lead	400[1]	218	11	13.9 U	1.5	2.9	4.3	659 J	966 J	1.3 J
Mercury	NE	0.71	0.129 U	0.198 U	0.06 U	0.06 U	0.05 U	**0.85**	0.2	0.03 U
Nickel	156	51.6	8.45	13.5 U	3.1	16.7	5	**63.3**	31.6	8.7
Selenium	39.1	NE	1.09	5.51	0.18 UJ	0.35 J	0.41 J	0.24 J	0.45 UJ	0.16 UJ
Silver	39.1	3.7	0.691 U	1.1 U	0.31 U	0.37	0.39 U	0.38 J	0.21 UJ	0.15 U
Sulfide	NE	NE	NA	NA	31.1 U	33.8 UJ	45.2 J	30.7 UJ	35.7 UJ	28.8 R
Tin	4,693	NE	NA	NA	1.7 U	1.9 U	2.2 U	181	33.9	0.74 U
Vanadium	54.75	NE	NA	NA	65.3	220	101	115	128	133
Zinc	2,346	410	51.5	50.2	9.9	32.3	21.6	**1780**	**1100**	15.6

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC DETECTIONS IN SEDIMENT
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Residential RBCs Value (mg/kg)	ERM Sediment Screening Value (mg/kg)	Number Exceeding Residential RBCs	Range Exceeding Residential RBCs	Number Exceeding ERM Sediment Screening Value	Range Exceeding ERM Sediment Screening Value	Location Maximum Detect
Inorganics, Total (mg/kg)							
Antimony	3.13	NE	7/16	3.8-24	NE		5SE4
Arsenic	0.426	70	12/16	0.43J-32	0/16		5SE4
Barium	548	NE	0/6		NE		1SD03
Beryllium	16	NE	0/16		NE		5SE4
Cadmium	7.82	9.6	0/16		0/16		1SD01
Chromium	23.5	370	10/16	23.8-54.1	0/16		5SE4
Chromium (Hexavalent)	23.5	NE	0/5		NE		5SE03
Cobalt	469	NE	0/6		NE		1SD02
Copper	313	270	2/16	608-1020	2/16	608-1020	1SD01
Lead	400(1)	218	2/17	659J-966J	2/17	659J-966J	1SD02
Mercury	NE	0.71	NE		1/16	0.85	1SD01
Nickel	156	51.6	0/16		1/16	63.3	1SD01
Selenium	39.1	NE	2/16	49.7-85.4	NE		5SE4
Silver	39.1	3.7	0/16		0/16		5SE03
Sulfide	NE	NE	NE		NE		1SD03
Tin	4,693	NE	0/6		NE		1SD01
Vanadium	54.75	NE	6/6	65.3-220	NE		1SD02
Zinc	2,346	410	0/16		2/16	1100-1780	1SD01

Notes:

(1) Action level.

SWMU 2

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A
Sample ID			R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A
Sample Date			12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	(ug/kg)	(ug/kg)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg)											
1,1,1-Trichloroethane	4,088,000	156,429	300 U	130 U	330 U	280 U	30 U	270 U	240 U	280 U	140 U
Acetone	20,440,000	782,143	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	20,440,000	782,143	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	763,093	85,163	270 U	570 U	250 U	230 U	220 U	250 U	230 U	270 U	620 U
Toluene	40,880,000	1,564,286	150 U	1300 U	170 U	160 U	150 U	130 U	120 U	140 U	170 U
SEMIVOLATILES (ug/kg)											
Benzo(a)anthracene	7,840	875	50 U	60 U	50 U	40 U	70	100	40 U	40 U	50 U
Benzo(a)pyrene	784	88	100 U	100 U	90 U	40 U	40	**200**	40 U	40 U	70 U
Benzo(b)fluoranthene	7,840	875	70 U	90 U	70 U	40 U	60	200	40 U	40 U	60 U
Benzo(g,h,i)perylene	6,132,000	234,643	180 U	200 U	160 U	80 U	60 U	80	70 U	70 U	130 U
Benzo(k)fluoranthene	78,400	8,750	80 U	90 U	70 U	40 U	40	90	40 U	40 U	60 U
Bis(2-ethylhexyl)phthalate	408,800	45,623	50 U	60 U	50	40 U	60	200	50	40 U	80
Chrysene	784,000	87,497	50 U	60 U	50 U	40 U	80	100	40 U	40 U	50 U
Dibenzo(a,h)anthracene	784	88	200 U	200 U	200 U	80 U	60 U	90 U	70 U	70 U	100 U
Di-n-octylphthalate	4,088,000	156,429	50 U	100	50 U	40 U	100	40 U	100	200	50 U
Fluoranthene	8,176,000	312,857	50 U	60 U	50 U	40 U	60	200	20	40 U	50 U
Indeno(1,2,3-cd)pyrene	7,840	875	200 U	200 U	100 U	70 U	50 U	60 U	60 U	70 U	100 U
Phenanthrene	6,132,000	234,643	50 U	60 U	50 U	40 U	40 U	30	40 U	40 U	50 U
Pyrene	6,132,000	234,643	50 U	60 U	50 U	40 U	60	200	20	40 U	50 U

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A
Sample ID			R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A	R6S9A
Sample Date			12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	(ug/kg)	(ug/kg)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
PESTICIDES/PCBs (ug/kg)											
4,4'-DDD	23,847	2,661	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
4,4'-DDE	16,833	1,879	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
4,4'-DDT	16,833	1,879	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
Aldrin	337	38	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
alpha-BHC	908	101	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
beta-BHC	3,180	355	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
delta-BHC	NE	NE	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
Dieldrin	358	40	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
Endosulfan I	1,226,400	46,929	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
Endosulfan II	1,226,400	46,929	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
Endosulfan sulfate	1,226,400	46,929	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
Endrin	61,320	2,346	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
Endrin aldehyde	NE	NE	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
Endrin ketone	61,320	2,346	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	4,402	491	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
Heptachlor	1,272	142	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
Heptachlor epoxide	629	70	395 U	475 U	388 U	364 U	346 U	350 U	308 U	358 U	385 U
DIOXINS (ug/kg)											
Total HxCDD	0.04	0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	0.04	0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA
HERBICIDES (ug/kg)											
OP PESTICIDES (ug/kg)											
EXPLOSIVES (ug/kg)											
ASBESTOS (ug/kg)											

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	R6S10A	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS101	06SS102	06SS103
Sample ID			R6S10A	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS141	06SS143	06SS145
Sample Date			12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	(ug/kg)	(ug/kg)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50
VOLATILES (ug/kg)											
1,1,1-Trichloroethane	4,088,000	156,429	110 U	130 U	110 U	100 U	270 U	590 U	8 U	10 U	7 U
Acetone	20,440,000	782,143	NA	NA	NA	NA	NA	NA	16 UJ	180 J	370 J
Carbon disulfide	20,440,000	782,143	NA	NA	NA	NA	NA	NA	17 U	10 U	7 U
Methylene chloride	763,093	85,163	520 U	290 U	260 U	2500 U	240 U	8200 U	24	9 J	65
Toluene	40,880,000	1,564,286	140 U	150 U	130 U	130 U	130 U	260 U	8 U	10 U	7
SEMIVOLATILES (ug/kg)											
Benzo(a)anthracene	7,840	875	40 U	40 U	40 U	40 U	30	40 U	2000 U	2500 U	1900 U
Benzo(a)pyrene	784	88	40 U	50 U	40 U	40 U	40 U	40 U	2000 U	2500 U	180 J
Benzo(b)fluoranthene	7,840	875	40 U	40 U	40 U	40 U	40 U	40 U	2000 U	2500 U	180 J
Benzo(g,h,i)perylene	6,132,000	234,643	70 U	90 U	70 U	70 U	70 U	70 U	2000 U	2500 U	1900 U
Benzo(k)fluoranthene	78,400	8,750	40 U	40 U	40 U	40 U	40 U	40 U	2000 U	2500 U	260 J
Bis(2-ethylhexyl)phthalate	408,800	45,623	40 U	40 U	40 U	40 U	300	4000	2000 U	2500 U	1900 U
Chrysene	784,000	87,497	40 U	40 U	40 U	40 U	40 U	40 U	2000 U	2500 U	150 J
Dibenzo(a,h)anthracene	784	88	70 U	90 U	70 U	60 U	60 U	70 U	2000 U	2500 U	1900 U
Di-n-octylphthalate	4,088,000	156,429	80 U	40 U	40 U	40 U	100	40 U	2000 U	2500 U	1900 U
Fluoranthene	8,176,000	312,857	40 U	40 U	40 U	40 U	30	40 U	2000 U	2500 U	1900 U
Indeno(1,2,3-cd)pyrene	7,840	875	60 U	90 U	60 U	60 U	60 U	70 U	2000 U	2500 U	1900 U
Phenanthrene	6,132,000	234,643	40 U	50 U	40 U	40 U	40 U	40 U	2000 U	2500 U	1900 U
Pyrene	6,132,000	234,643	40 U	40 U	40 U	40 U	30	40 U	2000 U	2500 U	1900 U

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	R6S10A	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS101	06SS102	06SS103
Sample ID			R6S10A	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	06SS141	06SS143	06SS145
Sample Date			12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/17/92	11/17/92	11/17/92
Depth Range (ft.)	(ug/kg)	(ug/kg)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50
PESTICIDES/PCBs (ug/kg)											
4,4'-DDD	23,847	2,661	327 U	364 U	326 U	294 U	354 U	324 U	5.1	0.75 NJ	4.5 UJ
4,4'-DDE	16,833	1,879	327 U	364 U	326 U	294 U	354 U	324 U	3 NJ	4.3 U	5.3 J
4,4'-DDT	16,833	1,879	327 U	364 U	326 U	294 U	354 U	324 U	1 NJ	4.3 U	1.1 J
Aldrin	337	38	327 U	364 U	326 U	294 U	354 U	324 U	2.5 U	2.2 U	2.3 U
alpha-BHC	908	101	327 U	364 U	326 U	294 U	354 U	324 U	0.085 NJ	2.2 U	2.3 UJ
beta-BHC	3,180	355	327 U	364 U	326 U	294 U	354 U	324 U	0.8 NJ	2.2 U	2.3 U
delta-BHC	NE	NE	327 U	364 U	326 U	294 U	354 U	324 U	0.39 NJ	2.2 U	2.3 U
Dieldrin	358	40	327 U	364 U	326 U	294 U	354 U	324 U	4.9 U	2 J	4.5 UJ
Endosulfan I	1,226,400	46,929	327 U	364 U	326 U	294 U	354 U	324 U	2.5 U	2.8 NJ	2.3 UJ
Endosulfan II	1,226,400	46,929	327 U	364 U	326 U	294 U	354 U	324 U	4.9 U	4.3 U	0.15 NJ
Endosulfan sulfate	1,226,400	46,929	327 U	364 U	326 U	294 U	354 U	324 U	1 NJ	4.3 U	4.5 U
Endrin	61,320	2,346	327 U	364 U	326 U	294 U	354 U	324 U	4.9 UJ	4.3 U	0.15 NJ
Endrin aldehyde	NE	NE	327 U	364 U	326 U	294 U	354 U	324 U	4.9 U	4.3 U	0.71 J
Endrin ketone	61,320	2,346	NA	NA	NA	NA	NA	NA	4.9 UJ	4.3 U	0.25 NJ
gamma-BHC (Lindane)	4,402	491	327 U	364 U	326 U	294 U	354 U	324 U	2.5 U	2.2 U	1.2 NJ
Heptachlor	1,272	142	327 U	364 U	326 U	294 U	354 U	324 U	0.36 J	2.2 U	0.17 J
Heptachlor epoxide	629	70	327 U	364 U	326 U	294 U	354 U	324 U	2.5 UJ	0.46 NJ	2.3 UJ
DIOXINS (ug/kg)											
Total HxCDD	0.04	0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	0.04	0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA
HERBICIDES (ug/kg)											
OP PESTICIDES (ug/kg)											
EXPLOSIVES (ug/kg)											
ASBESTOS (ug/kg)											

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	06SS104	06SS105	06SS106	2MW01	2MW02	2MW03	2SB01	2SB02
Sample ID			06SS147	06SS150	06SS153	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00
Sample Date			11/17/92	11/17/92	11/17/92	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	(ug/kg)	(ug/kg)	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg)										
1,1,1-Trichloroethane	4,088,000	156,429	6 U	10 U	7 U	9	6 U	6 U	6 U	12 J
Acetone	20,440,000	782,143	370 J	560 J	220 J	13 U	12 UJ	12 U	12 UJ	12 U
Carbon disulfide	20,440,000	782,143	3 J	10 U	7 U	6 U	6 U	6 U	6 U	6 U
Methylene chloride	763,093	85,163	39 U	40	32	6 U	6 U	6 UJ	6 U	6 U
Toluene	40,880,000	1,564,286	6 U	10 U	7 U	6 U	6 U	6 U	6 U	6 UJ
SEMIVOLATILES (ug/kg)										
Benzo(a)anthracene	7,840	875	1500 U	2700 U	1700 U	420 U	41 J	390 U	410 U	410 U
Benzo(a)pyrene	784	88	1500 U	2700 U	1700 U	420 U	52 J	390 U	410 U	410 U
Benzo(b)fluoranthene	7,840	875	1500 U	2700 U	1700 U	420 U	150 J	390 U	410 U	72 J
Benzo(g,h,i)perylene	6,132,000	234,643	1500 U	2700 U	1700 U	420 U	78 J	390 U	410 U	410 U
Benzo(k)fluoranthene	78,400	8,750	1500 U	2700 U	1700 U	420 U	58 J	390 U	410 U	410 U
Bis(2-ethylhexyl)phthalate	408,800	45,623	1500 U	2700 U	1700 U	420 U	390 U	390 U	410 U	410 U
Chrysene	784,000	87,497	1500 U	2700 U	1700 U	420 U	71 J	390 U	410 U	43 J
Dibenzo(a,h)anthracene	784	88	1500 U	2700 U	1700 U	420 U	390 U	390 U	410 U	410 U
Di-n-octylphthalate	4,088,000	156,429	1500 U	2700 U	1700 U	420 U	390 U	390 U	410 U	410 U
Fluoranthene	8,176,000	312,857	1500 U	2700 U	1700 U	420 U	58 J	390 U	410 U	50 J
Indeno(1,2,3-cd)pyrene	7,840	875	1500 U	2700 U	1700 U	420 U	390 U	390 U	410 U	410 U
Phenanthrene	6,132,000	234,643	1500 U	2700 U	1700 U	420 U	390 U	390 U	410 U	410 U
Pyrene	6,132,000	234,643	1500 U	2700 U	1700 U	420 U	390 U	390 U	410 U	410 U

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	06SS104	06SS105	06SS106	2MW01	2MW02	2MW03	2SB01	2SB02
Sample ID			06SS147	06SS150	06SS153	2MW01-00	2MW02-00	2MW03-00	2SB01-00	2SB02-00
Sample Date			11/17/92	11/17/92	11/17/92	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	(ug/kg)	(ug/kg)	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
PESTICIDES/PCBs (ug/kg)										
4,4'-DDD	23,847	2,661	4.2 U	4.7 UJ	4 U	10 U	9.3 U	9.2 U	9.8 UJ	9.8 UJ
4,4'-DDE	16,833	1,879	4.2 U	4.7 U	4 U	12	9.3 U	9.2 U	9.8 U	9.8 U
4,4'-DDT	16,833	1,879	4.2 UJ	0.74 J	4 U	12	9.3 U	9.2 U	9.8 U	9.8 U
Aldrin	337	38	2.2 U	2.4 U	0.27 J	5 U	4.6 U	4.6 U	4.9 U	4.9 U
alpha-BHC	908	101	2.2 U	2.4 U	2.1 U	5 U	4.6 U	4.6 U	4.9 U	4.9 U
beta-BHC	3,180	355	2.2 U	2.4 U	2.1 U	5 U	4.6 U	4.6 U	4.9 U	4.9 U
delta-BHC	NE	NE	2.2 U	2.4 U	2.1 U	5 U	4.6 U	4.6 U	4.9 U	4.9 U
Dieldrin	358	40	4.2 U	4.7 U	4 U	10 U	9.3 U	9.2 U	9.8 U	9.8 U
Endosulfan I	1,226,400	46,929	2.2 U	2.4 U	2.1 U	5 U	4.6 U	4.6 U	4.9 U	4.9 U
Endosulfan II	1,226,400	46,929	4.2 U	4.7 U	4 U	10 U	9.3 U	9.2 U	9.8 U	9.8 U
Endosulfan sulfate	1,226,400	46,929	4.2 U	4.7 U	4 U	10 U	9.3 U	9.2 U	9.8 U	9.8 U
Endrin	61,320	2,346	4.2 U	4.7 U	4 U	10 U	9.3 U	9.2 U	9.8 U	9.8 U
Endrin aldehyde	NE	NE	4.2 U	4.7 U	4 U	10 U	9.3 U	9.2 U	9.8 U	9.8 U
Endrin ketone	61,320	2,346	4.2 U	4.7 U	4 U	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	4,402	491	2.2 U	2.4 U	2.1 U	5 U	4.6 U	4.6 U	4.9 U	4.9 U
Heptachlor	1,272	142	0.11 J	2.4 UJ	2.1 UJ	5 U	4.6 U	4.6 U	4.9 U	4.9 U
Heptachlor epoxide	629	70	2.2 U	2.4 U	2.1 U	5 U	4.6 U	4.6 U	4.9 U	4.9 U
DIOXINS (ug/kg)										
Total HxCDD	0.04	0.04	NA	NA	NA	0.14 U	0.12 U	0.29 U	0.33 U	0.27 U
Total HxCDF	0.04	0.04	NA	NA	NA	0.17 U	0.14 U	0.12 U	0.12 U	0.2 U
HERBICIDES (ug/kg)										
OP PESTICIDES (ug/kg)										
EXPLOSIVES (ug/kg)										
ASBESTOS (ug/kg)										

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	2SB03	2SB04	2SB05
Sample ID			2SB03-00	2SB04-00	2SB05-00
Sample Date			10/08/96	10/08/96	10/08/96
Depth Range (ft.)	(ug/kg)	(ug/kg)	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg)					
1,1,1-Trichloroethane	4,088,000	156,429	8 U	6 U	6 UJ
Acetone	20,440,000	782,143	15 U	12 U	12 U
Carbon disulfide	20,440,000	782,143	8 U	6 U	6 U
Methylene chloride	763,093	85,163	8 UJ	6 UJ	6 UJ
Toluene	40,880,000	1,564,286	8 U	6 U	6 UJ
SEMIVOLATILES (ug/kg)					
Benzo(a)anthracene	7,840	875	210 J	160 J	69 J
Benzo(a)pyrene	784	88	**340** J	**150** J	79 J
Benzo(b)fluoranthene	7,840	875	510	280 J	130 J
Benzo(g,h,i)perylene	6,132,000	234,643	300 J	82 J	72 J
Benzo(k)fluoranthene	78,400	8,750	220 J	110 J	53 J
Bis(2-ethylhexyl)phthalate	408,800	45,623	490 U	400 U	390 U
Chrysene	784,000	87,497	280 J	240 J	81 J
Dibenzo(a,h)anthracene	784	88	80 J	41 J	390 U
Di-n-octylphthalate	4,088,000	156,429	490 U	400 U	390 U
Fluoranthene	8,176,000	312,857	220 J	420	100 J
Indeno(1,2,3-cd)pyrene	7,840	875	290 J	110 J	69 J
Phenanthrene	6,132,000	234,643	490 U	240 J	390 U
Pyrene	6,132,000	234,643	150 J	220 J	67 J

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	2SB03	2SB04	2SB05
Sample ID			2SB03-00	2SB04-00	2SB05-00
Sample Date			10/08/96	10/08/96	10/08/96
Depth Range (ft.)	(ug/kg)	(ug/kg)	0.00-1.00	0.00-1.00	0.00-1.00
PESTICIDES/PCBs (ug/kg)					
4,4'-DDD	23,847	2,661	59 UJ	9.6 U	46 U
4,4'-DDE	16,833	1,879	8.9 J	3.2	8.1
4,4'-DDT	16,833	1,879	5.9 J	2.4	3.9 J
Aldrin	337	38	30 U	4.8 U	23 U
alpha-BHC	908	101	30 U	4.8 U	23 U
beta-BHC	3,180	355	30 U	4.8 U	23 U
delta-BHC	NE	NE	30 U	4.8 U	23 U
Dieldrin	358	40	59 U	9.6 U	46 U
Endosulfan I	1,226,400	46,929	30 U	4.8 U	23 U
Endosulfan II	1,226,400	46,929	59 U	9.6 U	46 U
Endosulfan sulfate	1,226,400	46,929	59 U	9.6 U	46 U
Endrin	61,320	2,346	59 U	9.6 U	46 U
Endrin aldehyde	NE	NE	59 U	9.6 U	46 U
Endrin ketone	61,320	2,346	NA	NA	NA
gamma-BHC (Lindane)	4,402	491	30 U	4.8 U	23 U
Heptachlor	1,272	142	30 U	4.8 U	23 U
Heptachlor epoxide	629	70	30 U	4.8 U	23 U
DIOXINS (ug/kg)					
Total HxCDD	0.04	0.04	0.37 J	0.16 U	0.22 U
Total HxCDF	0.04	0.04	0.17 J	0.1 U	0.53 U
HERBICIDES (ug/kg)					
OP PESTICIDES (ug/kg)					
EXPLOSIVES (ug/kg)					
ASBESTOS (ug/kg)					

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Industrial RBCs (ug/kg)	EPA Region III Residential RBCs (ug/kg)	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
VOLATILES (ug/kg)							
1,1,1-Trichloroethane	4,088,000	156,429	0/29		0/29		2SB02-00
Acetone	20,440,000	782,143	0/14		0/14		06SS150
Carbon disulfide	20,440,000	782,143	0/14		0/14		06SS147
Methylene chloride	763,093	85,163	0/29		0/29		06SS145
Toluene	40,880,000	1,564,286	0/29		0/29		06SS145
SEMIVOLATILES (ug/kg)							
Benzo(a)anthracene	7,840	875	0/29		0/29		2SB03-00
Benzo(a)pyrene	784	88	0/29		4/29	150J - 340J	2SB03-00
Benzo(b)fluoranthene	7,840	875	0/29		0/29		2SB03-00
Benzo(g,h,i)perylene	6,132,000	234,643	0/29		0/29		2SB03-00
Benzo(k)fluoranthene	78,400	8,750	0/29		0/29		06SS145
Bis(2-ethylhexyl)phthalate	408,800	45,623	0/29		0/29		R6S15A
Chrysene	784,000	87,497	0/29		0/29		2SB03-00
Dibenzo(a,h)anthracene	784	88	0/29		0/29		2SB03-00
Di-n-octylphthalate	4,088,000	156,429	0/29		0/29		R6S8A
Fluoranthene	8,176,000	312,857	0/29		0/29		2SB04-00
Indeno(1,2,3-cd)pyrene	7,840	875	0/29		0/29		2SB03-00
Phenanthrene	6,132,000	234,643	0/29		0/29		2SB04-00
Pyrene	6,132,000	234,643	0/29		0/29		2SB04-00

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Industrial RBCs (ug/kg)	EPA Region III Residential RBCs (ug/kg)	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
PESTICIDES/PCBs (ug/kg)							
4,4'-DDD	23,847	2,661	0/29		0/29		06SS141
4,4'-DDE	16,833	1,879	0/29		0/29		2MW01-00
4,4'-DDT	16,833	1,879	0/29		0/29		2MW01-00
Aldrin	337	38	0/29		0/29		06SS153
alpha-BHC	908	101	0/29		0/29		06SS141
beta-BHC	3,180	355	0/29		0/29		06SS141
delta-BHC	NE	NE	NE		NE		06SS141
Dieldrin	358	40	0/29		0/29		06SS143
Endosulfan I	1,226,400	46,929	0/29		0/29		06SS143
Endosulfan II	1,226,400	46,929	0/29		0/29		06SS145
Endosulfan sulfate	1,226,400	46,929	0/29		0/29		06SS141
Endrin	61,320	2,346	0/29		0/29		06SS145
Endrin aldehyde	NE	NE	NE		NE		06SS145
Endrin ketone	61,320	2,346	0/6		0/6		06SS145
gamma-BHC (Lindane)	4,402	491	0/29		0/29		06SS145
Heptachlor	1,272	142	0/29		0/29		06SS141
Heptachlor epoxide	629	70	0/29		0/29		06SS143
DIOXINS (ug/kg)							
Total HxCDD	0.04	0.04	1/8	0.37J	1/8	0.37J	2SB03-00
Total HxCDF	0.04	0.04	1/8	0.17J	1/8	0.17J	2SB03-00
HERBICIDES (ug/kg)							
OP PESTICIDES (ug/kg)							
EXPLOSIVES (ug/kg)							
ASBESTOS (ug/kg)							

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2 x Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A
Sample ID				R6S1A	R6S2A	R6S3A	R6S4A	R6S5A	R6S6A	R6S7A	R6S8A
Sample Date				12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85
Depth Range (ft.)	(mg/kg)	(mg/kg)	(mg/kg)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
INORGANICS (mg/kg)											
Aluminum	NE	204,400	7,821	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	0	81.76	3.13	11	10	10	9.2	18	28	27	31
Arsenic	2.43	3.82	0.43	16.6	57.1	15.9	22.5	35.5	17.1	35.4	30.9
Barium	181	14,308	548	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	0.45	410	16	0.221 U	1.01	0.276	0.623	1.11	0.289	1.31	2.18
Cadmium	0	204	7.82	0.332 U	2.88	0.361 U	0.323 U	0.881	0.793	2.41	1.54
Calcium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	59.3	613	23.46	16.9	23.7	17.9	17.5	34.9	13.8	39	36
Cobalt	44	12,264	469	NA	NA	NA	NA	NA	NA	NA	NA
Copper	234	8,176	313	22.6	50.3	20.6	26.2	380	51	324	163
Iron	NE	61,320	2,346	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15.25	NE	400(1)	6.97 U	8.62 U	7.59 U	6.77 U	222	6.13 U	76.5	92.8
Magnesium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NE	4,088	156	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.11	NE	NE	0.052	0.075 U	0.061 U	0.048 U	0.714	0.991	0.261	0.156
Nickel	16.55	4,088	156	6.32	12.5	6.35	6.59	14.5	5.07	30.3	22.2
Potassium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1.46	1022	39.11	13.9	55.8	16.1	21	49.3	13.5	80.5	65.1
Sodium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Tin	2.43	122,640	4,693	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	355	1,431	55	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	125	61,320	2,346	28.3	71.7	31.9	48.2	329	81.5	430	490
EP-TOX (ug/l)											
Lead	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2 x Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	R6S9A	R6S10A	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	R6S4A
Sample ID				R6S9A	R6S10A	R6S11A	R6S12A	R6S13A	R6S14A	R6S15A	R6S04A
Sample Date				12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	12/05/85	11/04/87
Depth Range (ft.)	(mg/kg)	(mg/kg)	(mg/kg)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
INORGANICS (mg/kg)											
Aluminum	NE	204,400	7,821	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	0	81.76	3.13	15	17	9.5	9.1	20	9.4	6.5	NA
Arsenic	2.43	3.82	0.43	54.1	35.7	25.5	88.2	2.63 U	72.4	34.9	NA
Barium	181	14,308	548	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	0.45	410	16	1.17	2.52	1.59	6.14	14.9	1.61	1.39	NA
Cadmium	0	204	7.82	1.12	1.69	0.872	2.41	0.762	2.41	0.377	NA
Calcium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	59.3	613	23.46	78.2	39.2	50	58.4	75.2	35.2	18.6	NA
Cobalt	44	12,264	469	NA	NA	NA	NA	NA	NA	NA	NA
Copper	234	8,176	313	107	383	211	527	385	332	101	NA
Iron	NE	61,320	2,346	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15.25	NE	400(1)	180	3040	568	197	58	466	169	316
Magnesium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NE	4,088	156	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.11	NE	NE	0.105	1.54	0.356	0.352	0.041 U	0.449	0.898	NA
Nickel	16.55	4,088	156	56.1	33.4	17.2	68.1	165	32.3	23.3	NA
Potassium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1.46	1022	39.11	44.6	93.9	65.4	426	2.63 U	68.5	60	NA
Sodium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Tin	2.43	122,640	4,693	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	355	1,431	55	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	125	61,320	2,346	339	758	475	949	181	426	210	NA
EP-TOX (ug/l)											
Lead	NE	NE	NE	NA	2.8	NA	NA	NA	NA	NA	NA

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2 x Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	R6S5A	R6S9A	R6S10A	R6S11A	R6S12A	R6S14A	R6S15A	R6S16A
Sample ID				R6S05A	R6S09A	R6S010A	R6S011A	R6S012A	R6S014A	R6S015A	R6S016A
Sample Date				11/04/87	11/04/87	11/04/87	11/04/87	11/04/87	11/04/87	11/04/87	11/04/87
Depth Range (ft.)	(mg/kg)	(mg/kg)	(mg/kg)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
INORGANICS (mg/kg)											
Aluminum	NE	204,400	7,821	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	0	81.76	3.13	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	2.43	3.82	0.43	NA	NA	NA	NA	NA	NA	NA	NA
Barium	181	14,308	548	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	0.45	410	16	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0	204	7.82	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	59.3	613	23.46	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	44	12,264	469	NA	NA	NA	NA	NA	NA	NA	NA
Copper	234	8,176	313	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NE	61,320	2,346	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15.25	NE	400(1)	376	988	250	35.1	214	236	116	74.1
Magnesium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NE	4,088	156	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.11	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	16.55	4,088	156	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1.46	1022	39.11	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Tin	2.43	122,640	4,693	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	355	1,431	55	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	125	61,320	2,346	NA	NA	NA	NA	NA	NA	NA	NA
EP-TOX (ug/l)											
Lead	NE	NE	NE	NA	10.6	NA	10.6	2.8	NA	NA	NA

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2 x Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	R6S17A	R6S18A	R6S19A	R6S20A	06SS101	06SS102	06SS103
Sample ID				R6S017A	R6S018A	R6S019A	R6S020A	06SS141	06SS143	06SS145
Sample Date				11/04/87	11/04/87	11/04/87	11/04/87	33925	33925	33925
Depth Range (ft.)	(mg/kg)	(mg/kg)	(mg/kg)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.5-1.5	0.5-1.5	0.0-0.50
INORGANICS (mg/kg)										
Aluminum	NE	204,400	7,821	NA	NA	NA	NA	21600	20000	15100
Antimony	0	81.76	3.13	NA	NA	NA	NA	17.9 J	6.3 J	20.1 J
Arsenic	2.43	3.82	0.43	NA	NA	NA	NA	17.5	1.2 U	19.6
Barium	181	14,308	548	NA	NA	NA	NA	156	100	410
Beryllium	0.45	410	16	NA	NA	NA	NA	0.47 B	0.51 B	0.77 B
Cadmium	0	204	7.82	NA	NA	NA	NA	3.7	2.1 UJ	3.9
Calcium	NE	NE	NE	NA	NA	NA	NA	51900	9920	48200
Chromium	59.3	613	23.46	NA	NA	NA	NA	59.8	19	40.6
Cobalt	44	12,264	469	NA	NA	NA	NA	10.7 B	23.7	16.8
Copper	234	8,176	313	NA	NA	NA	NA	5850	227	739
Iron	NE	61,320	2,346	NA	NA	NA	NA	168000	43400	38000
Lead	15.25	NE	400(1)	79	46.3	233	187	1210 J	130 J	4760 J
Magnesium	NE	NE	NE	NA	NA	NA	NA	9980	12200	10900
Manganese	NE	4,088	156	NA	NA	NA	NA	972	808	596
Mercury	0.11	NE	NE	NA	NA	NA	NA	0.15 U	0.15 U	0.45
Nickel	16.55	4,088	156	NA	NA	NA	NA	49.9	10.2 B	19.4
Potassium	NE	NE	NE	NA	NA	NA	NA	1540 B	2760	2350
Selenium	1.46	1022	39.11	NA	NA	NA	NA	0.75 U	0.92 U	0.7 U
Sodium	NE	NE	NE	NA	NA	NA	NA	13100 J	13100 J	4940 J
Tin	2.43	122,640	4,693	NA	NA	NA	NA	NA	NA	NA
Vanadium	355	1,431	55	NA	NA	NA	NA	90.6	118	122
Zinc	125	61,320	2,346	NA	NA	NA	NA	3350	200	1240
EP-TOX (ug/l)										
Lead	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2 x Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	06SS104	06SS105	06SS106	2MW01	2MW02	2MW03	2SB01
Sample ID				06SS147	06SS150	06SS153	2MW01-00	2MW02-00	2MW03-00	2SB01-00
Sample Date				33925	33925	33925	10/08/96	10/08/96	10/08/96	10/08/96
Depth Range (ft.)	(mg/kg)	(mg/kg)	(mg/kg)	0.5-1.5	0.5-1.5	0.5-1.5	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
INORGANICS (mg/kg)										
Aluminum	NE	204,400	7,821	1660 J	36600 J	23900 J	NA	NA	NA	NA
Antimony	0	81.76	3.13	2.4 UJ	4 UJ	2.6 UJ	1.7 UJ	1.9 J	1.5 UJ	1.5 UJ
Arsenic	2.43	3.82	0.43	3.3	1.2 U	6.9	1.5	6.2	1.1	0.83 U
Barium	181	14,308	548	24 B	189	263	92.5	183	129	106
Beryllium	0.45	410	16	0.15 U	1.5 B	0.41 B	0.08	0.54	0.33	0.04 U
Cadmium	0	204	7.82	1.3 UJ	6.3	1.5 UJ	0.22 U	0.2 U	0.2 U	0.2 U
Calcium	NE	NE	NE	487000	6460	166000	NA	NA	NA	NA
Chromium	59.3	613	23.46	6.1	13.5	42.7	43.2 J	25.6 J	31.7 J	37.4 J
Cobalt	44	12,264	469	2.3 U	45.3	11.5 B	38.9 J	32.4 J	23.1 J	50.2 J
Copper	234	8,176	313	4.3 B	136	77.8	55.1 J	110 J	109 J	54.7 J
Iron	NE	61,320	2,346	4040 J	107000 J	20800 J	NA	NA	NA	NA
Lead	15.25	NE	400(1)	3.1	7.5	77.4	11.6	13	60.6	16.1
Magnesium	NE	NE	NE	3290	5450	8600	NA	NA	NA	NA
Manganese	NE	4,088	156	75.5	1090	842	NA	NA	NA	NA
Mercury	0.11	NE	NE	0.12 U	0.16 U	0.12 U	0.05 J	0.04 J	0.07 J	0.07 J
Nickel	16.55	4,088	156	4.6 UJ	7.6 UJ	12 J	18.4	17.1	16.1	18.1
Potassium	NE	NE	NE	347 U	676 U	2000	NA	NA	NA	NA
Selenium	1.46	1022	39.11	0.59 UJ	0.98 UJ	0.64 UJ	0.7 J	0.84 UJ	0.7 UJ	0.93 UJ
Sodium	NE	NE	NE	2800 J	7830 J	6900 J	NA	NA	NA	NA
Tin	2.43	122,640	4,693	NA	NA	NA	0.9 U	0.83 U	2.2	0.84 U
Vanadium	355	1,431	55	9.3 B	386	65.8	281 J	176 J	153 J	225 J
Zinc	125	61,320	2,346	8.3	89.2	206	52	107	108	62
EP-TOX (ug/l)										
Lead	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	2 x Average Detected Background (mg/kg)	EPA Region III Industrial RBCs (mg/kg)	EPA Region III Residential RBCs (mg/kg)	2SB02 2SB02-00 10/08/96 0.00-1.00	2SB03 2SB03-00 10/08/96 0.00-1.00	2SB04 2SB04-00 10/08/96 0.00-1.00	2SB05 2SB05-00 10/08/96 0.00-1.00
INORGANICS (mg/kg)							
Aluminum	NE	204,400	7,821	NA	NA	NA	NA
Antimony	0	81.76	3.13	1.6 UJ	13.3 J	1.6 UJ	2.4 J
Arsenic	2.43	3.82	0.43	5.1	18.6	2.1	6.1
Barium	181	14,308	548	170	161	131	1060
Beryllium	0.45	410	16	0.08	0.38	0.36	0.53
Cadmium	0	204	7.82	0.21 U	3.1	0.21 U	0.72
Calcium	NE	NE	NE	NA	NA	NA	NA
Chromium	59.3	613	23.46	30.4 J	55.3 J	26.3 J	59.5 J
Cobalt	44	12,264	469	58.8 J	22.7 J	21.1 J	22.1 J
Copper	234	8,176	313	73.6 J	374 J	180 J	919 J
Iron	NE	61,320	2,346	NA	NA	NA	NA
Lead	15.25	NE	400(1)	35.2	1000	156	512
Magnesium	NE	NE	NE	NA	NA	NA	NA
Manganese	NE	4,088	156	NA	NA	NA	NA
Mercury	0.11	NE	NE	0.16 J	0.33 J	0.09 J	0.37 J
Nickel	16.55	4,088	156	15.9	34.6	13.5	17.1
Potassium	NE	NE	NE	NA	NA	NA	NA
Selenium	1.46	1022	39.11	1.1 J	1.1 UJ	0.9 UJ	0.84 UJ
Sodium	NE	NE	NE	NA	NA	NA	NA
Tin	2.43	122,640	4,693	0.89 U	9.9	0.88 U	3.6
Vanadium	355	1,431	55	195 J	122 J	133 J	133 J
Zinc	125	61,320	2,346	96.3	845	231	1260
EP-TOX (ug/l)							
Lead	NE	NE	NE	NA	NA	NA	NA

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	2 x Average Detected Background (mg/kg)	EPA Region III Industrial RBCs (mg/kg)	EPA Region III Residential RBCs (mg/kg)	Number Exceeding Detected Background	Range Exceeding Detected Background	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
INORGANICS (mg/kg)										
Aluminum	NE	204,400	7,821	NE		0/6		5/6	15,100-36,600J	06SS150
Antimony	0	81.76	3.13	21/29	1.9J - 51	0/29		19/29	6.3J-51	R6S8A
Arsenic	2.43	3.82	0.43	22/29	3.3-134	21/29	5.1-134	25/29	1.1-134	R6S7A
Barium	181	14,308	548	5/14	183-1,060	0/14		1/14	1060	2SB05-00
Beryllium	0.45	410	16	18/29	0.47B -14.9	0/29		0/29		R6S13A
Cadmium	0	204	7.82	17/29	0.577-8.7	0/29		1/29	8.7	06SS141
Calcium	NE	NE	NE	NE		NE		NE		06SS147
Chromium	59.3	613	23.46	4/29	59.5-78.2	0/29		21/29	23.7-78.2	R6S9A
Cobalt	44	12,264	469	3/14	45.5-58.8J	0/14		0/14		2SB02-00
Copper	234	8,176	313	10/29	332-5,850	0/29		10/29	332-5850	06SS141
Iron	NE	61,320	2,346	NE		2/6	107,000-168,000	6/6	4040-168000	06SS141
Lead	15.25	NE	400(1)	33/42	16.1-4,760J			8/42	466-4760J	06SS145
Magnesium	NE	NE	NE	NE		NE		NE		06SS143
Manganese	NE	4,088	156	NE		0/6		5/6	596-1090	06SS150
Mercury	0.11	NE	NE	13/29	0.16J - 1.54	NE		NE		R6S10A
Nickel	16.55	4,088	156	16/29	17.1-165	0/29		1/29	165	R6S13A
Potassium	NE	NE	NE	NE		NE		NE		06SS143
Selenium	1.46	1022	39.11	14/29	13.5-426	0/29		10/29	44.6-426	R6S12A
Sodium	NE	NE	NE	NE		NE		NE		06SS141, 06SS143
Tin	2.43	122,640	4,693	2/8	3.6-9.9	0/8		0/8		2SB03-00
Vanadium	355	1,431	55	1/14	386	0/14		13/14	65.8-386	06SS150
Zinc	125	61,320	2,346	17/29	181-3,350	0/29		1/29	3350	06SS141
EP-TOX (ug/l)										
Lead	NE	NE	NE	NE		NE		NE		R6S09A,R6S011A

Notes:

(1) Action level.

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	06SS101	06SS103	06SS104	06SS105	06SS106	2MW01	2MW02	2MW02	2MW03
Sample ID			06SS142	06SS146	06SS148	06SS151	06SS154	2MW01-01	2MW02-02	2MW02-05	2MW03-01
Sample Date			11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/8/96	11/06/96	11/06/96	11/09/96
Depth Range (ft.)	(ug/kg)	(ug/kg)	1.5-2.67	0.5-1.5	1.5-2.67	2.0-3.0	1.5-2.67	2.00-4.00	4.00-6.00	10.00-12.00	2.00-4.00
VOLATILES (ug/kg)											
2-Butanone	122,640,000	4,692,857	410 J	15 UJ	12 UJ	14 UJ	13 J	14 U	13 U	12 U	18 UJ
2-Methylnaphthalene	4,088,000	156,429	4400 U	1700 U	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
4-Methyl-2-pentanone	16,352,000	625,714	36 UJ	15 U	12 U	14 U	11 J	14 UJ	13 UJ	12 UJ	18 UJ
Acetone	20,440,000	782,143	2500 R	39 J	99 J	450 J	350 EJ	22 U	13 U	12 U	48 U
Benzene	197,352	22,025	18 U	7 U	6 U	7 U	1 J	7 U	6 U	6 U	9 U
Ethylbenzene	20,440,000	782,143	18 UJ	7 U	6 U	7 U	2 J	7 U	6 U	6 U	9 U
m/p-xylene	NE	NE	18 UJ	7 U	6 U	7 U	5 J	NA	NA	NA	NA
Methylene chloride	763,093	85,163	590	11	23	27	300 EJ	7 U	6 U	6 U	9 U
o-Xylene	408,800,000	15,642,857	18 UJ	7 U	6 U	7 U	3 J	NA	NA	NA	NA
Toluene	40,880,000	1,564,286	14 J	7 U	6 U	7 U	18 J	7 U	6 U	6 U	9 U
SEMIVOLATILES (ug/kg)											
Anthracene	61,320,000	2,346,429	4400 U	110 J	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Benzo(a)anthracene	7,840	875	4400 U	**1000** J	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Benzo(a)pyrene	784	88	4400 U	**270** J	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Benzo(b)fluoranthene	7,840	875	4400 U	**1300** J	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Benzo(g,h,i)perylene	6,132,000	234,643	4400 U	350 J	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Benzo(k)fluoranthene	78,400	8,750	4400 U	2000	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Bis(2-ethylhexyl)phthalate	408,800	45,623	15000	1700 U	1600 U	3300	630 J	470 U	430 U	400 U	620 U
Carbazole	286,160	31,936	4400 U	92 J	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Chrysene	784,000	87,497	4400 U	1400 J	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Dibenzo(a,h)anthracene	784	88	4400 U	**450** J	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Di-n-butylphthalate	20,440,000	782,143	4400 U	94 J	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Fluoranthene	8,176,000	312,857	4400 U	3200	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Fluorene	8,176,000	312,857	4400 U	1700 U	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Indeno(1,2,3-cd)pyrene	7,840	875	4400 U	700 J	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Phenanthrene	6,132,000	234,643	4400 U	1900	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U
Pyrene	6,132,000	234,643	4400 U	2100	1600 U	1800 U	1400 U	470 U	430 U	400 U	620 U

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	06SS101	06SS103	06SS104	06SS105	06SS106	2MW01	2MW02	2MW02	2MW03
Sample ID			06SS142	06SS146	06SS148	06SS151	06SS154	2MW01-01	2MW02-02	2MW02-05	2MW03-01
Sample Date			11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/8/96	11/06/96	11/06/96	11/09/96
Depth Range (ft.)	(ug/kg)	(ug/kg)	1.5-2.67	0.5-1.5	1.5-2.67	2.0-3.0	1.5-2.67	2.00-4.00	4.00-6.00	10.00-12.00	2.00-4.00
PESTICIDES/PCBs (ug/kg)											
4,4'-DDE	16,833	1,879	8.2 U	5.2 U	4.3 U	0.68 J	4.1 U	22 U	10 U	9.6 U	30 U
4,4'-DDT	16,833	1,879	8.2 U	5.2 U	4.3 U	1.7 J	4.1 UJ	22 U	10 U	9.6 U	30 U
Aldrin	337	38	4.2 U	0.35 J	2.2 U	2.4 U	2.1 U	11 U	5.1 U	4.8 U	15 U
alpha-Chlordane	16,352	1,825	4.2 UJ	2.7 U	2.2 U	2.4 U	1.5 NJ	110 U	51 U	48 U	150 U
beta-BHC	3,180	355	1.1 J	2.7 U	2.2 U	2.4 UJ	2.1 U	11 U	5.1 U	4.8 U	15 U
delta-BHC	NE	NE	0.86 J	2.7 U	2.2 U	2.4 U	2.1 U	11 U	5.1 U	4.8 U	15 U
Dieldrin	358	40	4.2 UJ	5.2 U	4.3 U	0.064 NJ	4.1 U	22 U	10 U	9.6 U	30 U
Endosulfan I	1,226,400	46,929	1.5 NJ	2.7 U	2.2 U	2.4 UJ	2.1 U	11 U	5.1 U	4.8 U	15 U
Endosulfan II	1,226,400	46,929	8.2 UJ	5.2 U	4.3 U	0.33 J	4.1 U	22 U	10 U	9.6 U	30 U
Endrin	61,320	2,346	8.2 UJ	5.2 U	4.3 U	4.7 U	1.6 J	22 U	10 U	9.6 U	30 U
gamma-BHC (Lindane)	4,402	491	0.13 NJ	2.7 U	2.2 U	2.4 UJ	2.1 U	11 U	5.1 U	4.8 U	15 U
Heptachlor	1,272	142	0.42 J	2.7 U	2.2 UJ	2.4 UJ	2.1 UJ	11 U	5.1 U	4.8 U	15 U
Heptachlor epoxide	629	70	4.2 UJ	2.7 U	2.2 U	2.4 U	0.35 J	11 U	5.1 U	4.8 U	15 U
Methoxychlor	1,022,000	39,107	1.5 J	27 U	22 U	25 UJ	21 U	110 U	51 U	48 U	150 U
DIOXINS (ug/kg)											
Total HxCDD	0.04	0.04	NA	NA	NA	NA	NA	0.08 U	0.05 U	0.06 U	0.09 U
Total TCDF	0.04	0.04	NA	NA	NA	NA	NA	0.02 U	0.03 U	0.03 U	0.04 U

OP PESTICIDES (ug/kg)
HERBICIDES (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	2SB01	2SB01	2SB04	2SB05
Sample ID			2SB01-02	2SB01-05	2SB04-02	2SB05-01/02
Sample Date			11/18/96	11/18/96	11/10/96	11/10/96
Depth Range (ft.)	(ug/kg)	(ug/kg)	4.00-6.00	10.00-12.00	4.00-6.00	2.00-6.00
VOLATILES (ug/kg)						
2-Butanone	122,640,000	4,692,857	13 UJ	14 UJ	15 UJ	14 UJ
2-Methylnaphthalene	4,088,000	156,429	83 J	450 U	480 U	450 UJ
4-Methyl-2-pentanone	16,352,000	625,714	13 U	14 U	15 UJ	14 UJ
Acetone	20,440,000	782,143	13 U	14 U	21	14 U
Benzene	197,352	22,025	7 U	7 U	7 U	7 U
Ethylbenzene	20,440,000	782,143	7 U	7 U	7 U	7 U
m/p-xylene	NE	NE	NA	NA	NA	NA
Methylene chloride	763,093	85,163	7 U	7 U	7 U	7 U
o-Xylene	408,800,000	15,642,857	NA	NA	NA	NA
Toluene	40,880,000	1,564,286	7 U	7 U	7 U	7 U
SEMIVOLATILES (ug/kg)						
Anthracene	61,320,000	2,346,429	440 U	450 U	480 U	450 UJ
Benzo(a)anthracene	7,840	875	440 U	450 U	480 U	450 UJ
Benzo(a)pyrene	784	88	440 UJ	450 U	480 U	450 UJ
Benzo(b)fluoranthene	7,840	875	440 UJ	450 U	480 U	450 UJ
Benzo(g,h,i)perylene	6,132,000	234,643	440 UJ	450 U	480 U	450 UJ
Benzo(k)fluoranthene	78,400	8,750	440 UJ	450 U	480 U	450 UJ
Bis(2-ethylhexyl)phthalate	408,800	45,623	150 J	450 U	480 U	450 UJ
Carbazole	286,160	31,936	440 U	450 U	480 U	450 UJ
Chrysene	784,000	87,497	440 U	450 U	480 U	450 UJ
Dibenzo(a,h)anthracene	784	88	440 UJ	450 U	480 U	450 UJ
Di-n-butylphthalate	20,440,000	782,143	440 U	450 U	480 U	450 UJ
Fluoranthene	8,176,000	312,857	440 U	450 U	480 U	450 UJ
Fluorene	8,176,000	312,857	240 J	450 U	480 U	450 UJ
Indeno(1,2,3-cd)pyrene	7,840	875	440 UJ	450 U	480 U	450 UJ
Phenanthrene	6,132,000	234,643	56 J	450 U	480 U	450 UJ
Pyrene	6,132,000	234,643	440 UJ	450 UJ	480 U	450 UJ

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	2SB01	2SB01	2SB04	2SB05
Sample ID			2SB01-02	2SB01-05	2SB04-02	2SB05-01/02
Sample Date			11/18/96	11/18/96	11/10/96	11/10/96
Depth Range (ft.)	(ug/kg)	(ug/kg)	4.00-6.00	10.00-12.00	4.00-6.00	2.00-6.00
PESTICIDES/PCBs (ug/kg)						
4,4'-DDE	16,833	1,879	11 U	11 U	12 U	11 U
4,4'-DDT	16,833	1,879	11 U	11 U	12 U	11 U
Aldrin	337	38	5.4 U	5.5 U	5.9 U	5.4 U
alpha-Chlordane	16,352	1,825	54 U	55 U	59 U	54 U
beta-BHC	3,180	355	5.4 U	5.5 U	5.9 U	5.4 U
delta-BHC	NE	NE	5.4 U	5.5 U	5.9 U	5.4 U
Dieldrin	358	40	11 U	11 U	12 U	11 U
Endosulfan I	1,226,400	46,929	5.4 U	5.5 U	5.9 U	5.4 U
Endosulfan II	1,226,400	46,929	11 U	11 U	12 U	11 U
Endrin	61,320	2,346	11 U	11 U	12 U	11 U
gamma-BHC (Lindane)	4,402	491	5.4 U	5.5 U	5.9 U	5.4 U
Heptachlor	1,272	142	5.4 U	5.5 U	5.9 U	5.4 U
Heptachlor epoxide	629	70	5.4 U	5.5 U	5.9 U	5.4 U
Methoxychlor	1,022,000	39,107	54 U	55 U	59 U	54 U
DIOXINS (ug/kg)						
Total HxCDD	0.04	0.04	NA	NA	0.21 JS	0.09 U
Total TCDF	0.04	0.04	NA	NA	0.28 JS	0.07 JS

OP PESTICIDES (ug/kg)
HERBICIDES (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Industrial RBCs (ug/kg)	EPA Region III Residential RBCs (ug/kg)	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
VOLATILES (ug/kg)							
2-Butanone	122,640,000	4,692,857	0/13		0/13		06SS142
2-Methylnaphthalene	4,088,000	156,429	0/13		0/13		2SB01-02
4-Methyl-2-pentanone	16,352,000	625,714	0/13		0/13		06SS154
Acetone	20,440,000	782,143	0/13		0/13		06SS151
Benzene	197,352	22,025	0/13		0/13		06SS154
Ethylbenzene	20,440,000	782,143	0/13		0/13		06SS154
m/p-xylene	NE	NE	NE		NE		06SS154
Methylene chloride	763,093	85,163	0/13		0/13		06SS142
o-Xylene	408,800,000	15,642,857	0/5		0/5		06SS154
Toluene	40,880,000	1,564,286	0/13		0/13		06SS154
SEMIVOLATILES (ug/kg)							
Anthracene	61,320,000	2,346,429	0/13		0/13		06SS146
Benzo(a)anthracene	7,840	875	0/13		1/13	1,000J	06SS146
Benzo(a)pyrene	784	88	0/13		1/13	270J	06SS146
Benzo(b)fluoranthene	7,840	875	0/13		1/13	1,300J	06SS146
Benzo(g,h,i)perylene	6,132,000	234,643	0/13		0/13		06SS146
Benzo(k)fluoranthene	78,400	8,750	0/13		0/13		06SS146
Bis(2-ethylhexyl)phthalate	408,800	45,623	0/13		0/13		06SS142
Carbazole	286,160	31,936	0/13		0/13		06SS146
Chrysene	784,000	87,497	0/13		0/13		06SS146
Dibenzo(a,h)anthracene	784	88	0/13		1/13	450J	06SS146
Di-n-butylphthalate	20,440,000	782,143	0/13		0/13		06SS146
Fluoranthene	8,176,000	312,857	0/13		0/13		06SS146
Fluorene	8,176,000	312,857	0/13		0/13		2SB01-02
Indeno(1,2,3-cd)pyrene	7,840	875	0/13		0/13		06SS146
Phenanthrene	6,132,000	234,643	0/13		0/13		06SS146
Pyrene	6,132,000	234,643	0/13		0/13		06SS146

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Industrial RBCs (ug/kg)	EPA Region III Residential RBCs (ug/kg)	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
PESTICIDES/PCBs (ug/kg)							
4,4'-DDE	16,833	1,879	0/13		0/13		06SS151
4,4'-DDT	16,833	1,879	0/13		0/13		06SS151
Aldrin	337	38	0/13		0/13		06SS146
alpha-Chlordane	16,352	1,825	0/13		0/13		06SS154
beta-BHC	3,180	355	0/13		0/13		06SS142
delta-BHC	NE	NE	NE		NE		06SS142
Dieldrin	358	40	0/13		0/13		06SS151
Endosulfan I	1,226,400	46,929	0/13		0/13		06SS142
Endosulfan II	1,226,400	46,929	0/13		0/13		06SS151
Endrin	61,320	2,346	0/13		0/13		06SS154
gamma-BHC (Lindane)	4,402	491	0/13		0/13		06SS142
Heptachlor	1,272	142	0/13		0/13		06SS142
Heptachlor epoxide	629	70	0/13		0/13		06SS154
Methoxychlor	1,022,000	39,107	0/13		0/13		06SS142
DIOXINS (ug/kg)							
Total HxCDD	0.04	0.04	1/6	0.21JS	1/6	0.21JS	2SB04-02
Total TCDF	0.04	0.04	2/6	0.07JS -0.28JS	2/6	0.07JS -0.28JS	2SB04-02

OP PESTICIDES (ug/kg)
HERBICIDES (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)

RISK - SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2-X Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	R6S10	R6S10	06SS101	06SS103	06SS104	06SS105	06SS106	2MW01	2MW02
Sample ID				R6S010B	R6S010C	06SS142	06SS146	06SS148	06SS151	06SS154	2MW01-01	2MW02-02
Sample Date				11/04/87	11/04/87	11/17/92	11/17/92	11/17/92	11/17/92	11/17/92	11/08/96	11/06/96
Depth Range (ft.)				1.00-2.00	2.00-3.00	1.5-2.67	0.5-1.5	1.5-2.67	2.0-3.0	1.5-2.67	2.00-4.00	4.00-6.00
	(mg/kg)	(mg/kg)	(mg/kg)									
INORGANICS, TOTAL (mg/kg)												
Aluminum	NE	204,400	7,821	NA	NA	12400	18600	7220 J	38600 J	22800 J	NA	NA
Antimony	0	81.76	3.13	NA	NA	21.4 J	19.8 J	2.4 UJ	2.8 UJ	2.9 J	4.6 J	3.6 J
Arsenic	2.05	3.81547	0.43	NA	NA	21.4	18.7	0.95 B	1.5 J	10.5	1.6 J	0.73 J
Barium	222	14,308	548	NA	NA	25.1 U	509	32.4 B	213	173	67.8 J	90.8 J
Beryllium	0.74	410	16	NA	NA	0.32 B	0.57 B	0.16 B	1.3 B	0.42 B	0.05 U	0.05 U
Cadmium	0.74	204	7.82	NA	NA	2.3	5	1.3 UJ	5.1	1.5 UJ	0.33	0.24 U
Calcium	NE	NE	NE	NA	NA	15900	61000	20100 B	10700	154000	NA	NA
Chromium	133	613	23.46	NA	NA	110	39.4	15.4	2.8	26.4	38.5	28.8
Cobalt	30	12,264	469	NA	NA	6.9 U	15.7	3.5 B	14.1	14.2	42.5	35.6
Copper	193	8,176	313	NA	NA	1490	774	13.2	86.3	60.7	44.8	40.1
Iron	NE	61,320	2,346	NA	NA	**238000**	44900	9050 J	**84100** J	24400 J	NA	NA
Lead	8.68	NE	400[1]	199	63.6	546 J	5850 J	7.4	5	89.5	7.8	14.2
Magnesium	NE	NE	NE	NA	NA	14600	12700	5890	10900	9220	NA	NA
Manganese	NE	4,088	156	NA	NA	766	601	212	245	615	NA	NA
Mercury	0.09	NE	NE	NA	NA	0.3 U	0.68	0.1 U	0.13 U	0.13 U	0.06	0.03 U
Nickel	31.9	4,088	156	NA	NA	108	17.4	4.5 UJ	5.3 UJ	5.1 UJ	16.8	11.1
Potassium	NE	NE	NE	NA	NA	3690	2200	549 U	1200 B	1880	NA	NA
Selenium	0.57	1,022	39.11	NA	NA	2.1 J	0.72 J	0.58 UJ	0.68 UJ	0.65 UJ	1 J	0.21 J
Sodium	NE	NE	NE	NA	NA	50100 J	7540 J	3830 J	11300 J	7470 J	NA	NA
Sulfide	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	34.2 R	31 R
Tin	2.96	122,640	4,693	NA	NA	NA	NA	NA	NA	NA	1.1 U	0.99 U
Vanadium	462	1,431	54.75	NA	NA	145	116	22.8	257	70.5	232	210
Zinc	88.63	61,320	2,346	NA	NA	592	2010	24.3	80.7	102	42.6	36.3

Notes:

(1) Action level for residential soils (USEPA, 1994b).

RISK - SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2 X Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	2MW02	2MW03	2SB01	2SB01	2SB04	2SB05
Sample ID				2MW02-05	2MW03-01	2SB01-02	2SB01-05	2SB04-02	2SB05-01/02
Sample Date				11/06/96	11/09/96	11/18/96	11/18/96	11/10/96	11/10/96
Depth Range (ft.)				10.00-12.00	2.00-4.00	4.00-6.00	10.00-12.00	4.00-6.00	2.00-6.00
	(mg/kg)	(mg/kg)	(mg/kg)						
INORGANICS, TOTAL (mg/kg)									
Aluminum	NE	204,400	7,821	NA	NA	NA	NA	NA	NA
Antimony	0	81.76	3.13	1.9 UJ	3.3 J	3.9 J	4.9 J	5 J	5.1 J
Arsenic	2.05	3.81547	0.43	0.2 UJ	42 J	0.37 J	0.21 UJ	1.6 J	1.3 J
Barium	222	14,308	548	367 J	209 J	56.9	33.5	490 J	357 J
Beryllium	0.74	410	16	0.05 U	0.13	0.19	0.11	0.06	0.04 U
Cadmium	0.74	204	7.82	0.3	0.49	0.29	0.39	0.62	0.64
Calcium	NE	NE	NE	NA	NA	NA	NA	NA	NA
Chromium	133	613	23.46	6.3	39.9	36.7	20.8	35.9	39.8
Cobalt	30	12,264	469	73.4	25.7	27.1 J	22.1 J	70.3	102
Copper	193	8,176	313	50.3	205	63.2 J	97.4 J	55.4	39.5
Iron	NE	61,320	2,346	NA	NA	NA	NA	NA	NA
Lead	8.68	NE	400[1]	3.5	350	4.5 R	2.2 R	73.4	10
Magnesium	NE	NE	NE	NA	NA	NA	NA	NA	NA
Manganese	NE	4,088	156	NA	NA	NA	NA	NA	NA
Mercury	0.09	NE	NE	0.02 U	0.06	0.03 U	0.03 U	0.06	0.04
Nickel	31.9	4,088	156	13.5	20.4	20.3	16.9	17.7	19.7
Potassium	NE	NE	NE	NA	NA	NA	NA	NA	NA
Selenium	0.57	1,022	39.11	0.18 UJ	1.3 J	0.17 UJ	0.19 UJ	0.67 J	1 UJ
Sodium	NE	NE	NE	NA	NA	NA	NA	NA	NA
Sulfide	NE	NE	NE	27.6 R	952 J	32.2 U	34.5 U	34.9 R	32.1 R
Tin	2.96	122,640	4,693	1 U	62.5	1 U	1 U	4.2	0.94 U
Vanadium	462	1,431	54.75	141	142	191 J	222 J	240	253
Zinc	88.63	61,320	2,346	36.1	180	60.3 J	29.5 J	57.5	36.9

Notes:

(1) Action level for residential soils (USEPA, 1994b).

RISK - SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	2X Average Detected Background (mg/kg)	EPA Region III Industrial RBCs (mg/kg)	EPA Region III Residential RBCs (mg/kg)	Number Exceeding 2X Average Detected Background	Range Exceeding 2X Average Detected Background	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
INORGANICS, TOTAL (mg/kg)										
Aluminum	NE	204,400	7,821	NE		0/5		4/5	12400-38600	06SS151
Antimony	0	81.76	3.13	10/13	2.9J - 21.4J	0/13		9/13	3.3J - 21.4J	2MW03-01
Arsenic	2.05	3.81547	0.43	4/13	4.2J- 21.4	4/13	4.2J-21.4	10/13	0.73J-21.4	2MW02-02
Barium	222	14,308	548	4/13	357J - 509	0/13		0/13		06SS146
Beryllium	0.74	410	16	2/13	0.82B - 1.3B	0/13		0/13		06SS151
Cadmium	0.74	204	7.82	3/13	5-9.3	0/13		1/13	9.3	06SS142
Calcium	NE	NE	NE	NE		NE		NE		06SS154
Chromium	133	613	23.46	0/13		0/13		9/13	26.4-110	06SS142
Cobalt	30	12,264	469	5/13	35.6-102	0/13		0/13		2SB05-01/02
Copper	193	8,176	313	3/13	205-1,490	0/13		2/13	774-1490	06SS142
Iron	NE	61,320	2,346	NE		2/5	84100-238000	5/5	9050J-238000	06SS142
Lead	8.68	NE	400(1)	9/15	10-5,850J	NE		2/15	546J-5850J	06SS146
Magnesium	NE	NE	NE	NE		NE		NE		06SS142
Manganese	NE	4,088	156	NE		0/5		5/5	212-766	06SS142
Mercury	0.09	NE	NE	1/13	0.68	NE		NE		06SS146
Nickel	31.9	4,088	156	1/13	108	0/13		0/13		06SS142
Potassium	NE	NE	NE	NE		NE		NE		06SS142
Selenium	0.57	1,022	39.11	5/13	0.67J-2.1J	0/13		0/13		06SS142
Sodium	NE	NE	NE	NE		NE		NE		06SS142
Sulfide	NE	NE	NE	NE		NE		NE		2MW03-01
Tin	2.96	122,640	4,693	2/8	4.2-62.5	0/8		0/8		2MW03-01
Vanadium	462	1,431	54.75	0/13		0/13		12/13	70.5-257	06SS151
Zinc	88.63	61,320	2,346	4/13	102-2010	0/13		0/13		06SS146

Notes:

(1) Action level for residential soils (USEPA, 1994b).

RISK - SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal MCLs	EPA Region III Tapwater RBCs	6GW01	6GW01	2MW01	2MW02	2MW03	6GW01
Sample ID			R6GW01	06GW101	2MW01	2MW02	2MW03	6GW01
Sample Date	(ug/l)	(ug/l)	11/02/87	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96
VOLATILES (ug/l)								
Chloroform	80	0.15	**1.7**	5 U	**4** J	**7**	5 U	5 U
Trichloroethene	5	1.55	1 U	5 U	5 U	6	5 U	7
SEMIVOLATILES (ug/l)								
Bis(2-ethylhexyl)phthalate	6	4.78	1.9	2 J	10 U	10 U	10 U	12 U
Isodrin	NE	NE	NA	NA	0.05	0.02	0.032	0.05 U
Pentachlorophenol	1	0.56	11	53 U	49 U	50 U	50 U	5 J
Total Phenols	2,200	NE	58	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/l)								
Aldrin	NE	0.004	**0.006**	0.05 U	**0.13**	0.05 U	**0.084**	0.05 U
Heptachlor epoxide	0.2	0.001	0.005 U	0.05 U	**0.04**	0.05 U	0.053 U	0.05 U
Heptachlor	0.4	0.0023	0.005 U	0.0017 NJ	0.05 U	0.05 U	0.053 U	0.05 U
HERBICIDES (ug/l)								
DIOXINS (ug/l)								
2,4,5-T	NE	36.5	NA	NA	0.11 U	0.11 U	0.13	0.11 U
OP-PEST (ug/l)								
EXPLOSIVES (ug/l)								
ASBESTOS (ug/l)								

RISK - SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal MCLs (ug/l)	EPA Region III Tapwater RBCs (ug/l)	Number Exceeding Federal MCLs	Range Exceeding Federal MCLs	Number Exceeding Tapwater RBCs	Range Exceeding Tapwater RBCs	Location Maximum Detect
VOLATILES (ug/l)							
Chloroform	80	0.15	0/6		3/6	1.7-7	2MW02
Trichloroethene	5	1.55	2/6	6-7	2/6	6-7	6GW01
SEMIVOLATILES (ug/l)							
Bis(2-ethylhexyl)phthalate	6	4.78	0/6		0/6		06GW101
Isodrin	NE	NE	NE		NE		2MW01
Pentachlorophenol	1	0.56	2/6	5J-11	2/6	5J-11	R6GW01
Total Phenols	2,200	NE	0/1		NE		R6GW01
PESTICIDES/PCBs (ug/l)							
Aldrin	NE	0.004	NE		3/6	0.006-0.13	2MW01
Heptachlor epoxide	0.2	0.001	0/6		1/6	0.04	2MW01
Heptachlor	0.4	0.0023	0/6		0/6		06GW101
HERBICIDES (ug/l)							
DIOXINS (ug/l)							
2,4,5-T	NE	36.5	NE		0/4		2MW03
OP-PEST (ug/l)							
EXPLOSIVES (ug/l)							
ASBESTOS (ug/l)							

RISK - SUMMARY OF INORGANIC (TOTAL) DETECTIONS IN GROUNDWATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal MCLs	EPA Region III Tapwater RBCs	6GW01	6GW01	2MW01	2MW02	2MW03	6GW01
Sample ID			R6GW01	06GW101	2MW01	2MW02	2MW03	6GW01
Sample Date	(ug/l)	(ug/l)	11/02/87	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96
TOTAL INORGANICS (ug/l)								
Aluminum, Total	36,500	NE	NA	1,200	NA	NA	NA	NA
Antimony, Total	6	1.46	21 U	47.2 U	16 R	16.1 J	15.6 J	16 R
Arsenic, Total	50	0.04465	6.4 U	3 U	2 U	**2.7**	**2.8**	2 U
Barium, Total	2000	255.5	NA	22.5 U	**363**	**663**	**455**	1.8
Beryllium, Total	4	7.3	1 U	1.5 B	0.72	1	0.4 U	0.4 U
Cadmium, Total	5	1.825	2.4 U	2.8 U	**3.2**	2.1 U	**2.2**	2.1 U
Calcium, Total	NE	NE	NA	62,500	NA	NA	NA	NA
Chromium, Total	100	10.95	3.3 U	10.4 UJ	**21**	**57.4**	**19.2**	1.7 U
Cobalt, Total	NE	219	NA	15.5 UJ	51	131	37.9	2.8 U
Copper, Total	1300(1)	146	6.1	5.1 UJ	72	**212**	79.2	1.5 U
Iron, Total	10,950	1,095	NA	**1,730**	NA	NA	NA	NA
Lead, Total	15(1)	NE	121	1.5 UJ	4.4	16.9	10.8	0.7 U
Magnesium, Total	NE	NE	NA	80,700	NA	NA	NA	NA
Mercury, Total	2	NE	0.2 U	0.2 UJ	0.1 U	0.71	0.1 U	0.1 U
Nickel, Total	100	73	8.6 U	7.8 UJ	22.2	66.3	15.5	6.7 U
Selenium, Total	50	18.25	2.5 U	4.8 J	1.8 UJ	9 U	1.8 UJ	4.2
Sodium, Total	NE	NE	NA	801,000 J	936000	676000	230000	593000
Vanadium, Total	NE	25.55	NA	**30** J	**147**	**631**	**160**	**46.2**
Zinc, Total	NE	1095	40.1	20.2 J	112	252	88.8	8.9

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC (TOTAL) DETECTIONS IN GROUNDWATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal MCLs (ug/l)	EPA Region III Tapwater RBCs (ug/l)	Number Exceeding Federal MCLs	Range Exceeding Federal MCLs	Number Exceeding Tapwater RBCs	Range Exceeding Tapwater RBCs	Location Maximum Detect
TOTAL INORGANICS (ug/l)							
Aluminum, Total	36,500	NE	0/1		NE		06GW101
Antimony, Total	6	1.46	2/6	16.1J-19.6J	2/4	16.1J-19.6J	2MW03
Arsenic, Total	50	0.04465	0/6		2/6	2.7-2.8	2MW03
Barium, Total	2000	255.5	0/5		3/5	363-663	2MW02
Beryllium, Total	4	7.3	0/6		0/6		06GW101
Cadmium, Total	5	1.825	0/6		2/6	2.2-3.2	2MW01
Calcium, Total	NE	NE	NE		NE		06GW101
Chromium, Total	100	10.95	0/6		3/6	19.2-57.4	2MW02
Cobalt, Total	NE	219	NE		0/5		2MW02
Copper, Total	1300(1)	146	0/6		1/6	212	2MW02
Iron, Total	10,950	1,095	0/1		1/1	1,730	06GW101
Lead, Total	15(1)	NE	2/6	16.9-121	NE		R6GW01
Magnesium, Total	NE	NE	NE		NE		06GW101
Mercury, Total	2	NE	0/6		NE		2MW02
Nickel, Total	100	73	0/6		0/6		2MW02
Selenium, Total	50	18.25	0/6		0/6		06GW101
Sodium, Total	NE	NE	NE		NE		2MW01
Vanadium, Total	NE	25.55	NE		5/5	30J-631	2MW02
Zinc, Total	NE	1095	NE		0/6		2MW02

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC (DISSOLVED) DETECTIONS IN GROUNDWATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal	EPA Region III	6GW01	2MW01	2MW02	2MW03	6GW01
Sample ID	MCLs	Tapwater RBCs	06GW101	2MW01	2MW02	2MW03	6GW01
Sample Date	(ug/l)	(ug/l)	11/18/92	11/12/96	11/12/96	11/12/96	11/12/96
Inorganics, Dissolved (ug/l)							
Aluminum, Dissolved	NE	3,650	48.9 J	NA	NA	NA	NA
Barium, Dissolved	2,000	256	35.2 U	246	99.6	**262**	3.4
Cadmium, Dissolved	5	1.83	2.8 U	2.1 U	2.1 U	**3.2**	**3**
Calcium, Dissolved	NE	NE	58,700	NA	NA	NA	NA
Chromium, Dissolved	100	10.95	10.4 UJ	1.7 U	2	1.7 U	1.7 U
Cobalt, Dissolved	NE	219	15.5 UJ	15.9	3.2	4	2.8 U
Copper, Dissolved	1300(1)	146	8.5 J	1.5 U	5.9	3.3	1.6
Magnesium, Dissolved	NE	NE	77,500	NA	NA	NA	NA
Selenium, Dissolved	50	18.25	9.2 J	1.8 U	1.8 J	1.8 UJ	5.2
Sodium, Dissolved	NE	NE	786,000 J	838000	648000	223000	583000
Vanadium, Dissolved	NE	25.55	17.9 J	7.9	**30.6**	25.5	**45.8**
Zinc, Dissolved	NE	1,095	16.5 B	16	5.2	9.9	6.4

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC (DISSOLVED) DETECTIONS IN GROUNDWATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal MCLs (ug/l)	EPA Region III Tapwater RBCs (ug/l)	Number Exceeding Federal MCLs	Range Exceeding Federal MCLs	Number Exceeding Tapwater RBCs	Range Exceeding Tapwater RBCs	Location Maximum Detect
Inorganics, Dissolved (ug/l)							
Aluminum, Dissolved	NE	3,650	NE		0/1		06GW101
Barium, Dissolved	2,000	256	0/5		1/5	262	2MW03
Cadmium, Dissolved	5	1.83	0/5		2/5	3-3.2	2MW03
Calcium, Dissolved	NE	NE	NE		NE		06GW101
Chromium, Dissolved	100	10.95	0/5		0/5		2MW02
Cobalt, Dissolved	NE	219	NE		0/5		2MW01
Copper, Dissolved	1300(1)	146	0/5		0/5		06GW101
Magnesium, Dissolved	NE	NE	NE		NE		06GW101
Selenium, Dissolved	50	18.25	0/5		0/5		06GW101
Sodium, Dissolved	NE	NE	NE		NE		2MW01
Vanadium, Dissolved	NE	25.55	NE		2/5	30.6-45.8	6GW01
Zinc, Dissolved	NE	1,095	NE		0/5		06GW101

Notes:

(1) Action level.

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE WATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal AWQC Water & Organisms (ug/l)	Federal AWQC - Organisms Only (ug/l)	6SW1	6SW2	6SW3	6SW1	6SW2	6SW3
Sample ID			R6SW1	R6SW2	R6SW3	R6SW01	R6SW02	R6SW03
Sample Date			12/05/85	12/05/85	12/05/85	10/07/87	10/07/87	10/07/87
VOLATILES (ug/l)								
SEMIVOLATILES (ug/l)								
Bis(2-ethylhexyl)phthalate	1.8	6	1.0	1.0	0.3 U	1.0	2.4	1.3
Di-n-octylphthalate	NE	NE	2.0	0.2 U	2.0	1.1 U	1.1 U	1.1 U
Phenols	21,000	4,600,000	0.28 U	0.21 U	0.21 U	70	40	1,200
PESTICIDES/PCBs (ug/l)								

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE WATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal AWQC - Water & Organisms (ug/l)	Federal AWQC - Organisms Only (ug/l)	Number Exceeding AWQC Water & Organisms	Range Exceeding AWQC Water & Organisms	Number Exceeding AWQC - Organisms Only	Range Exceeding AWQC - Organisms Only	Location Maximum Detection
VOLATILES (ug/l)							
SEMIVOLATILES (ug/l)							
Bis(2-ethylhexyl)phthalate	1.8	6	1/6	2.4	0/6		R6SW02
Di-n-octylphthalate	NE	NE	NE		NE		R6SW1, R6SW3
Phenols	21,000	4,600,000	0/6		0/6		R6SW03
PESTICIDES/PCBs (ug/l)							

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE WATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal AWQC - Water & Organisms	Federal AWQC - Organisms Only	6SW1	6SW2	6SW3	14SW10	6SW1	6SW2	6SW3
Sample ID			R6SW1	R6SW2	R6SW3	14SW10	R6SW01	R6SW02	R6SW03
Sample Date			12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87
	(ug/l)	(ug/l)							
Inorganics (ug/l)									
Beryllium	0.0076	0.131	23.6	50.6	24.7	NA	1 U	1 U	1 U
Cadmium	10	70	4.42	8.4	3.35	NA	2.4 U	2.4 U	2.4 U
Chromium	170	3,400	318	611	339	NA	97.4	107	106
Copper	1,300	NE	354	966	516	NA	2.8 U	2.8 U	67.8
Lead	NE	NE	211	526	244	27 U	400 U	400 U	400 U
Mercury	0.14	0.15	0.856	0.997	0.997	NA	0.2 U	0.2 U	0.2 U
Nickel	610	4,600	138	252	147	NA	8.6 U	8.6 U	8.6 U
Selenium	104	6,800	278	39 U	549	NA	162	191	241
Silver	91	NE	6 U	6 U	6 U	NA	32.2	31.1	28.7
Thallium	1.7	6.3	29.3	28.6	19.2	NA	6.8 U	6.8 U	6.8 U
Zinc	NE	NE	558	1,310	818	NA	1.8 U	1.8 U	52.5

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE WATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal AWQC - Water & Organisms (ug/l)	Federal AWQC - Organisms Only (ug/l)	Number Exceeding AWQC - Water & Organisms	Range Exceeding AWQC - Water & Organisms	Number Exceeding AWQC - Organisms Only	Range Exceeding AWQC - Organisms Only	Location Maximum Detection
Inorganics (ug/l)							
Beryllium	0.0076	0.131	3/6	23.6-50.6	3/6	23.6-50.6	R6SW2
Cadmium	10	70	0/6		0/6		R6SW2
Chromium	170	3,400	3/6	318-611	0/6		R6SW2
Copper	1,300	NE	0/6		NE		R6SW2
Lead	NE	NE	NE		NE		R6SW2
Mercury	0.14	0.15	3/6	0.856-0.997	3/6	0.856-0.997	R6SW2, R6SW3
Nickel	610	4,600	0/6		0/6		R6SW2
Selenium	104	6,800	5/6	162-549	0/6		R6SW3
Silver	91	NE	0/6		NE		R6SW01
Thallium	1.7	6.3	3/6	19.2-29.3	3/6	19.2-29.3	R6SW1
Zinc	NE	NE	NE		NE		R6SW2

RISK - SUMMARY OF ORGANIC DETECTIONS IN SEDIMENT
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Residential RBCs Value (ug/kg)	ERM Sediment Screening Value (ug/kg)	6SE1	6SE2	6SE3	14SE10	6SE1	6SE2	6SE3	2SD01	2SD02	2SD03	2SD01	2SD02	2SD03
Sample ID			R6SE1	R6SE2	R6SE3	14SE10	R6SE01	R6SE02	R6SE03	2SD01	2SD02	2SD03	2SD01	2SD02	2SD03
Sample Date			12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87	10/31/95	10/31/95	10/31/95	11/11/96	11/11/96	11/11/96
Depth Range (ft.)			0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg)															
2-Butanone	4,700,000	NE	1500 U	2200 U	1600	1100 U	6900 U	4600 U	6000 U	17 U	24 U	16 U	15 U	15 U	12 U
SEMIVOLATILES (ug/kg)															
Anthracene	2,300,000	1100	60 U	60 U	60 U	NA	170 U	110 U	150 U	560 U	780 U	95 J	500 U	500 U	400 U
Benzo(a)anthracene	870	1600	60 U	60 U	200 U	NA	170 U	110 U	150 U	560 U	530 J	970	500 U	500 U	400 U
Benzo(a)pyrene	87	1600	70 U	90 U	500 U	NA	260 U	170 U	230 U	560 U	780 U	970	500 U	500 U	400 U
Benzo(b)fluoranthene	870	NE	60 U	70 U	500 U	NA	260 U	170 U	230 U	560 U	780 U	1800	500 U	63 J	400 U
Benzo(k)fluoranthene	8,700	NE	60 U	70 U	400 U	NA	260 U	170 U	230 U	560 U	780 U	140 J	500 U	500 U	400 U
Bis(2-ethylhexyl)phthalate	46,000	NE	90	60 U	200 U	NA	13000	150 U	10000	200 J	880	540 U	500 U	500 U	400 U
Chrysene	87,000	2800	60 U	60 U	200 U	NA	170 U	110 U	150 U	560 U	720 J	1200	500 U	500 U	400 U
Di-n-octylphthalate	160,000	NE	300	200	200	NA	240 U	160 U	210 U	560 U	780 U	540 U	500 U	500 U	400 U
Fluoranthene	310,000	5100	60 U	60 U	80 U	NA	170 U	110 U	150 U	560 U	960	1900	500 U	500 U	400 U
Indeno(1,2,3-cd)pyrene	870	NE	100 U	200 U	1000 U	NA	340 U	230 U	300 U	560 U	780 U	90 J	500 U	500 U	400 U
Phenanthrene	230,000	NE	60 U	60 U	60 U	NA	170 U	110 U	150 U	560 U	290 J	630	500 U	500 U	400 U
Pyrene	2,600	2600	60 U	60 U	80 U	NA	170 U	110 U	150 U	560 U	1200	2200	500 U	500 U	400 U
PESTICIDES/PCBS (ug/kg)															
4,4'-DDE	1,900	27	466 U	496 U	487 U	NA	40.1 U	26.8 U	35.1 U	68 U	180 U	**29**	24 U	60 U	19 U
DIOXINS (ug/kg)															
Total HxCDD	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.2 U	0.23 U	2.5	0.1 U	0.16 U	0.07 U
Total HxCDF	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.19 U	0.2 U	0.91 J	0.05 U	0.09 U	0.06 U
HERBICIDES (ug/kg)															
OP-PESTICIDES (ug/kg)															
EXPLOSIVES (ug/kg)															
ASBESTOS (ug/kg)															

RISK - SUMMARY OF ORGANIC DETECTIONS IN SEDIMENT
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Residential RBCs Value (ug/kg)	ERM Sediment Screening Value (ug/kg)	Number Exceeding Residential RBCs	Range Exceeding Residential RBCs	Number Exceeding ERM Sediment Screening Value	Range Exceeding ERM Sediment Screening Value	Location Maximum Detect
VOLATILES (ug/kg)							
2-Butanone	4,700,000	NE	0/13		NE		R6SE3
SEMIVOLATILES (ug/kg)							
Anthracene	2,300,000	1100	0/12		0/12		2SD03
Benzo(a)anthracene	870	1600	1/12	970	0/12		2SD03
Benzo(a)pyrene	87	1600	1/12	920	0/12		2SD03
Benzo(b)fluoranthene	870	NE	1/12	1800	NE		2SD03
Benzo(k)fluoranthene	8,700	NE	0/12		NE		2SD03
Bis(2-ethylhexyl)phthalate	46,000	NE	0/12		NE		R6SE01
Chrysene	87,000	2800	0/12		0/12		2SD03
Di-n-octylphthalate	160,000	NE	0/12		NE		R6SE1
Fluoranthene	310,000	5100	0/12		0/12		2SD03
Indeno(1,2,3-cd)pyrene	870	NE	0/12		NE		2SD03
Phenanthrene	230,000	NE	0/12		NE		2SD03
Pyrene	2,600	2600	0/12		0/12		2SD03
PESTICIDES/PCBS (ug/kg)							
4,4'-DDE	1,900	27	0/12		1/12	29	2SD03
DIOXINS (ug/kg)							
Total HxCDD	NE	NE	NE		NE		2SD03
Total HxCDF	NE	NE	NE		NE		2SD03
HERBICIDES (ug/kg)							
OP-PESTICIDES (ug/kg)							
EXPLOSIVES (ug/kg)							
ASBESTOS (ug/kg)							

RISK - SUMMARY OF INORGANIC DETECTIONS IN SEDIMENT
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Residential RBCs Value (mg/kg)	ERM Sediment Screening Value (mg/kg)	6SE1	6SE2	6SE3	14SE10	6SE1	6SE2	6SE3	2SD01	2SD02	2SD03	2SD01	2SD02	2SD03
Sample ID			R6SE1	R6SE2	R6SE3	14SE10	R6SE01	R6SE02	R6SE03	2SD01	2SD02	2SD03	2SD01	2SD02	2SD03
Sample Date			12/05/85	12/05/85	12/05/85	11/22/85	10/07/87	10/07/87	10/07/87	10/31/95	10/31/95	10/31/95	11/11/96	11/11/96	11/11/96
Depth Range (ft.)			0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
INORGANICS (mg/kg)															
Antimony	3.1	NE	5.9	6.9	7.4	NA	11 U	6.8 U	9.7 U	2.6 UJ	5 UJ	3.1 UJ	1.7 UJ	4.3 J	3.3 J
Arsenic	0.43	70	7.76	15.1	16.4	NA	3.76	1.94	4.75	2 J	7 J	7.6 J	5.2 J	5.3 J	2.6 J
Barium	550	NE	NA	NA	NA	NA	NA	NA	NA	12.1	55.9 J	59.4	19.8 J	486 J	136 J
Beryllium	16	NE	0.278 U	0.36	0.392	NA	0.825 U	0.502 U	0.722 U	0.11 U	0.21 UJ	0.13 U	0.15	0.48	0.07
Cadmium	7.8	9.6	0.417 U	0.404 U	0.407 U	NA	1.71	0.52	0.747	0.46 U	1.2 J	0.55 U	0.23 U	1.5	0.32
Chromium	23	370	6.71	11.7	18	NA	14.2	6.58	13.9	6.6	18.7 J	34.5	15	43.9 J	26.3 J
Cobalt	470	NE	NA	NA	NA	NA	NA	NA	NA	1.2	4.6 J	7.9	4.2	24.9	34.7
Copper	310	270	9.1	20.4	26.4	NA	35.9	10.9	57.5	8.2	352 J	350	16.9	399	62.4
Lead	400[1]	218	8.75 U	8.49 U	8.54 U	3.94 U	12.2	6.06	21.2	3.8	339 J	202 J	4	390 J	49.7 J
Mercury	NE	0.71	0.065 U	0.067 U	0.084	NA	0.144 U	0.075 U	0.174 U	0.06 U	0.8 J	2.7	0.04	0.14	0.05
Nickel	160	51.6	3.46	5.62	7.45	NA	9.39 U	5.71 U	8.22 U	2.4	7.8 J	9.1	5.7	24.1	14
Selenium	39	NE	7.02	16.3	19.4	NA	1.92	0.851	0.742 U	0.25 UJ	0.35 UJ	0.15 J	0.23 J	0.22 UJ	0.45 J
Sulfide	NE	NE	NA	NA	NA	NA	NA	NA	NA	41.9 UJ	296 J	34.8 UJ	38 R	37 U	29.7 U
Tin	4700	NE	NA	NA	NA	NA	NA	NA	NA	2 U	13.5 J	13.7	0.93 U	32.1	0.59 U
Vanadium	55	NE	NA	NA	NA	NA	NA	NA	NA	15	37.1 J	79.2	31.5	112 J	154 J
Zinc	2300	410	14.1	23.3	29.8	NA	53.5	22.2	67	9.6	432 J	401	15.1	841	92.8

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC DETECTIONS IN SEDIMENT
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Residential RBCs Value (mg/kg)	ERM Sediment Screening Value (mg/kg)	Number Exceeding Residential RBCs	Range Exceeding Residential RBCs	Number Exceeding ERM Sediment Screening Value	Range Exceeding ERM Sediment Screening Value	Location Maximum Detect
INORGANICS (mg/kg)							
Antimony	3.1	NE	5/12	3.3J - 7.4	NE		R6SE3
Arsenic	0.43	70	12/12	1.94 - 16.4	0/12		R6SE3
Barium	550	NE	0/6		NE		2SD02
Beryllium	16	NE	0/12		NE		2SD02
Cadmium	7.8	9.6	0/12		0/12		R6SE01
Chromium	23	370	3/12	25.3J - 45.9J	0/12		2SD02
Cobalt	470	NE	0/6		NE		2SD03
Copper	310	270	3/12	332J - 830	3/12	332J - 830	2SD03
Lead	400(1)	218	0/13		2/13	339 J - 390 J	2SD02
Mercury	NE	0.71	NE		2/12	0.8 J - 2.7	2SD03
Nickel	160	51.6	0/12		0/12		2SD02
Selenium	39	NE	0/12		NE		R6SE3
Sulfide	NE	NE	NE		NE		2SD02
Tin	4700	NE	0/6		NE		2SD03
Vanadium	55	NE	3/6	79.2 - 154J	NE		2SD03
Zinc	2300	410	0/12		2/12	432 J - 841	2SD02

Notes:

(1) Action level.

SWMU 45

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	45MW01	45MW02	45MW03	45MW04
Sample ID			45MW01-00	45MW02-00	45MW03-00	45MW04-00
Sample Date			11/22/96	11/21/96	11/21/96	11/22/96
Depth Range (ft.)	(ug/kg)	(ug/kg)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
VOLATILES (ug/kg)						
SEMIVOLATILES (ug/kg)						
PCBS (ug/kg)						
Aroclor-1260	2,862	319	87 U	100	90 U	150

RISK - SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Industrial RBCs (ug/kg)	EPA Region III Residential RBCs (ug/kg)	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
VOLATILES (ug/kg)							
SEMIVOLATILES (ug/kg)							
PCBS (ug/kg)							
Aroclor-1260	2,862	319	0/4		0/4		45MW04-00

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2 x Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	45MW01	45MW02	45MW03	45MW04
Sample ID				45MW01-00	45MW02-00	45MW03-00	45MW04-00
Sample Date				11/22/96	11/21/96	11/21/96	11/22/96
Depth Range (ft.)	(mg/kg)	(mg/kg)	(mg/kg)	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00
RCRA Metals (mg/kg)							
Arsenic, Total	2.43	3.82	0.43	0.7 UJ	3.3 J	2.6 J	2.3 J
Barium, Total	181	14,308	548	284	277	243	108
Cadmium, Total	0	204	7.82	0.25	0.25	0.42	0.41
Chromium, Total	59.3	613	23.46	24.6	23.2	29.9	10.9
Lead, Total	15.25	NE	400(1)	2.8 J	8.2	5.2 J	7.4 J
Mercury, Total	0.11	NE	NE	0.03	0.03	0.03	0.04

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	2 x Average Detected Background (mg/kg)	EPA Region III Industrial RBCs (mg/kg)	EPA Region III Residential RBCs (mg/kg)	Number Exceeding Detected Background	Range Exceeding Detected Background	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
RCRA Metals (mg/kg)										
Arsenic, Total	2.43	3.82	0.43	2/4	2.6J - 3.3J	0/4		3/4	2.3J - 3.3J	45MW02-00
Barium, Total	181	14,308	548	3/4	233-284	0/4		0/4		45MW01-00
Cadmium, Total	0	204	7.82	4/4	0.25 - 0.42	0/4		0/4		45MW03-00
Chromium, Total	59.3	613	23.46	0/4		0/4		2/4	24.6-29.9	45MW03-00
Lead, Total	15.25	NE	400(1)	0/4		NE		NE		45MW02-00
Mercury, Total	0.11	NE	NE	0/4		NE		NE		45MW04-00

Notes:

(1) Action level.

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	45MW01	45MW01	45MW02	45MW02	45MW03	45MW03	45MW04	45MW04
Sample ID			45MW01-02	45MW01-03	45MW02-01	45MW02-02	45MW03-03	45MW03-04	45MW04-01	45MW04-02
Sample Date			11/22/96	11/22/96	11/21/96	11/21/96	11/21/96	11/21/96	11/22/96	11/22/96
Depth Range (ft.)	(ug/kg)	(ug/kg)	4.00-6.00	6.00-8.00	2.00-4.00	4.00-6.00	6.00-8.00	8.00-10.00	2.00-4.00	4.00-6.00
VOLATILES (ug/kg)										
Acetone	20,440,000	782,142.86	12 UJ	11 UJ	12 UJ	13 UJ	11 UJ	35 J	12 UJ	15 UJ
SEMIVOLATILES (ug/kg)										
PCBs (ug/kg)										

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Industrial RBCs (ug/kg)	EPA Region III Residential RBCs (ug/kg)	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
VOLATILES (ug/kg)							
Acetone	20,440,000	782,142.86	0/8		0/8		45MW03-04
SEMIVOLATILES (ug/kg)							
PCBs (ug/kg)							

RISK - SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2 x Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	45MW01	45MW01	45MW02	45MW02	45MW03	45MW03	45MW04	45MW04
Sample ID				45MW01-02	45MW01-03	45MW02-01	45MW02-02	45MW03-03	45MW03-04	45MW04-01	45MW04-02
Sample Date				11/22/96	11/22/96	11/21/96	11/21/96	11/21/96	11/21/96	11/22/96	11/22/96
Depth Range (ft.)	(mg/kg)	(mg/kg)	(mg/kg)	4.00-6.00	6.00-8.00	2.00-4.00	4.00-6.00	6.00-8.00	8.00-10.00	2.00-4.00	4.00-6.00
RCRA Metals (mg/kg)											
Arsenic, Total	2.05	3.82	0.43	3.4 J	0.49 J	2.6 J	3.4 J	3.1 J	2.4 J	3.9 J	1.9 J
Barium, Total	222	14,308	548	19.4	30.6	16.6	19.2	8.7	6.7	8.7	7.4
Cadmium, Total	0.74	204	7.82	0.35	0.33	0.25	0.47	0.29	0.21	0.39	0.23 U
Chromium, Total	133	613	23	9.2	36.1	13.2	8.9	7.2	4.3	2.7	4.5
Lead, Total	8.68	NE	400(1)	1.1 J	2 J	2 J	1.3 J	1.4 J	0.67 J	0.54 J	1 J

Notes:

(1) Action level for residential soils (USEPA, 1994b).

RISK - SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	2 x Average Detected Background (mg/kg)	EPA Region III Industrial RBCs (mg/kg)	EPA Region III Residential RBCs (mg/kg)	Number Exceeding Detected Background	Range Exceeding Detected Background	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
RCRA Metals (mg/kg)										
Arsenic, Total	2.05	3.82	0.43	6/8	2.4J - 3.9J	1/8	3.9J	8/8	0.49J - 3.9J	45MW04-01
Barium, Total	222	14,308	548	0/8		0/8		0/8		45MW01-03
Cadmium, Total	0.74	204	7.82	0/8		0/8		0/8		45MW02-02
Chromium, Total	133	613	23	0/8		0/8		1/8	36.1	45MW01-03
Lead, Total	8.68	NE	400[1]	0/8		NE		0/8		45MW01-03, 45MW02-01

Notes:

(1) Action level for residential soils (USEPA, 1994b).

RISK - SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID		EPA Region III	45HP01	45HP02	45HP03	45HP04	45MW01	45MW02	45MW03	45MW04
Sample ID	Federal	Risk Tapwater	45HP01	45HP02	45HP03	45HP04	45MW01	45MW02	45MW03	45MW04
Sample Date	MCL	RBC	11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96
	(ug/l)	(ug/l)								
VOLATILES (ug/l)										
Acetone	NE	365	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	12 J
SEMIVOLATILES (ug/l)										
Acenaphthene	NE	219	10 U	10 U	10 U	10 U	10 U	10 U	2 J	10 U
Bis(2-ethylhexyl)phthalate	6	4.78	10 U	10 U	10 U	10 U	10 U	64 J	10 U	10 U
Phenol	NE	2,190	4 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PCBs (ug/l)										
Aroclor-1260	0.5	0.03	1 U	**0.35**	1 U	1 U	1 U	1 U	1 U	1 U

RISK - SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal MCL (ug/l)	EPA Region III Risk Tapwater RBC (ug/l)	Number Exceeding Federal MCL	Range Exceeding Federal MCL	Number Exceeding EPA Region III Risk Tapwater RBC	Range Exceeding EPA Region III Risk Tapwater RBC	Location Maximum Detection
VOLATILES (ug/l)							
Acetone	NE	365	NE		0/8		45MW04
SEMIVOLATILES (ug/l)							
Acenaphthene	NE	219	NE		0/8		45MW03
Bis(2-ethylhexyl)phthalate	6	4.78	1/8	64J	1/8	64J	45MW02
Phenol	NE	2,190	NE		0/8		45HP01
PCBs (ug/l)							
Aroclor-1260	0.5	0.03	0/8		1/8	0.35	45HP02

RISK - SUMMARY OF INORGANIC (TOTAL) DETECTIONS IN GROUNDWATER
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	NP Federal MCL	EPA Region III Risk Tapwater RBC	45HP01	45HP02	45HP03	45HP04	45MW01	45MW02	45MW03	45MW04
Sample ID			45HP01	45HP02	45HP03	45HP04	45MW01	45MW02	45MW03	45MW04
Sample Date			11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96
	(ug/l)	(ug/l)								
RCRA Metals (ug/l)										
Arsenic, Total	50	0.04	103	96.8	16 U	8 U	**13.4** J	**39.2** J	**14.5** J	**11.3** J
Barium, Total	2,000	256	113	197	**282**	155	**483**	**470**	173	220
Cadmium, Total	5	1.83	6.4	6.7	**2.5**	**2.3**	5.4 J	5.6 J	**3.5** J	7.8
Chromium, Total	100	10.95	136	127	175	**84.2**	182	104	**61.7**	**39.8**
Lead, Total	15[1]	NE	16.2	30	9	2.6	22.8	29.7	12.1	4 J
Mercury, Total	2	NE	0.23	0.24	0.1 U	0.1 U	0.1 U	0.11	0.1 U	0.1 U

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC (TOTAL) DETECTIONS IN GROUNDWATER
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	NE Federal MCL (ug/l)	EPA Region III Risk Tapwater RBC (ug/l)	Number Exceeding Federal MCL	Range Exceeding Federal MCL	Number Exceeding EPA Region III Risk Tapwater RBC	Range Exceeding EPA Region III Risk Tapwater RBC	Location Maximum Detect
RCRA Metals (ug/l)							
Arsenic, Total	50	0.04	2/8	96.8 - 103	6/8	11.3J - 103	45HP01
Barium, Total	2,000	256	0/8		3/8	282-483	45MW01
Cadmium, Total	5	1.83	5/8	5.4J - 27.8	8/8	2.3-27.8	45MW04
Chromium, Total	100	10.95	5/8	104 - 182	8/8	39.8-182	45MW01
Lead, Total	15[1]	NE	4/8	16.2 - 30	NE		45HP02
Mercury, Total	2	NE	0/8		NE		45HP02

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC (DISSOLVED) DETECTIONS IN GROUNDWATER
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID		EPA Region III	45HP01	45HP02	45HP03	45HP04	45MW01	45MW02	45MW03	45MW04
Sample ID	Federal	Risk Tapwater	45HP01	45HP02	45HP03	45HP04	45MW01	45MW02	45MW03	45MW04
Sample Date	MCL	RBC	11/22/96	11/22/96	11/22/96	11/22/96	11/25/96	11/25/96	11/25/96	11/25/96
	(ug/l)	(ug/l)								
RCRA Metals (ug/l)										
Arsenic, Soluble	50	0.04	**16.1** J	**4.3**	1.6 U	1.6 U	**2.5** J	**2.9** J	1.6 UJ	1.6 UJ
Barium, Soluble	2,000	256	19.2	4.9	7.8	3.7	50.6	101	49.6	162
Cadmium, Soluble	5	1.83	**5.6**	2.1 U	2.1 U	**2.4**	2.1 U	2.1 U	2.1 U	**5** J
Lead, Soluble	15[1]	NE	0.7 UJ	0.7 U	0.7 U	0.7 U	1.6	1.3 U	1.3 U	1.3 UJ

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC (DISSOLVED) DETECTIONS IN GROUNDWATER
1996 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal MCL (ug/l)	EPA Region III Risk Tapwater RBC (ug/l)	Number Exceeding Federal MCL	Range Exceeding Federal MCL	Number Exceeding EPA Region III Risk Tapwater RBC	Range Exceeding EPA Region III Risk Tapwater RBC	Location Maximum Detect
RCRA Metals (ug/l)							
Arsenic, Soluble	50	0.04	0/8		4/8	2.5J - 16.1J	45HP01
Barium, Soluble	2,000	256	0/8		0/8		45MW04
Cadmium, Soluble	5	1.83	1/8	5.6	3/8	2.4-5.6	45HP01
Lead, Soluble	15(1)	NE	0/8		NE		45MW01

Notes:

(1) Action level.

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	11-SB01	11-SB04	11-SB05	11-SB06	11-SB07	11-SB08	11-SB09	11-SB11	11-SB14	11-SB15
Sample ID			11SB01-02	11SB04-01	11SB05-02	11SB06-02	11SB07-02	11SB08-02	11SB09-02	11SB11-02	11SB14-01	11SB15-02
Sample Date			09/17/97	09/24/97	09/17/97	09/18/97	09/18/97	09/18/97	09/19/97	09/19/97	09/19/97	09/19/97
Depth Range (ft.)	(ug/kg)	(ug/kg)	2.00-8.00	2.00-4.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-4.00	2.00-4.00
VOLATILES (ug/kg)												
2-Hexanone	8,176,000	312,857	12 U	12 U	11 U	10 U	11 U	11 U	11 UJ	11 UJ	11 UJ	13 UJ
4-Methyl-2-pentanone	16,352,000	625,714	12 U	12 U	11 U	10 U	11 U	11 U	11 UJ	11 U	11 UJ	13 U
Acetone	20,440,000	782,143	48	12 UJ	11 U	10 U	11 U	11 U	12 J	11 UJ	11 UJ	13 UJ
Toluene	40,880,000	1,564,286	24	6 U	5 U	8	5 U	5 U	5 U	6 U	5 U	6 U
SEMIVOLATILES (ug/kg)												
Acenaphthene	12,264,000	469,286	380 U	380 U	360 U	340 U	360 U	360 U	180 J	360 U	360 U	410 U
Benzo(a)anthracene	7,840	875	110 J	380 U	360 U	340 U	360 U	360 U	1,700 U	360 U	360 U	410 U
Benzo(a)pyrene	784	88	**110** J	380 U	360 UJ	340 U	360 U	360 U	**260** J	360 U	360 U	410 U
Benzo(g,h,i)perylene	6,132,000	234,643	380 U	380 UJ	100 UJ	340 U	120 J	360 U	1,700 U	360 U	360 U	410 UJ
Benzoic acid	817,600,000	31,285,714	1,900 U	1,900 U	1,800 U	1,700 U	1,800 U	1,800 U	8,600 U	510 J	510 J	2,000 U
Chrysene	784,000	87,497	380 U	380 U	360 U	340 U	360 U	360 U	340 J	360 U	360 U	410 U
Diethylphthalate	163,520,000	6,257,143	380 U	380 U	360 U	340 U	360 U	360 U	1,700 U	360 U	360 U	410 U
Di-n-butylphthalate	20,440,000	782,143	84 J	380 U	360 U	140 J	240 J	270 J	1,700 U	360 U	360 U	410 U
Phenol	122,640,000	469,286	380 U	380 U	360 U	340 U	360 U	360 U	1,700 U	360 U	360 U	410 U
Pyrene	6,132,000	234,643	47 J	380 U	360 U	340 U	360 U	360 U	180 J	360 UJ	360 UJ	410 U
PCBs (ug/kg)												
Aroclor-1260	2,862	319	**320** J	93 U	110 J	60 J	75 J	87 U	420 U	86 U	86 U	100 U
TPH (ug/kg)												
Diesel Range Organics	NE	NE	250,000	7,000 U	68,000 U	6,700	67,000 U	6,800 U	110,000	6,800 U	6,500 U	7,700 U
Gasoline Range Organics	NE	NE	140	58 U	55 U	130	32 J	55 U	540	35 J	54 U	63 U

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	11-SB16	11-SB18	11-SB19	11-SB22	11-SB22	11-SB23	11-SB26	11-SB27
Sample ID			11SB16-04	11SB18-02	11SB19-04	11SB22-04	11SB22-06	11SB23-03	11SB26-01	11SB27-04
Sample Date			09/19/97	09/20/97	09/20/97	09/21/97	09/21/97	09/21/97	09/21/97	09/21/97
Depth Range (ft.)	(ug/kg)	(ug/kg)	4.00-8.00	2.00-6.00	6.00-10.00	7.50-9.50	11.50-13.50	4.00-6.00	0.00-2.00	6.00-10.00
VOLATILES (ug/kg)										
2-Hexanone	8,176,000	312,857	15 UJ	14 UJ	13 UJ	8 J	NA	12 U	11 U	12 U
4-Methyl-2-pentanone	16,352,000	625,714	15 U	14 U	13 U	4 J	NA	12 U	11 U	12 U
Acetone	20,440,000	782,143	83 J	14 UJ	46 J	11 U	NA	12 U	11 U	12 U
Toluene	40,880,000	1,564,286	8 U	7 U	7 U	5 U	NA	6 U	5 U	6 U
SEMIVOLATILES (ug/kg)										
Acenaphthene	12,264,000	469,286	500 U	450 U	440 U	360 U	NA	420 U	350 U	400 U
Benzo(a)anthracene	7,840	875	500 U	450 U	440 U	360 U	NA	420 U	350 U	400 U
Benzo(a)pyrene	784	88	500 U	450 U	57 J	360 U	NA	420 U	350 U	**140** J
Benzo(g,h,i)perylene	6,132,000	234,643	500 UJ	450 UJ	440 UJ	360 U	NA	420 UJ	350 UJ	400 UJ
Benzoic acid	817,600,000	31,285,714	2,500 U	2,200 U	2,200 U	1,800 U	NA	2,100 U	1,800 U	2,000 U
Chrysene	784,000	87,497	500 U	450 U	440 U	360 U	NA	420 U	350 U	400 U
Diethylphthalate	163,520,000	6,257,143	500 U	450 U	44 J	360 U	NA	420 U	350 U	400 U
Di-n-butylphthalate	20,440,000	782,143	500 U	450 U	440 U	360 U	NA	420 U	350 U	400 U
Phenol	122,640,000	469,286	130 J	450 U	440 U	360 U	NA	420 U	350 U	400 U
Pyrene	6,132,000	234,643	500 U	450 U	440 U	360 U	NA	420 U	350 U	400 U
PCBs (ug/kg)										
Aroclor-1260	2,862	319	120 U	46	110 U	440 U	110 U	100 U	85 U	95 U
TPH (ug/kg)										
Diesel Range Organics	NE	NE	9,100 U	8,200 U	8,200 U	120,000	NA	7,800 U	6,700 U	7,400 U
Gasoline Range Organics	NE	NE	76 U	68 U	67 U	42 J	NA	63 U	57	60 U

RISK - SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Industrial RBCs (ug/kg)	EPA Region III Residential RBCs (ug/kg)	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
VOLATILES (ug/kg)							
2-Hexanone	8,176,000	312,857	0/17		0/17		11SB22-04
4-Methyl-2-pentanone	16,352,000	625,714	0/17		0/17		11SB22-04
Acetone	20,440,000	782,143	0/17		0/17		11SB16-04
Toluene	40,880,000	1,564,286	0/17		0/17		11SB01-02
SEMIVOLATILES (ug/kg)							
Acenaphthene	12,264,000	469,286	0/17		0/17		11SB09-02
Benzo(a)anthracene	7,840	875	0/17		0/17		11SB01-02
Benzo(a)pyrene	784	88	0/17		3/17	110J - 260J	11SB09-02
Benzo(g,h,i)perylene	6,132,000	234,643	0/17		0/17		11SB07-02
Benzoic acid	817,600,000	31,285,714	0/17		0/17		11SB11-02,11-SB14-01
Chrysene	784,000	87,497	0/17		0/17		11SB09-02
Diethylphthalate	163,520,000	6,257,143	0/17		0/17		11SB19-04
Di-n-butylphthalate	20,440,000	782,143	0/17		0/17		11SB08-02
Phenol	122,640,000	469,286	0/17		0/17		11SB16-04
Pyrene	6,132,000	234,643	0/17		0/17		11SB09-02
PCBs (ug/kg)							
Aroclor-1260	2,862	319	0/18		1/18	320J	11SB01-02
TPH (ug/kg)							
Diesel Range Organics	NE	NE	NE		NE		11SB01-02
Gasoline Range Organics	NE	NE	NE		NE		11SB09-02

RISK - SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2 X Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	11-SB01	11-SB04	11-SB05	11-SB06	11-SB07	11-SB08	11-SB09	11-SB11	11-SB14
Sample ID				11SB01-02	11SB04-01	11SB05-02	11SB06-02	11SB07-02	11SB08-02	11SB09-02	11SB11-02	11SB14-01
Sample Date				09/17/97	09/24/97	09/17/97	09/18/97	09/18/97	09/18/97	09/19/97	09/19/97	09/19/97
Depth Range (ft.)	(mg/kg)	(mg/kg)	(mg/kg)	2.00-8.00	2.00-4.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-8.00	2.00-4.00
Inorganics, Total (mg/kg)												
Antimony	0	82	3.13	0.42 J	0.36 UJ	0.68 UJ	0.16 UJ	0.71 UJ	0.19 UJ	0.38 UJ	0.33 UJ	0.36 UJ
Arsenic	2.05	3.82	0.43	2.7 J	3.2 J	4.5 J	0.66 U	2.7 J	0.94 J	3.3 J	3.1 J	2.1 J
Barium	222	14,308	548	119	12.9 J	9 J	30.4	9.8 J	80.9	10 J	8.9 J	26 J
Beryllium	0.74	410	16	0.28 J	0.06 U	0.11 U	0.06 J	0.11 U	0.09 J	0.06 U	0.05 U	0.06 U
Cadmium	0.74	204	7.80	0.67	0.07 U	0.14 U	0.33 J	0.15 U	0.42 J	0.08 U	0.07 U	0.23 J
Chromium	133	613	23	16.4	18.3	5.6	27.1	4.7	10.3	5.4	5.6	11.8
Cobalt	30	12,264	469	9.4	6 J	0.65 J	12.5	0.62 J	10.7	0.84 J	0.65 J	5.4 J
Copper	193	8,176	313	75 R	28.4 J	4.5 R	114 R	3.8 R	46 R	3 R	5.8 R	31.5 R
Lead	8.68	NE	400(1)	7.7 J	3.8 J	0.79	1.5	1.4 J	1.1	0.59	0.49	2.5
Mercury	0.09	NE	NE	0.04 J	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	31.90	4,088	156	11.4	6.2 J	1.7 J	13.2	1.7 J	4.2	0.85 J	1.5 J	4.4 J
Silver	0	1,022	39	0.36 J	0.11 U	0.22 U	0.1 J	0.22 U	0.1 J	0.12 U	0.1 U	0.11 U
Tin	2.96	122,640	4,693	2.7 J	1.7 J	0.87 J	1.4 J	0.67 U	1.2 J	1.2 J	1 J	1.3 J
Vanadium	462	1,431	54.75	68.8 J	52.5	13.2 J	89.3 J	12 J	51 J	7 J	10.1 J	35 J
Zinc	88.63	61,320	2,346	59 R	17.5 R	5.2 R	41.7 R	5.4 R	35.8 R	4.3 R	5.3 R	19 R

Notes:

(1) Action level for residential soils (USEPA, 1994b).

RISK - SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	2 X Average Detected Background	EPA Region III Industrial RBCs	EPA Region III Residential RBCs	11-SB15	11-SB16	11-SB18	11-SB19	11-SB22	11-SB23	11-SB26	11-SB27
Sample ID				11SB15-02	11SB16-04	11SB18-02	11SB19-04	11SB22-04	11SB23-03	11SB26-01	11SB27-04
Sample Date				09/19/97	09/19/97	09/20/97	09/20/97	09/21/97	09/21/97	09/21/97	09/21/97
Depth Range (ft.)	(mg/kg)	(mg/kg)	(mg/kg)	2.00-4.00	4.00-8.00	2.00-6.00	6.00-10.00	7.50-9.50	4.00-6.00	0.00-2.00	6.00-10.00
Inorganics, Total (mg/kg)											
Antimony	0	82	3.13	0.38 UJ	0.24 UJ	0.41 UJ	0.19 UJ	0.43 J	0.38 UJ	0.32 UJ	0.22 J
Arsenic	2.05	3.82	0.43	2.3 J	3 J	2.9 J	0.71 U	2.5 J	3.7 J	2.6 J	0.7 U
Barium	222	14,308	548	33	8.7 J	10.4 J	116	85.7	88.1	16 J	42.7
Beryllium	0.74	410	16	0.06 U	0.04 U	0.07 U	0.18	0.16 J	0.17 J	0.05 U	0.13
Cadmium	0.74	204	7.80	0.08 U	0.05 J	0.09 U	0.86	0.07 U	0.08 U	0.79 J	0.51
Chromium	133	613	23	15.1	7.1	3.8	21.9	9.7	320	39.3	35.3
Cobalt	30	12,264	469	9.7 J	0.46 J	0.31 J	14.4	20.4	17.8	11.6	10.5
Copper	193	8,176	313	59.4 J	5.1 J	2.4 J	131 J	101 J	126 J	62.8 J	70.2 J
Lead	8.68	NE	400[1]	1.4 J	0.42 J	0.5 J	1.4 J	0.94 J	0.55 J	1.3 J	1.1 J
Mercury	0.09	NE	NE	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U
Nickel	31.90	4,088	156	7 J	1.4 J	1.1 J	9.8	10.6	17	13.7	11.9
Silver	0	1,022	39	0.12 U	0.08 U	0.13 U	0.07 J	0.13 J	0.17 J	0.1 U	0.08 J
Tin	2.96	122,640	4,693	2.2 J	1.8 J	1.8 J	2.6 J	2.1 J	2.4 J	2.1 J	1.9 J
Vanadium	462	1,431	54.75	63.4	22.1	5.6 J	135	158	137	109	87.4
Zinc	88.63	61,320	2,346	29.3 R	4.2 R	2.5 R	42.6	90.9	61.2	27.5 R	25.6 R

Notes:

(1) Action level for residential soils (USEPA, 1994b).

RISK - SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	2 X Average Detected Background (mg/kg)	EPA Region III Industrial RBCs (mg/kg)	EPA Region III Residential RBCs (mg/kg)	Number Exceeding 2 X Average Background	Range Exceeding 2 X Average Background	Number Exceeding EPA Region III Industrial RBCs	Range Exceeding EPA Region III Industrial RBCs	Number Exceeding EPA Region III Residential RBCs	Range Exceeding EPA Region III Residential RBCs	Location Maximum Detect
Inorganics, Total (mg/kg)										
Antimony	0	82	3.13	3/17	0.22J - 0.43J	0/17		0/17		11SB22-04
Arsenic	2.05	3.82	0.43	13/17	2.1J - 4.5J	1/17	4.5J	14/17	0.94J - 4.5J	11SB05-02
Barium	222	14,308	548	0/17		0/17		0/17		11SB01-02
Beryllium	0.74	410	16	0/17		0/17		0/17		11SB01-02
Cadmium	0.74	204	7.80	2/17	0.79J - 0.86	0/17		0/17		11SB19-04
Chromium	133	613	23	1/17	320	0/17		4/17	27.1-320	11SB23-03
Cobalt	30	12,264	469	0/17		0/17		0/17		11SB22-04
Copper	193	8,176	313	0/17		0/17		0/17		11SB19-04
Lead	8.68	NE	400[1]	0/17		NE		0/17		11SB01-02
Mercury	0.09	NE	NE	0/17		NE		NE		11SB01-02
Nickel	31.90	4,088	156	0/17		0/17		0/17		11SB23-03
Silver	0	1,022	39	7/17	0.07J - 0.36J	0/17		0/17		11SB01-02
Tin	2.96	122,640	4,693	0/17		0/17		0/17		11SB01-02
Vanadium	462	1,431	54.75	0/17		0/17		8/17	63.4-158	11SB22-04
Zinc	88.63	61,320	2,346	1/17	90.9	0/17		0/17		11SB22-04

Notes:

(1) Action level for residential soils (USEPA, 1994b).

RISK - SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal MCL	EPA Region III	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10	11-SB11	11-SB12	11-SB13
Sample ID		Risk Tapwater	11GW01	11GW02	11GW05	11GW07	11GW08	11GW10	11GW11	11GW12	11GW13
Sample Date		RBC	09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97	09/20/97	09/20/97	09/20/97
	(ug/l)	(ug/l)									
VOLATILES (ug/l)											
Acetone	NE	365	10 UJ	10 U	10 U	10 UJ	16 J	34	17	24	12
SEMIVOLATILES (ug/l)											
2,4-Dichlorophenol	NE	11	10 U	11 U	50 U	2 J	10 U	10 U	10 U	10 U	10 U
Anthracene	NE	1,095	5 J	11 U	9 J	13 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	NE	0.092	10 U	11 U	6 J	13 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	0.2	0.009	10 U	11 U	7 J	13 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	NE	14,600	48 U	54 UJ	250 U	23 J	26 J	50 U	50 UJ	50 U	49 U
Benzyl alcohol	NE	1,095	10 U	11 U	50 U	13 U	10 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	6	4.78	10 U	10 U	50 U	13 UJ	10 UJ	47 U	10 U	120 U	10 U
Chrysene	NE	9.17	10 U	11 U	13 J	13 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	NE	2,920	10 U	11 U	50 U	13 U	10 U	34	10 U	12	10 U
Dimethylphthalate	NE	36,500	10 U	11 U	50 U	13 U	10 U	27	10 U	2 J	10 U
Diphenylamine	NE	91	10 U	11 U	18 J	13 U	10 U	10 U	10 U	10 U	10 U
m&p Cresol	NE	NE	10 U	11 U	50 U	13 U	2 J	10 U	10 U	10 U	10 U
o-Cresol	NE	183	10 U	11 U	50 U	13 U	10 U	10 U	10 U	10 U	10 U
Phenol	NE	2,190	10 U	11 U	50 U	2 J	3 J	10 U	10 U	10 U	10 U
Pyrene	NE	110	5 J	11 U	15 J	13 UJ	10 UJ	10 U	10 U	10 U	10 U
PCBs (ug/l)											

RISK - SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal MCL	EPA Region III	11-SB16	11-SB18	11-SB19	11-SB24	11-SB25
Sample ID		Risk Tapwater	11GW16	11GW18	11GW19	11GW24	11GW25
Sample Date		RBC	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97
	(ug/l)	(ug/l)					
VOLATILES (ug/l)							
Acetone	NE	365	13	10 U	10 U	10 U	10 U
SEMIVOLATILES (ug/l)							
2,4-Dichlorophenol	NE	11	10 U	10 U	10 U	10 U	10 U
Anthracene	NE	1,095	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	NE	0.092	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	0.2	0.009	10 U	10 U	10 U	10 U	10 U
Benzoic acid	NE	14,600	51 U	52 U	25 J	50 UJ	48 U
Benzyl alcohol	NE	1,095	10 U	10 U	3 J	10 U	10 U
Bis(2-ethylhexyl)phthalate	6	4.78	24	25 U	10 U	10 U	10 U
Chrysene	NE	9.17	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	NE	2,920	10 U	10 U	10 U	10 U	10 U
Dimethylphthalate	NE	36,500	10 U	10 U	10 U	10 U	10 U
Diphenylamine	NE	91	10 U	10 U	10 U	10 U	10 U
m&p Cresol	NE	NE	10 U	10 U	7 J	10 U	10 U
o-Cresol	NE	183	10 U	10 U	1 J	10 U	10 U
Phenol	NE	2,190	10 U	10 U	10 U	10 U	10 U
Pyrene	NE	110	10 U	10 U	10 U	10 U	1 J
PCBs (ug/l)							

RISK - SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal MCL (ug/l)	EPA Region III Risk Tapwater RBC (ug/l)	Number Exceeding Federal MCL	Range Exceeding Federal MCL	Number Exceeding EPA Region III Risk Tapwater	Range Exceeding EPA Region III Risk Tapwater	Location Maximum Detect
VOLATILES (ug/l)							
Acetone	NE	365	NE		0/14		11GW10
SEMIVOLATILES (ug/l)							
2,4-Dichlorophenol	NE	11	NE		0/14		11GW07
Anthracene	NE	1,095	NE		0/14		11GW05
Benzo(a)anthracene	NE	0.092	NE		1/14	6J	11GW05
Benzo(a)pyrene	0.2	0.009	1/14	7J	1/14	7J	11GW05
Benzoic acid	NE	14,600	NE		0/14		11GW08
Benzyl alcohol	NE	1,095	NE		0/14		11GW19
Bis(2-ethylhexyl)phthalate	6	4.78	1/14	24	1/14	24	11GW16
Chrysene	NE	9.17	NE		1/14	13J	11GW05
Diethylphthalate	NE	2,920	NE		0/14		11GW10
Dimethylphthalate	NE	36,500	NE		0/14		11GW10
Diphenylamine	NE	91	NE		0/14		11GW05
m&p Cresol	NE	NE	NE		NE		11GW19
o-Cresol	NE	183	NE		0/14		11GW19
Phenol	NE	2,190	NE		0/14		11GW08
Pyrene	NE	110	NE		0/14		11GW05
PCBs (ug/l)							

RISK - SUMMARY OF INORGANIC (TOTAL) DETECTIONS IN GROUNDWATER
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal MCL	EPA Region III	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10	11-SB11	11-SB12	11-SB13	11-SB16	11-SB18	11-SB19	11-SB24	11-SB25
Sample ID		Risk Tapwater	11GW01	11GW02	11GW05	11GW07	11GW08	11GW10	11GW11	11GW12	11GW13	11GW16	11GW18	11GW19	11GW24	11GW25
Sample Date		RBC	09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97
	(ug/l)	(ug/l)														
Inorganics, Total (ug/l)																
Antimony, Total	6	1.46	**2.3** J	**3.3** J	1.9 U	**2.7** J	**2.2** J	**3.7** J	**2** J	1.9 U	1.9 U	1.9 U	1.9 U	**2.4** J	**3.1** J	**2.8** J
Arsenic, Total	50	0.04	1.3 U	**8.3** J	**1.7** J	**9.5** J	**15.2**	**16.5** J	**5** J	6.5 UJ	6.5 UJ	6.5 U	**3.5** J	**18.9**	**2.8** J	**4.4** J
Barium, Total	2,000	256	43.7 J	19.2 J	60.9 J	15 J	91.3 J	10.8 J	52.4 J	71.4 J	118 J	10.4 J	8.8 J	**391**	25.6 J	34.6 J
Cadmium, Total	5	1.825	0.4 U	0.4 U	0.4 U	0.4 U	0.54 J	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Chromium, Total	100	11	1.5 J	**24.1**	0.7 J	**11.7**	**14.3**	4.7 J	7.1 J	0.7 U	0.7 U	**27**	6.4 J	10	1.2 J	0.87 J
Cobalt, Total	NE	219	0.7 U	4.6 J	0.7 U	1.2 J	1.8 J	0.7 U	1.3 J	4.8 J	0.7 U	3.7 J	0.7 U	3.5 J	0.7 U	0.7 U
Copper, Total	1300(1)	146	4.2 J	49.2	1.1 J	11.5 J	14 J	1.8 J	15.8 J	2.8 J	0.5 U	98.9 J	0.78 J	46.1	0.5 U	2.6 J
Lead, Total	15(1)	NE	1 U	4.4 R	1 UJ	1.5 J	1 UJ	1.5 U	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Mercury, Total	2	NE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.53	0.1 U	0.1 U	0.1 U	0.1 J	0.34	0.1 U	0.1 U	0.1 U
Nickel, Total	100	73	0.92 J	5.5 J	0.96 J	0.8 U	2.3 J	0.8 U	0.8 U	0.8 U	0.8 U	7.9 J	0.8 U	1.8 J	0.8 U	0.8 U
Tin, Total	NE	2,190	1.8 U	1.8 U	1.8 U	1.8 U	2 J	1.8 U	2 J	1.8 U	1.8 U	1.8 U	2 J	1.8 U	1.8 U	2.1 J
Vanadium, Total	NE	26	20.7 J	**39** J	10.1 J	19.2 J	**40.6** J	10.2 J	16.6 J	2.3 J	0.8 U	**67.8**	11.6 J	**27.3** J	1.7 J	2.6 J
Zinc, Total	NE	1,095	7.2 J	23.1	8.4 J	24.8	16 J	5.8 J	11.7 J	4.8 J	4.2 J	15.8 J	7.3 J	24	3.1 J	7.6 J

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC (TOTAL) DETECTIONS IN GROUNDWATER
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal MCL (ug/l)	EPA Region III Risk Tapwater RBC (ug/l)	Number Exceeding Federal MCL	Range Exceeding Federal MCL	Number Exceeding EPA Region III Risk Tapwater RBC	Range Exceeding EPA Region III Risk Tapwater RBC	Location Maximum Detect
Inorganics, Total (ug/l)							
Antimony, Total	6	1.46	0/14		9/14	2J-3.7J	11GW10
Arsenic, Total	50	0.04	0/14		10/14	1.7J - 18.9	11GW19
Barium, Total	2,000	256	0/14		1/14	391	11GW19
Cadmium, Total	5	1.825	0/14		0/14		11GW08
Chromium, Total	100	11	0/14		4/14	11.7-27	11GW16
Cobalt, Total	NE	219	NE		0/14		11GW12
Copper, Total	1300(1)	146	0/14		0/14		11GW16
Lead, Total	15(1)	NE	0/14		NE		11GW07
Mercury, Total	2	NE	0/14		NE		11GW10
Nickel, Total	100	73	0/14		0/14		11GW16
Tin, Total	NE	2,190	NE		0/14		11GW25
Vanadium, Total	NE	26	NE		4/14	27.3J-67.8	11GW16
Zinc, Total	NE	1,095	NE		0/14		11GW07

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC (DISSOLVED) DETECTIONS IN GROUNDWATER
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	Federal MCL	EPA Region III Risk Tapwater RBC	11-SB01	11-SB02	11-SB05	11-SB07	11-SB08	11-SB10	11-SB11	11-SB12	11-SB13	11-SB16	11-SB18	11-SB19	11-SB24	11-SB25
Sample ID			11GW01	11GW02	11GW05	11GW07	11GW08	11GW10	11GW11	11GW12	11GW13	11GW16	11GW18	11GW19	11GW24	11GW25
Sample Date			09/18/97	09/22/97	09/19/97	09/19/97	09/19/97	09/20/97	09/20/97	09/20/97	09/20/97	09/20/97	09/21/97	09/21/97	09/22/97	09/22/97
	(ug/l)	(ug/l)														
Inorganics, Dissolved (ug/l)																
Antimony, Dissolved	6	1.46	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	**3.6** J	1.9 U	1.9 U	1.9 U	1.9 U	**2.4** J	**3.2** J	**2.3** J	**2** J
Arsenic, Dissolved	50	0.04	**1.8** J	**1.3** J	1.3 UJ	**3.3** J	**4.4** J	**12.7** J	**8** J	6.5 U	6.5 U	1.3 U	**2.4** J	**15** J	**3.6** J	**2.3** J
Barium, Dissolved	2,000	256	45.9 J	3.1 J	63.3 J	5.3 J	28.9 J	7.8 J	48.1 J	70.4 J	128 J	2.8 J	5.8 J	**278**	23.6 J	38.8 J
Cadmium, Dissolved	5	1.825	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**2.9** J	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Chromium, Dissolved	100	11	0.97 J	0.7 J	0.7 U	0.7 U	1.1 J	0.7 U	0.7 U	0.7 U	0.7 U	8.6 J	3.3 J	0.7 U	0.7 U	0.7 U
Cobalt, Dissolved	NE	219	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	4.2 J	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Copper, Dissolved	1300(1)	146	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Lead, Dissolved	15(1)	NE	1 UJ	1.5 U	1 UJ	1 UJ	1 UJ	54.8 R	1.5 U	7.5 U	7.5 U	1.6 J	1.5 U	1.5 U	9.2 R	1.5 U
Mercury, Dissolved	2	NE	0.1 U	1.6	0.1 U	0.29	0.1 U	0.1 U	1.6	0.1 U	0.1 U	2.6	0.12 J	0.1 U	0.1 U	0.1 U
Tin, Dissolved	NE	2,190	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	2.1 J	1.8 U	1.8 U	1.8 U	2.4 J	1.8 U	1.8 U	1.9 J
Vanadium, Dissolved	NE	26	16.2 J	2.2 J	3.2 J	0.8 U	0.8 U	0.8 U	1.1 J	0.8 U	2.5 J	**29.3** J	5.2 J	0.8 U	0.8 U	0.8 U
Zinc, Dissolved	NE	1,095	3.3 J	1.5 J	3.4 J	2.9 J	3.1 J	7.8 J	2 J	2.6 J	9.4 J	1.9 J	2.9 J	3.4 J	2.8 J	3.3 J

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC (DISSOLVED) DETECTIONS IN GROUNDWATER
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date	Federal MCL (ug/l)	EPA Region III Risk Tapwater RBC (ug/l)	Number Exceeding Federal MCL	Range Exceeding Federal MCL	Number Exceeding EPA Region III Risk Tapwater RBC	Range Exceeding EPA Region III Risk Tapwater RBC	Location Maximum Detect
Inorganics, Dissolved (ug/l)							
Antimony, Dissolved	6	1.46	0/14		5/14	2J-3.6J	11GW10
Arsenic, Dissolved	50	0.04	0/14		10/14	1.3J - 15J	11GW19
Barium, Dissolved	2,000	256	0/14		1/14	278	11GW19
Cadmium, Dissolved	5	1.825	0/14		1/14	2.9J	11GW10
Chromium, Dissolved	100	11	0/14		0/14		11GW16
Cobalt, Dissolved	NE	219	NE		0/14		11GW12
Copper, Dissolved	1300(1)	146	0/14		0/14		11GW13
Lead, Dissolved	15(1)	NE	0/14		NE		11GW16
Mercury, Dissolved	2	NE	1/14	2.6	NE		11GW16
Tin, Dissolved	NE	2,190	NE		0/14		11GW18
Vanadium, Dissolved	NE	26	NE		1/14	29.3J	11GW16
Zinc, Dissolved	NE	1,095	NE		0/14		11GW13

Notes:

(1) Action level.

RISK - SUMMARY OF ORGANIC DETECTIONS IN SEDIMENT
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Residential RBCs	ERM Sediment Screening Value	11-SD01	11-SD02	11-SD03	11-SD04	11-SD05	11-SD06	11-SD07	11-SD08	11-SD09
Sample ID			11SD01	11SD02	11SD03	11SD04	11SD05	11SD06	11SD07	11SD08	11SD09
Sample Date			09/19/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97
Depth Range (ft.)	(ug/kg)	(ug/kg)	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00
VOLATILES (ug/kg)											
Acetone	780,000	NE	97 J	28 J	47 J	43 J	63 J	55 J	30 J	38 J	41 J
SEMIVOLATILES (ug/kg)											
Acenaphthylene	470,000	640	81 J	630 U	100 J	660 U	730 U	830 U	720 U	640 U	700 U
Anthracene	2,300,000	1,100	98 J	630 U	160 J	660 U	730 U	830 U	720 U	640 U	96 J
Benzo(a)anthracene	870	1,600	190 J	630 U	320 J	180 J	730 U	85 J	93 J	640 U	310 J
Benzo(a)pyrene	87	1,600	170 J	96 J	1,800	220 J	730 U	160 J	120 J	640 U	360 J
Benzo(b)fluoranthene	870	NE	1,900	140 J	2,700	330 J	730 U	250 J	160 J	640 U	520 J
Benzo(g,h,i)perylene	230,000	NE	560	630 U	1,100	160 J	730 U	120 J	720 U	640 U	230 J
Benzo(k)fluoranthene	8,700	NE	720	630 U	1,200	160 J	730 U	830 U	720 U	640 U	540 J
Bis(2-ethylhexyl)phthalate	46,000	NE	530 U	260 J	320 J	280 J	240 J	370 J	700 J	200 J	590 J
Carbazole	32,000	NE	530 U	630 U	350 J	330 J	730 U	390 J	350 J	640 U	390 J
Chrysene	87,000	2,800	610	76 J	1,000	210 J	730 U	130 J	100 J	640 U	390 J
Dibenzo(a,h)anthracene	87	1,600	180 J	630 U	380 J	660 U	730 U	830 U	720 U	640 U	75 J
Di-n-butylphthalate	780,000	NE	120 J	89 J	730 U	99 J	110 J	170 J	460 J	88 J	120 J
Fluoranthene	310,000	5,100	93 J	83 J	120 J	330 J	730 U	110 J	180 J	640 U	680 J
Indeno(1,2,3-cd)pyrene	870	NE	650	75 J	1,300	170 J	730 U	150 J	94 J	640 U	260 J
Phenanthrene	230,000	NE	530 U	630 U	78 J	200 J	730 U	830 U	140 J	640 U	470 J
Pyrene	230,000	2,600	140 J	79 J	210 J	320 J	730 U	110 J	180 J	640 U	680 J
PCBs (ug/kg)											
Aroclor-1260	320	180	28 J	42	44	53	42	62	51	33	130

RISK - SUMMARY OF ORGANIC DETECTIONS IN SEDIMENT
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Residential RBCs (ug/kg)	ERM Sediment Screening Value (ug/kg)	Number Exceeding Residential RBCs	Range Exceeding Residential RBCs	Number Exceeding ERM Sediment Screening Value	Range Exceeding ERM Sediment Screening Value	Location Maximum Detect
VOLATILES (ug/kg)							
Acetone	780,000	NE	0/9		NE		11SD01
SEMIVOLATILES (ug/kg)							
Acenaphthylene	470,000	640	0/9		0/9		11SD03
Anthracene	2,300,000	1,100	0/9		0/9		11SD03
Benzo(a)anthracene	870	1,600	0/9		0/9		11SD03
Benzo(a)pyrene	87	1,600	7/9	96J - 1,800	1/9	1800	11SD03
Benzo(b)fluoranthene	870	NE	2/9	1,900 - 2,700	NE		11SD03
Benzo(g,h,i)perylene	230,000	NE	0/9		NE		11SD03
Benzo(k)fluoranthene	8,700	NE	0/9		NE		11SD03
Bis(2-ethylhexyl)phthalate	46,000	NE	0/9		NE		11SD07
Carbazole	32,000	NE	0/9		NE		11SD06, 11SD09
Chrysene	87,000	2,800	0/9		0/9		11SD03
Dibenzo(a,h)anthracene	87	1,600	2/9	180J - 380J	0/9		11SD03
Di-n-butylphthalate	780,000	NE	0/9		NE		11SD07
Fluoranthene	310,000	5,100	0/9		0/9		11SD09
Indeno(1,2,3-cd)pyrene	870	NE	1/9	1,300	NE		11SD03
Phenanthrene	230,000	NE	0/9		NE		11SD09
Pyrene	230,000	2,600	0/9		0/9		11SD09
PCBs (ug/kg)							
Aroclor-1260	320	180	0/9		0/9		11SD09

RISK - SUMMARY OF INORGANIC DETECTIONS IN SEDIMENT
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID	EPA Region III Residential RBCs	ERM Sediment Screening Value	11-SD01	11-SD02	11-SD03	11-SD04	11-SD05	11-SD06	11-SD07	11-SD08	11-SD09
Sample ID			11SD01	11SD02	11SD03	11SD04	11SD05	11SD06	11SD07	11SD08	11SD09
Sample Date			09/19/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97	10/02/97
Depth Range (ft.)	(mg/kg)	(mg/kg)	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00	0.00-3.00
Inorganics (mg/kg)											
Antimony	3.1	NE	0.57 UJ	0.7 J	0.4 J	0.41 J	0.63 J	0.36 UJ	0.3 UJ	0.37 J	0.63 J
Arsenic	0.43	70	11.9	3.3 J	4.9 J	3.7 J	5.8 J	5.6 J	4.8 J	7.8 J	5.4 J
Barium	550	NE	20.9 J	14.2 J	18.1 J	16.5 J	15.7 J	26.1 J	19.1 J	13 J	24.4 J
Beryllium	16	NE	0.09 U	0.05 U	0.06 U	0.05 U	0.06 U	0.06 J	0.05 U	0.04 U	0.06 J
Cadmium	7.8	9.6	0.66 J	0.07 U	0.08 U	0.07 U	0.07 U	0.08 U	0.06 U	0.06 U	0.06 U
Chromium	23	370	12.7	9.6	11.9	9.4	9.1	14.4	8.6	8	13.8
Cobalt	470	NE	7.3 J	2.3 J	3.1 J	2.4 J	2.6 J	4.1 J	2.8 J	1.8 J	4.1 J
Copper	310	270	84.1 R	21.8 J	30.9 J	25.6 J	25 J	40.1 J	27.1 J	18.1 J	44.6 J
Lead	400(1)	218	20.2	8.7	15.4	13.6	11.9	18.8	17.4	9.7	22
Mercury	NE	0.71	0.31	0.04 U	0.04 U	0.04 U	0.05 U	0.04 U	0.04 U	0.03 U	0.04 U
Nickel	160	51.6	5 J	2.3 J	3.1 J	2.3 J	2.8 J	4.7 J	2.5 J	1.7 J	3.8 J
Selenium	39	NE	0.78 J	0.37 U	0.42 U	0.36 U	0.41 U	0.42 U	0.35 U	0.32 U	0.35 U
Silver	39	3.7	0.36 J	0.1 U	0.11 U	0.1 U	0.11 U	0.13 J	0.1 U	0.09 U	0.13 J
Tin	4,700	NE	5.5 J	2.9 J	3.7 J	3.3 J	3.5 J	4.3 J	3.1 J	2.2 J	3.2 J
Vanadium	55	NE	73.4 J	17.9	22.2	18.9	22.3	29.5	21.2	15.8	31.7
Zinc	2,300	410	130 R	33	56.6	48.9	37.3	68.8	44.8	26.1	83.9

Notes:

(1) Action level.

RISK - SUMMARY OF INORGANIC DETECTIONS IN SEDIMENT
1997 RFI INVESTIGATION
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Site ID Sample ID Sample Date Depth Range (ft.)	EPA Region III Residential RBCs (mg/kg)	ERM Sediment Screening Value (mg/kg)	Number Exceeding Residential RBCs	Range Exceeding Residential RBCs	Number Exceeding ERM Sediment Screening Value	Range Exceeding ERM Sediment Screening Value	Location Maximum Detect
Inorganics (mg/kg)							
Antimony	3.1	NE	0/9		NE		11SD02
Arsenic	0.43	70	9/9	3.3J - 11.9	0/9		11SD01
Barium	550	NE	0/9		NE		11SD06
Beryllium	16	NE	0/9		NE		11SD06, 11SD09
Cadmium	7.8	9.6	0/9		0/9		11SD01
Chromium	23	370	0/9		0/9		11SD06
Cobalt	470	NE	0/9		NE		11SD01
Copper	310	270	0/9		0/9		11SD09
Lead	400(1)	218	0/9		0/9		11SD09
Mercury	NE	0.71	NE		0/9		11SD01
Nickel	160	51.6	0/9		0/9		11SD01
Selenium	39	NE	0/9		NE		11SD01
Silver	39	3.7	0/9		0/9		11SD01
Tin	4,700	NE	0/9		NE		11SD01
Vanadium	55	NE	1/9	73.4J	NE		11SD01
Zinc	2,300	410	0/9		0/9		11SD09

Notes:

(1) Action level.

FREQUENCY OF DETECTION SUMMARIES

SWMU 1

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)								
Acetone	11 UJ	170 UJ	15 J	83 J	05SS106	5/21	51.4	48
Carbon disulfide	6 U	6 U	10	18	05SS103	4/21	13	12
Ethylbenzene	6 U	6 U	1 J	1 J	1SB01	1/21	1	1
Methylene chloride	6 U	35 U	8	8	05SS105	1/21	8	8
Tetrachloroethene	6 UJ	6 UJ	3 J	3 J	1SB01	1/21	3	3
Xylene (total)	6 U	6 U	5 J	5 J	1SB01	1/15	5	5
SEMIVOLATILES (ug/kg)								
2-Methylnaphthalene	370 U	1600 UJ	71 J	71 J	1SB03	1/21	71	71
Acenaphthylene	370 U	1600 UJ	45 J	45 J	1SS06	1/21	45	45
Anthracene	370 U	1600 UJ	48 J	110 J	1SS06	2/21	79	79
Benzo(a)anthracene	370 U	1600 UJ	56 J	930	1SS06	3/21	388.67	180
Benzo(a)pyrene	370 U	1600 UJ	68 J	590	1SS06	3/21	306	260
Benzo(b)fluoranthene	370 U	1600 UJ	100 J	1500	1SS06	3/21	723.33	570
Benzo(g,h,i)perylene	370 U	1600 UJ	38 J	230 J	1SS06	3/21	149.33	180
Benzo(k)fluoranthene	370 U	1600 UJ	46 J	660	1SS06	3/21	322	260
Bis(2-ethylhexyl)phthalate	370 U	1600 UJ	47 J	430 J	05SS103	2/21	238.5	238.5
Butylbenzylphthalate	370 U	1600 UJ	75 J	75 J	1SS07	1/21	75	75
Chrysene	370 U	1600 UJ	58 J	1000	1SS06	3/21	442.67	270
Dibenzo(a,h)anthracene	370 U	1600 UJ	57 J	91 J	1SS06	2/21	74	74
Fluoranthene	370 U	1600 UJ	62 J	770	1SS06	3/21	317.33	120
Indeno(1,2,3-cd)pyrene	370 U	1600 UJ	47 J	300 J	1SS06	3/21	179	190
Pyrene	370 U	1600 UJ	82 J	2600	1SS06	3/21	987.33	280
PESTICIDES/PCBs (ug/kg)								
4,4'-DDD	3.7 U	49 U	0.26 J	180 NJ	05SS103	3/21	60.69	1.8
4,4'-DDE	3.7 U	9.7 U	0.63 J	1300	1SS06	13/21	207.44	4.1
4,4'-DDT	4 U	9.6 U	0.11 NJ	3500 CD	05SS103	15/21	285.59	2.9
Endrin	3.7 U	49 U	0.12 NJ	0.12 NJ	05SS101	1/21	0.12	0.12
Heptachlor	1.9 UJ	24 U	0.12 J	2.1 NJ	05SS104	2/21	1.11	1.11
Methoxychlor	19 UJ	240 U	0.44 NJ	0.44 NJ	05SS101	1/21	0.44	0.44

DIOXINS (ug/kg)
HERBICIDES (ug/kg)
OP-PEST (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)						
Acetone	20.52	27.48	30.86	2.38	1.04	36.62
Carbon disulfide	4.9	4.29	6.51	1.37	0.59	6.17
Ethylbenzene	2.9	0.44	3.07	1.05	0.24	3.25
Methylene chloride	5.6	5.02	7.49	1.46	0.67	7.48
Tetrachloroethene	3	0	3	1.1	0	3
Xylene (total)	3.13	0.52	3.37	1.13	0.13	3.32
SEMIVOLATILES (ug/kg)						
2-Methylnaphthalene	352.9	267.69	453.65	5.62	0.7	496.68
Acenaphthylene	351.67	269.12	452.96	5.6	0.75	527.5
Anthracene	347.29	272.32	449.78	5.57	0.76	518.46
Benzo(a)anthracene	386.48	294.2	497.21	5.68	0.77	586.2
Benzo(a)pyrene	374.67	268.3	475.65	5.69	0.71	549.12
Benzo(b)fluoranthene	434.29	359.96	569.77	5.79	0.76	646.04
Benzo(g,h,i)perylene	352.29	269.05	453.55	5.6	0.77	541.13
Benzo(k)fluoranthene	376.95	272.82	479.63	5.67	0.76	572.98
Bis(2-ethylhexyl)phthalate	335.33	251.28	429.9	5.57	0.71	487.02
Butylbenzylphthalate	354.05	266.89	454.5	5.63	0.69	495.76
Chrysene	394.19	298.36	506.48	5.71	0.76	596.37
Dibenzo(a,h)anthracene	346.81	272.69	449.44	5.57	0.76	518.46
Fluoranthene	376.29	283.28	482.91	5.66	0.76	567.28
Indeno(1,2,3-cd)pyrene	356.52	267.05	457.03	5.62	0.74	531.41
Pyrene	472	553.8	680.43	5.77	0.83	710.39
PESTICIDES/PCBs (ug/kg)						
4,4'-DDD	13.51	38.45	27.98	1.53	1.19	20.41
4,4'-DDE	129.92	317.54	249.43	2.07	2.22	1121.8
4,4'-DDT	205.18	760.74	491.5	1.84	2.41	1712.17
Endrin	5.9	5.81	8.09	1.39	1.03	13.38
Heptachlor	3.01	2.9	4.1	0.77	0.91	5.51
Methoxychlor	29.62	29.21	40.61	2.99	1.08	72.17

DIOXINS (ug/kg)
HERBICIDES (ug/kg)
OP-PEST (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
Inorganics, Total (mg/kg)								
Aluminum	ND	ND	8,220	38,500	05SS105	6/6	18,966.67	17,650.00
Antimony	1.30 UJ	11.90 U	1.5 J	9.4 J	1SS07	11/21	3.48	2.80
Arsenic	0.29 UJ	1.80 U	0.67	2.8	1SS07	3/21	2	1
Barium	ND	ND	46.5	180	05SS101	21/21	115.80	110.00
Beryllium	ND	ND	0.11	1.3	05SS105	21/21	0.59	0.53
Cadmium	0.19 U	1.30 UJ	0.2	83.8	1SS07	14/21	7	1
Calcium	ND	ND	2,920	10,800	05SS104	6/6	6,773	7,195
Chromium	ND	ND	5.9 J	46.6	1SS04	21/21	23	22
Cobalt	ND	ND	13.8	34.6	05SS104	21/21	21	20
Copper	ND	ND	19.8	359	1SS06	21/21	81	57
Iron	ND	ND	13,300.00	69,900	05SS105	6/6	37,333	36,600.00
Lead	ND	ND	1.9 J	101	1SS07	20/20	18	8
Magnesium	ND	ND	3,550	5,600	05SS104	6/6	4,563	4,635
Manganese	ND	ND	381 J	1,170.00	05SS105	6/6	866.00	885.00
Mercury	0.02 U	0.12 UJ	0.03	0.11	1SS08	13/21	0	0
Nickel	4 U	5 U	5.4	38.1	1SS07	18/21	13	12
Potassium	299.00 U	462.00 U	320 B	742 B	05SS105	2/6	531.00	531.00
Selenium	0.18 UJ	0.81 U	0.43 J	0.8 J	1SB01	8/21	0.54	0.50
Silver	0.14 UJ	1.50 U	1.7 B	2.6 J	1SS07	3/21	2	2
Sodium	ND	ND	1,220	4,840 J	05SS106	6/6	2,540	2,040
Sulfide	23.00 UJ	31.10 UJ	28.6	28.6	1MW01	1/15	28.60	28.60
Tin	0.69 U	1.00 U	1.1	15.9	1SS07	4/15	6	4
Vanadium	ND	ND	77.4	239 J	05SS103	21/21	152	139
Zinc	ND	ND	13.9 J	223	1SS07	21/21	54.9	35.8

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
Inorganics, Total (mg/kg)						
Aluminum	18,966.67	11046.21	28053.73	10	0.58	41288.45
Antimony	3.16	2.37	4.05	1	0.81	5.1
Arsenic	1	0.56	0.8	-1	0.6	0.76
Barium	115.80	39.04	130.49	5	0.38	137.56
Beryllium	0.59	0.32	0.71	-1	0.61	0.81
Cadmium	5	18.15	11.52	-1	1.54	6.27
Calcium	6,773	3188.64	9396.43	9	0.54	14103.87
Chromium	23	10.12	27.16	3	0.48	29.33
Cobalt	21	6.17	23.16	3	0.29	23.59
Copper	81	76.38	109.79	4	0.72	115.66
Iron	37,333	20542.02	54232.03	10	0.61	93120.1
Lead	18	26.73	27.9	2	1.18	37.49
Magnesium	4,563	815.59	5234.27	8	0.18	5392.43
Manganese	866.00	298.11	1111.24	7	0.42	1456.36
Mercury	0	0.02	0.07	-3	0.61	0.08
Nickel	12	7.91	14.62	2	0.73	17.69
Potassium	302.50	223.91	486.7	6	0.59	650.1
Selenium	0.36	0.18	0.43	-1	0.57	0.48
Silver	1	0.76	0.79	-2	1.25	1.03
Sodium	2,540	1448.97	3731.98	8	0.55	5284.79
Sulfide	15.03	3.9	16.8	3	0.2	16.56
Tin	2	4.17	3.9	0	1.14	3.83
Vanadium	152	54.39	171.97	5	0.37	178.76
Zinc	54.9	51.86	74.42	3.72	0.72	77.53

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)								
1,2-Dibromo-3-chloropropane	21 U	26 U	2 J	2 J	1SB01	1/16	2	2
Acetone	11 U	13 U	54 J	260 J	05SS104	3/22	158	160
Benzene	5 U	7 U	2 J	2 J	1SB03	1/22	2	2
Carbon disulfide	5 U	7 U	2 J	21	05SS101	5/22	9.2	10
Tetrachloroethene	5 U	7 UJ	2 J	2 J	1SB01	1/20	2	2
SEMIVOLATILES (ug/kg)								
Bis(2-ethylhexyl)phthalate	350 U	1700 U	400 J	420 J	05SS106	2/22	410	410
Di-n-butylphthalate	350 U	1700 U	45 J	90 J	1MW05	3/22	66.33	64
PESTICIDES/PCBS (ug/kg)								
4,4'-DDD	3.7 U	19 U	0.23 J	44 NJ	05SS103	2/22	22.12	22.12
4,4'-DDE	3.8 UJ	19 U	0.49 J	210	05SS103	4/22	53.22	1.2
4,4'-DDT	3.8 U	19 U	0.31 NJ	1500 CD	05SS103	5/22	307.22	2.6
Chlordane, gamma-	1.9 U	20 U	ND	ND		0/6	ND	ND
delta-BHC	1.9 U	20 U	0.19 J	0.19 J	05SS102	1/22	0.19	0.19
Dieldrin	3.7 U	38 U	14	14	1MW04	1/22	14	14
Endosulfan I	1.9 U	20 U	7.5	7.5	1MW04	1/22	7.5	7.5
Endrin	3.7 U	38 U	0.39 J	0.39 J	05SS102	1/22	0.39	0.39
Endrin aldehyde	3.7 U	38 U	ND	ND		0/22	ND	ND
Methoxychlor	19 U	200 U	ND	ND		0/22	ND	ND
DIOXINS (ug/kg)								
Total HxCDD	0.03 U	0.3 U	0.3 J	0.3 J	1SB03	1/16	0.3	0.3
Total HxCDF	0.02 U	0.19 U	0.14 J	0.17 J	1SB03	2/16	0.16	0.16
Total TCDF	0.01 U	0.09 U	0.09 J	0.09 J	1MW01	1/16	0.09	0.09
HERBICIDES (ug/kg)								
OP-PEST (ug/kg)								
EXPLOSIVES (ug/kg)								
ASBESTOS (ug/kg)								

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)						
1,2-Dibromo-3-chloropropane	11.16	2.55	12.28	2.35	0.45	14.72
Acetone	26.61	62.18	49.42	2.19	1.12	34.18
Benzene	2.95	0.26	3.05	1.08	0.1	3.07
Carbon disulfide	4.41	4.25	5.97	1.28	0.54	5.32
Tetrachloroethene	2.95	0.28	3.06	1.08	0.11	3.1
SEMIVOLATILES (ug/kg)						
Bis(2-ethylhexyl)phthalate	318.41	230.2	402.86	5.58	0.56	400.05
Di-n-butylphthalate	334.73	280.34	437.58	5.49	0.83	531.09
PESTICIDES/PCBS (ug/kg)						
4,4'-DDD	6.14	8.71	9.34	1.4	0.92	10.36
4,4'-DDE	13.63	43.91	29.74	1.46	1.11	16.18
4,4'-DDT	73.57	318.66	190.47	1.65	1.53	58.1
Chlordane, gamma-	2.51	3.67	5.53	0.39	0.94	13.02
delta-BHC	2.53	1.95	3.25	0.7	0.75	3.89
Dieldrin	5.52	4.12	7.03	1.51	0.61	7.3
Endosulfan I	2.8	2.17	3.6	0.83	0.61	3.7
Endrin	5.02	3.74	6.39	1.39	0.75	7.76
Endrin aldehyde	5.09	3.66	6.43	1.46	0.56	6.5
Methoxychlor	25.68	19.04	32.67	3.08	0.55	32.51
DIOXINS (ug/kg)						
Total HxCDD	0.08	0.07	0.11	-2.94	0.89	0.14
Total HxCDF	0.06	0.05	0.08	-3.23	0.9	0.11
Total TCDF	0.03	0.02	0.04	-4.02	0.86	0.05
HERBICIDES (ug/kg)						
OP-PEST (ug/kg)						
EXPLOSIVES (ug/kg)						
ASBESTOS (ug/kg)						

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
Inorganics, Total (mg/kg)								
Aluminum	ND	ND	6,240	40,700	05SS102	6/6	16,393.33	13,400.00
Antimony	0.14 UJ	12.10 U	0.17 J	3.8 J	1SB02	12/22	2.20	2.65
Arsenic	0 UJ	2 UJ	0.31	0.31	1MW01	1/22	0	0
Barium	ND	ND	28.8	385	05SS105	22/22	133.29	123.00
Beryllium	ND	ND	0.12 J	1.2	1MW03	22/22	0.55	0.54
Cadmium	0 U	1 UJ	0.21	2.4	05SS105	5/22	1	1
Calcium	ND	ND	2,210	12,500	05SS102	6/6	6,353	5,830
Chromium	ND	ND	2.8 J	78	1MW05-05	22/22	26	26
Cobalt	ND	ND	9.4	35.5	05SS104	22/22	20	18
Copper	ND	ND	19.5	544	1MW04	22/22	99	66
Iron	ND	ND	8,630	48,800	05SS102	6/6	28,088.33	26,550.00
Lead	ND	ND	0.47 J	35.8	1MW04	21/21	4	1
Magnesium	ND	ND	3,360	10,200	05SS106	6/6	6,177	5,620
Manganese	ND	ND	508	971 J	05SS104	6/6	746.50	752.00
Mercury	0.02 U	0.12 UJ	0.03	1.1	1MW04	2/22	1	1
Nickel	4 U	5 U	4.9 B	31.8 J	1MW05-05	20/22	13	12
Potassium	205.00 U	606.00 U	580 B	580 B	05SS105	1/6	580.00	580.00
Selenium	0.15 UJ	1.70 UJ	0.31 J	0.31 J	1MW01	1/22	0.31	0.31
Silver	0 U	2 U	0.1 J	1.7 B	05SS101	5/22	1	0
Sodium	ND	ND	730 B	6,520 J	05SS106	6/6	3,031.67	2,910.00
Tin	0.76 U	1 U	1.6 J	18.5	1MW04	7/16	6	2
Vanadium	ND	ND	39.1 J	223 J	05SS102	22/22	132	134
Zinc	ND	ND	19.2	141	1MW04	22/22	42.95	34.3

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
Inorganics, Total (mg/kg)						
Aluminum	16,393.33	12680.66	26824.95	10	0.68	44184.35
Antimony	2.42	1.93	3.13	0	1.24	6.96
Arsenic	0	0.2	0.44	-1	0.64	0.52
Barium	133.29	78.56	162.11	5	0.57	174.48
Beryllium	0.55	0.31	0.66	-1	0.7	0.81
Cadmium	0	0.6	0.6	-2	1.06	0.65
Calcium	6,353	3358.81	9116.42	9	0.55	13394.35
Chromium	26	18.07	32.32	3	0.83	42.73
Cobalt	20	6.48	22.23	3	0.32	22.74
Copper	99	112.25	139.85	4	0.74	136.5
Iron	28,088.33	14136.2	39717.34	10	0.61	70378.66
Lead	4	8.16	7.46	1	1.11	7.63
Magnesium	6,177	2279.73	8052.07	9	0.36	9169.22
Manganese	746.50	178.07	892.99	7	0.25	963.07
Mercury	0	0.23	0.15	-4	1.15	0.09
Nickel	12	7.08	14.63	2	0.68	17.4
Potassium	241.92	179.97	389.97	5	0.64	609.7
Selenium	0.29	0.23	0.37	-1	0.67	0.4
Silver	0	0.48	0.53	-2	1.11	0.66
Sodium	3,031.67	2214.18	4853.14	8	0.91	18280.53
Tin	3	5.1	5.19	0	1.33	8.95
Vanadium	132	41.57	147.27	5	0.37	156.38
Zinc	42.95	26.26	52.58	3.64	0.45	51.24

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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	0.43 U	5 U	0.54	2 J	1MW04	2/19	1.27	1.27
1,1,2,2-Tetrachloroethane	0.49 U	5 U	1.1	1.1	5GW01	1/19	1.1	1.1
SEMIVOLATILES (ug/l)								
Pentachlorophenol	10 U	57 U	11	25	5GW04	4/20	17.5	17
Bis(2-ethylhexyl)phthalate	1 U	81 U	1	22	5GW05	6/19	5.08	1.75
Phenols	ND	ND	30	800	5GW04	5/5	295.2	220
PESTICIDES/PCBs (ug/l)								
4,4'-DDE	0.005 U	0.12 U	0.056 J	0.056 J	1MW02	1/20	0.06	0.06
Heptachlor	0.005 U	0.471 U	0.0032 J	0.0032 J	5GW01	1/20	0	0
Aldrin	0.008 U	0.824 U	0.03	0.1 J	1MW02	3/20	0.05	0.04
beta-BHC	0.005 U	0.471 U	0.02	0.02	5GW02	1/20	0.02	0.02
HERBICIDES (ug/l)								
2,4,5-TP (Silvex)	0.11 U	1.2 U	0.081 J	0.081 J	1MW03	1/9	0.08	0.08
2,4,5-T	0.11 U	1.2 U	0.26	0.26	1MW02	1/9	0	0
DIOXINS (ug/l)								
Total HxCDD	0.0003 U	0.0006 U	0.0005 J	0.0005 J	5GW02	1/9	0	0

OP-PEST (ug/l)
EXPLOSIVES (ug/l)
ASBESTOS (ug/l)

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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	1.5	1	1.89	0.07	0.95	2.98
1,1,2,2-Tetrachloroethane	1.87	0.89	2.21	0.37	0.91	3.78
SEMIVOLATILES (ug/l)						
Pentachlorophenol	18.57	9.86	22.28	2.71	0.75	29.32
Bis(2-ethylhexyl)phthalate	5.85	9.45	9.5	0.95	1.3	16.53
Phenols	295.2	308.97	589.77	5.13	1.29	38347.71
PESTICIDES/PCBs (ug/l)						
4,4'-DDE	0.03	0.02	0.04	-4.18	1.35	0.1
Heptachlor	0.03	0.05	0.05	-4.42	1.19	0.05
Aldrin	0.04	0.09	0.07	-4.06	1.18	0.07
beta-BHC	0.03	0.05	0.05	-4.27	1.15	0.06
HERBICIDES (ug/l)						
2,4,5-TP (Silvex)	0.27	0.27	0.43	-1.91	1.2	1.3
2,4,5-T	0	0	0	-1.79	1.18	1.4
DIOXINS (ug/l)						
Total HxCDD	0	0	0	-8.36	0.34	0
OP-PEST (ug/l)						
EXPLOSIVES (ug/l)						
ASBESTOS (ug/l)						

FREQUENCY OF DETECTION SUMMARY - INORGANIC (TOTAL) COMPOUNDS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects	Arithmatic Mean Half Non-Detects
Inorganics, Total (ug/l)									
Aluminum	ND	ND	598 J	598 J	5GW01	1/1	598	598	598
Antimony	16 U	80 U	1.4 J	25.1	1MW04	3/20	9.67	2.5	15.31
Arsenic	2.1 U	15 U	2.5	93.4	5GW03	5/13	57.78	83.9	23.57
Barium	ND	ND	45.5	806	1MW04	10/10	332.07	212.5	332.07
Beryllium	0.4 U	3 U	0.67 J	5.06	5GW04	4/20	2.84	2.81	1.19
Cadmium	0.3 U	3 U	5.5 J	30.9 J	1MW01	4/20	20.35	22.5	4.99
Calcium	ND	ND	158000	158000	5GW01	1/1	158000	158000	158000
Chromium	1.7 U	10.3 UJ	2.3	259	1MW04	15/20	75.89	28.4	57.69
Chromium (Hexavalent)	10 U	20 U	22	110	5GW05	3/10	55.53	34.6	21.66
Cobalt	2.8 U	9.6 U	3.5	354	1MW04	7/10	120.19	86.5	84.89
Copper	2.8 U	2.8 U	5.9 B	2950	1MW04	18/20	558.38	70.05	502.69
Iron	ND	ND	857 J	857 J	5GW01	1/1	857	857	857
Lead	1.8 U	4000 U	4.9	144 J	1MW04	4/15	48.23	22	284.82
Magnesium	ND	ND	150000	150000	5GW01	1/1	150000	150000	150000
Manganese	ND	ND	162 J	162 J	5GW01	1/1	162	162	162
Mercury	0.1 U	0.5 U	0.1	6.5	1MW04	3/20	2.41	0.62	0.47
Nickel	3 U	33.5 U	4.32	188	1MW04	13/20	46.11	35.9	32.12
Selenium	2 UJ	21 U	9.5	359	5GW03	5/13	162.2	122	66.67
Silver	0.7 U	9 UJ	0.82 J	37.7	5GW03	5/20	20.9	24.7	6.72
Sodium	ND	ND	153000	1040000 J	5GW01	10/10	430500	208000	430500
Thallium	1.5 UJ	16 UJ	9.64	4310	5GW03	6/20	1951.61	1759.7	589.16
Tin	8.7 U	43.5 U	2.5 J	43.8	1MW04	3/9	16.37	2.8	14.16
Vanadium	8.5 U	8.5 U	21.3	913	1MW04	8/10	280.44	190.2	225.2
Zinc	1.8 U	1.8 U	2	4580	5GW04	19/20	351.85	67.5	334.3

FREQUENCY OF DETECTION SUMMARY - INORGANIC (TOTAL) COMPOUNDS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	Log Standard Deviation	Log Upper 95% Confidence Level
Inorganics, Total (ug/l)					
Aluminum	ND	ND	6.39	ND	ND
Antimony	11.94	19.93	2.44	0.83	25.92
Arsenic	37.52	42.12	1.68	1.8	329.23
Barium	297.62	504.59	5.34	1.1	1449.97
Beryllium	1.36	1.72	-0.26	0.92	2.04
Cadmium	8.98	8.46	0.55	1.38	13.13
Calcium	ND	ND	11.97	ND	ND
Chromium	80.11	88.66	2.82	1.81	504.34
Chromium (Hexavalent)	32.47	40.48	2.47	1.03	70.09
Cobalt	108.37	147.71	3.2	2.09	21953.46
Copper	867.8	838.22	4.09	2.43	20234.53
Iron	ND	ND	6.75	ND	ND
Lead	585.92	551.28	3.35	2.23	9399.21
Magnesium	ND	ND	11.92	ND	ND
Manganese	ND	ND	5.09	ND	ND
Mercury	1.43	1.02	-1.98	1.16	0.6
Nickel	43.05	48.77	2.76	1.28	96.94
Selenium	123.44	127.69	2.54	1.94	1227.51
Silver	11.8	11.28	0.92	1.3	16.05
Sodium	364210.03	641625.82	12.67	0.79	887073.69
Thallium	1422.4	1139.12	2.64	2.62	16739.04
Tin	14.16	22.94	2.15	1.08	66.14
Vanadium	301.95	400.23	4.18	1.93	13546.41
Zinc	1013.28	726.08	3.96	1.95	2351.9

FREQUENCY OF DETECTION SUMMARY - INORGANIC (DISSOLVED) COMPOUNDS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
Inorganics, Dissolved (ug/l)								
Antimony, Soluble	16 U	80 U	1.3 J	1.4 J	1MW05	2/10	1.35	1.35
Barium, Soluble	ND	ND	19.8 J	232	1MW03	10/10	92.93	64.1
Cadmium, Soluble	0.3 U	2.8 U	4.3 J	42.1 J	1MW01	5/10	23.02	30.2
Calcium, Soluble	ND	ND	145,000	145,000	5GW01	1/1	145,000	145,000
Chromium, Soluble	1.7 U	10.3 UJ	3.2 J	4.3 J	5GW02	2/10	3.75	3.75
Cobalt, Soluble	0.8 U	9.6 U	0.93 J	144	5GW02	5/10	54.71	41.2
Copper, Soluble	1.3 U	7.5 U	2.2	1680	5GW02	7/10	244.3	3.4
Iron, Soluble	ND	ND	51.8 B	51.8 B	5GW01	1/1	51.8	51.8
Magnesium, Soluble	ND	ND	143,000	143,000	5GW01	1/1	143,000	143,000
Manganese, Soluble	ND	ND	97.7	97.7	5GW01	1/1	97.7	97.7
Nickel, Soluble	0.6 U	33.5 U	0.91 J	74	5GW02	3/10	48.87	71.7
Sodium, Soluble	ND	ND	152,000 J	21,700,000 J	1MW01	8/8	7,945,875	982,500
Thallium, Soluble	1.9 U	16 UJ	16.5 J	16.5 J	5GW01	1/10	16.5	16.5
Vanadium, Soluble	8.5 U	8.5 U	16.6	71.1	5GW02	7/10	32.74	28.9
Zinc, Soluble	12.1 U	12.1 U	1.6 J	41.9	5GW02	9/10	13.18	5.4

FREQUENCY OF DETECTION SUMMARY - INORGANIC (DISSOLVED) COMPOUNDS IN GROUNDWATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
Inorganics, Dissolved (ug/l)						
Antimony, Soluble	17.83	16.46	27.37	2.31	1.28	137.58
Barium, Soluble	92.93	71.1	134.15	4.24	0.83	218.62
Cadmium, Soluble	11.89	16.53	21.47	1.03	2.09	2506.59
Calcium, Soluble	145,000	ND	ND	11.88	ND	ND
Chromium, Soluble	2.88	1.81	3.93	0.8	0.83	7.01
Cobalt, Soluble	28.29	48.87	56.62	1.6	2.05	3735.36
Copper, Soluble	171.52	530.04	478.77	1.66	2.22	8297.75
Iron, Soluble	51.8	ND	ND	3.95	ND	ND
Magnesium, Soluble	143,000	ND	ND	11.87	ND	ND
Manganese, Soluble	97.7	ND	ND	4.58	ND	ND
Nickel, Soluble	18.64	28.97	35.43	1.72	1.75	423.41
Sodium, Soluble	7,945,875	10,264,530	14,821,409	14.36	2.15	8,116,155,473
Thallium, Soluble	7.44	4.33	9.95	1.73	0.96	24.14
Vanadium, Soluble	24.2	20.89	36.31	2.79	1.02	94.39
Zinc, Soluble	12.47	13.92	20.54	1.98	1.08	48.1

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SURFACE WATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
Semivolatiles (ug/l)								
Bis(2-ethylhexyl)phthalate	1 U	1 U	1	10	5SW5	8/10	2.59	1.65
Di-n-octylphthalate	1 U	1.1 U	1	7	5SW2	4/10	3.5	3
Phenols	ND	ND	29	540	5SW1	5/5	157.8	57

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SURFACE WATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
Semivolatiles (ug/l)						
Bis(2-ethylhexyl)phthalate	2.17	2.82	3.8	0.35	0.87	4.81
Di-n-octylphthalate	1.73	2.16	2.98	0.03	0.97	4.5
Phenols	157.8	217.47	365.13	4.41	1.2	6189.44

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SURFACE WATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
Inorganics, Total (ug/l)								
Arsenic	3.2 U	3.2 U	96	105	5SW2	5/10	100.8	102
Chromium	3 U	6 U	3.7	108	5SW1	8/10	32.09	7.6
Chromium (Hexavalent)	10 U	20 U	31.9	31.9	5SW2	1/10	31.9	31.9
Copper	2.8 U	3 U	2	24.8	5SW3	2/10	13.4	13.4
Selenium	39 U	39 U	8	221	5SW5	5/10	87.18	14.9
Silver	3.6 U	6 U	3.8	28.9	5SW5	3/10	20.5	28.8
Thallium	5 U	10 U	83.3	116	5SW4	5/10	97.22	89.1
Zinc	1.8 U	1.8 U	4.31	20.8	5SW3	6/10	13.52	15.55

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SURFACE WATER
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
Inorganics, Total (ug/l)						
Arsenic	51.2	52.35	81.55	2.54	2.18	16771.9
Chromium	26.12	42.48	50.74	2.24	1.41	183.34
Chromium (Hexavalent)	9.69	8.19	14.44	2.07	0.6	15.24
Copper	3.84	7.37	8.11	0.69	0.89	7.01
Selenium	53.34	78.5	98.84	3.26	1.12	189.76
Silver	8.01	11	14.39	1.47	1.02	25.22
Thallium	50.36	50.42	79.59	2.88	1.8	2292.96
Zinc	8.47	8.45	13.37	1.42	1.41	80.75

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SEDIMENT
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)								
Methylene chloride	6 U	420 U	2,700	4,500	5SE5	5/17	3,800	4,100
Tetrachloroethene	6 UJ	920 U	2 J	2 J	1SD02,1SD03	2/17	2.00	2.00
Xylene (total)	6 U	1,300 U	2 J	2 J	1SD03	1/17	2.00	2.00
SEMIVOLATILES (ug/kg)								
Benzo(a)anthracene	130 U	530 U	120 J	120 J	1SD01	1/16	120	120
Benzo(a)pyrene	200 U	700 U	160 J	160 J	1SD01	1/16	160	160
Benzo(b)fluoranthene	200 U	600 U	310 J	310 J	1SD01	1/16	310	310
Benzo(g,h,i)perylene	260 U	800 U	140 J	140 J	1SD01	1/16	140	140
Benzo(k)fluoranthene	200 U	530 U	130 J	130 J	1SD01	1/16	130	130
Bis(2-ethylhexyl)phthalate	170 U	500 U	100	200 J	1SD01	4/16	135	120
Chrysene	130 U	530 U	180 J	180 J	1SD01	1/16	180	180
Di-n-octylphthalate	190 U	530 U	500	4,000	5SE2	4/16	1,500	750
Fluoranthene	130 U	530 U	130 J	130 J	1SD01	1/16	130	130
Indeno(1,2,3-cd)pyrene	260 U	800 U	140 J	140 J	1SD01	1/16	140	140
Phenols	73 U	73 U	2,500	29,800	5SE2	4/5	10,998	5,845
Pyrene	130 U	530 U	62 J	180 J	1SD01	2/16	121	121
PESTICIDES/PCBs (ug/kg)								
4,4'-DDD	10 U	1,010 U	42	97	1SD02	2/16	70	70
4,4'-DDE	10 U	1,010 U	32	930	1SD01	4/16	401	321
4,4'-DDT	10 U	1,010 U	63	130	1SD01	2/16	97	97
Aroclor-1260	97 U	5,030 U	440	440	1SD02	1/16	440	440
delta-BHC	5 U	907 U	701	1,030	5SE2	2/16	866	866
DIOXINS (ug/kg)								
Total HxCDD	0.15 U	0.24 U	0.64 J	2.40 J	1SD02	2/5	1.52	1.52
Total HxCDF	0.13 U	0.22 U	0.31 J	2.20 J	1SD02	2/5	1.26	1.26
Total PeCDF	0.12 U	0.15 U	0.34 J	0.34 J	1SD02	1/5	0.34	0.34
Total TCDF	0.05 U	0.10 U	0.13 J	0.13 J	1SD02	1/5	0.13	0.13

HERBICIDES (ug/kg)
OP-PEST (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)
TOC (%)

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SEDIMENT
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)						
Methylene chloride	1,173	1783.44	1927.83	5	2.92	705801.98
Tetrachloroethene	212	174.85	285.6	4	2.36	21989.49
Xylene (total)	203	229.38	299.72	4	2.23	12293.3
SEMIVOLATILES (ug/kg)						
Benzo(a)anthracene	150	62.74	177.5	5	0.42	188.77
Benzo(a)pyrene	185	68.48	215.01	5	0.37	224.78
Benzo(b)fluoranthene	191	68.67	221.35	5	0.38	233.67
Benzo(g,h,i)perylene	234	65.38	262.4	5	0.28	268.93
Benzo(k)fluoranthene	177	56.98	201.85	5	0.34	210.47
Bis(2-ethylhexyl)phthalate	152	51.22	174.64	5	0.34	181.15
Chrysene	154	62.62	181.19	5	0.42	192.58
Di-n-octylphthalate	518	954.9	936	6	0.92	808.77
Fluoranthene	151	62.47	178.01	5	0.42	188.77
Indeno(1,2,3-cd)pyrene	228	62.58	255.87	5	0.27	261.62
Phenols	8,805	11989.47	20235.95	8	2.52	2.60226E+12
Pyrene	142	60.98	168.73	5	0.44	181.22
PESTICIDES/PCBs (ug/kg)						
4,4'-DDD	135	174.43	211.87	4	1.62	948.92
4,4'-DDE	225	258.94	338.36	4	1.81	3252.11
4,4'-DDT	144	170.26	218.47	4	1.58	1032.79
Aroclor-1260	622	669.09	915.3	6	1.23	1966.13
delta-BHC	181	304.42	314.09	3	2.07	5050.81
DIOXINS (ug/kg)						
Total HxCDD	0.67	1.00	1.62	-1	1.49	161.49
Total HxCDF	0.55	0.93	1.44	-2	1.49	122.05
Total PeCDF	0.12	0.12	0.23	-2	0.73	0.53
Total TCDF	0.06	0.04	0.1	-3	0.59	0.17
HERBICIDES (ug/kg)						
OP-PEST (ug/kg)						
EXPLOSIVES (ug/kg)						
ASBESTOS (ug/kg)						
TOC (%)						

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SEDIMENT
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
Inorganics, Total (mg/kg)								
Antimony	1.4 UJ	16 U	3.8	24	5SE4	7/16	11.93	7.3
Arsenic	0.19 UJ	11.6 U	0.19 J	32	5SE4	14/16	8.31	5.15
Barium	ND	ND	122	196 J	1SD03	6/6	150.33	145
Beryllium	0.1 U	1.18 U	0.22	1.33	5SE4	5/16	0.7	0.56
Cadmium	0.4 U	1.16 U	0.34	4.7	1SD01	8/16	2.37	2.4
Chromium	ND	ND	10.2	54.1	5SE4	16/16	30.88	28.85
Cobalt	ND	ND	4.6	28	1SD02	6/6	14.33	14.1
Copper	ND	ND	14.5	1020	1SD01	16/16	155.7	63.4
Lead	3.34 U	24.4 U	1.3 J	966 J	1SD02	12/17	149.53	15.1
Mercury	0.03 U	0.198 U	0.109	0.85	1SD01	3/16	0.39	0.2
Nickel	12.9 U	13.5 U	3.1	63.3	1SD01	13/16	16.65	11.8
Selenium	0.16 UJ	1.12 U	0.24 J	85.4	5SE4	12/16	19.26	6.01
Silver	0.15 U	2.03 U	0.37	1.2	5SE3	3/16	0.65	0.38
Sulfide	30.7 UJ	35.7 UJ	45.2 J	45.2 J	1SD03	1/5	45.2	45.2
Tin	0.74 U	2.2 U	33.9	181	1SD01	2/6	107.45	107.45
Vanadium	ND	ND	65.3	220	1SD02	6/6	127.05	121.5
Zinc	ND	ND	9.9	1780	1SD01	16/16	221.84	50.5

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SEDIMENT
SWMU 01 (ARMY CREMATOR DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
Inorganics, Total (mg/kg)						
Antimony	7.53	7.25	10.71	1.57	1.05	19.38
Arsenic	7.64	8.8	11.5	1.15	1.73	84.2
Barium	150.33	26.92	172.48	5	0.17	176.22
Beryllium	0.43	0.34	0.58	-1.2	0.99	0.98
Cadmium	1.35	1.39	1.96	-0.24	1.1	3.48
Chromium	30.88	13.43	36.77	3.33	0.47	40.01
Cobalt	14.33	8.55	21.36	2.49	0.68	39.89
Copper	155.7	269.38	273.76	4.31	1.08	317.4
Lead	107.7	271.33	222.59	2.57	1.88	601.3
Mercury	0.12	0.2	0.21	-2.65	0.93	0.21
Nickel	14.77	14.87	21.29	2.39	0.75	23.07
Selenium	14.51	23.95	25.01	0.79	2.36	979.08
Silver	0.5	0.34	0.65	-0.95	0.81	0.92
Sulfide	22.17	12.91	34.48	3	0.46	43.97
Tin	36.36	72.08	95.66	1.27	2.48	3055856.39
Vanadium	127.05	51.6	169.5	4.78	0.4	198.74
Zinc	221.84	492.13	437.52	4.13	1.37	556.73

SWMU 2

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)								
1,1,1-Trichloroethane	6 UJ	590 U	9	12 J	2SB02	2/29	10.5	10.5
Acetone	12 U	16 UJ	180 J	560 J	06SS105	5/14	340	370
Carbon disulfide	6 U	17 U	3 J	3 J	06SS104	1/14	3	3
Methylene chloride	6 UJ	8200 U	9 J	65	06SS103	5/29	34	32
Toluene	6 UJ	1300 U	7	7	06SS103	1/29	7	7
SEMIVOLATILES (ug/kg)								
Benzo(a)anthracene	40 U	2700 U	30	210 J	2SB03	7/29	97.14	70
Benzo(a)pyrene	40 U	2700 U	40	340 J	2SB03	7/29	148.71	150
Benzo(b)fluoranthene	40 U	2700 U	60	510	2SB03	8/29	197.75	165
Benzo(g,h,i)perylene	60 U	2700 U	72 J	300 J	2SB03	5/29	122.4	80
Benzo(k)fluoranthene	40 U	2700 U	40	260 J	06SS103	7/29	118.71	90
Bis(2-ethylhexyl)phthalate	40 U	2700 U	50	4000	R6S15A	7/29	677.14	80
Chrysene	40 U	2700 U	43 J	280 J	2SB03	8/29	130.63	90.5
Dibenzo(a,h)anthracene	60 U	2700 U	41 J	80 J	2SB03	2/29	60.5	60.5
Di-n-octylphthalate	40 U	2700 U	100	200	R6S8A	5/29	120	100
Fluoranthene	40 U	2700 U	20	420	2SB04	9/29	128.67	60
Indeno(1,2,3-cd)pyrene	50 U	2700 U	69 J	290 J	2SB03	3/29	156.33	110
Phenanthrene	40 U	2700 U	30	240 J	2SB04	2/29	135	135
Pyrene	40 U	2700 U	20	220 J	2SB04	7/29	106.71	67

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
PESTICIDES/PCBs (ug/kg)								
4,4'-DDD	4 U	475 U	0.75 NJ	5.1	06SS101	2/29	2.93	2.93
4,4'-DDE	4 U	475 U	3 NJ	12	2MW01	6/29	6.75	6.7
4,4'-DDT	4 U	475 U	0.74 J	12	2MW01	7/29	3.86	2.4
Aldrin	2.2 U	475 U	0.27 J	0.27 J	06SS106	1/29	0.27	0.27
alpha-BHC	2.1 U	475 U	0.085 NJ	0.085 NJ	06SS101	1/29	0.09	0.09
beta-BHC	2.1 U	475 U	0.8 NJ	0.8 NJ	06SS101	1/29	0.8	0.8
delta-BHC	2.1 U	475 U	0.39 NJ	0.39 NJ	06SS101	1/29	0.39	0.39
Dieldrin	4 U	475 U	2 J	2 J	06SS102	1/29	2	2
Endosulfan I	2.1 U	475 U	2.8 NJ	2.8 NJ	06SS102	1/29	2.8	2.8
Endosulfan II	4 U	475 U	0.15 NJ	0.15 NJ	06SS103	1/29	0.15	0.15
Endosulfan sulfate	4 U	475 U	1 NJ	1 NJ	06SS101	1/29	1	1
Endrin	4 U	475 U	0.15 NJ	0.15 NJ	06SS103	1/29	0.15	0.15
Endrin aldehyde	4 U	475 U	0.71 J	0.71 J	06SS103	1/29	0.71	0.71
Endrin ketone	4 U	4.9 UJ	0.25 NJ	0.25 NJ	06SS103	1/6	0.25	0.25
gamma-BHC (Lindane)	2.1 U	475 U	1.2 NJ	1.2 NJ	06SS103	1/29	1.2	1.2
Heptachlor	2.1 UJ	475 U	0.11 J	0.36 J	06SS101	3/29	0.21	0.17
Heptachlor epoxide	2.1 U	475 U	0.46 NJ	0.46 NJ	06SS102	1/29	0.46	0.46
DIOXINS (ug/kg)								
Total HxCDD	0.12 U	0.33 U	0.37 J	0.37 J	2SB03	1/8	0.37	0.37
Total HxCDF	0.1 U	0.53 U	0.17 J	0.17 J	2SB03	1/8	0.17	0.17

HERBICIDES (ug/kg)
OP PESTICIDES (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)						
1,1,1-Trichloroethane	59.28	72.56	82.2	3.01	1.68	252.83
Acetone	125.57	185.6	213.41	3.25	1.95	2163.85
Carbon disulfide	3.82	1.53	4.54	1.29	0.31	4.52
Methylene chloride	264.64	773.51	508.99	3.77	2.01	1937.02
Toluene	60.95	119.51	98.7	2.93	1.68	233.4
SEMIVOLATILES (ug/kg)						
Benzo(a)anthracene	272.76	408.79	401.89	4.5	1.52	781.23
Benzo(a)pyrene	255.9	385.93	377.81	4.54	1.44	619.29
Benzo(b)fluoranthene	266.1	387.7	388.57	4.57	1.48	692.73
Benzo(g,h,i)perylene	285.24	402.46	412.37	4.8	1.27	576.9
Benzo(k)fluoranthene	247.45	387.93	369.99	4.45	1.45	577.64
Bis(2-ethylhexyl)phthalate	438.45	790.32	688.11	4.97	1.56	1365.04
Chrysene	246.21	388.72	369	4.42	1.48	596.24
Dibenzo(a,h)anthracene	283.48	402.64	410.67	4.77	1.3	592.27
Di-n-octylphthalate	297.76	397.74	423.4	4.8	1.44	803.18
Fluoranthene	281.48	409.27	410.77	4.53	1.55	859.86
Indeno(1,2,3-cd)pyrene	285.66	403.03	412.97	4.75	1.35	638.93
Phenanthrene	282.07	406.77	410.57	4.51	1.58	901.06
Pyrene	281.1	405.81	409.29	4.57	1.53	856.4

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
PESTICIDES/PCBs (ug/kg)						
4,4'-DDD	95.69	88.88	123.77	3.38	2	942.72
4,4'-DDE	94.73	89.71	123.07	3.37	1.95	815.09
4,4'-DDT	94.18	90.28	122.7	3.19	2.17	1745.7
Aldrin	94	90.5	122.59	3.02	2.38	2859.81
alpha-BHC	93.99	90.51	122.58	2.97	2.47	3664.36
beta-BHC	94.01	90.48	122.59	3.05	2.32	2426.99
delta-BHC	94	90.5	122.59	3.02	2.36	2679.56
Dieldrin	95.64	88.93	123.73	3.39	1.97	877.6
Endosulfan I	94.08	90.41	122.64	3.1	2.26	2108.87
Endosulfan II	95.57	89.01	123.69	3.3	2.15	1833.55
Endosulfan sulfate	95.59	88.98	123.7	3.36	2.02	1323.33
Endrin	95.57	89.01	123.69	3.3	2.15	1833.55
Endrin aldehyde	95.59	88.99	123.7	3.35	2.03	1348.85
Endrin ketone	1.88	0.82	2.55	0.43	0.89	10.35
gamma-BHC (Lindane)	94.03	90.47	122.61	3.07	2.3	2322.75
Heptachlor	93.93	90.57	122.54	2.88	2.6	7819.78
Heptachlor epoxide	94	90.49	122.59	3.03	2.35	2620.21
DIOXINS (ug/kg)						
Total HxCDD	0.14	0.1	0.21	-2.12	0.58	0.25
Total HxCDF	0.11	0.07	0.16	-2.39	0.58	0.19

HERBICIDES (ug/kg)
OP PESTICIDES (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
INORGANICS (mg/kg)								
Aluminum	ND	ND	1660 J	36600 J	06SS105	6/6	19810	20800
Antimony	1.5 UJ	4 UJ	1.9 J	51	R6S8A	21/29	14.9	11
Arsenic	0.83 U	2.63 U	1.1	134	R6S7A	25/29	28.96	18.6
Barium	ND	ND	24 B	1060	2SB05	14/14	226.75	158.5
Beryllium	0.04 U	0.221 U	0.08	14.9	R6S13A	26/29	1.7	0.7
Cadmium	0.2 U	2.1 UJ	0.577	8.7	06SS101	17/29	2.41	1.69
Calcium	ND	ND	6460	487000	06SS104	6/6	128246.67	50050
Chromium	ND	ND	6.1	78.2	R6S9A	29/29	36.06	35.2
Cobalt	2.3 U	2.3 U	10.7 B	58.8 J	2SB02	13/14	29.04	23.1
Copper	ND	ND	4.3 B	5850	06SS101	29/29	430.7	136
Iron	ND	ND	4040 J	168000	06SS101	6/6	63540	40700
Lead	6.13 U	8.62 U	3.1	4760 J	06SS103	37/42	438.09	169
Magnesium	ND	ND	3290	12200	06SS102	6/6	8403.33	9290
Manganese	ND	ND	75.5	1090	06SS105	6/6	730.58	825
Mercury	0.041 U	0.16 U	0.04 J	1.54	R6S10A	20/29	0.37	0.3
Nickel	4.6 UJ	7.6 UJ	5.07	165	R6S13A	27/29	27.46	17.2
Potassium	347 U	676 U	1540 B	2760	06SS102	4/6	2162.5	2175
Selenium	0.59 UJ	2.63 U	0.7 J	426	R6S12A	16/29	67.21	52.55
Sodium	ND	ND	2800 J	13100 J	06SS101,06SS102	6/6	8111.67	7365
Tin	0.83 U	0.9 U	2.2	9.9	2SB03	3/8	5.23	3.6
Vanadium	ND	ND	9.3 B	386	06SS105	14/14	157.84	133
Zinc	ND	ND	8.3	3350	06SS101	29/29	446.29	206
EP-TOX (ug/l)								
Lead	ND	ND	2.8	10.6	R6S9A,R6S11A	4/4	6.7	6.7

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
INORGANICS (mg/kg)						
Aluminum	19810	11432.23	29214.61	9.59	1.1	311687.21
Antimony	11.08	11.13	14.6	1.78	1.3	29.78
Arsenic	25.07	30.88	34.82	2.31	1.62	109.29
Barium	226.75	256.24	348.03	5.07	0.84	418.11
Beryllium	1.53	2.87	2.44	-0.49	1.42	3.89
Cadmium	1.54	1.98	2.17	-0.35	1.37	4.05
Calcium	128246.67	185039.86	280467.93	10.79	1.64	27013788.88
Chromium	36.06	18.49	41.9	3.44	0.58	46.08
Cobalt	27.05	16.28	34.76	3.02	0.97	69.52
Copper	430.7	1071.05	769.04	4.99	1.43	951.76
Iron	63540	62008.92	114551.04	10.51	1.32	2820128.59
Lead	386.37	864.11	610.76	4.5	1.91	1652.15
Magnesium	8403.33	3407.08	11206.13	8.95	0.5	15754.4
Manganese	730.58	361.42	1027.9	6.34	1.01	8990.84
Mercury	0.27	0.36	0.38	-1.99	1.2	0.53
Nickel	25.78	31.02	35.58	2.84	0.9	38.19
Potassium	1526.92	1064.63	2402.73	6.93	1.15	25785.95
Selenium	37.3	80.59	62.76	1.5	2.44	762.2
Sodium	8111.67	4232.91	11593.83	8.87	0.59	18162.63
Tin	2.23	3.31	4.45	0.02	1.25	15.23
Vanadium	157.84	93.61	202.15	4.83	0.87	344.91
Zinc	446.29	672.57	658.75	5.29	1.35	1096.41
EP-TOX (ug/l)						
Lead	6.7	4.5	12	1.7	0.77	81.72

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)								
Acetone	12 U	48 U	21	450 J	06SS105	5/12	192	99
Methylene chloride	6 U	9 U	11	590	06SS101	5/13	190	27
2-Butanone	12 U	18 UJ	13 J	410 J	06SS101	2/13	212	212
Benzene	6 U	18 U	1 J	1.00 J	06SS106	1/13	1	1
4-Methyl-2-pentanone	12 UJ	36 UJ	11 J	11 J	06SS106	1/13	11	11
Toluene	6 U	9 U	14 J	18 J	06SS106	2/13	16	16
Ethylbenzene	6 U	18 UJ	2 J	2 J	06SS106	1/13	2	2
m/p-xylene	6 U	18 UJ	5 J	5 J	06SS106	1/5	5	5
o-Xylene	6 U	18 UJ	3 J	3 J	06SS106	1/5	3	3
SEMIVOLATILES (ug/kg)								
2-Methylnaphthalene	400 U	4,400 U	83 J	83 J	2SB01	1/13	83	83
Fluorene	400 U	4,400 U	240 J	240 J	2SB01	1/13	240	240
Phenanthrene	400 U	4,400 U	56 J	1,900	06SS103	2/13	978	978
Anthracene	400 U	4,400 U	110 J	110 J	06SS103	1/13	110	110
Di-n-butylphthalate	400 U	4,400 U	94 J	94 J	06SS103	1/13	94	94
Fluoranthene	400 U	4,400 U	3,200	3,200	06SS103	1/13	3,200	3,200
Pyrene	400 U	4,400 U	2,100	2,100	06SS103	1/13	2,100	2,100
Benzo(a)anthracene	400 U	4,400 U	1,000 J	1,000 J	06SS103	1/13	1,000	1,000
Chrysene	400 U	4,400 U	1,400 J	1,400 J	06SS103	1/13	1,400	1,400
Bis(2-ethylhexyl)phthalate	400 U	1,700 U	150 J	15,000	06SS101	4/13	4,770	1,965
Benzo(b)fluoranthene	400 U	4,400 U	1,300 J	1,300 J	06SS103	1/13	1,300	1,300
Benzo(k)fluoranthene	400 U	4,400 U	2,000	2,000	06SS103	1/13	2,000	2,000
Benzo(a)pyrene	400 U	4,400 U	270 J	270 J	06SS103	1/13	270	270
Indeno(1,2,3-cd)pyrene	400 U	4,400 U	700 J	700 J	06SS103	1/13	700	700
Dibenzo(a,h)anthracene	400 U	4,400 U	450 J	450 J	06SS103	1/13	450	450
Benzo(g,h,i)perylene	400 U	4,400 U	350 J	350 J	06SS103	1/13	350	350
Carbazole	400 U	4,400 U	92 J	92 J	06SS103	1/13	92	92

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
PESTICIDES/PCBs (ug/kg)								
beta-BHC	2.10 U	15 U	1.10 J	1.10 J	06SS101	1/13	1.10	1.10
delta-BHC	2.10 U	15 U	0.86 J	0.86 J	06SS101	1/13	0.86	0.86
gamma-BHC (Lindane)	2.10 U	15 U	0.13 NJ	0.13 NJ	06SS101	1/13	0.13	0.13
Heptachlor	2.10 UJ	15 U	0.42 J	0.42 J	06SS101	1/13	0.42	0.42
Aldrin	2.10 U	15 U	0.35 J	0.35 J	06SS103	1/13	0.35	0.35
Heptachlor epoxide	2.20 U	15 U	0.35 J	0.35 J	06SS106	1/13	0.35	0.35
Endosulfan I	2.10 U	15 U	1.50 NJ	1.50 NJ	06SS101	1/13	1.50	1.50
Dieldrin	4.10 U	30 U	0.06 NJ	0.06 NJ	06SS105	1/13	0.06	0.06
4,4'-DDE	4.10 U	30 U	0.68 J	0.68 J	06SS105	1/13	0.68	0.68
Endrin	4.30 U	30 U	1.60 J	1.60 J	06SS106	1/13	1.60	1.60
Endosulfan II	4.10 U	30 U	0.33 J	0.33 J	06SS105	1/13	0.33	0.33
4,4'-DDT	4.10 UJ	30 U	1.70 J	1.70 J	06SS105	1/13	1.70	1.70
Methoxychlor	21 U	150 U	1.50 J	1.50 J	06SS101	1/13	1.50	1.50
alpha-Chlordane	2.20 U	150 U	1.50 NJ	1.50 NJ	06SS106	1/13	1.50	1.50
DIOXINS (ug/kg)								
Total TCDF	0.02 U	0.04 U	0.07 JS	0.28 JS	2SB04	2/6	0.18	0.18
Total HxCDD	0.05 U	0.09 U	0.21 JS	0.21 JS	2SB04	1/6	0.21	0.21
OP PESTICIDES (ug/kg)								
HERBICIDES (ug/kg)								
EXPLOSIVES (ug/kg)								
ASBESTOS (ug/kg)								

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)						
Acetone	86	150.69	163.7	3.19	1.57	675.67
Methylene chloride	75	174.61	161.62	2.38	1.8	662.98
2-Butanone	38	111.65	93.65	2.30	1.13	55.42
Benzene	3.69	1.77	4.56	1.21	0.46	4.93
4-Methyl-2-pentanone	8.15	3.25	9.76	2.05	0.3	9.59
Toluene	5.38	4.8	7.75	1.47	0.59	7.57
Ethylbenzene	3.77	1.67	4.6	1.27	0.33	4.55
m/p-xylene	4.80	2.46	7.15	1.48	0.44	9.25
o-Xylene	4.40	2.58	6.86	1.38	0.46	8.7
SEMIVOLATILES (ug/kg)						
2-Methylnaphthalene	553	572.78	835.68	5.93	0.89	1112.47
Fluorene	565	563.64	843.24	6.01	0.78	974.2
Phenanthrene	631	683.72	969.2	5.96	1.03	1757.52
Anthracene	506	570.56	788.19	5.85	0.83	931.07
Di-n-butylphthalate	505	571.5	787.42	5.83	0.85	942.57
Fluoranthene	744	925.19	1201.19	6.11	0.96	1571.93
Pyrene	659	706.23	1008.33	6.07	0.89	1279.65
Benzo(a)anthracene	575	572.45	857.59	6.02	0.8	1014.32
Chrysene	605	606.93	905.4	6.04	0.84	1144.16
Bis(2-ethylhexyl)phthalate	1,722	4077.79	3737.26	6.21	1.33	5152.67
Benzo(b)fluoranthene	598	596.57	892.58	6.04	0.83	1125.9
Benzo(k)fluoranthene	652	689.58	992.41	6.07	0.88	1258.6
Benzo(a)pyrene	518	562.97	796.75	5.92	0.76	864.08
Indeno(1,2,3-cd)pyrene	552	559.78	828.25	5.99	0.77	940.67
Dibenzo(a,h)anthracene	532	558.55	808.41	5.96	0.76	899.35
Benzo(g,h,i)perylene	525	560.46	801.67	5.94	0.75	868.57
Carbazole	505	571.62	787.33	5.83	0.85	942.57

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
PESTICIDES/PCBs (ug/kg)						
beta-BHC	2.68	1.89	3.61	0.79	0.63	4.14
delta-BHC	2.66	1.91	3.6	0.78	0.65	4.2
gamma-BHC (Lindane)	2.61	1.98	3.59	0.63	1	7.04
Heptachlor	2.63	1.95	3.59	0.72	0.76	4.77
Aldrin	2.68	1.93	3.63	0.74	0.78	5.01
Heptachlor epoxide	2.70	1.91	3.64	0.76	0.77	5.04
Endosulfan I	2.71	1.87	3.63	0.82	0.6	4
Dieldrin	5.17	4.01	7.15	1.20	1.34	35.22
4,4'-DDE	5.38	3.85	7.28	1.43	0.79	10.14
Endrin	5.47	3.74	7.32	1.51	0.63	8.5
Endosulfan II	5.35	3.89	7.27	1.38	0.94	13.39
4,4'-DDT	5.45	3.76	7.31	1.51	0.64	8.61
Methoxychlor	26.12	19.72	35.87	2.95	0.96	66.69
alpha-Chlordane	22.90	22.64	34.09	2.29	1.64	288.55
DIOXINS (ug/kg)						
Total TCDF	0.07	0.11	0.16	-3.47	1.27	1.97
Total HxCDD	0.07	0.07	0.13	-3.03	0.76	0.21

OP PESTICIDES (ug/kg)
HERBICIDES (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
INORGANICS, TOTAL (mg/kg)								
Aluminum	ND	ND	7220 J	38600 J	06SS105	5/5	19924	18600
Antimony	1.9 UJ	2.8 UJ	2.9 J	21.4 J	06SS101	10/13	7.45	4.75
Arsenic	0.2 UJ	0.21 UJ	0.37 J	21.4	06SS101	11/13	5.71	1.6
Barium	25.1 U	25.1 U	32.4 B	509	06SS103	12/13	216.62	191
Beryllium	0.04 U	0.05 U	0.06	1.3 B	06SS105	9/13	0.42	0.19
Cadmium	0.24 U	1.5 UJ	0.29	9.3	06SS101	10/13	2.25	0.56
Calcium	ND	ND	10700	154000	06SS106	5/5	52340	20100
Chromium	ND	ND	2.8	110	06SS101	13/13	33.9	35.9
Cobalt	6.9 U	6.9 U	3.5 B	102	2SB05	12/13	37.18	26.4
Copper	ND	ND	13.2	1490	06SS101	13/13	232.3	60.7
Iron	ND	ND	9050 J	238000	06SS101	5/5	80090	44900
Lead	ND	ND	3.5	5850 J	06SS103	13/13	551.49	23.4
Magnesium	ND	ND	5890	14600	06SS101	5/5	10662	10900
Manganese	ND	ND	212	766	06SS101	5/5	487.8	601
Mercury	0.02 U	0.3 U	0.04	0.68	06SS103	5/13	0.18	0.06
Nickel	4.5 UJ	5.3 UJ	11.1	108	06SS101	10/13	26.18	17.55
Potassium	549 U	549 U	1200 B	3690	06SS101	4/5	2242.5	2040
Selenium	0.17 UJ	1 UJ	0.21 J	2.1 J	06SS101	6/13	1	0.86
Sodium	ND	ND	3830 J	50100 J	06SS101	5/5	16048	7540
Sulfide	32.2 U	34.5 U	952 J	952 J	2MW03	1/3	952	952
Tin	0.94 U	1.1 U	4.2	62.5	2MW03	2/8	33.35	33.35
Vanadium	ND	ND	22.8	257	06SS105	13/13	172.48	191
Zinc	ND	ND	24.3	2010	06SS103	13/13	252.94	57.5

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
INORGANICS, TOTAL (mg/kg)						
Aluminum	19924	12008.53	31372.82	9.75	0.63	66302.31
Antimony	6	6.64	9.28	1.37	0.93	13.03
Arsenic	4.85	7.3	8.46	0.42	1.72	56.16
Barium	200.92	176.52	288.18	4.8	1.18	750.17
Beryllium	0.3	0.39	0.49	-2.07	1.44	1.72
Cadmium	1.84	2.82	3.23	-0.27	1.29	7.18
Calcium	52340	60230.66	109763.35	10.36	1.09	1505438.84
Chromium	33.9	26.22	46.86	3.22	0.93	82.85
Cobalt	34.59	30.01	49.42	3.13	1.05	107.93
Copper	232.3	427.71	443.72	4.48	1.28	810.3
Iron	80090	92652.63	168424.16	10.73	1.24	4071084.57
Lead	551.49	1600.57	1342.68	3.83	2.21	22345.81
Magnesium	10662	3338.01	13844.43	9.23	0.35	17243.23
Manganese	487.8	245.67	722.02	6.06	0.59	1344.42
Mercury	0.1	0.18	0.19	-3.05	1.13	0.26
Nickel	20.71	27.1	34.11	2.52	1.07	61.05
Potassium	1848.9	1266.26	3056.14	7.23	0.99	25540.61
Selenium	0.59	0.58	0.88	-0.97	1.04	1.75
Sodium	16048	19218.02	34370.28	9.25	0.96	173719.98
Sulfide	328.45	540.01	1238.83	4.16	2.34	3.0662E+26
Tin	8.71	21.77	23.29	0.18	1.76	333.59
Vanadium	172.48	73.37	208.75	5	0.68	297.86
Zinc	252.94	549.42	524.53	4.42	1.29	781.47

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN GROUNDWATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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	1.7	7	2MW02	3/6	4.23	4
Trichloroethene	1 U	5 U	6	7	6GW01	2/6	6.5	6.5
SEMIVOLATILES (ug/l)								
Bis(2-ethylhexyl)phthalate	10 U	12 U	1.9	2 J	6GW01	2/6	1.95	1.95
Isodrin	0.05 U	0.05 U	0.02	0.05	2MW01	3/4	0.03	0.03
Pentachlorophenol	49 U	53 U	5 J	11	6GW01	2/6	8	8
Phenols	ND	ND	58	58	6GW01	1/1	58	58
PESTICIDES/PCBs (ug/l)								
Aldrin	0.05 U	0.05 U	0.006	0.13	2MW01	3/6	0.07	0.08
Heptachlor epoxide	0.005 U	0.053 U	0.04	0.04	2MW01	1/6	0.04	0.04
Heptachlor	0.005 U	0.053 U	0.0017 NJ	0.0017 NJ	6GW01	1/6	0	0
DIOXINS (ug/l)								
2,4,5-T	0.11 U	0.11 U	0.13	0.13	2MW03	1/4	0.13	0.13

HERBICIDES (ug/l)
OP-PEST (ug/l)
EXPLOSIVES (ug/l)
ASBESTOS (ug/l)

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN GROUNDWATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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	3.37	1.93	4.96	1.1	0.49	6.04
Trichloroethene	3.5	2.47	5.53	0.97	0.94	23.26
SEMIVOLATILES (ug/l)						
Bis(2-ethylhexyl)phthalate	4.15	1.75	5.59	1.33	0.52	8.48
Isodrin	0.03	0.01	0.04	-3.51	0.39	0.07
Pentachlorophenol	19.5	9.13	27.01	2.82	0.68	55.49
Phenols	58	ND	ND	4.06	ND	ND
PESTICIDES/PCBs (ug/l)						
Aldrin	0.05	0.05	0.09	-3.45	1.08	0.63
Heptachlor epoxide	0.02	0.01	0.03	-3.98	1	0.2
Heptachlor	0.02	0.01	0.03	-4.51	1.3	0.78
DIOXINS (ug/l)						
2,4,5-T	0.07	0.04	0.12	-2.69	0.43	0.19
HERBICIDES (ug/l)						
OP-PEST (ug/l)						
EXPLOSIVES (ug/l)						
ASBESTOS (ug/l)						

FREQUENCY OF DETECTION SUMMARY - INORGANIC (TOTAL) COMPOUNDS IN GROUNDWATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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 INORGANICS (ug/l)								
Aluminum	ND	ND	1200	1200	6GW01	1/1	1,200	1,200
Antimony	21 U	47.2 U	16.1 J	19.6 J	2MW03	2/4	17.85	17.85
Arsenic	2 U	6.4 U	2.7	2.8	2MW03	2/6	2.75	2.75
Barium	22.5 U	22.5 U	1.8	663	2MW02	4/5	370.7	409
Beryllium	0.4 U	1 U	0.72	1.5 B	6GW01	3/6	1.07	1
Cadmium	2.1 U	2.8 U	2.2	3.2	2MW01	2/6	2.7	2.7
Calcium	ND	ND	62,500	62,500	6GW01	1/1	62,500	62,500
Chromium	1.7 U	10.4 UJ	19.2	57.4	2MW02	3/6	32.53	21
Cobalt	2.8 U	15.5 UJ	37.9	131	2MW02	3/5	73.3	51
Copper	1.5 U	5.1 UJ	6.1	212	2MW02	4/6	92.33	75.6
Iron	ND	ND	1730	1730	6GW01	1/1	1730	1730
Lead	0.7 U	1.5 UJ	4.4	121	6GW01	4/6	38.28	13.85
Magnesium	ND	ND	80700	80700	6GW01	1/1	80,700	80,700
Mercury	0.1 U	0.2 UJ	0.71	0.71	2MW02	1/6	0.71	0.71
Nickel	6.7 U	8.6 U	15.5	66.3	2MW02	3/6	34.67	22.2
Selenium	1.8 UJ	9 U	4.2	4.8 J	6GW01	2/6	4.5	4.5
Sodium	ND	ND	230,000	936,000	2MW01	5/5	647,200	676,000
Vanadium	ND	ND	30 J	631	2MW02	5/5	202.84	147
Zinc	ND	ND	8.9	252	2MW02	6/6	87	64.45

FREQUENCY OF DETECTION SUMMARY - INORGANIC (TOTAL) COMPOUNDS IN GROUNDWATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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 INORGANICS (ug/l)						
Aluminum	1,200	ND	ND	7.09	ND	ND
Antimony	17.45	5.55	23.98	2.82	0.35	33.88
Arsenic	2.03	0.98	2.84	0.6	0.53	4.16
Barium	298.81	288.12	573.5	4.3	2.65	269949299856
Beryllium	0.69	0.5	1.1	-0.64	0.83	3.04
Cadmium	1.68	0.86	2.39	0.43	0.45	2.89
Calcium	62,500	ND	ND	11.04	ND	ND
Chromium	17.55	21.39	35.15	2.01	1.63	3965
Cobalt	45.81	51.88	95.27	2.97	1.79	430807
Copper	62.1	81.62	129.24	2.74	2.24	2707635
Iron	1730	ND	ND	7.46	ND	ND
Lead	25.7	47.12	64.46	1.69	2.14	496668
Magnesium	80,700	ND	ND	11.3	ND	ND
Mercury	0.18	0.26	0.39	-2.32	1.03	1.66
Nickel	19.26	24.28	39.23	2.34	1.2	310
Selenium	2.76	1.92	4.34	0.75	0.83	12.22
Sodium	647,200	266,872	901,633	13.28	0.55	1681463
Vanadium	202.84	246.31	437.67	4.75	1.19	8339
Zinc	87	90.13	161.14	3.94	1.22	1647

FREQUENCY OF DETECTION SUMMARY - INORGANIC (DISSOLVED) COMPOUNDS IN GROUNDWATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
DISSOLVED INORGANICS (ug/l)								
Aluminum, Soluable	ND	ND	48.9 J	48.9 J	6GW01	1/1	48.9	48.9
Barium, Soluable	35.2 U	35.2 U	3.4	262	2MW03	4/5	152.75	172.8
Cadmium, Soluable	2.1 U	2.8 U	3	3.2	2MW03	2/5	3.1	3.1
Calcium, Soluable	ND	ND	58700	58700	6GW01	1/1	58700	58700
Chromium, Soluable	1.7 U	10.4 UJ	2	2	2MW02	1/5	2	2
Cobalt, Soluable	2.8 U	15.5 UJ	3.2	15.9	2MW01	3/5	7.7	4
Copper, Soluable	1.5 U	1.5 U	1.6	8.5 J	6GW01	4/5	4.83	4.6
Magnesium, Soluable	ND	ND	77500	77500	6GW01	1/1	77500	77500
Selenium, Soluable	1.8 UJ	1.8 UJ	1.8 J	9.2 J	6GW01	3/5	5.4	5.2
Sodium, Soluable	ND	ND	223000	838000	2MW01	5/5	615600	648000
Vanadium, Soluable	ND	ND	7.9	45.8	6GW01	5/5	25.54	25.5
Zinc, Soluable	ND	ND	5.2	16.5 B	6GW01	5/5	10.8	9.9

FREQUENCY OF DETECTION SUMMARY - INORGANIC (DISSOLVED) COMPOUNDS IN GROUNDWATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Arithmatic Mean Half Non-Detects	Standard Deviation	Upper 95% Confidence Level	Log Arithmatic Mean Half Non-Detects	H Statistic	Log Upper 95% Confidence Level
DISSOLVED INORGANICS (ug/l)						
Aluminum, Soluable	48.9	ND	ND	3.89	ND	ND
Barium, Soluable	125.72	122.86	242.85	3.95	9.387	2065700.6
Cadmium, Soluable	1.94	1.07	2.96	0.54	3.287	4.93
Calcium, Soluable	58700	ND	ND	10.98	ND	ND
Chromium, Soluable	1.95	1.88	3.74	0.37	4.062	10.12
Cobalt, Soluable	6.45	5.77	11.95	1.54	4.905	68
Copper, Soluable	4.01	3.19	7.05	1.06	4.905	51.61
Magnesium, Soluable	77500	ND	ND	11.26	ND	ND
Selenium, Soluable	3.6	3.6	7.03	0.85	6.001	94.8
Sodium, Soluable	615600	242252.55	846561.34	13.24	3.287	1580560.36
Vanadium, Soluable	25.54	14.19	39.07	3.09	3.662	91.49
Zinc, Soluable	10.8	5.27	15.82	2.27	3.287	26.04

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SURFACE WATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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)								
SEMIVOLATILES (ug/l)								
Bis(2-ethylhexyl)phthalate	0.3 U	0.3 U	1	2.4	6SW2	5/6	1.34	1
Di-n-octylphthalate	0.2 U	1.1 U	2	2	6SW1,6SW3	2/6	2	2
Phenols	0.21 U	0.28 U	40	1200	6SW3	3/6	436.67	70
PESTICIDES/PCBs (ug/l)								

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SURFACE WATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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)						
SEMIVOLATILES (ug/l)						
Bis(2-ethylhexyl)phthalate	1.14	0.73	1.74	-0.13	0.93	7.53
Di-n-octylphthalate	0.96	0.83	1.64	-0.45	1.11	14.06
Phenols	218.39	481.73	614.68	1.43	4.09	5.83081E+17
PESTICIDES/PCBs (ug/l)						

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SURFACE WATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
Inorganics (ug/l)								
Beryllium	1 U	1 U	23.6	50.6	6SW2	3/6	32.97	24.7
Cadmium	2.4 U	2.4 U	3.35	8.4	6SW2	3/6	5.39	4.42
Chromium	ND	ND	97.4	611	6SW2	6/6	263.07	212.5
Copper	2.8 U	2.8 U	67.8	966	6SW2	4/6	475.95	435
Lead	27 U	400 U	211	526	6SW2	3/7	327	244
Mercury	0.2 U	0.2 U	0.856	0.997	6SW2,6SW3	3/6	0.95	1
Nickel	8.6 U	8.6 U	138	252	6SW2	3/6	179	147
Selenium	39 U	39 U	162	549	6SW3	5/6	284.2	241
Silver	6 U	6 U	28.7	32.2	6SW1	3/6	30.67	31.1
Thallium	6.8 U	6.8 U	19.2	29.3	6SW1	3/6	25.7	28.6
Zinc	1.8 U	1.8 U	52.5	1310	6SW2	4/6	684.63	688

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SURFACE WATER
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
Inorganics (ug/l)						
Beryllium	16.73	20.24	33.38	1.37	2.27	836773.94
Cadmium	3.3	2.85	5.64	0.9	0.84	14.57
Chromium	263.07	203.13	430.17	5.32	0.78	931.76
Copper	317.77	380.39	630.69	3.98	2.96	15306992186
Lead	227.79	151.5	339.06	5.09	1.15	2512.9
Mercury	0.53	0.47	0.92	-1.18	1.23	10.19
Nickel	91.65	103.74	176.99	3.3	2.03	1235177.19
Selenium	240.08	175.52	384.47	5.12	1.14	4079.87
Silver	16.83	15.2	29.33	2.26	1.27	605.5
Thallium	14.55	12.72	25.01	2.23	1.11	205.02
Zinc	456.72	538.11	899.39	3.99	3.36	6.98511E+12

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SEDIMENT
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)								
2-Butanone	12 U	6,900 U	1,600	1,600	6SE3	1/13	1,600	1,600
SEMIVOLATILES (ug/kg)								
Anthracene	60 U	780 U	95 J	95 J	2SD03	1/12	95	95
Benzo(a)anthracene	60 U	560 U	530 J	970	2SD03	2/12	750	750
Benzo(a)pyrene	70 U	780 U	920	920	2SD03	1/12	920	920
Benzo(b)fluoranthene	60 U	780 U	63 J	1,800	2SD03	2/12	932	932
Benzo(k)fluoranthene	60 U	780 U	140 J	140 J	2SD03	1/12	140	140
Bis(2-ethylhexyl)phthalate	60 U	540 U	90	13,000	6SE1	5/12	4,834	880
Chrysene	60 U	560 U	720 J	1,200	2SD03	2/12	960	960
Di-n-octylphthalate	160 U	780 U	200	300	6SE1	3/12	233	200
Fluoranthene	60 U	560 U	960	1,900	2SD03	2/12	1,430	1,430
Indeno(1,2,3-cd)pyrene	100 U	1,000 U	90 J	90 J	2SD03	1/12	90	90
Phenanthrene	60 U	560 U	290 J	630	2SD03	2/12	460	460
Pyrene	60 U	560 U	1,200	2,200	2SD03	2/12	1,700	1,700
PESTICIDES/PCBS (ug/kg)								
4,4'-DDE	19 U	496 U	29	29	2SD03	1/12	29	29
DIOXINS (ug/kg)								
Total HxCDD	0.07 U	0.23 U	2.50	2.50	2SD03	1/6	2.50	2.50
Total HxCDF	0.05 U	0.20 U	0.91 J	0.91 J	2SD03	1/6	0.91	0.91
HERBICIDES (ug/kg)								
OP-PESTICIDES (ug/kg)								
EXPLOSIVES (ug/kg)								
ASBESTOS (ug/kg)								

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SEDIMENT
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)						
2-Butanone	985	1232.4	1593.78	4.90	2.76	1534593.68
SEMIVOLATILES (ug/kg)						
Anthracene	148	121.37	210.42	4.62	0.95	367.31
Benzo(a)anthracene	238	271.97	378.92	4.94	1.09	771.11
Benzo(a)pyrene	246	237.37	368.89	5.14	0.92	585.11
Benzo(b)fluoranthene	302	484.49	553.5	5.05	1.13	937.4
Benzo(k)fluoranthene	175	106.74	230.76	4.93	0.8	354.22
Bis(2-ethylhexyl)phthalate	2,112	4436.89	4412.28	5.79	1.85	28826.02
Chrysene	273	348.46	453.57	4.99	1.16	942.1
Di-n-octylphthalate	220	89.05	266.59	5.31	0.47	306.08
Fluoranthene	346	552.32	632.59	4.97	1.34	1705.96
Indeno(1,2,3-cd)pyrene	212	131.76	280.39	5.17	0.66	353.6
Phenanthrene	184	175.24	274.6	4.76	1.06	604.82
Pyrene	391	654.06	730.33	5.00	1.39	1995.93
PESTICIDES/PCBS (ug/kg)						
4,4'-DDE	82	98.71	132.84	3.70	1.22	296.14
DIOXINS (ug/kg)						
Total HxCDD	0.48	0.99	1.29	-2.07	1.53	42.25
Total HxCDF	0.20	0.35	0.49	-2.51	1.31	6.01
HERBICIDES (ug/kg)						
OP-PESTICIDES (ug/kg)						
EXPLOSIVES (ug/kg)						
ASBESTOS (ug/kg)						

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SEDIMENT
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
INORGANICS (mg/kg)								
Antimony	1.7 UJ	11 U	3.3 J	7.4	6SE3	5/12	5.66	5.9
Arsenic	ND	ND	1.94	16.4	6SE3	12/12	6.5	5.25
Barium	ND	ND	12.1	486 J	2SD02	6/6	126.6	52.85
Beryllium	0.11 U	0.825 U	0.07	0.48	2SD02	5/12	0.29	0.36
Cadmium	0.23 U	0.47 U	0.32	1.71	6SE1	6/12	1	0.97
Chromium	ND	ND	6.58	45.9 J	2SD02	12/12	17.14	14.6
Cobalt	ND	ND	1.2	34.7	2SD03	6/6	12.92	6.25
Copper	ND	ND	8.2	399	2SD02	12/12	113.56	31.15
Lead	3.94 U	8.75 U	3.8	390 J	2SD02	9/13	107.77	21.2
Mercury	0.06 U	0.174 U	0.04	2.6	2SD03	6/12	0.62	0.11
Nickel	5.71 U	9.39 U	2.4	24.1	2SD02	9/12	8.58	6.7
Selenium	0.22 UJ	0.742 U	0.23 J	19.4	6SE3	8/12	5.81	1.39
Sulfide	29.7 U	41.9 UJ	55 J	296 J	2SD02	2/5	175.5	175.5
Tin	0.59 U	2 U	9.4	32.1	2SD02	3/6	18.33	13.5
Vanadium	ND	ND	15	154 J	2SD03	6/6	67.78	47.1
Zinc	ND	ND	9.6	841	2SD02	12/12	156.78	41.65

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SEDIMENT
SWMU 02 (LANGLEY DRIVE DISPOSAL SITE)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
INORGANICS (mg/kg)						
Antimony	4	2.23	5.16	1.19	0.72	7.44
Arsenic	6.5	4.71	8.94	1.65	0.69	10.92
Barium	126.6	181.48	275.89	4.08	1.33	4730.75
Beryllium	0.24	0.16	0.32	-1.71	0.82	0.5
Cadmium	0.6	0.56	0.89	-0.9	0.91	1.37
Chromium	17.14	10.94	22.81	2.68	0.59	26
Cobalt	12.92	13.61	24.12	2	1.24	253.66
Copper	113.56	157.33	195.12	3.78	1.44	670.72
Lead	75.76	134.27	142.13	2.75	1.83	1056.6
Mercury	0.33	0.75	0.72	-2.38	1.39	1.24
Nickel	7.41	6.09	10.57	1.78	0.65	11.76
Selenium	3.94	6.81	7.47	-0.18	1.85	73.63
Sulfide	81.06	121.23	196.64	3.67	1.23	3351.17
Tin	9.46	12.37	19.64	1.05	1.96	16664.3
Vanadium	67.78	53.94	112.15	3.93	0.86	317.27
Zinc	156.78	251.59	287.21	4.04	1.45	892.97

SWMU 45

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)								
Semivolatiles (ug/kg)								
PCBS (ug/kg)								
Aroclor-1260	87 U	90 U	100	150	45MW04-00	2/4	125	125

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)						
Semivolatiles (ug/kg)						
PCBS (ug/kg)						
Aroclor-1260	84.63	50.9	144.52	4.3	0.61	481.49

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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)								
Arsenic, Total	0.7 UJ	0.7 UJ	2.3 J	3.3 J	45MW02-00	3/4	2.73	2.6
Barium, Total	ND	ND	108	284	45MW01-00	4/4	225.5	255
Cadmium, Total	ND	ND	0.25	0.42	45MW03-00	4/4	0.33	0.33
Chromium, Total	ND	ND	10.9	29.9	45MW03-00	4/4	22.15	23.9
Lead, Total	ND	ND	2.8 J	8.2	45MW02-00	4/4	5.9	6.3
Mercury, Total	ND	ND	0.03	0.04	45MW04-00	4/4	0.03	0.03

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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)						
Arsenic, Total	2.14	1.26	3.62	0.48	1.03	374.43
Barium, Total	225.5	81.52	321.42	5.35	0.45	607.07
Cadmium, Total	0.33	0.1	0.45	-1.13	0.29	0.54
Chromium, Total	22.15	8.04	31.61	3.03	0.44	58.14
Lead, Total	5.9	2.42	8.75	1.7	0.49	17.51
Mercury, Total	0.03	0	0.03	-3.43	0.14	0.04

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)								
2-Hexanone	10 U	15 U	8 J	8 J	11-SB22	1/25	8	8
4-Methyl-2-pentanone	10 U	15 U	4 J	4 J	11-SB22	1/25	4	4
Acetone	10 U	15 UJ	12 J	83 J	11-SB16	5/25	44.8	46
Toluene	5 U	8 U	8	24	11-SB01	2/25	16	16
SEMIVOLATILES (ug/kg)								
Acenaphthene	340 U	500 U	180 J	180 J	11-SB09	1/25	180	180
Benzo(a)anthracene	340 U	1700 U	110 J	110 J	11-SB01	1/25	110	110
Benzo(a)pyrene	340 U	500 U	57 J	260 J	11-SB09	4/25	141.75	125
Benzo(g,h,i)perylene	100 UJ	1700 U	120 J	120 J	11-SB07	1/25	120	120
Benzoic acid	1700 U	8600 U	510 J	510 J	11-SB11,11-SB14	2/25	510	510
Chrysene	340 U	500 U	340 J	340 J	11-SB09	1/25	340	340
Diethylphthalate	340 U	1700 U	44 J	44 J	11-SB19	1/25	44	44
Di-n-butylphthalate	350 U	1700 U	84 J	270 J	11-SB08	4/25	183.5	190
Phenol	340 U	1700 U	130 J	130 J	11-SB16	1/25	130	130
Pyrene	340 U	500 U	47 J	180 J	11-SB09	2/25	113.5	113.5
PCBs (ug/kg)								
Aroclor-1260	85 U	440 U	46	320 J	11-SB01	5/26	122.2	75

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)						
2-Hexanone	6.08	0.75	6.34	1.8	0.12	6.36
4-Methyl-2-pentanone	5.92	0.75	6.18	1.77	0.13	6.2
Acetone	13.68	19.04	20.2	2.14	0.82	17.69
Toluene	4	4.3	5.47	1.2	0.48	4.51
SEMIVOLATILES (ug/kg)						
Acenaphthene	196.2	21.03	203.4	5.27	0.1	202.34
Benzo(a)anthracene	219.8	134.05	265.67	5.31	0.34	244.29
Benzo(a)pyrene	187.28	41.72	201.56	5.2	0.3	211.88
Benzo(g,h,i)perylene	215.4	137.73	262.53	5.27	0.43	253.26
Benzoic acid	1082.8	690.15	1318.95	6.9	0.37	1224.78
Chrysene	202.6	35.36	214.7	5.3	0.15	213.79
Diethylphthalate	215.96	137.03	262.85	5.27	0.44	255.38
Di-n-butylphthalate	223.56	135.55	269.94	5.32	0.37	252.27
Phenol	218.2	133.42	263.85	5.31	0.32	240.82
Pyrene	190.48	36.53	202.98	5.22	0.3	216.16
PCBs (ug/kg)						
Aroclor-1260	75.5	67.95	98.26	4.12	0.55	89.71

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
Inorganics, Total (mg/kg)								
Antimony	0.16 UJ	0.71 UJ	0.22 J	0.43 J	11-SB22	3/17	0.36	0.42
Arsenic	0.66 U	0.71 U	0.49 J	4.5 J	11-SB05	22/25	2.76	2.8
Barium	ND	ND	6.7	119	11-SB01	25/25	32.99	16.6
Beryllium	0.04 U	0.11 U	0.06 J	0.28 J	11-SB01	7/17	0.15	0.16
Cadmium	0.07 U	0.23 U	0.05 J	0.86	11-SB19	15/25	0.41	0.35
Chromium	ND	ND	2.7	320	11-SB23	25/25	25.74	9.7
Cobalt	ND	ND	0.31 J	20.4	11-SB22	17/17	7.76	9.4
Copper	ND	ND	2.4 J	131 J	11-SB19	9/9	65.14	62.8
Lead	ND	ND	0.42 J	7.7 J	11-SB01	25/25	1.5	1.1
Mercury	0.02 U	0.03 U	0.04 J	0.04 J	11-SB01	1/25	0.04	0.04
Nickel	ND	ND	0.85 J	17	11-SB23	17/17	6.92	6.2
Silver	0.08 U	0.22 U	0.07 J	0.36 J	11-SB01	7/25	0.14	0.1
Tin	0.67 U	0.67 U	0.87 J	2.7 J	11-SB01	16/17	1.77	1.8
Vanadium	ND	ND	5.6 J	158	11-SB22	17/17	62.14	52.5
Zinc	ND	ND	42.6	90.9	11-SB22	3/3	64.9	61.2

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
Inorganics, Total (mg/kg)						
Antimony	0.21	0.11	0.26	-1.67	0.5	0.28
Arsenic	2.47	1.16	2.87	0.69	0.8	3.97
Barium	32.99	35.2	45.03	3.04	0.94	52.49
Beryllium	0.08	0.08	0.11	-2.84	0.84	0.14
Cadmium	0.27	0.25	0.36	-1.85	1.14	0.58
Chromium	25.74	62.23	47.03	2.45	1.02	35.14
Cobalt	7.76	6.53	10.53	1.34	1.51	52.63
Copper	65.14	47.8	94.77	3.63	1.44	1016.09
Lead	1.5	1.49	2.01	0.14	0.68	1.95
Mercury	0.01	0.01	0.01	-4.47	0.31	0.01
Nickel	6.92	5.32	9.17	1.53	1.03	17.27
Silver	0.09	0.06	0.11	-2.5	0.47	0.11
Tin	1.68	0.65	1.96	0.42	0.51	2.28
Vanadium	62.14	50.08	83.35	3.68	1.11	171.7
Zinc	64.9	24.36	105.97	4.13	0.38	271.73

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN GROUNDWATER
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Frequency of Detection	Location of Maximum Detect	Arithmatic Mean Positive Detects	Median Positive Detects
VOLATILES (ug/l)								
Acetone	10 UJ	10 UJ	12 J	34	11-SB10	7/22	18.29	16
SEMIVOLATILES (ug/l)								
2,4-Dichlorophenol	10 U	50 U	2 J	2 J	11-SB07	1/22	2	2
Acenaphthene	10 U	50 U	2 J	2 J	45MW03	1/22	2	2
Anthracene	10 U	13 U	5 J	9 J	11-SB05	2/22	7	7
Benzo(a)anthracene	10 U	13 U	6 J	6 J	11-SB05	1/22	6	6
Benzo(a)pyrene	10 U	13 U	7 J	7 J	11-SB05	1/22	7	7
Benzoic acid	48 U	250 U	23 J	26 J	11-SB08	3/22	24.67	25
Benzyl alcohol	10 U	50 U	3 J	3 J	11-SB19	1/22	3	3
Bis(2-ethylhexyl)phthalate	10 U	120 U	24	64 J	45MW02	2/22	44	44
Chrysene	10 U	13 U	13 J	13 J	11-SB05	1/22	13	13
Diethylphthalate	10 U	50 U	12	34	11-SB10	2/22	23	23
Dimethylphthalate	10 U	50 U	2 J	27	11-SB10	2/22	14.5	14.5
Diphenylamine	10 U	13 U	18 J	18 J	11-SB05	1/22	18	18
m&p Cresol	10 U	50 U	2 J	7 J	11-SB19	2/22	4.5	4.5
o-Cresol	10 U	50 U	1 J	1 J	11-SB19	1/22	1	1
Phenol	10 U	50 U	2 J	4 J	45HP01	3/22	3	3
Pyrene	10 UJ	13 UJ	1 J	15 J	11-SB05	3/22	7	5
PCBs (ug/l)								
Aroclor-1260	0.96 U	5.9 U	0.35	0.35	45HP02	1/22	0.35	0.35

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN GROUNDWATER
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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)						
Acetone	9.23	7.67	12.04	2	0.62	12.04
SEMIVOLATILES (ug/l)						
2,4-Dichlorophenol	5.8	4.34	7.39	1.65	0.4	6.66
Acenaphthene	5.86	4.34	7.45	1.66	0.41	6.83
Anthracene	5.27	0.9	5.6	1.65	0.14	5.55
Benzo(a)anthracene	5.14	0.38	5.28	1.63	0.07	5.25
Benzo(a)pyrene	5.18	0.52	5.37	1.64	0.09	5.35
Benzoic acid	29.61	21.32	37.43	3.29	0.34	32.76
Benzyl alcohol	5.91	4.3	7.49	1.68	0.37	6.7
Bis(2-ethylhexyl)phthalate	13.2	17.16	19.5	2.11	0.86	18.84
Chrysene	5.45	1.72	6.08	1.67	0.21	5.91
Diethylphthalate	7.64	7.37	10.34	1.83	0.54	9.22
Dimethylphthalate	6.86	6.25	9.15	1.73	0.54	8.34
Diphenylamine	5.68	2.77	6.7	1.68	0.28	6.24
m&p Cresol	5.95	4.34	7.54	1.67	0.41	6.9
o-Cresol	5.82	4.38	7.43	1.63	0.5	7.19
Phenol	5.66	4.39	7.27	1.61	0.42	6.56
Pyrene	5.36	2.35	6.22	1.6	0.43	6.55
PCBs (ug/l)						
Aroclor-1260	0.6	0.53	0.79	-0.64	0.39	0.67

FREQUENCY OF DETECTION SUMMARY - INORGANIC (TOTAL) COMPOUNDS IN GROUNDWATER
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
Inorganics, Total (ug/l)								
Antimony	1.9 U	1.9 U	2 J	3.7 J	11-SB10	11/16	2.69	2.7
Arsenic	1.3 UJ	16 U	1.7 J	103	45HP01	17/25	21.56	11.3
Barium	ND	ND	6.1 J	483	45MW01	25/25	138.29	71.4
Cadmium	0.4 U	0.4 U	0.54 J	27.8	45MW04	10/25	6.36	4.45
Chromium	0.7 U	0.7 U	0.7 J	182	45MW01	22/25	52.83	20
Cobalt	0.7 U	0.7 U	1.2 J	4.8 J	11-SB12	8/16	2.78	2.65
Copper	0.5 U	0.5 U	0.78 J	98.9 J	11-SB16	13/16	22.38	11.5
Lead	1 UJ	7.5 U	1.5 J	30	45HP02	10/24	14.66	14.15
Mercury	0.1 U	0.1 U	0.1 J	0.53	11-SB10	6/25	0.26	0.24
Nickel	0.8 U	0.8 U	0.92 J	7.9 J	11-SB16	7/16	3.2	2.3
Tin	1.8 U	1.8 U	2 J	2.1 J	11-SB25	4/16	2.03	2
Vanadium	0.8 U	0.8 U	1.7 J	67.8	11-SB16	14/16	22.55	17.9
Zinc	ND	ND	1.3 J	24.8	11-SB07	16/16	10.76	7.45

FREQUENCY OF DETECTION SUMMARY - INORGANIC (TOTAL) COMPOUNDS IN GROUNDWATER
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
Inorganics, Total (ug/l)						
Antimony	2.15	0.95	2.57	0.65	0.52	2.93
Arsenic	15.61	26.73	24.76	1.85	1.34	37.4
Barium	138.29	151.02	189.97	4.21	1.35	404.11
Cadmium	2.67	5.69	4.62	-0.41	1.62	8.05
Chromium	46.53	59.79	66.99	2.43	2.13	885.62
Cobalt	1.56	1.64	2.28	-0.09	1.07	3.82
Copper	18.23	27.57	30.31	1.47	2.02	569.57
Lead	6.64	9.62	10.01	0.81	1.5	19.12
Mercury	0.1	0.12	0.14	-2.64	0.71	0.13
Nickel	1.62	2.18	2.58	-0.13	1.06	3.61
Tin	1.18	0.5	1.4	0.1	0.36	1.41
Vanadium	19.78	19.66	28.4	2.19	1.63	181.62
Zinc	10.76	7.68	14.13	2.11	0.8	18.69

FREQUENCY OF DETECTION SUMMARY - INORGANIC (DISSOLVED) COMPOUNDS IN GROUNDWATER
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
Inorganics, Dissolved (ug/l)								
Antimony	1.9 U	1.9 U	2 J	3.6 J	11-SB10	5/14	2.7	2.4
Arsenic	1.3 U	6.5 U	1.3 J	16.1 J	45HP01	14/22	5.76	3.45
Barium	ND	ND	2.8 J	278	11-SB19	22/22	52.21	33.85
Cadmium	0.4 U	2.1 U	2.4	5.6	45HP01	4/22	3.98	3.95
Chromium	0.7 U	1.7 U	0.7 J	8.6 J	11-SB16	5/22	2.93	1.1
Cobalt	0.7 U	0.7 U	4.2 J	4.2 J	11-SB12	1/14	4.2	4.2
Copper	0.5 U	0.5 U	2.4 J	2.4 J	11-SB13	1/14	2.4	2.4
Lead	0.7 U	7.5 U	1.6	1.6	11-SB16,45MW01	2/20	1.6	1.6
Mercury	0.1 U	0.1 U	0.12 J	2.6	11-SB16	5/22	1.24	1.6
Tin	1.8 U	1.8 U	1.9 J	2.4 J	11-SB18	3/14	2.13	2.1
Vanadium	0.8 U	0.8 U	1.1 J	29.3 J	11-SB16	7/14	8.53	3.2
Zinc	ND	ND	1.5 J	9.4 J	11-SB13	14/14	3.59	3

FREQUENCY OF DETECTION SUMMARY - INORGANIC (DISSOLVED) COMPOUNDS IN GROUNDWATER
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
Inorganics, Dissolved (ug/l)						
Antimony	1.58	0.95	2.03	0.31	0.53	2.17
Arsenic	4.16	4.6	5.85	0.94	1	7.39
Barium	52.21	66.21	76.5	3.17	1.39	170.78
Cadmium	1.08	1.56	1.65	-0.7	1.2	2.19
Chromium	1.12	1.78	1.77	-0.35	0.81	1.5
Cobalt	0.63	1.03	1.12	-0.87	0.66	0.8
Copper	0.4	0.57	0.67	-1.22	0.6	0.51
Lead	0.99	1.01	1.38	-0.31	0.7	1.34
Mercury	0.32	0.68	0.57	-2.38	1.29	0.54
Tin	1.16	0.53	1.41	0.08	0.37	1.42
Vanadium	4.46	8.29	8.38	0.31	1.5	19.5
Zinc	3.59	2.22	4.64	1.15	0.49	4.73

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SEDIMENT
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)								
Acetone	ND	ND	28 J	97 J	11SD01	9/9	49.11	43
Semivolatiles (ug/kg)								
Acenaphthylene	630 U	830 U	81 J	100 J	11SD03	2/9	90.5	90.5
Anthracene	630 U	830 U	96 J	160 J	11SD03	3/9	118	98
Benzo(a)anthracene	630 U	730 U	85 J	320 J	11SD03	6/9	196.33	185
Benzo(a)pyrene	640 U	730 U	96 J	1800	11SD03	7/9	418	170
Benzo(b)fluoranthene	640 U	730 U	140 J	2700	11SD03	7/9	857.14	330
Benzo(g,h,i)perylene	630 U	730 U	120 J	1100	11SD03	5/9	434	230
Benzo(k)fluoranthene	630 U	830 U	160 J	1200	11SD03	4/9	655	630
Bis(2-ethylhexyl)phthalate	530 U	530 U	200 J	700 J	11SD07	8/9	370	300
Carbazole	530 U	730 U	330 J	390 J	11SD06,11SD09	5/9	362	350
Chrysene	640 U	730 U	76 J	1000	11SD03	7/9	359.43	210
Dibenzo(a,h)anthracene	630 U	830 U	75 J	380 J	11SD03	3/9	211.67	180
Di-n-butylphthalate	730 U	730 U	88 J	460 J	11SD07	8/9	157	115
Fluoranthene	640 U	730 U	83 J	680 J	11SD09	7/9	228	120
Indeno(1,2,3-cd)pyrene	640 U	730 U	75 J	1300	11SD03	7/9	385.57	170
Phenanthrene	530 U	830 U	78 J	470 J	11SD09	4/9	222	170
Pyrene	640 U	730 U	79 J	680 J	11SD09	7/9	245.57	180
PCBs (ug/kg)								
Aroclor-1260	ND	ND	28 J	130	11SD09	9/9	53.89	44
TPH (ug/kg)								
Diesel Range Organics	12000 U	12000 U	18000	65000	11SD03	8/9	32875	28500

FREQUENCY OF DETECTION SUMMARY - ORGANIC COMPOUNDS IN SEDIMENT
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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/kg)						
Acetone	49.11	21.1	62.19	3.82	0.38	65.29
Semivolatiles (ug/kg)						
Acenaphthylene	292.89	118.63	366.42	5.55	0.61	544.94
Anthracene	273.22	121.52	348.54	5.48	0.58	467.94
Benzo(a)anthracene	242	106.45	307.98	5.37	0.56	407.36
Benzo(a)pyrene	401.22	534.2	732.34	5.56	0.87	960.72
Benzo(b)fluoranthene	742.78	912.22	1308.22	6.08	1.02	2915.47
Benzo(g,h,i)perylene	392.22	295.04	575.1	5.77	0.65	722.63
Benzo(k)fluoranthene	488.33	309.45	680.14	6.04	0.57	807.52
Bis(2-ethylhexyl)phthalate	358.33	171.61	464.7	5.8	0.42	505.89
Carbazole	341.67	39.61	366.22	5.83	0.12	371.72
Chrysene	355.67	295.4	538.77	5.57	0.85	933.67
Dibenzo(a,h)anthracene	304.44	108.29	371.56	5.62	0.54	508.49
Di-n-butylphthalate	180.11	136.07	264.45	5	0.61	314.4
Fluoranthene	253.44	194.7	374.12	5.29	0.73	535.11
Indeno(1,2,3-cd)pyrene	376	388.78	616.99	5.54	0.91	1092.41
Phenanthrene	285.33	128.04	364.7	5.53	0.58	491.93
Pyrene	267.11	184.64	381.56	5.39	0.67	510.1
PCBs (ug/kg)						
Aroclor-1260	53.89	30.32	72.68	3.89	0.44	76.79
TPH (ug/kg)						
Diesel Range Organics	29888.89	17366.95	40653.78	10.13	0.68	59314.55

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SEDIMENT
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmatic Mean Positive Detects	Median Positive Detects
Inorganics (mg/kg)								
Antimony	0.3 UJ	0.57 UJ	0.37 J	0.7 J	11SD02	7/11	0.55	0.63
Arsenic	ND	ND	3.3 J	12	11SD01D	11/11	6.42	5.4
Barium	ND	ND	13 J	26.1 J	11SD06	11/11	18.26	17.3
Beryllium	0.04 U	0.09 U	0.06 J	0.06 J	11SD03D,11SD06,11SD09	3/11	0.06	0.06
Cadmium	0.06 U	0.08 U	0.08 J	0.66 J	11SD01	3/11	0.38	0.4
Chromium	ND	ND	8	14.4	11SD06	11/11	10.91	9.8
Cobalt	3.1 UJ	3.1 UJ	1.8 J	7.3 J	11SD01	10/11	3.59	2.95
Copper	ND	ND	18.1 J	44.6 J	11SD09	9/9	29.39	27.1
Lead	ND	ND	8.7	30.4	11SD01D	11/11	16.85	17.2
Mercury	0.03 U	0.06 U	0.31	0.42	11SD01D	2/11	0.37	0.37
Nickel	ND	ND	1.7 J	5 J	11SD01	11/11	3.15	3
Selenium	0.32 U	0.59 UJ	0.78 J	0.78 J	11SD01	1/11	0.78	0.78
Silver	0.09 U	0.16 U	0.13 J	0.36 J	11SD01	3/11	0.21	0.13
Tin	ND	ND	2.2 J	5.5 J	11SD01	11/11	3.7	3.5
Vanadium	ND	ND	15.8	73.4 J	11SD01	11/11	27.66	22.3
Zinc	ND	ND	26.1	83.9	11SD09	9/9	51.34	48.9

FREQUENCY OF DETECTION SUMMARY - INORGANIC COMPOUNDS IN SEDIMENT
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	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
Inorganics (mg/kg)						
Antimony	0.43	0.2	0.54	-0.97	0.54	0.65
Arsenic	6.42	2.97	8.04	1.78	0.42	8.65
Barium	18.26	4.11	20.51	2.88	0.22	20.9
Beryllium	0.04	0.02	0.05	-3.34	0.41	0.05
Cadmium	0.13	0.21	0.24	-2.81	1.1	0.37
Chromium	10.91	2.24	12.13	2.37	0.2	12.28
Cobalt	3.4	1.72	4.34	1.12	0.47	4.73
Copper	29.39	8.48	34.65	3.34	0.28	35.81
Lead	16.85	6.17	20.22	2.76	0.37	21.52
Mercury	0.08	0.14	0.16	-3.36	1.17	0.25
Nickel	3.15	1.02	3.71	1.1	0.32	3.89
Selenium	0.25	0.18	0.35	-1.49	0.44	0.34
Silver	0.1	0.09	0.15	-2.58	0.64	0.15
Tin	3.7	0.95	4.22	1.28	0.26	4.37
Vanadium	27.66	15.98	36.39	3.22	0.42	36.5
Zinc	51.34	18.51	62.81	3.88	0.37	68.55

W-TEST SUMMARIES

SWMU 1

W-TEST FOR TOTAL INORGANICS IN GROUNDWATER
SWMU 01
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
Inorganics, Total (ug/l)				
Antimony	0.874046003	FALSE	0.761759729	FALSE
Arsenic	0.780417703	FALSE	0.62477407	FALSE
Barium	0.922954208	TRUE	0.824365124	FALSE
Beryllium	0.933575085	TRUE	0.650450881	FALSE
Cadmium	0.804982316	FALSE	0.529303167	FALSE
Chromium	0.948086919	TRUE	0.731811449	FALSE
Chromium (Hexavalent)	1.318186041	TRUE	0.825685586	FALSE
Cobalt	1.097093292	TRUE	0.851927357	TRUE
Copper	0.936809266	TRUE	0.637612738	FALSE
Lead	0.891672842	TRUE	0.5629533	FALSE
Mercury	0.76487661	FALSE	0.300045614	FALSE
Nickel	0.968471037	TRUE	0.673073145	FALSE
Selenium	0.915493908	TRUE	0.590809713	FALSE
Silver	0.86964203	FALSE	0.539912884	FALSE
Sodium	1.096689608	TRUE	0.733842749	FALSE
Thallium	0.755442557	FALSE	0.454532637	FALSE
Tin	1.088068181	TRUE	0.892061314	TRUE
Vanadium	0.954952315	TRUE	0.766448724	FALSE
Zinc	0.975085972	TRUE	0.337680158	FALSE

W-TEST FOR DISSOLVED INORGANIC CONSTITUENTS IN GROUNDWATER
SWMU 01
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
Inorganics, Dissolved (ug/l)				
Antimony, Soluble	0.854081133	TRUE	0.782517741	FALSE
Barium, Soluble	0.979640266	TRUE	0.861252068	TRUE
Cadmium, Soluble	0.907949206	TRUE	0.716056634	FALSE
Chromium, Soluble	0.721547643	FALSE	0.780509546	FALSE
Cobalt, Soluble	0.879830821	TRUE	0.655628925	FALSE
Copper, Soluble	0.701083195	FALSE	0.370129185	FALSE
Nickel, Soluble	0.932415714	TRUE	0.633709521	FALSE
Sodium, Soluble	0.835157214	TRUE	0.696021645	FALSE
Thallium, Soluble	0.6552748	FALSE	0.750267225	FALSE
Vanadium, Soluble	0.910845358	TRUE	0.856402746	TRUE
Zinc, Soluble	0.901386214	TRUE	0.748263328	FALSE

W-TEST FOR ORGANIC COMPOUNDS IN GROUNDWATER
SWMU 01
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
VOLATILES (ug/l)				
Chloroform	0.803090718	FALSE	0.765725934	FALSE
1,1,2,2-Tetrachloroetha	0.621402409	FALSE	0.701058528	FALSE
SEMIVOLATILES (u				
Pentachlorophenol	0.719260247	FALSE	0.759236525	FALSE
Bis(2-ethylhexyl)phthal	0.905077377	TRUE	0.564200513	FALSE
Phenols	3.159910177	TRUE	0.888934425	TRUE
PESTICIDES/PCBs (u				
4,4'-DDE	0.766233329	FALSE	0.73660736	FALSE
Heptachlor	0.867601915	FALSE	0.408938778	FALSE
Aldrin	0.875607601	FALSE	0.406397258	FALSE
beta-BHC	0.851421847	FALSE	0.408567422	FALSE
HERBICIDES (ug/l)				
2,4,5-TP (Silvex)	1.031164173	TRUE	0.668083001	FALSE
2,4,5-T	1.099312132	TRUE	0.744057341	FALSE
DIOXINS (ug/l)				
Total HxCDD	2.516089784	TRUE	949.7967153	TRUE

OP-PEST (ug/l)
EXPLOSIVES (ug/l)
ASBESTOS (ug/l)

W-TEST FOR INORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 01
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
Inorganics, Total (mg/kg)				
Aluminum	0.934173224	TRUE	0.795575659	TRUE
Antimony	0.899988332	FALSE	0.90593863	FALSE
Arsenic	0.799303454	FALSE	0.818926995	FALSE
Barium	0.953854867	TRUE	0.827222979	FALSE
Beryllium	0.937022727	TRUE	0.91005087	FALSE
Cadmium	0.741298007	FALSE	0.505022753	FALSE
Calcium	2.677822281	TRUE	0.843334028	TRUE
Chromium	0.952410445	TRUE	0.913371242	TRUE
Cobalt	0.984636376	TRUE	0.936598576	TRUE
Copper	0.94567559	TRUE	0.574309695	FALSE
Iron	2.106114442	TRUE	0.985515739	TRUE
Lead	0.901377753	FALSE	0.493891323	FALSE
Magnesium	4.94577062	TRUE	0.908212137	TRUE
Manganese	7.819381079	TRUE	0.952744049	TRUE
Mercury	0.700480568	FALSE	0.281070099	FALSE
Nickel	0.925047526	TRUE	0.94108366	TRUE
Potassium	2.749331612	TRUE	0.961173222	TRUE
Selenium	0.938778772	TRUE	0.742441405	FALSE
Silver	0.841507278	FALSE	0.713591443	FALSE
Sodium	1.898312908	TRUE	0.925000986	TRUE
Tin	0.795507749	FALSE	0.581634514	FALSE
Vanadium	0.906959982	FALSE	0.985851886	TRUE
Zinc	0.912419343	TRUE	0.69465986	FALSE

W-TEST FOR ORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 01
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
VOLATILES (ug/kg)				
1,2-Dibromo-3-chloropropane	0.398946795	FALSE	0.544014557	FALSE
Acetone	0.466998013	FALSE	0.392723081	FALSE
Benzene	0.464393934	FALSE	0.492403787	FALSE
Carbon disulfide	0.556746862	FALSE	0.444556214	FALSE
Methylene chloride	0.617999808	FALSE	0.553820521	FALSE
Tetrachloroethene	0.493529393	FALSE	0.522780291	FALSE
SEMIVOLATILES (ug/kg)				
Bis(2-ethylhexyl)phthalate	0.677707706	FALSE	0.626911848	FALSE
Di-n-butylphthalate	0.84740476	FALSE	0.712149133	FALSE
PESTICIDES/PCBS (ug/kg)				
4,4'-DDD	0.788725382	FALSE	0.416792759	FALSE
4,4'-DDE	0.74736177	FALSE	0.258173016	FALSE
4,4'-DDT	0.700520962	FALSE	0.231265973	FALSE
Chlordane, gamma-	0.947590447	TRUE	0.96315352	TRUE
delta-BHC	0.825863377	FALSE	0.663204082	FALSE
Dieldrin	0.880332302	FALSE	0.71113064	FALSE
Endosulfan I	0.878324634	FALSE	0.689335678	FALSE
Endrin	0.828482962	FALSE	0.686006451	FALSE
Endrin aldehyde	0.853624383	FALSE	0.646385465	FALSE
Methoxychlor	0.855945247	FALSE	0.621996484	FALSE
DIOXINS (ug/kg)				
Total HxCDD	0.962004693	TRUE	1.610643008	TRUE
Total HxCDF	0.952041089	TRUE	2.384003281	TRUE
Total TCDF	0.952299831	TRUE	4.945457976	TRUE

HERBICIDES (ug/kg)
OP-PEST (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)

W-TEST FOR INORGANIC COMPOUNDS IN SEDIMENT
SWMU 01
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
Inorganics, Total (mg/kg)				
Antimony	0.942444294	TRUE	0.787130078	FALSE
Arsenic	0.880632662	FALSE	0.776205685	FALSE
Barium	9.455068648	TRUE	1.034195246	TRUE
Beryllium	0.898698383	TRUE	0.883154404	FALSE
Cadmium	0.884542334	FALSE	0.808305711	FALSE
Chromium	0.966160432	TRUE	0.953103884	TRUE
Cobalt	1.372731387	TRUE	2.070280928	TRUE
Copper	0.886334904	FALSE	0.514702264	FALSE
Lead	0.881460369	FALSE	0.442017831	FALSE
Mercury	0.920378035	TRUE	0.463876589	FALSE
Nickel	0.953213441	TRUE	0.677041314	FALSE
Selenium	0.925006671	TRUE	0.677041788	FALSE
Silver	0.950106116	TRUE	0.933116604	TRUE
Sulfide	3.281898443	TRUE	0.647428974	FALSE
Tin	0.973127649	TRUE	0.607540423	FALSE
Vanadium	2.204163526	TRUE	0.905403406	TRUE
Zinc	0.838648932	FALSE	0.461045059	FALSE

W-TEST FOR ORGANIC COMPOUNDS IN SEDIMENT
SWMU 01
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
VOLATILES (ug/kg)				
Methylene chloride	0.838422178	FALSE	0.654469553	FALSE
Tetrachloroethene	0.70641611	FALSE	0.84979132	FALSE
Xylene (total)	0.8142745	FALSE	0.809513895	FALSE
SEMIVOLATILES (ug/kg)				
Benzo(a)anthracene	0.953717107	TRUE	0.909335206	TRUE
Benzo(a)pyrene	0.950588824	TRUE	0.936354783	TRUE
Benzo(b)fluoranthene	0.924238569	TRUE	0.941797688	TRUE
Benzo(g,h,i)perylene	0.954719792	TRUE	0.938042528	TRUE
Benzo(k)fluoranthene	0.907649674	TRUE	0.925018797	TRUE
Bis(2-ethylhexyl)phthalate	0.946272933	TRUE	0.931320823	TRUE
Chrysene	0.96128625	TRUE	0.936721341	TRUE
Di-n-octylphthalate	0.815794851	FALSE	0.434536211	FALSE
Fluoranthene	0.957917926	TRUE	0.915647636	TRUE
Indeno(1,2,3-cd)pyrene	0.926653932	TRUE	0.889029185	TRUE
Phenols	0.9407137	TRUE	0.743039341	FALSE
Pyrene	0.965935719	TRUE	0.941234985	TRUE
PESTICIDES/PCBs (ug/kg)				
4,4'-DDD	0.909002467	TRUE	0.743999681	FALSE
4,4'-DDE	0.874576845	FALSE	0.808889411	FALSE
4,4'-DDT	0.924342868	TRUE	0.785503801	FALSE
Aroclor-1260	0.936936392	TRUE	0.798310007	FALSE
delta-BHC	0.905695854	TRUE	0.658803866	FALSE
DIOXINS (ug/kg)				
Total HxCDD	3.386337387	TRUE	11001.13734	TRUE
Total HxCDF	3.360061915	TRUE	12691.37177	TRUE
Total PeCDF	7.204678464	TRUE	725238.3487	TRUE
Total TCDF	10.59764273	TRUE	6717152.339	TRUE

HERBICIDES (ug/kg)
OP-PEST (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)
TOC (%)

W-TEST FOR INORGANIC CONSTITUENTS IN SURFACE SOIL
SWMU 01
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
Inorganics, Total (mg/kg)				
Aluminum	0.944838694	TRUE	0.892519359	TRUE
Antimony	0.946207686	TRUE	0.878245077	FALSE
Arsenic	0.81375911	FALSE	0.548165206	FALSE
Barium	0.941360767	TRUE	0.973246671	TRUE
Beryllium	0.952641151	TRUE	0.834894942	FALSE
Cadmium	0.838332877	FALSE	0.259276004	FALSE
Calcium	4.105730612	TRUE	0.928058162	TRUE
Chromium	0.953419682	TRUE	0.963142729	TRUE
Cobalt	0.913172237	TRUE	0.900070716	FALSE
Copper	0.960961326	TRUE	0.686209479	FALSE
Iron	2.189476472	TRUE	0.968869112	TRUE
Lead	0.928717593	TRUE	0.610381296	FALSE
Magnesium	13.86602196	TRUE	0.947252679	TRUE
Manganese	4.560688405	TRUE	0.950024742	TRUE
Mercury	0.722230257	FALSE	0.904432626	FALSE
Nickel	0.941860237	TRUE	0.84783151	FALSE
Potassium	3.341701341	TRUE	0.865991853	TRUE
Selenium	0.950512478	TRUE	0.960391089	TRUE
Silver	0.76049952	FALSE	0.600446395	FALSE
Sodium	3.981579991	TRUE	0.882537271	TRUE
Sulfide	0.710756856	FALSE	0.552445425	FALSE
Tin	0.667260163	FALSE	0.454774048	FALSE
Vanadium	0.920466579	TRUE	0.912995896	TRUE
Zinc	0.92529712	TRUE	0.697654678	FALSE

W-TEST FOR ORGANIC COMPOUNDS IN SURFACE SOIL
SWMU 01
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
VOLATILES (ug/kg)				
Acetone	0.647573671	FALSE	0.596585066	FALSE
Carbon disulfide	0.515623139	FALSE	0.514464071	FALSE
Ethylbenzene	0.226353215	FALSE	0.226353215	FALSE
Methylene chloride	0.56338191	FALSE	0.565933817	FALSE
Xylene (total)	0.284169643	FALSE	0.284169643	FALSE
SEMIVOLATILES (ug/kg)				
2-Methylnaphthalene	0.744124046	FALSE	0.658360677	FALSE
Acenaphthylene	0.754149474	FALSE	0.667696782	FALSE
Anthracene	0.796538312	FALSE	0.68473232	FALSE
Benzo(a)anthracene	0.784643561	FALSE	0.716582821	FALSE
Benzo(a)pyrene	0.794446922	FALSE	0.717699379	FALSE
Benzo(b)fluoranthene	0.810713174	FALSE	0.738233862	FALSE
Benzo(g,h,i)perylene	0.764967071	FALSE	0.678141597	FALSE
Benzo(k)fluoranthene	0.791717274	FALSE	0.718720237	FALSE
Bis(2-ethylhexyl)phthalate	0.773123226	FALSE	0.682025291	FALSE
Butylbenzylphthalate	0.739858399	FALSE	0.656484758	FALSE
Chrysene	0.806515529	FALSE	0.738141376	FALSE
Dibenzo(a,h)anthracene	0.799399013	FALSE	0.685400243	FALSE
Fluoranthene	0.797094132	FALSE	0.701081852	FALSE
Indeno(1,2,3-cd)pyrene	0.77947768	FALSE	0.689503687	FALSE
Pyrene	0.816069718	FALSE	0.575546329	FALSE
PESTICIDES/PCBs (ug/kg)				
4,4'-DDD	0.778576631	FALSE	0.299356568	FALSE
4,4'-DDE	0.750889455	FALSE	0.477650094	FALSE
4,4'-DDT	0.86207638	FALSE	0.290918251	FALSE
Endrin	0.75847002	FALSE	0.620531455	FALSE
Heptachlor	0.774640767	FALSE	0.599389262	FALSE
Methoxychlor	0.726751672	FALSE	0.611829932	FALSE

W-TEST FOR INORGANIC COMPOUNDS IN SURFACE WATER
SWMU 01
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
Inorganics, Total (ug/l)				
Arsenic	0.66218674	FALSE	0.684878954	FALSE
Chromium	0.861226734	TRUE	0.57707929	FALSE
Chromium (Hexavalent)	0.749439038	FALSE	0.595854174	FALSE
Copper	0.446455554	FALSE	0.382056796	FALSE
Selenium	0.742725579	FALSE	0.578859655	FALSE
Silver	0.693338605	FALSE	0.556155279	FALSE
Thallium	0.750974909	FALSE	0.767470103	FALSE
Zinc	0.800892975	FALSE	0.801296345	FALSE

W-TEST FOR ORGANIC COMPOUNDS IN SURFACE WATER
SWMU 01
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
Semivolatiles (ug/l)				
Bis(2-ethylhexyl)phthalate	0.895798175	TRUE	0.572088761	FALSE
Di-n-octylphthalate	0.750285152	FALSE	0.651478906	FALSE
Phenols	1.185806762	TRUE	0.698013908	FALSE

SWMU 2

W-TEST FOR ORGANIC COMPOUNS IN SURFACE SOIL
SWMU 02
NAVAL STATION ROOSEVELT ROADS,
PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
VOLATILES (ug/kg)				
1,1,1-Trichloroethane	0.834032416	FALSE	0.77813307	FALSE
Acetone	1.033612337	TRUE	0.791709927	FALSE
Carbon disulfide	4.017943871	TRUE	48.22366912	TRUE
Methylene chloride	0.895402519	FALSE	0.345301726	FALSE
Toluene	0.545196425	FALSE	0.376519946	FALSE
SEMIVOLATILES (ug/kg)				
Benzo(a)anthracene	0.837225023	FALSE	0.658491266	FALSE
Benzo(a)pyrene	0.872796868	FALSE	0.650710344	FALSE
Benzo(b)fluoranthene	0.868358695	FALSE	0.676758411	FALSE
Benzo(g,h,i)perylene	0.853763371	FALSE	0.659972389	FALSE
Benzo(k)fluoranthene	0.857142124	FALSE	0.632870567	FALSE
Bis(2-ethylhexyl)phthalate	0.913892157	FALSE	0.552985999	FALSE
Chrysene	0.843475616	FALSE	0.633389989	FALSE
Dibenzo(a,h)anthracene	0.85042522	FALSE	0.657718193	FALSE
Di-n-octylphthalate	0.883765422	FALSE	0.694175078	FALSE
Fluoranthene	0.836515563	FALSE	0.681656416	FALSE
Indeno(1,2,3-cd)pyrene	0.863668438	FALSE	0.671340734	FALSE
Phenanthrene	0.802770421	FALSE	0.67830411	FALSE
Pyrene	0.839679137	FALSE	0.673872709	FALSE
PESTICIDES/PCBs (ug/kg)				
4,4'-DDD	0.788088662	FALSE	0.762484583	FALSE
4,4'-DDE	0.759726805	FALSE	0.748803259	FALSE

W-TEST FOR ORGANIC COMPOUNS IN SURFACE SOIL
SWMU 02
NAVAL STATION ROOSEVELT ROADS,
PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
VOLATILES (ug/kg)				
1,1,1-Trichloroethane	0.834032416	FALSE	0.77813307	FALSE
Acetone	1.033612337	TRUE	0.791709927	FALSE
4,4'-DDT	0.78116561	FALSE	0.747638967	FALSE
Aldrin	0.77702796	FALSE	0.748814169	FALSE
alpha-BHC	0.792153267	FALSE	0.749021823	FALSE
beta-BHC	0.752631242	FALSE	0.748349876	FALSE
delta-BHC	0.770262998	FALSE	0.748735578	FALSE
Dieldrin	0.758228659	FALSE	0.76109014	FALSE
Endosulfan I	0.748418168	FALSE	0.748246747	FALSE
Endosulfan II	0.804228091	FALSE	0.762846992	FALSE
Endosulfan sulfate	0.778172432	FALSE	0.762050534	FALSE
Endrin	0.804228091	FALSE	0.762846992	FALSE
Endrin aldehyde	0.786422975	FALSE	0.762322256	FALSE
Endrin ketone	9.272226937	TRUE	12595.67076	TRUE
gamma-BHC (Lindane)	0.744359413	FALSE	0.748071564	FALSE
Heptachlor	0.804048613	FALSE	0.749635589	FALSE
Heptachlor epoxide	0.766896379	FALSE	0.748658994	FALSE
DIOXINS (ug/kg)				
Total HxCDD	13.90006963	TRUE	393424.0502	TRUE
Total HxCDF	13.9060737	TRUE	708147.5752	TRUE

HERBICIDES (ug/kg)
OP PESTICIDES (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)

W-TEST FOR INORGANIC COMPOUNS IN SURFACE SOIL
SWMU 02
NAVAL STATION ROOSEVELT ROADS,
PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
INORGANICS (mg/kg)				
Aluminum	0.744034267	FALSE	0.962488422	TRUE
Antimony	0.890383573	FALSE	0.82404781	FALSE
Arsenic	0.940813259	TRUE	0.767527867	FALSE
Barium	1.297705456	TRUE	0.620994831	FALSE
Beryllium	0.991084989	TRUE	0.49056559	FALSE
Cadmium	0.917724496	FALSE	0.719036011	FALSE
Calcium	3.132036119	TRUE	0.728511181	FALSE
Chromium	0.956513575	TRUE	0.951552257	TRUE
Cobalt	0.955652865	TRUE	1.197886467	TRUE
Copper	0.972087083	TRUE	0.364889739	FALSE
Iron	3.165660782	TRUE	0.886500015	TRUE
Lead	0.949357222	TRUE	0.463702333	FALSE
Magnesium	37.25874565	TRUE	1.15320409	TRUE
Manganese	11.53235744	TRUE	3.736300128	TRUE
Mercury	1.011345039	TRUE	219.1360723	TRUE
Nickel	1.06700809	TRUE	0.890100519	FALSE
Potassium	2.664500147	TRUE	0.929585104	TRUE
Selenium	0.853148863	FALSE	0.563833556	FALSE
Sodium	28.3317036	TRUE	0.921247434	TRUE
Tin	5.146857792	TRUE	87.80202053	TRUE
Vanadium	2.055367318	TRUE	1.198313486	TRUE
Zinc	1.05287279	TRUE	0.636472507	FALSE
EP-TOX (ug/l)				
Lead	12.6963666	TRUE	16207.69998	TRUE

Summary of Subsurface Soil Positive Detections - Organic Compounds
SWMU 02
Naval Station Roosevelt Roads, Puerto Rico

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
VOLATILES (ug/kg)				
Acetone	0.829622166	FALSE	0.596371979	FALSE
Methylene chloride	0.726941776	FALSE	0.489538899	FALSE
2-Butanone	0.448536351	FALSE	0.322563452	FALSE
Benzene	0.735050181	FALSE	0.659771595	FALSE
4-Methyl-2-pentanone	0.743347373	FALSE	0.628303275	FALSE
Toluene	0.597062259	FALSE	0.526630546	FALSE
Ethylbenzene	0.754288981	FALSE	0.596136647	FALSE
m/p-xylene	0.992302338	TRUE	0.854015648	TRUE
o-Xylene	0.803963053	TRUE	0.697090698	FALSE
SEMIVOLATILES (ug/kg)				
2-Methylnaphthalene	0.913928523	TRUE	0.712485493	FALSE
Fluorene	0.808148792	FALSE	0.674331988	FALSE
Phenanthrene	0.914116529	TRUE	0.737389469	FALSE
Anthracene	0.857286887	FALSE	0.64389021	FALSE
Di-n-butylphthalate	0.871954812	TRUE	0.648726834	FALSE
Fluoranthene	0.793472691	FALSE	0.651107175	FALSE
Pyrene	0.788442636	FALSE	0.679709519	FALSE
Benzo(a)anthracene	0.808355475	FALSE	0.693350448	FALSE
Chrysene	0.808450962	FALSE	0.720171432	FALSE
Bis(2-ethylhexyl)phthalate	0.780103159	FALSE	0.432396594	FALSE
Benzo(b)fluoranthene	0.809936009	FALSE	0.717890478	FALSE
Benzo(k)fluoranthene	0.791746883	FALSE	0.689622008	FALSE
Benzo(a)pyrene	0.769117557	FALSE	0.616920898	FALSE
Indeno(1,2,3-cd)pyrene	0.807889982	FALSE	0.661190446	FALSE
Dibenzo(a,h)anthracene	0.811453482	FALSE	0.641169123	FALSE
Benzo(g,h,i)perylene	0.794781238	FALSE	0.627796735	FALSE
Carbazole	0.873631138	TRUE	0.649326306	FALSE

Summary of Subsurface Soil Positive Detections - Organic Compounds
SWMU 02
Naval Station Roosevelt Roads, Puerto Rico

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
PESTICIDES/PCBs (ug/kg)				
beta-BHC	0.893666745	TRUE	0.781536225	FALSE
delta-BHC	0.924897492	TRUE	0.798718517	FALSE
gamma-BHC (Lindane)	0.852607483	FALSE	0.847438409	FALSE
Heptachlor	0.946574843	TRUE	0.83022087	FALSE
Aldrin	0.9256075	TRUE	0.837946853	FALSE
Heptachlor epoxide	0.92224754	TRUE	0.836676698	FALSE
Endosulfan I	0.915488563	TRUE	0.784163169	FALSE
Dieldrin	0.742115688	FALSE	0.85651761	FALSE
4,4'-DDE	0.929625234	TRUE	0.845067902	FALSE
Endrin	0.947710356	TRUE	0.812544163	FALSE
Endosulfan II	0.862751277	FALSE	0.854786623	FALSE
4,4'-DDT	0.937360323	TRUE	0.810669522	FALSE
Methoxychlor	0.865216616	FALSE	0.846550563	FALSE
alpha-Chlordane	0.796121212	FALSE	0.833692502	FALSE
DIOXINS (ug/kg)				
Total TCDF	1.425459646	TRUE	1007.221711	TRUE
Total HxCDD	1.807908619	TRUE	2202.224472	TRUE

OP PESTICIDES (ug/kg)
HERBICIDES (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)

W-TEST FOR INORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 02
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Lognormal Distribution		Normal Distribution	
	W-Value	True/False	W-Value	True/False
INORGANICS, TOTAL (mg/kg)				
Aluminum	0.994342126	TRUE	0.946409911	TRUE
Antimony	0.910192069	TRUE	0.655262538	FALSE
Arsenic	0.945891292	TRUE	0.670781831	FALSE
Barium	0.921971696	TRUE	0.87878028	TRUE
Beryllium	0.933481548	TRUE	0.80353272	FALSE
Cadmium	0.867881833	TRUE	0.629147465	FALSE
Calcium	1.679793803	TRUE	0.762644799	TRUE
Chromium	0.859629581	FALSE	0.764831894	FALSE
Cobalt	0.923311738	TRUE	0.876302997	TRUE
Copper	0.04690043	FALSE	0.039776102	FALSE
Iron	1.345893334	TRUE	0.808208563	TRUE
Lead	0.247121543	FALSE	0.318643627	FALSE
Magnesium	4.867574574	TRUE	0.992451709	TRUE
Manganese	2.718816966	TRUE	0.953841622	TRUE
Mercury	0.8927925	TRUE	0.47790082	FALSE
Nickel	0.84122894	FALSE	0.537577284	FALSE
Potassium	1.578167577	TRUE	0.947482554	TRUE
Selenium	0.951228882	TRUE	0.824461417	FALSE
Sodium	1.978777229	TRUE	0.679159222	FALSE
Sulfide	1.378226425	TRUE	4.314614906	TRUE
Tin	0.652306515	FALSE	0.453097093	FALSE
Vanadium	0.767045523	FALSE	0.921046828	TRUE
Zinc	0.169136744	FALSE	0.195033057	FALSE

W-TEST FOR ORGANIC COMPOUNDS IN SEDIMENT
SWMU 02
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
VOLATILES (ug/kg)				
2-Butanone	0.778738079	FALSE	0.80277674	FALSE
SEMIVOLATILES (ug/kg)				
Anthracene	0.897372364	TRUE	0.866135775	TRUE
Benzo(a)anthracene	0.9576801	TRUE	0.747201995	FALSE
Benzo(a)pyrene	0.960561712	TRUE	0.743878713	FALSE
Benzo(b)fluoranthene	0.955335623	TRUE	0.538140411	FALSE
Benzo(k)fluoranthene	0.903409585	TRUE	0.960629373	TRUE
Bis(2-ethylhexyl)phthalate	0.849722701	FALSE	0.520797478	FALSE
Chrysene	0.952119583	TRUE	0.702705045	FALSE
Di-n-octylphthalate	0.914428387	TRUE	0.959822336	TRUE
Fluoranthene	0.924536362	TRUE	0.617886132	FALSE
Indeno(1,2,3-cd)pyrene	0.984245241	TRUE	0.923299759	TRUE
Phenanthrene	0.89850761	TRUE	0.813353102	FALSE
Pyrene	0.915242873	TRUE	0.602617298	FALSE
PESTICIDES/PCBS (ug/kg)				
4,4'-DDE	0.863191002	TRUE	0.689815729	FALSE
DIOXINS (ug/kg)				
Total HxCDD	0.935775886	TRUE	42.38241922	TRUE
Total HxCDF	1.058901999	TRUE	295.0131658	TRUE

HERBICIDES (ug/kg)
OP-PESTICIDES (ug/kg)
EXPLOSIVES (ug/kg)
ASBESTOS (ug/kg)

W-TEST FOR INORGANIC COMPOUNDS IN SEDIMENT
SWMU 02
NAAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
INORGANICS (mg/kg)				
Antimony	0.894936732	TRUE	0.943150356	TRUE
Arsenic	0.946187904	TRUE	0.819255973	FALSE
Barium	1.047528915	TRUE	0.696056521	FALSE
Beryllium	0.882404092	TRUE	0.88273326	TRUE
Cadmium	0.895118531	TRUE	0.784980196	FALSE
Chromium	0.937281851	TRUE	0.832054266	FALSE
Cobalt	1.022946662	TRUE	0.91813519	TRUE
Copper	0.878676997	TRUE	0.663052615	FALSE
Lead	0.847375853	FALSE	0.60976588	FALSE
Mercury	0.771849218	FALSE	0.472880128	FALSE
Nickel	0.950781694	TRUE	0.734558953	FALSE
Selenium	0.877333846	TRUE	0.625782794	FALSE
Sulfide	2.060089038	TRUE	0.664058268	FALSE
Tin	1.092491939	TRUE	0.827340741	TRUE
Vanadium	1.459013772	TRUE	0.894138133	TRUE
Zinc	0.919688261	TRUE	0.649502965	FALSE

SWMU 45

W-TEST FOR ORGANIC COMPOUNDS IN SEDIMENT
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
VOLATILES (ug/kg)				
2-Hexanone	0.855526392	FALSE	0.828215698	FALSE
4-Methyl-2-pentanone	0.875160712	FALSE	0.884236552	FALSE
Acetone	0.608582544	FALSE	0.534406901	FALSE
Toluene	0.512248611	FALSE	0.32200267	FALSE
SEMIVOLATILES (ug/kg)				
Acenaphthene	0.886606936	FALSE	0.85877197	FALSE
Benzo(a)anthracene	0.587512993	FALSE	0.362921909	FALSE
Benzo(a)pyrene	0.701202555	FALSE	0.865245675	FALSE
Benzo(g,h,i)perylene	0.704025465	FALSE	0.463357299	FALSE
Benzoic acid	0.687718579	FALSE	0.416304279	FALSE
Chrysene	0.787479818	FALSE	0.700227697	FALSE
Diethylphthalate	0.584978655	FALSE	0.393192504	FALSE
Di-n-butylphthalate	0.700668085	FALSE	0.430007529	FALSE
Phenol	0.521887374	FALSE	0.3309975	FALSE
Pyrene	0.506352923	FALSE	0.73427534	FALSE
PCBs (ug/kg)				
Aroclor-1260	0.626519705	FALSE	0.499248885	FALSE

W-TEST FOR INORGANIC COMPOUNDS IN SUBSURFACE SOIL
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
Inorganics, Total (mg/kg)				
Antimony	0.92712024	TRUE	0.849533637	FALSE
Arsenic	0.739514642	FALSE	0.928806385	TRUE
Barium	0.874355668	FALSE	0.69386702	FALSE
Beryllium	0.939612487	TRUE	60.04017295	TRUE
Cadmium	0.878100577	FALSE	0.850568441	FALSE
Chromium	0.899480602	FALSE	0.330083344	FALSE
Cobalt	0.871951463	FALSE	0.990456759	TRUE
Copper	1.186345324	TRUE	0.991640389	TRUE
Lead	0.93655598	TRUE	0.652546946	FALSE
Mercury	0.474105251	FALSE	0.374838001	FALSE
Nickel	0.88403024	FALSE	0.898815305	FALSE
Silver	0.890881879	FALSE	0.617839271	FALSE
Tin	0.946213761	TRUE	0.977715248	TRUE
Vanadium	0.953006153	TRUE	0.906785284	TRUE
Zinc	40.6398134	TRUE	20.85203904	TRUE

W-TEST FOR INORGANIC COMPOUNDS IN SEDIMENT
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
Inorganics (mg/kg)				
Antimony	0.915513721	TRUE	0.903493111	TRUE
Arsenic	0.900854931	TRUE	0.801532341	FALSE
Barium	0.963695302	TRUE	0.928387688	TRUE
Beryllium	0.882731948	TRUE	0.839196669	FALSE
Cadmium	0.668071443	FALSE	0.554124958	FALSE
Chromium	0.917908928	TRUE	0.908024038	TRUE
Cobalt	0.971432061	TRUE	0.881989782	TRUE
Copper	1.005734956	TRUE	0.944354726	TRUE
Lead	0.979334777	TRUE	0.948233444	TRUE
Mercury	0.614735482	FALSE	0.532002926	FALSE
Nickel	0.975812769	TRUE	0.944153478	TRUE
Selenium	0.66367638	FALSE	0.512381701	FALSE
Silver	0.771463307	FALSE	0.593093255	FALSE
Tin	0.98107793	TRUE	0.963500093	TRUE
Vanadium	0.825301874	FALSE	0.637752498	FALSE
Zinc	0.986887439	TRUE	0.978803732	TRUE

W-TEST FOR ORGANIC COMPOUNDS IN GROUNDWATER
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
VOLATILES (ug/l)				
Acetone	0.632308007	FALSE	0.593005263	FALSE
SEMIVOLATILES (ug/l)				
2,4-Dichlorophenol	0.389523287	FALSE	0.271838522	FALSE
Acenaphthene	0.435877783	FALSE	0.294984401	FALSE
Anthracene	0.346161855	FALSE	0.328549604	FALSE
Benzo(a)anthracene	0.389832593	FALSE	0.386437071	FALSE
Benzo(a)pyrene	0.376841978	FALSE	0.372526664	FALSE
Benzoic acid	0.280956835	FALSE	0.235433379	FALSE
Benzyl alcohol	0.386341322	FALSE	0.275781066	FALSE
Bis(2-ethylhexyl)phthalate	0.637603848	FALSE	0.552377429	FALSE
Chrysene	0.304636164	FALSE	0.2752281	FALSE
Diethylphthalate	0.435344743	FALSE	0.389471549	FALSE
Dimethylphthalate	0.49987279	FALSE	0.380470116	FALSE
Diphenylamine	0.282576434	FALSE	0.249900038	FALSE
m&p Cresol	0.487484539	FALSE	0.32308427	FALSE
o-Cresol	0.44977702	FALSE	0.313055571	FALSE
Phenol	0.498167058	FALSE	0.312216435	FALSE
Pyrene	0.442844996	FALSE	0.400882407	FALSE
PCBs (ug/l)				
Aroclor-1260	0.309033945	FALSE	0.239299459	FALSE

W-TEST FOR ORGANIC COMPOUNDS IN GROUNDWATER
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
Inorganics, Total (ug/l)				
Antimony	0.826362225	FALSE	0.894465935	TRUE
Arsenic	0.959917664	TRUE	0.545990489	FALSE
Barium	0.949286495	TRUE	0.808034838	FALSE
Cadmium	0.727369156	FALSE	0.478214016	FALSE
Chromium	0.913216766	FALSE	0.76412168	FALSE
Cobalt	0.906304185	TRUE	2.541131818	TRUE
Copper	1.00189084	TRUE	0.776387553	FALSE
Lead	0.804009082	FALSE	0.680366737	FALSE
Mercury	0.570060695	FALSE	0.510210005	FALSE
Nickel	0.763482703	FALSE	0.646166109	FALSE
Selenium	0.717778922	FALSE	0.647502042	FALSE
Silver	0.608595016	FALSE	0.608595016	FALSE
Tin	0.655812055	FALSE	0.598225454	FALSE
Vanadium	0.922823373	TRUE	0.877780717	FALSE
Zinc	1.005459321	TRUE	0.870375825	FALSE

W-TEST FOR INORGANICS (DISSOLVED) IN GROUNDWATER
SWMU 45 (BUILDING 38 EXTERIOR)
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	W Statistic Log W-Value	Logarithmically Distributed True/False	W Statistic Normal W-Value	Normally Distributed True/False
Inorganics, Dissolved (ug/l)				
Antimony	0.658828317	FALSE	0.66322452	FALSE
Arsenic	0.924074869	TRUE	0.688925137	FALSE
Barium	0.93889192	TRUE	0.719392876	FALSE
Cadmium	0.727921636	FALSE	0.607870413	FALSE
Chromium	0.751184399	FALSE	0.473059376	FALSE
Cobalt	0.334408651	FALSE	0.294874832	FALSE
Copper	0.340840519	FALSE	0.313044484	FALSE
Lead	0.819298641	FALSE	0.575950802	FALSE
Mercury	0.496923653	FALSE	0.430229662	FALSE
Tin	0.508540379	FALSE	0.515043023	FALSE
Vanadium	0.792177143	FALSE	0.59766583	FALSE
Zinc	0.866464719	FALSE	0.680289003	FALSE

APPENDIX I
RISK ASSESSMENT CALCULATIONS

SWMU 1

ON-SITE WORKERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SURFACE SOIL IN SWMU 1, OU3
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 soil (mg/kg)	CS	
IR	Ingestion Rate (mg/d)	100	
CF	Conversion factor (kg/mg)	0.000001	
FI	Fraction of soil ingested from site	0.5	
EF	Exposure Frequency (d/yr)	250	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

				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
Benzo(a)anthracene	0.49721	0.73	NA	8.7E-08	6.3E-08	5.8%	2.4E-07	--	--
Benzo(b)fluoranthene	0.56977	0.73	NA	1.0E-07	7.3E-08	6.6%	2.8E-07	--	--
Benzo(a)pyrene	0.47565	7.3	NA	8.3E-08	6.1E-07	55.3%	2.3E-07	--	--
Dibenz(a,h)anthracene	0.091	7.3	NA	1.6E-08	1.2E-07	10.6%	4.5E-08	--	--
DDT, 4,4'-	0.4915	0.34	0.0005	8.6E-08	2.9E-08	2.7%	2.4E-07	0.00	0.3%
Aluminum	28053.73	NA	1	4.9E-03	--	--	1.4E-02	0.01	8.6%
Antimony	4.05	NA	0.0004	7.1E-07	--	--	2.0E-06	0.00	3.1%
Arsenic	0.8	1.5	0.0003	1.4E-07	2.1E-07	19.1%	3.9E-07	0.00	0.8%
Cadmium (soil/sediment)	11.52	NA	0.001	2.0E-06	--	--	5.6E-06	0.01	3.5%
Chromium	27.16	NA	0.003	4.7E-06	--	--	1.3E-05	0.00	2.8%
Copper	109.79	NA	0.04	1.9E-05	--	--	5.4E-05	0.00	0.8%
Iron	54232.03	NA	0.3	9.5E-03	--	--	2.7E-02	0.09	55.4%
Manganese (non-food)	1111.24	NA	0.02	1.9E-04	--	--	5.4E-04	0.03	17.0%
Mercury	0.07	NA	NA	1.2E-08	--	--	3.4E-08	--	--
Vanadium	171.97	NA	0.007	3.0E-05	--	--	8.4E-05	0.01	7.5%
				Total ILCR:	1.1E-06	100.0%	HI:	0.16	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
DERMAL CONTACT WITH SURFACE SOIL IN SWMU 1, OU3
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 soil (mg/kg)	CS	
CF	Conversion factor (kg/mg)	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
A	Skin surface area available for contact (cm2)	4100	
EF	Exposure Frequency (d/yr)	250	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

								Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Benzo(a)anthracene	0.49721	0.1	0.73	NA	0.5	1.46	NA	7.1E-07	1.0E-06	6.9%	2.0E-06	--	--
Benzo(b)fluoranthene	0.56977	0.1	0.73	NA	0.5	1.46	NA	8.2E-07	1.2E-06	7.9%	2.3E-06	--	--
Benzo(a)pyrene	0.47565	0.1	7.3	NA	0.5	14.6	NA	6.8E-07	9.9E-06	65.7%	1.9E-06	--	--
Dibenz(a,h)anthracene	0.091	0.1	7.3	NA	0.5	14.6	NA	1.3E-07	1.9E-06	12.6%	3.7E-07	--	--
DDT, 4,4'-	0.4915	0.1	0.34	0.0005	0.5	0.68	0.00025	7.0E-07	4.8E-07	3.2%	2.0E-06	0.01	0.7%
Aluminum	28053.73	0.01	NA	1	0.2	NA	0.2	4.0E-03	--	--	1.1E-02	0.06	5.0%
Antimony	4.05	0.01	NA	0.0004	0.2	NA	0.00008	5.8E-07	--	--	1.6E-06	0.02	1.8%
Arsenic	0.8	0.032	1.5	0.0003	0.95	1.578947368	0.000285	3.7E-07	5.8E-07	3.8%	1.0E-06	0.00	0.3%
Cadmium (soil/sediment)	11.52	0.01	NA	0.001	0.025	NA	0.000025	1.7E-06	--	--	4.6E-06	0.18	16.3%
Chromium	27.16	0.01	NA	0.003	1	NA	0.003	3.9E-06	--	--	1.1E-05	0.00	0.3%
Copper	109.79	0.01	NA	0.04	0.6	NA	0.024	1.6E-05	--	--	4.4E-05	0.00	0.2%
Iron	54232.03	0.01	NA	0.3	0.2	NA	0.06	7.8E-03	--	--	2.2E-02	0.36	31.9%
Manganese (non-food)	1111.24	0.01	NA	0.02	0.05	NA	0.001	1.6E-04	--	--	4.5E-04	0.45	39.2%
Mercury	0.07	0.01	NA	NA	0.15	NA	NA	1.0E-08	--	--	2.8E-08	--	--
Vanadium	171.97	0.01	NA	0.007	0.2	NA	0.0014	2.5E-05	--	--	6.9E-05	0.05	4.3%
								Total ILCR:	1.5E-05	100.0%	HI:	1.14	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM SURFACE SOIL IN SWMU 1, OU3
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	On-site 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)	250	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

					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
Benzo(a)anthracene	0.49721	3.77E-10	NA	NA	1.3E-11	--	--	3.7E-11	--	--
Benzo(b)fluoranthene	0.56977	4.32E-10	NA	NA	1.5E-11	--	--	4.2E-11	--	--
Benzo(a)pyrene	0.47565	3.60E-10	3.1	NA	1.3E-11	3.9E-11	0.1%	3.5E-11	--	--
Dibenz(a,h)anthracene	0.091	6.89E-11	NA	NA	2.4E-12	--	--	6.7E-12	--	--
DDT, 4,4'-	0.4915	3.72E-10	0.34	NA	1.3E-11	4.4E-12	0.0%	3.6E-11	--	--
Aluminum	28053.73	2.13E-05	NA	0.001	7.4E-07	--	--	2.1E-06	0.00	26.3%
Antimony	4.05	3.07E-09	NA	NA	1.1E-10	--	--	3.0E-10	--	--
Arsenic	0.8	6.06E-10	15.1	NA	2.1E-11	3.2E-10	1.0%	5.9E-11	--	--
Cadmium (soil/sediment)	11.52	8.73E-09	6.3	NA	3.0E-10	1.9E-09	6.0%	8.5E-10	--	--
Chromium	27.16	2.06E-08	41	0.00003	7.2E-10	2.9E-08	92.8%	2.0E-09	0.00	0.8%
Copper	109.79	8.32E-08	NA	NA	2.9E-09	--	--	8.1E-09	--	--
Iron	54232.03	4.11E-05	NA	NA	1.4E-06	--	--	4.0E-06	--	--
Manganese (non-food)	1111.24	8.42E-07	NA	0.0000143	2.9E-08	--	--	8.2E-08	0.01	72.9%
Mercury	0.07	5.30E-11	NA	0.000086	1.9E-12	--	--	5.2E-12	0.00	0.0%
Vanadium	171.97	1.30E-07	NA	NA	4.6E-09	--	--	1.3E-08	--	--
					Total ILCR:	3.2E-08	100.0%	HI:	0.01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SURFACE WATER AT SWMU 1, OU3
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)	8	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

				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
Bis(2-ethylhexyl)phthalate	0.0038	0.014	0.02	1.1E-06	1.5E-08	0.0%	3.1E-06	0.00	0.0%
Di-n-octylphthalate	0.00298	NA	0.02	8.7E-07	--	--	2.4E-06	0.00	0.0%
Arsenic	0.08155	1.5	0.0003	2.4E-05	3.6E-05	100.0%	6.6E-05	0.22	19.3%
Thallium	0.07959	NA	0.00007	2.3E-05	--	--	6.5E-05	0.93	80.7%
Zinc	0.01337	NA	0.3	3.9E-06	--	--	1.1E-05	0.00	0.0%
				Total ILCR:	3.6E-05	100.0%	HI:	1.15	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
DERMAL CONTACT WITH SURFACE WATER AT SWMU 1, OU3
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)	4,100	
EF	Exposure frequency (d/yr)	52	
ED	Exposure duration (yrs)	25	
ET	Exposure time (hrs/day)	8	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	
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)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Bis(2-ethylhexyl)phthalate	0.0038	0.033	0.014	0.02	0.5	0.028	0.01	3.0E-06	8.4E-08	0.9%	8.4E-06	0.00	0.1%
Di-n-octylphthalate	0.00298	0.033	NA	0.02	0.5	NA	0.01	2.3E-06	--	--	6.6E-06	0.00	0.1%
Arsenic	0.08155	0.003	1.5	0.0003	0.95	1.5789474	0.000285	5.8E-06	9.2E-06	99.1%	1.6E-05	0.06	4.8%
Thallium	0.07959	0.003	NA	0.00007	0.2	NA	0.000014	5.7E-06	--	--	1.6E-05	1.14	95.1%
Zinc	0.01337	0.003	NA	0.3	0.25	NA	0.075	9.6E-07	--	--	2.7E-06	0.00	0.0%
								Total ILCR:	9.3E-06	100.0%	HI:	1.20	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SEDIMENT IN SWMU 1, OU3
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)	0.000001	
FI	Fraction of sediment ingested from site	0.5	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

				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
Benzo(a)pyrene	0.16	7.3	NA	5.8E-09	4.2E-08	0.2%	1.6E-08	--	--
BHC, delta-	0.31409	1.8	NA	1.1E-08	2.1E-08	0.1%	3.2E-08	--	--
DDE, 4,4'-	0.33836	0.34	NA	1.2E-08	4.2E-09	0.0%	3.4E-08	--	--
DDT, 4,4'-	0.13	0.34	0.0005	4.7E-09	1.6E-09	0.0%	1.3E-08	0.00	0.2%
Aroclor-1260	0.44	2	NA	1.6E-08	3.2E-08	0.2%	4.5E-08	--	--
HxCDD, total	0.00162	150000	NA	5.9E-11	8.8E-06	46.0%	1.6E-10	--	--
TCDF, total	0.0001	150000	NA	3.6E-12	5.5E-07	2.8%	1.0E-11	--	--
PeCDF, total	0.00023	150000	NA	8.4E-12	1.3E-06	6.5%	2.3E-11	--	--
HxCDF, total	0.00144	150000	NA	5.2E-11	7.9E-06	40.9%	1.5E-10	--	--
Antimony	10.71	NA	0.0004	3.9E-07	--	--	1.1E-06	0.00	23.3%
Arsenic	11.5	1.5	0.0003	4.2E-07	6.3E-07	3.3%	1.2E-06	0.00	33.4%
Chromium	36.77	NA	0.003	1.3E-06	--	--	3.7E-06	0.00	10.7%
Copper	273.76	NA	0.04	9.9E-06	--	--	2.8E-05	0.00	6.0%
Lead	222.59	NA	NA	8.1E-06	--	--	2.3E-05	--	--
Mercury	0.21	NA	NA	7.6E-09	--	--	2.1E-08	--	--
Nickel	21.29	NA	0.02	7.7E-07	--	--	2.2E-06	0.00	0.9%
Selenium	25.01	NA	0.005	9.1E-07	--	--	2.5E-06	0.00	4.4%
Vanadium	169.5	NA	0.007	6.2E-06	--	--	1.7E-05	0.00	21.1%
Zinc	437.52	NA	0.3	1.6E-05	--	--	4.5E-05	0.00	1.3%
				Total ILCR:	1.9E-05	100.0%	HI:	0.01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
DERMAL CONTACT WITH SEDIMENT IN SWMU 1, OU3
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)	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
A	Skin surface area available for contact (cm2)	4100	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

								Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Benzo(a)pyrene	0.16	0.1	7.3	NA	0.5	14.6	NA	4.8E-08	7.0E-07	1.3%	1.3E-07	--	--
BHC, delta-	0.31409	0.1	1.8	NA	0.5	3.6	NA	9.4E-08	3.4E-07	0.6%	2.6E-07	--	--
DDE, 4,4'-	0.33836	0.1	0.34	NA	0.5	0.68	NA	1.0E-07	6.9E-08	0.1%	2.8E-07	--	--
DDT, 4,4'-	0.13	0.1	0.34	0.0005	0.5	0.68	0.00025	3.9E-08	2.6E-08	0.0%	1.1E-07	0.00	1.1%
Aroclor-1260	0.44	0.06	2	NA	0.89	2.24719101	NA	7.9E-08	1.8E-07	0.3%	2.2E-07	--	--
HxCDD, total	0.00162	0.03	150000	NA	0.9	166666.667	NA	1.4E-10	2.4E-05	45.1%	4.1E-10	--	--
TCDF, total	0.0001	0.03	150000	NA	0.9	166666.667	NA	8.9E-12	1.5E-06	2.8%	2.5E-11	--	--
PeCDF, total	0.00023	0.03	150000	NA	0.9	166666.667	NA	2.1E-11	3.4E-06	6.4%	5.8E-11	--	--
HxCDF, total	0.00144	0.03	150000	NA	0.9	166666.667	NA	1.3E-10	2.1E-05	40.1%	3.6E-10	--	--
Antimony	10.71	0.01	NA	0.0004	0.2	NA	0.00008	3.2E-07	--	--	8.9E-07	0.01	28.6%
Arsenic	11.5	0.032	1.5	0.0003	0.95	1.57894737	0.000285	1.1E-06	1.7E-06	3.2%	3.1E-06	0.01	27.6%
Chromium	36.77	0.01	NA	0.003	1	NA	0.003	1.1E-06	--	--	3.1E-06	0.00	2.6%
Copper	273.76	0.01	NA	0.04	0.6	NA	0.024	8.2E-06	--	--	2.3E-05	0.00	2.4%
Lead	222.59	0.01	NA	NA	0.2	NA	NA	6.6E-06	--	--	1.9E-05	--	--
Mercury	0.21	0.01	NA	NA	0.15	NA	NA	6.3E-09	--	--	1.8E-08	--	--
Nickel	21.29	0.01	NA	0.02	0.043	NA	0.00086	6.3E-07	--	--	1.8E-06	0.00	5.3%
Selenium	25.01	0.01	NA	0.005	0.2	NA	0.001	7.5E-07	--	--	2.1E-06	0.00	5.3%
Vanadium	169.5	0.01	NA	0.007	0.2	NA	0.0014	5.1E-06	--	--	1.4E-05	0.01	25.8%
Zinc	437.52	0.01	NA	0.3	0.25	NA	0.075	1.3E-05	--	--	3.7E-05	0.00	1.2%
								Total ILCR:	5.4E-05	100.0%	HI:	0.04	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SURFACE SOIL IN SWMU 1, OU 3
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	Adolescent	
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	100	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
FI	Fraction of soil ingested from site	0.5	0.5	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				Adult						Adolescent					
				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
Benzo(a)anthracene	0.49721	0.73	NA	2.8E-10	2.0E-10	5.8%	4.9E-09	--	--	1.6E-09	1.2E-09	5.8%	2.8E-08	--	--
Benzo(b)fluoranthene	0.56977	0.73	NA	3.2E-10	2.3E-10	6.6%	5.6E-09	--	--	1.8E-09	1.3E-09	6.6%	3.2E-08	--	--
Benzo(a)pyrene	0.47565	7.3	NA	2.7E-10	1.9E-09	55.3%	4.7E-09	--	--	1.5E-09	1.1E-08	55.3%	2.6E-08	--	--
Dibenz(a,h)anthracene	0.091	7.3	NA	5.1E-11	3.7E-10	10.6%	8.9E-10	--	--	2.9E-10	2.1E-09	10.6%	5.1E-09	--	--
DDT, 4,4'-	0.4915	0.34	0.0005	2.7E-10	9.3E-11	2.7%	4.8E-09	0.00	0.3%	1.6E-09	5.3E-10	2.7%	2.7E-08	0.00	0.3%
Aluminum	28053.73	NA	1	1.6E-05	--	--	2.7E-04	0.00	8.6%	8.9E-05	--	--	1.6E-03	0.00	8.6%
Antimony	4.05	NA	0.0004	2.3E-09	--	--	4.0E-08	0.00	3.1%	1.3E-08	--	--	2.2E-07	0.00	3.1%
Arsenic	0.8	1.5	0.0003	4.5E-10	6.7E-10	19.1%	7.8E-09	0.00	0.8%	2.5E-09	3.8E-09	19.1%	4.4E-08	0.00	0.8%
Cadmium (soil/sediment)	11.52	NA	0.001	6.4E-09	--	--	1.1E-07	0.00	3.5%	3.7E-08	--	--	6.4E-07	0.00	3.5%
Chromium	27.16	NA	0.003	1.5E-08	--	--	2.7E-07	0.00	2.8%	8.6E-08	--	--	1.5E-06	0.00	2.8%
Copper	109.79	NA	0.04	6.1E-08	--	--	1.1E-06	0.00	0.8%	3.5E-07	--	--	6.1E-06	0.00	0.8%
Iron	54232.03	NA	0.3	3.0E-05	--	--	5.3E-04	0.00	55.4%	1.7E-04	--	--	3.0E-03	0.01	55.4%
Manganese (non-food)	1111.24	NA	0.02	6.2E-07	--	--	1.1E-05	0.00	17.0%	3.5E-06	--	--	6.2E-05	0.00	17.0%
Mercury	0.07	NA	NA	3.9E-11	--	--	6.8E-10	--	--	2.2E-10	--	--	3.9E-09	--	--
Vanadium	171.97	NA	0.007	9.6E-08	--	--	1.7E-06	0.00	7.5%	5.5E-07	--	--	9.6E-06	0.00	7.5%
				Total ILCR:	3.5E-09	100.0%	HI:	0.00	100.0%	Total ILCR:	2.0E-08	100.0%	HI:	0.02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
DERMAL CONTACT WITH SURFACE SOIL IN SWMU 1, OU 3
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	Adult	Adolescent	
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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
A	Skin surface area available for contact (cm2)	5300	3925	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

								Adult						Adolescent					
								Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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
Benzo(a)anthracene	0.49721	0.1	0.73	NA	0.5	1.46	NA	2.9E-09	4.3E-09	6.9%	5.2E-08	--	--	1.2E-08	1.8E-08	6.9%	2.2E-07	--	--
Benzo(b)fluoranthene	0.56977	0.1	0.73	NA	0.5	1.46	NA	3.4E-09	4.9E-09	7.9%	5.9E-08	--	--	1.4E-08	2.1E-08	7.9%	2.5E-07	--	--
Benzo(a)pyrene	0.47565	0.1	7.3	NA	0.5	14.6	NA	2.8E-09	4.1E-08	65.7%	4.9E-08	--	--	1.2E-08	1.7E-07	65.7%	2.1E-07	--	--
Dibenz(a,h)anthracene	0.091	0.1	7.3	NA	0.5	14.6	NA	5.4E-10	7.9E-09	12.6%	9.4E-09	--	--	2.3E-09	3.3E-08	12.6%	4.0E-08	--	--
DDT, 4,4'-	0.4915	0.1	0.34	0.0005	0.5	0.68	0.00025	2.9E-09	2.0E-09	3.2%	5.1E-08	0.00	0.7%	1.2E-08	8.3E-09	3.2%	2.1E-07	0.00	0.7%
Aluminum	28053.73	0.01	NA	1	0.2	NA	0.2	1.7E-05	--	--	2.9E-04	0.00	5.0%	7.0E-05	--	--	1.2E-03	0.01	5.0%
Antimony	4.05	0.01	NA	0.0004	0.2	NA	0.00008	2.4E-09	--	--	4.2E-08	0.00	1.8%	1.0E-08	--	--	1.8E-07	0.00	1.8%
Arsenic	0.8	0.032	1.5	0.0003	0.95	1.578947368	0.000285	1.5E-09	2.4E-09	3.8%	2.7E-08	0.00	0.3%	6.4E-09	1.0E-08	3.8%	1.1E-07	0.00	0.3%
Cadmium (soil/sediment)	11.52	0.01	NA	0.001	0.025	NA	0.000025	6.8E-09	--	--	1.2E-07	0.00	16.3%	2.9E-08	--	--	5.0E-07	0.02	16.3%
Chromium	27.16	0.01	NA	0.003	1	NA	0.003	1.6E-08	--	--	2.8E-07	0.00	0.3%	6.8E-08	--	--	1.2E-06	0.00	0.3%
Copper	109.79	0.01	NA	0.04	0.6	NA	0.024	6.5E-08	--	--	1.1E-06	0.00	0.2%	2.7E-07	--	--	4.8E-06	0.00	0.2%
Iron	54232.03	0.01	NA	0.3	0.2	NA	0.06	3.2E-05	--	--	5.6E-04	0.01	31.9%	1.4E-04	--	--	2.4E-03	0.04	31.9%
Manganese (non-food)	1111.24	0.01	NA	0.02	0.05	NA	0.001	6.6E-07	--	--	1.2E-05	0.01	39.2%	2.8E-06	--	--	4.8E-05	0.05	39.2%
Mercury	0.07	0.01	NA	NA	0.15	NA	NA	4.1E-11	--	--	7.3E-10	--	--	1.7E-10	--	--	3.1E-09	--	--
Vanadium	171.97	0.01	NA	0.007	0.2	NA	0.0014	1.0E-07	--	--	1.8E-06	0.00	4.3%	4.3E-07	--	--	7.5E-06	0.01	4.3%
								Total ILCR:	6.3E-08	100.0%	HI:	0.03	100.0%	Total ILCR:	2.6E-07	100.0%	HI:	0.12	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM SURFACE SOIL IN SWMU 1, OU 3
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	Adult	Adolescent	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFi	Inhalation cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDi	Inhalation reference dose (mg/kg/d)	CS	CS	
Ca	Concentration of chemical in air as fugitive dusts (mg/m3)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
PEF	Particulate emission factor (m3/kg)	1.32E+09	1.32E+09	
RR	Respiration rate (m3/hr)	0.83	0.83	
ET	Exposure time (hrs/d)	1	1	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

					Adult						Adolescent					
					Carcinogens			Noncarcinogens			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	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Benzo(a)anthracene	0.49721	3.77E-10	NA	NA	3.5E-15	--	--	6.1E-14	--	--	2.0E-14	--	--	3.5E-13	--	--
Benzo(b)fluoranthene	0.56977	4.32E-10	NA	NA	4.0E-15	--	--	7.0E-14	--	--	2.3E-14	--	--	4.0E-13	--	--
Benzo(a)pyrene	0.47565	3.60E-10	3.1	NA	3.3E-15	1.0E-14	0.1%	5.9E-14	--	--	1.9E-14	5.9E-14	0.1%	3.3E-13	--	--
Dibenz(a,h)anthracene	0.091	6.89E-11	NA	NA	6.4E-16	--	--	1.1E-14	--	--	3.6E-15	--	--	6.4E-14	--	--
DDT, 4,4'-	0.4915	3.72E-10	0.34	NA	3.5E-15	1.2E-15	0.0%	6.0E-14	--	--	2.0E-14	6.7E-15	0.0%	3.4E-13	--	--
Aluminum	28053.73	2.13E-05	NA	0.001	2.0E-10	--	--	3.5E-09	0.00	26.3%	1.1E-09	--	--	2.0E-08	0.00	26.3%
Antimony	4.05	3.07E-09	NA	NA	2.8E-14	--	--	5.0E-13	--	--	1.6E-13	--	--	2.8E-12	--	--
Arsenic	0.8	6.06E-10	15.1	NA	5.6E-15	8.5E-14	1.0%	9.8E-14	--	--	3.2E-14	4.8E-13	1.0%	5.6E-13	--	--
Cadmium (soil/sediment)	11.52	8.73E-09	6.3	NA	8.1E-14	5.1E-13	6.0%	1.4E-12	--	--	4.6E-13	2.9E-12	6.0%	8.0E-12	--	--
Chromium	27.16	2.06E-08	41	0.00003	1.9E-13	7.8E-12	92.8%	3.3E-12	0.00	0.8%	1.1E-12	4.4E-11	92.8%	1.9E-11	0.00	0.8%
Copper	109.79	8.32E-08	NA	NA	7.7E-13	--	--	1.4E-11	--	--	4.4E-12	--	--	7.7E-11	--	--
Iron	54232.03	4.11E-05	NA	NA	3.8E-10	--	--	6.7E-09	--	--	2.2E-09	--	--	3.8E-08	--	--
Manganese (non-food)	1111.24	8.42E-07	NA	1.43E-05	7.8E-12	--	--	1.4E-10	0.00	72.9%	4.4E-11	--	--	7.8E-10	0.00	72.9%
Mercury	0.07	5.30E-11	NA	0.000086	4.9E-16	--	--	8.6E-15	0.00	0.0%	2.8E-15	--	--	4.9E-14	0.00	0.0%
Vanadium	171.97	1.30E-07	NA	NA	1.2E-12	--	--	2.1E-11	--	--	6.9E-12	--	--	1.2E-10	--	--
					Total ILCR:	8.4E-12	100.0%	HI:	0.00	100.0%	Total ILCR:	4.8E-11	100.0%	HI:	0.00	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SURFACE WATER IN SWMU 1, OU3
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL WEAPONS STATION YORKTOWN - YORKTOWN, VIRGINIA

CDI (mg/kg/d) = (Cw*IR*ET*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Adult	Adolescent	
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)	2.6	2.6	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				Adult						Adolescent					
				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
Bis(2-ethylhexyl)phthalate	0.0038	0.014	0.02	5.5E-09	7.7E-11	0.0%	9.7E-08	0.00	0.0%	3.1E-08	4.4E-10	0.0%	5.5E-07	0.00	0.0%
Di-n-octylphthalate	0.00298	NA	0.02	4.3E-09	--	--	7.6E-08	0.00	0.0%	2.5E-08	--	--	4.3E-07	0.00	0.0%
Arsenic	0.08155	1.5	0.0003	1.2E-07	1.8E-07	100.0%	2.1E-06	0.01	19.3%	6.7E-07	1.0E-06	100.0%	1.2E-05	0.04	19.3%
Thallium	0.07959	NA	0.00007	1.2E-07	--	--	2.0E-06	0.03	80.7%	6.6E-07	--	--	1.1E-05	0.16	80.7%
Zinc	0.01337	NA	0.3	1.9E-08	--	--	3.4E-07	0.00	0.0%	1.1E-07	--	--	1.9E-06	0.00	0.0%
				Total ILCR:	1.8E-07	100.0%	HI:	0.04	100.0%	Total ILCR:	1.0E-06	100.0%	HI:	0.20	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
DERMAL CONTACT WITH SURFACE WATER AT SWMU1, OU3
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL WEAPONS STATION YORKTOWN - YORKTOWN, VIRGINIA

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	Adolescent	
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	3,925	
EF	Exposure frequency (d/yr)	5	15	
ED	Exposure duration (yrs)	4	4	
ET	Exposure time (hrs/day)	2.6	2.6	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25,550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	
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						Adolescent					
								Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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
Bis(2-ethylhexyl)phthalate	0.0038	0.033	0.014	0.02	0.5	0.028	0.01	2.1E-08	5.9E-10	0.9%	3.7E-07	0.00	0.1%	8.1E-08	2.3E-09	0.9%	1.4E-06	0.00	0.1%
Di-n-octylphthalate	0.00298	0.033	NA	0.02	0.5	NA	0.01	1.7E-08	--	--	2.9E-07	0.00	0.1%	6.4E-08	--	--	1.1E-06	0.00	0.1%
Arsenic	0.08155	0.003	1.5	0.0003	0.95	1.5789474	0.000285	4.1E-08	6.5E-08	99.1%	7.2E-07	0.00	4.8%	1.6E-07	2.5E-07	99.1%	2.8E-06	0.01	4.8%
Thallium	0.07959	0.003	NA	0.00007	0.2	NA	0.000014	4.0E-08	--	--	7.0E-07	0.05	95.1%	1.5E-07	--	--	2.7E-06	0.19	95.1%
Zinc	0.01337	0.003	NA	0.3	0.25	NA	0.075	6.8E-09	--	--	1.2E-07	0.00	0.0%	2.6E-08	--	--	4.5E-07	0.00	0.0%
								Total ILCR:	6.6E-08	100.0%	HI:	0.05	100.0%	Total ILCR:	2.5E-07	100.0%	HI:	0.20	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SEDIMENT IN SWMU 1, OU 3
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	Adolescent	
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 sediment (mg/kg)	CS	CS	
IR	Ingestion Rate (mg/d)	100	100	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
FI	Fraction of sediment ingested from site	0.5	0.5	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				Adult						Adolescent					
				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
Benzo(a)pyrene	0.16	7.3	NA	8.9E-11	6.5E-10	0.2%	1.6E-09	--	--	5.1E-10	3.7E-09	0.2%	8.9E-09	--	--
BHC, delta-	0.31409	1.8	NA	1.8E-10	3.2E-10	0.1%	3.1E-09	--	--	1.0E-09	1.8E-09	0.1%	1.7E-08	--	--
DDE, 4,4'-	0.33836	0.34	NA	1.9E-10	6.4E-11	0.0%	3.3E-09	--	--	1.1E-09	3.7E-10	0.0%	1.9E-08	--	--
DDT, 4,4'-	0.13	0.34	0.0005	7.3E-11	2.5E-11	0.0%	1.3E-09	0.00	0.2%	4.1E-10	1.4E-10	0.0%	7.2E-09	0.00	0.2%
Aroclor-1260	0.44	2	NA	2.5E-10	4.9E-10	0.2%	4.3E-09	--	--	1.4E-09	2.8E-09	0.2%	2.4E-08	--	--
HxCDD, total	0.00162	150000	NA	9.1E-13	1.4E-07	46.0%	1.6E-11	--	--	5.1E-12	7.7E-07	46.0%	9.0E-11	--	--
TCDF, total	0.0001	150000	NA	5.6E-14	8.4E-09	2.8%	9.8E-13	--	--	3.2E-13	4.8E-08	2.8%	5.6E-12	--	--
PeCDF, total	0.00023	150000	NA	1.3E-13	1.9E-08	6.5%	2.3E-12	--	--	7.3E-13	1.1E-07	6.5%	1.3E-11	--	--
HxCDF, total	0.00144	150000	NA	8.1E-13	1.2E-07	40.9%	1.4E-11	--	--	4.6E-12	6.9E-07	40.9%	8.0E-11	--	--
Antimony	10.71	NA	0.0004	6.0E-09	--	--	1.0E-07	0.00	23.0%	3.4E-08	--	--	5.9E-07	0.00	23.0%
Arsenic	11.5	1.5	0.0003	6.4E-09	9.6E-09	3.3%	1.1E-07	0.00	33.0%	3.6E-08	5.5E-08	3.3%	6.4E-07	0.00	33.0%
Chromium	36.77	NA	0.003	2.1E-08	--	--	3.6E-07	0.00	10.5%	1.2E-07	--	--	2.0E-06	0.00	10.5%
Copper	273.76	NA	0.04	1.5E-07	--	--	2.7E-06	0.00	5.9%	8.7E-07	--	--	1.5E-05	0.00	5.9%
Lead	222.59	NA	NA	1.2E-07	--	--	2.2E-06	--	--	7.1E-07	--	--	1.2E-05	--	--
Mercury	0.21	NA	NA	1.2E-10	--	--	2.1E-09	--	--	6.7E-10	--	--	1.2E-08	--	--
Nickel	21.29	NA	0.02	1.2E-08	--	--	2.1E-07	0.00	0.9%	6.8E-08	--	--	1.2E-06	0.00	0.9%
Selenium	25.01	NA	0.005	1.4E-08	--	--	2.4E-07	0.00	4.3%	7.9E-08	--	--	1.4E-06	0.00	4.3%
Vanadium	169.5	NA	0.007	9.5E-08	--	--	1.7E-06	0.00	20.8%	5.4E-07	--	--	9.4E-06	0.00	20.8%
Zinc	437.52	NA	0.3	2.4E-07	--	--	4.3E-06	0.00	1.3%	1.4E-06	--	--	2.4E-05	0.00	1.3%
				Total ILCR:	3.0E-07	100.0%	HI:	0.00	100.0%	Total ILCR:	1.7E-06	100.0%	HI:	0.01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
DERMAL CONTACT WITH SEDIMENT IN SWMU 1, OU 3
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	Adult	Adolescent	
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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
A	Skin surface area available for contact (cm2)	5300	3925	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

								Adult						Adolescent					
								Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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
Benzo(a)pyrene	0.16	0.1	7.3	NA	0.5	14.6	NA	9.5E-10	1.4E-08	1.3%	1.7E-08	--	--	4.0E-09	5.8E-08	1.3%	7.0E-08	--	--
BHC, delta-	0.31409	0.1	1.8	NA	0.5	3.6	NA	1.9E-09	6.7E-09	0.6%	3.3E-08	--	--	7.8E-09	2.8E-08	0.6%	1.4E-07	--	--
DDE, 4,4'-	0.33836	0.1	0.34	NA	0.5	0.68	NA	2.0E-09	1.4E-09	0.1%	3.5E-08	--	--	8.4E-09	5.7E-09	0.1%	1.5E-07	--	--
DDT, 4,4'-	0.13	0.1	0.34	0.0005	0.5	0.68	0.00025	7.7E-10	5.2E-10	0.0%	1.3E-08	0.00	1.1%	3.2E-09	2.2E-09	0.0%	5.7E-08	0.00	1.1%
Aroclor-1260	0.44	0.06	2	NA	0.89	2.247191	NA	1.6E-09	3.5E-09	0.3%	2.7E-08	--	--	6.6E-09	1.5E-08	0.3%	1.2E-07	--	--
HxCDD, total	0.00162	0.03	150000	NA	0.9	166666.7	NA	2.9E-12	4.8E-07	45.1%	5.0E-11	--	--	1.2E-11	2.0E-06	45.1%	2.1E-10	--	--
TCDF, total	0.0001	0.03	150000	NA	0.9	166666.7	NA	1.8E-13	3.0E-08	2.8%	3.1E-12	--	--	7.5E-13	1.2E-07	2.8%	1.3E-11	--	--
PeCDF, total	0.00023	0.03	150000	NA	0.9	166666.7	NA	4.1E-13	6.8E-08	6.4%	7.2E-12	--	--	1.7E-12	2.9E-07	6.4%	3.0E-11	--	--
HxCDF, total	0.00144	0.03	150000	NA	0.9	166666.7	NA	2.6E-12	4.3E-07	40.1%	4.5E-11	--	--	1.1E-11	1.8E-06	40.1%	1.9E-10	--	--
Antimony	10.71	0.01	NA	0.0004	0.2	NA	0.00008	6.3E-09	--	--	1.1E-07	0.00	28.6%	2.7E-08	--	--	4.7E-07	0.01	28.6%
Arsenic	11.5	0.032	1.5	0.0003	0.95	1.578947	0.000285	2.2E-08	3.4E-08	3.2%	3.8E-07	0.00	27.6%	9.2E-08	1.4E-07	3.2%	1.6E-06	0.01	27.6%
Chromium	36.77	0.01	NA	0.003	1	NA	0.003	2.2E-08	--	--	3.8E-07	0.00	2.6%	9.2E-08	--	--	1.6E-06	0.00	2.6%
Copper	273.76	0.01	NA	0.04	0.6	NA	0.024	1.6E-07	--	--	2.8E-06	0.00	2.4%	6.8E-07	--	--	1.2E-05	0.00	2.4%
Lead	222.59	0.01	NA	NA	0.2	NA	NA	1.3E-07	--	--	2.3E-06	--	--	5.5E-07	--	--	9.7E-06	--	--
Mercury	0.21	0.01	NA	NA	0.15	NA	NA	1.2E-10	--	--	2.2E-09	--	--	5.2E-10	--	--	9.2E-09	--	--
Nickel	21.29	0.01	NA	0.02	0.043	NA	0.00086	1.3E-08	--	--	2.2E-07	0.00	5.3%	5.3E-08	--	--	9.3E-07	0.00	5.3%
Selenium	25.01	0.01	NA	0.005	0.2	NA	0.001	1.5E-08	--	--	2.6E-07	0.00	5.3%	6.2E-08	--	--	1.1E-06	0.00	5.3%
Vanadium	169.5	0.01	NA	0.007	0.2	NA	0.0014	1.0E-07	--	--	1.8E-06	0.00	25.8%	4.2E-07	--	--	7.4E-06	0.01	25.8%
Zinc	437.52	0.01	NA	0.3	0.25	NA	0.075	2.6E-07	--	--	4.5E-06	0.00	1.2%	1.1E-06	--	--	1.9E-05	0.00	1.2%
								Total ILCR:	1.1E-06	100.0%	HI:	0.00	100.0%	Total ILCR:	4.5E-06	100.0%	HI:	0.02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

CONSTRUCTION WORKERS - FUTURE SCENARIO
ACCIDENTAL INGESTION OF SUBSURFACE SOIL IN SWMU 1, OU 3
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)	0.000001	
FI	Fraction of soil ingested from site	1	
EF	Exposure Frequency (d/yr)	250	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
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
HxCDD, total	0.00011	150000	NA	7.4E-12	1.1E-06	47.8%	5.2E-10	--	--
HxCDF, total	0.00008	150000	NA	5.4E-12	8.1E-07	34.8%	3.8E-10	--	--
TCDF, total	0.00004	150000	NA	2.7E-12	4.0E-07	17.4%	1.9E-10	--	--
Aluminum	26824.95	NA	1	1.8E-03	--	--	1.3E-01	0.13	10.9%
Antimony	3.13	NA	0.0004	2.1E-07	--	--	1.5E-05	0.04	3.2%
Chromium	32.32	NA	0.003	2.2E-06	--	--	1.5E-04	0.05	4.4%
Copper	139.85	NA	0.04	9.4E-06	--	--	6.6E-04	0.02	1.4%
Iron	39717.34	NA	0.3	2.7E-03	--	--	1.9E-01	0.62	53.6%
Manganese (non-food)	892.99	NA	0.02	6.0E-05	--	--	4.2E-03	0.21	18.1%
Mercury	0.15	NA	NA	1.0E-08	--	--	7.0E-07	--	--
Vanadium	147.27	NA	0.007	9.9E-06	--	--	6.9E-04	0.10	8.5%
				Total ILCR:	2.3E-06	100.0%	Total HI:	1.16	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

CONSTRUCTION WORKERS - FUTURE SCENARIO
DERMAL CONTACT WITH SUBSURFACE SOIL IN SWMU 1, OU 3
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	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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	
CF	Conversion factor (kg/mg)	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
A	Skin surface area available for contact (cm2)	4100	
EF	Exposure Frequency (d/yr)	250	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	365	

								Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
HxCDD, total	0.00011	0.03	150000	NA	0.9	166666.6667	NA	1.9E-12	3.2E-07	47.8%	1.3E-10	--	--
HxCDF, total	0.00008	0.03	150000	NA	0.9	166666.6667	NA	1.4E-12	2.3E-07	34.8%	9.6E-11	--	--
TCDF, total	0.00004	0.03	150000	NA	0.9	166666.6667	NA	6.9E-13	1.1E-07	17.4%	4.8E-11	--	--
Aluminum	26824.95	0.01	NA	1	0.2	NA	0.2	1.5E-04	--	--	1.1E-02	0.05	7.3%
Antimony	3.13	0.01	NA	0.0004	0.2	NA	0.00008	1.8E-08	--	--	1.3E-06	0.02	2.1%
Chromium	32.32	0.01	NA	0.003	1	NA	0.003	1.9E-07	--	--	1.3E-05	0.00	0.6%
Copper	139.85	0.01	NA	0.04	0.6	NA	0.024	8.0E-07	--	--	5.6E-05	0.00	0.3%
Iron	39717.34	0.01	NA	0.3	0.2	NA	0.06	2.3E-04	--	--	1.6E-02	0.27	35.8%
Manganese (non-food)	892.99	0.01	NA	0.02	0.05	NA	0.001	5.1E-06	--	--	3.6E-04	0.36	48.3%
Mercury	0.15	0.01	NA	NA	0.15	NA	NA	8.6E-10	--	--	6.0E-08	--	--
Vanadium	147.27	0.01	NA	0.007	0.2	NA	0.0014	8.4E-07	--	--	5.9E-05	0.04	5.7%
								Total ILCR:	6.6E-07	100.0%	Total HI:	0.74	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

CONSTRUCTION WORKERS - FUTURE SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM SUBSURFACE SOIL IN SWMU 1, OU 3
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)	250	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
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
HxCDD, total	0.00011	8.33E-14	150000	NA	1.2E-16	1.7E-11	1.2%	8.2E-15	--	--
HxCDF, total	0.00008	6.06E-14	150000	NA	8.5E-17	1.3E-11	0.9%	5.9E-15	--	--
TCDF, total	0.00004	3.03E-14	150000	NA	4.2E-17	6.4E-12	0.4%	3.0E-15	--	--
Aluminum	26824.95	2.03E-05	NA	0.001	2.8E-08	--	--	2.0E-06	0.00	29.7%
Antimony	3.13	2.37E-09	NA	NA	3.3E-12	--	--	2.3E-10	--	--
Chromium	32.32	2.45E-08	41	0.00003	3.4E-11	1.4E-09	97.5%	2.4E-09	0.00	1.2%
Copper	139.85	1.06E-07	NA	NA	1.5E-10	--	--	1.0E-08	--	--
Iron	39717.34	3.01E-05	NA	NA	4.2E-08	--	--	2.9E-06	--	--
Manganese (non-food)	892.99	6.77E-07	NA	0.0000143	9.5E-10	--	--	6.6E-08	0.00	69.1%
Mercury	0.15	1.14E-10	NA	0.000086	1.6E-13	--	--	1.1E-11	0.00	0.0%
Vanadium	147.27	1.12E-07	NA	NA	1.6E-10	--	--	1.1E-08	--	--
					Total ILCR:	1.4E-09	100.0%	Total HI:	0.01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
ACCIDENTAL INGESTION OF SURFACE SOIL IN SWMU 1, OU 3
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)	0.000001	0.000001	
FI	Fraction of soil ingested from site	1	1	
EF	Exposure Frequency (d/yr)	350	350	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				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
Benzo(a)anthracene	0.49721	0.73	NA	3.9E-08	2.8E-08	5.8%	6.8E-07	--	--	3.6E-07	2.7E-07	5.8%	6.4E-06	--	--
Benzo(b)fluoranthene	0.56977	0.73	NA	4.5E-08	3.3E-08	6.6%	7.8E-07	--	--	4.2E-07	3.0E-07	6.6%	7.3E-06	--	--
Benzo(a)pyrene	0.47565	7.3	NA	3.7E-08	2.7E-07	55.3%	6.5E-07	--	--	3.5E-07	2.5E-06	55.3%	6.1E-06	--	--
Dibenz(a,h)anthracene	0.091	7.3	NA	7.1E-09	5.2E-08	10.6%	1.2E-07	--	--	6.6E-08	4.9E-07	10.6%	1.2E-06	--	--
DDT, 4,4'-	0.4915	0.34	0.0005	3.8E-08	1.3E-08	2.7%	6.7E-07	0.00	0.3%	3.6E-07	1.2E-07	2.7%	6.3E-06	0.01	0.3%
Aluminum	28053.73	NA	1	2.2E-03	--	--	3.8E-02	0.04	8.6%	2.0E-02	--	--	3.6E-01	0.36	8.6%
Antimony	4.05	NA	0.0004	3.2E-07	--	--	5.5E-06	0.01	3.1%	3.0E-06	--	--	5.2E-05	0.13	3.1%
Arsenic	0.8	1.5	0.0003	6.3E-08	9.4E-08	19.1%	1.1E-06	0.00	0.8%	5.8E-07	8.8E-07	19.1%	1.0E-05	0.03	0.8%
Cadmium (soil/sediment)	11.52	NA	0.001	9.0E-07	--	--	1.6E-05	0.02	3.5%	8.4E-06	--	--	1.5E-04	0.15	3.5%
Chromium	27.16	NA	0.003	2.1E-06	--	--	3.7E-05	0.01	2.8%	2.0E-05	--	--	3.5E-04	0.12	2.8%
Copper	109.79	NA	0.04	8.6E-06	--	--	1.5E-04	0.00	0.8%	8.0E-05	--	--	1.4E-03	0.04	0.8%
Iron	54232.03	NA	0.3	4.2E-03	--	--	7.4E-02	0.25	55.4%	4.0E-02	--	--	6.9E-01	2.31	55.4%
Manganese (non-food)	1111.24	NA	0.02	8.7E-05	--	--	1.5E-03	0.08	17.0%	8.1E-04	--	--	1.4E-02	0.71	17.0%
Mercury	0.07	NA	NA	5.5E-09	--	--	9.6E-08	--	--	5.1E-08	--	--	8.9E-07	--	--
Vanadium	171.97	NA	0.007	1.3E-05	--	--	2.4E-04	0.03	7.5%	1.3E-04	--	--	2.2E-03	0.31	7.5%
				Total ILCR:	4.9E-07	100.0%	HI:	0.45	100.0%	Total ILCR:	4.6E-06	100.0%	HI:	4.17	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
INGESTION OF GROUNDWATER AS DRINKING WATER AT SWMU 1, OU 3
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)	2	1	
EF	Exposure Frequency (d/yr)	350	350	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				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	% Contr. ILCR Org+Tot Inorg	% Contr. ILCR Org+Dis Inorg	CDI (mg/kg/d)	HQ	% Contr. HI Org+Tot Inorg	% Contr. HI Org+Dis Inorg	CDI (mg/kg/d)	ILCR	% Contr. ILCR Org+Tot Inorg	% Contr. ILCR Org+Dis Inorg	CDI (mg/kg/d)	HQ	% Contr. HI Org+Tot Inorg	% Contr. HI Org+Dis Inorg
Chloroform	0.00189	0.0061	0.01	3.0E-06	1.8E-08	0.0%	0.0%	5.2E-05	0.01	0.0%	0.1%	6.9E-06	4.2E-08	0.0%	0.0%	1.2E-04	0.01	0.0%	0.1%
Tetrachloroethane, 1,1,2,2-	0.0011	0.2	0.06	1.7E-06	3.4E-07	0.2%	0.3%	3.0E-05	0.00	0.0%	0.0%	4.0E-06	8.0E-07	0.2%	0.3%	7.0E-05	0.00	0.0%	0.0%
Bis(2-ethylhexyl)phthalate	0.0095	0.014	0.02	1.5E-05	2.1E-07	0.1%	0.2%	2.6E-04	0.01	0.0%	0.2%	3.5E-05	4.9E-07	0.1%	0.2%	6.1E-04	0.03	0.0%	0.2%
Pentachlorophenol	0.02228	0.12	0.03	3.5E-05	4.2E-06	1.9%	3.4%	6.1E-04	0.02	0.0%	0.3%	8.1E-05	9.8E-06	1.9%	3.4%	1.4E-03	0.05	0.0%	0.3%
Aldrin	0.00007	17	0.00003	1.1E-07	1.9E-06	0.8%	1.5%	1.9E-06	0.06	0.0%	1.1%	2.6E-07	4.3E-06	0.8%	1.5%	4.5E-06	0.15	0.0%	1.1%
Heptachlor	0.0000032	4.5	0.0005	5.0E-09	2.3E-08	0.0%	0.0%	8.8E-08	0.00	0.0%	0.0%	1.2E-08	5.3E-08	0.0%	0.0%	2.0E-07	0.00	0.0%	0.0%
HxCDD, total	0.0000005	150000	NA	7.8E-10	1.2E-04	52.7%	94.6%	1.4E-08	--	--	--	1.8E-09	2.7E-04	52.7%	94.6%	3.2E-08	--	--	--
Total Inorganics																			
Antimony	0.01993	NA	0.0004	3.1E-05	--	--	--	5.5E-04	1.37	0.3%	--	7.3E-05	--	--	--	1.3E-03	3.19	0.3%	--
Arsenic	0.04212	1.5	0.0003	6.6E-05	9.9E-05	44.4%	--	1.2E-03	3.85	0.8%	--	1.5E-04	2.3E-04	44.4%	--	2.7E-03	8.98	0.8%	--
Barium	0.50459	NA	0.07	7.9E-04	--	--	--	1.4E-02	0.20	0.0%	--	1.8E-03	--	--	--	3.2E-02	0.46	0.0%	--
Beryllium	0.00172	NA	0.002	2.7E-06	--	--	--	4.7E-05	0.02	0.0%	--	6.3E-06	--	--	--	1.1E-04	0.05	0.0%	--
Cadmium (water)	0.00846	NA	0.0005	1.3E-05	--	--	--	2.3E-04	0.46	0.1%	--	3.1E-05	--	--	--	5.4E-04	1.08	0.1%	--
Chromium	0.0866	NA	0.003	1.4E-04	--	--	--	2.4E-03	0.79	0.2%	--	3.2E-04	--	--	--	5.5E-03	1.85	0.2%	--
Chromium VI	0.04048	NA	0.003	6.3E-05	--	--	--	1.1E-03	0.37	0.1%	--	1.5E-04	--	--	--	2.6E-03	0.86	0.1%	--
Cobalt	0.14771	NA	0.06	2.3E-04	--	--	--	4.0E-03	0.07	0.0%	--	5.4E-04	--	--	--	9.4E-03	0.16	0.0%	--
Copper	0.83822	NA	0.04	1.3E-03	--	--	--	2.3E-02	0.57	0.1%	--	3.1E-03	--	--	--	5.4E-02	1.34	0.1%	--
Lead	0.144	NA	NA	2.3E-04	--	--	--	3.9E-03	--	--	--	5.3E-04	--	--	--	9.2E-03	--	--	--
Manganese (non-food)	0.162	NA	0.02	2.5E-04	--	--	--	4.4E-03	0.22	0.0%	--	5.9E-04	--	--	--	1.0E-02	0.52	0.0%	--
Mercury	0.00102	NA	NA	1.6E-06	--	--	--	2.8E-05	--	--	--	3.7E-06	--	--	--	6.5E-05	--	--	--
Nickel	0.04877	NA	0.02	7.6E-05	--	--	--	1.3E-03	0.07	0.0%	--	1.8E-04	--	--	--	3.1E-03	0.16	0.0%	--
Selenium	0.12769	NA	0.005	2.0E-04	--	--	--	3.5E-03	0.70	0.2%	--	4.7E-04	--	--	--	8.2E-03	1.63	0.2%	--
Silver	0.01128	NA	0.005	1.8E-05	--	--	--	3.1E-04	0.06	0.0%	--	4.1E-05	--	--	--	7.2E-04	0.14	0.0%	--
Thallium	1.13912	NA	0.00007	1.8E-03	--	--	--	3.1E-02	445.84	97.7%	--	4.2E-03	--	--	--	7.3E-02	1040.29	97.7%	--
Vanadium	0.40023	NA	0.007	6.3E-04	--	--	--	1.1E-02	1.57	0.3%	--	1.5E-03	--	--	--	2.6E-02	3.66	0.3%	--
Zinc	0.72608	NA	0.3	1.1E-03	--	--	--	2.0E-02	0.07	0.0%	--	2.7E-03	--	--	--	4.6E-02	0.15	0.0%	--
Dissolved Inorganics																			
Cadmium (water)	0.02147	NA	0.0005	3.4E-05	--	--	--	5.9E-04	1.18	--	20.2%	7.8E-05	--	--	--	1.4E-03	2.75	--	20.2%
Copper	0.47877	NA	0.04	7.5E-04	--	--	--	1.3E-02	0.33	--	5.6%	1.7E-03	--	--	--	3.1E-02	0.77	--	5.6%
Manganese (non-food)	0.0977	NA	0.02	1.5E-04	--	--	--	2.7E-03	0.13	--	2.3%	3.6E-04	--	--	--	6.2E-03	0.31	--	2.3%
Nickel	0.03543	NA	0.02	5.5E-05	--	--	--	9.7E-04	0.05	--	0.8%	1.3E-04	--	--	--	2.3E-03	0.11	--	0.8%
Thallium	0.00995	NA	0.00007	1.6E-05	--	--	--	2.7E-04	3.89	--	66.8%	3.6E-05	--	--	--	6.4E-04	9.09	--	66.8%
Vanadium	0.03631	NA	0.007	5.7E-05	--	--	--	9.9E-04	0.14	--	2.4%	1.3E-04	--	--	--	2.3E-03	0.33	--	2.4%
Risk from Organics & Total Inorganics				Total ILCR:	2.2E-04	100.0%		HI:	456.32	100.0%		Total ILCR:	5.2E-04	100.0%		HI:	1064.76	100.0%	
Risk from Organics & Dissolved Inorganics				Total ILCR:	1.2E-04		100.0%	HI:	5.83		100.0%	Total ILCR:	2.9E-04		100.0%	HI:	13.59		100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
DERMAL CONTACT WITH GROUNDWATER DURING BATHING AT SWMU 1, OU 3
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*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	
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	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
SA	Skin surface area available for contact (cm2)	20000	8023	
ET	Exposure frequency (d/yr)	350	350	
ED	Exposure duration (yrs)	4	4	
ET	Exposure time (hrs/day)	0.2	0.2	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	
CF	Conversion factor (L/cm3)	0.001	0.001	
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	% Contr. ILCR Org+Tot Inorg	% Contr. ILCR Org+Dis Inorg	DAD (mg/kg/d)	HQ	% Contr. HI Org+Tot Inorg	% Contr. HI Org+Dis Inorg	DAD (mg/kg/d)	ILCR	% Contr. ILCR Org+Tot Inorg	% Contr. ILCR Org+Dis Inorg	DAD (mg/kg/d)	HQ	% Contr. HI Org+Tot Inorg	% Contr. HI Org+Dis Inorg
Chloroform	0.00189	0.0089	0.0061	0.01	5.3E-08	3.2E-10	0.0%	0.0%	9.2E-07	0.00	0.0%	0.0%	9.9E-08	6.0E-10	0.0%	0.0%	1.7E-06	0.00	0.0%	0.0%
Tetrachloroethane, 1,1,2,2	0.0011	0.009	0.25	0.048	3.1E-08	7.7E-09	0.0%	0.0%	5.4E-07	0.00	0.0%	0.0%	5.8E-08	1.5E-08	0.0%	0.0%	1.0E-06	0.00	0.0%	0.0%
Bis(2-ethylhexyl)phthalate	0.0095	0.033	0.028	0.01	9.8E-07	2.7E-08	0.0%	0.0%	1.7E-05	0.00	0.0%	0.5%	1.8E-06	5.1E-08	0.0%	0.0%	3.2E-05	0.00	0.0%	0.5%
Pentachlorophenol	0.02228	0.65	0.24	0.015	4.5E-05	1.1E-05	2.9%	2.9%	7.9E-04	0.05	0.4%	15.4%	8.5E-05	2.0E-05	2.9%	2.9%	1.5E-03	0.10	0.4%	15.4%
Aldrin	0.00007	0.0016	34	0.000015	3.5E-10	1.2E-08	0.0%	0.0%	6.1E-09	0.00	0.0%	0.1%	6.6E-10	2.2E-08	0.0%	0.0%	1.1E-08	0.00	0.0%	0.1%
Heptachlor	0.0000032	0.011	9	0.00025	1.1E-10	9.9E-10	0.0%	0.0%	1.9E-09	0.00	0.0%	0.0%	2.1E-10	1.9E-09	0.0%	0.0%	3.6E-09	0.00	0.0%	0.0%
HxCDD, total	0.0000005	1.4	166666.6667	NA	2.2E-09	3.7E-04	96.9%	97.1%	3.8E-08	--	--	--	4.1E-09	6.8E-04	96.9%	97.1%	7.2E-08	--	--	--
Total Inorganics																				
Antimony	0.01993	0.003	NA	0.00008	1.9E-07	--	--	--	3.3E-06	0.04	0.3%	--	3.5E-07	--	--	--	6.1E-06	0.08	0.3%	--
Arsenic	0.04212	0.003	1.578947368	0.000285	4.0E-07	6.2E-07	0.2%	--	6.9E-06	0.02	0.2%	--	7.4E-07	1.2E-06	0.2%	--	1.3E-05	0.05	0.2%	--
Barium	0.50459	0.003	NA	0.07	4.7E-06	--	--	--	8.3E-05	0.00	0.0%	--	8.9E-06	--	--	--	1.6E-04	0.00	0.0%	--
Beryllium	0.00172	0.003	NA	0.002	1.6E-08	--	--	--	2.8E-07	0.00	0.0%	--	3.0E-08	--	--	--	5.3E-07	0.00	0.0%	--
Cadmium (water)	0.00846	0.003	NA	0.000025	7.9E-08	--	--	--	1.4E-06	0.06	0.4%	--	1.5E-07	--	--	--	2.6E-06	0.10	0.4%	--
Chromium	0.0866	0.003	NA	0.003	8.1E-07	--	--	--	1.4E-05	0.00	0.0%	--	1.5E-06	--	--	--	2.7E-05	0.01	0.0%	--
Chromium VI	0.04048	0.003	NA	0.003	3.8E-07	--	--	--	6.7E-06	0.00	0.0%	--	7.1E-07	--	--	--	1.2E-05	0.00	0.0%	--
Cobalt	0.14771	0.003	NA	0.012	1.4E-06	--	--	--	2.4E-05	0.00	0.0%	--	2.6E-06	--	--	--	4.5E-05	0.00	0.0%	--
Copper	0.83822	0.003	NA	0.024	7.9E-06	--	--	--	1.4E-04	0.01	0.0%	--	1.5E-05	--	--	--	2.6E-04	0.01	0.0%	--
Lead	0.144	0.003	NA	NA	1.4E-06	--	--	--	2.4E-05	--	--	--	2.5E-06	--	--	--	4.4E-05	--	--	--
Manganese (non-food)	0.162	0.003	NA	0.001	1.5E-06	--	--	--	2.7E-05	0.03	0.2%	--	2.8E-06	--	--	--	5.0E-05	0.05	0.2%	--
Mercury	0.00102	0.003	NA	NA	9.6E-09	--	--	--	1.7E-07	--	--	--	1.8E-08	--	--	--	3.1E-07	--	--	--
Nickel	0.04877	0.003	NA	0.00086	4.6E-07	--	--	--	8.0E-06	0.01	0.1%	--	8.6E-07	--	--	--	1.5E-05	0.02	0.1%	--
Selenium	0.12769	0.003	NA	0.001	1.2E-06	--	--	--	2.1E-05	0.02	0.2%	--	2.2E-06	--	--	--	3.9E-05	0.04	0.2%	--
Silver	0.01128	0.003	NA	0.001	1.1E-07	--	--	--	1.9E-06	0.00	0.0%	--	2.0E-07	--	--	--	3.5E-06	0.00	0.0%	--
Thallium	1.13912	0.003	NA	0.000014	1.1E-05	--	--	--	1.9E-04	13.38	97.8%	--	2.0E-05	--	--	--	3.5E-04	25.04	97.8%	--
Vanadium	0.40023	0.003	NA	0.0014	3.8E-06	--	--	--	6.6E-05	0.05	0.3%	--	7.0E-06	--	--	--	1.2E-04	0.09	0.3%	--
Zinc	0.72608	0.003	NA	0.075	6.8E-06	--	--	--	1.2E-04	0.00	0.0%	--	1.3E-05	--	--	--	2.2E-04	0.00	0.0%	--
Dissolved Inorganics																				
Cadmium (water)	0.02147	0.003	NA	0.000025	2.0E-07	--	--	--	3.5E-06	0.14	--	41.1%	3.8E-07	--	--	--	6.6E-06	0.26	--	41.1%
Copper	0.47877	0.003	NA	0.024	4.5E-06	--	--	--	7.9E-05	0.00	--	1.0%	8.4E-06	--	--	--	1.5E-04	0.01	--	1.0%
Manganese (non-food)	0.0977	0.003	NA	0.001	9.2E-07	--	--	--	1.6E-05	0.02	--	4.7%	1.7E-06	--	--	--	3.0E-05	0.03	--	4.7%
Nickel	0.03543	0.003	NA	0.00086	3.3E-07	--	--	--	5.8E-06	0.01	--	2.0%	6.2E-07	--	--	--	1.1E-05	0.01	--	2.0%
Thallium	0.00995	0.003	NA	0.000014	9.3E-08	--	--	--	1.6E-06	0.12	--	34.0%	1.7E-07	--	--	--	3.1E-06	0.22	--	34.0%
Vanadium	0.03631	0.003	NA	0.0014	3.4E-07	--	--	--	6.0E-06	0.00	--	1.2%	6.4E-07	--	--	--	1.1E-05	0.01	--	1.2%
Risk from Organics & Total Inorganics					Total ILCR:	3.8E-04	100.0%		HI:	13.67	100.0%		Total ILCR:	7.1E-04	100.0%		HI:	25.60	100.0%	
Risk from Organics & Dissolved Inorganics					Total ILCR:	3.8E-04		100.0%	HI:	0.34		100.0%	Total ILCR:	7.0E-04		100.0%	HI:	0.64		100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT RESIDENTS - FUTURE SCENARIO
INHALATION OF VOLATILIZED ORGANIC COPCs IN SHOWER AIR - SWMU 1, OU 3
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)

ILCR = CDI*CSFi
HQ = CDI/RfDi

Parameter	Description	Adult	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFi	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDi	Oral reference dose (mg/kg/d)	CS	
CA	Concentration of volatilized chemical in shower air, Foster and Chrystowski Model (mg/m3)	CS	
RR	Respiration rate (m3/hr)	0.83	
ET	Exposure time (hrs/d)	0.2	
EF	Exposure Frequency (d/yr)	350	
ED	Exposure Duration (yrs)	4	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	1460	

				Adult					
				Carcinogens			Noncarcinogens		
Parameter	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
Chloroform	0.00209177	0.081	0.000086	2.7E-07	2.2E-08	55.4%	4.8E-06	0.06	100.0%
Tetrachloroethane, 1,1,2,2-	0.00068109	0.2	NA	8.9E-08	1.8E-08	44.6%	1.5E-06	--	--
				Total ILCR:	4.0E-08	100.0%	HI:	0.06	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
ACCIDENTAL INGESTION OF SURFACE WATER AT SWMU 1, OU3
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)	2.6	2.6	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				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
Bis(2-ethylhexyl)phthalate	0.0038	0.014	0.02	5.7E-08	8.0E-10	0.0%	1.0E-06	0.00	0.0%	2.7E-07	3.8E-09	0.0%	4.7E-06	0.00	0.0%
Di-n-octylphthalate	0.00298	NA	0.02	4.5E-08	--	--	7.9E-07	0.00	0.0%	2.1E-07	--	--	3.7E-06	0.00	0.0%
Arsenic	0.08155	1.5	0.0003	1.2E-06	1.8E-06	100.0%	2.2E-05	0.07	19.3%	5.8E-06	8.6E-06	100.0%	1.0E-04	0.34	19.3%
Thallium	0.07959	NA	0.00007	1.2E-06	--	--	2.1E-05	0.30	80.7%	5.6E-06	--	--	9.8E-05	1.40	80.7%
Zinc	0.01337	NA	0.3	2.0E-07	--	--	3.5E-06	0.00	0.0%	9.4E-07	--	--	1.7E-05	0.00	0.0%
				Total ILCR:	1.9E-06	100.0%	HI:	0.37	100.0%	Total ILCR:	8.6E-06	100.0%	HI:	1.74	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
DERMAL CONTACT WITH SURFACE WATER AT SWMU 1, OU3
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)	4	4	
ET	Exposure time (hrs/day)	2.6	2.6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25,550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	
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)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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
Bis(2-ethylhexyl)phthalate	0.0038	0.033	0.014	0.02	0.5	0.028	0.01	2.2E-07	6.2E-09	0.9%	3.8E-06	0.00	0.1%	3.5E-07	9.9E-09	0.9%	6.2E-06	0.00	0.1%
Di-n-octylphthalate	0.00298	0.033	NA	0.02	0.5	NA	0.01	1.7E-07	--	--	3.0E-06	0.00	0.1%	2.8E-07	--	--	4.9E-06	0.00	0.1%
Arsenic	0.08155	0.003	1.5	0.0003	0.95	1.5789474	0.000285	4.3E-07	6.8E-07	99.1%	7.5E-06	0.03	4.8%	6.9E-07	1.1E-06	99.1%	1.2E-05	0.04	4.8%
Thallium	0.07959	0.003	NA	0.00007	0.2	NA	0.000014	4.2E-07	--	--	7.3E-06	0.52	95.1%	6.8E-07	--	--	1.2E-05	0.84	95.1%
Zinc	0.01337	0.003	NA	0.3	0.25	NA	0.075	7.0E-08	--	--	1.2E-06	0.00	0.0%	1.1E-07	--	--	2.0E-06	0.00	0.0%
								Total ILCR:	6.8E-07	100.0%	HI:	0.55	100.0%	Total ILCR:	1.1E-06	100.0%	HI:	0.89	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
ACCIDENTAL INGESTION OF SEDIMENT IN SWMU 1, OU 3
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 sediment (mg/kg)	CS	CS	
IR	Ingestion Rate (mg/d)	100	200	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
FI	Fraction of sediment ingested from site	1	1	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				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
Benzo(a)pyrene	0.16	7.3	NA	1.9E-09	1.4E-08	0.2%	3.3E-08	--	--	1.7E-08	1.3E-07	0.2%	3.0E-07	--	--
BHC, delta-	0.31409	1.8	NA	3.7E-09	6.6E-09	0.1%	6.4E-08	--	--	3.4E-08	6.1E-08	0.1%	6.0E-07	--	--
DDE, 4,4'-	0.33836	0.34	NA	3.9E-09	1.3E-09	0.0%	6.9E-08	--	--	3.7E-08	1.2E-08	0.0%	6.4E-07	--	--
DDT, 4,4'-	0.13	0.34	0.0005	1.5E-09	5.1E-10	0.0%	2.6E-08	0.00	0.2%	1.4E-08	4.8E-09	0.0%	2.5E-07	0.00	0.2%
Aroclor-1260	0.44	2	NA	5.1E-09	1.0E-08	0.2%	9.0E-08	--	--	4.8E-08	9.6E-08	0.2%	8.4E-07	--	--
HxCDD, total	0.00162	150000	NA	1.9E-11	2.8E-06	46.0%	3.3E-10	--	--	1.8E-10	2.6E-05	46.0%	3.1E-09	--	--
TCDF, total	0.0001	150000	NA	1.2E-12	1.7E-07	2.8%	2.0E-11	--	--	1.1E-11	1.6E-06	2.8%	1.9E-10	--	--
PeCDF, total	0.00023	150000	NA	2.7E-12	4.0E-07	6.5%	4.7E-11	--	--	2.5E-11	3.7E-06	6.5%	4.4E-10	--	--
HxCDF, total	0.00144	150000	NA	1.7E-11	2.5E-06	40.9%	2.9E-10	--	--	1.6E-10	2.3E-05	40.9%	2.7E-09	--	--
Antimony	10.71	NA	0.0004	1.2E-07	--	--	2.2E-06	0.01	23.0%	1.2E-06	--	--	2.0E-05	0.05	23.0%
Arsenic	11.5	1.5	0.0003	1.3E-07	2.0E-07	3.3%	2.3E-06	0.01	33.0%	1.2E-06	1.9E-06	3.3%	2.2E-05	0.07	33.0%
Chromium	36.77	NA	0.003	4.3E-07	--	--	7.5E-06	0.00	10.5%	4.0E-06	--	--	7.0E-05	0.02	10.5%
Copper	273.76	NA	0.04	3.2E-06	--	--	5.6E-05	0.00	5.9%	3.0E-05	--	--	5.2E-04	0.01	5.9%
Lead	222.59	NA	NA	2.6E-06	--	--	4.5E-05	--	--	2.4E-05	--	--	4.2E-04	--	--
Mercury	0.21	NA	NA	2.4E-09	--	--	4.3E-08	--	--	2.3E-08	--	--	4.0E-07	--	--
Nickel	21.29	NA	0.02	2.5E-07	--	--	4.3E-06	0.00	0.9%	2.3E-06	--	--	4.0E-05	0.00	0.9%
Selenium	25.01	NA	0.005	2.9E-07	--	--	5.1E-06	0.00	4.3%	2.7E-06	--	--	4.8E-05	0.01	4.3%
Vanadium	169.5	NA	0.007	2.0E-06	--	--	3.4E-05	0.00	20.8%	1.8E-05	--	--	3.2E-04	0.05	20.8%
Zinc	437.52	NA	0.3	5.1E-06	--	--	8.9E-05	0.00	1.3%	4.7E-05	--	--	8.3E-04	0.00	1.3%
				Total ILCR:	6.1E-06	100.0%	HI:	0.02	100.0%	Total ILCR:	5.7E-05	100.0%	HI:	0.22	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
DERMAL CONTACT WITH SEDIMENT IN SWMU 1, OU 3
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	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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in sediment (mg/kg)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
A	Skin surface area available for contact (cm2)	5300	2006	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

								Adult						Young Child					
								Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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
Benzo(a)pyrene	0.16	0.1	7.3	NA	0.5	14.6	NA	9.9E-09	1.4E-07	1.3%	1.7E-07	--	--	1.7E-08	2.5E-07	1.3%	3.0E-07	--	--
BHC, delta-	0.31409	0.1	1.8	NA	0.5	3.6	NA	1.9E-08	7.0E-08	0.6%	3.4E-07	--	--	3.4E-08	1.2E-07	0.6%	6.0E-07	--	--
DDE, 4,4'-	0.33836	0.1	0.34	NA	0.5	0.68	NA	2.1E-08	1.4E-08	0.1%	3.6E-07	--	--	3.7E-08	2.5E-08	0.1%	6.4E-07	--	--
DDT, 4,4'-	0.13	0.1	0.34	0.0005	0.5	0.68	0.00025	8.0E-09	5.4E-09	0.0%	1.4E-07	0.00	1.1%	1.4E-08	9.6E-09	0.0%	2.5E-07	0.00	1.1%
Aroclor-1260	0.44	0.06	2	NA	0.89	2.247191011	NA	1.6E-08	3.7E-08	0.3%	2.8E-07	--	--	2.9E-08	6.5E-08	0.3%	5.0E-07	--	--
HxCDD, total	0.00162	0.03	150000	NA	0.9	166666.6667	NA	3.0E-11	5.0E-06	45.1%	5.2E-10	--	--	5.3E-11	8.8E-06	45.1%	9.3E-10	--	--
TCDF, total	0.0001	0.03	150000	NA	0.9	166666.6667	NA	1.8E-12	3.1E-07	2.8%	3.2E-11	--	--	3.3E-12	5.4E-07	2.8%	5.7E-11	--	--
PeCDF, total	0.00023	0.03	150000	NA	0.9	166666.6667	NA	4.3E-12	7.1E-07	6.4%	7.4E-11	--	--	7.5E-12	1.3E-06	6.4%	1.3E-10	--	--
HxCDF, total	0.00144	0.03	150000	NA	0.9	166666.6667	NA	2.7E-11	4.4E-06	40.1%	4.7E-10	--	--	4.7E-11	7.8E-06	40.1%	8.2E-10	--	--
Antimony	10.71	0.01	NA	0.0004	0.2	NA	0.00008	6.6E-08	--	--	1.2E-06	0.01	28.6%	1.2E-07	--	--	2.0E-06	0.03	28.6%
Arsenic	11.5	0.032	1.5	0.0003	0.95	1.578947368	0.000285	2.3E-07	3.6E-07	3.2%	4.0E-06	0.01	27.6%	4.0E-07	6.3E-07	3.2%	7.0E-06	0.02	27.6%
Chromium	36.77	0.01	NA	0.003	1	NA	0.003	2.3E-07	--	--	4.0E-06	0.00	2.6%	4.0E-07	--	--	7.0E-06	0.00	2.6%
Copper	273.76	0.01	NA	0.04	0.6	NA	0.024	1.7E-06	--	--	3.0E-05	0.00	2.4%	3.0E-06	--	--	5.2E-05	0.00	2.4%
Lead	222.59	0.01	NA	NA	0.2	NA	NA	1.4E-06	--	--	2.4E-05	--	--	2.4E-06	--	--	4.2E-05	--	--
Mercury	0.21	0.01	NA	NA	0.15	NA	NA	1.3E-09	--	--	2.3E-08	--	--	2.3E-09	--	--	4.0E-08	--	--
Nickel	21.29	0.01	NA	0.02	0.043	NA	0.00086	1.3E-07	--	--	2.3E-06	0.00	5.3%	2.3E-07	--	--	4.1E-06	0.00	5.3%
Selenium	25.01	0.01	NA	0.005	0.2	NA	0.001	1.5E-07	--	--	2.7E-06	0.00	5.3%	2.7E-07	--	--	4.8E-06	0.00	5.3%
Vanadium	169.5	0.01	NA	0.007	0.2	NA	0.0014	1.0E-06	--	--	1.8E-05	0.01	25.8%	1.8E-06	--	--	3.2E-05	0.02	25.8%
Zinc	437.52	0.01	NA	0.3	0.25	NA	0.075	2.7E-06	--	--	4.7E-05	0.00	1.2%	4.8E-06	--	--	8.3E-05	0.00	1.2%
								Total ILCR:	1.1E-05	100.0%	HI:	0.05	100.0%	Total ILCR:	2.0E-05	100.0%	HI:	0.09	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

SWMU 2

ON-SITE WORKERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SURFACE SOIL IN SWMU 2, OU3
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 soil (mg/kg)	CS	
IR	Ingestion Rate (mg/d)	100	
CF	Conversion factor (kg/mg)	0.000001	
FI	Fraction of soil ingested from site	0.5	
EF	Exposure Frequency (d/yr)	250	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

				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
Benzo(a)pyrene	0.34	7.3	NA	5.9E-08	4.3E-07	2.3%	1.7E-07	--	--
HxCDD, total	0.00021	150000	NA	3.7E-11	5.5E-06	28.6%	1.0E-10	--	--
HxCDF, total	0.00016	150000	NA	2.8E-11	4.2E-06	21.8%	7.8E-11	--	--
Aluminum	29214.23	NA	1	5.1E-03	--	--	1.4E-02	0.01	4.2%
Antimony	14.6	NA	0.0004	2.6E-06	--	--	7.1E-06	0.02	5.2%
Arsenic	34.82	1.5	0.0003	6.1E-06	9.1E-06	47.4%	1.7E-05	0.06	16.6%
Barium	348.03	NA	0.07	6.1E-05	--	--	1.7E-04	0.00	0.7%
Cadmium (soil/sediment)	2.17	NA	0.001	3.8E-07	--	--	1.1E-06	0.00	0.3%
Chromium	41.9	NA	0.003	7.3E-06	--	--	2.0E-05	0.01	2.0%
Copper	769.04	NA	0.04	1.3E-04	--	--	3.8E-04	0.01	2.7%
Iron	114551	NA	0.3	2.0E-02	--	--	5.6E-02	0.19	54.5%
Lead	610.76	NA	NA	1.1E-04	--	--	3.0E-04	--	--
Manganese (non-food)	1027.9	NA	0.02	1.8E-04	--	--	5.0E-04	0.03	7.3%
Mercury	0.38	NA	NA	6.6E-08	--	--	1.9E-07	--	--
Nickel	35.58	NA	0.02	6.2E-06	--	--	1.7E-05	0.00	0.3%
Selenium	62.76	NA	0.005	1.1E-05	--	--	3.1E-05	0.01	1.8%
Vanadium	202.15	NA	0.007	3.5E-05	--	--	9.9E-05	0.01	4.1%
Zinc	658.75	NA	0.3	1.2E-04	--	--	3.2E-04	0.00	0.3%
				Total ILCR:	1.9E-05	100.0%	HI:	0.34	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
DERMAL CONTACT WITH SURFACE SOIL IN SWMU 2, OU3
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 soil (mg/kg)	CS	
CF	Conversion factor (kg/mg)	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
A	Skin surface area available for contact (cm2)	4100	
EF	Exposure Frequency (d/yr)	250	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

								Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Benzo(a)pyrene	0.34	0.1	7.3	NA	0.5	14.6	NA	4.9E-07	7.1E-06	12.1%	1.4E-06	--	--
HxCDD, total	0.00021	0.03	150000	NA	0.9	166666.667	NA	9.0E-11	1.5E-05	25.6%	2.5E-10	--	--
HxCDF, total	0.00016	0.03	150000	NA	0.9	166666.667	NA	6.9E-11	1.1E-05	19.5%	1.9E-10	--	--
Aluminum	29214.23	0.01	NA	1	0.2	NA	0.2	4.2E-03	--	--	1.2E-02	0.06	3.6%
Antimony	14.6	0.01	NA	0.0004	0.2	NA	0.00008	2.1E-06	--	--	5.9E-06	0.07	4.5%
Arsenic	34.82	0.032	1.5	0.0003	0.95	1.57894737	0.000285	1.6E-05	2.5E-05	42.9%	4.5E-05	0.16	9.6%
Barium	348.03	0.01	NA	0.07	1	NA	0.07	5.0E-05	--	--	1.4E-04	0.00	0.1%
Cadmium (soil/sedime	2.17	0.01	NA	0.001	0.025	NA	0.000025	3.1E-07	--	--	8.7E-07	0.03	2.1%
Chromium	41.9	0.01	NA	0.003	1	NA	0.003	6.0E-06	--	--	1.7E-05	0.01	0.3%
Copper	769.04	0.01	NA	0.04	0.6	NA	0.024	1.1E-04	--	--	3.1E-04	0.01	0.8%
Iron	114551	0.01	NA	0.3	0.2	NA	0.06	1.6E-02	--	--	4.6E-02	0.77	47.1%
Lead	610.76	0.01	NA	NA	0.2	NA	NA	8.8E-05	--	--	2.5E-04	--	--
Manganese (non-food)	1027.9	0.01	NA	0.02	0.05	NA	0.001	1.5E-04	--	--	4.1E-04	0.41	25.4%
Mercury	0.38	0.01	NA	NA	0.15	NA	NA	5.4E-08	--	--	1.5E-07	--	--
Nickel	35.58	0.01	NA	0.02	0.043	NA	0.00086	5.1E-06	--	--	1.4E-05	0.02	1.0%
Selenium	62.76	0.01	NA	0.005	0.2	NA	0.001	9.0E-06	--	--	2.5E-05	0.03	1.5%
Vanadium	202.15	0.01	NA	0.007	0.2	NA	0.0014	2.9E-05	--	--	8.1E-05	0.06	3.6%
Zinc	658.75	0.01	NA	0.3	0.25	NA	0.075	9.4E-05	--	--	2.6E-04	0.00	0.2%
								Total ILCR:	5.9E-05	100.0%	HI:	1.63	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM SURFACE SOIL IN SWMU 2, OU3
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	On-site 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)	250	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

					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
Benzo(a)pyrene	0.34	2.58E-10	3.1	NA	9.0E-12	2.8E-11	0.0%	2.5E-11	--	--
HxCDD, total	0.00021	1.59E-13	150000	NA	5.6E-15	8.3E-10	1.4%	1.6E-14	--	--
HxCDF, total	0.00016	1.21E-13	150000	NA	4.2E-15	6.4E-10	1.0%	1.2E-14	--	--
Aluminum	29214.23	2.21E-05	NA	0.001	7.7E-07	--	--	2.2E-06	0.00	27.8%
Antimony	14.6	1.11E-08	NA	NA	3.9E-10	--	--	1.1E-09	--	--
Arsenic	34.82	2.64E-08	15.1	NA	9.2E-10	1.4E-08	22.7%	2.6E-09	--	--
Barium	348.03	2.64E-07	NA	0.00014	9.2E-09	--	--	2.6E-08	0.00	2.4%
Cadmium (soil/sediment)	2.17	1.64E-09	6.3	NA	5.7E-11	3.6E-10	0.6%	1.6E-10	--	--
Chromium	41.9	3.17E-08	41	0.00003	1.1E-09	4.5E-08	74.2%	3.1E-09	0.00	1.3%
Copper	769.04	5.83E-07	NA	NA	2.0E-08	--	--	5.7E-08	--	--
Iron	114551	8.68E-05	NA	NA	3.0E-06	--	--	8.5E-06	--	--
Lead	610.76	4.63E-07	NA	NA	1.6E-08	--	--	4.5E-08	--	--
Manganese (non-food)	1027.9	7.79E-07	NA	1.43E-05	2.7E-08	--	--	7.6E-08	0.01	68.5%
Mercury	0.38	2.88E-10	NA	0.000086	1.0E-11	--	--	2.8E-11	0.00	0.0%
Nickel	35.58	2.70E-08	NA	NA	9.4E-10	--	--	2.6E-09	--	--
Selenium	62.76	4.75E-08	NA	NA	1.7E-09	--	--	4.7E-09	--	--
Vanadium	202.15	1.53E-07	NA	NA	5.4E-09	--	--	1.5E-08	--	--
Zinc	658.75	4.99E-07	NA	NA	1.7E-08	--	--	4.9E-08	--	--
					Total ILCR:	6.1E-08	100.0%	HI:	0.01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SURFACE WATER AT SWMU 2, OU3
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)	8	
EF	Exposure Frequency (d/yr)	250	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

				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
Bis(2-ethylhexyl)phthalate	0.00174	0.014	0.02	2.4E-06	3.4E-08	100.0%	6.8E-06	0.00	0.0%
Di-n-octylphthalate	0.00164	NA	0.02	2.3E-06	--	--	6.4E-06	0.00	0.0%
Beryllium	0.03338	NA	0.002	4.7E-05	--	--	1.3E-04	0.07	2.8%
Chromium	0.43017	NA	0.003	6.0E-04	--	--	1.7E-03	0.56	24.0%
Lead	0.33906	NA	NA	4.7E-04	--	--	1.3E-03	--	--
Mercury	0.00092	NA	NA	1.3E-06	--	--	3.6E-06	--	--
Selenium	0.38447	NA	0.005	5.4E-04	--	--	1.5E-03	0.30	12.9%
Thallium	0.02501	NA	0.00007	3.5E-05	--	--	9.8E-05	1.40	59.8%
Zinc	0.89939	NA	0.3	1.3E-03	--	--	3.5E-03	0.01	0.5%
				Total ILCR:	3.4E-08	100.0%	HI:	2.34	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
DERMAL CONTACT WITH SURFACE WATER AT SWMU 2, OU3
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)	4,100	
EF	Exposure frequency (d/yr)	52	
ED	Exposure duration (yrs)	25	
ET	Exposure time (hrs/day)	8	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	
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)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Bis(2-ethylhexyl)phthalate	0.00174	0.033	0.014	0.02	0.5	0.028	0.01	1.4E-06	3.8E-08	100.0%	3.8E-06	0.00	0.1%
Di-n-octylphthalate	0.00164	0.033	NA	0.02	0.5	NA	0.01	1.3E-06	--	--	3.6E-06	0.00	0.1%
Beryllium	0.03338	0.003	NA	0.002	1	NA	0.002	2.4E-06	--	--	6.7E-06	0.00	0.7%
Chromium	0.43017	0.003	NA	0.003	1	NA	0.003	3.1E-05	--	--	8.6E-05	0.03	6.1%
Lead	0.33906	0.003	NA	NA	0.2	NA	NA	2.4E-05	--	--	6.8E-05	--	--
Mercury	0.00092	0.003	NA	NA	0.15	NA	NA	6.6E-08	--	--	1.8E-07	--	--
Selenium	0.38447	0.003	NA	0.005	0.2	NA	0.001	2.7E-05	--	--	7.7E-05	0.08	16.4%
Thallium	0.02501	0.003	NA	0.00007	0.2	NA	0.000014	1.8E-06	--	--	5.0E-06	0.36	76.1%
Zinc	0.89939	0.003	NA	0.3	0.25	NA	0.075	6.4E-05	--	--	1.8E-04	0.00	0.5%
								Total ILCR:	3.8E-08	100.0%	HI:	0.47	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SEDIMENT IN SWMU 2
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 soil (mg/kg)	CS	
IR	Ingestion Rate (mg/d)	100	
CF	Conversion factor (kg/mg)	0.000001	
FI	Fraction of soil ingested from site	0.5	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

				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
Benzo(a)anthracene	0.37892	0.73	NA	1.4E-08	1.0E-08	0.1%	3.9E-08	--	--
Benzo(a)pyrene	0.36889	7.3	NA	1.3E-08	9.8E-08	0.9%	3.8E-08	--	--
Benzo(b)fluoranthene	0.5535	0.73	NA	2.0E-08	1.5E-08	0.1%	5.6E-08	--	--
DDE, 4,4'-	0.029	0.34	NA	1.1E-09	3.6E-10	0.0%	3.0E-09	--	--
HxCDD, total	0.00129	150000	NA	4.7E-11	7.0E-06	68.2%	1.3E-10	--	--
HxCDF, total	0.00049	150000	NA	1.8E-11	2.7E-06	25.9%	5.0E-11	--	--
Antimony	5.16	NA	0.0004	1.9E-07	--	--	5.3E-07	0.00	17.9%
Arsenic	8.94	1.5	0.0003	3.2E-07	4.9E-07	4.7%	9.1E-07	0.00	41.3%
Chromium	22.81	NA	0.003	8.3E-07	--	--	2.3E-06	0.00	10.5%
Copper	195.12	NA	0.04	7.1E-06	--	--	2.0E-05	0.00	6.8%
Lead	142.13	NA	NA	5.2E-06	--	--	1.4E-05	--	--
Mercury	0.72	NA	NA	2.6E-08	--	--	7.3E-08	--	--
Vanadium	112.15	NA	0.007	4.1E-06	--	--	1.1E-05	0.00	22.2%
Zinc	287.21	NA	0.3	1.0E-05	--	--	2.9E-05	0.00	1.3%
				Total ILCR:	1.0E-05	100.0%	HI:	0.01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
DERMAL CONTACT WITH SEDIMENT IN SWMU2
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 soil (mg/kg)	CS	
CF	Conversion factor (kg/mg)	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
A	Skin surface area available for contact (cm2)	4100	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

								Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Benzo(a)anthracene	0.37892	0.1	0.73	NA	0.5	1.46	NA	1.1E-07	1.6E-07	0.6%	3.2E-07	--	--
Benzo(a)pyrene	0.36889	0.1	7.3	NA	0.5	14.6	NA	1.1E-07	1.6E-06	5.4%	3.1E-07	--	--
Benzo(b)fluoranthene	0.5535	0.1	0.73	NA	0.5	1.46	NA	1.6E-07	2.4E-07	0.8%	4.6E-07	--	--
DDE, 4,4'-	0.029	0.1	0.34	NA	0.5	0.68	NA	8.6E-09	5.9E-09	0.0%	2.4E-08	--	--
HxCDD, total	0.00129	0.03	150000	NA	0.9	166666.7	NA	1.2E-10	1.9E-05	64.3%	3.2E-10	--	--
HxCDF, total	0.00049	0.03	150000	NA	0.9	166666.7	NA	4.4E-11	7.3E-06	24.4%	1.2E-10	--	--
Antimony	5.16	0.01	NA	0.0004	0.2	NA	0.00008	1.5E-07	--	--	4.3E-07	0.01	24.4%
Arsenic	8.94	0.032	1.5	0.0003	0.95	1.578947	0.000285	8.5E-07	1.3E-06	4.5%	2.4E-06	0.01	37.9%
Chromium	22.81	0.01	NA	0.003	1	NA	0.003	6.8E-07	--	--	1.9E-06	0.00	2.9%
Copper	195.12	0.01	NA	0.04	0.6	NA	0.024	5.8E-06	--	--	1.6E-05	0.00	3.1%
Lead	142.13	0.01	NA	NA	0.2	NA	NA	4.2E-06	--	--	1.2E-05	--	--
Mercury	0.72	0.01	NA	NA	0.15	NA	NA	2.1E-08	--	--	6.0E-08	--	--
Vanadium	112.15	0.01	NA	0.007	0.2	NA	0.0014	3.3E-06	--	--	9.4E-06	0.01	30.3%
Zinc	287.21	0.01	NA	0.3	0.25	NA	0.075	8.6E-06	--	--	2.4E-05	0.00	1.4%
								Total ILCR:	3.0E-05	100.0%	HI:	0.02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SURFACE SOIL IN SWMU 2, OU 3
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	Adolescent	
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	100	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
FI	Fraction of soil ingested from site	0.5	0.5	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				Adult						Adolescent					
				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
Benzo(a)pyrene	0.34	7.3	NA	1.9E-10	1.4E-09	2.3%	3.3E-09	--	--	1.1E-09	7.9E-09	2.3%	1.9E-08	--	--
HxCDD, total	0.00021	150000	NA	1.2E-13	1.8E-08	28.6%	2.1E-12	--	--	6.7E-13	1.0E-07	28.6%	1.2E-11	--	--
HxCDF, total	0.00016	150000	NA	8.9E-14	1.3E-08	21.8%	1.6E-12	--	--	5.1E-13	7.6E-08	21.8%	8.9E-12	--	--
Aluminum	29214.23	NA	1	1.6E-05	--	--	2.9E-04	0.00	4.2%	9.3E-05	--	--	1.6E-03	0.00	4.2%
Antimony	14.6	NA	0.0004	8.2E-09	--	--	1.4E-07	0.00	5.2%	4.6E-08	--	--	8.1E-07	0.00	5.2%
Arsenic	34.82	1.5	0.0003	1.9E-08	2.9E-08	47.4%	3.4E-07	0.00	16.6%	1.1E-07	1.7E-07	47.4%	1.9E-06	0.01	16.6%
Barium	348.03	NA	0.07	1.9E-07	--	--	3.4E-06	0.00	0.7%	1.1E-06	--	--	1.9E-05	0.00	0.7%
Cadmium (soil/sediment)	2.17	NA	0.001	1.2E-09	--	--	2.1E-08	0.00	0.3%	6.9E-09	--	--	1.2E-07	0.00	0.3%
Chromium	41.9	NA	0.003	2.3E-08	--	--	4.1E-07	0.00	2.0%	1.3E-07	--	--	2.3E-06	0.00	2.0%
Copper	769.04	NA	0.04	4.3E-07	--	--	7.5E-06	0.00	2.7%	2.4E-06	--	--	4.3E-05	0.00	2.7%
Iron	114551	NA	0.3	6.4E-05	--	--	1.1E-03	0.00	54.5%	3.6E-04	--	--	6.4E-03	0.02	54.5%
Lead	610.76	NA	NA	3.4E-07	--	--	6.0E-06	--	--	1.9E-06	--	--	3.4E-05	--	--
Manganese (non-food)	1027.9	NA	0.02	5.7E-07	--	--	1.0E-05	0.00	7.3%	3.3E-06	--	--	5.7E-05	0.00	7.3%
Mercury	0.38	NA	NA	2.1E-10	--	--	3.7E-09	--	--	1.2E-09	--	--	2.1E-08	--	--
Nickel	35.58	NA	0.02	2.0E-08	--	--	3.5E-07	0.00	0.3%	1.1E-07	--	--	2.0E-06	0.00	0.3%
Selenium	62.76	NA	0.005	3.5E-08	--	--	6.1E-07	0.00	1.8%	2.0E-07	--	--	3.5E-06	0.00	1.8%
Vanadium	202.15	NA	0.007	1.1E-07	--	--	2.0E-06	0.00	4.1%	6.4E-07	--	--	1.1E-05	0.00	4.1%
Zinc	658.75	NA	0.3	3.7E-07	--	--	6.4E-06	0.00	0.3%	2.1E-06	--	--	3.7E-05	0.00	0.3%
				Total ILCR:	6.2E-08	100.0%	HI:	0.01	100.0%	Total ILCR:	3.5E-07	100.0%	HI:	0.04	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
DERMAL CONTACT WITH SURFACE SOIL IN SWMU 2, OU 3
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	Adult	Adolescent	
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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
A	Skin surface area available for contact (cm2)	5300	3925	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

								Adult						Adolescent					
								Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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
Benzo(a)pyrene	0.34	0.1	7.3	NA	0.5	14.6	NA	2.0E-09	2.9E-08	12.1%	3.5E-08	--	--	8.5E-09	1.2E-07	12.1%	1.5E-07	--	--
HxCDD, total	0.00021	0.03	150000	NA	0.9	166666.6667	NA	3.7E-13	6.2E-08	25.6%	6.5E-12	--	--	1.6E-12	2.6E-07	25.6%	2.7E-11	--	--
HxCDF, total	0.00016	0.03	150000	NA	0.9	166666.6667	NA	2.8E-13	4.7E-08	19.5%	5.0E-12	--	--	1.2E-12	2.0E-07	19.5%	2.1E-11	--	--
Aluminum	29214.23	0.01	NA	1	0.2	NA	0.2	1.7E-05	--	--	3.0E-04	0.00	3.6%	7.3E-05	--	--	1.3E-03	0.01	3.6%
Antimony	14.6	0.01	NA	0.0004	0.2	NA	0.00008	8.7E-09	--	--	1.5E-07	0.00	4.5%	3.6E-08	--	--	6.4E-07	0.01	4.5%
Arsenic	34.82	0.032	1.5	0.0003	0.95	1.578947368	0.000285	6.6E-08	1.0E-07	42.9%	1.2E-06	0.00	9.6%	2.8E-07	4.4E-07	42.9%	4.9E-06	0.02	9.6%
Barium	348.03	0.01	NA	0.07	1	NA	0.07	2.1E-07	--	--	3.6E-06	0.00	0.1%	8.7E-07	--	--	1.5E-05	0.00	0.1%
Cadmium (soil/sediment)	2.17	0.01	NA	0.001	0.025	NA	0.000025	1.3E-09	--	--	2.3E-08	0.00	2.1%	5.4E-09	--	--	9.5E-08	0.00	2.1%
Chromium	41.9	0.01	NA	0.003	1	NA	0.003	2.5E-08	--	--	4.3E-07	0.00	0.3%	1.0E-07	--	--	1.8E-06	0.00	0.3%
Copper	769.04	0.01	NA	0.04	0.6	NA	0.024	4.6E-07	--	--	8.0E-06	0.00	0.8%	1.9E-06	--	--	3.4E-05	0.00	0.8%
Iron	114551	0.01	NA	0.3	0.2	NA	0.06	6.8E-05	--	--	1.2E-03	0.02	47.1%	2.9E-04	--	--	5.0E-03	0.08	47.1%
Lead	610.76	0.01	NA	NA	0.2	NA	NA	3.6E-07	--	--	6.3E-06	--	--	1.5E-06	--	--	2.7E-05	--	--
Manganese (non-food)	1027.9	0.01	NA	0.02	0.05	NA	0.001	6.1E-07	--	--	1.1E-05	0.01	25.4%	2.6E-06	--	--	4.5E-05	0.04	25.4%
Mercury	0.38	0.01	NA	NA	0.15	NA	NA	2.3E-10	--	--	3.9E-09	--	--	9.5E-10	--	--	1.7E-08	--	--
Nickel	35.58	0.01	NA	0.02	0.043	NA	0.00086	2.1E-08	--	--	3.7E-07	0.00	1.0%	8.9E-08	--	--	1.6E-06	0.00	1.0%
Selenium	62.76	0.01	NA	0.005	0.2	NA	0.001	3.7E-08	--	--	6.5E-07	0.00	1.5%	1.6E-07	--	--	2.7E-06	0.00	1.5%
Vanadium	202.15	0.01	NA	0.007	0.2	NA	0.0014	1.2E-07	--	--	2.1E-06	0.00	3.6%	5.0E-07	--	--	8.8E-06	0.01	3.6%
Zinc	658.75	0.01	NA	0.3	0.25	NA	0.075	3.9E-07	--	--	6.8E-06	0.00	0.2%	1.6E-06	--	--	2.9E-05	0.00	0.2%
								Total ILCR:	2.4E-07	100.0%	HI:	0.04	100.0%	Total ILCR:	1.0E-06	100.0%	HI:	0.18	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM SURFACE SOIL IN SWMU 2, OU 3
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	Adult	Adolescent	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFi	Inhalation cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDi	Inhalation reference dose (mg/kg/d)	CS	CS	
Ca	Concentration of chemical in air as fugitive dusts (mg/m3)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
PEF	Particulate emission factor (m3/kg)	1.32E+09	1.32E+09	
RR	Respiration rate (m3/hr)	0.83	0.83	
ET	Exposure time (hrs/d)	1	1	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

					Adult						Adolescent					
					Carcinogens			Noncarcinogens			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	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Benzo(a)pyrene	0.34	2.58E-10	3.1	NA	2.4E-15	7.4E-15	0.0%	4.2E-14	--	--	1.4E-14	4.2E-14	0.0%	2.4E-13	--	--
HxCDD, total	0.00021	1.59E-13	150000	NA	1.5E-18	2.2E-13	1.4%	2.6E-17	--	--	8.4E-18	1.3E-12	1.4%	1.5E-16	--	--
HxCDF, total	0.00016	1.21E-13	150000	NA	1.1E-18	1.7E-13	1.0%	2.0E-17	--	--	6.4E-18	9.6E-13	1.0%	1.1E-16	--	--
Aluminum	29214.23	2.21E-05	NA	0.001	2.1E-10	--	--	3.6E-09	0.00	27.8%	1.2E-09	--	--	2.0E-08	0.00	27.8%
Antimony	14.6	1.11E-08	NA	NA	1.0E-13	--	--	1.8E-12	--	--	5.8E-13	--	--	1.0E-11	--	--
Arsenic	34.82	2.64E-08	15.1	NA	2.4E-13	3.7E-12	22.7%	4.3E-12	--	--	1.4E-12	2.1E-11	22.7%	2.4E-11	--	--
Barium	348.03	2.64E-07	NA	0.00014	2.4E-12	--	--	4.3E-11	0.00	2.4%	1.4E-11	--	--	2.4E-10	0.00	2.4%
Cadmium (soil/sediment)	2.17	1.64E-09	6.3	NA	1.5E-14	9.6E-14	0.6%	2.7E-13	--	--	8.7E-14	5.5E-13	0.6%	1.5E-12	--	--
Chromium	41.9	3.17E-08	41	0.00003	2.9E-13	1.2E-11	74.2%	5.2E-12	0.00	1.3%	1.7E-12	6.9E-11	74.2%	2.9E-11	0.00	1.3%
Copper	769.04	5.83E-07	NA	NA	5.4E-12	--	--	9.5E-11	--	--	3.1E-11	--	--	5.4E-10	--	--
Iron	114551	8.68E-05	NA	NA	8.1E-10	--	--	1.4E-08	--	--	4.6E-09	--	--	8.0E-08	--	--
Lead	610.76	4.63E-07	NA	NA	4.3E-12	--	--	7.5E-11	--	--	2.4E-11	--	--	4.3E-10	--	--
Manganese (non-food)	1027.9	7.79E-07	NA	1.43E-05	7.2E-12	--	--	1.3E-10	0.00	68.5%	4.1E-11	--	--	7.2E-10	0.00	68.5%
Mercury	0.38	2.88E-10	NA	0.000086	2.7E-15	--	--	4.7E-14	0.00	0.0%	1.5E-14	--	--	2.7E-13	0.00	0.0%
Nickel	35.58	2.70E-08	NA	NA	2.5E-13	--	--	4.4E-12	--	--	1.4E-12	--	--	2.5E-11	--	--
Selenium	62.76	4.75E-08	NA	NA	4.4E-13	--	--	7.7E-12	--	--	2.5E-12	--	--	4.4E-11	--	--
Vanadium	202.15	1.53E-07	NA	NA	1.4E-12	--	--	2.5E-11	--	--	8.1E-12	--	--	1.4E-10	--	--
Zinc	658.75	4.99E-07	NA	NA	4.6E-12	--	--	8.1E-11	--	--	2.6E-11	--	--	4.6E-10	--	--
					Total ILCR:	1.6E-11	100.0%	HI:	0.00	100.0%	Total ILCR:	9.2E-11	100.0%	HI:	0.00	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SURFACE WATER IN SWMU 2, OU3
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL WEAPONS STATION YORKTOWN - YORKTOWN, VIRGINIA

CDI (mg/kg/d) = (Cw*IR*ET*EF*ED)/(BW*AT)
ILCR = CDI*CSFo
HQ = CDI/RfDo

Parameter	Description	Adult	Adolescent	
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)	2.6	2.6	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				Adult						Adolescent					
				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
Bis(2-ethylhexyl)phthalate	0.00174	0.014	0.02	2.5E-09	3.5E-11	100.0%	4.4E-08	0.00	0.0%	1.4E-08	2.0E-10	100.0%	2.5E-07	0.00	0.0%
Di-n-octylphthalate	0.00164	NA	0.02	2.4E-09	--	--	4.2E-08	0.00	0.0%	1.4E-08	--	--	2.4E-07	0.00	0.0%
Beryllium	0.03338	NA	0.002	4.9E-08	--	--	8.5E-07	0.00	3.7%	2.8E-07	--	--	4.8E-06	0.00	3.7%
Lead	0.33906	NA	NA	4.9E-07	--	--	8.6E-06	--	--	2.8E-06	--	--	4.9E-05	--	--
Mercury	0.00092	NA	NA	1.3E-09	--	--	2.3E-08	--	--	7.6E-09	--	--	1.3E-07	--	--
Selenium	0.38447	NA	0.005	5.6E-07	--	--	9.8E-06	0.00	16.9%	3.2E-06	--	--	5.6E-05	0.01	16.9%
Thallium	0.02501	NA	0.00007	3.6E-08	--	--	6.4E-07	0.01	78.7%	2.1E-07	--	--	3.6E-06	0.05	78.7%
Zinc	0.89939	NA	0.3	1.3E-06	--	--	2.3E-05	0.00	0.7%	7.4E-06	--	--	1.3E-04	0.00	0.7%
				Total ILCR:	3.5E-11	100.0%	HI:	0.01	100.0%	Total ILCR:	2.0E-10	100.0%	HI:	0.07	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
DERMAL CONTACT WITH SURFACE WATER AT SWMU 2, OU3
REASONABLE MAXIMUM EXPOSURE
POTENTIAL CARCINOGENIC AND NONCARCINOGENIC RISKS
NAVAL WEAPONS STATION YORKTOWN - YORKTOWN, VIRGINIA

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	Adolescent	
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	3,925	
EF	Exposure frequency (d/yr)	5	15	
ED	Exposure duration (yrs)	4	4	
ET	Exposure time (hrs/day)	2.6	2.6	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25,550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	
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						Adolescent					
								Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cw (mg/L)	Kp (cm/hour)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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
Bis(2-ethylhexyl)phthalate	0.00174	0.033	0.014	0.02	0.5	0.028	0.01	9.7E-09	2.7E-10	100.0%	1.7E-07	0.00	0.1%	3.7E-08	1.0E-09	100.0%	6.5E-07	0.00	0.1%
Di-n-octylphthalate	0.00164	0.033	NA	0.02	0.5	NA	0.01	9.1E-09	--	--	1.6E-07	0.00	0.1%	3.5E-08	--	--	6.1E-07	0.00	0.1%
Beryllium	0.03338	0.003	NA	0.002	1	NA	0.002	1.7E-08	--	--	3.0E-07	0.00	0.8%	6.5E-08	--	--	1.1E-06	0.00	0.8%
Lead	0.33906	0.003	NA	NA	0.2	NA	NA	1.7E-07	--	--	3.0E-06	--	--	6.6E-07	--	--	1.2E-05	--	--
Mercury	0.00092	0.003	NA	NA	0.15	NA	NA	4.7E-10	--	--	8.1E-09	--	--	1.8E-09	--	--	3.1E-08	--	--
Selenium	0.38447	0.003	NA	0.005	0.2	NA	0.001	1.9E-07	--	--	3.4E-06	0.00	17.4%	7.5E-07	--	--	1.3E-05	0.01	17.4%
Thallium	0.02501	0.003	NA	0.00007	0.2	NA	0.000014	1.3E-08	--	--	2.2E-07	0.02	81.1%	4.9E-08	--	--	8.5E-07	0.06	81.1%
Zinc	0.89939	0.003	NA	0.3	0.25	NA	0.075	4.6E-07	--	--	8.0E-06	0.00	0.5%	1.7E-06	--	--	3.1E-05	0.00	0.5%
								Total ILCR:	2.7E-10	100.0%	HI:	0.02	100.0%	Total ILCR:	1.0E-09	100.0%	HI:	0.07	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SEDIMENT IN SWMU 2, OU 3
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	Adolescent	
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 sediment (mg/kg)	CS	CS	
IR	Ingestion Rate (mg/d)	100	100	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
FI	Fraction of sediment ingested from site	0.5	0.5	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				Adult						Adolescent					
				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
Benzo(a)anthracene	0.37892	0.73	NA	2.1E-10	1.5E-10	0.1%	3.7E-09	--	--	1.2E-09	8.8E-10	0.1%	2.1E-08	--	--
Benzo(a)pyrene	0.36889	7.3	NA	2.1E-10	1.5E-09	0.9%	3.6E-09	--	--	1.2E-09	8.5E-09	0.9%	2.0E-08	--	--
Benzo(b)fluoranthene	0.5535	0.73	NA	3.1E-10	2.3E-10	0.1%	5.4E-09	--	--	1.8E-09	1.3E-09	0.1%	3.1E-08	--	--
DDE, 4,4'-	0.029	0.34	NA	1.6E-11	5.5E-12	0.0%	2.8E-10	--	--	9.2E-11	3.1E-11	0.0%	1.6E-09	--	--
HxCDD, total	0.00129	150000	NA	7.2E-13	1.1E-07	68.2%	1.3E-11	--	--	4.1E-12	6.1E-07	68.2%	7.2E-11	--	--
HxCDF, total	0.00049	150000	NA	2.7E-13	4.1E-08	25.9%	4.8E-12	--	--	1.6E-12	2.3E-07	25.9%	2.7E-11	--	--
Antimony	5.16	NA	0.0004	2.9E-09	--	--	5.0E-08	0.00	17.9%	1.6E-08	--	--	2.9E-07	0.00	17.9%
Arsenic	8.94	1.5	0.0003	5.0E-09	7.5E-09	4.7%	8.7E-08	0.00	41.3%	2.8E-08	4.3E-08	4.7%	5.0E-07	0.00	41.3%
Chromium	22.81	NA	0.003	1.3E-08	--	--	2.2E-07	0.00	10.5%	7.2E-08	--	--	1.3E-06	0.00	10.5%
Copper	195.12	NA	0.04	1.1E-07	--	--	1.9E-06	0.00	6.8%	6.2E-07	--	--	1.1E-05	0.00	6.8%
Lead	142.13	NA	NA	7.9E-08	--	--	1.4E-06	--	--	4.5E-07	--	--	7.9E-06	--	--
Mercury	0.72	NA	NA	4.0E-10	--	--	7.0E-09	--	--	2.3E-09	--	--	4.0E-08	--	--
Vanadium	112.15	NA	0.007	6.3E-08	--	--	1.1E-06	0.00	22.2%	3.6E-07	--	--	6.2E-06	0.00	22.2%
Zinc	287.21	NA	0.3	1.6E-07	--	--	2.8E-06	0.00	1.3%	9.1E-07	--	--	1.6E-05	0.00	1.3%
				Total ILCR:	1.6E-07	100.0%	HI:	0.00	100.0%	Total ILCR:	9.0E-07	100.0%	HI:	0.00	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
DERMAL CONTACT WITH SEDIMENT IN SWMU 2, OU 3
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	Adult	Adolescent	
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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
A	Skin surface area available for contact (cm2)	5300	3925	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

								Adult						Adolescent					
								Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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
Benzo(a)anthracene	0.37892	0.1	0.73	NA	0.5	1.46	NA	2.2E-09	3.3E-09	0.6%	3.9E-08	--	--	9.4E-09	1.4E-08	0.6%	1.7E-07	--	--
Benzo(a)pyrene	0.36889	0.1	7.3	NA	0.5	14.6	NA	2.2E-09	3.2E-08	5.4%	3.8E-08	--	--	9.2E-09	1.3E-07	5.4%	1.6E-07	--	--
Benzo(b)fluoranthene	0.5535	0.1	0.73	NA	0.5	1.46	NA	3.3E-09	4.8E-09	0.8%	5.7E-08	--	--	1.4E-08	2.0E-08	0.8%	2.4E-07	--	--
DDE, 4,4'-	0.029	0.1	0.34	NA	0.5	0.68	NA	1.7E-10	1.2E-10	0.0%	3.0E-09	--	--	7.2E-10	4.9E-10	0.0%	1.3E-08	--	--
HxCDD, total	0.00129	0.03	150000	NA	0.9	166666.7	NA	2.3E-12	3.8E-07	64.3%	4.0E-11	--	--	9.6E-12	1.6E-06	64.3%	1.7E-10	--	--
HxCDF, total	0.00049	0.03	150000	NA	0.9	166666.7	NA	8.7E-13	1.5E-07	24.4%	1.5E-11	--	--	3.7E-12	6.1E-07	24.4%	6.4E-11	--	--
Antimony	5.16	0.01	NA	0.0004	0.2	NA	0.00008	3.1E-09	--	--	5.4E-08	0.00	24.4%	1.3E-08	--	--	2.2E-07	0.00	24.4%
Arsenic	8.94	0.032	1.5	0.0003	0.95	1.578947	0.000285	1.7E-08	2.7E-08	4.5%	3.0E-07	0.00	37.9%	7.1E-08	1.1E-07	4.5%	1.2E-06	0.00	37.9%
Chromium	22.81	0.01	NA	0.003	1	NA	0.003	1.4E-08	--	--	2.4E-07	0.00	2.9%	5.7E-08	--	--	9.9E-07	0.00	2.9%
Copper	195.12	0.01	NA	0.04	0.6	NA	0.024	1.2E-07	--	--	2.0E-06	0.00	3.1%	4.9E-07	--	--	8.5E-06	0.00	3.1%
Lead	142.13	0.01	NA	NA	0.2	NA	NA	8.4E-08	--	--	1.5E-06	--	--	3.5E-07	--	--	6.2E-06	--	--
Mercury	0.72	0.01	NA	NA	0.15	NA	NA	4.3E-10	--	--	7.5E-09	--	--	1.8E-09	--	--	3.1E-08	--	--
Vanadium	112.15	0.01	NA	0.007	0.2	NA	0.0014	6.6E-08	--	--	1.2E-06	0.00	30.3%	2.8E-07	--	--	4.9E-06	0.00	30.3%
Zinc	287.21	0.01	NA	0.3	0.25	NA	0.075	1.7E-07	--	--	3.0E-06	0.00	1.4%	7.2E-07	--	--	1.3E-05	0.00	1.4%
								Total ILCR:	5.9E-07	100.0%	HI:	0.00	100.0%	Total ILCR:	2.5E-06	100.0%	HI:	0.01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

CONSTRUCTION WORKERS - FUTURE SCENARIO
ACCIDENTAL INGESTION OF SUBSURFACE SOIL IN SWMU 2, OU 3
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)	0.000001	
FI	Fraction of soil ingested from site	1	
EF	Exposure Frequency (d/yr)	250	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
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
Benzo(a)anthracene	0.85759	0.73	NA	5.8E-08	4.2E-08	1.0%	4.0E-06	--	--
Benzo(a)pyrene	0.27	7.3	NA	1.8E-08	1.3E-07	3.1%	1.3E-06	--	--
Benzo(b)fluoranthene	0.89258	0.73	NA	6.0E-08	4.4E-08	1.0%	4.2E-06	--	--
Dibenz(a,h)anthracene	0.45	7.3	NA	3.0E-08	2.2E-07	5.2%	2.1E-06	--	--
HxCDD, total	0.00013	150000	NA	8.7E-12	1.3E-06	31.1%	6.1E-10	--	--
TCDF, total	0.00016	150000	NA	1.1E-11	1.6E-06	38.3%	7.5E-10	--	--
Aluminum	31372.82	NA	1	2.1E-03	--	--	1.5E-01	0.15	4.2%
Antimony	9.28	NA	0.0004	6.2E-07	--	--	4.4E-05	0.11	3.1%
Arsenic	8.46	1.5	0.0003	5.7E-07	8.5E-07	20.2%	4.0E-05	0.13	3.8%
Cadmium (soil/sediment)	3.23	NA	0.001	2.2E-07	--	--	1.5E-05	0.02	0.4%
Chromium	46.86	NA	0.003	3.1E-06	--	--	2.2E-04	0.07	2.1%
Copper	443.72	NA	0.04	3.0E-05	--	--	2.1E-03	0.05	1.5%
Iron	168424.16	NA	0.3	1.1E-02	--	--	7.9E-01	2.64	75.9%
Lead	1342.68	NA	NA	9.0E-05	--	--	6.3E-03	--	--
Manganese (non-food)	722.02	NA	0.02	4.8E-05	--	--	3.4E-03	0.17	4.9%
Mercury	0.19	NA	NA	1.3E-08	--	--	8.9E-07	--	--
Vanadium	208.75	NA	0.007	1.4E-05	--	--	9.8E-04	0.14	4.0%
				Total ILCR:	4.2E-06	100.0%	Total HI:	3.48	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

CONSTRUCTION WORKERS - FUTURE SCENARIO
DERMAL CONTACT WITH SUBSURFACE SOIL IN SWMU 2, OU 3
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	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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	
CF	Conversion factor (kg/mg)	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
A	Skin surface area available for contact (cm2)	4100	
EF	Exposure Frequency (d/yr)	250	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	365	

								Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Benzo(a)anthracene	0.85759	0.1	0.73	NA	0.5	1.46	NA	4.9E-08	7.2E-08	3.9%	3.4E-06	--	--
Benzo(a)pyrene	0.27	0.1	7.3	NA	0.5	14.6	NA	1.5E-08	2.3E-07	12.4%	1.1E-06	--	--
Benzo(b)fluoranthene	0.89258	0.1	0.73	NA	0.5	1.46	NA	5.1E-08	7.5E-08	4.1%	3.6E-06	--	--
Dibenz(a,h)anthracene	0.45	0.1	7.3	NA	0.5	14.6	NA	2.6E-08	3.8E-07	20.6%	1.8E-06	--	--
HxCDD, total	0.00013	0.03	150000	NA	0.9	166666.6667	NA	2.2E-12	3.7E-07	20.4%	1.6E-10	--	--
TCDF, total	0.00016	0.03	150000	NA	0.9	166666.6667	NA	2.8E-12	4.6E-07	25.1%	1.9E-10	--	--
Aluminum	31372.82	0.01	NA	1	0.2	NA	0.2	1.8E-04	--	--	1.3E-02	0.06	3.7%
Antimony	9.28	0.01	NA	0.0004	0.2	NA	0.00008	5.3E-08	--	--	3.7E-06	0.05	2.8%
Arsenic	8.46	0.032	1.5	0.0003	0.95	1.578947368	0.000285	1.6E-07	2.4E-07	13.4%	1.1E-05	0.04	2.3%
Cadmium (soil/sediment)	3.23	0.01	NA	0.001	0.025	NA	0.000025	1.9E-08	--	--	1.3E-06	0.05	3.1%
Chromium	46.86	0.01	NA	0.003	1	NA	0.003	2.7E-07	--	--	1.9E-05	0.01	0.4%
Copper	443.72	0.01	NA	0.04	0.6	NA	0.024	2.5E-06	--	--	1.8E-04	0.01	0.4%
Iron	168424.16	0.01	NA	0.3	0.2	NA	0.06	9.7E-04	--	--	6.8E-02	1.13	66.7%
Lead	1342.68	0.01	NA	NA	0.2	NA	NA	7.7E-06	--	--	5.4E-04	--	--
Manganese (non-food)	722.02	0.01	NA	0.02	0.05	NA	0.001	4.1E-06	--	--	2.9E-04	0.29	17.2%
Mercury	0.19	0.01	NA	NA	0.15	NA	NA	1.1E-09	--	--	7.6E-08	--	--
Vanadium	208.75	0.01	NA	0.007	0.2	NA	0.0014	1.2E-06	--	--	8.4E-05	0.06	3.5%
								Total ILCR:	1.8E-06	100.0%	Total HI:	1.69	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

CONSTRUCTION WORKERS - FUTURE SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM SUBSURFACE SOIL IN SWMU 2, OU 3
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)	250	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
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
Benzo(a)anthracene	0.85759	6.50E-10	NA	NA	9.1E-13	--	--	6.4E-11	--	--
Benzo(a)pyrene	0.27	2.05E-10	3.1	NA	2.9E-13	8.9E-13	0.0%	2.0E-11	--	--
Benzo(b)fluoranthene	0.89258	6.76E-10	NA	NA	9.5E-13	--	--	6.6E-11	--	--
Dibenz(a,h)anthracene	0.45	3.41E-10	NA	NA	4.8E-13	--	--	3.3E-11	--	--
HxCDD, total	0.00013	9.85E-14	150000	NA	1.4E-16	2.1E-11	0.9%	9.6E-15	--	--
TCDF, total	0.00016	1.21E-13	150000	NA	1.7E-16	2.5E-11	1.1%	1.2E-14	--	--
Aluminum	31372.82	2.38E-05	NA	0.001	3.3E-08	--	--	2.3E-06	0.00	37.6%
Antimony	9.28	7.03E-09	NA	NA	9.8E-12	--	--	6.9E-10	--	--
Arsenic	8.46	6.41E-09	15.1	NA	9.0E-12	1.4E-10	6.0%	6.3E-10	--	--
Cadmium (soil/sediment)	3.23	2.45E-09	6.3	NA	3.4E-12	2.2E-11	1.0%	2.4E-10	--	--
Chromium	46.86	3.55E-08	41	0.00003	5.0E-11	2.0E-09	90.9%	3.5E-09	0.00	1.9%
Copper	443.72	3.36E-07	NA	NA	4.7E-10	--	--	3.3E-08	--	--
Iron	168424.16	1.28E-04	NA	NA	1.8E-07	--	--	1.2E-05	--	--
Lead	1342.68	1.02E-06	NA	NA	1.4E-09	--	--	1.0E-07	--	--
Manganese (non-food)	722.02	5.47E-07	NA	1.43E-05	7.6E-10	--	--	5.4E-08	0.00	60.5%
Mercury	0.19	1.44E-10	NA	0.000086	2.0E-13	--	--	1.4E-11	0.00	0.0%
Vanadium	208.75	1.58E-07	NA	NA	2.2E-10	--	--	1.5E-08	--	--
					Total ILCR:	2.2E-09	100.0%	Total HI:	0.01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
ACCIDENTAL INGESTION OF SURFACE SOIL IN SWMU 2, OU 3
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)	0.000001	0.000001	
FI	Fraction of soil ingested from site	1	1	
EF	Exposure Frequency (d/yr)	350	350	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				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
Benzo(a)pyrene	0.34	7.3	NA	2.7E-08	1.9E-07	2.3%	4.7E-07	--	--	2.5E-07	1.8E-06	2.3%	4.3E-06	--	--
HxCDD, total	0.00021	150000	NA	1.6E-11	2.5E-06	28.6%	2.9E-10	--	--	1.5E-10	2.3E-05	28.6%	2.7E-09	--	--
HxCDF, total	0.00016	150000	NA	1.3E-11	1.9E-06	21.8%	2.2E-10	--	--	1.2E-10	1.8E-05	21.8%	2.0E-09	--	--
Aluminum	29214.23	NA	1	2.3E-03	--	--	4.0E-02	0.04	4.2%	2.1E-02	--	--	3.7E-01	0.37	4.2%
Antimony	14.6	NA	0.0004	1.1E-06	--	--	2.0E-05	0.05	5.2%	1.1E-05	--	--	1.9E-04	0.47	5.2%
Arsenic	34.82	1.5	0.0003	2.7E-06	4.1E-06	47.4%	4.8E-05	0.16	16.6%	2.5E-05	3.8E-05	47.4%	4.5E-04	1.48	16.6%
Barium	348.03	NA	0.07	2.7E-05	--	--	4.8E-04	0.01	0.7%	2.5E-04	--	--	4.4E-03	0.06	0.7%
Cadmium (soil/sediment)	2.17	NA	0.001	1.7E-07	--	--	3.0E-06	0.00	0.3%	1.6E-06	--	--	2.8E-05	0.03	0.3%
Chromium	41.9	NA	0.003	3.3E-06	--	--	5.7E-05	0.02	2.0%	3.1E-05	--	--	5.4E-04	0.18	2.0%
Copper	769.04	NA	0.04	6.0E-05	--	--	1.1E-03	0.03	2.7%	5.6E-04	--	--	9.8E-03	0.25	2.7%
Iron	114551	NA	0.3	9.0E-03	--	--	1.6E-01	0.52	54.5%	8.4E-02	--	--	1.5E+00	4.88	54.5%
Lead	610.76	NA	NA	4.8E-05	--	--	8.4E-04	--	--	4.5E-04	--	--	7.8E-03	--	--
Manganese (non-food)	1027.9	NA	0.02	8.0E-05	--	--	1.4E-03	0.07	7.3%	7.5E-04	--	--	1.3E-02	0.66	7.3%
Mercury	0.38	NA	NA	3.0E-08	--	--	5.2E-07	--	--	2.8E-07	--	--	4.9E-06	--	--
Nickel	35.58	NA	0.02	2.8E-06	--	--	4.9E-05	0.00	0.3%	2.6E-05	--	--	4.5E-04	0.02	0.3%
Selenium	62.76	NA	0.005	4.9E-06	--	--	8.6E-05	0.02	1.8%	4.6E-05	--	--	8.0E-04	0.16	1.8%
Vanadium	202.15	NA	0.007	1.6E-05	--	--	2.8E-04	0.04	4.1%	1.5E-04	--	--	2.6E-03	0.37	4.1%
Zinc	658.75	NA	0.3	5.2E-05	--	--	9.0E-04	0.00	0.3%	4.8E-04	--	--	8.4E-03	0.03	0.3%
				Total ILCR:	8.6E-06	100.0%	HI:	0.96	100.0%	Total ILCR:	8.1E-05	100.0%	HI:	8.96	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
DERMAL CONTACT WITH SURFACE SOIL IN SWMU 2, OU 3
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	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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
A	Skin surface area available for contact (cm2)	5300	2006	
EF	Exposure Frequency (d/yr)	350	350	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

								Adult						Young Child					
								Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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
Benzo(a)pyrene	0.34	0.1	7.3	NA	0.5	14.6	NA	1.4E-07	2.1E-06	12.1%	2.5E-06	--	--	2.5E-07	3.6E-06	12.1%	4.4E-06	--	--
HxCDD, total	0.00021	0.03	150000	NA	0.9	166666.7	NA	2.6E-11	4.4E-06	25.6%	4.6E-10	--	--	4.6E-11	7.7E-06	25.6%	8.1E-10	--	--
HxCDF, total	0.00016	0.03	150000	NA	0.9	166666.7	NA	2.0E-11	3.3E-06	19.5%	3.5E-10	--	--	3.5E-11	5.9E-06	19.5%	6.2E-10	--	--
Aluminum	29214.23	0.01	NA	1	0.2	NA	0.2	1.2E-03	--	--	2.1E-02	0.11	3.6%	2.1E-03	--	--	3.7E-02	0.19	3.6%
Antimony	14.6	0.01	NA	0.0004	0.2	NA	0.00008	6.1E-07	--	--	1.1E-05	0.13	4.5%	1.1E-06	--	--	1.9E-05	0.23	4.5%
Arsenic	34.82	0.032	1.5	0.0003	0.95	1.578947	0.000285	4.6E-06	7.3E-06	42.9%	8.1E-05	0.28	9.6%	8.2E-06	1.3E-05	42.9%	1.4E-04	0.50	9.6%
Barium	348.03	0.01	NA	0.07	1	NA	0.07	1.4E-05	--	--	2.5E-04	0.00	0.1%	2.6E-05	--	--	4.5E-04	0.01	0.1%
Cadmium (soil/sediment)	2.17	0.01	NA	0.001	0.025	NA	0.000025	9.0E-08	--	--	1.6E-06	0.06	2.1%	1.6E-07	--	--	2.8E-06	0.11	2.1%
Chromium	41.9	0.01	NA	0.003	1	NA	0.003	1.7E-06	--	--	3.0E-05	0.01	0.3%	3.1E-06	--	--	5.4E-05	0.02	0.3%
Copper	769.04	0.01	NA	0.04	0.6	NA	0.024	3.2E-05	--	--	5.6E-04	0.02	0.8%	5.6E-05	--	--	9.9E-04	0.04	0.8%
Iron	114551	0.01	NA	0.3	0.2	NA	0.06	4.8E-03	--	--	8.3E-02	1.39	47.1%	8.4E-03	--	--	1.5E-01	2.45	47.1%
Lead	610.76	0.01	NA	NA	0.2	NA	NA	2.5E-05	--	--	4.4E-04	--	--	4.5E-05	--	--	7.8E-04	--	--
Manganese (non-food)	1027.9	0.01	NA	0.02	0.05	NA	0.001	4.3E-05	--	--	7.5E-04	0.75	25.4%	7.5E-05	--	--	1.3E-03	1.32	25.4%
Mercury	0.38	0.01	NA	NA	0.15	NA	NA	1.6E-08	--	--	2.8E-07	--	--	2.8E-08	--	--	4.9E-07	--	--
Nickel	35.58	0.01	NA	0.02	0.043	NA	0.00086	1.5E-06	--	--	2.6E-05	0.03	1.0%	2.6E-06	--	--	4.6E-05	0.05	1.0%
Selenium	62.76	0.01	NA	0.005	0.2	NA	0.001	2.6E-06	--	--	4.6E-05	0.05	1.5%	4.6E-06	--	--	8.0E-05	0.08	1.5%
Vanadium	202.15	0.01	NA	0.007	0.2	NA	0.0014	8.4E-06	--	--	1.5E-04	0.10	3.6%	1.5E-05	--	--	2.6E-04	0.19	3.6%
Zinc	658.75	0.01	NA	0.3	0.25	NA	0.075	2.7E-05	--	--	4.8E-04	0.01	0.2%	4.8E-05	--	--	8.4E-04	0.01	0.2%
								Total ILCR:	1.7E-05	100.0%	HI:	2.94	100.0%	Total ILCR:	3.0E-05	100.0%	HI:	5.20	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM SURFACE SOIL IN SWMU 2, OU 3
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	Adult	Young Child	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFi	Inhalation cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDi	Inhalation reference dose (mg/kg/d)	CS	CS	
Ca	Concentration of chemical in air as fugitive dusts (mg/m3)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
PEF	Particulate emission factor (m3/kg)	1.32E+09	1.32E+09	
RR	Respiration rate (m3/hr)	0.83	0.83	
ET	Exposure time (hrs/d)	24	24	
EF	Exposure Frequency (d/yr)	350	350	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

					Adult						Young Child					
					Carcinogens			Noncarcinogens			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	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Benzo(a)pyrene	0.34	2.58E-10	3.1	NA	4.0E-12	1.2E-11	0.0%	7.0E-11	--	--	1.9E-11	5.8E-11	0.0%	3.3E-10	--	--
HxCDD, total	0.00021	1.59E-13	150000	NA	2.5E-15	3.7E-10	1.4%	4.3E-14	--	--	1.2E-14	1.7E-09	1.4%	2.0E-13	--	--
HxCDF, total	0.00016	1.21E-13	150000	NA	1.9E-15	2.8E-10	1.0%	3.3E-14	--	--	8.8E-15	1.3E-09	1.0%	1.5E-13	--	--
Aluminum	29214.23	2.21E-05	NA	0.001	3.5E-07	--	--	6.0E-06	0.01	27.8%	1.6E-06	--	--	2.8E-05	0.03	27.8%
Antimony	14.6	1.11E-08	NA	NA	1.7E-10	--	--	3.0E-09	--	--	8.0E-10	--	--	1.4E-08	--	--
Arsenic	34.82	2.64E-08	15.1	NA	4.1E-10	6.2E-09	22.7%	7.2E-09	--	--	1.9E-09	2.9E-08	22.7%	3.4E-08	--	--
Barium	348.03	2.64E-07	NA	0.00014	4.1E-09	--	--	7.2E-08	0.00	2.4%	1.9E-08	--	--	3.4E-07	0.00	2.4%
Cadmium (soil/sediment)	2.17	1.64E-09	6.3	NA	2.6E-11	1.6E-10	0.6%	4.5E-10	--	--	1.2E-10	7.5E-10	0.6%	2.1E-09	--	--
Chromium	41.9	3.17E-08	41	0.00003	4.9E-10	2.0E-08	74.2%	8.7E-09	0.00	1.3%	2.3E-09	9.5E-08	74.2%	4.0E-08	0.00	1.3%
Copper	769.04	5.83E-07	NA	NA	9.1E-09	--	--	1.6E-07	--	--	4.2E-08	--	--	7.4E-07	--	--
Iron	114551	8.68E-05	NA	NA	1.4E-06	--	--	2.4E-05	--	--	6.3E-06	--	--	1.1E-04	--	--
Lead	610.76	4.63E-07	NA	NA	7.2E-09	--	--	1.3E-07	--	--	3.4E-08	--	--	5.9E-07	--	--
Manganese (non-food)	1027.9	7.79E-07	NA	0.0000143	1.2E-08	--	--	2.1E-07	0.01	68.5%	5.7E-08	--	--	9.9E-07	0.07	68.5%
Mercury	0.38	2.88E-10	NA	0.000086	4.5E-12	--	--	7.9E-11	0.00	0.0%	2.1E-11	--	--	3.7E-10	0.00	0.0%
Nickel	35.58	2.70E-08	NA	NA	4.2E-10	--	--	7.4E-09	--	--	2.0E-09	--	--	3.4E-08	--	--
Selenium	62.76	4.75E-08	NA	NA	7.4E-10	--	--	1.3E-08	--	--	3.5E-09	--	--	6.1E-08	--	--
Vanadium	202.15	1.53E-07	NA	NA	2.4E-09	--	--	4.2E-08	--	--	1.1E-08	--	--	2.0E-07	--	--
Zinc	658.75	4.99E-07	NA	NA	7.8E-09	--	--	1.4E-07	--	--	3.6E-08	--	--	6.4E-07	--	--
					Total ILCR:	2.7E-08	100.0%	HI:	0.02	100.0%	Total ILCR:	1.3E-07	100.0%	HI:	0.10	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
INGESTION OF GROUNDWATER AS DRINKING WATER AT SWMU 2, OU 3
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)	2	1	
EF	Exposure Frequency (d/yr)	350	350	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				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	% Contr. ILCR Org+Tot Inorg	% Contr. ILCR Org+Dis Inorg	CDI (mg/kg/d)	HQ	% Contr. HI Org+Tot Inorg	% Contr. HI Org+Dis Inorg	CDI (mg/kg/d)	ILCR	% Contr. ILCR Org+Tot Inorg	% Contr. ILCR Org+Dis Inorg	CDI (mg/kg/d)	HQ	% Contr. HI Org+Tot Inorg	% Contr. HI Org+Dis Inorg
Chloroform	0.00496	0.0061	0.01	7.8E-06	4.7E-08	0.4%	0.9%	1.4E-04	0.01	0.3%	2.2%	1.8E-05	1.1E-07	0.4%	0.9%	3.2E-04	0.03	0.3%	2.2%
Trichloroethene	0.00553	0.011	0.006	8.7E-06	9.5E-08	0.8%	1.9%	1.5E-04	0.03	0.6%	4.2%	2.0E-05	2.2E-07	0.8%	1.9%	3.5E-04	0.06	0.6%	4.2%
Isodrin	0.00004	NA	NA	6.3E-08	--	--	--	1.1E-06	--	--	--	1.5E-07	--	--	--	2.6E-06	--	--	--
Pentachlorophenol	0.011	0.12	0.03	1.7E-05	2.1E-06	17.8%	41.1%	3.0E-04	0.01	0.2%	1.7%	4.0E-05	4.8E-06	17.8%	41.1%	7.0E-04	0.02	0.2%	1.7%
Aldrin	0.00009	17	0.00003	1.4E-07	2.4E-06	20.6%	47.6%	2.5E-06	0.08	1.9%	13.6%	3.3E-07	5.6E-06	20.6%	47.6%	5.8E-06	0.19	1.9%	13.6%
Heptachlor Epoxide	0.00003	9.1	0.000013	4.7E-08	4.3E-07	3.7%	8.5%	8.2E-07	0.06	1.4%	10.5%	1.1E-07	1.0E-06	3.7%	8.5%	1.9E-06	0.15	1.4%	10.5%
Total Inorganics																			
Antimony	0.0196	NA	0.0004	3.1E-05	--	--	--	5.4E-04	1.34	30.3%	--	7.2E-05	--	--	--	1.3E-03	3.13	30.3%	--
Arsenic	0.0028	1.5	0.0003	4.4E-06	6.6E-06	56.6%	--	7.7E-05	0.26	5.8%	--	1.0E-05	1.5E-05	56.6%	--	1.8E-04	0.60	5.8%	--
Barium	0.5735	NA	0.07	9.0E-04	--	--	--	1.6E-02	0.22	5.1%	--	2.1E-03	--	--	--	3.7E-02	0.52	5.1%	--
Cadmium (water)	0.00239	NA	0.0005	3.7E-06	--	--	--	6.5E-05	0.13	3.0%	--	8.7E-06	--	--	--	1.5E-04	0.31	3.0%	--
Chromium	0.03515	NA	0.003	5.5E-05	--	--	--	9.6E-04	0.32	7.2%	--	1.3E-04	--	--	--	2.2E-03	0.75	7.2%	--
Copper	0.12924	NA	0.04	2.0E-04	--	--	--	3.5E-03	0.09	2.0%	--	4.7E-04	--	--	--	8.3E-03	0.21	2.0%	--
Iron	1.73	NA	0.3	2.7E-03	--	--	--	4.7E-02	0.16	3.6%	--	6.3E-03	--	--	--	1.1E-01	0.37	3.6%	--
Lead	0.06446	NA	NA	1.0E-04	--	--	--	1.8E-03	--	--	--	2.4E-04	--	--	--	4.1E-03	--	--	--
Vanadium	0.43767	NA	0.007	6.9E-04	--	--	--	1.2E-02	1.71	38.7%	--	1.6E-03	--	--	--	2.8E-02	4.00	38.7%	--
Dissolved Inorganics																			
Barium	0.24285	NA	0.07	3.8E-04	--	--	--	6.7E-03	0.10	--	15.7%	8.9E-04	--	--	--	1.6E-02	0.22	--	15.7%
Cadmium (water)	0.00296	NA	0.0005	4.6E-06	--	--	--	8.1E-05	0.16	--	26.8%	1.1E-05	--	--	--	1.9E-04	0.38	--	26.8%
Vanadium	0.03907	NA	0.007	6.1E-05	--	--	--	1.1E-03	0.15	--	25.3%	1.4E-04	--	--	--	2.5E-03	0.36	--	25.3%
Risk from Organics & Total Inorganics				Total ILCR:	1.2E-05	100.0%		HI:	4.43	100.0%		Total ILCR:	2.7E-05	100.0%		HI:	10.33	100.0%	
Risk from Organics & Dissolved Inorganics				Total ILCR:	5.0E-06		100.0%	HI:	0.60		100.0%	Total ILCR:	1.2E-05		100.0%	HI:	1.41		100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
DERMAL CONTACT WITH GROUNDWATER DURING BATHING AT SWMU 2, OU 3
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*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	
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	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
SA	Skin surface area available for contact (cm2)	20000	8023	
ET	Exposure frequency (d/yr)	350	350	
ED	Exposure duration (yrs)	4	4	
ET	Exposure time (hrs/day)	0.2	0.2	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	
CF	Conversion factor (L/cm3)	0.001	0.001	
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	% Contr. ILCR Org+Tot Inorg	% Contr. ILCR Org+Dis Inorg	DAD (mg/kg/d)	HQ	% Contr. HI Org+Tot Inorg	% Contr. HI Org+Dis Inorg	DAD (mg/kg/d)	ILCR	% Contr. ILCR Org+Tot Inorg	% Contr. ILCR Org+Dis Inorg	DAD (mg/kg/d)	HQ	% Contr. HI Org+Tot Inorg	% Contr. HI Org+Dis Inorg
Chloroform	0.00496	0.0089	0.0061	0.01	1.4E-07	8.4E-10	0.0%	0.0%	2.4E-06	0.00	0.2%	0.4%	2.6E-07	1.6E-09	0.0%	0.0%	4.5E-06	0.00	0.2%	0.4%
Trichloroethene	0.00553	0.016	0.01375	0.0048	2.8E-07	3.8E-09	0.1%	0.1%	4.8E-06	0.00	0.7%	1.8%	5.2E-07	7.1E-09	0.1%	0.1%	9.1E-06	0.00	0.7%	1.8%
Isodrin	0.00004	0.00016	NA	NA	2.0E-11	--	--	--	3.5E-10	--	--	--	3.8E-11	--	--	--	6.6E-10	--	--	--
Pentachlorophenol	0.011	0.65	0.24	0.015	2.2E-05	5.4E-06	98.5%	99.3%	3.9E-04	0.03	17.6%	47.2%	4.2E-05	1.0E-05	98.5%	99.3%	7.3E-04	0.05	17.6%	47.2%
Aldrin	0.00009	0.0016	34	0.000015	4.5E-10	1.5E-08	0.3%	0.3%	7.9E-09	0.00	0.4%	1.0%	8.4E-10	2.9E-08	0.3%	0.3%	1.5E-08	0.00	0.4%	1.0%
Heptachlor Epoxide	0.00003	0.011	18.2	0.0000065	1.0E-09	1.9E-08	0.3%	0.3%	1.8E-08	0.00	1.9%	5.0%	1.9E-09	3.5E-08	0.3%	0.3%	3.4E-08	0.01	1.9%	5.0%
Total Inorganics																				
Antimony	0.0196	0.003	NA	0.00008	1.8E-07	--	--	--	3.2E-06	0.04	27.1%	--	3.4E-07	--	--	--	6.0E-06	0.08	27.1%	--
Arsenic	0.0028	0.003	1.578947368	0.000285	2.6E-08	4.2E-08	0.8%	--	4.6E-07	0.00	1.1%	--	4.9E-08	7.8E-08	0.8%	--	8.6E-07	0.00	1.1%	--
Barium	0.5735	0.003	NA	0.07	5.4E-06	--	--	--	9.4E-05	0.00	0.9%	--	1.0E-05	--	--	--	1.8E-04	0.00	0.9%	--
Cadmium (water)	0.00239	0.003	NA	0.000025	2.2E-08	--	--	--	3.9E-07	0.02	10.6%	--	4.2E-08	--	--	--	7.4E-07	0.03	10.6%	--
Chromium	0.03515	0.003	NA	0.003	3.3E-07	--	--	--	5.8E-06	0.00	1.3%	--	6.2E-07	--	--	--	1.1E-05	0.00	1.3%	--
Copper	0.12924	0.003	NA	0.024	1.2E-06	--	--	--	2.1E-05	0.00	0.6%	--	2.3E-06	--	--	--	4.0E-05	0.00	0.6%	--
Iron	1.73	0.003	NA	0.06	1.6E-05	--	--	--	2.8E-04	0.00	3.2%	--	3.0E-05	--	--	--	5.3E-04	0.01	3.2%	--
Lead	0.06446	0.003	NA	NA	6.1E-07	--	--	--	1.1E-05	--	--	--	1.1E-06	--	--	--	2.0E-05	--	--	--
Vanadium	0.43767	0.003	NA	0.0014	4.1E-06	--	--	--	7.2E-05	0.05	34.6%	--	7.7E-06	--	--	--	1.3E-04	0.10	34.6%	--
Dissolved Inorganics																				
Barium	0.24285	0.003	NA	0.07	2.3E-06	--	--	--	4.0E-05	0.00	--	1.0%	4.3E-06	--	--	--	7.5E-05	0.00	--	1.0%
Cadmium (water)	0.00296	0.003	NA	0.000025	2.8E-08	--	--	--	4.9E-07	0.02	--	35.2%	5.2E-08	--	--	--	9.1E-07	0.04	--	35.2%
Vanadium	0.03907	0.003	NA	0.0014	3.7E-07	--	--	--	6.4E-06	0.00	--	8.3%	6.9E-07	--	--	--	1.2E-05	0.01	--	8.3%
Risk from Organics & Total Inorganics					Total ILCR:	5.5E-06	100.0%		HI:	0.15	100.0%		Total ILCR:	1.0E-05	100.0%		HI:	0.28	100.0%	
Risk from Organics & Dissolved Inorganics					Total ILCR:	5.4E-06		100.0%	HI:	0.06		100.0%	Total ILCR:	1.0E-05		100.0%	HI:	0.10		100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT RESIDENTS - FUTURE SCENARIO
INHALATION OF VOLATILIZED ORGANIC COPCs IN SHOWER AIR - SWMU 2, OU 3
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)

ILCR = CDI*CSFi
HQ = CDI/RfDi

Parameter	Description	Adult	
CDI	Chronic daily intake (mg/kg/d)	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	
CSFi	Oral cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDi	Oral reference dose (mg/kg/d)	CS	
CA	Concentration of volatilized chemical in shower air, Foster and Chrystowski Model (mg/m3	CS	
RR	Respiration rate (m3/hr)	0.83	
ET	Exposure time (hrs/d)	0.2	
EF	Exposure Frequency (d/yr)	350	
ED	Exposure Duration (yrs)	4	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	1460	

				Adult					
				Carcinogens			Noncarcinogens		
Parameter	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
Chloroform	0.00549	0.081	0.000086	7.1E-07	5.8E-08	92.3%	1.2E-05	0.15	100.0%
Trichloroethene	0.006172	0.006	NA	8.0E-07	4.8E-09	7.7%	1.4E-05	--	--
				Total ILCR:	6.3E-08	100.0%	HI:	0.15	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
ACCIDENTAL INGESTION OF SURFACE WATER AT SWMU 2, OU3
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)	2.6	2.6	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				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
Bis(2-ethylhexyl)phthalate	0.00174	0.014	0.02	2.6E-08	3.7E-10	100.0%	4.6E-07	0.00	0.0%	1.2E-07	1.7E-09	100.0%	2.1E-06	0.00	0.0%
Di-n-octylphthalate	0.00164	NA	0.02	2.5E-08	--	--	4.3E-07	0.00	0.0%	1.2E-07	--	--	2.0E-06	0.00	0.0%
Beryllium	0.03338	NA	0.002	5.0E-07	--	--	8.8E-06	0.00	2.8%	2.4E-06	--	--	4.1E-05	0.02	2.8%
Chromium	0.43017	NA	0.003	6.5E-06	--	--	1.1E-04	0.04	24.0%	3.0E-05	--	--	5.3E-04	0.18	24.0%
Lead	0.33906	NA	NA	5.1E-06	--	--	9.0E-05	--	--	2.4E-05	--	--	4.2E-04	--	--
Mercury	0.00092	NA	NA	1.4E-08	--	--	2.4E-07	--	--	6.5E-08	--	--	1.1E-06	--	--
Selenium	0.38447	NA	0.005	5.8E-06	--	--	1.0E-04	0.02	12.9%	2.7E-05	--	--	4.7E-04	0.09	12.9%
Thallium	0.02501	NA	0.00007	3.8E-07	--	--	6.6E-06	0.09	59.8%	1.8E-06	--	--	3.1E-05	0.44	59.8%
Zinc	0.89939	NA	0.3	1.4E-05	--	--	2.4E-04	0.00	0.5%	6.3E-05	--	--	1.1E-03	0.00	0.5%
				Total ILCR:	3.7E-10	100.0%	HI:	0.16	100.0%	Total ILCR:	1.7E-09	100.0%	HI:	0.74	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
DERMAL CONTACT WITH SURFACE WATER AT SWMU 2, OU3
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)	4	4	
ET	Exposure time (hrs/day)	2.6	2.6	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25,550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	
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)	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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
Bis(2-ethylhexyl)phthalate	0.00174	0.033	0.014	0.02	0.5	0.028	0.01	1.0E-07	2.8E-09	100.0%	1.8E-06	0.00	0.1%	1.6E-07	4.6E-09	100.0%	2.8E-06	0.00	0.1%
Di-n-octylphthalate	0.00164	0.033	NA	0.02	0.5	NA	0.01	9.5E-08	--	--	1.7E-06	0.00	0.1%	1.5E-07	--	--	2.7E-06	0.00	0.1%
Beryllium	0.03338	0.003	NA	0.002	1	NA	0.002	1.8E-07	--	--	3.1E-06	0.00	0.7%	2.8E-07	--	--	5.0E-06	0.00	0.7%
Chromium	0.43017	0.003	NA	0.003	1	NA	0.003	2.3E-06	--	--	4.0E-05	0.01	6.1%	3.7E-06	--	--	6.4E-05	0.02	6.1%
Lead	0.33906	0.003	NA	NA	0.2	NA	NA	1.8E-06	--	--	3.1E-05	--	--	2.9E-06	--	--	5.0E-05	--	--
Mercury	0.00092	0.003	NA	NA	0.15	NA	NA	4.8E-09	--	--	8.5E-08	--	--	7.8E-09	--	--	1.4E-07	--	--
Selenium	0.38447	0.003	NA	0.005	0.2	NA	0.001	2.0E-06	--	--	3.5E-05	0.04	16.4%	3.3E-06	--	--	5.7E-05	0.06	16.4%
Thallium	0.02501	0.003	NA	0.00007	0.2	NA	0.000014	1.3E-07	--	--	2.3E-06	0.16	76.1%	2.1E-07	--	--	3.7E-06	0.27	76.1%
Zinc	0.89939	0.003	NA	0.3	0.25	NA	0.075	4.7E-06	--	--	8.3E-05	0.00	0.5%	7.6E-06	--	--	1.3E-04	0.00	0.5%
								Total ILCR:	2.8E-09	100.0%	HI:	0.22	100.0%	Total ILCR:	4.6E-09	100.0%	HI:	0.35	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
ACCIDENTAL INGESTION OF SEDIMENT IN SWMU 2, OU 3
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 sediment (mg/kg)	CS	CS	
IR	Ingestion Rate (mg/d)	100	200	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
FI	Fraction of sediment ingested from site	1	1	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				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
Benzo(a)anthracene	0.37892	0.73	NA	4.4E-09	3.2E-09	0.1%	7.7E-08	--	--	4.1E-08	3.0E-08	0.1%	7.2E-07	--	--
Benzo(a)pyrene	0.36889	7.3	NA	4.3E-09	3.1E-08	0.9%	7.5E-08	--	--	4.0E-08	2.9E-07	0.9%	7.0E-07	--	--
Benzo(b)fluoranthene	0.5535	0.73	NA	6.4E-09	4.7E-09	0.1%	1.1E-07	--	--	6.0E-08	4.4E-08	0.1%	1.1E-06	--	--
DDE, 4,4'-	0.029	0.34	NA	3.4E-10	1.1E-10	0.0%	5.9E-09	--	--	3.1E-09	1.1E-09	0.0%	5.5E-08	--	--
HxCDD, total	0.00129	150000	NA	1.5E-11	2.3E-06	68.2%	2.6E-10	--	--	1.4E-10	2.1E-05	68.2%	2.5E-09	--	--
HxCDF, total	0.00049	150000	NA	5.7E-12	8.5E-07	25.9%	1.0E-10	--	--	5.3E-11	8.0E-06	25.9%	9.3E-10	--	--
Antimony	5.16	NA	0.0004	6.0E-08	--	--	1.1E-06	0.00	17.9%	5.6E-07	--	--	9.8E-06	0.02	17.9%
Arsenic	8.94	1.5	0.0003	1.0E-07	1.6E-07	4.7%	1.8E-06	0.01	41.3%	9.7E-07	1.5E-06	4.7%	1.7E-05	0.06	41.3%
Chromium	22.81	NA	0.003	2.7E-07	--	--	4.6E-06	0.00	10.5%	2.5E-06	--	--	4.3E-05	0.01	10.5%
Copper	195.12	NA	0.04	2.3E-06	--	--	4.0E-05	0.00	6.8%	2.1E-05	--	--	3.7E-04	0.01	6.8%
Lead	142.13	NA	NA	1.7E-06	--	--	2.9E-05	--	--	1.5E-05	--	--	2.7E-04	--	--
Mercury	0.72	NA	NA	8.4E-09	--	--	1.5E-07	--	--	7.8E-08	--	--	1.4E-06	--	--
Vanadium	112.15	NA	0.007	1.3E-06	--	--	2.3E-05	0.00	22.2%	1.2E-05	--	--	2.1E-04	0.03	22.2%
Zinc	287.21	NA	0.3	3.3E-06	--	--	5.8E-05	0.00	1.3%	3.1E-05	--	--	5.5E-04	0.00	1.3%
				Total ILCR:	3.3E-06	100.0%	HI:	0.01	100.0%	Total ILCR:	3.1E-05	100.0%	HI:	0.14	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
DERMAL CONTACT WITH SEDIMENT IN SWMU 2, OU 3
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	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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in sediment (mg/kg)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
A	Skin surface area available for contact (cm2)	5300	2006	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

								Adult						Young Child					
								Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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
Benzo(a)anthracene	0.37892	0.1	0.73	NA	0.5	1.46	NA	2.3E-08	3.4E-08	0.6%	4.1E-07	--	--	4.1E-08	6.0E-08	0.6%	7.2E-07	--	--
Benzo(a)pyrene	0.36889	0.1	7.3	NA	0.5	14.6	NA	2.3E-08	3.3E-07	5.4%	4.0E-07	--	--	4.0E-08	5.9E-07	5.4%	7.0E-07	--	--
Benzo(b)fluoranthene	0.5535	0.1	0.73	NA	0.5	1.46	NA	3.4E-08	5.0E-08	0.8%	6.0E-07	--	--	6.0E-08	8.8E-08	0.8%	1.1E-06	--	--
DDE, 4,4'-	0.029	0.1	0.34	NA	0.5	0.68	NA	1.8E-09	1.2E-09	0.0%	3.1E-08	--	--	3.2E-09	2.1E-09	0.0%	5.5E-08	--	--
HxCDD, total	0.00129	0.03	150000	NA	0.9	166666.667	NA	2.4E-11	4.0E-06	64.3%	4.2E-10	--	--	4.2E-11	7.0E-06	64.3%	7.4E-10	--	--
HxCDF, total	0.00049	0.03	150000	NA	0.9	166666.667	NA	9.1E-12	1.5E-06	24.4%	1.6E-10	--	--	1.6E-11	2.7E-06	24.4%	2.8E-10	--	--
Antimony	5.16	0.01	NA	0.0004	0.2	NA	0.00008	3.2E-08	--	--	5.6E-07	0.01	24.4%	5.6E-08	--	--	9.8E-07	0.01	24.4%
Arsenic	8.94	0.032	1.5	0.0003	0.95	1.57894737	0.000285	1.8E-07	2.8E-07	4.5%	3.1E-06	0.01	37.9%	3.1E-07	4.9E-07	4.5%	5.5E-06	0.02	37.9%
Chromium	22.81	0.01	NA	0.003	1	NA	0.003	1.4E-07	--	--	2.5E-06	0.00	2.9%	2.5E-07	--	--	4.3E-06	0.00	2.9%
Copper	195.12	0.01	NA	0.04	0.6	NA	0.024	1.2E-06	--	--	2.1E-05	0.00	3.1%	2.1E-06	--	--	3.7E-05	0.00	3.1%
Lead	142.13	0.01	NA	NA	0.2	NA	NA	8.8E-07	--	--	1.5E-05	--	--	1.5E-06	--	--	2.7E-05	--	--
Mercury	0.72	0.01	NA	NA	0.15	NA	NA	4.4E-09	--	--	7.8E-08	--	--	7.8E-09	--	--	1.4E-07	--	--
Vanadium	112.15	0.01	NA	0.007	0.2	NA	0.0014	6.9E-07	--	--	1.2E-05	0.01	30.3%	1.2E-06	--	--	2.1E-05	0.02	30.3%
Zinc	287.21	0.01	NA	0.3	0.25	NA	0.075	1.8E-06	--	--	3.1E-05	0.00	1.4%	3.1E-06	--	--	5.5E-05	0.00	1.4%
								Total ILCR:	6.2E-06	100.0%	HI:	0.03	100.0%	Total ILCR:	1.1E-05	100.0%	HI:	0.05	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

SWMU 45

ON-SITE WORKERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SURFACE SOIL IN SWMU 45, OU5
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 soil (mg/kg)	CS	
IR	Ingestion Rate (mg/d)	100	
CF	Conversion factor (kg/mg)	0.000001	
FI	Fraction of soil ingested from site	0.5	
EF	Exposure Frequency (d/yr)	250	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

				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	3.3	1.5	0.0003	5.8E-07	8.6E-07	100.0%	1.6E-06	0.01	52.5%
Chromium	29.9	NA	0.003	5.2E-06	--	--	1.5E-05	0.00	47.5%
Mercury	0.03	NA	NA	5.2E-09	--	--	1.5E-08	--	--
				Total ILCR:	8.6E-07	100.0%	HI:	0.01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
DERMAL CONTACT WITH SURFACE SOIL IN SWMU 45, OU5
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 soil (mg/kg)	CS	
CF	Conversion factor (kg/mg)	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
A	Skin surface area available for contact (cm2)	4100	
EF	Exposure Frequency (d/yr)	250	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

								Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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	3.3	0.032	1.5	0.0003	0.95	1.578947	0.000285	1.5E-06	2.4E-06	100.0%	4.2E-06	0.01	78.8%
Chromium	29.9	0.01	NA	0.003	1	NA	0.003	4.3E-06	--	--	1.2E-05	0.00	21.2%
Mercury	0.03	0.01	NA	NA	0.15	NA	NA	4.3E-09	--	--	1.2E-08	--	--
								Total ILCR:	2.4E-06	100.0%	HI:	0.02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM SURFACE SOIL IN SWMU 45, OU5
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	On-site 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)	250	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

					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	3.3	2.50E-09	15.1	NA	8.7E-11	1.3E-09	3.9%	2.4E-10	--	--
Chromium	29.9	2.27E-08	41	0.00003	7.9E-10	3.2E-08	96.1%	2.2E-09	0.00	100.0%
Mercury	0.03	2.27E-11	NA	0.000086	7.9E-13	--	--	2.2E-12	0.00	0.0%
					Total ILCR:	3.4E-08	100.0%	HI:	0.00	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SEDIMENT IN SWMU 45, OU5
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 soil (mg/kg)	CS	
IR	Ingestion Rate (mg/d)	100	
CF	Conversion factor (kg/mg)	0.000001	
FI	Fraction of soil ingested from site	0.5	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

				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
Benzo(a)pyrene	0.73234	7.3	NA	2.7E-08	1.9E-07	24.8%	7.5E-08	--	--
Benzo(b)fluoranthene	1.30822	0.73	NA	4.8E-08	3.5E-08	4.4%	1.3E-07	--	--
Dibenz(a,h)anthracene	0.37156	7.3	NA	1.4E-08	9.9E-08	12.6%	3.8E-08	--	--
Indeno(1,2,3-cd)pyrene	0.61699	0.73	NA	2.2E-08	1.6E-08	2.1%	6.3E-08	--	--
Arsenic	8.04	1.5	0.0003	2.9E-07	4.4E-07	56.0%	8.2E-07	0.00	83.8%
Vanadium	36.39	NA	0.007	1.3E-06	--	--	3.7E-06	0.00	16.2%
				Total ILCR:	7.8E-07	100.0%	HI:	0.00	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ON-SITE WORKERS - CURRENT SCENARIO
DERMAL CONTACT WITH SEDIMENT IN SWMU 45, OU5
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 soil (mg/kg)	CS	
CF	Conversion factor (kg/mg)	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
A	Skin surface area available for contact (cm2)	4100	
EF	Exposure Frequency (d/yr)	52	
ED	Exposure Duration (yrs)	25	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	9125	

								Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Benzo(a)pyrene	0.73234	0.1	7.3	NA	0.5	14.6	NA	2.2E-07	3.2E-06	46.5%	6.1E-07	--	--
Benzo(b)fluoranthene	1.30822	0.1	0.73	NA	0.5	1.46	NA	3.9E-07	5.7E-07	8.3%	1.1E-06	--	--
Dibenz(a,h)anthracene	0.37156	0.1	7.3	NA	0.5	14.6	NA	1.1E-07	1.6E-06	23.6%	3.1E-07	--	--
Indeno(1,2,3-cd)pyrene	0.61699	0.1	0.73	NA	0.5	1.46	NA	1.8E-07	2.7E-07	3.9%	5.1E-07	--	--
Arsenic	8.04	0.032	1.5	0.0003	0.95	1.578947368	0.000285	7.7E-07	1.2E-06	17.7%	2.1E-06	0.01	77.6%
Vanadium	36.39	0.01	NA	0.007	0.2	NA	0.0014	1.1E-06	--	--	3.0E-06	0.00	22.4%
								Total ILCR:	6.9E-06	100.0%	HI:	0.01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SURFACE SOIL IN SWMU 45, OU 5
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	Adolescent	
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	100	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
FI	Fraction of soil ingested from site	0.5	0.5	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				Adult						Adolescent					
				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	3.3	1.5	0.0003	1.8E-09	2.8E-09	100.0%	3.2E-08	0.00	52.5%	1.0E-08	1.6E-08	100.0%	1.8E-07	0.00	52.5%
Chromium	29.9	NA	0.003	1.7E-08	--	--	2.9E-07	0.00	47.5%	9.5E-08	--	--	1.7E-06	0.00	47.5%
Mercury	0.03	NA	NA	1.7E-11	--	--	2.9E-10	--	--	9.5E-11	--	--	1.7E-09	--	--
				Total ILCR:	2.8E-09	100.0%	HI:	0.00	100.0%	Total ILCR:	1.6E-08	100.0%	HI:	0.00	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
DERMAL CONTACT WITH SURFACE SOIL IN SWMU 45, OU 5
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	Adult	Adolescent	
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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
A	Skin surface area available for contact (cm2)	5300	3925	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

								Adult						Adolescent					
								Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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	3.3	0.032	1.5	0.0003	0.95	1.578947368	0.000285	6.3E-09	9.9E-09	100.0%	1.1E-07	0.00	78.8%	2.6E-08	4.2E-08	100.0%	4.6E-07	0.00	78.8%
Chromium	29.9	0.01	NA	0.003	1	NA	0.003	1.8E-08	--	--	3.1E-07	0.00	21.2%	7.4E-08	--	--	1.3E-06	0.00	21.2%
Mercury	0.03	0.01	NA	NA	0.15	NA	NA	1.8E-11	--	--	3.1E-10	--	--	7.5E-11	--	--	1.3E-09	--	--
								Total ILCR:	9.9E-09	100.0%	HI:	0.00	100.0%	Total ILCR:	4.2E-08	100.0%	HI:	0.00	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM SURFACE SOIL IN SWMU 45, OU 5
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	Adult	Adolescent	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFi	Inhalation cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDi	Inhalation reference dose (mg/kg/d)	CS	CS	
Ca	Concentration of chemical in air as fugitive dusts (mg/m3)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
PEF	Particulate emission factor (m3/kg)	1.32E+09	1.32E+09	
RR	Respiration rate (m3/hr)	0.83	0.83	
ET	Exposure time (hrs/d)	1	1	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

					Adult						Adolescent					
					Carcinogens			Noncarcinogens			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	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	3.3	2.50E-09	15.1	NA	2.3E-14	3.5E-13	3.9%	4.1E-13	--	--	1.3E-13	2.0E-12	3.9%	2.3E-12	--	--
Chromium	29.9	2.27E-08	41	0.00003	2.1E-13	8.6E-12	96.1%	3.7E-12	0.00	100.0%	1.2E-12	4.9E-11	96.1%	2.1E-11	0.00	100.0%
Mercury	0.03	2.27E-11	NA	0.000086	2.1E-16	--	--	3.7E-15	0.00	0.0%	1.2E-15	--	--	2.1E-14	0.00	0.0%
					Total ILCR:	9.0E-12	100.0%	HI:	0.00	100.0%	Total ILCR:	5.1E-11	100.0%	HI:	0.00	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
ACCIDENTAL INGESTION OF SEDIMENT IN SWMU 45, OU 5
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	Adolescent	
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 sediment (mg/kg)	CS	CS	
IR	Ingestion Rate (mg/d)	100	100	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
FI	Fraction of sediment ingested from site	0.5	0.5	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				Adult						Adolescent					
				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
Benzo(a)pyrene	0.73234	7.3	NA	4.1E-10	3.0E-09	24.8%	7.2E-09	--	--	2.3E-09	1.7E-08	24.8%	4.1E-08	--	--
Benzo(b)fluoranthene	1.30822	0.73	NA	7.3E-10	5.3E-10	4.4%	1.3E-08	--	--	4.2E-09	3.0E-09	4.4%	7.3E-08	--	--
Dibenz(a,h)anthracene	0.37156	7.3	NA	2.1E-10	1.5E-09	12.6%	3.6E-09	--	--	1.2E-09	8.6E-09	12.6%	2.1E-08	--	--
Indeno(1,2,3-cd)pyrene	0.61699	0.73	NA	3.4E-10	2.5E-10	2.1%	6.0E-09	--	--	2.0E-09	1.4E-09	2.1%	3.4E-08	--	--
Arsenic	8.04	1.5	0.0003	4.5E-09	6.7E-09	56.0%	7.9E-08	0.00	83.8%	2.6E-08	3.8E-08	56.0%	4.5E-07	0.00	83.8%
Vanadium	36.39	NA	0.007	2.0E-08	--	--	3.6E-07	0.00	16.2%	1.2E-07	--	--	2.0E-06	0.00	16.2%
				Total ILCR:	1.2E-08	100.0%	HI:	0.00	100.0%	Total ILCR:	6.8E-08	100.0%	HI:	0.00	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND ADOLESCENT TRESPASSERS - CURRENT SCENARIO
DERMAL CONTACT WITH SEDIMENT IN SWMU 45, OU 5
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	Adult	Adolescent	
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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
A	Skin surface area available for contact (cm2)	5300	3925	
EF	Exposure Frequency (d/yr)	5	15	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	37	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

								Adult						Adolescent					
								Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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
Benzo(a)pyrene	0.73234	0.1	7.3	NA	0.5	14.6	NA	4.3E-09	6.3E-08	46.5%	7.6E-08	--	--	1.8E-08	2.7E-07	46.5%	3.2E-07	--	--
Benzo(b)fluoranthene	1.30822	0.1	0.73	NA	0.5	1.46	NA	7.8E-09	1.1E-08	8.3%	1.4E-07	--	--	3.3E-08	4.8E-08	8.3%	5.7E-07	--	--
Dibenz(a,h)anthracene	0.37156	0.1	7.3	NA	0.5	14.6	NA	2.2E-09	3.2E-08	23.6%	3.9E-08	--	--	9.3E-09	1.4E-07	23.6%	1.6E-07	--	--
Indeno(1,2,3-cd)pyrene	0.61699	0.1	0.73	NA	0.5	1.46	NA	3.7E-09	5.3E-09	3.9%	6.4E-08	--	--	1.5E-08	2.2E-08	3.9%	2.7E-07	--	--
Arsenic	8.04	0.032	1.5	0.0003	0.95	1.578947	0.000285	1.5E-08	2.4E-08	17.7%	2.7E-07	0.00	77.6%	6.4E-08	1.0E-07	17.7%	1.1E-06	0.00	77.6%
Vanadium	36.39	0.01	NA	0.007	0.2	NA	0.0014	2.2E-08	--	--	3.8E-07	0.00	22.4%	9.1E-08	--	--	1.6E-06	0.00	22.4%
								Total ILCR:	1.4E-07	100.0%	HI:	0.00	100.0%	Total ILCR:	5.7E-07	100.0%	HI:	0.01	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

CONSTRUCTION WORKERS - FUTURE SCENARIO
ACCIDENTAL INGESTION OF SUBSURFACE SOIL IN SWMU 45, OU 5
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)	0.000001	
FI	Fraction of soil ingested from site	1	
EF	Exposure Frequency (d/yr)	250	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
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
Benzo(a)pyrene	0.20156	7.3	NA	1.4E-08	9.9E-08	25.5%	9.5E-07	--	--
Arsenic	2.87	1.5	0.0003	1.9E-07	2.9E-07	74.5%	1.3E-05	0.04	25.8%
Chromium	47.03	NA	0.003	3.2E-06	--	--	2.2E-04	0.07	42.2%
Mercury	0.01	NA	NA	6.7E-10	--	--	4.7E-08	--	--
Vanadium	83.35	NA	0.007	5.6E-06	--	--	3.9E-04	0.06	32.1%
				Total ILCR:	3.9E-07	100.0%	Total HI:	0.17	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

CONSTRUCTION WORKERS - FUTURE SCENARIO
DERMAL CONTACT WITH SUBSURFACE SOIL IN SWMU 45, OU 5
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	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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	
HQ	Hazard quotient	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	
CF	Conversion factor (kg/mg)	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	
ABS	Absorption fraction	CS	
A	Skin surface area available for contact (cm2)	4100	
EF	Exposure Frequency (d/yr)	250	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
ATn	Averaging time, noncarcinogens (d)	365	

								Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	CSFd 1/(mg/kg/d)	RfDd (mg/kg/d)	DAD (mg/kg/d)	ILCR	% Contrib. Total ILCR	DAD (mg/kg/d)	HQ	% Contrib. HI
Benzo(a)pyrene	0.20156	0.1	7.3	NA	0.5	14.6	NA	1.2E-08	1.7E-07	67.0%	8.1E-07	--	--
Arsenic	2.87	0.032	1.5	0.0003	0.95	1.578947368	0.000285	5.3E-08	8.3E-08	33.0%	3.7E-06	0.01	30.0%
Chromium	47.03	0.01	NA	0.003	1	NA	0.003	2.7E-07	--	--	1.9E-05	0.01	14.6%
Mercury	0.01	0.01	NA	NA	0.15	NA	NA	5.7E-11	--	--	4.0E-09	--	--
Vanadium	83.35	0.01	NA	0.007	0.2	NA	0.0014	4.8E-07	--	--	3.3E-05	0.02	55.4%
								Total ILCR:	2.5E-07	100.0%	Total HI:	0.04	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

CONSTRUCTION WORKERS - FUTURE SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM SUBSURFACE SOIL IN SWMU 45, OU 5
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)	250	
ED	Exposure Duration (yrs)	1	
BW	Body weight (kg)	70	
ATc	Averaging time, carcinogens (d)	25550	
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
Benzo(a)pyrene	0.20156	1.53E-10	3.1	NA	2.1E-13	6.6E-13	0.0%	1.5E-11	--	--
Arsenic	2.87	2.17E-09	15.1	NA	3.0E-12	4.6E-11	2.2%	2.1E-10	--	--
Chromium	47.03	3.56E-08	41	0.00003	5.0E-11	2.0E-09	97.8%	3.5E-09	0.00	100.0%
Mercury	0.01	7.58E-12	NA	0.000086	1.1E-14	--	--	7.4E-13	0.00	0.0%
Vanadium	83.35	6.31E-08	NA	NA	8.8E-11	--	--	6.2E-09	--	--
					Total ILCR:	2.1E-09	100.0%	Total HI:	0.00	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
ACCIDENTAL INGESTION OF SURFACE SOIL IN SWMU 45, OU 5
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)	0.000001	0.000001	
FI	Fraction of soil ingested from site	1	1	
EF	Exposure Frequency (d/yr)	350	350	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				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	3.3	1.5	0.0003	2.6E-07	3.9E-07	100.0%	4.5E-06	0.02	52.5%	2.4E-06	3.6E-06	100.0%	4.2E-05	0.14	52.5%
Chromium	29.9	NA	0.003	2.3E-06	--	--	4.1E-05	0.01	47.5%	2.2E-05	--	--	3.8E-04	0.13	47.5%
Mercury	0.03	NA	NA	2.3E-09	--	--	4.1E-08	--	--	2.2E-08	--	--	3.8E-07	--	--
				Total ILCR:	3.9E-07	100.0%	HI:	0.03	100.0%	Total ILCR:	3.6E-06	100.0%	HI:	0.27	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
DERMAL CONTACT WITH SURFACE SOIL IN SWMU 45, OU 5
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	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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
A	Skin surface area available for contact (cm2)	5300	2006	
EF	Exposure Frequency (d/yr)	350	350	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

								Adult						Young Child					
								Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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	3.3	0.032	1.5	0.0003	0.95	1.57894737	0.000285	4.4E-07	6.9E-07	100.0%	7.7E-06	0.03	78.8%	7.7E-07	1.2E-06	100.0%	1.4E-05	0.05	78.8%
Chromium	29.9	0.01	NA	0.003	1	NA	0.003	1.2E-06	--	--	2.2E-05	0.01	21.2%	2.2E-06	--	--	3.8E-05	0.01	21.2%
Mercury	0.03	0.01	NA	NA	0.15	NA	NA	1.2E-09	--	--	2.2E-08	--	--	2.2E-09	--	--	3.8E-08	--	--
								Total ILCR:	6.9E-07	100.0%	HI:	0.03	100.0%	Total ILCR:	1.2E-06	100.0%	HI:	0.06	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
INHALATION OF FUGITIVE DUSTS EMANATING FROM SURFACE SOIL IN SWMU 45, OU 5
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	Adult	Young Child	
CDI	Chronic daily intake (mg/kg/d)	CS	CS	(Chemical Specific)
ILCR	Incremental lifetime cancer risk	CS	CS	
CSFi	Inhalation cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDi	Inhalation reference dose (mg/kg/d)	CS	CS	
Ca	Concentration of chemical in air as fugitive dusts (mg/m3)	CS	CS	
Cs	Concentration of chemical in soil (mg/kg)	CS	CS	
PEF	Particulate emission factor (m3/kg)	1.32E+09	1.32E+09	
RR	Respiration rate (m3/hr)	0.83	0.83	
ET	Exposure time (hrs/d)	24	24	
EF	Exposure Frequency (d/yr)	350	350	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

					Adult						Young Child					
					Carcinogens			Noncarcinogens			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	CDI (mg/kg/d)	ILCR	% Contrib. Total ILCR	CDI (mg/kg/d)	HQ	% Contrib. HI
Arsenic	3.3	2.50E-09	15.1	NA	3.9E-11	5.9E-10	3.9%	6.8E-10	--	--	1.8E-10	2.7E-09	3.9%	6.8E-10	--	--
Chromium	29.9	2.27E-08	41	0.00003	3.5E-10	1.4E-08	96.1%	6.2E-09	0.00	100.0%	1.6E-09	6.8E-08	96.1%	6.2E-09	0.00	100.0%
Mercury	0.03	2.27E-11	NA	0.000086	3.5E-13	--	--	6.2E-12	0.00	0.0%	1.7E-12	--	--	6.2E-12	0.00	0.0%
					Total ILCR:	1.5E-08	100.0%	HI:	0.00	100.0%	Total ILCR:	7.0E-08	100.0%	HI:	0.00	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
INGESTION OF GROUNDWATER AS DRINKING WATER AT SWMU 45, OU 5
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)	2	1	
EF	Exposure Frequency (d/yr)	350	350	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				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	% Contr. ILCR Org+Tot Inorg	% Contr. ILCR Org+Dis Inorg	CDI (mg/kg/d)	HQ	% Contr. HI Org+Tot Inorg	% Contr. HI Org+Dis Inorg	CDI (mg/kg/d)	ILCR	% Contr. ILCR Org+Tot Inorg	% Contr. ILCR Org+Dis Inorg	CDI (mg/kg/d)	HQ	% Contr. HI Org+Tot Inorg	% Contr. HI Org+Dis Inorg
Benzo(a)anthracene	0.00528	0.73	NA	8.3E-06	6.0E-06	4.7%	7.3%	1.4E-04	--	--	--	1.9E-05	1.4E-05	4.7%	7.3%	3.4E-04	--	--	--
Benzo(a)pyrene	0.00537	7.3	NA	8.4E-06	6.1E-05	48.3%	74.2%	1.5E-04	--	--	--	2.0E-05	1.4E-04	48.3%	74.2%	3.4E-04	--	--	--
Bis(2-ethylhexyl)phthalate	0.0195	0.014	0.02	3.1E-05	4.3E-07	0.3%	0.5%	5.3E-04	0.03	0.8%	3.1%	7.1E-05	1.0E-06	0.3%	0.5%	1.2E-03	0.06	0.8%	3.1%
Chrysene	0.00608	0.0073	NA	9.5E-06	6.9E-08	0.1%	0.1%	1.7E-04	--	--	--	2.2E-05	1.6E-07	0.1%	0.1%	3.9E-04	--	--	--
Aroclor-1260	0.00035	2	NA	5.5E-07	1.1E-06	0.9%	1.3%	9.6E-06	--	--	--	1.3E-06	2.6E-06	0.9%	1.3%	2.2E-05	--	--	--
Total Inorganics																			
Arsenic	0.02476	1.5	0.0003	3.9E-05	5.8E-05	45.7%	--	6.8E-04	2.26	67.7%	--	9.0E-05	1.4E-04	45.7%	--	1.6E-03	5.28	67.7%	--
Barium	0.18997	NA	0.07	3.0E-04	--	--	--	5.2E-03	0.07	2.2%	--	6.9E-04	--	--	--	1.2E-02	0.17	2.2%	--
Cadmium (water)	0.00462	NA	0.0005	7.2E-06	--	--	--	1.3E-04	0.25	7.6%	--	1.7E-05	--	--	--	3.0E-04	0.59	7.6%	--
Chromium	0.06699	NA	0.003	1.0E-04	--	--	--	1.8E-03	0.61	18.3%	--	2.4E-04	--	--	--	4.3E-03	1.43	18.3%	--
Lead	0.01001	NA	NA	1.6E-05	--	--	--	2.7E-04	--	--	--	3.7E-05	--	--	--	6.4E-04	--	--	--
Vanadium	0.0284	NA	0.007	4.4E-05	--	--	--	7.8E-04	0.11	3.3%	--	1.0E-04	--	--	--	1.8E-03	0.26	3.3%	--
Dissolved Inorganics																			
Antimony	0.00203	NA	0.0004	3.2E-06	--	--	--	5.6E-05	0.14	--	16.3%	7.4E-06	--	--	--	1.3E-04	0.32	--	16.3%
Arsenic	0.00585	1.5	0.0003	9.2E-06	1.4E-05	--	16.6%	1.6E-04	0.53	--	62.6%	2.1E-05	3.2E-05	--	16.6%	3.7E-04	1.25	--	62.6%
Barium	0.0765	NA	0.07	1.2E-04	--	--	--	2.1E-03	0.03	--	3.5%	2.8E-04	--	--	--	4.9E-03	0.07	--	3.5%
Cadmium (water)	0.00165	NA	0.0005	2.6E-06	--	--	--	4.5E-05	0.09	--	10.6%	6.0E-06	--	--	--	1.1E-04	0.21	--	10.6%
Mercury	0.00057	NA	NA	8.9E-07	--	--	--	1.6E-05	--	--	--	2.1E-06	--	--	--	3.6E-05	--	--	--
Vanadium	0.00838	NA	0.007	1.3E-05	--	--	--	2.3E-04	0.03	--	3.8%	3.1E-05	--	--	--	5.4E-04	0.08	--	3.8%
Risk from Organics & Total Inorganics				Total ILCR:	1.3E-04	100.0%		HI:	3.34	100.0%		Total ILCR:	3.0E-04	100.0%		HI:	7.79	100.0%	
Risk from Organics & Dissolved Inorganics				Total ILCR:	8.3E-05		100.0%	HI:	0.85		100.0%	Total ILCR:	1.9E-04		100.0%	HI:	1.99		100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
DERMAL CONTACT WITH GROUNDWATER DURING BATHING AT SWMU 45, OU 5
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*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	
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	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cw	Concentration of chemical in water (mg/L)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
SA	Skin surface area available for contact (cm2)	20000	8023	
ET	Exposure frequency (d/yr)	350	350	
ED	Exposure duration (yrs)	4	4	
ET	Exposure time (hrs/day)	0.2	0.2	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	
CF	Conversion factor (L/cm3)	0.001	0.001	
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	% Contr. ILCR Org+Tot Inorg	% Contr. ILCR Org+Dis Inorg	DAD (mg/kg/d)	HQ	% Contr. HI Org+Tot Inorg	% Contr. HI Org+Dis Inorg	DAD (mg/kg/d)	ILCR	% Contr. ILCR Org+Tot Inorg	% Contr. ILCR Org+Dis Inorg	DAD (mg/kg/d)	HQ	% Contr. HI Org+Tot Inorg	% Contr. HI Org+Dis Inorg
Benzo(a)anthracene	0.00528	0.81	1.46	NA	1.3E-05	2.0E-05	6.1%	6.2%	2.3E-04	--	--	--	2.5E-05	3.7E-05	6.1%	6.2%	4.4E-04	--	--	--
Benzo(a)pyrene	0.00537	1.2	14.6	NA	2.0E-05	2.9E-04	92.6%	92.7%	3.5E-04	--	--	--	3.8E-05	5.5E-04	92.6%	92.7%	6.6E-04	--	--	--
Bis(2-ethylhexyl)phthalate	0.0195	0.033	0.028	0.01	2.0E-06	5.6E-08	0.0%	0.0%	3.5E-05	0.00	6.3%	15.3%	3.8E-06	1.1E-07	0.0%	0.0%	6.6E-05	0.01	6.3%	15.3%
Chrysene	0.00608	0.81	0.0146	NA	1.5E-05	2.3E-07	0.1%	0.1%	2.7E-04	--	--	--	2.9E-05	4.2E-07	0.1%	0.1%	5.1E-04	--	--	--
Aroclor-1260	0.00035	1.3	2.24719101	NA	1.4E-06	3.2E-06	1.0%	1.0%	2.5E-05	--	--	--	2.7E-06	6.0E-06	1.0%	1.0%	4.7E-05	--	--	--
Total Inorganics																				
Arsenic	0.02476	0.003	1.57894737	0.000285	2.3E-07	3.7E-07	0.1%	--	4.1E-06	0.01	25.7%	--	4.4E-07	6.9E-07	0.1%	--	7.6E-06	0.03	25.7%	--
Barium	0.18997	0.003	NA	0.07	1.8E-06	--	--	--	3.1E-05	0.00	0.8%	--	3.3E-06	--	--	--	5.8E-05	0.00	0.8%	--
Cadmium (water)	0.00462	0.003	NA	0.000025	4.3E-08	--	--	--	7.6E-07	0.03	54.6%	--	8.1E-08	--	--	--	1.4E-06	0.06	54.6%	--
Chromium	0.06699	0.003	NA	0.003	6.3E-07	--	--	--	1.1E-05	0.00	6.6%	--	1.2E-06	--	--	--	2.1E-05	0.01	6.6%	--
Lead	0.01001	0.003	NA	NA	9.4E-08	--	--	--	1.6E-06	--	--	--	1.8E-07	--	--	--	3.1E-06	--	--	--
Vanadium	0.0284	0.003	NA	0.0014	2.7E-07	--	--	--	4.7E-06	0.00	6.0%	--	5.0E-07	--	--	--	8.7E-06	0.01	6.0%	--
Dissolved Inorganics																				
Antimony	0.00203	0.003	NA	0.00008	1.9E-08	--	--	--	3.3E-07	0.00	--	18.1%	3.6E-08	--	--	--	6.2E-07	0.01	--	18.1%
Arsenic	0.00585	0.003	1.57894737	0.000285	5.5E-08	8.7E-08	--	0.0%	9.6E-07	0.00	--	14.6%	1.0E-07	1.6E-07	--	0.0%	1.8E-06	0.01	--	14.6%
Barium	0.0765	0.003	NA	0.07	7.2E-07	--	--	--	1.3E-05	0.00	--	0.8%	1.3E-06	--	--	--	2.4E-05	0.00	--	0.8%
Cadmium (water)	0.00165	0.003	NA	0.000025	1.5E-08	--	--	--	2.7E-07	0.01	--	47.0%	2.9E-08	--	--	--	5.1E-07	0.02	--	47.0%
Mercury	0.00057	0.003	NA	NA	5.4E-09	--	--	--	9.4E-08	--	--	--	1.0E-08	--	--	--	1.8E-07	--	--	--
Vanadium	0.00838	0.003	NA	0.0014	7.9E-08	--	--	--	1.4E-06	0.00	--	4.3%	1.5E-07	--	--	--	2.6E-06	0.00	--	4.3%
Risk from Organics & Total Inorganics					Total ILCR:	3.2E-04	100.0%		HI:	0.06	100.0%		Total ILCR:	6.0E-04	100.0%		HI:	0.10	100.0%	
Risk from Organics & Dissolved Inorganics					Total ILCR:	3.2E-04		100.0%	HI:	0.02		100.0%	Total ILCR:	5.9E-04		100.0%	HI:	0.04		100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
ACCIDENTAL INGESTION OF SEDIMENT IN SWMU 45, OU 5
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 sediment (mg/kg)	CS	CS	
IR	Ingestion Rate (mg/d)	100	200	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
FI	Fraction of sediment ingested from site	1	1	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

				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
Benzo(a)pyrene	0.73234	7.3	NA	8.5E-09	6.2E-08	24.8%	1.5E-07	--	--	7.9E-08	5.8E-07	24.8%	1.4E-06	--	--
Benzo(b)fluoranthene	1.30822	0.73	NA	1.5E-08	1.1E-08	4.4%	2.7E-07	--	--	1.4E-07	1.0E-07	4.4%	2.5E-06	--	--
Dibenz(a,h)anthracene	0.37156	7.3	NA	4.3E-09	3.2E-08	12.6%	7.6E-08	--	--	4.0E-08	2.9E-07	12.6%	7.1E-07	--	--
Indeno(1,2,3-cd)pyrene	0.61699	0.73	NA	7.2E-09	5.2E-09	2.1%	1.3E-07	--	--	6.7E-08	4.9E-08	2.1%	1.2E-06	--	--
Arsenic	8.04	1.5	0.0003	9.4E-08	1.4E-07	56.0%	1.6E-06	0.01	83.8%	8.7E-07	1.3E-06	56.0%	1.5E-05	0.05	83.8%
Vanadium	36.39	NA	0.007	4.2E-07	--	--	7.4E-06	0.00	16.2%	3.9E-06	--	--	6.9E-05	0.01	16.2%
				Total ILCR:	2.5E-07	100.0%	HI:	0.01	100.0%	Total ILCR:	2.3E-06	100.0%	HI:	0.06	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

ADULT AND YOUNG CHILD RESIDENTS (AGES 1 TO 6 YEARS) - FUTURE SCENARIO
DERMAL CONTACT WITH SEDIMENT IN SWMU 45, OU 5
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	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	
CSFd	Dermal cancer slope factor (1/(mg/kg/d))	CS	CS	
HQ	Hazard quotient	CS	CS	
RfDo	Oral reference dose (mg/kg/d)	CS	CS	
RfDd	Dermal reference dose (mg/kg/d)	CS	CS	
Cs	Concentration of chemical in sediment (mg/kg)	CS	CS	
GI	Gastrointestinal absorption factor (unitless)	CS	CS	
CF	Conversion factor (kg/mg)	0.000001	0.000001	
AF	Soil to skin adherence factor (mg/cm2-event)	1	1	
ABS	Absorption fraction	CS	CS	
A	Skin surface area available for contact (cm2)	5300	2006	
EF	Exposure Frequency (d/yr)	52	52	
ED	Exposure Duration (yrs)	4	4	
BW	Body weight (kg)	70	15	
ATc	Averaging time, carcinogens (d)	25550	25550	
ATn	Averaging time, noncarcinogens (d)	1460	1460	

								Adult						Young Child					
								Carcinogens			Noncarcinogens			Carcinogens			Noncarcinogens		
Parameter	Cs (mg/kg)	ABS	CSFo 1/(mg/kg/d)	RfDo (mg/kg/d)	GI	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
Benzo(a)pyrene	0.73234	0.1	7.3	NA	0.5	14.6	NA	4.5E-08	6.6E-07	46.5%	7.9E-07	--	--	8.0E-08	1.2E-06	46.5%	1.4E-06	--	--
Benzo(b)fluoranthene	1.30822	0.1	0.73	NA	0.5	1.46	NA	8.1E-08	1.2E-07	8.3%	1.4E-06	--	--	1.4E-07	2.1E-07	8.3%	2.5E-06	--	--
Dibenz(a,h)anthracene	0.37156	0.1	7.3	NA	0.5	14.6	NA	2.3E-08	3.3E-07	23.6%	4.0E-07	--	--	4.0E-08	5.9E-07	23.6%	7.1E-07	--	--
Indeno(1,2,3-cd)pyrene	0.61699	0.1	0.73	NA	0.5	1.46	NA	3.8E-08	5.6E-08	3.9%	6.7E-07	--	--	6.7E-08	9.8E-08	3.9%	1.2E-06	--	--
Arsenic	8.04	0.032	1.5	0.0003	0.95	1.578947	0.000285	1.6E-07	2.5E-07	17.7%	2.8E-06	0.01	77.6%	2.8E-07	4.4E-07	17.7%	4.9E-06	0.02	77.6%
Vanadium	36.39	0.01	NA	0.007	0.2	NA	0.0014	2.2E-07	--	--	3.9E-06	0.00	22.4%	4.0E-07	--	--	6.9E-06	0.00	22.4%
								Total ILCR:	1.4E-06	100.0%	HI:	0.01	100.0%	Total ILCR:	2.5E-06	100.0%	HI:	0.02	100.0%

NOTES:
NA - Toxicity criterion not available.
-- Not applicable.
0.00 indicates that the number was less than 0.01

APPENDIX J
FOSTER AND CHROSTOWSKI SHOWER MODEL

CALCULATION SPREADSHEET FOR INDOOR AIR CONCENTRATION OF VOLATILIZED ORGANIC COMPOUNDS
RESULTING FROM SHOWERING WITH WATER CONTAINING VOLATILE CONSTITUENTS OF INTEREST*
SWMUs 1 AND 2, OU3, AND SWMU 45, OU5
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

(1) Estimation of overall mass transfer coefficient, KL (cm/hr):

KL = 1/(1/kl + RT/Hkg),

where

H = Henry's Law Constant (atm-m3/mol-K);
RT = product of ideal gas constant (8.2E-5atm-m3/mol-K) and absolute temperature (293K)
= 0.024 atm-m3/mole;
kl = VOC-specific liquid-film mass transfer coefficient (cm/hr); and
= kl(CO2)*(44/MWvoc)^0.5; and
kg = VOC-specific gas-film mass transfer coefficient (cm/hr)
kl(H2O)*(18/MWvoc)^0.5

where

kl(CO2) = 20 cm/hr
kl(H2O) = 3000 cm/hr
MWvoc = Molecular weight of VOC.

(2) Adjustment of overall mass transfer coefficient, KL, to shower water temperature:

KaL = KL[(Tc*us)/(Ts*uc)]^-0.5

where

KaL = adjusted overall mass transfer coefficient (cm/hr);
Tc = calibration water temperature of KL (K);
uc = water viscosity at Tc (cp); and
us = water viscosity at Ts (cp).

(3) Estimation of VOC concentration leaving shower droplet, Cwd (ug/L):

Cwd = Cw[1-exp((-KaL*ts)/60d)]

where

Cw = shower water concentrations (ug;L);
d = shower droplet diameter (mm); and
ts = shower droplet drop time (sec).

(4) Estimation of VOC generation rate in the shower room, S (ug/m3-min):

S = (Cwd*FR)/SV

where

FR = shower water flow rate (L/min); and
SV = shower room air volume (m3).

(5) Calculation of time-dependent indoor air concentration, Ca(t) (ug/m3):

Ca(t) = (S/R)[wxp(RDs)-1]*exp(-Rt) for t>Ds

where

Ds = shower duration (min); and
t = time (min).

* Chrostowski, Foster, 1987.

(1) Estimation of overall mass transfer coefficient, KL (cm/hr):

KL = 1/(1/kl + RT/Hkg),

COPC	kl(CO2) (cm/hr)	kg(H2O) (cm/hr)	MW (g/mol)	kl (cm/hr)	kg (cm/hr)	RT (atm-m3/mol)	H (atm-m3/mol-K)	KL (cm/hr)
Chloroform (SWMU 1)	20	3000	119.4	12.14	1164.81	0.024	0.00287	11.17
1,1,2,2-Tetrachloroethane (SWMU 1)	20	3000	168	10.24	981.98	0.024	3.81E-04	6.18
Chloroform (SWMU 2)	20	3000	119.4	12.14	1164.81	0.024	0.00287	11.17
Trichloroethene (SWMU 2)	20	3000	131.4	11.57	1110.35	0.024	0.0091	11.26

(2) Adjustment of overall mass transfer coefficient, KL, to shower water temperature:

KaL = KL[(Tc*us)/(Ts*uc)]^-0.5

COPC	KL (cm/hr)	Tc (K)	Ts (K)	uc (cp)	us (cp)	KaL (cm/hr)
Chloroform (SWMU 1)	11.17	293	318	0.01002	0.5996	1.50
1,1,2,2-Tetrachloroethane (SWMU 1)	6.18	293	318	0.01002	0.5996	0.83
Chloroform (SWMU 2)	11.17	293	318	0.01002	0.5996	1.50
Trichloroethene (SWMU 2)	11.26	293	318	0.01002	0.5996	1.52

(3)Estimation of VOC concentration leaving shower droplet, Cwd (ug/L):

Cwd = Cw*[1-exp((-KaL*ts)/60*d)]
= Cw(1-exp(A))

COPC	Cw (ug/L)	KaL (cm/hr)	ts (sec)	d (mm)	A	exp(A)	Cwd (ug/L)
Chloroform (SWMU 1)	1.89	1.50	2	1	-0.050	0.951	0.09
1,1,2,2-Tetrachloroethane (SWMU 1)	1.1	0.83	2	1	-0.028	0.973	0.03
Chloroform (SWMU 2)	4.96	1.50	2	1	-0.050	0.951	0.24
Trichloroethene (SWMU 2)	5.53	1.52	2	1	-0.051	0.951	0.27

(4) Estimation of VOC generation rate in the shower room, S (ug/m3-min):

S = (Cwd*FR)/SV

COPC	Cwd (ug/L)	FR (L/min)	SV (M3)	S (ug/m3-min)
Chloroform (SWMU 1)	0.09	10	6	0.15
1,1,2,2-Tetrachloroethane (SWMU 1)	0.03	10	6	0.05
Chloroform (SWMU 2)	0.24	10	6	0.40
Trichloroethene (SWMU 2)	0.27	10	6	0.45

(5) Calculation of time-dependent indoor air concentration, Ca(t) (ug/m3):

Ca(t) = (S/R)[exp(RDs)-1]*exp(-Rt) for t>Ds

COPC	S (ug/m3-min)	R (1/min)	Ds (min)	t (min)	RDs	Rt	exp(RDs)	exp(-Rt)	Ca(t) (ug/m3)
Chloroform (SWMU 1)	0.15	0.008	15	20	0.12	0.16	1.13	0.85	2.09
1,1,2,2-Tetrachloroethane (SWMU 1)	0.05	0.008	15	20	0.12	0.16	1.13	0.85	0.68
Chloroform (SWMU 2)	0.40	0.008	15	20	0.12	0.16	1.13	0.85	5.49
Trichloroethene (SWMU 2)	0.45	0.008	15	20	0.12	0.16	1.13	0.85	6.17

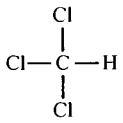
APPENDIX K
TOXICOLOGICAL PROFILES

Date of Last Revision: 3/24/99
Revisor: Denise Hluhan

CHLOROFORM

INTRODUCTION

Chemical Name: Chloroform
CAS Number: 67-66-3
Molecular Formula: $CHCl_3$
Molecular Weight: 119.38 g/mole
Chemical Structure:



Chloroform is a colorless, highly refractive, heavy, volatile liquid. It has a characteristic odor and a sweet taste. Chloroform is used in the manufacture of fluorocarbon plastics, as a solvent, fumigant, and insecticide, and in analytical chemistry (7).

FATE AND TRANSPORT

Log K_{oc} (4) : 1.49
Log K_{ow} (4): 1.90-1.97
$t_{1/2}$ (5): 1.2-31 days reported for aquatic systems
Henry's Law Constant (4): 0.00287 atm-m^3/mole @ 25° C
BCF (1): Not strongly bioaccumulated
Degradation Products (4): Methylene chloride
Solubility:
In Water (1): 8,200 mg/L @ 20° C
In Organics (4): Soluble in acetone, miscible with ethanol, ether, benzene and ligroin
Vapor Pressure (4): 151 mm Hg @ 20° C
Specific Gravity (4): 1.4832 @ 20/4° C

The majority of chloroform is released into the atmosphere. Release to water and soil will be lost to the environment through volatilization. Chloroform has the capability to be transported long distance through the atmosphere. In the gas-phase, it reacts with photochemically produced hydroxyl radicals.

Chloroform does not significantly adsorb to sediment. Also, it is not expected to bioconcentrate in aquatic organisms(s).

Chloroform has been tested for carcinogenicity in eight strains of mice, two strains of rats, and in beagle dogs. In gavage studies with mice and rats, significant increases in kidney epithelial tumors and hepatocellular carcinomas were observed (2).

The EPA has established cancer slope factors for chloroform from both the oral and inhalation exposure routes. The oral slope factor, based on tumor incidence in the kidney, is 6.1×10^{-3} $(mg/kg/day)^{-1}$. The inhalation slope factor, based on development of liver tumors, is 8.1×10^{-2} $(mg/kg/day)^{-1}$. Based on the carcinogenic potential demonstrated in animals, chloroform has been classified as a Group B2 carcinogen-probable human carcinogen (2,6).

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

Limited information is available regarding the toxicity of chloroform to aquatic organisms at known concentrations. LC_{50}s for two freshwater fish and one invertebrate species range from 28.9 to 115 mg/L. Twenty-seven-day LC_{50} values of 2.03 and 1.24 mg/L were reported for embryo-larval tests with rainbow trout (1).

The only reliable value for toxicity of chloroform to marine species is a 96-hour LC_{50} value of 81.5 mg/L for pink shrimp (1).

The available data for chloroform indicates that toxicity to freshwater aquatic life occurs at the following concentrations. Data regarding saltwater species was not available. (2)

Acute toxicity: 2.89×10^4 µg/L
Chronic toxicity: 1.24×10^3 µg/L

Terrestrial and Avian

No specific information regarding effects of chloroform to terrestrial and avian species was readily available. However, chloroform is thought to be widely distributed throughout the environment and has been detected in water fowl (1).

REGULATORY LEVELS AND CRITERIA

OSHA TWA (5):	50 ppm (ceiling limit)
ACGIH TWA (5):	10 ppm
AWQC:	
Water & Fish Consumption (9):	5.7 µg/L
Fish Consumption (9):	470 µg/L
Reportable Quantity (2):	10 lbs

SUMMARY OF CRITERIA

EPA Carcinogenic Classification (2):	Group B2-probable human carcinogen
Oral RfD (2):	1×10^{-2} mg/kg/day
Inhalation RfD (10):	8.6×10^{-5} mg/kg/day
Cancer Slope Factor (oral) (2,6):	6.1×10^{-3} $(mg/kg/day)^{-1}$
Cancer Slope Factor (inhalation) (2,6):	8.1×10^{-2} $(mg/kg/day)^{-1}$

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Revisor: Denise Hluhan

1,1,2,2-TETRACHLOROETHANE

INTRODUCTION

Chemical Name: 1,1,2,2-Tetrachloroethane
CAS Number (1): 79-34-5
Molecular Formula (1): $C_2H_2Cl_4$
Molecular Weight (2): 168 g/mole
Synonyms (3): acetylene tetrachloride; di-chloro-2,2-dichloroethane; s-tetrachloroethane; TCE tetrachloroethane; and sym-tetrachloroethane.

1,1,2,2-Tetrachloroethane is a man-made colorless or pale yellow dense liquid with a penetrating, sweet chloroform-like odor. The only major use for it is as a feedstock in the production of trichloroethylene, tetrachloroethylene, and 1,2-dichloroethylene. It may also be used as a solvent; in cleaning and degreasing metals; in paint and rust removers, varnishes and lacquers; in photographic films; and as an extractant for oils and fats (3).

Although 1,1,2,2-tetrachloroethane may be used as an insecticide, fumigant, and weedkiller, it presently is not registered for any of those purposes. It was once an ingredient in an insect repellent, but registration was canceled in the late 1970s. Due to its toxicity and new processes for manufacturing chlorinated ethylenes, the manufacture and use of 1,1,2,2-tetrachloroethane now appears to be very limited (3).

Information about the chemical is proprietary; therefore, it is not known specifically where it is used, or in what products it is found. Patterns of its use can best be determined from surveys of industrial wastewater (3).

FATE AND TRANSPORT

Log Kow (2): 2.39
Log Koc (2): 2.07
Henry's Law Constant (2): 3.81E-04 atm-m3/mole
BCF (2): 42 L/kg
Water Solubility (2): 2.90E+03 mg/L
Vapor Pressure (2): 5.00E+00 mm Hg

1,1,2,2-Tetrachloroethane does not burn easily, but produces poisonous gases in a fire, including phosgene and hydrogen chloride. Most of the chemical released into the environment eventually moves into the atmosphere or groundwater, where its breakdown is slow. Half of it is expected to disappear from groundwater in one to three months, and from the air in about two months. It is soluble in alcohol and ether (3).

1,1,2,2-Tetrachloroethane does not build up significantly in the bodies of fish or other organisms (1).

An inhalation RfD is currently unavailable for 1,1,2,2-tetrachloroethane.

Oral RfD = 0.06 per (mg/kg)/day

SUMMARY OF REGULATORY LEVELS AND CRITERIA

EPA Carcinogenic Classification (4): C; possible human carcinogen
AWQC (6):

Water and Fish Consumption = 0.17 μg/L
Fish Consumption only = 11 μg/L

Reportable quantity (1,3):

- The EPA requires that spills or accidental releases into the environment of 100 pounds or more of 1,1,2,2-tetrachloroethane be reported to the EPA (1).
- Under the Emergency Planning and Community Right-to-Know Act of 1986, releases of more than one pound of 1,1,2,2- tetrachloroethane into the air, water, and land must be reported annually and entered into the national TRI (3).

Permissible Exposure Limit in Air (1):

- The Occupational Safety and Health Administration (OSHA) has set a permissible exposure limit of 5 parts of 1,1,2,2-tetrachloroethane per million parts of air (5 ppm) in the workplace during an 8-hour workday, 40-hour workweek.
- The National Institute for Occupational Safety and Health (NIOSH) recommends a maximum level of 1 ppm 1,1,2,2-tetrachloroethane for a 10-hour workday, 40-hour workweek.
- The American Conference of Governmental Industrial Hygienists (ACGIH) recommends an exposure limit of 6.9 milligrams of 1,1,2,2-tetrachloroethane per cubic meter of air (6.9 mg/m3) for an 8-hour workday, 40-hour workweek.

REFERENCES

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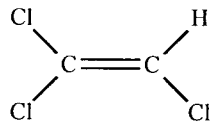
Revisor: Denise Hluhan

TRICHLOROETHENE

INTRODUCTION

Chemical Name: Trichloroethene
CAS Number: 79-01-6
Common Names: Trichloroethene; 1,2,2-Trichloroethylene; TCE
Molecular Formula: C_2HCl_3
Molecular Weight: 131.40 g/mole
Chemical Structure:



Trichloroethene (TCE) is a colorless liquid at standard temperature and pressure. It is a man-made chemical primarily used as a solvent in degreasing operations (1).

FATE AND TRANSPORT

Log K_{oc} (9): 2.10
Log K_{ow}: 2.38 (3)
$t_{1/2}$ (1): Surface Water: 1-28 days
Henry's Law Constant (1): 0.0091 atm-m3/mole @ 20°C
0.01 atm-m3/mole @ 25°C
Fish Bioaccumulation Factor (BCF) (1): 17
Degradation Products:
In Water: Dichloroethylene and vinyl chloride
In Air: Phosgene, dichloroacetyl chloride, and formyl chloride (1); hydrochloric acid, carbon monoxide, carbon dioxide and carboxylic acid (3).
Solubility:
In Water (1): 1.07 g/kg @ 20°C
1,100 mg/L @ 25°C
In Organics (1): Miscible with many common organic solvents such as ether, alcohol and chloroform
Vapor Pressure (1): 57.9 mm Hg @ 20°C
Specific Gravity (1): 1.44 @ 20°C

TCE rapidly volatilizes into the atmosphere. Consequently, the atmosphere is the primary recipient of TCE releases. The average half-life of atmospheric TCE is approximately 3.7 days (1). In the atmosphere, the dominant transformation process is the reaction of TCE with hydroxyl radicals. Various degradation products result from this photo oxidation process including hydrochloric acid, carbon monoxide, carbon dioxide, carboxylic acid, phosgene, dichloroacetyl chloride and formyl chloride (3, 4).

studies have identified an association between TCE exposure and deficiencies of the immune system. The effects of TCE on the immune system are similar to those generated by other chlorinated hydrocarbons (1). A provisional oral reference dose of 6×10^{-3} mg/kg/day has been provided by EPA's Environmental Criteria and Assessment Office (ECAO) (7).

It has been documented that acute inhalation exposure to high TCE concentrations have caused severe liver damage. However, it is unlikely that long-term exposure to ambient air concentrations will adversely effect the liver. The most common hepatic effect in TCE-exposed animals is liver enlargement. Histological alterations characterized by cellular hypertrophy were associated with the liver enlargement (1).

Developmental effects from exposure to TCE result from ingestion but not inhalation. Animal studies on the ingestion of TCE indicate that there are reproductive effects such as reduced testis and epididymis weight and sperm mortality (1).

The EPA has not derived an inhalation RfD for TCE.

Carcinogenic Effects

Animal studies indicate that TCE exposure produced liver and lung tumors in mice and kidney adenocarcinomas, testicular leydig cell tumors, and possibly leukemia in rats (1).

Studies are being conducted to determine if TCE metabolites are involved in cancer development. It is known that trichloroacetic acid and dichloroacetic acid (both metabolites of TCE) are complete carcinogens in the male mouse liver (1). Although the liver appears to be the main site of TCE, there is evidence for extrahepatic TCE metabolism which may be responsible for extrahepatic sites of toxicity.

A provisional inhalation cancer slope factor of 6.0×10^{-3} $(mg/kg/day)^{-1}$ has been provided by the EPA's ECAO (7).

B6C3F1 male and female mice were exposed to 0, 1169, or 2339 mg/kg/day and 0, 869 or 1,739 mg/kg/day, respectively, 5 days per week for 8 weeks. The researchers noted a statistically significant increase in hepatocellular carcinomas in male mice at both dose levels and in female mice at the highest dose level. In another study, TCE administration to B6C3F1 male and female mice resulted in an increased incidence of hepatocellular carcinomas. These results are consistent with those found in the previous B6C3F1 mice cancer bioassay (1).

The TCE classification as a B2 carcinogen (Probable Human Carcinogen) has been withdrawn from IRIS (5).

REFERENCES

1. Toxicological Profile for Trichloroethene. U.S. Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, and U.S. Environmental Protection Agency. Atlanta, Georgia. October 1989.

2. ACGIH. Documentation of the Threshold Limit Values. 1993-1994.

3. Chemical, Physical and Biological Properties of Compounds Present at Hazardous Waste Sites. Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C. September 1985.

4. Health Advisory for Trichloroethene. Office of Drinking Water, U.S. Environmental Protection Agency, Washington, D.C. March 1987.

5. IRIS. Integrated Risk Information System. Office of Research and Development, U.S. Environmental Protection Agency, Washington, D.C. 1998. http://www.epa.gov/ngispgm3/iris/subst/

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7. USEPA. 1998. United States Environmental Protection Agency. Region III Risk-Based Concentration Table. Philadelphia, PA. October 1, 1998.

8. OSHA. Title 29 Code of Federal Regulations, Part 1910.1000, Table Z-1. 1993.

9. USEPA, Aquatic Fate Process Data for Organic Priority Pollutants. Final Report. Office of Water Regulations and Standards (WH-553). December 1982.

10. USEPA. 1997. United States Environmental Protection Agency. Health Effects Summary Tables Annual FY 1995. Office of Solid Waste and Emergency Response, Washington, D.C. May 1997. OERR 9200.6-303(95-1).

11. USEPA. 1996. United States Environmental Protection Agency. Drinking Water Regulations and Health Advisories. Office of Water. Washington, D.C. October, 1996.

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Revisor: Denise Hluhan

BIS (2-ETHYLHEXYL) PHTHALATE

INTRODUCTION

Chemical Name: Bis (2-ethylhexyl) phthalate
CAS Number (1): 117-81-7
Molecular Formula (1): $C_{24}H_{38}O_4$
Molecular Weight (1): 390.5 g/mole

Bis (2-ethylhexyl) phthalate (BEHP) is a man-made chemical that is added to plastics to increase their flexibility. This compound is essentially a colorless liquid. BEHP is also known by the tradenames of Palatinol AH, Octoil, Sicol 150, Bisoflex 81, and Eviplast 80. It is present in a variety of plastics, especially vinyl materials, which have BEHP contents as high as 40 percent. Materials containing BEHP include rainwear, footwear, upholstery materials, imitation leather, waterproof gloves, tablecloths, shower curtains, food packaging materials, floor tiles, paints, flexible tubing, and plastic bags. BEHP has been detected in commercial organic solvents (2).

FATE AND TRANSPORT

Log K_{ow} (1):	5.11
Surface Water $t_{1/2}$: (2):	2-3 weeks
Log K_{oc} (1):	4 to 5
Henry's Law Constant (1):	1.1×10^{-5} atm·m^3/mole
BCF (1):	100 to 10,000 for fish and invertebrates
Water Solubility (1):	0.3 mg/L at 25° C
Vapor Pressure (1):	6.45×10^{-6} mm Hg at 25° C

BEHP is released into the atmosphere through emissions from manufacturers and other industries and will exist in the gaseous phase. It is also released to the atmosphere via volatilization from plastic materials and the burning of plastics (2). BEHP released to the air will be carried for significant distances in the troposphere with wash out by rain being a significant removal process (1).

If released into a water system, BEHP biodegrades fairly rapidly with a half-life of approximately 2-3 weeks. BEHP also will strongly adsorb to soils and sediments and accumulate in aquatic organisms (1). As a result, evaporation and hydrolysis are not significant removal processes in the aquatic environment.

As mentioned above, BEHP has a strong tendency to adhere to soils and sediments. Therefore, when BEHP comes into contact with surface soils, release via evaporation or leaching into groundwater is negligible. Some studies suggest that BEHP may biodegrade in soil under aerobic conditions following acclimation.

Chronic exposure to BEHP in animals has resulted in focal cystic changes of the kidney cells, decreased creatinine clearance, and an accumulation of lipofuscin deposits in the tubular epithelial cells (2).

The U.S. EPA has developed an oral reference dose (RfD) for BEHP based on an increased relative liver weight in guinea pigs (3). The guinea pigs were orally fed BEHP-containing feed and a lowest observed adverse effect level (LOAEL) of 19 mg/kg/day was established. An uncertainty factor of 1,000 was applied to the LOAEL to derived an oral RfD of 2×10^{-2} mg/kg/day for BEHP (3).

Carcinogenic Effects

The U.S. EPA has classified BEHP as a Group B2 carcinogen -- probable human carcinogen. This classification is based on sufficient evidence of carcinogenicity in animals and inadequate evidence in humans (3).

Based upon an NTP study involving Fisher 344 rats and B6C3F1 mice, an oral slope factor for BEHP was derived. Male and female rats were fed doses of 0, 6,000 and 12,000 ppm BEHP for 103 weeks and examined histologically for evidence of carcinogenicity. The histological examination revealed a statistically significant increase in the incidence of hepatocellular carcinomas and combined incidence of carcinomas and adenomas. A positive trend between increasing dose and increased cancer incidence also was apparent. An oral slope factor of 1.4×10^{-2} $(mg/kg/day)^{-1}$ was developed by the U.S. EPA using the linearized multistage model (3). There is currently no slope factor available for assessing carcinogenicity of BEHP by the inhalation route. The oral CSF will therefore be used to evaluate inhalation exposures.

SUMMARY OF REGULATORY LEVELS AND CRITERIA

EPA Carcinogenic Classification (3): B2 carcinogen - probable human carcinogen
AWQC (4):
Water and Fish Consumption = 1.8 μg/L
Fish Consumption only = 5.9 μg/L
MCL (5): 0.006 mg/L

SUMMARY OF CRITERIA

EPA Carcinogenic Classification (3):	B2 carcinogen - probable human carcinogen
Cancer Slope Factor (Oral) (3):	0.014 $(mg/kg/day)^{-1}$
Cancer Slope Factor (Inhalation) (3):	0.014 $(mg/kg/day)^{-1}$
Oral RfD (3):	0.02 mg/kg/day
Inhalation RfD (3):	Not Available

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DI-N-OCTYLPHTHALATE

INTRODUCTION

Chemical Name: Di-n-octylphthalate
CAS Number (1): 117-84-0
Molecular Formula (1): $C_{24}H_{38}O_4PS$
Molecular Weight (2): 390 g/mole
Synonyms (3): 1,2 Benzenedicarboxylic Acid; Dioctyl Ester; Phthalic Acid; Dioctyl Ester; DNOP; Cellulex DOP; Dinopol NOP

Di-n-octylphthalate is a colorless, odorless, oily liquid that doesn't evaporate easily. It is a man-made substance used to keep plastics soft or more flexible. This type of plastic can be used for medical tubing and blood storage bags, wire and cables, carpet back coating, floor tile, and adhesives. It is also used in cosmetics and pesticides (1).

FATE AND TRANSPORT

Log Kow (4): 8.06
Log Koc (4): 6.30
Henry's Law Constant (4): 1.03E-04 atm-m3/mole
Water Solubility (4): 5.00E-04 mg/L
Vapor Pressure (4): 9.98E-08 mm Hg

Di(n-octyl)phthalate (DNOP) is released into the environment principally in industrial wastewater from its production and use in plasticizers. It will adsorb strongly to sediment and particulate matter and slowly biodegrade with acclimation. If di(n-octyl) phthalate is emitted into the atmosphere as an aerosol it will be subject to gravitational settling and photodegradation by hydroxy radicals (estimated half-life 14 hr.). Humans will be exposed to di(n-octyl)phthalate occupationally and possibly from using plastic containers for food that contains DNOP as a plasticizer (5).

Di-n-octylphthalate is mainly broken down into other substances by microorganisms. It can also be broken down in reactions with sunlight, other chemicals in the atmosphere, or water (1). The half-life for removal from the aqueous phase was reported to be 5 days in an ecosystem study (5).

It bioconcentrates in algae and other aquatic organisms. The data for fish are contradictory but bioconcentration is probably important in species where little or no metabolism occurs (5). The concentration of di-n-octyl phthalate found in fish tissues is expected to be considerably higher than the average concentration of di-n-octyl phthalate in the water from which the fish was taken (3). Small amounts of di-n-octylphthalate can build up in animals that live in water, such as fish and oysters (1).

SUMMARY OF REGULATORY LEVELS AND CRITERIA

Reportable quantity (1): The EPA requires that spills or accidental releases into the environment of 5,000 pounds or more of di-n-octylphthalate be reported to the EPA.

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ISODRIN

INTRODUCTION

Chemical Name: Isodrin
CAS Number (1): 465-73-6
Molecular Formula (2): $C_{12}H_8C_{16}$
Molecular Weight (2): 364.90 g/mole
Synonyms (1): Hexachlorohexahydro-endo; endo-dimethanonaphthalene;
1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4; 5,8-endo,endo-dimethanonaphthalene

Isodrin is a crystal at room temperature and was once used as an insecticide. It is no longer manufactured or used in the United States (1).

FATE AND TRANSPORT

Release of isodrin to the environment is not expected to be significant since isodrin is no longer manufactured or used commercially in the United States. If released to soil, isodrin may undergo microbial oxidation to endrin by a mechanism analogous to the biooxidation of aldrin to dieldrin. The mobility of isodrin in soil may range from moderately mobile to immobile and isodrin is not expected to hydrolyze in moist soils or volatilize from soil surfaces. Based on experimental data, the half-life of isodrin in soil has been estimated to range from 0.5 years to a maximum of 6 years. If released to water, isodrin may bioconcentrate in aquatic organisms, adsorb to suspended solids and sediments, volatilize (calculated half-life 5.4 days in rivers) and undergo very slow microbial transformation, possibly to endrin. Isodrin is not expected to hydrolyze since it contains no hydrolyzable functional groups. If released to air, isodrin should occur mostly adsorbed to particulate matter. It may undergo phototransformation possibly forming photoisodrin or isodrin vapor may react with photochemically generated hydroxyl radicals (calculated vapor phase half-life 35.5 minutes) (1).

HUMAN HEALTH EFFECTS

Isodrin causes renal damage and hyperactivity of sympathetic nervous system (2).

Dose-Response Parameter Estimation

The oral reference dose for isodrin is currently under review by the USEPA for publication in IRIS.

REFERENCES

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2. EPA Chemical Profile. Isodrin. http://www.epa.gov/swercepp/ehs/profile/465736p.txt

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POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

INTRODUCTION

The PAHs are a diverse class of compounds consisting of two or more substituted and unsubstituted polycyclic aromatic rings formed by the incomplete combustion of carbonaceous materials. PAHs are ubiquitous in the modern environment and commonly are constituents of coal tar, soot, vehicular exhausts, cigarette smoke, certain petroleum products, road tar, mineral oils, creosote and many cooked foods.

The physiochemical properties of the various PAHs are shown on Table 1.

FATE AND TRANSPORT

Other than naphthalene, the PAHs can be separated into two major groups based on chemical and physical properties relevant to their fate and transport. Table 2 lists the PAHs belonging to the anthracene group and benzo(a)pyrene group. The following paragraphs discuss the groups' fate and environmental pathways.

The Anthracene Group: (anthracene, acenaphthene, acenaphthalene, fluoranthene, fluorene, phenanthrene and pyrene): The majority of the information presented below is specific to anthracene. However, the properties and fate characteristics of anthracene are considered to be representative of the other PAHs in this group.

Under ambient conditions, atmospheric anthracene will exist predominantly (approximately 90%) in the vapor phase with very little adsorption to aerosols. Anthracene can be returned to aquatic and terrestrial systems by wet and dry deposition; however, the majority of the deposition will be dry. A significant amount of airborne anthracene may be removed and deposited near combustion sources. The anthracene remaining in the air will probably undergo photoxidation to quinones and other oxygenated compounds (8).

Dissolved anthracene can undergo some removal from surface waters via volatilization, but its low vapor pressure (2.4×10^{-4} torr at 25°C) prevents this from being a significant transport pathway. A half-life of 16 hours for anthracene was reported in the aquatic environment under maximum volatilization conditions (6). With a log octanol-water partition coefficient of 4.45, anthracene has a very strong tendency to partition from water to other environmental media. Adsorption and sedimentation are the primary environmental fates in aquatic systems with absorption both organic and non-organic particulate matter (6).

Anthracene in the aquatic system will tend to accumulate preferentially in the sediment and remain there unless considerable mixing at the sediment/water column interface occurs. In rivers, the major fate pathway is transport of sediment-adsorbed anthracene to the oceans, since neither photolysis or anaerobic degradation are important fate pathways. Depending on the actual conditions in the environment, biotransformation could be an important fate process (6).

PAHs were distributed to the lung, kidney, liver and gastrointestinal tract of rats following exposure via inhalation. Orally administered PAHs in the same species were detected in the liver, lung and kidney. Very little of the PAHs absorbed through the skin are distributed to tissues (11).

The lipophilicity of PAHs enables them to readily penetrate cellular membranes and circulate in the body indefinitely. However, metabolic processes alter PAHs both chemically and structurally producing more water-soluble and excretable compounds. These metabolic processes occur in all tissues. The following metabolic pathway is that of benzo[a]pyrene and is similar to that of the other PAHs. Benzo[a]pyrene is initially metabolized by the microsomal P-450 system to form an arene oxide. Once the arene oxide is formed, it undergoes hydration via epoxide hydrolase to form a dihydrodiol. Further metabolic activity can lead to the generation of diol epoxides which are believed responsible for BaPs toxic effects. Benzo[a]pyrene can also be oxidized spontaneously or metabolically to quinones (11).

In terms of elimination, animal studies suggest that PAHs are eliminated rapidly from the lung when the animals are exposed via inhalation (11). Rats orally exposed to PAHs excreted the compounds in the feces (11). PAHs applied to the skin of rats were determined to be excreted in the urine and feces equally (11).

HUMAN HEALTH EFFECTS

For practical purposes, PAHs are often separated into two categories, the carcinogenic and non-carcinogenic PAHs. This is a somewhat misleading categorization as some evidence exists that many of the non-carcinogenic PAHs have some, albeit weak, carcinogenic activity or act as promoters or co-carcinogens. Another factor complicating PAH categorization is that they do not occur alone in nature but as complex mixtures containing numerous PAHs of varying carcinogenic potencies. The potential interactions of the individual PAHs present as components of these mixtures must be addressed in attempting to quantify the carcinogenic and non-carcinogenic risks (7).

The USEPA, in reviewing the carcinogenicity of several PAHs, indicated those for which there was sufficient, limited, or inadequate, evidence of carcinogenicity. These classifications are presented in Table 3.

Benzo[a]anthracene, benzo[a]pyrene, benzo(b)fluoranthene, benzo[k]fluoranthene, benzo[g,h,i]perylene, chrysene, indeno[1,2,3-c,d]pyrene, and dibenzo[a,h]anthracene are probable human carcinogens. Acenaphthylene, anthracene, fluoranthene, fluorene, naphthalene, phenanthrene and pyrene are either possible human carcinogens, the evidence is inadequate to assess carcinogenic potential, or there is no evidence for carcinogenicity (6).

<u>Non-carcinogenic effects</u>: Acute effects from direct contact with PAHs are generally limited to phototoxicity. Percutaneous exposure to PAHs, followed by exposure to sunlight, can result in dermatitis consisting of erythema, itching, and burning. Dermatitis can result from a single 90-minute exposure to a one-percent solution of coal tar. Chronic exposure to PAHs may result in chronic dermatitis, hyperkeratoses, and other skin disorders (1,2,3,4). PAHs have also been shown to cause cytotoxicity in rapidly proliferating cells throughout the body with the hematopoietic system, lymphoid system, and testes frequently noted as targets (10). This effect appears to result from PAH mediated inhibition of DNA replication (6).

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TABLE 2

MAJOR GROUPINGS OF POLYNUCLEAR AROMATIC HYDROCARBONS*

THE ANTHRACENE GROUP

- Anthracene
- Acenaphthene
- Acenaphthylene
- Fluoranthene
- Fluorene
- Phenanthrene
- Pyrene

THE BENZO[a]PYRENE GROUP

- Benzo[a]anthracene
- Benzo[a]pyrene
- Benzo[b]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- Chrysene
- Dibenzo[a,h]anthracene
- Indeno[1,2,3-c,d]pyrene

* Note: Naphthalene is addressed in a separate toxicity profile.

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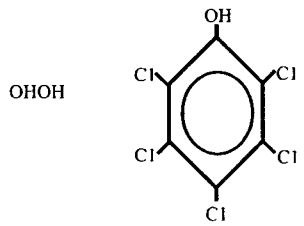
PENTACHLOROPHENOL

INTRODUCTION

Chemical Name:	Pentachlorophenol
CAS Number:	87-86-5
Common Name:	2,3,4,5-pentachlorophenol, PCP, penchorol
Molecular Formula:	C_6HCl_5O
Molecular Weight:	266.32 g/mole
Chemical Structure:	



Pentachlorophenol in the pure form exists as colorless crystals. Impure pentachlorophenol is a dark gray to brown dust. It also can be in the form of beads or flakes (4).

Pentachlorophenol is one of the most heavily used pesticides in the U.S. Its primary use is to preserve wood for utility poles, fence posts, and other industrial purposes. It is an ingredient in wood preservatives, herbicides, and pesticides (4).

Humans are generally exposed to technical grade pentachlorophenol that usually contains such toxic impurities as polychlorinated dibenzo-p-dioxins and dibenzofurans. Animals studies indicated that a majority of the toxic effects attributed to pentachlorophenol were actually due to the presence of the impurities (41).

FATE AND TRANSPORT

K_{oc} (2):	53,000 L/kg
Log K_{ow} (4,2):	5.01; 5.23
$t_{1/2}$:	Not Available
Henry's Law Constant (4,2):	3.4×10^{-6} atm-m^3/mole, 2.8×10^{-6} atm/mole
BCF (1):	500 in freshwater species; 13-3,830 in saltwater species
Degradation Products:	Not Available
Solubility (4):	
In Water:	5 mg/L at 0°C; 14 mg/L at 20°C; 35 mg/L at 50°C
In Organics:	Freely soluble in alcohol; soluble in benzene; slightly soluble in cold petroleum ether
Vapor Pressure (4):	1.4×10^{-4} mm Hg at 20°C
Vapor Phase Diffusion Coefficient (2):	5.6×10^{-2} cm^2/sec
Density (4):	1.978 at 22°C

alterations in aerobic metabolism. Basically, studies indicated that pentachlorophenol is a metabolic poison that exerts its effects by disrupting membrane function. This function disruption can occur throughout the body and may explain the wide range of toxic effects associated with exposure to pentachlorophenol (4).

Noncarcinogenic Effects

Acute exposure to high concentrations of pentachlorophenol can impact the liver, kidney, skin, blood, lungs, nervous system, and gastrointestinal tract. This exposure can be lethal. Longer term exposure to lower levels can result in damage to the liver, blood, and nervous system (4). A oral reference dose of 0.03 mg/kg/day was established based on an rat oral chronic study. Un uncertainty factor of 100 was incorporated to account for the expected intra- and inter-species variability to the toxicity of this chemical (3).

Carcinogenic Effects

An increased risk for cancer has been demonstrated in animals exposed to pentachlorophenol. Birth defects have been seen in animals exposed to pentachlorophenol at exposure levels high enough to cause clear evidence of sickness in the mothers. No evidence was found to indicate that inhalation, oral or dermal exposure to pentachlorophenol in any form produces cancer in humans (4).

Sufficient evidence exists from animal studies to consider pentachlorophenol a probably human carcinogen. EPA has tentatively classified pentachlorophenol as a B2 -- probable human carcinogen. The cancer slope factor is 0.12 $mg/kg/day^{-1}$ (3).

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

Concentrations ranging from 34 to 2,000 µg/L have been found to be acutely toxic to freshwater aquatic organisms. Toxicity is greater at acidic pH values than alkaline pH values. Growth of salmonid fish species is affected by this compound at even lower levels. Some freshwater aquatic plants have been shown to be sensitive to the presence of pentachlorophenol.

Ambient Water Quality Criteria for the protection of aquatic organisms are as follows: (6)

Freshwater:

Acute Toxicity:	20 µg/L
Chronic Toxicity:	13 µg/L

Marine:

Acute Toxicity:	13 µg/L
Chronic Toxicity:	7.9 µg/L

Terrestrial and Avian

Information regarding the toxicity of pentachlorophenol to terrestrial and avian wildlife and domestic animals was not found in the available literature.

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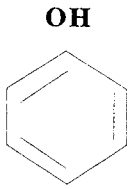
PHENOL

INTRODUCTION

Chemical Name:	Phenol
CAS Number (1):	108-95-2
Molecular Formula (1):	C_6H_5OH
Molecular Weight (1):	94.1 g/mole



Phenol has numerous synonyms including (mono)hydroxybenzene, benzenol, and carbolic acid. It is an aromatic compound of the substituted benzene class (1,2). Phenol is soluble in water and miscible in alcohol and ether. The physio-chemical parameters of phenol are as follows: melting point = 40.6° C, boiling point = 181.9° C, flash point = 175° F (79.4°C), autoignition temperature = 1319° F (715° C), density = 1.072; vapor pressure = 1 mm of Hg at 40.1° C, and vapor density - 3.24, Henry's Law Constant = 4.5×10^{-7} atm·m^3/mol, log Koc = 1.15-1.43, log Kow = 1.46-1.48.

Phenol is the simplest member of the family of compounds which contain one or more hydroxyl groups attached to an aromatic ring. It is a common chemical that is also widely present in the environmental as a by-product of the decomposition of organic matter (3). Phenol is used in manufacturing explosives, fertilizers, paints, wood preservatives, pharmaceuticals, and many other products (4). It is also widely used in households in such products as disinfectants and mouthwashes.

PHARMACOKINETICS

Phenol is readily absorbed via all routes of exposure but, because of its low volatility, appears to only rarely pose a serious respiratory hazard (3). The efficiency of pulmonary absorption by human volunteers exposed to air levels of 6 mg/m^3 to 20 mg/m^3 was reported as 60 to 88 percent (3,5). Skin absorption of phenol is somewhat lower than inhalation with one researcher reporting a 10.9 percent efficiency (3). Phenol is also readily absorbed following ingestion. Following absorption, phenol is rapidly distributed throughout the body (3,6). In rabbits, the phenol concentrates in the liver, heart, kidneys, lungs, blood, and muscle (17). In rats, high levels are found in the liver, spleen, kidneys, and adrenal glands. Although phenol dissolves in organic solvents and fats, only low uptake was reported in lipid-rich tissues, such as adipose tissue, testes, and brain.

There are four primary metabolic constituents following administration: phenyl sulfate, phenyl glucuronide, quinol, and quinol glucuronide (3). Although the most active metabolic organ is the liver, significant extrahepatic metabolism of phenol has been reported to occur. Phenol administered by the oral or inhalation route may be primarily metabolized in the intestines and lungs, respectively.

(18). However, it appears that phenol acted as a tumor promoter rather than a tumor initiator since nearly all mice co-exposed to dimethylbenzanthracene (DMBA) developed papillomas while few tumors were found in animals administered DMBA alone. The U.S. EPA has classified phenol as a Group D carcinogen - not classifiable as to human carcinogenicity. This classification is based on no human carcinogenicity data and inadequate animal data.

Teratogenicity

No data were available indicating the teratogenic potential of phenol.

Reproductive Effects

An increase in the incidence of preimplantation loss was reported in the offspring of rats exposed to airborne phenol concentrations ranging from 0.13-1.3 ppm (19). In another study, high concentrations of phenol (greater than 5,000 ppm) also elicited reproductive effects in exposed rats (20). However, a number of deficiencies in experimental protocol render the data suspect (3). Several studies have reported developmental effects of phenol (principally decreased body weight) on the offspring of exposed rats without any structural malformations (21,22).

Other Chronic Effects

Symptoms of chronic phenol toxicity in humans include vomiting, difficulty in swallowing, diarrhea, anorexia, liver and kidney damage, headaches, fainting, and other central nervous system effects (9). No histopathological changes were observed in rats and mice administered drinking water containing phenol levels of up to 10 g/l for up to 90 days (17). An observed dose-related decrease in body weight may have been attributable to decreased water consumption. In a subchronic bioassay of rats, slight liver changes and kidney damage were reported in animals administered phenol orally at levels ranging from 50-100 mg/kg/day for six months (23).

Sensitive Subpopulations

No data were available indicating subpopulations sensitive to phenol exposure.

Chemical Interactions

Exposure to phenol could potentially enhance tumor development if previous exposure to chemical initiators [such as benzo(a)pyrene, or dimethyl sulfate] have occurred. This is because phenol is regarded as a weak promotor based upon a mouse skin study (24). Tumor promoters act by enhancing cellular growth and thus aiding the development of tumors. Tumor promotion can only occur after prior exposure to a tumor-initiating chemical.

Dose-Response Parameter Estimation

Carcinogenic Effects

The U.S. EPA has qualitatively evaluated the carcinogenicity of phenol and classified phenol as a Class D substance - not classifiable as to human carcinogenicity. Therefore, no dose-response estimates of carcinogenicity are available.

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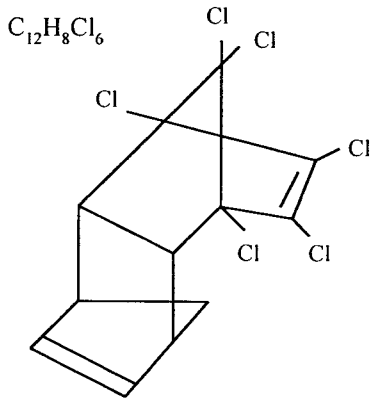
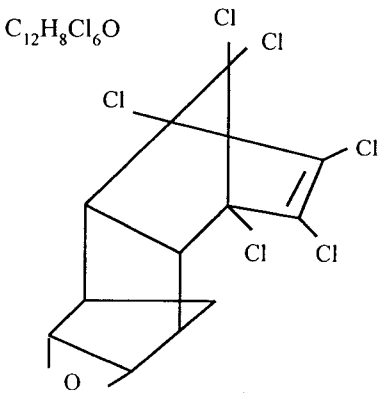
ALDRIN/DIELDRIN

INTRODUCTION

Chemical Name: Aldrin
Synonyms: Aldrex, Aldrite
CAS Number: 309-00-2;
Molecular Formula: $C_{12}H_8Cl_6$
Molecular Weight: 364.90 g/mole
Chemical Structure:



Chemical Name: Dieldrin
Synonyms: Alvit, Dieldrix
CAS Number: 60-57-1
Molecular Formula: $C_{12}H_8Cl_6O$
Molecular Weight: 308.93 g/mole
Chemical Structure:



Dieldrin is ubiquitous in the environment and very persistent. This is due to its higher resistance to biotransformation and abiotic degradation than aldrin. Consequently, dieldrin is found in low levels in all media. Dieldrin has a strong affinity for organic matter such as animal fat and plant waxes. Consequently, it bioconcentrates and biomagnifies through the terrestrial and aquatic food chains. This degradation product strongly adheres to soil and sediment, which minimizes mobility in this medium. However, aldrin and dieldrin can volatilize from soil. Dieldrin is not water soluble. The presence of these compounds in surface water is attributed to runoff from contaminated soil (1).

Aldrin can enter the environment from accidental spills or leaks from storage containers at waste sites. In the past, aldrin entered the environment as a result of pesticide use on crops and use as termite control. Due to use on crops, aldrin and dieldrin have persisted as residue in soil and resulted in crop uptake. Because of the persistence and bioaccumulation of dieldrin, exposure can occur through the ingestion of contaminated water or food. The potential for exposure also exists in homes treated for termites. In this case, exposure via inhalation is significant (1).

PHARMACOKINETICS

Exposure to aldrin and dieldrin can occur via ingestion, dermal contact and inhalation. Inhalation and dermal contact exposure in air is possible due to the volatilization of these aldrin from contaminated surfaces. Hence, these compounds can enter the bloodstream via the stomach, skin, and lungs. As stated previously, aldrin quickly breaks down to dieldrin upon entry into the body. The dieldrin is very persistent in the fatty tissue. It can take a period of weeks to years for the compound to leave the body (1).

A study of the body burden of dieldrin showed that the bioconcentration and rate of elimination of dieldrin were related to the lipid content of the person. The highest levels of dieldrin in adipose tissue were found in the leanest individuals. These individuals also exhibited the lowest total body burden. However, the proportion of the total exposure dose retained in the adipose tissue was highest in those subjects with the greatest total body fat (1).

Placental transfer of dieldrin occurs. A study showed that the level of this pesticide was higher in fetal blood than the mother's blood (1). Aldrin and dieldrin are both toxic to the reproductive system and teratogenic. Reproductive effects include decreased fertility, increased fetal death and effects on gestation. Teratogenic effects include cleft palate, webbed foot and skeletal anomalies (4).

HUMAN HEALTH EFFECTS

Noncarcinogenic Effects

Aldrin and dieldrin cause similar adverse health effects. Short-term exposure to elevated levels of these compounds causes central nervous system excitation resulting in convulsions. Acute exposure can also damage the kidneys. Chronic exposure from an occupational setting also produces convulsions. Exposure to moderate levels of aldrin or dieldrin can cause headaches, dizziness or uncontrolled muscle movements. Animal studies support these health effect observations in humans (1).

It is unlikely that sufficient quantities of these pesticides could be ingested by persons living within vicinity of a hazardous waste site to result in death. Additionally, low levels of these compounds likely to be in air near such a site are significantly lower than the levels necessary to cause death (1).

REGULATORY LEVELS AND CRITERIA

National aldrin and dieldrin regulatory levels and criteria relative to a risk assessment are established under the Safe Drinking Water Act (SDWA), and the Ambient Water Quality Criteria (AWQC).

SUMMARY OF CRITERIA	Aldrin
Chronic Oral RfD (2):	3×10^{-5} mg/kg/day
Chronic Inhalation (RfC) (2):	Not Available
USEPA Weight-of-Evidence (2):	B2-Probable human carcinogen
Oral Slope Factor (2):	17 $(mg/kg/day)^{-1}$
Inhalation Slope Factor (2):	17.1 $(mg/kg/day)^{-1}$
SDWA MCLG MCL:	Aldrin in an unregulated contaminant for which USEPA establishes a monitoring requirement, but which does not have an associated final MCLG or MCL (2)
Ambient Water Quality Criteria	
Human Health	
- Water and Fish Consumption (6)	1.3×10^{-4} µg/L
- Fish Consumption Only (6)	1.4×10^{-5} µg/L
Aquatic Organisms	
- Freshwater, Acute	3 µg/L (6)
- Freshwater, Chronic	None
- Marine, Acute	1.3 µg/L (6)
- Marine, Chronic	None
ACGIH TLV-TWA:	0.25 mg/m^3 (4)
OSHA PEL-TWA:	0.25 mg/m^3 (4)

	Dieldrin
Chronic Oral Exposure (RfD) (7):	5×10^{-5} mg/kg/day
Chronic Inhalation (RfD) (7):	Not Available
USEPA Weight-of-Evidence (2):	B2-Probable human carcinogen
Oral Slope Factor (7):	16 $(mg/kg/day)^{-1}$
Inhalation Slope Factor (7):	16 $(mg/kg/day)^{-1}$
SDWA MCLG, MCL:	Dieldrin in an unregulated contaminant for which USEPA establishes a monitoring requirement, but which does not have an associated final MCLG or MCL (2)
Ambient Water Quality Criteria	
Human Health	
- Water and Fish Consumption (6)	0.00014 µg/L
- Fish Consumption Only (6)	0.00014 µg/L
Aquatic Organisms	
- Freshwater, Acute (6)	2.5 µg/L
- Freshwater, Chronic (6)	0.0019 µg/L
- Marine, Acute (6)	0.71 µg/L
- Marine, Chronic (6)	0.0019 µg/L

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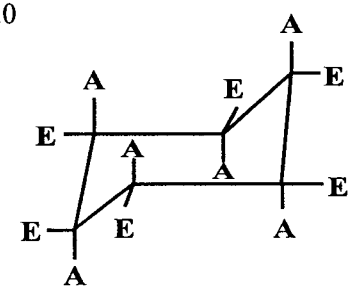
alpha-, beta-, delta- and gamma-BHC (HEXACHLOROCYCLOHEXANE)

INTRODUCTION

Chemical Name: alpha, beta, delta, gamma-BHC (hexachlorocyclohexane)
CAS Numbers: 319-84-6, 319-85-7, 319-86-8, 58-89-9
Molecular Formula[1]: $C_6H_6Cl_6$
Molecular Weight[1]: 291.0
Chemical Structure[1]:



Orientation of Cl^- on ring	BHC Isomer
AAEEEE	α (alpha)
EEEEEE	β (beta)
AEEEEE	δ (delta)
AAAEEE	γ (gamma)

Alpha, beta, delta, and gamma-BHC are aliphatic chlorinated hydrocarbon pesticides representing the four major isomers of technical grade hexachlorocyclohexane (HCH). The gamma isomer (lindane) is generally the most toxicologically active[2]. The BHCs are fairly persistent in environmental media. The primary environmental fate of BHCs appears to be adsorption to soils and sediments and subsequent biodegradation.

FATE AND TRANSPORT

Log K_{oc}:	3.58, 3.58, 3.82, 3.03
Log K_{ow}:	3.90, 3.90, 4.10, 3.90
Henry's Law Constant (@ 20°C):	5.9×10^{-6}, 4.5×10^{-7}, 1.7×10^{-5}, 7.8×10^{-6} (@ 25°C)
Vapor Pressure (@ 20°C)[3]:	2.5×10^{-5}, 2.8×10^{-7}, 1.7×10^{-5}, 1.6×10^{-4} (@ 25°C)
Water Solubility (mg/L @ 25°C)[3]:	1.63, 0.24, 31.4, 7.8
BCF[4]:	100-500

BHCs, by virtue of their K_{ow} and K_{oc} values tend to adsorb to soils and sediments with subsequent biodegradation. Biodegradation of BHCs yields chemicals such as pentachlorocyclohexane, tetrachlorobenzene, trichlorophenol, and, therefore, may not result in substantial detoxification. Gamma-BHC (lindane) has been shown to be rather persistent when applied to soil with as much as 10 percent remaining after 10 years[4].

Humans excrete γ-HCH and its metabolites in urine, milk and semen upon inhalation exposure. In the urine from humans occupationally exposed to HCH, chromatographic analyses revealed the presence of chlorinated phenols and all isomers of di-, tri- and tetrachlorophenol. In mice, the major route of elimination is via the urine following intermediate and chronic feeding of γ-HCH. Very little γ-HCH is eliminated in expired air and in the feces following oral administration in rodents. Very little HCH is excreted unaltered. In humans, nonmetabolized γ-HCH was excreted by healthy volunteers and scabies patients upon an acute, whole body application of a 0.3 percent γ-HCH emulsion [5].

HUMAN HEALTH EFFECTS

Noncarcinogenic Effects

BHCs can cause convulsions in humans exposed occupationally even by the topical (dermal) route. Nervousness, irritability, insomnia, vertigo, amblyopia, stupor and coma have been observed following excessive cutaneous application. BHCs can sensitize the heart to arrhythmias. Technical grade BHC is an irritant to the skin, eyes, and mucosa. Fatal cases of aplastic anemia have resulted from prolonged exposure to vaporized gamma-BHC[6].

The alpha and gamma isomers are CNS stimulants, but the beta and delta isomers are depressants.

Twenty male and female Wistar rats were administered 0, 0.2, 0.8, 4, 20, or 100 ppm gamma-BHC (lindane) (99.85 percent) in the diet. After 12 weeks, 15 animals were sacrificed. The remaining rats were fed the control diet for an additional 6 weeks before sacrifice. No treatment-related effects were noted on mortality, hematology, clinical chemistry, or urinalysis. Rats receiving 20 and 100 ppm lindane were observed to have greater-than-control incidence of the following: liver hypertrophy, kidney tubular degeneration, hyaline droplets, tubular distension, interstitial nephritis, and basophilic tubules. Since these effects were mild or rare in animals receiving 4 ppm, this represents a NOAEL. The reviewers of the study calculated the dose to be 0.29 mg/kg/day for males and 0.33 mg/kg/day for females, based on measured food intake[7].

In a 2-year feeding study, 10 Wistar rats/sex/group were exposed to 5, 10, 50, 100, 400, 800, or 1,600 ppm lindane. Slight liver and kidney damage and increased liver weights were noted at the 100 ppm level. If a food intake equal to 5 percent body weight is assumed, a NOAEL of 2.5 mg/kg bw/day (50 ppm) can be determined from this assay. In a two-year bioassay, four beagle dogs/sex/group were administered 0, 25, 50, or 100 ppm gamma-BHC in the diet. Treatment-related effects noted in the animals of the 100 ppm group were increased serum alkaline phosphatase and enlarged dark friable livers. A NOAEL was determined to be 50 ppm for gamma-BHC (1.6 mg/kg bw/day)[7].

Carcinogenic Effects

Dietary alpha-BHC has been shown to cause increased incidences of liver tumors in five mouse strains and in Wistar rats.

Groups of 20 to 40 male dd mice were treated with 100, 250, or 500 ppm alpha-HCH in the diet for 24 weeks. Liver nodules and hepatocellular carcinomas were observed in the two upper dose groups. In a subsequent study, male DDY mice were maintained on a diet containing 500 ppm alpha-HCH for 16, 24, or 36 weeks, respectively. Incidence of liver tumors increased with continuous alpha-BHC

Technical BHC was much less toxic than lindane, with acute toxicity ranging from 100 μg/L to 15,000 μg;/L for freshwater fish. Data on saltwater species also indicated that the technical compound was less acutely toxic. No information was available on the chronic toxicity of BHC. A bioconcentration factor was not reported but is probably similar to that for lindane[8].

No studies on the toxicity of the BHC isomers to terrestrial or domestic animals was found in the literature reviewed. However, voles at Love Canal that had decreased life spans and reproductive ability had high levels of lindane in their livers[9].

REGULATORY LEVELS AND CRITERIA

ACGIH TLV-TWA:	0.5 mg/m^3 (lindane)
OSHA PEL-TWA[10]:	0.5 mg/m^3 (lindane)
Maximum Contaminant Level (MCL)[11]:	0.0002 mg/L (lindane)
MCLG[11]:	0.0002 mg/L (lindane)

Health Advisories[12,13]:

Lindane	
10 day child	1.0 mg/L
1 day child	1.0 mg/L
Longer term child:	0.033 mg/L
Longer term adult:	0.12 mg/L
Lifetime:	0.0002 mg/L

Ambient Water Quality Criteria[13]

Water and Fish Consumption:	0.0039 μg/L (alpha), 0.014 μg/L (beta), 0.0186 μg/L gamma
Fish Consumption Only:	0.013 μg/L (alpha), 0.046 μg/L (beta), 0.0625 μg/L gamma
Acute Freshwater LEC:	100 μg/L (alpha), 100 μg/L (beta), 200 μg/L gamma
Acute Marine LEC:	0.031 μg/L (alpha), 0.0547 μg/L (beta), 0.0625 μg/L gamma
Chronic Freshwater LEC:	0.08 μg/L (gamma)
Chronic Marine LEC:	None

SUMMARY OF TOXICOLOGICAL INDICES

USEPA Carcinogenic Classification:	B2 (alpha), C (beta), D (delta), C (gamma)
Oral RfD[7]:	3 x 10^{-4} mg/kg/day (gamma)
Inhalation RfC[7]:	Pending
Oral Cancer Slope Factor[7]:	6.3 mg/kg/day^{-1} (alpha) 1.8 mg/kg/day^{-1} (beta) 1.8 mg/kg/day^{-1} (delta) 1.3 mg/kg/day^{-1} (gamma)
Inhalation Cancer Slope Factor[7]:	6.3 mg/kg/day^{-1} (alpha) 1.8 mg/kg/day^{-1} (beta) 1.8 mg/kg/day^{-1} (delta)
Drinking Water Unit Risk[7]:	1.8 x 10^{-4} per (μg/L)

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DDT SERIES PESTICIDES

INTRODUCTION

Technical DDT is a mixture containing 65-80% p,p'-DDT, 15-20% o,-p' DDT and up to 4% p,p'-DDD plus other trace materials. The metabolites of DDT include p,p'-DDE and o,p'-DDD. DDT isomers and their metabolites are usually found together and generally have the similar properties, therefore DDT has been referenced as the total combination of isomers and metabolites. However, specific differences between isomers are identified.

DDT, along with it's metabolites, are organochlorine pesticides which are very persistent in the environment. Historically, DDT was released to the environment during its formulation and extensive use as a pesticide in agricultural and vector control applications. It was banned from use in the United States in 1972, but is still used in other areas of the world. These compounds have been shown to be carcinogenic in mice and chronic exposure primarily cause liver and lung tumors and lymphomas. In addition, the nervous system appears to be one of the primary target organs for DDT toxicity in humans (6). In general, organochlorine pesticides are highly toxic to aquatic organisms, in addition to being responsible for a decreased population of many bird species (1).

Chemical Name:
p,p'-DDT: p,p'-1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane
p,p'-DDD: p,p'-1,1-Dichloro-2,2-bis(4-chlorophenyl)-ethane
p,p'-DDE: p,p'-1,1-Dichloro-2,2-bis(4-chlorophenyl)-ethene

CAS Number (1):
p,p'-DDT: 50-29-3
p,p'-DDD: 72-54-8
p,p'-DDE: 72-55-9

Molecular Formula (1):
p,p'-DDT: $C_{14}H_9Cl_5$
p,p'-DDD: $C_{13}H_{10}Cl_4$
p,p'-DDE: $C_{14}H_8Cl_4$

Molecular Weight (1):
p,p'-DDT: 354.5 g/mole
p,p'-DDD: 320 g/mole
p,p'-DDE: 318 g/mole

Solubility in Water @ 25°C (6):
p,p'-DDT: 3.4 μg/L
p,p'-DDD: 160 μg/L
p,p'-DDE: 120 μg/L

Solubility in Organics (1):
p,p'-DDT: Soluble in acetone, benzene, cyclohexane, morpholine, pyridine, and dioxane

Vapor Pressure (1):
p,p'-DDT: $5.5E^{-6}$ mm Hg at 25°C
p,p'-DDD: $1.0E^{-6}$ mm Hg at 30°C
p,p'-DDE: $6.5E^{-6}$ mm Hg at 20°C

TRANSPORT AND PARTITIONING

DDT and its metabolites may be transported from one medium to another by the processes of solubilization, adsorption, bioaccumulation, or volatilization. Each of these processes will be discussed in the following paragraphs. Studies of DDT transformations in soils predict prolonged persistence. During these extended periods of time, these compounds undergo extensive adsorption to soil particles, as predicted by their organic carbon partition coefficients (K_{oc}) of 2.4×10^5, 4.4×10^6, and $^{7.7 \times 105}$, for DDT, DDE and DDD, respectively. DDT, DDE and DDD are only slightly soluble in water (solubilities of 0.005, 0.04, and 0.10 mg/L at 25°C, respectively). Therefore, loss of these compounds in runoff is primarily due to transport of particulates to which these compounds are bound. Since they are bound strongly to soil, they are not easily displaced from their site of application, nor do they tend to leach to groundwater, and appreciable amounts may remain in the soil for extended periods of time. When DDT is released to water, it quickly adsorbs to particles and is subject to sedimentation, or may bioconcentrate in microorganisms and can become part of the food chain.(6)

Volatilization of DDT and DDE is known to account for considerable losses of these compounds from solids and water. Their tendency to volatilize can be predicted by their Henry's Law Constants, 5.13×10^{-4} and 6.8×10^{-5} atm-m^3/mol, respectively, and their vapor pressures, 5.5×10^{-6} and 6.5×10^{-6} Torr, respectively. The tendency of DDD to volatilize is approximately three-fold less than that of DDT or DDE. Estimates of the rate of evaporative losses of DDT from water range from several hours to 50 hours. Laboratory studies of the air/water partition coefficient of DDE indicate that it will volatilize from seawater 10 to 20 times faster than from freshwater. The authors suggest that this process may be related to interaction at the bubble-water surface (6).

Small particles which carry DDT or its degradation products may also be distributed through the atmosphere. Once volatilized or airborne, transport of these compounds into the ambient atmosphere of North America is facilitated by a circulation pattern which brings moisture from the Gulf of Mexico into the Midwest and airflow patterns across the eastern seaboard. Residues are removed from the atmosphere by precipitation, diffusion into large bodies of water, and chemical transformation. Precipitation is believed to account for the greatest rate of removal (6).

DDT, DDE, and DDD are highly lipid soluble, as reflected by their log octanol-water partition coefficients (log K_{ow}) of 6.4, 5.7, and 6.0, respectively. This lipophilic property, combined with an extremely long half-life, has resulted in bioaccumulation (levels in organisms exceed those levels occurring in the surrounding environment). When they are present in ambient water, DDT and its

PHARMACOKINETICS

Absorption of DDT by the lung is considered to be a minor route of entry. Due to the large particle size, it does not enter into the smaller spaces of the lung, but is deposited in the upper respiratory tract, and due to the action of the mucociliary apparatus it is eventually swallowed. However, some particles may be small enough to enter the tracheal system. No studies have been located that quantify the rate or extent of absorption of DDT, DDD or DDE (6).

Absorption following ingestion of DDT, DDE and DDD is evident in humans from measurements of serum and adipose tissue concentrations of these chemicals after occupational exposure. Gastrointestinal absorption is evidenced by the presence of DDT and metabolites measured in bile and the induction of tumors in animals following oral administration of the compounds. Approximately 70-90% of the dose has been absorbed following oral exposure to DDT in vegetable oils (6).

Dermal absorption of DDT in humans is considered to be limited, but can be inferred by observation of toxicity following dermal application of DDT. Acute toxicity studies have shown that toxicity is less when DDT is applied dermally than when given by gavage or injection (6).

The distribution and storage of DDT in humans and animals has been extensively studied. DDT and its metabolites are lipid soluble compounds, and once absorbed readily distribute to all body tissues in proportion to respective tissue lipid content (6).

HUMAN HEALTH EFFECTS

Carcinogenic Effects

DDT has been classified as a B2 carcinogen, a probable human carcinogen, however, the existing epidemiological human health research data for carcinogenicity are inadequate . The basis for the B2 classification is the observation of tumors (generally liver tumors) in various mouse strains and in three studies of rats. In addition, DDT is structurally similar to other probable carcinogens such as DDD and DDE. Lung tumors have also been observed in chronic studies of mice, while increased tumor incidence in hamsters have also been observed (2).

DDT has produced both negative and positive responses in tests for genotoxicity (2).

An oral slope factor (CSF) for DDT has been set at 3.4×10^{-1} $(mg/kg/day)^{-1}$ by the United States Environmental Protection Agency (USEPA). An inhalation unit risk number has also been set at 9.7×10^{-5} $\mu g/m^3$, or an inhalation slope factor of 3.4×10^{-1} $(mg/kg/day)^{-1}$ (2).

For DDD the USEPA has set an oral slope factor of 2.4×10^{-1} $(mg/kg/day)^{-1}$, and for DDE the USEPA has set an oral slope factor of 3.4×10^{-1} $(mg/kg/day)^{-1}$ (2).

Noncarcinogenic Effects

Increased hepatocellular hypertrophy, cytoplasmic oxyphilia and peripheral basophilic cytoplasmic granules were observed in chronic rat studies where rats were fed commercial DDT. Liver lesions were also seen in one 2 year rat study. In addition, DDT-induced liver effects were observed in mice, hamsters and dogs. One three generation rat reproduction study showed offspring mortality at all

OCCUPATIONAL REGULATORY LEVELS AND CRITERIA

Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL), Time-weighted average for DDT: 1 mg/m^3, skin (5).

American Conference of Governmental Industrial Hygienist (ACGIH) Time-Weighted Average Threshold Limit Value (TLV) for DDT: 1 mg/m^3 (4).

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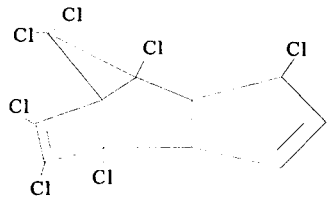
HEPTACHLOR

INTRODUCTION

Chemical Name:	Heptachlor
CAS Number:	156-10-5
Synonyms:	2-Chlorochlordene
Molecular Formula:	$C_{10} H_5 Cl_7$
Molecular Weight:	373.35 g/mole
Chemical Structure:	



Heptachlor is a pure white crystalline solid (technical grade is tan). It was used extensively until the 1970s as a broad based insecticide on a wide variety of agricultural crops, especially corn. In addition, it had nonagricultural uses including seed treatment, home and garden uses, and termite control. In 1988, the sale, distribution, and shipment of existing stocks of all heptachlor products was prohibited in the United States. The only commercial use of heptachlor still permitted in the United States is fire ant control in power transformers.

FATE AND TRANSPORT

Log K_{oc} (1):	4.08
Log K_{ow} (1):	4.30
$t_{1/2}$ in fish:	less than 1 day
Henry's Law Constant (1):	8.19×10^{-4} atm-m^3/mole
BCF (1):	217
Solubility:	
In Water (1):	0.05 mg/L at 25° C
In Organics (1):	Soluble in most organic solvents
Vapor Pressure (1):	3×10^{-4} mm Hg at 20° C

Heptachlor has a low vapor pressure (3×10^{-4} mm Hg at 20° C) and a low water solubility (0.05 mg/L at 25° C). Its high Henry's Law Constant indicates that it partitions to the atmosphere rapidly, and that volatilization is significant. The soil sorption coefficient (K_{oc} 4.08) is indicative of a very high sorption tendency, suggesting it will adsorb strongly to soil and is not likely to leach into groundwater.

If released into water it adsorbs strongly to suspended and bottom sediment. Volatilization from soil particles to the atmosphere is possible and is an important mechanism of transport from land surfaces.

adipose tissue, however, heptachlor epoxide has been detected at levels ranging from 0.0001 to 1.12 part per million.

No studies have been located regarding the metabolism of heptachlor or heptachlor epoxide in humans. However, animal studies have shown that heptachlor undergoes epoxidation to produce heptachlor epoxide, which is more toxic than its parent compound. Heptachlor epoxide is further metabolized into 1-hydroxychlordene, and 1,2-dihydroxychlordene and other unidentified products and excreted in the urine, feces, or through milk production. Heptachlor is formed through the metabolism of chlordane.

No studies were located regarding the excretion of heptachlor in humans or animals following the inhalation or dermal exposure pathways. However, after the oral administration of heptachlor to rats, one study reported that one day after dosing, 36% of the dose had been eliminated in the feces, and by 10 days 62% had been eliminated. Approximately 26% of the parent compound was detected in the feces, the remainder was in the form of metabolites. Elimination of heptachlor epoxide via milk production was found to maximize within 3-7 days in cows that had grazed on pastures immediately following treatment of grasses with heptachlor.

HUMAN HEALTH EFFECTS

Noncarcinogenic Effects

There is evidence to suggest that heptachlor can cause adverse cardiovascular effects. Heptachlor has been shown to affect the atherosclerotic process that are involved in both cardiovascular and cerebrovascular diseases. Intermediate and chronic inhalation exposure of humans to mixtures of heptachlor and chlordane has been associated with leukemia and aplstic and hemolytic anemias. Based on animals studies alone, hepatoxicity may be the most sensitive systemic end point for heptachlor and heptachlor epoxide. Animal toxicity included histologic liver damage, increased liver weight, increased levels of serum enzymes, and decreased body weight. In addition, animal studies have indicated that both carbohydrate metabolism and lipid metabolism may be affected by heptachlor and heptachlor epoxide. Affected renal function in humans have been reported after exposure to chlordane and heptachlor. Neurological effects have been reported in human case studies where irritability, salivation, lethargy, dizziness, labored respiration, muscle tremors and convulsions were reported following exposure to chlordane that was from 6-30% heptachlor. Heptachlor was developed to be an insect neurotoxicant, and it is not surprising that the central nervous system would be a primary target for this toxicant.

There is no conclusive evidence that developmental, reproductive and genotoxic effects occur in humans, however, limited animal studies indicate that there may be adverse effects may occurring these areas.

Other systemic effects include, adrenal fibrosis with lipid accumulation in mice; and body weight decrease possibly due to a decrease in food consumption probably due to taste aversion.

Terrestrial and Avian

No data are available for terrestrial and avian life forms.

REGULATORY LEVELS AND CRITERIA

AWQC (3)

Heptachlor Ingestion of water and organisms:	2.1×10^{-4} µg/L
Heptachlor Ingestion of organisms only:	2.1×10^{-4} µg/L
Heptachlor Epoxide Ingestion of water and organisms:	1.0×10^{-4} µg/L
Heptachlor Epoxide Ingestion of organisms only:	1.1×10^{-4} µg/L
Heptachlor MCL (4):	0.4 µg/L
Heptachlor Epoxide MCL (4):	0.2 µg/L

SUMMARY OF TOXICOLOGICAL INDICES

Group B2-classifiable as to probable human carcinogenicity

EPA Carcinogenic Classification (2):

	Heptachlor	Heptachlor Epoxide
Oral CSF:	4.5 mg/kg -day^{-1}	9.10 mg/kg -day^{-1}
Inhalation CSF:	4.5 mg/kg -day^{-1}	9.10 mg/kg -day^{-1}

Noncarcinogenic Effects (2):

	Heptachlor	Heptachlor Epoxide
Oral RfD:	5×10^{-04} mg/kg-d	1.3×10^{-05} mg/kg -day
Inhalation RfC:	none	none

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POLYCHLORINATED BIPHENYLS (PCBS)

INTRODUCTION

Chemical Name:	Polychlorinated Biphenyls (PCBs)
Synonyms and Trade Names:	Aroclor, Kanechlor, Clophen
CAS Numbers:	Aroclor 1242: 53469-21-9
	Aroclor 1248: 12672-29-6
	Aroclor 1254: 11097-69-1
	Aroclor 1260: 001336-36-3
Molecular Formula:	$C_6H_xCl_xC_6H_xClx$
Molecular Weights:	Aroclor 1242: 266.5 g/mole
	Aroclor 1248: 299.5 g/mole
	Aroclor 1254: 328.4 g/mole
	Aroclor 1260: 377.8 g/mole

The term polychlorinated biphenyls (PCBs) commonly refers to a variety of mixtures of individual biphenyl isomers, each consisting of two joined benzene rings and up to ten chlorine atoms. Mixtures of these isomers are known by their commercial designation of Aroclor. This trade name is followed by a four-digit number; the first two numbers indicate the type of isomer mixture and the last two numbers indicate the approximate weight percent of chlorine in the mixture (3).

PCBs are man-made chemicals that were used widely in transformers, electrical equipment and as lubricants (2). Because of their persistence and toxicity in the environment, their manufacture was discontinued in the United States in 1977 (1). However, PCB equipment manufactured before 1977 is currently still being used in the U.S. and this use is being regulated by the Environmental Protection Agency.

PCBs are very stable chemically and tend to be persistent in the environment. Persistence and bioaccumulation in living organisms also occur due to the high lipophilicity of these compounds (2).

CHEMICAL AND PHYSICAL PROPERTIES

Aroclor	**1242**	**1248**	**1254**	**1260**
Log K_{oc}	3.8	5.75	5.51	6.3
Log K_{ow} (2):	5.6	6.11	6.03	7.15
Henry's Law Constant(2): (atm-m^3/mol at 25° C)	5.7×10^{-4}	3.5×10^{-3}	8.4×10^{-3}	7.1×10^{-3}
Water Solubility (mg/L):	0.24	0.054	0.012	0.0027
Vapor Pressure(2): (mm Hg at 25° C)	4.06×10^{-4}	4.94×10^{-4}	7.71×10^{-5}	4.0×10^{-5}
Density (2):	1.35	1.41	1.50	1.57

PCBs are found in the soils from different areas of the world in the following concentrations (2):

Location	Concentration Range (ppb)
Great Britain	2.3 to 444
South Wales/Scotland	4.5 to 47.7
Japan	<10 to 100
United States	
Everglades National Forest, Florida	<1 to 33
U.S. Urban areas	0.02 to 11.94
Rocky Mountain National Park	0.098 to 0.54
Great Lakes	2.5 to 251.7

PHARMACOKINETICS

PCBs are absorbed primarily through inhalation and dermal contact in occupational environments. However, the general public absorbs PCBs primarily through oral exposure, such as the ingestion of PCB contaminated fish (2).

Animal studies have shown that PCBs are readily absorbed, but studies to quantify the rate of absorption are needed. Studies indicate that PCBs are absorbed by the gastrointestinal tract, and have been found in the serum and breast milk of woman orally exposed to PCBs (2).

PCBs accumulate in human plasma and adipose tissue with the extent of accumulation dependent on the positions of chlorines on the PCB congeners. Congeners with chlorines in both 4 positions as opposed to the 3 ,4 positions were found in greater concentrations (2). Also, PCBs have been shown to accumulate in human breast milk. The extent of accumulation is approximately 4 to 10 times less than the concentration in maternal blood (2).

Animal studies have indicated maximum concentrations in the liver, brain, and adipose tissue. Studies show that distribution occurs in a biphasic manner. First, PCBs accumulate in the liver and muscle from the blood stream. Following this accumulation, PCBs are either stored in the adipose tissue or metabolized by the liver. It has been suggested that PCBs concentrate in the adipose tissue regardless of the route of exposure (2).

The metabolism of PCBs depends on chlorine content and on the site of chlorination. The major metabolic products are phenolic in nature. Other identified end products are sulfur-containing compounds, trans-dehydrodiols, polyhydroxylated PCBs and methyl ether derivatives (2).

Data regarding the excretion of PCBs following inhalation or dermal exposure are not available. When oral exposure occurs, excretion is dependent upon the metabolism of PCBs to more polar compounds (2).

Dermal Exposure

Dermal exposure is a major route of PCB absorption. However, the current data does not allow for the quantification of dermal absorption to the total body burden of PCBs (2).

A study involving capacitor workers does not show clear evidence of liver disease. However, a correlation can be made between the PCB exposure and liver enzyme induction in the workers. It is not clear to what extent the dermal absorption affected the hepatic changes since inhalation exposure also occurred (2).

A study involving dermal exposure of Aroclor 1260 to female New Zealand rabbits for 5 days/week at a dose of 118 mg/day for 38 days produced degenerative lesions of the liver and kidneys, increased fetal porphyrin elimination and hyperplasia and hyperkeratosis of the follicular and epidermal epithelium (2). Other studies indicate that the median lethal dose for single dermal exposure for rabbits was >1269 mg/kg for Aroclor 1242 and 1248 to <3,169 for Aroclor 1221 (2).
No studies have been located which address immunological, neurological, developmental or reproductive effects of PCBs on humans or animals (2).

Carcinogenic Effects

The EPA has classified PCBs as a Group B2 carcinogen - a probable human carcinogen. This classification is based on the evidence of hepatocellular carcinomas in three strains of rats and two strains of mice. There is suggestive evidence that links PCBs to liver cancer in humans by the ingestion, inhalation, or dermal pathways. However, this evidence is inadequate due to confounding factors and lack of exposure quantification (4).

There have been several studies attempting to associate PCB exposure with carcinogenicity. In New Jersey, a petrochemical plant reported a statistically significant increase in malignant melanomas among 31 research and development employees and 41 refinery workers. Because the study failed to report quantified exposure levels and to identify the presence of other potential or known carcinogens, it was discredited (4).

Two outbreaks of poisoning following accidental consumption of PCB-contaminated rice oil (also containing polychlorinated dibenzofurans and polychlorinated quinones) occurred in Japan in 1968 (Yusho) and in Taiwan in 1979 (Yu-Cheng). A 16-year mortality study was completed which identified an increase in liver cancer in both males and females. There is strong evidence indicating the health effects were attributable to the polychlorinated dibenzofurans in the oil as opposed to the PCBs. Therefore, this study only suggests carcinogenicity of PCBs (4).

REGULATORY LEVELS AND CRITERIA

OSHA Advisory TWA (2):	Aroclor 1242 - 1.0 mg/m3
	Aroclor 1254 - 0.5 mg/m3
FDA Temporary Tolerances (2):	Foods - 0.2-3.0 ppm
	Packaging - 10.0 ppm
ACGIH (2):	
TLV-TWA for Aroclor 1242:	1.0 mg/m3
TLV-TWA for Aroclor 1254:	0.5 mg/m3
Ambient Water Quality Criteria (2):	0.79 to 0.0079 ng/L for carcinogenicity at 10^{-5} to 10^{-7} risk levels
Drinking Water Criteria (2):	MCLG: 0 μg/L
	MCL: 0.5 μg/L
Reportable Quantity (2):	10 lbs. (statutory)
	1 lb. (proposed)
AWQC:	
Water and Fish Consumption (6):	4.4×10^{-5} µg/L
Fish Consumption Only (6):	4.5×10^{-5} µg/L

SUMMARY OF TOXICOLOGICAL INDICES

EPA Carcinogenic Classification (4) Group: B2-Probable human carcinogen

Carcinogenic Effects:

<u>High Risk and Persistence</u>
Oral CSF (4):

Upper-bound Slope Factor:	2.0 $(mg/kg/day)^{-1}$
Central-estimate Slope Factor:	1.0 $(mg/kg/day)^{-1}$

<u>Low Risk and Persistence</u>
Oral CSF (4):

Upper-bound Slope Factor:	0.4 $(mg/kg/day)^{-1}$
Central-estimate Slope Factor:	0.3 $(mg/kg/day)^{-1}$

<u>Lowest risk and Persistence</u>
Oral CSF (4):

Upper-bound Slope Factor:	0.07 $(mg/kg/day)^{-1}$
Central-estimate Slope Factor:	0.04 $(mg/kg/day)^{-1}$

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POLYCHLORINATED DIBENZO(P)DIOXINS (PCDDs) AND POLYCHLORINATED DIBENZOFURANS (PCDFs)

INTRODUCTION

Chemical Name: Polychlorinated dibenzo(p)dioxins (PCDDs) and Polychlorinated dibenzofurans (PCDFs)
Synonyms (1): Dioxins, diphenylene oxide, dibenzodioxin, dibenzo(1,4)dioxin
Molecular Formula (1): $C_{12} H_4 Cl_x O_2$

Polychlorinated dibenzo(p)dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) are two classes of environmentally stable chlorinated tricyclic aromatic hydrocarbons. PCDDs consist of two benzene rings connected by a furan ring. There are 75 chlorinated dioxins and 135 chlorinated furans, each with different chemical, physical, and toxicological properties. The PCDDs and PCDFs of primary interest in terms of toxicity are 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD), 2,3,7,8-tetrachlorodibenzofuran (2,3,7,8-TCDD), and 2,3,4,7,8-pentachlorodibenzofuran (2,3,4,7,8-P5CDF) (1,2). This profile will focus on 2,3,7,8-TCDD since it is the most potent congener and the most widely studied of the PCDDs and PCDFs.

FATE AND TRANSPORT

2,3,7,8-TCDD has a vapor pressure of 1.49×10^{-6} mm Hg at 25 C and 1 atmosphere, a melting point of 305 - 306 C, and is highly lipophilic (1). As a result, it is virtually insoluble in water (0.2 ppb). The log Kow of 2,3,7,8-TCDD is 7.7 and the Henry's Law constant is 1.68×10^{-5} atm·m^3/mol (29).

PCDDs/PCDFs are not manufactured commercially but may be formed as byproducts during the production of herbicides and chlorinated phenols or as a result of incomplete combustion of mixtures containing chlorine and organics (1,2). The environmental fate of PCDDs is not understood with certainty (5).

Estimates of ambient air levels and the atmospheric half-life of PCDDs/PCDFs are generally unavailable. However, in 12 air samples collected near Niagara Falls, one contained TCDDs (1.2 pg/m^3) and three samples contained TCDF concentrations ranging from 1 to 13.6 pg/m^3 (6). Levels of 2,3,7,8-TCDD in flue gases of incinerators ranged from 0.05 to 1.3 ng/m^3 (7,8). PCDDs are immobile in most soils, but horizontal movement of soil-bound PCDD may occur in runoff water. The estimated half-life of PCDDs ranges from 1 to 3 years in surface soil and 10 to 12 years in subsurface soils (1). Soil concentrations range from below the limit of detection (0.0002 ng/g) to 0.0094 ng/g in soil samples from 10 urban areas (9). The estimated half-life in surface water is less than 1 year and PCDDs have not been detected in drinking water supplies (1). PCDDs were detected in industrial discharges and leachates from waste sites (10). The ultimate environmental sink of PCDDs is believed to be the sediments of surface waters (5).

Individuals occupationally exposed to PCDD-containing material have experienced persistent chloracne, porphyria cutanea tarda (a severe skin disorder), peripheral neuropathy, and gastrointestinal disturbances. The majority of the effects have been reported among occupationally exposed groups, including chemical production workers, pesticide users, and individuals handling or exposed to materials treated with TCDD-contaminated pesticides, and among residents of communities contaminated with tainted waste oil and industrial effluent. It is presumed that the predominant route of exposure was dermal, but some oral and inhalation exposure would also be expected (1).

Studies reporting toxic effects following chronic inhalation or dermal exposure to PCDDs/PCDFs in experimental animals are generally lacking. Effects observed after oral exposure to 2,3,7,8-TCDD in guinea pigs, mice, and rats include body weight loss, decreased thymus weights, and suppressed immune functions (26). Oral exposure of rats and mice to 2,3,7,8-TCDD for 2 years induced hepatotoxic effects at dose levels exceeding 0.001 μg/kg/day (15,16). Rhesus monkeys fed diets containing 2,3,7,8-TCDD (0.0015 - 0.014 μg/kg/day for 7 to 12 months exhibited skin lesions, subcutaneous edema, and hair and body weight loss (23-25, 27). In addition, 6 of the 8 monkeys maintained on the high dosage diet (0.014 μg/kg/day) died within 12 months (27).

Carcinogenic Effects

Animal bioassay data provides substantial presumptive evidence of the human carcinogenicity of TCDD, but validation must come from human studies. TCDD is a multi-organ carcinogen in animals. Target organs include the liver, thyroid, lung, skin and soft tissues. There is, to date, no assumption of target tissue concordance from animals to humans although site concordance would add support to a casual interpretation. Several epidemiological studies have reported an association between occupational exposure to phenoxyacetic acid herbicides and/or chlorophenols (which contain 2,3,7,8-TCDD or other PCDDs as impurities) and an increased incidence of soft-tissue sarcomas (1). However, these studies are difficult to assess since the exposure to 2,3,7,8-TCDD is poorly documented and exposure to other carcinogenic chemicals may have occurred. Most studies rely solely on interviews and questionnaires of work history to ascertain exposure surrogates. Thus, these data are inadequate to evaluate the carcinogenic potential of PCDDs in humans.

A number of positive chronic animal bioassays have been reported (1). In rats, oral exposure to 2,3,7,8-TCDD resulted in a significant increase of hepatocellular carcinomas, carcinomas of the tongue, hard palate, nasal turbinates, and lungs (15,16). In male and female mice, increased incidences of liver tumors, lymphomas, and leukemia of the hematopoietic system and thyroid adenomas were observed (16). 2,3,7,8-TCDD has also induced fibrosarcomas at the site of application after dermal exposure (17).

The International Agency of Research on Cancer (IARC) has classified 2,3,7,8-TCDD in group B2 based on a combination of sufficient evidence for carcinogenicity in animals and inadequate data in humans (18). Based on these same criteria, the U.S. EPA has classified 2,3,7,8-TCDD in group B2 (probable human carcinogen) (1).

The mutagenic potential of 2,3,7,8-TCDD has been examined in a wide variety of assays. Available data indicates that 2,3,7,8-TCDD may be a weak mutagen but the data are not conclusive (1). Initial investigations with the S. typhimurium strain TA1532 yielded positive results without metabolic activation (1). However, more recent studies have shown negative results both with and without metabolic activation in bacterial systems. Studies have also been conducted to determine if 2,3,7,8-TCDD interacts with DNA or has the ability to cause chromosomal aberrations. Both in vitro

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ALUMINUM

INTRODUCTION

Chemical Name: Aluminum
Synonyms (1): Alaun; Alumina Fibre; Aluminum Dehydrated; Aluminum Flake
CAS Number (1): 7429-90-5
Molecular Formula (1): Al
Molecular Weight (1): 26.98 g/mole

Aluminum is a silvery white, crystalline solid which is the most abundant component of the earth's crust. It is the third most abundant of all chemicals and does not occur free in nature. Fine powder forms of aluminum are flammable and form explosive mixtures in the air.

HUMAN HEALTH EFFECTS

Aluminum compounds can affect absorption of other elements in the gastrointestinal tract and thereby alter intestinal function. Aluminum inhibits fluoride absorption and may decrease the absorption of calcium and iron compounds and possibly the absorption of cholesterol. It may alter gastrointestinal tract motility through inhibition of acetylcholine-induced contractions which may explain why aluminum-containing antacids often produce constipation.

A progressively fatal neurologic syndrome also has been reported in patients on long-term intermittent hemodialysis treatment for chronic renal failure. The disorder, which typically arises after three to seven years of dialysis treatment, may be due to aluminum intoxication. Sources of excess aluminum may be from oral aluminum hydroxide commonly given to these patients or from aluminum in dialysis fluid derived from tap water used to prepare the dialysis fluid.

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

The chemistry of aluminum in surface water is complex due to the following five properties:

- aluminum is amphoteric; it is more soluble in acidic solutions than basic solutions;
- ions such as chloride and sulfate form soluble complexes with aluminum;
- aluminum can form strong complexes with fulvic and humic acids;
- hydroxide ions can connect aluminum ions to form soluble and insoluble polymers; and,
- under some environmental conditions, aluminum solutions slowly reach equilibrium (4).

Acute tests have been conducted on aluminum at pH values ranging between 6.5 and 9.0 with freshwater species in fourteen genera. In many tests, less than 50% were affected at the highest concentration tested. Some studies found that the acute toxicity of aluminum increased with pH, whereas others found the opposite to be true. Three studies have been conducted on the chronic toxicity of aluminum to aquatic animals. The chronic values of Daphnia magna, Ceriodaphnia dubia, and the fathead minnow were 742.2, 1,908, and 3,288 µg/L, respectively. The diatom, Cyclotella meneghiniana, and the green alga, Selenastrum capricornutum were affected by concentrations of

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ANTIMONY

INTRODUCTION

Chemical Name:	Antimony
CAS Number (1):	7440-36-0
Molecular Formula (1):	Sb
Molecular Weight (1):	151.18 g/mole

Antimony is a silvery or gray lustrous metal that comes from the ores stibnite, dermasite, tetrahedrite, livingstonite, and jamisonite (1). Stibnite is the most common naturally occurring form of antimony. Antimony is used as a hardening alloy for lead, solder, sheet and pipe, semiconductor technology, production of fireproofing chemicals, ceramics, glassware, and pigments, and pyrotechnics (2,3). Antimony exists in four valence states (-3, 0, +3, and +5) (4). Antimony is a common air pollutant from industrial emissions but exposure in the general population is largely from food (3).

FATE AND TRANSPORT

Antimony occurs as a soluble oxide or as antinomite (+3) salt in most natural water systems. It may change to volatile stibine in a reducing environment. Stibine is very soluble in water, but it is not stable in under aerobic conditions. Sediment beds offer a reducing environment allowing for remobilization of antimony previously removed from solution. Sorption to clays and minerals is the most important mechanism resulting in the removal of antimony from solution. Insoluble forms of antimony compounds may be formed when heavy metals in solution react with antimonite or antimonate. Bioaccumulation represents a minor fate process for antimony. (4)

PHARMACOKINETICS

Antimony is slowly absorbed from the gastrointestinal tract. The metal accumulates in lung tissue when humans are exposed to antimony dust in an occupational setting. Trivalent antimony is concentrated in red blood cells and the liver. Pentavalent antimony is mostly found in plasma. Both trivalent and pentavalent antimony are excreted in feces and urine. More trivalent antimony is excreted in the urine, where more pentavalent antimony is excreted in the feces (3).

HUMAN HEALTH EFFECTS

Noncarcinogenic Effects

Studies have reported that antimony trioxide, antimony trichloride, and antimony pentachloride may be mutagenic. Reproductive studies have indicated that female workers exposed to metallic antimony dust, antimony trioxide, and pentoxide had an increase in incident of gynecological disorders and late spontaneous abortions. Antimony was found in the breast milk, placental tissue, amniotic tissue, and blood of the umbilical cord in exposed workers. Intraperitoneal administration of antimony in rats supported the findings of the human reproductive effects (4).

REGULATORY LEVELS AND CRITERIA

Oral RfD (7):	4×10^{-4} mg/kg/day
EPA Carcinogenic Classification (7):	Group D - not classified as a carcinogen
Ambient Water Quality Criteria (5):	
Water and Organisms	14 µg/L
Organisms Only	4,300 µg/L
MCL:	0.006 mg/L
MCLG:	0.006 mg/L
OSHA PEL-TWA:	0.5 mg/m^3 (antimony and its compounds as Sb)
ACGIH TLV-TWA:	0.5 mg/m^3 (antimony and its compounds as Sb)

SUMMARY OF CRITERIA

The Oral RfD for antimony was reported as 4.0×10^{-04}. The study supporting this value involved the exposure of 5 ppm of antimony potassium tartrate in drinking water to rats (7).

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ARSENIC

INTRODUCTION

Chemical Name:	Arsenic
CAS Number:	7440-38-2
Molecular Formula:	As
Molecular Weight:	74.92 g/mole
Chemical Structure:	As

Arsenic (elemental) exists as a silvery to black, brittle, crystalline and amorphous metalloid. Arsenic is used in the production of glass, enamels, ceramics, oil, cloth, linoleum, electrical semiconductors, pigments, fireworks, pesticides, fungicides, veterinary pharmaceuticals and wood preservatives. Arsenic also has been shown to occur in municipal sewage (7).

FATE AND TRANSPORT

BCF (1):	Accumulates to toxic levels in food chain organisms
Degradation Products:	None
Solubility:	
In Water (5):	Insoluble
In Organics (6):	Unknown (5); soluble in nitric acid
Vapor Pressure (6):	1 mm Hg @ 372° C (sublimes)
Specific Gravity (5):	5.727

Arsenic can occur in soil, water, or air. Since it is an element, it cannot be degraded by environmental processes. However, transformation from one arsenic compound to another is possible.

In the environment, arsenic can occur in four different oxidation states (-3, 0, +3, +5). The particular chemical speciation is important in determining mobility. Interconversions between the +3 and +5 states, as well as organic complexation, are most important (8).

In the soil, the concentration and chemical form in which arsenic occurs is affected by pH, soil type and iron and aluminum content of the soil. Lowered pH and reducing conditions tend to favor the development of arsine, a toxic gas comprised of arsenic and oxygen (7).

In the aquatic environment, volatilization is an important mechanism when biological activity or highly reducing conditions favor the production of arsine or methylarsenics. Sorption of arsenic onto sediments is also an important process in aquatic transport processes. While arsenic may cycle considerably in the environment given its mobility, the deep ocean probably serves as a sink for most inorganic arsenic (7).

Because of arsenic's carcinogenic potential in humans, the EPA has classified it as a Group A carcinogen-human carcinogen. The carcinogenic slope factor for arsenic by inhalation exposure is 15.1 $(mg/kg/day)^{-1}$. Also, a carcinogenic slope factor of 1.50 $(mg/kg/day)^{-1}$ has been derived for ingestion exposure to this element (1,4).

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

While various forms of inorganic arsenic seem to have roughly similar toxicities in aquatic organisms, they all seem to be much more toxic than the organic forms. Acute toxicity of adult freshwater animals has been shown to occur at arsenic trioxide levels as low as 812 µg/L and as low as 40 µg/L in early life stage organisms (8).

Ambient Water Quality Criteria for the protection of aquatic organisms are as follows: (1)

Freshwater:

Acute Toxicity:	360 µg/L
Chronic Toxicity:	190 µg/L

Marine:

Acute Toxicity:	69 µg/L
Chronic Toxicity:	36 µg/L

Terrestrial and Avian

Information on arsenic toxicity among terrestrial wildlife is very limited. However, arsenic poisoning has been known to occur on rare occasions in domestic animals. Arsenic poisoning in domestic animals leads to hyperemia and edema of the gastrointestinal tract, hemorrhage of the cardiac serosal surfaces and peritoneum, and pulmonary congestion and edema (8).

REGULATORY LEVELS AND CRITERIA

The following regulatory levels and criteria have been established for arsenic:

OSHA PEL-TWA (9):	10 $\mu g/m^3$ (inorganic)
ACGIH TLV-TWA (10):	0.01 mg/m^3
MCL(1):	0.05 mg/L
EPA Ambient Water Quality Criteria (11):	
Ingestion of Water and Aquatic Organisms:	0.018 µg/L
Ingestion of Organisms Only:	0.14 µg/L

SUMMARY OF CRITERIA

EPA Carcinogenic Classification (1):	Group A-human carcinogen
Cancer Slope Factor (Inhalation) (1):	15.1 $(mg/kg/day)^{-1}$
Cancer Slope Factor (Oral) (1):	1.5 $(mg/kg/day)^{-1}$
Oral RfD (1):	3×10^{-4} mg/kg/day

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BARIUM

INTRODUCTION

Chemical Name:	Barium
CAS Number:	7440-39-3
Molecular Formula:	Ba
Molecular Weight:	137.3 g/mole
Chemical Structure:	Ba

Barium is a silvery-white, slightly lustrous, somewhat malleable metal. It is used in various alloys, paints, soap, paper, and rubber, and in the manufacture of ceramics and glass. Barium compounds also are used in diagnostic radiology (3,4).

FATE AND TRANSPORT

BCF (1):	Not Significant
Solubility (1):	
In Water:	Decomposes; combines with sulfate present in natural waters to form $BaSO_4$, which has a solubility of 1.6 mg/L @ 20° C
In Organics:	Soluble in alcohol, insoluble in benzene
Vapor Pressure:	Not Reported
Specific Gravity (1):	3.5

Barium is extremely reactive, decomposes in water, and readily forms insoluble carbonate and sulfate salts. It is generally present in surface water and groundwater only in trace amounts. Barium is not soluble at more than a few parts per million in water that contains sulfate at more than a few parts per million. It is rare to find barium in drinking water at concentrations in excess of 1 mg/L (1). In terms of atmospheric transport, barium can adhere to particulates and be transported via the wind (1).

PHARMACOKINETICS

The absorption, metabolism and excretion of barium and its compounds depend upon the solubility of the specific barium compound. Insoluble forms, such as barium sulfate, are not toxic by either ingestion or inhalation. The soluble salts of barium are absorbed, and small amounts are accumulated in the skeleton (3). However, the biological half-life for barium is generally less than 24 hours (1).

The primary route of barium elimination is through the feces (3). Urinary excretion of barium occurs to a much lesser extent because it is reabsorbed by the renal tubules of the kidney.

REGULATORY LEVELS AND CRITERIA

Maximum Contaminant Level (MCL) (2):	2.0 mg/L
MCLG (2)	2 mg/L
OSHA PEL-TWA (1):	0.5 mg/m^3 (soluble compounds)
ACGIH TLV-TWA (1):	0.5 mg/m^3 (soluble compounds)
EPA Carcinogenic Classification (2):	Group D-not classified as a carcinogen
Oral RfD (2):	7×10^{-2} mg/kg/day
Inhalation RfD(2):	1.40×10^{-4} mg/kg/day

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BERYLLIUM

INTRODUCTION

Chemical Name:	Beryllium
CAS Number:	7440-41-7
Molecular Formula:	Be
Molecular Weight:	9.01 g/mole

Beryllium is a dark gray metal from the alkaline earth family. Most of the beryllium ore that is mined is converted into metal alloys which are used in the fields of electronics and metal fabrication. Pure beryllium is used in nuclear weapons and reactors and x-ray transmission windows and mirrors (4).

FATE AND TRANSPORT

BCF:	100 for freshwater and marine plants, invertebrates, and fish (4)
Solubility:	
In Water:	Insoluble
In Organics (1):	Soluble in dilute acid and alkali; insoluble in alcohol, ether, and CCl_4
Specific Gravity (1):	1.85 @ 20° C

Beryllium can be present in the air, water, and soil although it can not be degraded by environmental fate processes. However, it may transform from one beryllium compound to another. The major source of its emissions to the environment is the release of particulates and fly ash into the atmosphere through the combustion of coal and fuel oil. Other sources of emission are associated with ore processing, metal fabrication, and beryllium oxide production and use. Beryllium is most likely found in the environment in the particulate form rather than the dissolved form (4).

There is no information regarding the aquatic or soil biotransformation of beryllium or its compounds (4).

The removal of beryllium from the atmosphere occurs through wet and dry deposition. Because beryllium displaces divalent cations which share common sorption sites, in most types of soil, it is expected to be tightly adsorbed. Since the BCF is reported at <1000, beryllium will not significantly bioaccumulate (4).

PHARMACOKINETICS

Beryllium enters the body through inhalation of air, consumption of food, and contact with water. The primary route of exposure is by inhalation. Based on animal studies, pulmonary absorption does not appear to be extensive, and absorption through the gastrointestinal tract and the skin appears to be minimal. Dermal exposure to soluble beryllium compounds can cause contact dermatitis in humans (4).

There has been sufficient information to link beryllium to lung cancer via inhalation in animals; osteosarcomas have been observed in rabbits via intravenous or intramedullary injection (3). Also, there has been sufficient information to link beryllium to an induction of tumors via inhalation and intratracheal instillation in rats and monkeys, and the induction of osteosarcomas in rabbits by intravenous or intramedullary injection in multiple studies.

Slight increases in cancer incidence were reported in Long-Evans rats that were administered 5 ppm beryllium sulfate in drinking water for a lifetime. An increase in reticulum cell carcinomas of the lungs was seen in male Wistar-derived rats administered beryllium sulfate in the diet at 5 and 50 ppm, but not at 500 ppm.

Osteogenic sarcomas were induced in rabbits by intravenous injection of beryllium compounds. Bone tumors were induced by beryllium oxide, zinc beryllium silicate, beryllium phosphate, beryllium silicate, and beryllium metal.

Lung tumors (adenomas and adenocarcinomas) have been induced via the inhalation route in both male and female Sprague-Dawley rats during exposure periods of up to 72 weeks by beryllium sulfate, in Sherman and Wistar rats by beryllium phosphate, beryllium fluoride, and zinc beryllium silicate, in male Charles River CR-CD rats by beryl ore, and in both male and female rhesus monkeys by beryllium sulfate. Positive results were seen in rats exposed to beryllium sulfate at concentrations as low as 2 $\mu g/m^3$ (3).

The EPA has verified an inhalation CSF of 8.4 mg/kg-day.

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

Adequate information is not available to determine ambient water quality criteria for aquatic life protection. However, the EPA has reported the lowest concentration of beryllium known to cause toxic effects. The criterion for acute beryllium exposure to freshwater organisms is 130 µg/L. The chronic exposure for freshwater organisms is 5.3 µg/L. No saltwater acute or chronic studies are available (4).

Terrestrial and Avian

No data are available for terrestrial and avian life forms (4).

REGULATORY LEVELS AND CRITERIA

OSHA Ceiling Limit (4):	5 $\mu g/m^3$
OSHA PEL-TWA (4):	2 $\mu g/m^3$
ACGIH TLV-TWA (4):	2 $\mu g/m^3$
Ingestion of water and fish (8):	7.6×10^{-3} µg/L
Ingestion of organisms only (8):	1.31×10^{-1} µg/L
Reportable quantity (3):	10 lbs
MCL (3):	0.004 mg/L
MCLG (3):	0.004 mg/L

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CADMIUM

INTRODUCTION

Chemical Name:	Cadmium
CAS Number:	7440-43-9
Molecular Formula:	Cd
Molecular Weight:	112.4 g/mole

Cadmium is a soft, blue-white, malleable metal or grayish-white powder. It is obtained as a by-product from the treatment of copper, lead, and iron (1). Its primary uses are as a pigment, and in batteries, specialized metal alloys, and photography (2).

FATE AND TRANSPORT

BCF:	81 (4)
Solubility (4) :	Salts are water soluble; metal is insoluble
Specific Gravity (1):	8.642

Cadmium can be present in the air, water, and soil. Most often, cadmium exists in small particles which tend to be more persistent. Photochemical reactions are not involved in the atmospheric fate of cadmium. The largest source of atmospheric cadmium occurs as a result of fossil fuel combustion (4).

In water, cadmium is relatively mobile and may exist as a hydrated ion or as metal inorganic complexes. Many inorganic cadmium compounds are soluble in water; however, cadmium oxide and sulfide have very low solubilities (4).

Cadmium exists in soil as free cadmium compounds. It is strongly accumulated by organisms through food and water. The bioaccumulation capabilities of cadmium allow for elevated cadmium concentrations in mollusks, crustaceans, fish, and aquatic plants. Elevated cadmium levels in beef and poultry are often a result of cadmium-containing fertilizers (4).

PHARMACOKINETICS

Cadmium readily enters the body through ingestion of water or food and the inhalation of ambient air. Increased cadmium levels are largely attributed to plumbing, municipal incinerators, coal combustion, food grown in phosphate fertilizers, and smoking. Dermal exposure to cadmium is not considered a significant pathway (4).

Absorption of inhaled cadmium through the lung is dependent on particle size and whether or not the particles are respirable. It has been estimated that roughly 30 to 60 percent of inhaled cadmium is absorbed. Cadmium ingested in food or water is poorly absorbed (one to six percent) from the gastrointestinal tract of humans (4).

It should be noted that carcinogenic effects have not been reported in either humans or laboratory animals exposed orally or dermally to cadmium (4).

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

Laboratory experiments suggest that cadmium may have adverse effects on reproduction in fish at levels present in lightly to moderately polluted water (1).

Freshwater fish and invertebrates exhibit an acute LC_{50} ranging from 100 to 1000 µg/L. Saltwater species were 10-fold more tolerant to cadmium. The bioconcentration factors are generally less than 1000, but as high as 10,000 for some freshwater fish (1).

Ambient Water Quality Criteria have been established for cadmium and are as follows (9):

Freshwater:	
Acute toxicity:	3.9 µg/L (1-hr)*
Chronic toxicity:	1.1 µg/L (4-day)*
Marine:	
Acute toxicity:	43 µg/L (1-hr)
Chronic toxicity:	9.3 µg/L (4-day)

*Hardness dependent criteria

Terrestrial and Avian

No data characterizing adverse effects on domestic or wild animals are available (1).

SUMMARY OF REGULATORY LEVELS AND CRITERIA

EPA Carcinogenic Classification (3):	B1-Probable human carcinogen via inhalation
Cancer Potency Factor (inhalation) (3):	6.3×10^{0} $(mg/kg/day)^{-1}$
Oral RfD (3):	5×10^{-4} mg/kg/day (water)
	1×10^{-3} mg/kg/day (food)
Ingestion of water and organisms (3):	1.0×10^{1} µg/L
Reportable quantity (3):	10 lbs
OSHA PEL-TWA (7):	5 $\mu g/m^3$
MCL:	5.0 µg/L
MCLG (6):	5 µg/L
WHO (drinking water) (4):	0.005 mg/L
ACGIH TLV-TWA (8):	0.01 mg/m^3 (total dust/particulate)
	0.002 mg/m^3 (respirable fraction)

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CHROMIUM

INTRODUCTION

Chemical Name:	Chromium
CAS Number:	Chromium (VI) 7440-47-3; Chromium (III) 16065-83-1
Molecular Formula:	Cr
Molecular Weight:	52 g/mole
Chemical Structure:	Cr

Chromium is a semi-gray heavy metal that generally exists in either a trivalent (III) or hexavalent (VI) state. Chromium occurs naturally in soil; however, it is no longer mined in the United States.

FATE AND TRANSPORT

BCF:	16 (2)
Degradation Products:	None
Solubility:	Metallic chromium is not soluble in water, but it is soluble in some acids and strong alkalies (4). Some chromium salts are water soluble (3).
Specific Gravity (3):	7.20 @ 28°C

Chromium and compounds can be present in air, water, and soil. In air, chromium is primarily associated with particulate matter which results from surface soil dispersion or particulate emission from industrial sources (3). Transport of chromium from water to air is not likely because chromium compounds do not volatilize from water. In the atmosphere, Cr(VI) can be reduced to Cr(III) at a significant rate by V^{+2}, V^{+3}, VO_2^+, Fe^{+2}, HSO^-_3, and As^{+3}. The residence time of atmospheric chromium is expected to be less than 10 days (1).

Cr(VI) as a component of a complex anion is quite soluble in water. Consequently, it is not adsorbed to any significant degree by clays or hydrous metal oxides. The anionic form of Cr(VI), therefore, is mobile in the aquatic environment (3). Cr(VI) is a moderately strong oxidizing agent. In water, it will react with a reducing agent to form Cr(III) which will subsequently hydrolyze to chromium hydroxide and precipitate out of solution. This Cr(III) precipitate tends to adsorb to sediment. Air deposition, runoff, and leaching from soil can introduce chromium into surface and groundwater. The residence time of Cr(III) in lake water is approximately 4.5 to 18 years (1).

Chromium probably occurs as insoluble $Cr_2O_3 \cdot nH_2O$ in soil, since the organic matter in soil is expected to convert soluble chromate into insoluble Cr_2O_3 (1). Cr(III), as an insoluble salt, tends to strongly adhere to clay particles and organic matter, whereas soluble Cr(VI) is not strongly adsorbed to soil (3).

PHARMACOKINETICS

The primary route of entry of chromium into the body is through the gastrointestinal tract. Inhalation and dermal absorption are the primary routes of entry into the body for occupational exposure (7).

Carcinogenic Effects

Chromium (III)

Cr(III) has been classified by the EPA as a Group D carcinogen (1). This means the chemical has not been classified because there is inadequate evidence of carcinogenicity in animals (5).

Chromium (VI)

The verified cancer unit risk for lifetime exposure by inhalation to Cr(VI) is 1.2×10^{-2} $(\mu g/m^3)^{-1}$. Inhaled Cr(VI) has been classified by EPA as a Group A-human carcinogen (1). There is sufficient evidence to support an association between exposure by inhalation and cancer (2). The potency factor is based on an epidemiology study in which chromate plant workers were studied and showed an increased incidence of lung cancer. The study documented total chromium exposure and did not differentiate between Cr(III) and Cr(VI) and consequently, the health risk may be underestimated (1,5). Although CR(VI) is carcinogenic by the inhalation route, there is no evidence that it is carcinogenic by the oral route (1). The resulting inhalation CSF is 41 mg/kg-day.

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

Chromium is an essential nutrient. It is accumulated in a variety of aquatic and marine biota to levels quite higher than in ambient water. Therefore, it appears that the food chain is a more efficient pathway for chromium uptake than direct uptake from seawater (1).

Water and aquatic species characteristics modify the toxic effects of chromium on aquatic life. Cr(III) appears to be more acutely toxic to fish than Cr(VI); however, the reverse is true in chronic exposure studies (1).

The Ambient Water Quality Criteria for the level of chromium that will not affect aquatic organisms and their uses include the following:

- Chronic: 4-day averages that should not be exceeded more than once every three years (12).

	Freshwater	Saltwater
Cr(VI)	11 µg/L	50 µg/L
Cr(III)	$e^{(0.8190\ [\ln\ [\text{hardness}]+1.561])}$ or 210 µg/L (hardness dependent)	--

- Acute: 1-hour average that should not be exceeded more than once every 3 years (12).

	Freshwater	Saltwater
Cr(VI)	16 µg/L	1,100 µg/L
Cr(III)	$e^{(0.8190\ [\ln\ [\text{hardness}]+3.688])}$ or 1,700 µg/L (hardness dependent)	--

NOAEL (7)

Cr (III):	5%
Cr (VI):	2.4 mg/kg/day

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COBALT

INTRODUCTION

Chemical Name: Cobalt
CAS Number (1): 7440-48-4
Molecular Formula (1): Co
Molecular Weight (1): 58.93 g/mole

Cobalt is a steel-gray, shiny, hard, ductile ferromagnetic metal (1). It is a relatively rare metal produced primarily as a by-product of other metals (2). The principal ores are smaltite, cobaltite, chloanthite, and linnaeite. Uses of cobalt include chemical agents, electroplating ceramics, lamp filaments, catalysts, drier in printing inks, paints and varnishes, and in high-temperature alloys (1). Cobalt salts are used as paint driers, as catalysts, and in the production of numerous pigments (3).

FATE AND TRANSPORT

Cobalt is not expected to occur in the soluble form in natural water systems to a great extent. Concentrations are normally not found in amounts greater than 10 μg/L. Mobility of cobalt is controlled by its characteristic of adsorbing to the clay minerals and hydrous oxides of iron, manganese, and aluminum available in sediments and soils. Chelation of cobalt is also possible in sediments and soil. Small amounts of cobalt may be solubilized by bacteriological activity. Although atmospheric transport of cobalt and cobalt compounds occurs, photolysis, volatilization, and biotransformation are not important fate processes for cobalt (4).

PHARMACOKINETICS

Cobalt salts are well absorbed after oral ingestion, probably through the jejunum in the gastrointestinal tract. However, significant accumulation is not expected. Approximately 80% of all ingested cobalt is excreted in the urine with 15% of the remaining cobalt being excreted in the feces by an enterohepatic pathway. Breast milk and sweat are other secondary routes of excretion. Muscles contain the largest total fraction of cobalt, but fat has the highest concentration. Among the organs which have a significantly higher concentration of cobalt than other organs are the liver, heart, and the hair. However, the concentrations in these organs are low. The normal level of cobalt in human urine and blood is 98 μg/L and 0.18 μg/L, respectively (2).

ENVIRONMENTAL HEALTH EFFECTS

Cobalt metal and cobalt oxide have caused sarcomas at the injection site in rats. However, these data are inconclusive for determining cobalt's carcinogenic potential. Because there have been no other positive carcinogenic animal bioassays, it is unlikely that cobalt poses a carcinogenic risk to humans (3). As a result, the EPA has not developed criteria to evaluate the carcinogenic potential of cobalt (i.e., slope factors).

In terms of noncarcinogenic effects, ingestion of excessive amounts of cobalt results in vomiting, diarrhea, and a sensation of warmth in humans. A lethal dose of 1,500 mg/kg has been reported for

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COPPER

INTRODUCTION

Chemical Name:	Copper
Synonyms (1):	Bronze Powder, C.I. 77400
CAS Number (1):	7440-50-8
Molecular Formula:	Cu
Molecular Weight (1):	63.546 g/mole
Chemical Structure:	Cu

Copper is a reddish colored metal that occurs naturally in rock, soil, water, sediment, and air. Also, copper occurs naturally in plants and animals. A concentration of approximately 50 ppm can be found in the earth's crust. Copper is considered to be ductile and an excellent conductor. The primary uses of copper consist of use as the metal or alloy in the manufacture of wire, sheet metal, pipe, and other metal products. Copper compounds occur both naturally and are man-made and exhibit a characteristic blue-green color. Copper compounds are used in agriculture to treat plant diseases, for water treatment, and as preservatives for wood, leather, and fabrics (1,2,3).

FATE AND TRANSPORT

Fish BCF (4):	200 L/kg
Solubility(3):	In Water : Insoluble
Density (3):	8.92

The largest release of copper to the environment is to the land with an estimated 97% deposited to this media. Tailings and overburdens from copper mines and tailings from mills are the primary contributors. It is also released through mining operations, agriculture, solid waste, and sludge from publicly-owned treatment works. The majority of copper deposited in the soil is strongly adsorbed and remains in the upper few centimeters of soil. The copper adsorbs to organic matter, carbonate minerals, clay minerals, or hydrous iron and manganese oxides (3).

Copper is released to water bodies primarily through natural weathering of soil and discharges from industries and sewage treatment plants. The majority of copper in water is found in the form of particulates. Approximately 2.4% of total copper released to the environment is attributed to release into a waterway. An estimated 68% of release to water is associated with natural weathering or disturbed soil. Copper sulfate use represents 13% of releases to water. Only 2% is contributed by urban runoff. The copper discharged into waterways is in the form of particulate matter. The particulate matter either settles out, precipitates out, or adsorbs in organic matter, hydrous iron and manganese oxides, and clay in sediment. When copper is present as the Cu(I) ion, it tends to disproportionate to Cu(II) and copper metal. The concentration of dissolved copper depends on factors such as pH, the oxidation-reduction potential of the water, and the presence of competing cations, anions of insoluble cupric salts and organic and inorganic complexing agents (3).

Immunological effects in humans have been exhibited as allergic dermatitis upon contact with copper. Additionally, inhalation studies in mice have found that after exposure to copper, an impaired immune function is present (3).

Neurological effects are manifested as Wilson's disease. Wilson's disease affects the central nervous system and includes symptoms of poor coordination, psychological impairment, tremor, disturbed gait, and rigidity. Increased copper levels in the brain have been observed in humans with Wilson's disease and in animals exposed to high levels of copper (3).

Mice, mink, and hamsters injected with copper or fed a diet high in copper have shown developmental effects. These effects include fetal mortality and developmental abnormalities. No developmental effects have been reported in humans; however, there is a possibility that there may be an increased incidence of spontaneous abortion and miscarriage in women exposed to high levels of copper. Developmental effects have not been observed in healthy humans or in the offspring of mothers with Wilson's disease (3).

In humans, reproductive effects have not been reported when exposed to high levels of copper. Mink did not exhibit adverse effects when fed a diet high in copper. However, when a copper wire was inserted into the vas deferens or uterus of monkeys, rats, hamsters, and rabbits prior to conception or at gestational day 3, decreased fertility was observed (3).

The Drinking Water Criteria Document concluded toxicity data were inadequate for calculation of an RfD for copper.

Carcinogenic Effects

The EPA carcinogen classification for copper is Group D- inadequate evidence of carcinogenicity. An elevated incidence of cancer has not been observed in humans or animals exposed to copper via inhalation, oral, or dermal route of exposure (3).

Although there are no data on the mutagenicity of copper in humans, in vivo and in vitro studies of mammalian systems suggest that copper is a potential human mutagen (3).

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

However, the bioconcentration factor of copper in fish has been developed. The results of these studies indicate a low potential for bioconcentration with a range of factors for fish of 10-100. The bioconcentration factor for molluscs, such as oysters was considerably higher at a peak of 30,000. Evidence suggests that there is no biomagnification of copper in the food chain. The biomagnification ratio in fish studied from lakes that were known to have received elevated loadings of copper, revealed that the ratio was <1 (3). The criterion for acute and chronic exposure to freshwater organisms are 18 µg/L and 12 µg/L, respectively. The criterion for acute and chronic exposure to marine organisms are 2.9 µg/L and 2.9 µg/L, respectively (8).

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IRON

INTRODUCTION

Chemical Name: Iron
CAS Number (1): 7439-89-6
Molecular Formula (1): Fe
Molecular Weight (1): 55.847 g/mole

Iron is a silvery white, malleable metal. It is the fourth most abundant (by weight) of the elements that compose the earth's crust and is a major constituent of clay soils. Iron (III) hydroxide [Fe(OH)3] is formed in the environment through the corrosion of aluminum in the presence of moisture and oxygen. Iron in water may be present in varying quantities dependent upon the geology of the area and other chemical components of the waterway. (2,3).

HUMAN HEALTH EFFECTS

There is some evidence that high concentrations of certain soluble iron salts may be teratogenic in animals. The ingestion of excess amounts of iron can irritate the gastrointestinal tract. A dose of approximately 30 grams of a soluble ferric salt is likely to be fatal in humans. Long-term inhalation exposure in an occupational setting to iron-containing dusts and fumes, especially iron oxide, can cause siderosis, a type of benign pneumoconiosis. Exposure to aerosols and mists of soluble iron salts may produce respiratory and skin irritation (3). An oral RfD of 0.30 mg/kg/d has been established (4).

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

The bivalent and trivalent irons are the primary forms of concern in the aquatic environment. The ferrous or bivalent form can persist in waters void of dissolved oxygen and typically originate from groundwater or mines where these are pumped or drained. The ferric or trivalent form is insoluble. Iron can exist in natural organometallic or humic compounds and colloidal forms. Black or brown swamp waters may contain iron concentrations of several milligrams per liter in the presence or absence of dissolved oxygen, but this iron form has little effect on aquatic life (2).

Much of the iron present in aquatic systems tends to partition into the bottom sediments. Iron has relative low mobility in soil. Atmospheric transport of iron is also possible (3).

The ambient water quality criteria for iron is 0.3 mg/L for domestic water supplies and 1.0 mg/L for freshwater aquatic life (2).

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LEAD

INTRODUCTION

Chemical Name:	Lead
CAS Number:	7439-92-1
Molecular Formula:	Pb
Molecular Weight:	207 g/mole
Chemical Structure:	Pb

Elemental lead is a heavy, ductile, bluish-gray solid at ambient conditions. It is used widely in industry because of its softness, resistance to corrosion and radiation, and high density. Lead is also used as a paint pigment, in solder, and in storage batteries.

FATE AND TRANSPORT

BCF:	49 (1)
Degradation Products:	None
Solubility:	Lead is insoluble in water and organic solvents. It does dissolve in dilute nitric acid (2), and hot, concentrated sulfuric acid (3).
Specific Gravity (2):	11.35 @ 20°C

Lead and lead compounds can be present in air, water, and soil and are extremely persistent in water and soil (4). Metallic lead and common lead minerals are insoluble in water while manufactured alkyl lead compounds are water soluble. A major transport process for inorganic and organic lead compounds is atmospheric dispersion as particulate matter. Lead is removed from air by either wet or dry deposition. Photolysis of atmospheric organic lead compounds occurs rapidly (3). The average residence time of atmospheric lead is 7 to 30 days (4).

Natural lead compounds are not mobile in normal surface and groundwater because lead leached from ore is adsorbed by ferric hydroxide. It also readily combines with hydroxide, carbonate, and sulfate ions to form insoluble compounds. These compounds precipitate and settle in the bed sediment. Lead is not volatile, therefore, volatilization is not an important transport process from aquatic environments (3).

Sorption is a dominant effect on the distribution of lead in soil. Lead readily adsorbs to inorganic solids, organic material and hydrous iron and manganese oxides. Because of its affinity for other materials and its solubility characteristics, the mobility of lead in soil is low. (3). Most lead is retained in soil and not transported via leaching or runoff to surface water (4).

Lead is not readily taken up by plants. Consequently, its availability to terrestrial life forms is limited (3). Lead does not appear to significantly bioaccumulate in most fish (4). Microcosm studies indicate that lead is not biomagnified through the food chain (3).

clearly related to lead exposure. Studies suggest that high blood pressure resulting from lead exposure may be mediated through effects on the kidney (4).

A direct relationship has been drawn between blood lead level and children's height, weight, and chest circumference. The strongest relationship was drawn with height. As the blood lead level increases the child's growth is retarded (4).

Exposure to lead has significantly effected the human reproductive system. Because lead accumulates in the bones and is sporadically released into the blood, exposure prior to pregnancy may affect the fetus. Blood lead reaches the fetus by crossing through the placental barrier. It was observed in animals that exposure to lead by non-natural routes (e.g., intravenous or intraperitoneal injection) resulted in malformations of the fetus (4).

In the body, lead can interact with other chemicals. Calcium and phosphorus reduce the amount of lead taken up by the body while zinc helps to reduce the toxic effects of lead. Cadmium increases the toxic effects of lead; and lead increases the toxic effects of mercury. Due to the effect of lead on the hemapoietic system, iron deficiency increases as blood lead increases (4).

Derivation of Oral Reference Dose for Lead

In a review of available toxicological data on the potentially adverse effects associated with various blood lead (PbB) levels in adults and children, Marcus (1986) has concluded that the effects on the enzymes of heme synthesis necessary for red blood cell formation occur at low PbB levels of about 10 micrograms per decaliter (μg/dL). Further, the author noted that neurotoxicity in children begins to appear at 15 to 20 μg/L and at 25 to 30 μg/dL in adults. According to the author, the data suggests, "that PbB values of 15 μg/dL should not be exceeded in children and values of 25 μg/dL should not be exceeded in adults".

In order to protect the fetus, it is necessary to set the PbB level in adults at 15 μg/dL since studies have indicated that the ratio of fetal/maternal PbB values can be approximated at a ratio of one to one (Marcus, 1986). It should be noted that this position is consistent with current EPA's conclusions that "PbB levels of 10 to 15 μg/dL constitute an appropriate range of concern for health effects that warrant avoidance" (Federal Register 50, No. 10, 26460-26550, June 7, 1991).

The acceptable daily intake (ADI) of lead via oral ingestion by adults has been determined to be 48 μg/day (Marcus, 1986). This value is equivalent to a PbB level (15 μg/dL) at which no adverse effects are observed to occur in humans.

Carcinogenic Effects

The EPA has stated that "little can be concluded from available epidemiological studies" concerning the carcinogenic potential of lead (4). However, the carcinogenicity of lead salts (primarily phosphates and acetates) administered via injection or the oral route has been demonstrated in rats and mice in several studies. In most of the investigations, the carcinogenic response has been demonstrated only at the highest dose. Although the EPA has stated that animal data are sufficient to conclude carcinogenicity in animals, the Agency has further stated that available toxicity data on metallic lead and lead compounds are inadequate for quantitative risk assessment (6).

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MANGANESE

INTRODUCTION

Chemical Name:	Manganese
CAS Number:	7439-96-5
Molecular Formula:	Mn
Molecular Weight:	54.94 g/mole

Manganese is a brittle silvery metal which usually occurs as a complex with other metals such as iron. Manganese and its compounds are used in the making of steel alloys, dry-cell batteries, electrical coils, and other metallic fabrication applications. Other manganese uses include use as an oxidizing agent and as a food additive (3,4).

FATE AND TRANSPORT

Solubility:	
In Water:	Decomposes to ionic forms (1)
In Organics:	Readily dissolves in dilute mineral acids (4)
Specific Gravity:	7.20 (1)

Manganese can occur in soil, water, or air. Because it is an element, manganese cannot be degraded by environmental processes. However, it may transform from one manganese compound to another. While manganese can be transported in dusts or in water, the main source of routine manganese exposure is through ingestion of food. Vegetables, the germinal portions of grains, fruits, nuts, tea, and some spices are rich in manganese (3).

In the soil, the concentration and chemical form in which manganese can occur is affected by pH, cation exchange capacity, drainage, and other factors. Lowered pH and reducing conditions tend to favor solubility and hence, the mobility of manganese. Manganese often occurs at higher concentrations in the bottom of stratified lakes as a result of its release from bottom sediments as manganous ion under reducing conditions (1).

The presence of high concentrations of chlorides, nitrates, and sulfates may also increase manganese solubility. Under these conditions, manganese is more easily taken up by plants. Also, soils with limited cation exchange capacity have a poor ability to bind and retain manganese (1).

Atmospheric transport of manganese fumes or dusts is also possible. These materials can be returned to the earth by wet or dry deposition (1).

of human populations, taken in conjunction with the essentiality of manganese, there is an uncertainty factor of 1.

Carcinogenic Effects

There are no epidemiological studies to suggest that manganese or its compounds are carcinogenic. Manganese is classified as a Group "D" carcinogen, indicating that it is not classifiable as a human carcinogen. The basis for this determination is the lack of existing studies to assess this material (2).

The evidence for rating manganese as a carcinogen in animals is considered to be inadequate. Most studies that have shown some evidence of carcinogenicity have failed to demonstrate a dose-response relationship (2).

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

Adequate data to develop ambient water quality criteria are not available at this time. A 48-hour LC_{50} value of 16 mg/L of manganese is reported for embryos of the oyster Crassostrea virginica. For the softshell clam, Mya arenaria, a 168-hour LC_{50} value of 300 mg/L is reported (1).

Terrestrial and Avian

Adequate data for characterization of the toxicity of manganese to wildlife or domestic animals are not available (1).

REGULATORY LEVELS AND CRITERIA

OSHA Ceiling Level (1):	5 mg/m^3
ACGIH TLV-TWA (1):	1 mg/m^3 (Fume)
STEL (1):	3 mg/m^3 (Fume)
TLV-TWA (1):	5 mg/m^3 (Dust and Compounds)

SUMMARY OF CRITERIA

EPA Carcinogenic Classification (2)	Group D-Not Classifiable
Inhalation RfD (2)	1.43×10^{-5} mg/kg/day
Oral RfD (2):	2.00×10^{-2} mg/kg/day
Secondary Maximum Contaminant Level (2)	0.05 mg/L
NOAEL (oral) (2):	0.14 mg/kg-day
LOAEL (inhalation) (2):	0.15 mg/cu m
AWQC (5):	
Water and Organisms:	50 µg/L
Organisms Only:	100 µg/L

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MERCURY

INTRODUCTION

Chemical Name:	Mercury
CAS Number:	7439-97-6
Molecular Formula:	Hg
Molecular Weight:	200.59 g/mole
Chemical Structure:	Hg

Mercury is a silvery, heavy liquid with valences of +1, and +2. Mercury exists as insoluble elemental mercury, organic species, and inorganic species. Solubility depends upon the reduction-oxidation potential and the pH of the environment (2).

Common uses for mercury are amalgams, catalysts, electrical apparati, instruments such as thermometers and barometers, and neutron absorbers in nuclear power plants (2).

FATE AND TRANSPORT

Solubility (4):	81.3
In Water:	µg/L at 30° C; some salts and organic compounds are soluble (1).
Vapor Pressure(4):	0.0012 mm Hg at 20° C (1)
Specific Gravity(4):	13.5939 at 20° C (1)

Mercury appears in ambient air, water, soil, and foodstuffs. Because mercury volatilizes from aquatic and terrestrial sources, the atmosphere becomes a reservoir for the element and its compounds. Wet and dry deposition processes return mercury to the land and surface, where it is absorbed in the soil and water surfaces. The sorption rate is related to the organic content of the soil. Since inorganic mercury is sorbed to particulate matter more readily than it is desorbed, sediments become repositories for inorganic forms of the compound. Although leaching is an insignificant transport process, mobilization from particulates can occur through biotic and abiotic oxidation and reduction to elemental mercury and bioconversion to volatile organic forms (1).

The transformation processes of mercury in the atmosphere, water, and soil are biotransformation and bioaccumulation. The primary transformation process is photolysis of organomercurials (1).

PHARMACOKINETICS

Inorganic mercury is absorbed rapidly by the lungs in humans. One study showed that 80 percent of inhaled elemental mercury vapor is retained in human tissues (4). Oral absorption of inorganic mercury is estimated to be about 10 percent while organic mercury is readily absorbed in humans (approximately 95 percent) (4). There are few dermal absorption studies with inorganic and organic mercury, but dermal absorption is known to occur with both types of mercury (4).

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

Freshwater plants exhibit a wide range of sensitivity to mercury, however, the most sensitive plant is less sensitive than the most sensitive freshwater animal.

Fish tend to be more resistant to mercury than mollusks and crustaceans. Aquatic organisms should not be adversely affected if the following average concentrations are not exceeded more than once every three years on the average.

Freshwater organisms:

4-day average (chronic): 0.012 µg/L (5)
1-hour average (acute): 2.4 µg/L (5)

Marine organisms:

4-day average (chronic): 0.025 µg/L (5)
1-hour average (acute): 2.1 µg/L (5)

Terrestrial and Avian

No data are available pertaining to the effects of mercury on terrestrial and avian life forms (4).

SUMMARY OF REGULATORY LEVELS AND CRITERIA

Inhalation RfD (8)	8.57×10^{-5} mg/kg/day (inorganic)
EPA Carcinogen Classification (3)	Group-D Not classified as a human carcinogen
AWQC (4)	
Water and Fish Consumption	0.14 µg/L
Fish Consumption only	0.15 µg/L
MCL (4)	2 µg/L
OSHA Ceiling Level(7)	1 mg/10 m^3 (inorganic and vapor)

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NICKEL

INTRODUCTION

Chemical Name:	Nickel
CAS Number:	7440-02-0
Molecular Formula:	Ni
Molecular Weight:	58.7 g/mole
Chemical Structure:	Ni

Nickel is a malleable silver-white metal that occurs in valences 0,+1, +2, +3, and +4. It is almost always found in the divalent oxidation state in aquatic systems. Nickel is commonly used in alloys, electroplated protective coatings, and fuel cell electrodes. The main source of nickel in the atmosphere is due to the burning of fuel oil. Nickel-containing sewage sludge, the use of certain fertilizers and the deposition of aerosol particles are primarily responsible for nickel contaminated soil (1,2).

FATE AND TRANSPORT

Solubility (1):	Insoluble in water; some salts are soluble
Specific Gravity (1):	8.902 at 25°C

Nickel is found in the air, water, and soil. The average residence time for nickel in the atmosphere is seven days, the residence time in water is between 19 and 23,000 years, and the average time in soil is estimated to be 2400-3500 years (4).

The bioconcentration factors for most aquatic organisms suggests that bioaccumulation would not be significant. However, the BCFs for marine phytoplankton range from 20-8000. Nickel is reasonably mobile in soils with a low pH and cation exchange capacity. It is less mobile in soils with a high organic content. Uptake of nickel in plants from the soil is common (4).

There are no data referencing the significance of biodegradation, photolysis, or volatilization of nickel as environmental fate processes (1,4).

PHARMACOKINETICS

Quantitative data concerning the uptake of nickel by the respiratory tract are not available, however, studies have shown that nickel accumulates in the soft tissue of the lungs. Dietary nickel which has been ingested is absorbed at a level of 1-10%. Following ingestion of nickel, it was found in serum as ultrafilterable nickel, albumin-bound nickel, and in a metalloprotein. Oral doses of nickel chloride have been found to localize in the kidneys, lungs and central nervous system of animals (4).

Dermal penetration of nickel on human skin was found to occur at a level of 55 to 77% in one study. Studies concerning the distribution of nickel which is dermally absorbed are not available (4).

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

The Ambient Water Quality Criteria for the level of nickel that will not adversely affect aquatic organisms and their uses are as follows (5):

Freshwater:

Acute toxicity:	1,400 µg/L*
Chronic toxicity:	160 µg/L*

Saltwater:

Acute toxicity:	75 µg/L
Chronic toxicity:	8.3 µg/L

* Based on a hardness of 100 mg/L as $CaCO_3$ (calcium carbonate)

Terrestrial and Avian

No data are available for terrestrial and avian life forms (4).

REGULATORY LEVELS AND CRITERIA

OSHA PEL-TWA (8):	1.0 mg/m^3 (metal and insoluble compounds) 1.0 mg/m^3 (soluble compounds)
ACGIH TLV-TWA (9):	1.0 mg/m^3 (insoluble compounds, nickel sulfide roasting, fume and dust, and metal) 0.1 mg/m^3 (soluble compounds)

AWQC (4)

Ingestion of Water and Organisms:	610 µg/L
Ingestion of Only Organisms:	4,600 µg/L (ingesting only organisms)

Reportable quantity (3)	1 lb
Maximum Contaminant Level (MCL) (6)	0.1 mg/L 0.1 mg/L

SUMMARY OF CRITERIA

EPA Carcinogenic Classification (3)

Group A - nickel refinery dust, nickel carbonyl, and nickel subsulfide - Sufficient evidence to support the causal association between nickel inhalation and cancer

Group C - nickel soluble salts - Limited evidence of carcinogenicity to support the causal association between exposure and cancer.

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SELENIUM

INTRODUCTION

Chemical Name: Selenium
CAS Number (1): 7782-49-2
Molecular Formula (1): Se
Molecular Weight (1): 78.96 g/mole

Selenium is an amorphous, red powder, nonmetallic element. It has three valences: +2, +4, and +6. Selenium is a naturally-occurring substance that is widely but unevenly distributed in the earth's crust. It is usually found in combination with sulfide minerals or with silver, copper, lead, and nickel minerals. Some uses of selenium include the following: rectifiers, photoelectric cells, xerography, glass manufacture, insecticide, fungicide, veterinary medicine, pigments, and a nutritional feed additive for poultry and livestock (1,2).

FATE AND TRANSPORT

Selenium is released into the environment by both man-made and natural activity. Man-made emission sources of atmospheric selenium include coal and oil combustion, selenium refining facilities, base metal smelting, mining and milling operations, and end product manufacturing. Natural releases of selenium include volatilization from plants and bacteria and from volcanic activity. Selenium is released to the soil primarily by leaching and weathering of the parent bedrock material, and by dry and wet deposition (2).

The behavior of selenium in the environment is dependent upon its oxidation state. In turn, the oxidation state of selenium is dependent on ambient conditions, such as pH, Eh, and biological activity. In aerobic waters and at high pH, selenium is present in the selenite (+4) or selenate (+6) oxidation states which are very soluble. They account for most of the selenium released into the aquatic environment. Under reducing conditions and at low pH, elemental selenium or metal selenides can be formed. In poorly aerated, acidic soil, insoluble forms of selenium are found in the greatest quantities. In well-aerated, alkaline soils, soluble forms of selenium predominate. These forms are subject to leaching and are readily taken up by plants (3).

Selenium strongly adsorbs to hydrous metal oxides as opposed to clays and organic materials. The mobility of selenium in aerobic waters is controlled by adsorption to sediments and precipitation by hydrous iron oxides. Most selenium in aquatic systems is transported as the dissolved species (3).

Selenium is bioaccumulated by aquatic organisms with bioconcentration factors ranging from 150 to 3,975 for selenium in freshwater. Limited biomagnification appears to take place (2).

PHARMACOKINETICS

Studies have indicated that workers exposed to higher levels of unspecified selenium compounds in air excreted higher levels of selenium in their urine than workers in lower concentration areas. These studies indicate that selenium was absorbed from the lungs of the workers. Animal studies have shown that the rate of absorption is dependent on the chemical form of selenium. When orally exposed, humans absorb selenium from the gastrointestinal tract. Again, the rate depends on the

selenium intake ranged between 62 to 1,438 μg. Clinical signs observed included the characteristic garlic odor in breath and urine, thickened and brittle nails, hair and nail loss, lowered hemoglobin levels, mottled teeth, skin lesions and central nervous system abnormalities, such as peripheral anesthesia, acroparesthesia, and pain in the extremities (4).

Carcinogenic Effects

The EPA has assigned a carcinogenicity classification of Group D to selenium. This indicates that selenium is not classifiable as to carcinogenicity in humans. The classification is based on inadequate human data and inadequate evidence of carcinogenicity in animals. There is evidence that various selenium compounds are carcinogenic and mutagenicity in animals; however, the data are inconclusive and difficult to interpret. However, selenium sulfide has been classified as a carcinogenic based on positive studies in animals (4).

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

Ambient Water Quality Criteria for total recoverable inorganic selenite has been established to protect freshwater and marine aquatic life. The guidelines are as follows:

Freshwater:

Acute toxicity:	20 μg/L
Chronic toxicity:	5 μg/L

Marine:

Acute toxicity:	300 μg/L
Chronic toxicity:	71 μg/L

Only limited data is available regarding the toxicity of inorganic selenate to freshwater and marine aquatic life. Studies indicate that concentrations of inorganic selenate as low as 760 μg/L are acutely toxic to freshwater aquatic life. Lower concentrations would occur among species that are more sensitive than those tested. No data are available concerning the chronic toxicity of inorganic selenate to sensitive freshwater or marine aquatic life, or the acute toxicity of inorganic selenate to sensitive marine aquatic life (5).

Terrestrial and Avian

Chronic selenium toxicity can appear in grazing animals that consume plants containing 3 to 25 ppm over a long period of time. It has been reported that food and forage crops growing on seleniferous soils can accumulate selenium to concentrations as high as 1,000 ppm. Symptoms of chronic poisoning include lack of vitality, loss of hair, sterility, hoof deformity, lameness, anemia, and fatty necrosis of the liver. Acute toxic effects include impairment of vision, weakness of limbs, and respiratory failure in livestock consuming 100 to 1,000 ppm of selenium. It was reported that sheep, hogs, and calves died after consuming 400 to 800 ppm of selenium (3).

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SILVER

INTRODUCTION

Chemical Name: Silver
Synonyms (1): Argentum
CAS Number (1): 7440-22-4
Molecular Formula (1): Ag
Molecular Weight (1): 107.87

Silver is a soft, lustrous, white metallic element. It is derived as a by-product of copper, zinc, lead, or gold ores operations. The principal silver ores are argentite and cerargyrite (1). Silver has been used in the past for surgical prostheses and splints, fungicides, and coinage. Presently, approximately 45% of the U.S. consumption is used in photographic materials. An additional 25% of the silver in the U.S. is used in electrical and electronic products, silver paints, and batteries. Silver is also important in brazing alloys and soldiers, electroplating, mirrors, dental amalgam, and purification of drinking water (2).

FATE AND TRANSPORT

Solubility (3):
In Water: Insoluble
In Organics: Soluble in alkali cyanide solutions
Specific Gravity (3): 10.5 @ 20°C

In 1978, the U.S. reported an annual release of silver to land from production processes and consumptive uses of 1.01 million kilograms. Silver is released to the atmosphere, water, and land by natural and man-made sources, wet and dry deposition, and sorption to soil and sediments (2).

In the atmosphere, silver is most likely to occur in the form of metallic silver, silver sulfide, silver sulfate, silver carbonate, or silver halides. The major sources of atmospheric releases are from mining operations, fossil-fuel fired power plants, and solid waste incinerators. It was estimated that approximately 50% of the silver released into the atmosphere from industrial operations will be transported more than 100 km (2).

Silver in surface waters and soils is influenced by the particular form of the compound. Under oxidizing conditions, primary silver compounds are by bromides, chlorides, and iodides. Under reducing conditions, the free metal and silver sulfide predominate. Significant quantities of silver in surface water are sorbed by manganese dioxide whereas pH, and oxidation-reduction conditions affect sorption. Sorption is the dominant process leading to the partitioning of silver in sediments. The concentration in lake sediments were reported to be 1000 times that of the overlying waters (2).
In soil, the mobility of silver is limited by drainage, oxidation-reduction potential, pH, and the presence of organic matter (2).

of silver in neurons of the central nervous system. Also, exposure to silver has affected the volume of hippocampus cell groups within the brain of animals. The implication of the altered volume of these cell groups are not known (2).

Information regarding the developmental effects of silver to humans was not identified. However, there is a possibility of a relationship between the concentration of silver in the tissue of fetuses and the occurrence of developmental abnormalities (2). The EPA has established an oral reference dose of 5×10^{-3} mg/kg/day (4).

Carcinogenic Effects

The EPA has assigned silver a carcinogen classification of Group D-not classified as to human carcinogenicity. This is based on the fact that in animals, local sarcomas have been induced after implantation of foils and discs of silver. However, the finding have been questioned due to the phenomenon of solid-state carcinogenesis in which even insoluble solids such as plastic have been shown to result in local fibrosarcomas (4).

Silver is not mutagenic but it may be genotoxic to humans. Studies have shown that silver ions bind with DNA in solution in vitro, and that it can interact with DNA in ways that cause DNA strand breaks and affect the fidelity of DNA replication (2).

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

Although data are not adequate for establishing criteria, the EPA has reported the lowest values of silver known to be toxic in aquatic organisms. These values are as follows (5):

Freshwater:

Acute:	4.1* (proposed criteria of 0.92 µg/L)
Chronic:	1.2×10^{-01} µg/L

Marine:

Acute:	2.3 µg/L
Chronic:	0.92 µg/L (proposed criteria)

*Hardness dependent criteria

Acute toxicity values for freshwater invertebrates range from 0.25 µg/L for Daphnia magna to 4,500 µg/L for Gammarus pseudolimnaeus. Acute values for fish range from 3.9 µg/L for the fathead minnow to 280 µg/L for rainbow trout. The acute toxicity of silver appears to decrease as hardness increases. Also, soluble compounds are generally much more toxic than insoluble compounds (3).

Terrestrial and Avian

Information regarding the toxicity of silver to terrestrial and avian wildlife or domestic animals was not located in the available literature.

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THALLIUM

INTRODUCTION

Acute exposure to soluble thallium compounds has been associated in humans with gastrointestinal irritation; damage of the liver, kidneys, and central and peripheral nervous systems; pulmonary edema; degenerative changes in the adrenals; and ocular effects.

CAS Number:	7440-28-0
Chemical Formula:	Tl
IUPAC Name:	Thallium

CHEMICAL AND PHYSICAL PROPERTIES

Atomic Weight:	204.37
Boiling Point:	1,457°C
Melting Point:	303.5°C
Specific Gravity:	11.85
Solubility in Water:	Insoluble (many compounds are soluble)

FATE AND TRANSPORT

In reducing environments, thallium may be precipitated as the metal or as thallium sulfide. However, much of the thallium present in aquatic systems is likely to remain in solution and be transported to the oceans. Active removal of some dissolved thallium by sorption to clay minerals and hydrous metal oxides present in bed sediments is probably an important environmental fate process. Thallium is readily taken up by aquatic organisms, and bioaccumulation may also be an important fate process. Results of limited studies with algae suggest that thallium may also be available for food chain magnification. There is no evidence to suggest that photolysis or volatilization are important environmental processes. Although there is speculation that thallium can be methylated under aerobic conditions by electrophilic attack, biotransformation does not appear to be an important process in aquatic systems.

HUMAN HEALTH EFFECTS

There is no evidence that thallium is carcinogenic in humans or experimental animals, and it does not appear to have significant mutagenic activity. Exposure to thallium salts during critical developmental stages is reported to produce achondioplasia in chickens and rats. No other significant teratogenic effects are reported.

Thallium, in the form of soluble compounds, is readily absorbed through the skin and gastrointestinal tract. Symptoms associated with acute poisoning in humans include gastrointestinal irritation; liver and kidney damage; pulmonary edema; degenerative change in the adrenals, peripheral nervous system, and central nervous system; and ocular effects, including optic neuritis and, rarely, cataracts.

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VANADIUM

INTRODUCTION

Chemical Name: Vanadium
CAS Number (1): 7440-62-2
Molecular Formula (1): V
Molecular Weight (1): 50.94 g/mole

Vanadium is a bright, white, soft ductile metal. It is not found native, but is found in the following ores: patronite, roscoelite, carnotite and vanadinite (1). It can also be found in foods, such as milk, seafoods, cereals, and vegetables (2). Vanadium is used as the target material for x-rays, in the manufacture of alloy steels, and as a catalyst for sulfuric acid and synthetic rubber (1).

FATE AND TRANSPORT

Vanadium is capable of being transported in water systems. The extent of transport is dependant upon the chemical species present and by environmental factors determining its solubility and binding to organic materials. In the atmosphere, vanadium is transported as fumes and particulates. Vanadium does bioaccumulate in humans and animals (3).

PHARMACOKINETICS

Vanadium is moderately absorbed human adipose tissue. Parenteral administration increases levels in the liver and kidney in animals, but these amounts may only be transient. Vanadium can also be found in lung tissue if it is inhaled, but other organs contain negligible amounts. Since vanadium is moderately absorbed, it has been suggested that a homeostatic mechanism maintains the normal levels of vanadium upon excessive exposure. The primary route of excretion is through urine (2).

HUMAN HEALTH EFFECTS

Vanadium has not produced carcinogenic, mutagenic, teratogenic, or reproductive effects in humans or animals. However, industrial exposure to airborne vanadium compounds can cause eye and skin irritation. Also, gastrointestinal distress, nausea, vomiting, abdominal pain, cardiac palpitation, tremor, nervous depression, and kidney damage have been linked with industrial exposure. Oral exposure may produce gastrointestinal disturbances and a greenish-black discoloration of the oral mucosa and tongue. Symptoms associated with inhalation exposure to vanadium include acute upper and lower respiratory irritation with mucous discharge and bronchitic, cough, bronchospasm, and chest pain. These effects can occur at concentrations as low as 0.1 mg/m3 (2). Additionally, studies suggest that the liver, adrenals, and bone marrow may be adversely affected by subacute exposure at high concentrations (2).

The toxicity of vanadium increases as the valence number increases. (Vanadium can be found in the 0, +2, +3, +4, and +5 oxidation states.) A study reported an oral LD50 of 130 mg/kg vanadium trioxide (3).

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ZINC

INTRODUCTION

Chemical Name: Zinc
Synonyms (1): Zinc dust; Zinc powder
Trade Names (1,2): Asarco; Blue powder; CI 77945; JASAD; PASCO
CAS Number (1): 7440-66-6
Molecular Formula (1): Zn
Molecular Weight (1): 65.38 g/mole
Chemical Structure (1): Zn

Zinc is a shiny white metal with a bluish-gray luster that exhibits a valence of +2 and has five stable isotopes. It is derived from the pyrometallurgical or distillation process, or the hydrometallurgical or electrolytic process. Among zincs uses are as an alloy in brass, bronze, and die-casting alloys; galvanizing iron; as a fungicide; and as a protective coating for other metals (3).

FATE AND TRANSPORT

Density (1): 7.14
Solubility (1):
In Water: Insoluble
In Organics: Soluble in acetic acid and alkali

Zinc occurs in the environment in the +2 oxidation state in both the suspended and dissolved forms. Sorption to other materials is the dominant environmental fate of zinc. The predominant fate of zinc in an aerobic aquatic system is the sorption of the divalent cation by hydrous iron and manganese oxide, clay minerals, and organic material. The efficiency of these materials in removing zinc from solution varies according to their compositions and concentrations, the pH and salinity of the water (1).

Zinc concentrations in air are relatively low and fairly constant except near industrial sources such as smelters (1).

Zinc is strongly bioaccumulated even in the absence of abnormally high ambient concentrations although it does not appear to biomagnify. Although zinc is actively bioaccumulated in aquatic systems, the biota appear to represent a relatively minor sink compared to the sediments (8).

PHARMACOKINETICS

The efficiency with which zinc is absorbed following ingestion has been reported to be approximately 80 percent (4). Information was not available on zinc absorption via other routes of exposure. Zinc is primarily distributed to the prostate gland, liver, bone, muscle, kidney, and pancreas following absorption.

reported in sheep following acute and intermediate exposure, and enzymatic changes where exhibited in rats exposed following intermediate exposure to zinc (1).

The only renal effects observed were in laboratory animals following intermediate oral exposure to zinc compounds. No adverse renal effects have occurred in humans (1).

In vitro studies suggest that neurological symptoms and lethargy can occur in humans following oral administration of zinc. These studies indicate that zinc inhibits the entry of calcium ions into the nerve terminals, which influences the release of neurotransmitters. Additionally, zinc has been known to be toxic to neurons and glia cells of the central nervous system (1).

Zinc has retarded fetal growth and altered fetal and maternal concentrations of zinc and copper in rats. Congenital malformations such as exencephaly and rib fusions have been exhibited in offspring of pregnant hamsters injected intravenously with zinc sulfate. There is no evidence of these effects occurring in humans (1).

The EPA has established an oral RfD value of 3.0×10^{-1} mg/kg/day for zinc. This value is based on a LOAEL of 1 mg/kg/day in human females. Zinc exposure affected the blood as manifested by decreased concentration of the blood enzyme erythrocyte superoxide dismutase (ESOD) (9).

Carcinogenic Effects

Zinc has not been shown to be carcinogenic. Therefore, the EPA has assigned a carcinogenicity classification of D for zinc (1).

Although studies have failed to provide evidence for mutagenicity of zinc, there are indications that zinc is a weak clastogen. Human studies involving the treatment of human lymphocytes in cultures with zinc have shown a slight increase in chromosomal aberrations (1).

ENVIRONMENTAL HEALTH EFFECTS

Aquatic

The EPA has established Ambient Water Quality Criteria for zinc in order to protect freshwater and marine aquatic life. The criteria are as follows (7):

Freshwater:

Acute toxicity:	120* µg/L
Chronic toxicity:	110 µg/L*

Saltwater:

Acute toxicity:	95 µg/L
Chronic toxicity:	86 µg/L

*Hardness dependent criteria.

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APPENDIX L
RISK SUMMARIES FOR “NO RISK” SCENARIOS

TABLE L-1
INCREMENTAL LIFETIME CANCER RISKS (ILCRs) AND HAZARD INDICIES (HIs)
FOR CURRENT ADULT AND ADOLESCENT TRESPASSERS
SWMU 1, OU 3
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Trespassers			
	Adult		Adolescent	
Pathway	ILCR	HI	ILCR	HI
Surface Soil				
Ingestion	3.5E-09	0.00	2.0E-08	0.02
Dermal Contact	6.3E-08	0.03	2.6E-07	0.12
Inhalation [(1)]	8.4E-12	0.00	4.8E-11	0.00
Subtotal	6.6E-08	0.03	2.8E-07	0.14
Surface Water				
Ingestion	1.8E-07	0.04	1.0E-06	0.20
Dermal Contact	6.6E-08	0.05	2.5E-07	0.20
Subtotal	2.4E-07	0.09	1.3E-06	0.41
Sediment				
Ingestion	3.0E-07	0.00	1.7E-06	0.01
Dermal Contact	1.1E-06	0.00	4.5E-06	0.02
Subtotal	1.4E-06	0.01	6.2E-06	0.03
Total	1.7E-06	0.13	7.7E-06	0.58

Notes:

[(1)] Inhalation of fugative dust.

TABLE L-2
INCREMENTAL LIFETIME CANCER RISKS (ILCRs) AND HAZARD INDICIES (HIs)
FOR CURRENT ADULT AND ADOLESCENT TRESPASSERS
SWMU 2, OU 3
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Trespassers			
	Adult		Adolescent	
Pathway	ILCR	HI	ILCR	HI
Surface Soil				
Ingestion	6.2E-08	0.01	3.5E-07	0.04
Dermal Contact	2.4E-07	0.04	1.0E-06	0.18
Inhalation [(1)]	1.6E-11	0.00	9.2E-11	0.00
Subtotal	3.0E-07	0.05	1.4E-06	0.22
Surface Water				
Ingestion	3.5E-11	0.01	2.0E-10	0.07
Dermal Contact	2.7E-10	0.02	1.0E-09	0.07
Subtotal	3.1E-10	0.03	1.2E-09	0.14
Sediment				
Ingestion	1.6E-07	0.00	9.0E-07	0.00
Dermal Contact	5.9E-07	0.00	2.5E-06	0.01
Subtotal	7.5E-07	0.00	3.4E-06	0.02
Total	1.1E-06	0.08	4.8E-06	0.37

[(1)] Inhalation of fugative dust.

TABLE L-3
INCREMENTAL LIFETIME CANCER RISKS (ILCRs) AND HAZARD INDICIES (HIs)
FOR CURRENT ON-SITE WORKERS
SWMU 45, OU 5
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Pathway	Current On-Site Workers	
	ILCR	HI
Surface Soil		
Ingestion	8.6E-07	0.01
Dermal Contact	2.4E-06	0.02
Inhalation [1]	3.4E-08	0.00
Subtotal	3.3E-06	0.03
Sediment		
Ingestion	7.8E-07	0.00
Dermal Contact	6.9E-06	0.01
Subtotal	7.6E-06	0.01
Total	1.1E-05	0.04

[1] Inhalation of fugative dust.
0.00 indicates that the number was less than 0.01

TABLE L-4
INCREMENTAL LIFETIME CANCER RISKS (ILCRs) AND HAZARD INDICIES (HIs)
FOR CURRENT ADULT AND ADOLESCENT TRESPASSERS
SWMU 45, OU 5
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Trespassers			
	Adult		Adolescent	
Pathway	ILCR	HI	ILCR	HI
Surface Soil				
Ingestion	2.8E-09	0.00	1.6E-08	0.00
Dermal Contact	9.9E-09	0.00	4.2E-08	0.00
Inhalation [(1)]	9.0E-12	0.00	5.1E-11	0.00
Subtotal	1.3E-08	0.00	5.7E-08	0.00
Sediment				
Ingestion	1.2E-08	0.00	6.8E-08	0.00
Dermal Contact	1.4E-07	0.00	5.7E-07	0.01
Subtotal	1.5E-07	0.00	6.4E-07	0.01
Total	1.6E-07	0.00	7.0E-07	0.01

Notes:

[(1)] Inhalation of fugative dust.

TABLE L-5
INCREMENTAL LIFETIME CANCER RISKS (ILCRs) AND HAZARD INDICIES (HIs)
FOR FUTURE CONSTRUCTION WORKERS
SWMU 45, OU 5
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

	Future Construction Workers	
Pathway	ILCR	HI
Subsurface Soil		
Ingestion	3.9E-07	0.17
Dermal Contact	2.5E-07	0.04
Inhalation [(1)]	2.1E-09	0.00
Subtotal	6.4E-07	0.22
Total	6.4E-07	0.22

Notes:

[(1)] Inhalation of fugative dust.