

START

0038156

WHC-SD-EN-TI-284
Revision 0

Hanford Patrol Academy Demolition Site Sampling Analysis Plan

9413288.0992

Prepared for the U.S. Department of Energy
Office of Environmental Restoration and
Waste Mangement



Westinghouse
Hanford Company Richland, Washington

Hanford Operations and Engineering Contractor for the
U.S. Department of Energy under Contract DE-AC06-87RL10930



Approved for Public Release

913288-0993
660892916

LEGAL DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

This report has been reproduced from the best available copy.

Printed in the United States of America

DISCLM-2.CHP (1-91)

| | | | | | |
|--|--|--|--|---|--|
| 2. To: (Receiving Organization) Field Characterization Projects | | 3. From: (Originating Organization) RCRA Closure | | 4. Related EDT No.: NA | |
| 5. Proj./Prog./Dept./Div.: HPADS/RCRA Closures/RS/RR | | 6. Cog. Engr.: R.K. Bhatia | | 7. Purchase Order No.: NA | |
| 8. Originator Remarks: This document transmits the sampling analysis plan for the Hanford Patrol Academy Demolitions Site. The SAP will be used by environmental field support to collect soil samples for off-site chemical analysis. | | | | 9. Equip./Component No.: NA | |
| 11. Receiver Remarks: | | | | 10. System/Bldg./Facility: HPADS Closure Site | |
| | | | | 12. Major Assm. Dwg. No.: NA | |
| | | | | 13. Permit/Permit Application No.: NA | |
| 14. Required Response Date: NA | | | | | |

| 15. DATA TRANSMITTED | | | | | (F) | (G) | (H) | (I) |
|----------------------|--------------------------|---------------|--------------|--|---------------------|------------------------|------------------------|----------------------|
| (A) Item No. | (B) Document/Drawing No. | (C) Sheet No. | (D) Rev. No. | (E) Title or Description of Data Transmitted | Approval Designator | Reason for Transmittal | Originator Disposition | Receiver Disposition |
| 9113288 | WHC-SD-EN-TI-284 | | 0 | HPADS Sampling Analysis Pl | N/A | 1 | 1 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| 16. KEY | | |
|--|---|--|
| Approval Designator (F) | Reason for Transmittal (G) | Disposition (H) & (I) |
| E, S, Q, D OR N/A (See WHC-CM-3-5, Sec. 12.7) | 1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required) | 1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged |

| 17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures) | | | | | | | | | | (G) | (H) |
|---|-------|--------------------------|----------------------|----------|----------|----------|---------------|----------|----------|--------|-------|
| Reason | Disp. | (J) Name | (K) Signature | (L) Date | (M) MSIN | (J) Name | (K) Signature | (L) Date | (M) MSIN | Reason | Disp. |
| 1 | 1 | Cog. Eng. R. K. Bhatia | <i>R.K. Bhatia</i> | 6/30/96 | H6-23 | | | | | | |
| 1 | 1 | Cog. Mgr. F. A. Ruck III | <i>F.A. Ruck III</i> | 8/22/94 | H6-23 | | | | | | |
| 1 | 1 | QA C. J. Stephan | <i>C.J. Stephan</i> | 8/17/94 | H4-16 | | | | | | |
| | | Safety | | | | | | | | | |
| 1 | 1 | Env. F. A. Ruck III | <i>F.A. Ruck III</i> | 8/22/94 | H6-23 | | | | | | |

| | | | | | | | |
|---|--|--|--|---|--|--|--|
| 18. Signature of EDT Originator <i>R.K. Bhatia</i> 8/22/94 | | 19. Authorized Representative for Receiving Organization <i>R.K. Bhatia</i> 8/22/94 | | 20. Cognizant Manager <i>F.A. Ruck III</i> 8/22/94 | | 21. DOE APPROVAL (if required) Ctrl No. _____ <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments | |
|---|--|--|--|---|--|--|--|

9413288.0995

RELEASE AUTHORIZATION

Document Number: WHC-SD-EN-TI-284, Rev.0

Document Title: Hanford Patrol Academy Demolition Site Sampling Analysis Plan

Release Date: 8/22/94

* * * * *

This document was reviewed following the procedures described in WHC-CM-3-4 and is:

APPROVED FOR PUBLIC RELEASE

* * * * *

WHC Information Release Administration Specialist:

V. L. Birkland

V. L. Birkland

(Signature)

8/22/94

(Date)

SUPPORTING DOCUMENT

1. Total Pages 9

2. Title

Hanford Patrol Academy Demolition Site Sampling Analysis Plan

3. Number

WHC-SD-EN-TI-284

4. Rev No.

0

5. Key Words

HPADS
Demolition Site
SAP
Sampling
Detonation

APPROVED FOR
PUBLIC RELEASE
V. Berkland
8/22/94

6. Author

Name: R. K. Bhatia

R. K. Bhatia 8/18/94
Signature

Organization/Charge Code
88210/A134B

7. Abstract

Sampling analysis plan to be used by Environmental Field Support to collect soil sample from the HPADS. The samples will shipped off-site for analysis of unreacted explosive product residues.

8. PURPOSE AND USE OF DOCUMENT - This document was prepared for use within the U.S. Department of Energy and its contractors. It is to be used only to perform, direct, or integrate work under U.S. Department of Energy contracts. This document is not approved for public release until reviewed.

PATENT STATUS - This document copy, since it is transmitted in advance of patent clearance, is made available in confidence solely for use in performance of work under contracts with the U.S. Department of Energy. This document is not to be published nor its contents otherwise disseminated or used for purposes other than specified above before patent approval for such release or use has been secured, upon request, from the Patent Counsel, U.S. Department of Energy Field Office, Richland, WA.

DISCLAIMER - This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

10. RELEASE STAMP

OFFICIAL RELEASE **11**
BY WHC
DATE AUG 24 1994

Station # 12

9. Impact Level N/A

9413288.0996

CONTENTS

1.0 PURPOSE 1

2.0 OBJECTIVE 1

3.0 SITE DESCRIPTION/BACKGROUND 5

4.0 SCOPE OF WORK 5

5.0 SAMPLING AND FIELD ACTIVITIES 6

6.0 LABORATORY ANALYSIS 6

7.0 REGULATORY AND HANFORD SITE COMPLIANCE 6

8.0 REFERENCES 7

ATTACHMENT

1 Metric Conversion Chart Att-1

FIGURES

1 Hanford Patrol Academy Demolition Site 2

2 Soil Sampling Locations/Depth Closure Area No. 1 3

3 Soil Sampling Locations/Depth Closure Area No. 2 4

9413288.0997

HANFORD PATROL ACADEMY DEMOLITION SITES SAMPLING ANALYSIS PLAN

1.0 PURPOSE

This document provides guidance for sampling and analysis activities associated with the proposed *Resource Conservation and Recovery Act of 1976* (RCRA) clean closure of the Hanford Patrol Academy Demolition Sites (HPADS) (Figure 1). This document is a supplement to *Hanford Patrol Academy Demolition Sites Closure Plan* (DOE-RL 1992), and should be used in conjunction with the *Environmental Investigations and Site Characterization Manual* (WHC 1988) for specific procedures. The samples will be collected by environmental field services and shipped offsite for analysis.

A metric conversion chart is provided as a tool to aid in conversion (Attachment 1).

2.0 OBJECTIVE

Several soil samples will be taken from specific locations in Closure Areas No. 1 and 2 (Figure 1). The objective of this soil sampling event is to facilitate a RCRA clean closure of the HPADS by verifying that the concentrations of all detonation activity contaminants are below action levels. Action levels are defined as levels above the Hanford Site soil background levels identified in *Hanford Site Background: Part 1, Soil Background for Nonradioactive Analytes* (DOE-RL 1993) and *Model Toxic Control Act* (WAC 173-340) residential levels. If analysis determines that levels are above both guidelines, a phase two investigation will be developed. This is not anticipated because of the efficiency of detonation reactions and exposure to the environment.

2.1 CLOSURE AREA NO. 1

Twelve soil samples will be taken from specific locations (Figure 2) within Closure Area No. 1. Closure Area No. 1 is immediately south of the known distance target range at the bottom of the slope and measures approximately 35 by 114 feet. Closure Area No. 1 consists of two distinct regions, A and B. Region A is where the actual detonation events occurred. Five soil samples will be collected in Region A (Figure 2). Region B is where any explosive chemical products would have been dispersed after subsequent grading activities. Seven samples will be collected in Region B (Figure 2).

2.2 CLOSURE AREA NO. 2

Closure Area No. 2 consists of a detonation pit measuring approximately 10 feet in diameter and 1.5 feet deep. Fifteen soil samples will be taken from specific locations (Figure 3) within a 15-foot radius centered about the detonation pit.

9413288.0999

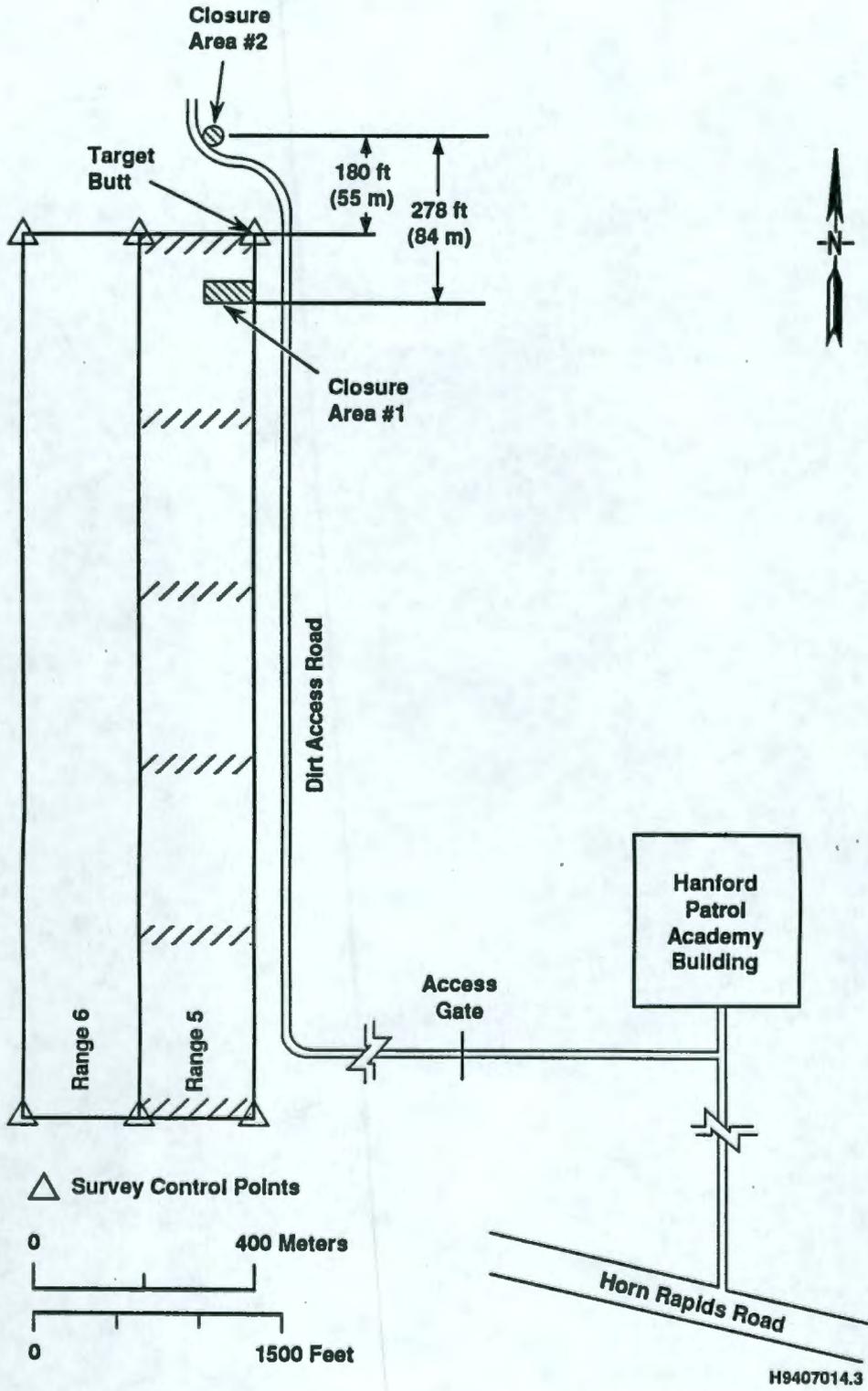
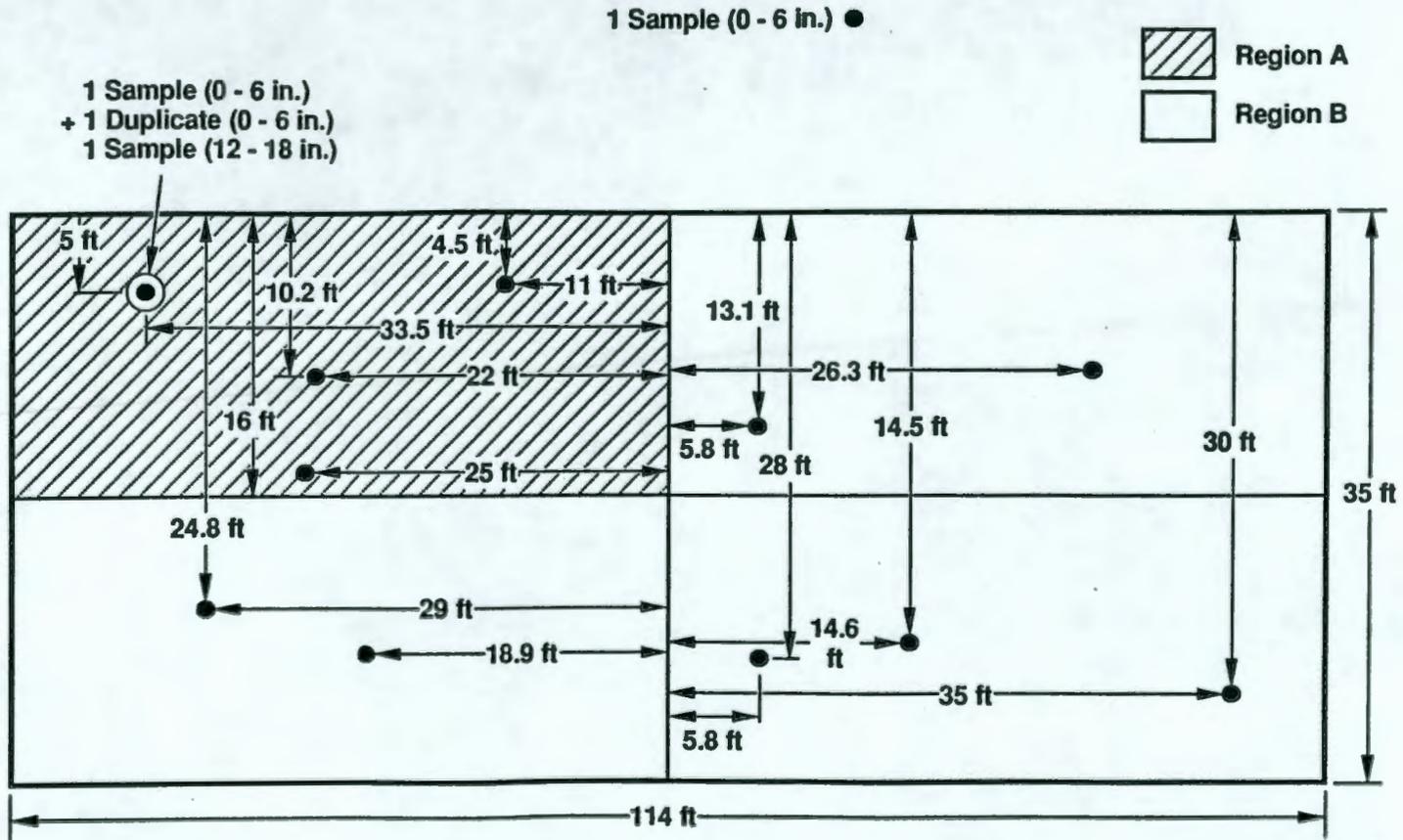


Figure 1. Hanford Patrol Academy Demolition Sites.

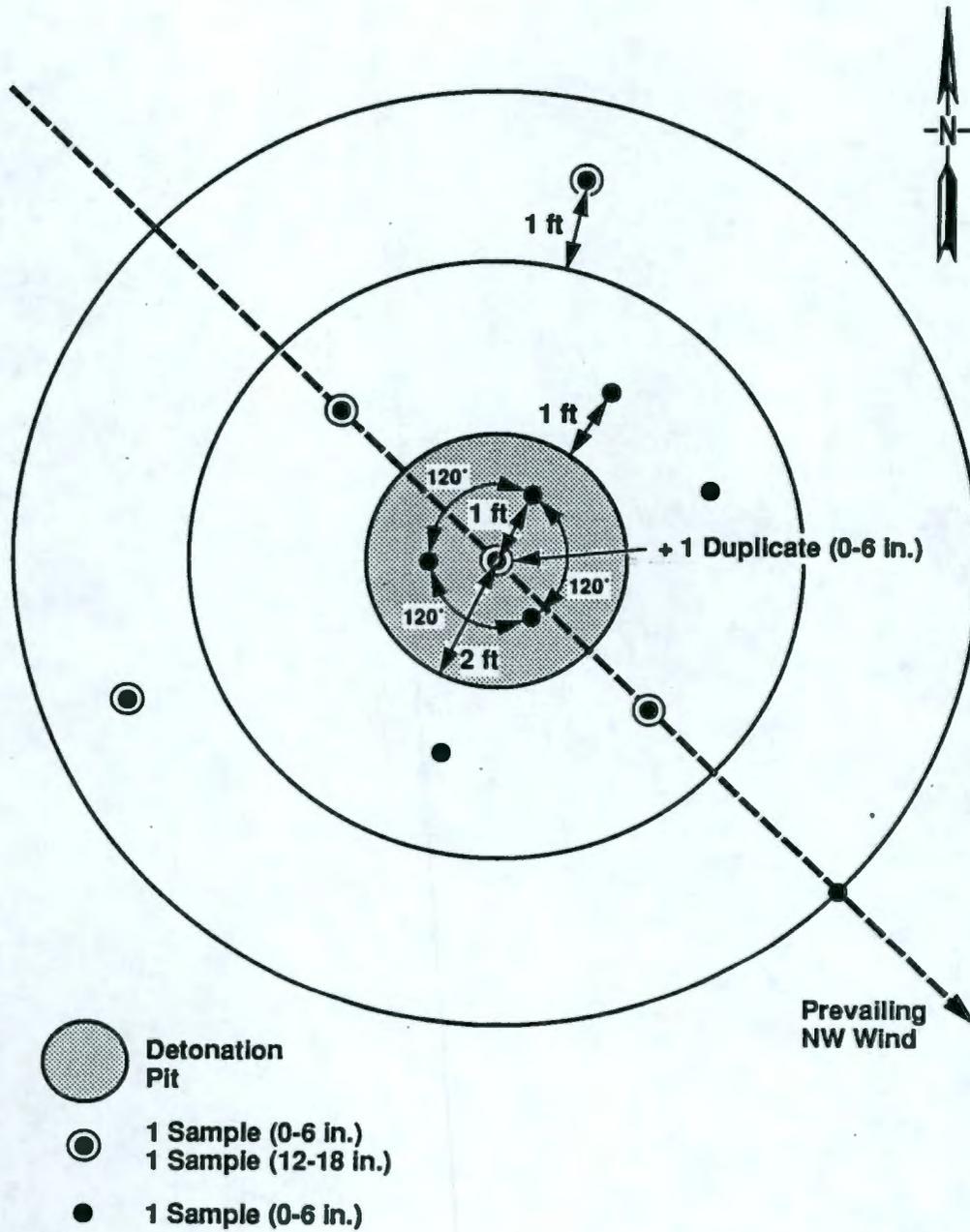
Figure 2. Soil Sampling Locations/Depth Closure Area No. 1.

3



H9407014.1

9413288.1001



H9407032.1

Figure 3. Soil Sampling Locations/Depth Closure Area No. 2.

3.0 SITE DESCRIPTION/BACKGROUND

The HPADS are about 2 miles southwest of the 300 Area and about 0.5 mile north of Horn Rapids Road. The HPADS consist of Closure Areas No. 1 and 2, which were used for the demolition of discarded explosive and shock-sensitive chemicals. Closure Area No. 1 was used from 1975 through 1984 and Closure Area No. 2 was used from 1984 through 1991. During the detonation events at Closure Area No. 1, the individual chemical containers were placed on the ground near the invert of the target butt. The containers were then detonated using M14 rifle fire. Closure Area No. 2 is a crater 10 feet in diameter and approximately 1.5 feet deep. Onsite personnel placed the individual containers in the detonation pit. The City of Richland Bomb Squad then wrapped detonation cord around the containers and initiated the detonation with electric blasting caps. Both closure areas are currently roped off and marked with signs that read "dangerous waste".

4.0 SCOPE OF WORK

Twenty-seven soil characterization samples will be taken by hand from locations at the HPADS (Figures 2 and 3).

All sampling activities will be conducted in accordance with the following environmental investigations instructions (EII) procedures (WHC 1988):

- EII 1.1, Hazardous Waste Site Entry Requirements
- EII 1.13, Environmental Readiness Review
- EII 1.5, Field Logbooks
- EII 5.1, Chain of Custody
- EII 5.2, Soil and Sediment Sampling
- EII 5.5, 1706 KE Laboratory Decontamination of RCRA/CERCLA Sampling Equipment
- EII 5.10, Obtaining Sample Identification Numbers and Accessing HEIS Data
- EII 5.11, Sample Packaging and Shipping
- EII 14.1, Analytical Laboratory Data Management.

5.0 SAMPLING AND FIELD ACTIVITIES

This section discusses Task 1, Sampling of the HPADS.

5.1 SUBTASK 1A - SAMPLE LOCATION DETERMINATIONS

5.1.1 Closure Area No. 1

The sampling surface in Closure Area No. 1 will be cleaned of windblown sand and foreign debris. The 12 sampling locations in Closure Area No. 1 will be appropriately marked (Figure 2).

5.1.2 Closure Area No. 2

The blasting surface in Closure Area No. 2 will be reconstructed by removing windblown sand and foreign debris. The 17 sampling locations will be appropriately marked (Figure 3). Sample depths within Closure Area No. 2 (Figure 3, shaded area) are based upon the reconstructed crater.

5.2 SUBTASK 1B - SAMPLING

Engineering support personnel will use hand tools to obtain soil samples in accordance with information provided in Figures 2 and 3. All samples will be packaged, handled, and shipped in accordance with WHC (1988).

6.0 LABORATORY ANALYSIS

Samples collected for chemical analysis will be analyzed using SW-846 methods (EPA 1986) and approved U.S. Environmental Protection Agency (EPA) 300 series methods (EPA 1983). The contaminants of concern and the methods used for testing are:

- Volatile organic analysis, EPA Method 8240
- Semivolatile organic analysis, EPA Method 8270
- Detonation residue, EPA Method 8330
- Anions, EPA Method 300.0
- Metals, EPA Method 6010
- Total nitrogen, EPA Method 353.1-2.

7.0 REGULATORY AND HANFORD SITE COMPLIANCE

Field quality control samples will be collected by the sampling scientist and documented in the sampling logbook in accordance with EII 1.5, "Field Logbooks" (WHC 1988). The following are the field quality control samples to be collected:

- One duplicate sample in Region A of Closure Area No. 1 (0 to 6-inch depth) for full analysis
- One duplicate sample at center of pit in Closure Area No. 2 (0 to 6-inch depth) for full analysis
- One equipment blank (clean silica sand) for full analysis
- One trip blank (clean silica sand) for volatile organic analysis only.

8.0 REFERENCES

- DOE-RL, 1992, *Hanford Patrol Academy Demolition Sites Closure Plan*, DOE/RL-92-39, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE-RL, 1993, *Hanford Site Background: Part 1, Soil Background for Nonradioactive Analytes*, DOE/RL-92-24, Rev. 1, U. S. Department of Energy, Richland Operations Office, Richland, Washington.
- EPA, 1983, *Methods for Chemical Analysis of Water and Waste*, 600/4-79-020, U.S. Environmental Protection Agency, Washington, D.C.
- EPA, 1986, as amended, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, SW-846, 3rd Edition, U.S. Environmental Protection Agency, Washington, D.C.
- WHC, 1988, *Environmental Investigations and Site Characterization Manual*, WHC-CM-7-7, Westinghouse Hanford Company, Richland, Washington.
- WAC 173-340, *Model Toxics Control Act Cleanup Regulations*, as amended, Washington State Department of Ecology, Olympia, Washington.
- Resource Conservation and Recovery Act of 1976*, 42 USC 6901 et seq.
- Comprehensive Environmental Response, Compensation, and Recovery Act of 1980*, 42 USC 9601 et seq.

9413288.1004

METRIC CONVERSION CHART

Into metric units

Out of metric units

| If you know | Multiply by | To get | If you know | Multiply by | To get |
|----------------------|-------------------------------------|--------------------|----------------------|---------------------------------|---------------|
| Length | | | Length | | |
| inches | 25.40 | millimeters | millimeters | 0.0393 | inches |
| inches | 2.54 | centimeters | centimeters | 0.393 | inches |
| feet | 0.3048 | meters | meters | 3.2808 | feet |
| yards | 0.914 | meters | meters | 1.09 | yards |
| miles | 1.609 | kilometers | kilometers | 0.62 | miles |
| Area | | | Area | | |
| square inches | 6.4516 | square centimeters | square centimeters | 0.155 | square inches |
| square feet | 0.092 | square meters | square meters | 10.7639 | square feet |
| square yards | 0.836 | square meters | square meters | 1.20 | square yards |
| square miles | 2.59 | square kilometers | square kilometers | 0.39 | square miles |
| acres | 0.404 | hectares | hectares | 2.471 | acres |
| Mass (weight) | | | Mass (weight) | | |
| ounces | 28.35 | grams | grams | 0.0352 | ounces |
| pounds | 0.453 | kilograms | kilograms | 2.2046 | pounds |
| short ton | 0.907 | metric ton | metric ton | 1.10 | short ton |
| Volume | | | Volume | | |
| fluid ounces | 29.57 | milliliters | milliliters | 0.03 | fluid ounces |
| quarts | 0.95 | liters | liters | 1.057 | quarts |
| gallons | 3.79 | liters | liters | 0.26 | gallons |
| cubic feet | 0.03 | cubic meters | cubic meters | 35.3147 | cubic feet |
| cubic yards | 0.76 | cubic meters | cubic meters | 1.308 | cubic yards |
| Temperature | | | Temperature | | |
| Fahrenheit | subtract 32 then multiply by 5/9ths | Celsius | Celsius | multiply by 9/5ths, then add 32 | Fahrenheit |

9413288.1005

Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Second Ed., 1990, Professional Publications, Inc., Belmont, California.

DISTRIBUTION

Number of copies

ONSITE

MSIN

U.S. Department of Ecology

A. B. Stone

N1-05

F. Ma (2)

N1-05

U.S. Department of Energy,

Richland Operations Office

R. N. Krekel

A5-15

E. D. Macalister

S7-55

Westinghouse Hanford Company

R. K. Bhatia (5)

H6-23

R. E. Bolls

T3-04

F. A. Ruck III

H6-23

Central Files (2)

L8-04

EPIC (2)

H6-08

Unclassified Document Control (1)

A4-65

Bechtel Hanford Incorporated

J. G. Lucas

H6-01

W. S. Thompson

N3-05

MACTEC

P. J. Macbeth

R3-82

J. K. Bartz

R3-82

9413288.1006

DISTRIBUTION

Number of copiesONSITEMSINU.S. Department of Ecology

A. B. Stone

N1-05

F. Ma (~~2~~) 1

N1-05

U.S. Department of Energy,
Richland Operations Office

R. N. Krekel

A5-15

E. D. Macalister

S7-55

Westinghouse Hanford CompanyR. K. Bhatia (~~5~~) 4

H6-23

R. E. Bolls

T3-04

F. A. Ruck III

H6-23

Central Files (2)

L8-04

EPIC (2)

H6-08

Bechtel Hanford Incorporated

J. G. Lucas

H6-01

W. S. Thompson

N3-05

MACTEC

P. J. Macbeth

R3-82

J. K. Bartz

R3-82