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Environmental Restoration

Environmental Restoration Project
MS M992
Los Alamos, New Mexico 87545
505-667-0808/FAX 505-665-4747

Date: September 30, 1996
Refer to: EM/ER:96-527

1.4.2.6.1 .7.2.2
.16.2.2
.23.2.2

Mr. Ted Taylor
Los Alamos Area Office
US Department of Energy, MS A316
Los Alamos, NM 87544

SUBJECT: VCA COMPLETION REPORTS FOR TAs -11, -16, -33, AND -46, PRSs 11-001(c), 16-026(m-p), 16-029(k,l,q,s,t,u), C-16-064, C-16-067, 33-007(c), 33-010(b), AND 46-003(h) ACTIVITIES

Dear Ted:

Enclosed for your review and approval please find a copy of the Voluntary Corrective Action (VCA) Completion Reports for Technical Areas (TAs) -11, -16, -33, and -46, Potential Release Sites (PRSs) 11-001(c), 16-026(m-p), 16-029(k,l,q,s,t,u), C-16-064, C-16-067, 33-007(c), 33-010(b), and 46-003(h) for cleanup activities completed in Fiscal Year 1996. Also enclosed are the VCA Approval/Disapproval Forms for your signature indicating your approval or disapproval of the reports. If you do not approve these reports, please include a brief description of the reason(s) for disapproval.

Please note that the VCA Completion Reports for TA-16 include Resource Conservation and Recovery Act Facility Investigation (RFI) information. The following PRSs have RFI results in the VCA Completion Reports: TA-16 90's Line, PRSs 16-026(m-p), 16-029(k,l,q,s,t,u), C-16-064, and C-16-067. We would like to propose that the VCA reports covering RFI results be counted as both RFI reports and VCA reports.

Once we have received your approval of these reports, we will submit them to the regulators for their review/approval.

Your Field Project Coordinator participated in developing and reviewing these reports The Certifications of Completion have been signed and are included in the enclosed reports.

Attachment 4

2558

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If you have any questions, please call Roy Michelotti at (505) 665-7444 or Joe Mose at (505) 667-5808. Thank you for your cooperation in this matter.

Sincerely,

Jorg Jansen
Program Manager

JJ/el

Enclosures:
(1) VCA Completion Reports for TAs -11, -16, -33, and -46, PRS(s) 11-001(c), 16-026(m-p), 16-029(k,l,q,s,t,u), C-16-064, C-16-067, 33-007(c), 33-010(b), and 46-003(h)
(2) Certifications of Completion
(3) VCA Approval/Disapproval Forms
(4) VCA Reports with RFI Report Results

Cy (w/o encs.):
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EM/ER File, MS M992
RPF, MS M707

Voluntary Corrective Action Plan for a Solid Waste Management Unit at TA-46

46-003(h)

Field Unit 3

Environmental Restoration Project

August 1996

A Department of Energy
Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

LA-UR-96-2943

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1.0 INTRODUCTION

1.1 Site Type and Description

Solid waste management unit (SWMU) 46-003(h) is an outfall that once served a sink in Technical Area (TA) 46, Building 77 (Fig. 1.1-1). Effluent was discharged directly on the soil beneath a 1-in.-diameter pipe located 1 ft above ground level and protruding about 6 in. from the east wall of the building. The pipe was recently cut flush with the building and plugged. A chunk of concrete under the pipe served as a splash guard. No erosion channel formed on level ground. The area is unpaved and sparsely covered with weeds (LANL1993, 1093). A large tree is near the building, and the area receives some informal picnic use.

SWMU 46-003(h) is listed in Table A of the Los Alamos National Laboratory's (LANL's) Hazardous and Solid Waste Amendments (HSWA) permit.

1.1.1 Operational History

TA-46-77 is a 30 x 40 ft metal building on a concrete foundation that was constructed in the early 1960s for general storage in support of test laboratory TA-46-16. TA-46-77 is now a welding and machine shop facility.

Archival information indicates that waste from the sink in TA-46-77 was being discharged without treatment (Dunne 1976, 11-081). Volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals may have been discarded in the sink. There is no indication that uranium was ever brought into the building.

1.1.2 Contaminants and Rationale for Proposed Remedial Action

Phase I Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) sampling revealed that cadmium, copper, and lead were detected above screening action levels (SALs). Concentrations are below accepted industrial cleanup levels. However, because the SWMU is in an area that receives some leisure use, a cleanup is recommended as a best management practice. A voluntary corrective action (VCA) for SWMU 46-003(h) is proposed to remove contaminated soil from the area of the former drainpipe. Following soil removal, the soils remaining in the vicinity of the drainpipe will be screened for RCRA metals. Confirmatory samples will be taken to verify that cleanup objectives have been met. The rationale for the proposed VCA is as follows.

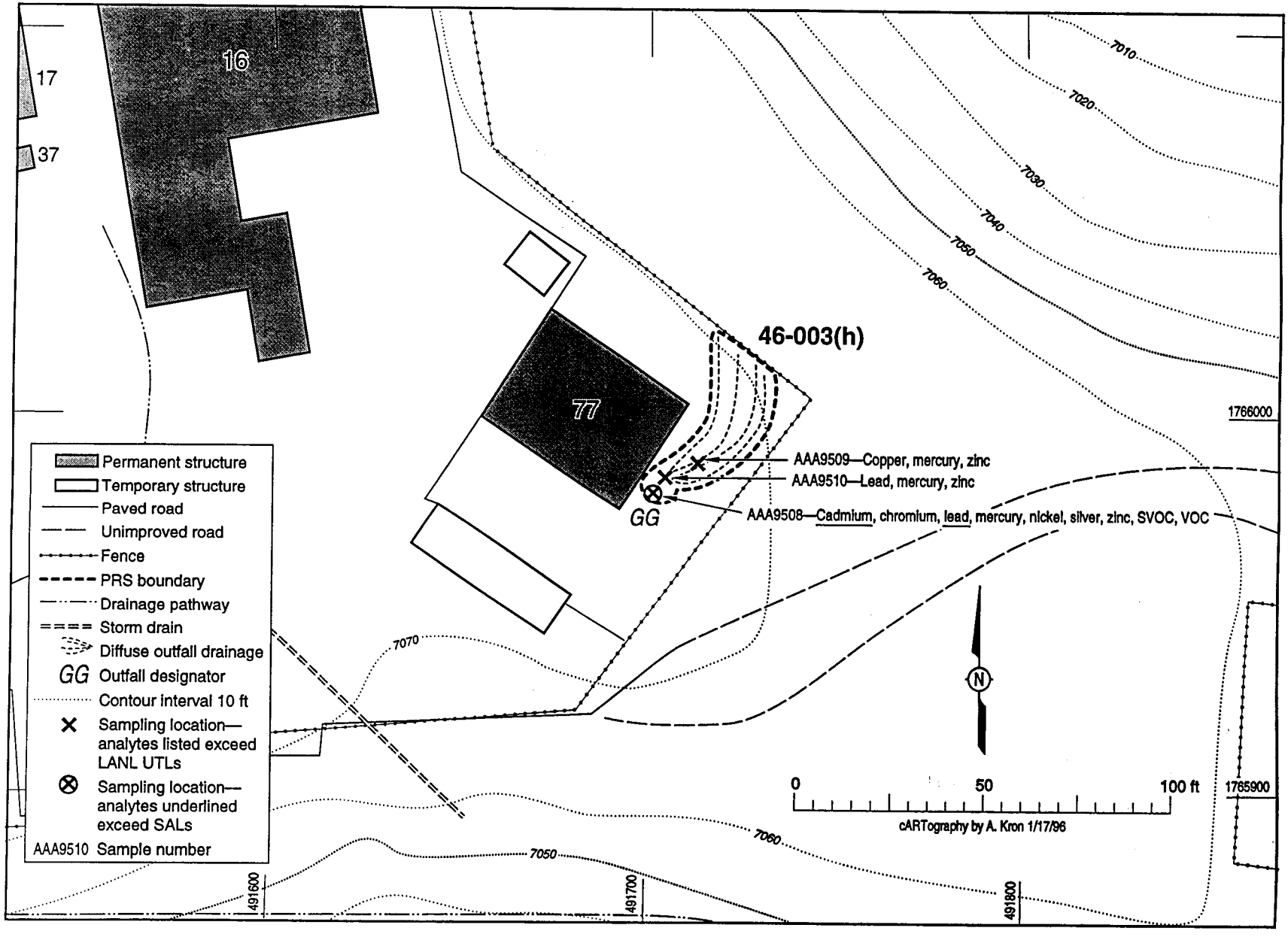

Fig. 1.1-1. SWMU 46-003(h) outfall from TA-46-77.

- There is potential for human exposure due to proximity of this SWMU to a currently active industrial building (TA-46-77).
- The area of this SWMU is small, the remedy is obvious, and immediate action to remove the contamination will result in an overall cost benefit.

2.0 SITE CHARACTERIZATION

RFI sampling was performed between August and November 1994 in accordance with Subsection 5.3 of the TA-46 RFI work plan (LANL 1993, 1093). No other previous investigation was performed at this SWMU. The field activities implemented at the site included selection of sampling locations, land and screening surveys, and field sampling activities.

2.1 RFI Information/Other Decision Data

2.1.1 Field Investigation for SWMU 46-003(h)

Three samples were collected at SWMU 46-003(h) (Table 2.1-1). Samples AAA9508 and AAA9510 were taken at the outfall. Sample AAA9509 was taken approximately 10 ft east of the building (Fig. 1.1-1).

TABLE 2.1-1
SUMMARY OF RFI ANALYTICAL REQUEST NUMBERS

SAMPLE ID	LOCATION ID	DEPTH (ft)	INORGANICS	VOCs[a]	SVOCs[b]
AAA9508	46-1146	1	19881[c]	19416	19416
AAA9509	46-1147	0.5	19881	NA [d]	19416
AAA9510	46-1148	1	19881	19416	19416

[a] VOCs = Volatile organic compounds.
[b] SVOCs = Semivolatile organic compounds.
[c] ER analytical request number.
[d] NA = Not analyzed.

2.1.2 Background Comparison

Cadmium, copper, and lead were detected above SALs. Chromium, mercury, nickel, silver, and zinc were detected above LANL background upper tolerance limits (UTLs) (Table 2.1-2).

TABLE 2.1-2

INORGANIC ANALYTES WITH CONCENTRATIONS GREATER THAN BACKGROUND UTLs

SAMPLE ID	DEPTH (ft)	CADMIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	ZINC (mg/kg)
SAL[a]	N/A[b]	38	210	2 800	400	23	1 500	383	23 000
LANL UTL[c]	N/A	2.7	19.3	15.5	23.3	0.1	15.2	ND[d]	50.8
AAA9508	1	**62.8**[e]	149	7 640	902	12.2	70.3	62.5	1 130
AAA9509	0.5	<0.66	5.7	37	17.3	0.75	<4.6	<1.7	114
AAA9510	1	<0.83	4.4	18.2	24.2	0.57	<3.6	<0.55	186

[a] SAL = Screening action level.
[b] N/A = Not applicable.
[c] UTL = Upper tolerance limit.
[d] ND = Not determined.
[e] Bold = Value above SAL.

2.1.3 Evaluation of Organics

A common plasticizer was found in samples AAA9508 and AAA9509. A trace amount of toluene was found in sample AAA9508 (Table 2.1-3). These detections are well below SALs for the respective compounds.

TABLE 2.1-3

SOIL CONCENTRATIONS FOR ORGANIC ANALYTES WITH VALUES GREATER THAN THE REPORTING LIMIT

SAMPLE ID	DEPTH (ft)	SEMIVOLATILE AND VOLATILE ORGANICS	RESULT (mg/kg)	SAL[a] (mg/kg)
AAA9508	1	Bis(2-ethylhexyl)phthalate	1.1	32
AAA9508	1	Toluene	0.005	1 900
AAA9509	0.5	Bis(2-ethylhexyl)phthalate	0.41	32

[a] SAL = Screening action level.

2.1.4 Human Health Assessment

2.1.4.1 Screening Assessment

Cadmium, copper, and lead were found above SAL in sample AAA9508 collected at the outfall. Table 2.1-4 lists the SALS, contaminant concentrations, and preliminary remediation goals (PRGs) (EPA 1995, 1307). PRGs are discussed as cleanup levels in Section 3.2 of this VCA plan.

TABLE 2.1-4

INORGANIC ANALYTES WITH CONCENTRATIONS GREATER THAN SAL

SAMPLE ID	DEPTH (ft)	CADMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)
SAL[a]	N/A[b]	38	2 800	400
PRG	N/A	850	63 000	1 000
AAA9508	1	62.8	7 640	902

[a] SAL = Screening action level.
[b] N/A = Not applicable.

2.1.5 Risk Assessment

No risk assessment was performed for this PRS.

2.2 Nature and Extent of Contamination

Elevated concentrations of inorganics detected at this SWMU are confined to the area of the former pipe outfall. This is confirmed by the fixed laboratory data collected. Results for the downgradient sample (AAA9509) indicate RCRA metals are within background distributions downgradient of the outfall.

3.0 PROPOSED REMEDY

This site will be remediated by removing contaminated soil in the area of the former outfall.

3.1 Description of the Proposed Remedial Action

Soil in the area of sample AAA9508 will be screened for cadmium, chromium, copper, and lead to determine the lateral and vertical extent of contaminated soil to be removed. This screening will be accomplished using an x-ray fluorescence (XRF) portable detector in six-inch vertical intervals and one-foot lateral intervals during soil removal. Soil will be removed when corresponding screening data exceed half the lead and cadmium cleanup levels. Criteria for determining achievement of the cleanup goals will be based on comparing laboratory results of confirmatory samples with cleanup levels.

Soil will be removed using a vacuum excavation device. The soil will be collected on-site in 55-gal. steel drums and managed in accordance with RCRA requirements.

To control erosion during remediation activities, five straw bales will be placed southeast of the work area. This straw dam will prevent contaminants from migrating from the site during storm runoff events. When remediation is complete, the straw dam will be removed.

3.2 Basis for Cleanup Levels

The chemicals of potential concern (COPCs) considered for this VCA were identified by comparisons of SWMU 46-003(h) RFI analytical results with background and SAL concentrations. As presented in Section 2.2 of this VCA plan, analytical results from the Phase I RFI sampling indicate that three inorganics are the primary COPCs for soil contamination at the site.

Accepted industrial cleanup level for cadmium is 850 mg/kg, for lead is 1 000 mg/kg, and for copper is 63 000 mg/kg. Although contaminant concentrations are below these levels, a cleanup is recommended at this small site as a best management practice. SWMU 46-003(h) is located in an active industrial area that is designated for continued Laboratory operations. Because of the presence of a large shade tree nearby, there is evidence of informal leisure and picnic use in the vicinity of this SWMU.

LANL has adopted a lead cleanup level for industrial soils of 1 000 mg/kg recommended by the Environmental Protection Agency (EPA) Region 6. This cleanup threshold was calculated by EPA Region 6 using the Integrated Exposure Uptake Biokinetic (IUBEK) Model adjusted for default industrial exposure parameters (EPA 1994, 1178). The proposed soil cleanup level for cadmium of 850 mg/kg has been adopted from the Region 9 PRGs for industrial soil (EPA 1995, 1307). This threshold combines current EPA toxicity values with default industrial exposure factors to estimate a concentration in soil that is protective of human health, including sensitive groups, over a lifetime.

3.3 Site Restoration

If comparing verification sample results with cleanup levels indicates that cleanup goals have been achieved, the site will be regraded and the soil stabilized. Soil stabilization will consist of planting the site with a native plant seed mixture and covering with a biodegradable jute matting. The site will be inspected monthly for six months to determine if further site protection is necessary.

4.0 WASTE MANAGEMENT

4.1 Estimated Types and Volumes of Waste

Table 4.1-1 lists the types and volumes of waste expected at SWMU 46-003(h).

TABLE 4.1-1

WASTE EXPECTED AT SWMU 46-003(h)

ITEM	WASTE TYPE	ANTICIPATED VOLUME
Investigation waste/ Personal protective equipment	Municipal refuse	1 yd^3
Contaminated soils	Nonhazardous, nonradioactive waste	10 yd^3
Decontamination water	Nonhazardous, nonradioactive waste	50 gal.

4.2 Method of Management and Disposal

Wastes will be stored and managed in accordance with 20 NMAC Section 262.11. Prior to generation of wastes, a waste characterization strategy form (WCSF) was prepared and approved by LANL's Chemical and Mixed Waste Storage Group (CST-5) (Annex 7.6 of this VCA plan). After the wastes are generated, a waste profile form will be prepared and submitted to CST-5. If CST-5 classifies the wastes as other than municipal refuse, chemical waste disposal forms will be prepared and submitted to CST-5 for waste pickup and disposal.

Classification of wastes will be based on direct sampling of waste soils and water as outlined in the WCSF. Investigation waste will be decontaminated following approved, established procedures and classified based on acceptable knowledge of the waste generating activity.

5.0 DESCRIPTION OF CONFIRMATORY/VERIFICATION SAMPLING

Two verification samples will be collected following completion of remedial activities at SWMU 46-003(h).

- The first sample will be located at a depth of 0-6 in. within 2 ft of RFI location 46-1146 (sample AAA9508) and from an area that has been remediated. This sample of soil or tuff, collected following remediation but before site restoration, will verify that sufficient material has been removed from the remediated area.

- The second sample will be collected from undisturbed soil immediately adjacent to the remediated area. This sample, which should be located downgradient from the remediated area (if "downgradient" can be defined at this relatively level site), is intended to verify that the extent of remediation is sufficient.

Both samples will be analyzed for the standard suite of inorganic contaminants (including mercury). Results will be compared with background UTLs and with SALs, but no further remedial action is planned if SALs are not exceeded.

6.0 ESTIMATED TIME TO COMPLETE THE ACTION AND UNCERTAINTIES

The remedial action subtasks and the time required to complete each of these subtasks is estimated in Table 6.0-1.

TABLE 6.0-1

VCA SCHEDULE

SUBTASK	ESTIMATED TIME TO COMPLETE
Preparation and approval of VCA plan	3 weeks
Preparation and approval of excavation permit	2 weeks
Biological and cultural reviews	2 weeks
Prepare and conduct readiness review	3 weeks
Mobilize to site	2 days
Conduct remediation	3 days
Waste management	6 weeks
Site restoration	2 days
Demobilize from site	2 days

7.0 ANNEXES

7.1 Risk-Based Cleanup Level Assumptions and Calculations

This annex is not required. No calculations were performed. All assumptions are provided in Section 3.2 of this VCA plan, Basis for Cleanup Levels.

7.2 RFI Analytical Results

Validated data are available in the Facility for Information, Management, Analysis, and Display (FIMAD) or upon request.

7.3 Implementation Standard Operating Procedures (SOPs)

See Environmental Restoration Standard Operating Procedures, Volumes I and II (LANL 1993, 0875).

7.4 Quality Assurance Plan

See Quality Program Plan and Quality Assurance Project Plan Requirements for Sampling and Analysis (LANL 1996, 1292).

7.5 Site-Specific Health and Safety Plan

The site-specific health and safety plan is attached at the end of this document.

7.6 Waste Characterization Strategy Form

The Waste Characterization Strategy Form follows this page.

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CHARACTERIZATION STRATEGY FORM

OU Number	PRS/SWMU Numbers	Title
1140	46-003(h)	

Name: Lynn Kidman	Date: July 17, 1996
FPL: Roy Michelotti	WMC: Lynn Kidman

Type of Activity: VCA Field Activity at 46-003(h)

Site Description:
Solid Waste Management Unit (SWMU) 46-003(h) is an outfall that once served a sink in TA-46-77 (Fig 1-1). TA-46-77 was constructed in the early 1960s as a warehouse for general storage. TA-46-77 is now a welding and machine shop facility. VOCs, SVOCs, and metals may have been discarded in the sink. There is no indication that uranium was ever brought into the building. Effluent was discharged directly on the soil beneath a pipe protruding from the east wall of the building.
Soil will be screened using an XRF portable detector for lead and cadmium to determine the extent of contaminated soil to be removed. Soil will be removed when corresponding screening data exceed half the lead or cadmium cleanup levels. Soil removal will be accomplished using a vacuum excavation device.

Investigation or Remediation Waste Description and Volume Estimates:
Phase I RCRA Facility Investigation sampling revealed that cadmium and lead were the only constituents found above screening action level (SAL). Toluene was tentatively identified at the minimum detectable limit (0.005 ppm) with an uncertainty (0.0015 ppm) that makes the presence of toluene questionable. This will be confirmed by direct sampling of the waste.

Expected Waste Types and Volumes:

ITEM	WASTE TYPE	ANTICIPATED VOLUME
Investigation Waste/PPE	Municipal refuse	1 yd3
Contaminated soils	Non-haz, non-rad waste	10 yd3
Decontamination water	Non-haz, non-rad waste	50 gal
	Hazardous waste	none
	Radioactive waste	none
	Mixed waste	none

Waste Packaging: The soil will be collected on-site in 55-gallon steel drums. If hazardous waste is found, the hazardous waste containers and hazardous waste storage sites will conform to all RCRA storage requirements.

Characterization Strategy:
A beta-gamma sodium iodide detector will be used to characterize the waste for the radioactive component following procedure established in LANL-ER-SOP-10.07, Field Monitoring for Surface and Volume Radioactivity Levels. Cadmium and lead in soil waste will be characterized by TCLP analysis. A sample of the soil waste will also be submitted for VOC analysis. Investigation waste will be decontaminated following approved, established procedures and classified based on acceptable knowledge of the waste generating activity. Decon liquid will be

OU Number	PRS/SWMU Numbers	Title
1140	46-003(h)	
characterized based on the results of soil characterization samples. A headspace screening will be performed on municipal trash with an OVA. No samples will be submitted for tritium analysis because tritium was never used at TA-46.		

Preliminary RCRA Determination:

☑	**No 90-Day Storage Requirement (non-RCRA)**
Liquid wastes will be stored in compliance with the SPCC plan.	
☐	**90-Day Storage Requirement (RCRA)**
	Waste will be stored/handled in accordance with 20 NMAC Section 262.11.

Analyte Suite:

Analyte Category	Analytical Method	Direct Sampling of Containerized Waste	Acceptable Knowledge		
			Existing Information		Data from Site Characterization
			Present	Absent	
Volatile Compounds	8260	☑**	☐***	☐	☑
Semi-Volatile Compounds	8270	☐	☐	☑	☑
Organic Pesticides and PCBs		☐	☐	☑	☑
Inorganic Compounds	XRF - Spectrace 9000	☑	☐	☐	☐
High Explosive Compounds	Spot Test	☐	☐	☑	☐
Gross Alpha	Ludlum-139	☑	☐	☑	☐
Gross Beta	E600, SPA3, HP260	☑	☐	☑	☐
Gross Gamma	E600, SPA3, HP260	☑	☐	☑	☐
Tritium*		☐	☐	☑	☐
Asbestos		☐	☐	☑	☐
TCLP	SW 846				
Metals	SW 846	☑**	☐	☐	☐
Organics	SW 846	☐	☐	☑	☐
Pesticides, herbicides, fungicides	SW 846	☐	☐	☑	☐

*If "Absent" is checked under existing information for tritium, you must specify (in the "Characterization Strategy" box) the existing information supporting your contention that elevated tritium levels are not present.

** For soil waste only

*** questionable result from site characterization will be confirmed by analysis of waste

Signatures:

ER Waste Management Coordinator

Mary Jane Wirth
Waste Management Representative

Form Author

7.7 VCA Checklist and Fieldwork Authorization Form

The VCA Checklist and Field Authorization Form follows this page.

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Voluntary Corrective Action (VCA)
Checklist and Fieldwork Authorization Form
PRS No. 46-003(h) HSWA or AOC

X COPC(s) defined.

X Nature and extent defined or field screening method available to guide where not defined.

X Remedy is obvious.

X Time for removal is less than 6 months.

X Remedy is final.

X Land use assumptions straightforward.

X Treatment, Storage, Disposal Facilities are available for waste type and volume.

X Cleanup cost is reasonable for the planned action, and meets accelerated decision logic criterion for decision to proceed with VCA.

Explain criteria not checked above. _____

Through reviewing the above criteria associated with this site, I believe that a VCA is the appropriate Accelerated Cleanup approach.

FPL _____ Date 7/18/96

FPC Joseph H. Moore Date 7/23/96

The undersigned have reviewed the final plan and believe that it fully satisfies the appropriate Accelerated Cleanup approach.

FPL _____ Date 8/26/96

FPC Joseph H. Moore Date 08/23/96

Through reviewing the VCA Plan, for site(s) 46-003(h), and believing that the above criteria have been met, I authorize the fieldwork ~~to proceed~~.

DOE ER Program Manager _____ Date 8/28/96

EM/ER:96-134

7.8 Cost Estimate

ACTIVITY	COST
Pre-field activities (field preparation and plan development)	$8 000
Cleanup	$25 000
Waste management disposal	$2 000
Sampling/analytical	$2 000
Post-field activities and report	$8 000
Total estimated cost	$53 000

8.0 REFERENCES

Dunne, W. M., December 7, 1976. "Rerouting Wastes from Building 46-77 to Sewage Lagoons," Los Alamos Scientific Laboratory Memorandum H7-76-494 to J. G. Parsons (ENG-4) from W. M. Dunne (H-7), Los Alamos, New Mexico. **(Dunne 1976, 11-081)**

EPA (US Environmental Protection Agency), February 1994. "Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for Lead in Children," EPA 540-R-93-081, Office of Emergency and Remedial Response, Washington, DC. **(EPA 1994, 1178)**

EPA (US Environmental Protection Agency), September 1, 1995. "Region IX Preliminary Remediation Goals (PRGs) Second Half 1995," San Francisco, California. **(EPA 1995, 1307)**

LANL (Los Alamos National Laboratory). "Los Alamos National Laboratory Environmental Restoration Program Standard Operating Procedures," Los Alamos National Laboratory report, Los Alamos, New Mexico. **(LANL, 0875)**

LANL (Los Alamos National Laboratory), August 1993. "RFI Work Plan for Operable Unit 1140," Los Alamos National Laboratory Report LA-UR-93-1940, Los Alamos, New Mexico. **(LANL 1993, 1093)**

LANL (Los Alamos National Laboratory), March 1996. "Quality Assurance Project Plan Requirements for Sampling and Analysis," Los Alamos National Laboratory Report LA-UR-96-441, Los Alamos, New Mexico. **(LANL 1996, 1292)**

noon Wed.

LANL ER PROJECT

SITE-SPECIFIC HEALTH AND SAFETY PLAN (SSHASP)

Project Title: VCA Work at PRS 46-003(h) TA: 46 SSHASP: 135

This plan addresses the health and safety criteria to be followed during investigation, remediation or decommissioning activities associated with the Environmental Restoration (ER) Project at the Los Alamos National Laboratory (LANL)

Reviewed and Approved by:

Signature	Name/Title	Company	Date
William A. Brazile	Bill Brazile/ESH Rep	ESH-5	8/8/96
Field Unit Health and Safety (HS) Representative			
[illegible]	Pat LaFrate/HP	ESH-1	8-20-96
ESH-1 Representative			
Joe A. Arellano	~~Bob Grave~~ ~~PRS Conditions~~ Greg Rand/TA-46 Rep. JOE ARELLANO	LANL	8/19/96
Technical Area (TA)-46 Representative			
Roy Michelotti	Roy Michelotti ~~Brad Martin/FPL~~	CST-18	8/16/96
Field Project Leader (FPL)			
[illegible]	Raymond L. Kidman/FTM	ICF KE	8/15/96
FTM			

Concurrence by:

Signature	Name/Title	Company	Date
(See following pages)	Clark Judy /Program Manager	MK	
Subcontractor Management or HS Representative			
(See following pages)	Ivan Wachler/ NM Operations H&S Officer	ICF KE	
Subcontractor Management or HS Representative			

The comments of the above reviewers have been incorporated as stipulated, or resolved with written record and copy to the respective reviewer.

Plan Preparer Name/Signature	Group	Date	Mailstop	Phone
David P. Dixson/	MK		M-892	662-7300

LANL ER PROJECT

SITE-SPECIFIC HEALTH AND SAFETY PLAN (SSHASP)

Project Title: VCA Work at PRS 46-003(h) TA: 46 SSHASP: 135

This plan addresses the health and safety criteria to be followed during investigation, remediation or decommissioning activities associated with the Environmental Restoration (ER) Project at the Los Alamos National Laboratory (LANL)

Reviewed and Approved by:

Signature	Name/Title	Company	Date
Field Unit Health and Safety (HS) Representative	Bill Brazile/ESH Rep	ESH-5	
ESH-1 Representative	Pat LaFrate/HP	ESH-1	
Technical Area (TA) 46 Representative	Greg Rand/TA-46 Rep.	LANL	
Field Project Leader (FPL)	Brad Martin/FPL	CST-18	
FTM	Raymond L. Kidman/FTM	ICF KE	

Concurrence by:

Signature	Name/Title	Company	Date
Subcontractor Management or HS Representative	Clark Judy /Program Manager	MK	
Subcontractor Management or HS Representative	Ivan Wachler/ NM Operations H&S Officer	ICF KE	8/7/96

The comments of the above reviewers have been incorporated as stipulated, or resolved with written record and copy to the respective reviewer.

Plan Preparer Name/Signature	Group	Date	Mailstop	Phone
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Received 8/6/96
Reviewed 8/6/96
Please address comments. Thanks, IWA

LANL ER PROJECT
SITE-SPECIFIC HEALTH AND SAFETY PLAN (SSHASP)

Project Title: VCA Work at PRS 46-003(h) TA: 46 SSHASP: 135

This plan addresses the health and safety criteria to be followed during investigation, remediation or decommissioning activities associated with the Environmental Restoration (ER) Project at the Los Alamos National Laboratory (LANL)

Reviewed and Approved by:

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LIST OF ACRONYMS and ABBREVIATIONS

ACGIH ..... American Conference of Governmental Industrial Hygienists
AL ..... Action Level
AR ..... Administrative Requirements
ATM ..... Atmosphere
^{o}C ..... Degrees Centigrade
CFR ..... Code of Federal Regulations
COPCs ..... Contaminants of Potential Concern
CP ..... Competent Person
CPR ..... Cardiopulmonary Resuscitation
CRZ ..... Contamination Reduction Zone
DAC ..... Derived Air Concentration
dBA ..... Decibels (A-Weighted Scale)
DOE ..... U.S. Department of Energy
DOT ..... U.S. Department of Transportation
EPA ..... U.S. Environmental Protection Agency
ER ..... Environmental Restoration
ESH ..... Environmental, Safety and Health
ESH-1 ..... Health Physics Operations Group
ESH-2 ..... Occupational Medicine Group
ESH-5 ..... Industrial Hygiene and Safety Group
ESH-12 ..... Policy and Program Analysis Group
eV ..... Electron Volts
EZ ..... Exclusion Zone
^{o}F ..... Degrees Fahrenheit
FPL ..... Field Project Leader
FTL ..... Field Team Leader
FTM ..... Field Team Manager
GET ..... General Employee Training
HASP ..... Health and Safety Plan
HAZWOPER ..... Hazardous Waste Operations and Emergency Response
HPT ..... Health Protection Technician
HS ..... Health and Safety
IARC ..... International Agency for Research on Cancer
IDLH ..... Immediately Dangerous to Life or Health
IHT ..... Industrial Hygiene Technician
IP ..... Ionization Potential
LAMC ..... Los Alamos Medical Center
LANL ..... Los Alamos National Laboratory
LEL ..... Lower Explosive Limit

ug/m^3 ..... Micrograms Per Cubic Meter

mg/m^3 ..... Milligrams Per Cubic Meter

mm ..... Millimeters

MSDS ..... Material Safety Data Sheet

MUC ..... Maximum Use Concentration

NIOSH ..... National Institute for Occupational Safety and Health

NRR ..... Noise Reduction Rating

OSHA ..... Occupational Safety and Health Administration

PAH ..... Polycyclic Aromatic Hydrocarbons

PEL ..... Permissible Exposure Limit

PF ..... Protection Factor

PID ..... Photoionization Detector

PNA ..... Polynuclear Aromatics

PPE ..... Personal Protective Equipment

PRS ..... Potential Release Site

RCT ..... Radiological Control Technician

RMMA ..... Radioactive Materials Management Area

RSAA ..... Radiological Surveillance Authorization Agreement

RSP ..... Radiological Screening Personnel

RWP ..... Radiological Work Permit

SC ..... Spill Containment

SLM ..... Sound Level Meter

SOP ..... Standard Operating Procedures

SSHASP ..... Site-Specific Health and Safety Plan

SSO ..... Site Safety Officer

SUP ..... Supervisor

SWMU ..... Solid Waste Management Unit

SWP ..... Special Work Permit

SZ ..... Support Zone

TA ..... Technical Area

TLD ..... Thermoluminescent Dosimeter

TLV ..... Threshold Limit Value

TWA ..... 8-Hour Time-Weighted Average

UST ..... Underground Storage Tank

VCA ..... Voluntary Corrective Action

1.0 INTRODUCTION

This Site-Specific Health and Safety Plan (SSHASP) has been developed for the Environmental Restoration (ER) Project at the Los Alamos National Laboratory (LANL) to comply with applicable federal and state occupational health and safety (HS) requirements, including those of the U.S. Department of Energy (DOE). The DOE requires LANL to comply with the federal Occupational Safety and Health Administration (OSHA) requirements, although operations at LANL are not subject to the jurisdiction of OSHA. The ER Project has developed a generic Health and Safety Plan, the ER Project HASP, which establishes HS information and requirements applicable to ER field operations projectwide. In addition to the HASP, this SSHASP establishes site-specific HS information and requirements applicable to the project described in Section 2.

ER participants are responsible for conducting work in accordance with applicable regulations. The term "ER participants" refers to anyone performing ER work, including LANL, subcontractors to LANL and their lower-tier contractors, consultants, and agents. In some cases in this document, LANL has chosen to invoke OSHA and LANL requirements which ordinarily may not apply to ER field operations (e.g., OSHA's general industry standards in Part 1910 of Title 29 of the Code of Federal Regulations [29 CFR 1910]). These choices were made on a case-by-case basis to maintain consistency with LANL's ALARA policy and to clarify LANL's expectations with regard to interpretable requirements of the multiple agencies governing ER work. Where there is concern that implementation of work orders or HS requirements would conflict with contract terms, or could unreasonably compromise the safety or health of an individual or the environment, such concerns should be brought to the attention of the Contract Administrator and the Field Unit HS Representative immediately. Failure to comply with terms of HS plans may constitute cause to stop activity or for issuance of a stop work order as specified in Section 3.4.2 of the HASP without cost or penalty to LANL.

This SSHASP shall be reviewed and approved in accordance with Section 1.2 of the HASP. Once this SSHASP has been approved, revisions will be tracked using a SSHASP modification form (Appendix B of the HASP) per Section 1.3 of the HASP. Modifications to this SSHASP may result in a change to the terms or scope of a subcontract. Completion of a SSHASP modification form is <u>not</u> the means for modifying the scope or terms of the project contract. To modify a contract, the Subcontractor shall notify the Contract Administrator and Field Unit HS Representative under the changes clause and shall not proceed with the change until a change order has been mutually agreed between the parties, or unless unilateral direction is given by the Contract Administrator.

This SSHASP shall assess the Voluntary Corrective Action (VCA) located at site 46-003(h). Site 46-003(h) is an outfall that once serviced a sink located inside Building TA-46-77. The effluent from the sink was discharged from a 1 inch diameter pipe protruding from the east side of the building. The discharge pipe has recently been taken out of service, cut flush with the building, and sealed. The remediation action is to remove the contaminated soil impacted by discharged materials to the extent that the cleanup goals are met. The means of cleaning-up the site will be to utilize a vacuum excavation device. Once the site has met the cleanup goals, the site will be regraded and stabilized. This SSHASP describes the associated hazards to completing this activity and appropriate control measures to mitigate most of these hazards.

2.0 BACKGROUND INFORMATION

Provided in this section is the site specific background information for this project in accordance with Section 2 of the HASP. The project title, location, and objective as well as the classification and type of work are provided in Table 2-1. The site description and scope of work are provided in Tables 2-2 and 2-3 respectively.

TABLE 2-1 PROJECT DESCRIPTION
This table provides the project title, location, and objective, and the classification and type of work to be performed for which this SSHASP has been developed.
Project Title: VCA 46-003(h)
Project Location: TA-46, Eastside of Building TA-46-77
Project Objective: Site remediation and restoration
Classification of Work: Voluntary Corrective Action (VCA).
Type of Work: INTRUSIVE - Remediation with a vacuum excavation system and/or shallow trenching with shovels.

TABLE 2-2 SITE DESCRIPTION(S)	
This table identifies the characteristics and contaminants of potential concern (COPCs) for the site to be remediated at Technical Area (TA) 46. Atop the column is the VCA where work under this SSHASP will be performed	
	46-003(h)
DESCRIPTOR	**CHARACTERISTICS**
GENERAL SITE CONDITIONS	
Adj. Fac./Struct.	There are roads, buildings and structures associated with this PRS.
Below Ground Utilities	Underground utilities are identified and within 10 feet of the site.
The excavation permit, required to be issued prior to initiating this remediation activity, should specifically identify the type of below ground utilities in the area of operation.	
Above Ground Elect.	There are above ground utilities that should not impact this operation.
Topography	This VCA is located on a mesa top.
Pathways for Release/ Dispersion	The pathways of uncontrolled release dispersion at this VCA is by land and air (East and West).
Emergency Access	The emergency accessibility to this VCA is by land.
Previous Fac. Ops	This VCA was an outfall point of a sink.
Previous Info./ Data	Knowledge of Process and Historical Review.
PREVIOUS SUBSTANCES USED, DISPOSED, DETECTED OR SUSPECTED	
CHEMICALS: (VOC & SVOC)	
Toluene	X
Bis(2-ethylhexyl)phthalate	X
METALS	
Barium	X
Cadmium	X
Chromium	X
Copper	X
Mercury	X
Nickel	X
Lead	X
Selenium	X
Silver	X
Zinc	X
RADIONUCLIDES	
None Identified or expected	X

TABLE 2-3 SCOPE OF WORK			
This table describes the tasks to be performed during the VCA at TA-46-003(h). The anticipated dates/duration of work by month are presented for the task.			
Task ID	**Task Description**	**VCA**	**Dates**
Task 1 Site Prep.	This task involves the set up and removal of site control boundaries, equipment and supplies.		
Task 2 Remediation	This task involves the use of a vacuum excavation system and/or shovels to excavate the contaminated soil. The IH and Rad monitoring requirements specified in Section 6 of this SSHASP shall be performed during this task.		
Task 3 Field Screening and Confirmation Sampling	This task involves the collection of soil samples for analysis with an XRF portable detector and collection of confirmation samples for off-site analysis. The IH and Rad monitoring shall be conducted as a precautionary step. Radiological contamination was not determined to occur at this PRS. Specific monitoring as specified in Section 6 of this SSHASP shall be performed during this task.		**August 1996 Through September 1996**
Task 4 Decon.	This task involves the use of water and soap solution to decontaminate personnel, vacuum and environmental monitoring equipment (EME), and hand tools used in the exclusion zone as specified in Section 6 of this SSHASP. The IH monitoring requirements specified in Section 6 of this SSHASP shall be performed during this task.		
Task 5 Restoration	This task involves the use of shovels and other hand tools to regrade and stabilize the excavated area.		
Task 6 Incident Response	This task involves the response to incidents that may occur as a result of the site remediation activities occurring at TA- 46. Incidents may include: Rendering first-aid/CPR, making appropriate notifications, using a fire extinguisher to fight incipient fires, evacuation, and assisting emergency care providers as necessary. Hazardous substance release and spill containment are not part of this task since release of hazardous substances is not expected.		

3.0 ORGANIZATION, RESPONSIBILITIES, AND AUTHORITY

Provided in this section are the key personnel having health and safety (HS) responsibilities for this project in accordance with Section 3 of the HASP. Definition of HS roles, responsibilities, authorities, and lines of communication for key personnel identified in Table 3-1 are defined in Section 3 of the HASP.

TABLE 3-1
KEY PERSONNEL HAVING HS RESPONSIBILITY

This table provides the title, name organization and phone/pager number for each of the key personnel having health and safety (HS) responsibilities for the VCA at TA-46-003(h)

FACILITY CONTACTS			
TA 46 Facility Rep.	Greg Rand	LANL	667-0615
FIELD PROJECT MANAGEMENT			
Field Project Leader (FPL)	Brad Martin	LANL	667-6080
Alternate FPL	Roy Michelotti	LANL	665-7444
Field Team Manager	Lynn Kidman	ICF	661-5227
FIELD TEAM MEMBERS			
Field Team Leader (FTL)	Linda Fluk	ICF	661-5229
SSO level II (minimum)	Dave Dixson (level III)	MK	662-7300
RSP	Dave Dixson	MK	
SUPPORT PERSONNEL			
ESH-5 Rep.	Bill Brazile	LANL	665-5128
ESH-1 Rep.	Marty Peifer	LANL	667-0083
Subcont. HS/Mgt. Rep.	Ivan Wachler	ICF	661-5211
Subcont. HS/Mgt. Rep.	Clark Judy	MK	662-7300
ALTERNATE PERSONNEL			
SSO	Ken McFadden (level III) Jim Ringwall (level III)	MK	662-7300
Health Physics Support	Rich Baker (RCT)	ICF	661-5217

4.0 HAZARD ANALYSIS

Provided in this section are the task-specific hazard analysis information and requirements for this project in accordance with Section 4 of the HASP. The project personnel, by role, expected to perform the tasks identified in Table 2-3, are identified in Table 4-1. Substances having a hazard assessment resulting in either "possibly could occur", "probably will occur", or "likely to occur" and which are expected to result in injury or illness having a hazard severity of "minor", "major", or "catastrophic" are considered to pose an occupational health threat to personnel who may be exposed to these substances, and are included in Table 4-2. The hazard assessment and administrative and engineering controls for the safety hazards and health concerns and the most hazardous substances are identified in Table 4-3.

TABLE 4-1
PROJECT PERSONNEL BY TASK

This table identifies the personnel, by role, who are expected to perform the task(s) indicated. The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response

	TASK(s)						
PERSONNEL ROLE	1	2	3	4	5	6	
FTL	X	X	X	X	X	X	
SSO (level II, or III)	X	X	X	X	X	X	
RSP		X	X	X	X		
HPT (or RCT)	HPT's (or an RCT) shall be required for "free release" surveys that may be needed if the Health Physics action levels listed in Table 6-2 are exceeded.						
Laborers	X	X	X	X	X	X	
Vacuum operator		X					

TABLE 4-2
HAZARDOUS SUBSTANCES OF OCCUPATIONAL HEALTH CONCERN

Not all chemical products used to accomplish these tasks or contaminants at the VCA pose an occupational health threat. A health hazard assessment of each chemical product and site contaminant identified in Table 2-2 was performed using the hazard assessment method provided in Appendix C of the HASP. The results of the health hazard assessment and associated rationales are provided in Appendix B

This table identifies those hazardous substances (i.e., chemical products and site contaminants) that are considered to pose an occupational health threat to personnel who may be exposed to these substances while performing the indicated tasks.

The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

(N = Negligible, MI = Minor)

Hazardous Chemical Products to be Used During Field Operations

The chemical products listed below are likely to be used, for the tasks indicated, onsite or at satellite locations where field support operations occur. MSDSs for each product brought on site shall be kept readily available to users of these products, and shall be shared with other employer's employees onsite who may be affected by the hazardous products in accordance with 29 CFR 1926.65(b)(1)(iv) and (v) and 1926.65(i) and Section 4.2.2.3 of the HASP. It is LANL's policy that whenever feasible a less toxic product should be substituted for a more toxic product, especially for products having a carcinogen constituent.

	TASK(s)						
HAZARDOUS SUBSTANCE	1	2	3	4	5	6	
CHEMICAL PRODUCTS							
CALIBRATION GASES	None of Occupational Health Concern (refer to Appendix B).						
FUELS/LUBRICANTS	None of Occupational Health Concern (refer to Appendix B).						
SITE CONTAMINANTS							
CHEMICALS							
Toluene	N	MI	MI	MI	N	N	
Bis(2-ethylhexyl)phthalate	N	N	N	N	N	N	
METALS							
Cadmium	N	MI	MI	MI	N	N	
Chromium	N	MI	MI	MI	N	N	
Copper	N	MI	MI	MI	N	N	
Mercury	N	MI	MI	MI	N	N	
Nickel	N	MI	MI	MI	N	N	
Lead	N	MI	MI	MI	N	N	
Silver	N	MI	MI	MI	N	N	
Zinc	N	MI	MI	MI	N	N	
RADIONUCLIDES							
None Noted at VCA	None of Occupational Health Concern since none detected in sample analysis.						

TABLE 4-3

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS

This table identifies those hazards expected to result in one of the hazard assessment ratings defined below and could pose an occupational health threat to workers performing the associated task(s). The hazard assessments and rationales are also indicated with the corresponding administrative and engineering controls for protection from and mitigation of the hazards. The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

Hazard	Task(s)	Hazard Assessment	Hazard Assessment Rationale	Administrative & Engineering Controls (Prevention/Mitigation Measures)
Safety Hazards and Health Concerns				
VACUUM EQUIPMENT OPERATION	EXCAVATION PERMIT REQUIRED for removing or assessing soils at depth ≥ 12 inches; A&E controls shall be implemented in accordance with applicable LANL excavation permit (per LANL AR 1-12) and as specified below; contact Field Unit HS Representative to initiate permit process			
Underground utilities elec./fire/explosion hazards	1, 2, and 3	Minor to serious	Hazard severity could be catastrophic and although unlikely to occur, possibly could occur	Estimated locations of utilities (e.g., sewer, telephone, gas, electric, water lines, etc.) shall be determined prior to vacuuming and/or shallow trenching. Notify utility owners of intended work and request they demarcate on ground surface location(s) of underground utilities; have a field team member accompany utility owner rep. to identify intended vacuum area and/or shallow trenching location(s) and to find out specifics of utility location(s).
Overhead elec. hazard	2	Negligible	Unlikely that mishap will occur since vacuum does not pose a likely contact with overhead electrical lines.	During stationery operations, minimum clearance between live lines and any part of the equipment or load: 10 ft for lines rated 50 kV; 10 ft + 0.4 in. for each 1 kV over 50 kV, or twice the length of line insulator, whichever is greater.
Pinch points	2	Moderate	Hazard severity likely to be irreversible injury and possibly could occur	Heavy equipment shall be inspected for engineering controls in compliance with applicable sections of Subpart O of 29 CFR 1926 and 1910
Physical Hazards and Health Concerns				
Electrocution	2	Minor	Unlikely that mishaps would occur. If mishap occurs irreversible harm would arise.	Take preventative measures and identify and correct deficiencies in accordance with Subpart K of 29 CFR 1926 and Section 4.2.2.1 and/or 4.2.2.8 of the HASP, as applicable.
Excessive Noise	2	Moderate to Serious	Possibly or probably could occur resulting in irreversible hearing loss	Whenever voice(s) must be raised to communicate between two or more persons located ≤ 3 feet of each other noise level likely exceeding PEL; conduct noise monitoring per Section 6; also refer to Section 4.2.2.7 of HASP for additional requirements

TABLE 4-3 (CONT.)

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS

The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

Hazard	Task(s)	Hazard Assessment	Hazard Assessment Rationale	Administrative & Engineering Controls (Prevention/Mitigation Measures)
Sanitation	All	Minor	Unsanitary working conditions could possibly pose "minor" injury/illness	Toilet and hand washing facilities at TA-46 will be used
Uneven terrain, slips, trips, falls	All	Minor	Uneven terrain, trip hazards and poor housekeeping could possibly pose "minor" injury/illness	Use caution and be observant while moving in areas of potential concern; minimize threat of slick surfaces; eliminate tripping hazards where appropriate; and practice good housekeeping.
Biological Hazards and Health Concerns				
General	All	Refer to Table 4 of the HASP for information concerning various general hazards associated with occupational exposure to toxic and/or hazardous biological agents.		
Hanta Virus	All	Negligible	Crew is not expected to work in areas that mice or rats inhabit. No visible signs of their presence has been observed.	Refer to Table 4 of the HASP.
Bloodborne Pathogens	6	Refer to Table 4 of the HASP.		
Chemical, Metal, and Radiological Hazards and Health Concerns				
CHEMICAL				
Calibration Gases	2, 3, 4, and 5	Negligible	See Appendix B	Calibration gases shall be used in ventilated area.
Fuels/Lubricants	2	Negligible		Flammable/Combustible materials shall be stored in accordance with 29 CFR 1926.152. Vacuum shall not be refueled while the engine is running or in a spark-, or flame-producing environment.
Airborne vapors from listed in Table 4-2	2, 3, 4,	Negligible to Minor		Compliance with 29 CFR 1926.55(b), 29 CFR 1926.57, and/or other applicable chemical-specific standard (Table 2 of the HASP).
METAL				
Airborne dust from metals listed in Table 4-2	2,3,4	Negligible to Minor	See Appendix B	Airborne dust shall be suppressed by application of a water-based mist, as necessary, to keep levels below action levels in Section 6.
RADIOLOGICAL				
No radiological concerns				

5.0 SITE CONTROLS

Provided in this section are the required site control measures for this project in accordance with Section 5 of the HASP. The control measures are specified in Table 5-1 for each task or group of tasks having different requirements. Since some zone or facility locations may change as site work progresses due to daily variability in site conditions and/or operations (e.g., wind or access), actual locations are to be explained to field team members by the SSO, or the FTL during daily HS tailgate meetings and documented in the logbook kept by the SSO.

TABLE 5-1

SITE CONTROL MEASURES

This table identifies the control measures to be implemented during the tasks specified. The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4-Decontamination; Task 5- Restoration; and Task 6- Incident Response.

	TASK(S)						
CONTROL MEASURES	1	2	3	4	5	6	
EXCLUSION ZONE (EZ)							
Not applicable	X					X	
Regulated Area		X	X	X	X		Per Table 3 of HASP.
Localized at work site		X	X	X	X		
Demarcated by cones, barrier tape, rope or similar material		X	X	X	X		Posting(s): Per Subpart G of 29 CFR 1926
Radiological Control Area (RCA)/ Radioactive Material Management Area (RMMA)	The level of radiological contamination is expected to be below the level for a RCA/RMMA. If the action levels in Table 6-1 for radiation are exceeded, appropriate postings will be established by ESH-1 per the LANL Standard "Radiological Postings", LS 107-02.0						
CONTAMINATION REDUCTION ZONE (CRZ)							
Not applicable	X					X	
Centralized location		X	X	X	X		
Demarcated by cones, barrier tape, rope or similar material		X	X	X	X		Posting(s): Per Subpart G of 29 CFR 1926.
RCA/ RMMA	The level of radiological contamination is expected to be below the level for a RCA/RMMA. If the action levels in Table 6-1 for radiation are exceeded, appropriate postings will be established by ESH-1 per the LANL Standard "Radiological Postings", LS 107-02.0.						
SUPPORT ZONE (SZ)							
Not applicable	X					X	
Localized at work site		X	X	X	X		
EQUIPMENT STAGING AREA							
Not applicable	X					X	
Located at work site in SZ		X					When vacuum is used.
Demarcation unnecessary			X	X	X		Posting(s): Per Subpart G of 29 CFR 1926.
EQUIPMENT DECON PAD/FACILITY							
Not applicable	X	X	X		X	X	
Located at work site EZ				X			Posting(s): Per Subpart G of 29 CFR 1926.
RCA/RMMA	The level of radiological contamination is expected to be below the level for a RCA/RMMA. If the action levels in Table 6-1 for radiation are exceeded, appropriate postings will be established by ESH-1 per the LANL Standard "Radiological Postings", LS 107-02.0						

TABLE 5-1 (Cont.)
SITE CONTROL MEASURES

The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

CONTROL MEASURES	TASK(S) 1	2	3	4	5	6	
TEMPORARY WASTE STORAGE AREA							
Not applicable	X				X	X	
Located onsite		X	X	X			
Demarcation unnecessary		X	X	X			Posting(s): Per Subpart G of 29 CFR 1926.
RCA/RMMA	The level of radiological contamination is expected to be below the level for a RCA/RMMA. If the action levels in Table 6-1 for radiation are exceeded, appropriate postings will be established by ESH-1 per the LANL Standard "Radiological Postings", LS 107-02.0.						
SUPPORT TRAILER(S)/VEHICLES							
Located at work site SZ	X	X	X	X	X	X	
Demarcation unnecessary	X	X	X	X	X	X	Posting(s): Per Subpart G of 29 CFR 1926.
MOBILE LABORATORY							
Not applicable	X	X	X	X	X	X	
HAND WASH FACILITY							
Not Applicable	X					X	
Located onsite in SZ		X	X	X	X		Posting(s): Per 29 CFR 1926.65 (n) or 1926.51 and Subpart G of 29 CFR 1926.
TOILET FACILITY							
Located at TA- 46	X	X	X	X	X	X	
CLOTHING CHANGE FACILITY							
Not applicable	X					X	
Located onsite in SZ		X	X	X	X		
Demarcation unnecessary		X	X	X	X		Posting(s): Per Subpart G of 29 CFR 1926
WIND DIRECTION INDICATOR(S)							
Not applicable	X					X	
Flag, ribbon, tape, or other suitable material		X	X	X	X		Located on-site where readily visible to field team members.

6.0 EXPOSURE MONITORING AND CORRESPONDING ACTIONS

This section specifies the requirements for exposure monitoring and corresponding actions for this project in accordance with section 6 of the HASP. Table 6-1 specifies the requirements for direct-reading instruments and Table 6-2 specifies the personal dosimetry requirements. Area sampling is not required for this project since no airborne hazardous substances are expected. In accordance with Section 6 and with the chemical-specific standards listed in Table 2 of the HASP, personnel exposure monitoring requirements, action levels, and the corresponding actions to be taken are specified in both tables for each task or group of tasks having different requirements.

TABLE 6-1

DIRECT-READING INSTRUMENT REQUIREMENTS

This table identifies the direct-reading instrument requirements based on the hazardous condition/substance present and the task being performed. The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

Hazardous Condition/ Substance	Task(s)	Instrument	Procedure	Location and Frequency of Monitoring	Action Level(s)	Response Action(s)	Action Level Rationale
HEALTH PHYSICS							
Radiation Gross a and gross-b/g cont. (specific radio-isotopes listed in Table 2-2)	2,3,4	b /g -Eberline ESP-1 with HP-260 probe or equiv. a -Ludlum 139 with air proportional probe or equiv.	Per LANL RadCon Manual and training	Intrusive activities: Ground surface prior to disturbance, and excavated soil/material Non-intrusive Activities: Ground surface near source (as applicable based on potential for soil contamination) Personnel: Prior to exiting EZ, CRZ Equipment: Prior to decon and for release	Background	Field team member trained in ESH-1 procedures performs surveys (soil, core, personnel, etc.) Intermittent ESH-1 coverage Large area swipes for a (2000 cm^2) counted using field alpha screening instrument; direct frisk for b/g	Standard levels set by ESH-1
					> Background a < 500 cpm/ probe area b/g < 5,000 cpm/ probe area	Notify ESH-1 of elevated readings Dedicated field team member trained in ESH-1 procedures performs surveys (soil, core, personnel, etc.) Increased intermittent ESH-1 coverage a swipes counted using Ludlum 2000 tray counter or equiv.; direct frisk for b/g	
					a > 500 cpm/ probe area b/g > 5,000 cpm/ probe area	Work may only proceed according to approved RWP and with full-time onsite ESH-1 technician (or equiv.) in accordance with Sections 3.2.4 and 3.3.4 of the HASP.	

TABLE 6-1 (Cont.)
DIRECT-READING INSTRUMENT REQUIREMENTS

The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

Hazardous Condition/ Substance	Task(s)	Instrument	Procedure	Location and Frequency of Monitoring	Action Level(s)	Response Action(s)	Action Level Rationale
PHYSICAL CONDITIONS							
Heat Stress	All	Ambient Temp. Monitor	ICF S&H-208	Worker heart rates at frequencies based on ambient temperature and PPE worn as specified in ICF S&H-208	Initial heart rate > 110 beats/min Rest heart rate > 80 beats/min	Implement work/rest regimen, provide shaded rest area, and replace lost body fluids.	Per ICF S&H-208
Noise	2	Noise level meter	ER Project Manual for Site HS Activities	Only monitor non-LANL employees; contact Field Unit HS Rep. if LANL employees need monitoring Noise measurements required when voice must be raised to communicate between two persons located £3 feet of each other; monitor hearing zone(s) of employees affected by excessive noise 1st day of occurrence & whenever operations change warranting monitoring: SLM - initial measurement and at 30 minute intervals while excessive noise condition persists	85 dBA (Non-LANL employees only) 80 dBA (Hearing Conservation Program - LANL employees only) 84 dBA (Hearing protection required - LANL employees only)	≥ Action Level: Implement appropriate engineering control(s) per Table 4-3; if unable to lower noise levels below AL, demarcate/post zones of excessive noise and limit access only to employees having sufficient hearing protection training, medical surveillance, and hearing protection per this SSHASP	OSHA 29 CFR 1910.95 for non-LANL employees Per DOE and LANL requirements for LANL employees
INDUSTRIAL HYGIENE (CHEMICALS/METALS)							
Total Airborne Dust	2,3,4	Mini-ram	ER Project Manual for Site HS Activities	Continuously near point of dust generation; periodically in employees' breathing zones, & downwind/ upwind as needed to characterize source/dispersion	2.5 mg/m^3 *Marlowe document calculation = 11.1 mg/m^3	≥ action level (AL) in employee breathing zone implement dust suppression methods to control dust levels below AL If unable to lower levels below AL, demarcate/post zones of excessive exposure and limit access only to employees having sufficient chemical-specific PPE, training, and medical surveillance per this SSHASP	Allows sufficient time to respond to elevated particulates

TABLE 6-1 (Cont.)

DIRECT-READING INSTRUMENT REQUIREMENTS

The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

INDUSTRIAL HYGIENE (CHEMICALS/METALS)

Hazardous Condition/ Substance	Task(s)	Instrument	Procedure	Location and Frequency of Monitoring	Action Level(s)	Response Action(s)	Action Level Rationale
Organic Vapors	2,3,4	PID-HNu with 11.7 eV probe.	ER Project Manual for Site HS Activities	Continuously near point(s) of vacuuming, ampling, periodically in employees' breathing zones, & downwind/upwind as needed to characterize source/dispersion	> 5 ppm at source > 1 ppm in breathing zone	Allow area(s) of concern to vent naturally or by implementing mechanical means per Table 4-3. If condition persists ≥ action level, further limit access to EZ to exposure monitoring personnel only and collect grab sample or use colorimetric tubes to try to identify specific compounds	Allows sufficient time to respond to elevated organic vapors

TABLE 6-2
PERSONAL DOSIMETRY REQUIREMENTS

This table specifies the personal dosimetry requirements based on the hazardous condition/substance present and the task being performed. The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

HEALTH PHYSICS (RADIATION)

Hazardous Substance/ Condition	Task(s)	Action Level(s)	Dosimetry Requirement	Action Level(s) Rationale
External Sources of Radiation Exposure	All		Monthly TLD Badge	

PHYSICAL CONDITIONS

Hazardous Condition	Task(s)	Procedure	Instrument/ Supplies	Action Level(s)	Action Level Rationale	Response Action(s)
Noise	In the hearing zone of employees incurring excessive noise levels per Table 6-1 monitoring	LANL ER Decommissioning Project H&S Activities Manual	Personal noise dosimeter(s)	Refer to Table 6-1		

7.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

This section provides the PPE requirements for this project in accordance with Section 7 of the HASP. The PPE specified in Table 7-1 are to be used only by personnel who are trained and qualified to use the equipment in accordance with Section 7 of the HASP and Section 10 of the HASP and SSHASP.

TABLE 7-1

PPE REQUIREMENTS

This table identifies the PPE to be used for each task or group of tasks having different requirements. The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

	TASK(s)						
PPE REQUIREMENTS	**1**	**2**	**3**	**4**	**5**	**6**	
Head	(Per 29 CFR 1910.135, ANSI Z89.1-1986, or Z89.2 for electrical shock protection).						
Cap				X	X	X	Is only recommended to keep the sun off face and head.
Hard Hat	X	X	X				
Eyes	(per 29 CFR 1910.133, ANSI Z87.1-1989)						
Safety Glasses	X	X	X	X	X	X	Sideshields required.
Face	(Per 29 CFR 1910.133, ANSI Z87.1-1989).						
None	X	X	X	X	X	X	
Body							
None							
Cotton coveralls	X	X	X	X	X	X	To be laundered.
Hands	(Per 29 CFR 1910.137 and 138, ASTM D 120-87).						
INNER GLOVES:							
None					X	X	
Latex or Vinyl	X	X	X	X			Disposable
OUTER GLOVES:							
None	X					X	
Nitrile (≥ 12" lgth & 0.01" thick)		X	X	X			Disposable - Nitrile outer gloves shall be worn by laborers, vacuum operator and any other individual who come in contact with chemical PCOCs
Cotton/Leather					X		Disposable - Requirement for cotton gloves may be waived the gloves hinder the safe operation of the vacuum.
Latex , Vinyl or Cotton		X	X	X			Disposable - Personnel in EZ/CRZ not contacting contaminants may wear latex, vinyl or cotton outer gloves
Feet	(per 29 CFR 1910.136, ANSI Z41-1991)						
Steel-toed work boots	X	X	X	X	X	X	
Ears	(per 29 CFR 1910.95, ANSI Z87.1-1989)						
None	X		X	X	X	X	
Plugs		X					27 NRR minimum

8.0 DECONTAMINATION

Provided in this section are the personnel and/or equipment decontamination requirements for this project in accordance with Section 8 of the HASP. TABLE 8-1 specifies the decontamination requirements for each task or group of tasks having different requirements. Decontamination rinsates shall be handled in accordance with the Site Specific Waste Management Plan.

TABLE 8-1
PERSONNEL AND EQUIPMENT DECONTAMINATION

This table identifies the personnel and equipment decontamination requirements for each task or group of tasks having different requirements. The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

DECON REQUIREMENTS	TASK(s) 1	2	3	4	5	6	
PERSONNEL AND VACUUM/ENVIRONMENTAL MONITORING EQUIPMENT (EME) OPTION 1 - STANDARD APPROACH LEVEL D							
Not Applicable							
Wash Soap	X	X	X	X	X	X	
Aqueous Rinse	X	X	X	X	X	X	
PPE to be Disposed	X	X	X	X	X	X	See Table 7-1 for disposable PPE
PPE to be Laundered	X	X	X	X	X		See Table 7-1 for launderable PPE
REMEDIATION EQUIPMENT (Per LANL-ER-SOP-1.08)							
Not Applicable	X		X	X	X		
Localized at Work Site in EZ		X					

9.0 EMERGENCY/INCIDENT ACTION PLAN

Provided in this section are the incident/emergency action requirements, equipment, and supplies for this project in accordance with section 9 of the HASP. Table 9-1 specifies the incident/emergency action requirements for each task or group of tasks having different requirements. Response to an incident or emergency shall occur according to Section 9 of the HASP and this section.

In the event of an incident or emergency, the FTL or SSO will function as the site emergency/incident coordinator, as necessary, and will arrange for immediate notification of LANL emergency response personnel to take control of the scene and/or arrange for immediate notification of appropriate authorities. Other key onsite incident/emergency response personnel are identified below. Only personnel who are trained and certified in accordance with Sections 7, 9, and 10 of the HASP and SSHASP are allowed to respond and use the equipment specified. Incident/emergency contacts and telephone numbers and a map indicating the route to the nearest hospital and medical clinic from TA-46 are included in Appendix D. Both these items shall be posted onsite where readily accessible to field team personnel. Site-specific muster areas shall be determined by the SSO prior to the start of field operations each day and shall be communicated to individuals onsite during the HS Tailgate meeting and as other individuals arrive at the site. Location(s) of muster areas may vary from day-to-day depending upon variable site operations and conditions, and shall be documented daily by the SSO or FTL.

Incidents such as a fire or explosion at one of the TA-46 facilities could require evacuation of the general technical areas. In case of an emergency, TA-46 officials can notify the field team by telephone or in person of any need to evacuate the work area. For ER work, in the event of an incident at the work site (e.g., injury or fire) the appropriate personnel listed in Appendix D shall be promptly notified by phone.

In the unlikely event of a radiological incident, proper notifications and reporting shall be made in accordance with LP107-01.0 "Notification and Reporting of Radiological Incidents."

TABLE 9-1

EMERGENCY/INCIDENT ACTION REQUIREMENTS

This table identifies the first-aid/CPR providers and the equipment available onsite to respond to on-site incidents/emergencies for each task or group of tasks having different requirements. The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

Contact ESH-1 Oversight RCT in the event of any incident or emergency

First-Aid/CPR Provider(s): Linda Fluk (FTL); Dave Dixson (SSO) as well as all alternate SSO's

	TASK(S)						
REQUIREMENTS	**1**	**2**	**3**	**4**	**5**	**6**	
COMMUNICATIONS							
Cellular phone and/or radio	X	X	X	X	X	X	
Air Horn(s), or vehicle horn if air horn is not readily available		X	X	X	X		One long blast means work crew is to evacuate the work area and gather at the muster area.
INCIDENT RESPONSE EQUIPMENT							
Eyewash Station	X	X	X	X	X	X	Located in the CRZ and inspected weekly and fluid change monthly
Industrial first-aid kit	X	X	X	X	X	X	The first-aid supplies shall be approved by ICF Kaiser Corporate Medical. The contents are to be checked weekly and resupplied by SSO or designee. Contents shall meet the *American National Standard Minimum Requirements for Industrial Unit-Type First Aid Kits* (ANSI Z 308.1-1978).
Bio. pathogen and waste disposal kit	X	X	X	X	X	X	This kit shall be kept in a weatherproof container. Contents are to be checked weekly and resupplied by SSO or delegate. Contents shall be approved by ICF Kaiser Corporate Medical.
FIRE FIGHTING EQUIPMENT							
Fire extinguisher	X	X	X	X	X	X	10 lb A:B:C

10.0 TRAINING

Provided in this section are the training requirements for this project in accordance with Section 10 of the HASP. The training requirements specified in Table 10-1 are listed by job title for each task or group of tasks having different requirements. Personnel shall be trained in accordance with and as specified below. Any exceptions or deviations from requirements of the HASP are noted below. Personnel performing the roles indicated below shall have completed and have current documentation of the training specified. The SSO or the FTL shall verify that personnel have met the training requirements prior to authorizing individuals to enter controlled zones of the work site.

TABLE 10-1
TRAINING REQUIREMENTS

This table identifies the personnel training requirements, by role, for each task or group of tasks having different requirements. The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

FPL = Field Project Leader; FTM = Field Team Manager; FTL = Field Team Leader; SSO = Site Safety Officer; RSP = Radiological Screening Personnel; LAB = Laborer; BHO= Vacuum Operator; HPT = Health Protection Technician; RCT = Radiological Control Technician.

R = Read training; C = Classroom training; F = Field training; AN = As needed per the HASP or applicable regulatory requirement; ER = Employer required

	Personnel Role								
Training Requirement	FPL	FTM	FTL	SSO	RSP	LAB	VHO	HPT	RCT
HASP	R	R	R	R	R	R	R	R	R
SSHASP	R	R	R	R	R	R	R	R	R
Pre- Job Start HS Briefing(per Section 10.1 of HASP)	For C	For C	For C	For C	For C	For C	For C	For C	For C
Daily HS Tailgate Mtgs(per Section 10.2 of HASP)	F	F	F	F	F	F	F	F	F
Conduct of Operations & Occurrence Reporting	R	R	R	R	R	R	R	R	R
Employee Commitment to Safety	ER	ER	ER	ER	ER	ER	ER	ER	ER
OSHA Rights & Responsibilities	R	R	R	R	R	R	R	R	R
Health Physics Checklist Indoctrination	C	C	C	C	C	C	AN	C	C
Rad. Worker II (LANL or equiv.)	C	C	C	C	C	C	AN	C	C
40 hr. HAZWOPER	C	C	C	C	C	C	AN	C	C
24 hr. HAZWOPER Supervised Fieldwork	F	F	F	F	F	F	AN	F	F
8 hr. HAZWOPER Annual Refresher	AN	AN	AN	AN	AN	AN	AN	AN	AN
8 hr. HAZWOPER Supervisor	AN	C	C	AN	AN	AN	AN	AN	AN
SSO (per Section 10.1.1.5 of the HASP)				F/C					
Employer's Hazard Communication Program	AN	AN	ER	ER	ER	ER	AN	ER	ER
Fire Extinguisher Use			C	C	C	C	C		
PPE (per Section 7.1 of HASP)			F/C	F/C	F/C	F/C	F/C	F/C	For C
Hearing Conservation (Section 4.2.2.7 of HASP)	AN	AN	AN	AN	AN	AN	AN	AN	F/C
Sanitation [29 CFR 1926.51]		R	R	R					
1st Aid (Amer. Red Cross or equiv.)		R	R	R					
CPR (Amer. Red Cross or equiv.)	Required for the First-Aid/CPR Provider(s) listed in Table 9-1, only.								
Bloodborne Pathogens (29 CFR 1910.1030	Required for the First-Aid/CPR Provider(s) listed in Table 9-1, only.								

11.0 MEDICAL SURVEILLANCE

Provided in this section are the medical surveillance requirements for this project which have been established in accordance with Section 11 of the HASP. The task specific medical surveillance requirements, provided in Table 11-1, were established based on the hazards present at each PRS's and the associated action levels and federal requirements.

TABLE 11-1
MEDICAL SURVEILLANCE REQUIREMENTS

This table identifies the medical surveillance requirements for each task identified in Table 2-3 based on the associated hazards, action levels and federal requirements. The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

Hazard	Task(s)	Action Level	Requirement
Hazardous Waste Operations	1,2, 3, 4, 5, and 6	Potential for exposure to hazardous substances or health hazards ≥ PELs or published exposure limits during HAZWOPER work	29 CFR 1926.65(f) 29 CFR 1910.120 (f)
Bloodborne Pathogens or Potentially Infectious Materials	6	Any occupational exposure	29 CFR 1910.1030(f)
Hearing Protection	2	≥ 85 dBA	29 CFR 1910.95(g)

12.0 QUALITY CONTROL & QUALITY ASSURANCE (QC/QA)

Provided in this section are the QC/QA requirements for this project in accordance with Section 12 of the HASP. The inspection requirements, provided in Table 12-1, were established based on the type of work being performed and the associated federal requirement(s). The FTL shall see that the inspections are conducted and documented, and that appropriate actions are taken and documented to rectify identified deficiencies, if any.

TABLE 12-1
INSPECTION REQUIREMENTS

This table identifies the inspection requirements based on the type of work being performed and the associated federal requirement(s). The inspector by title and the associated tasks are also identified. The identification of each task is as follows: Task 1- Site Preparation; Task 2-Site Remediation; Task 3- Field Screening and Confirmation Sampling; Task 4- Decontamination; Task 5- Restoration; and Task 6- Incident Response.

Inspection	Inspector	Task(s)
Job Site, Material and Equipment (in accordance with 29 CFR 1926.20(b)(2)	SSO or CP	All
General Sanitation (i.e., potable and non-potable water, toilets, washing facilities, eating and drinking areas, vermin control, and/or change rooms; in accordance with 29 CFR 1926.51)	SSO	All
Materials handling, storage, use and disposal (in accordance with 29 CFR 1926.250 and 252)	SSO	All
Signs, Signals and Barricades (in accordance with 29 CFR 1926.200)	SSO	All
PPE (Section 7 and 29 CFR 1926.95)	User	All
Incident/emergency response equipment (prior to each use and at least monthly)	SSO	6
Electrical Equipment	SSO	All
Tools - Hand and Power	User	All
Excavation and Trenches	SSO	All
Motor Vehicule and Mechanical Equipment	SSO/User	All
Fire extinguishers (per 29 CFR 1926.150(a) and (c)	SSO	6

CP = Competent Person

13.0 RECORDKEEPING

Provided in this section are the recordkeeping requirements for this project in accordance with Section 13 of the HASP. The HS records specified in Table 13-1 shall be completed in accordance with Section 13 of the HASP and kept onsite as indicated.

TABLE 13-1
RECORDKEEPING REQUIREMENTS

This table identifies the records/forms to be filled out and/or maintained by the SSO of designee. The requirement reference and the requirement for keeping the records/forms on site are also identified.

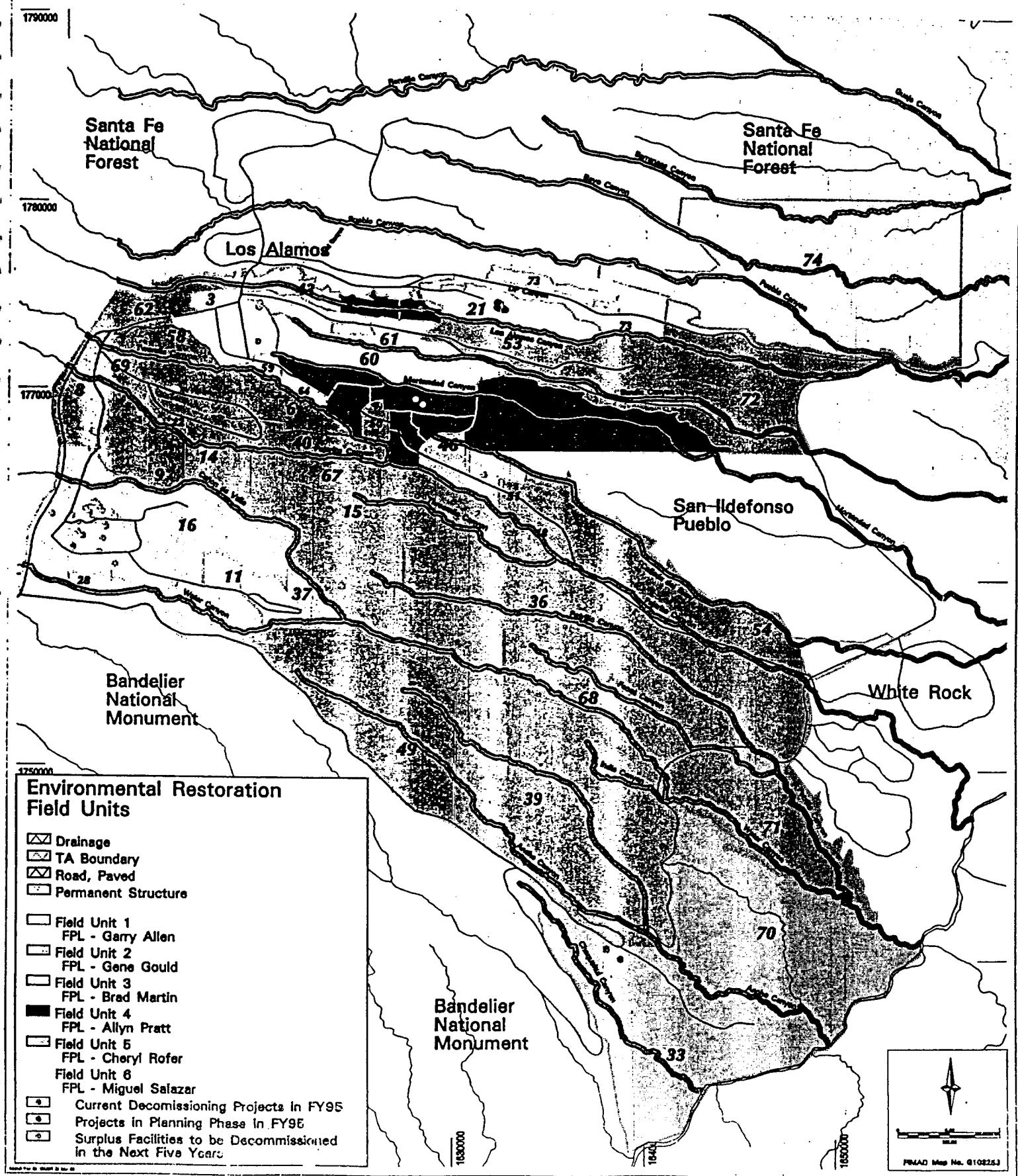
Record/Form	Requirement Reference	Keep Onsite
HASP	HASP Section 1	X
This SSHASP	HASP Section 1	X
Completed SSHASP Modification Forms	HASP Section 1	X
SSOs Daily Logbook	HASP Section 13.1	X
Equipment and Supplies Inspection Records	HASP Section 12.1	X
Documentation of Medical Surveillance	HASP Section 11	
Documentation of Training Requirements	HASP Section 10	
Daily Health and Safety Inspections Records	HASP Section 12.1	X
Documentation of Daily Calibration	HASP Section 6.0	X
Documentation of Equipment Maintenance	HASP Section 6.0	X
Guidance Manual for Exposure Limits	HASP Section 6.0	X
Operational Manuals for Monitoring Equipment	HASP Section 6.0	X
Required Excavation Permit	HASP Section 4.2.2	X
Direct-reading Monitoring Results	HASP Section 6 and Applicable Methods in the LANL ER Decommissioning Project H&S Activities Manual	X

APPENDIX A

MAP(S) OF SITE LOCATIONS,

ADJACENT FACILITIES

LOS ALAMOS NATIONAL LABORATORY



APPENDIX B

HAZARDOUS SUBSTANCE - HAZARD ASSESSMENT

APPENDIX B

HAZARDOUS SUBSTANCE - HAZARD ASSESSMENTAPPENDIX B HAZARDOUS SUBSTANCE - HAZARD ASSESSMENT			
This table includes a health hazard assessment, and associated rationales, of each chemical product and site contaminant listed in Table 2-1, which could pose an occupational health threat during the performance of the following tasks: TASK 1- Site Preparation; TASK 2-Site Remediation; TASK 3- Field Screening and Confirmation Sampling; TASK 4- Decontamination; TASK 5- Restoration; and Task 6- Incident Response.			
	Maximum Data[1]		
Substance	**Value (mg/kg)**	**Location**	**Hazard Assessment Rating/Rationale[2]**
CHEMICAL PRODUCTS USED			
Calibration Gases Isobutylene	N/A	46-003(h)	**Negligible** Only small quantities of compressed gases are used to calibrate monitoring equipment. Calibration will be conducted at remote location.
Fuels/Lubricants Gasoline Diesel Fuel Motor Oil Lubricants	N/A	46-003(h)	**Negligible** Only small quantities of Fuels/Lubricants are used to refuel and maintain heavy equipment. MSDSs shall be maintained on site for all chemical products.
CONTAMINANTS OF POTENTIAL CONCERN			
Chemicals (Sample Analysis) Toluene Bis(2-ethylhexyl)phthalate	 0.005 1.1	 46-003(h)	**Negligible to Minor** For tasks 1, 5, and 6, contact with chemicals and metals will be negligible since these tasks will not pose breathing zone exposure. For tasks 2, 3, and 4, negligible to minor illness possibly could occur but is unlikely to occur due to the vacuum system will be exhausting down wind and direct handling of soil in a breathing zone will be minimal. (Organics: Toluene : (Teratogen) 50 ppm TLV, 100 ppm PEL, and 150 ppm STEL). Bis(2-ethylhexyl)phthalate ; No PEL or STEL established. (Metals: Barium: 0.5 ppmTLV. Cadmium: (Carc.) .005 ppm PEL.. Chromium: (Carc.) 0.5 ppm PEL.. Copper: 0.1 ppm PEL. Mercury: (Poison) 0.1 ppm PEL. Nickel: (Carc.)).1 ppm PEL. Lead: (Carc.) .005 ppm PEL. Selenium: 1.1 ppm TLV Silver: 0.01 ppm PEL. Zinc (oxide):15 ppm. Action Level for Lead (Pb): 44,346 mg/m³ [2] Action Level Based on a cumulative dose of all metals: 11.16 mg/m³ [2]
Metals (Sample Analysis) Barium Cadmium Chromium Copper Mercury Nickel Lead Selenium Silver Zinc	 84.9 62.8 149 7640 12.2 70.3 902 1.1 62.5 1730	46-003(h)	
Radionuclides		46-003(h)	None detected

[1] RFI Work Plan for Operable Unit 1082, Environmental Restoration Program (LANL August 1993)

[2] Marlowe, C., Action Levels for Hazardous Waste Site Work. Camp, Dresser, and McKee , 1994.

APPENDIX C

CHEMICAL, PHYSICAL, AND TOXICOLOGICAL REFERENCE MATERIALS

CHEMICAL, PHYSICAL, AND TOXICOLOGICAL REFERENCE MATERIALS

The following physical, chemical, and toxicological reference materials shall be maintained on-site:

1. *NIOSH Pocket Guide to Chemical Hazards.*

2. *ACGIH Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.*

3. *HNu Photoionization Detector Guidance Information*

4. *Quick Selection Guide to Chemical Protective Clothing*

APPENDIX D

EMERGENCY CONTACTS

AND

ROUTE(S) TO MEDICAL SERVICES

EMERGENCY CONTACTS AND PHONE NUMBERS

(post on-site in Support Zone)

MEDICAL EMERGENCY/FIRE:

Los Alamos Fire Dept. .....LANL phone: **911** Cellular phone: **667-7080**

HAZARDOUS RELEASE/SPILL:

EM&R (FSS-20).....**667-6211**

LANL Occupational Medicine Clinic (ESH-2).....**667-0660**

Los Alamos Medical Center Hospital.....**662-4201**

Security OS/Pro Force **667-6534**

Los Alamos Police.....**662-8224**

LANL Health and Safety - ESH-5.....**665-7221**

LANL Radiation - ESH-1.....**667-7137**

TA-46/Facility Rep.: ***[Greg Rand]***.....**667-0615**

FPL: ***[Brad Martin]***.....**667-6080**

Alternate FPL: ***[Roy Michelotti]***.....**665-7444**

FTM: ***[Lynn Kidman]***.....**661-5227**

FTL: ***[Linda Fluk]***.....**661-5229**

Field Unit HS Rep.: ***[Bill Brazile]***.....**665-5128/104-6845 (Pager)**

ESH-1 Oversight RCT.: ***[Marty Peifer]***.....**667-0083/104-6649 (Pager)**

Management Contacts:

Employer: ICF Kaiser — Contact: Ivan Wachler, 661-5211

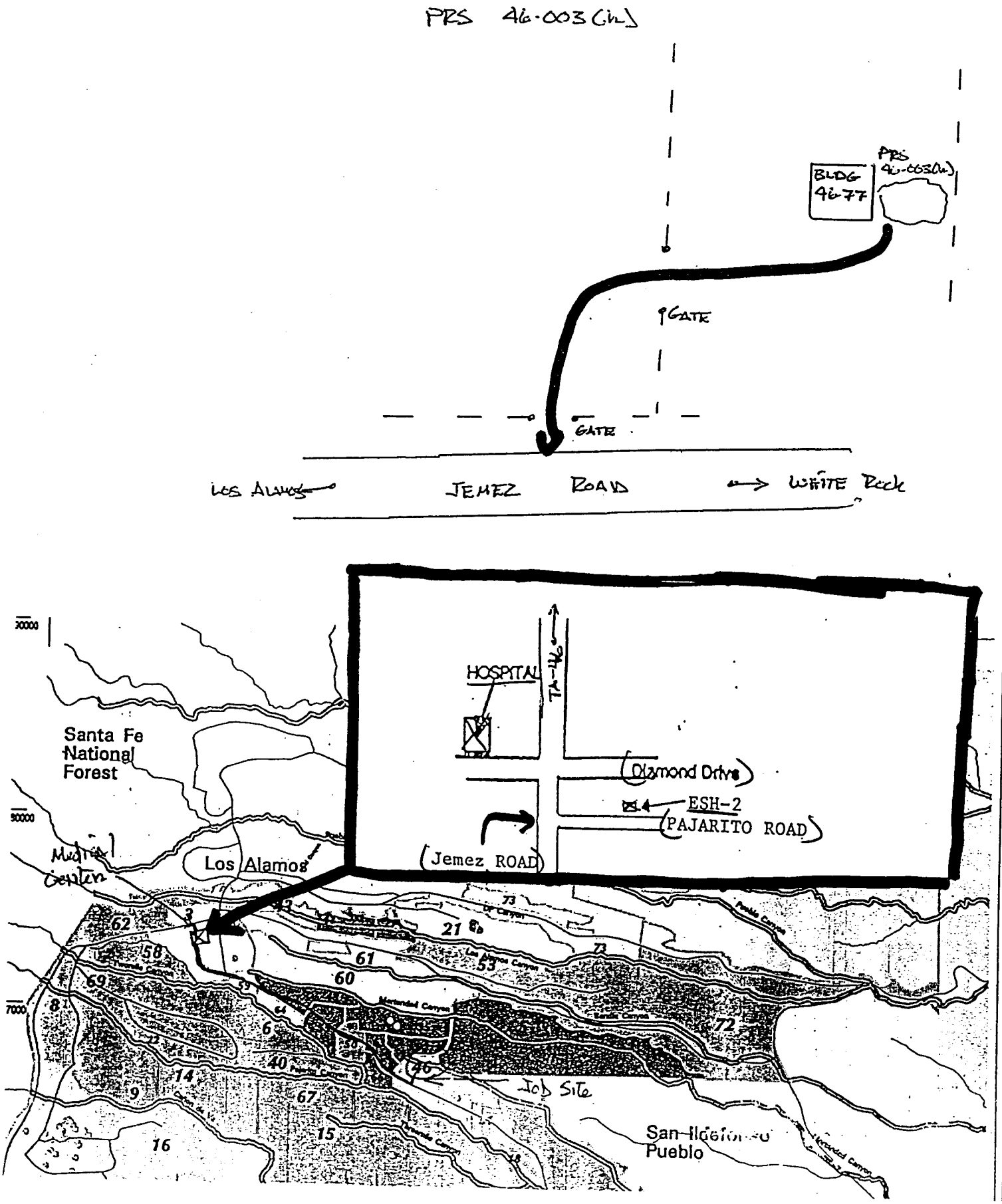
Employer: Morrison Knudsen — Contact: Clark Judy, 662-7300

EMERGENCY REPORTING INFORMATION:

When calling for emergency services, have the following information available to report:

- Site name/location/phone #
- Caller ID
- Nature of emergency
- Number of personnel involved
- Name and condition of affected employees
- Actions taken and assistance required

LOS ALAMOS NATIONAL LABORATORY



APPENDIX E

HAZARDOUS SUBSTANCES

EXPOSURE

CALCULATIONS

ACTION LEVEL EXPOSURE LIMIT CALCULATION

FOR

46-003(H)

	Ag	Ba	Cd	Cu	Cr	Hg	Ni	Pb	Se	Zn
Analytical Conc. (mg/kg)	62.5	84.9	62.8	7640	149	12.2	70.3	902	1.1	1130
Exposure Limit (mg/m3)	0.01	0.5	0.005	0.1	0.5	0.1	1	0.005	0.2	15
Sub Totals:	0.625	42	0.314	764	75	1.22	70.3	4.41	0.22	16950

Total: 17980

Calculation:

$$\frac{10^6}{\text{Total x Safety Factor}} \qquad \frac{10^6}{(17908 \times 5)} = 11.16\ \text{mg/m}^3$$

[Safety Factor Range: 1-10]

	Pb
Analytical Conc. (mg/kg)	902
Exposure Limit (mg/m3)	0.005
Sub Totals(mg/kg):	4.41

Total(mg/kg): 4.41

Calculation:

$$\frac{10^6}{\text{Total x Safety Factor}} \qquad \frac{10^6}{(4.41 \times 5)} = 44{,}436\ \text{mg/m}^3$$

[Safety Factor Range: 1-10]