

TAC

MEMORANDUM

ERM/GOLDER Los Alamos Project Team

To: Ron Kern, NMED

From: Andrew J. Crowder *AJC*

Date: 12 April, 1996

Subject: TRANSMITTAL OF CONFIRMATORY SAMPLING PLAN AND
SITE SPECIFIC HEALTH AND SAFETY PLAN FOR PRS 0-016

Attached please find the *Sampling and Analysis Plan for Confirmation/ Verification Sampling and Department of Transportation Compliance Sampling* and the *Site-Specific Health and Safety Plan for PRS 0-016, Inactive Small-Arms Firing Range*, as you requested.

Refer to *Section 2.2* of the sampling plan for the range floor confirmation/ verification sampling method and approach.

Cc: Garry Allen, CST-18, w/out attachment
Bonnie Koch, DOE/LAAO, w/out attachment
Carl Newton, EES-3, w/out attachment
John Williams, ERM/Golder, w/out attachment



6837

**LOS ALAMOS NATIONAL LABORATORY
ENVIRONMENTAL RESTORATION PROJECT
SAMPLING AND ANALYSIS PLAN**

for

**CONFIRMATION/VERIFICATION SAMPLING AND
DEPARTMENT OF TRANSPORTATION COMPLIANCE SAMPLING**

at

**SOLID WASTE MANAGEMENT UNIT
0-016, INACTIVE SMALL-ARMS FIRING RANGE**

8 April, 1996
Revision 1

**SAMPLING AND ANALYSIS PLAN
for
CONFIRMATION/VERIFICATION SAMPLING AND
DEPARTMENT OF TRANSPORTATION COMPLIANCE SAMPLING
at
SOLID WASTE MANAGEMENT UNIT
0-016, INACTIVE SMALL-ARMS FIRING RANGE**


Prepared By: Andrew J. Crowder, Task Manager 08-APR-96
Date

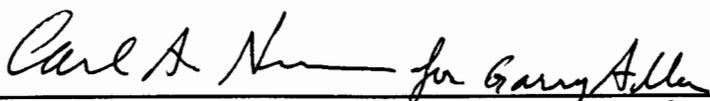

Approved By: Garry Allen, Field Project Leader 9 April 96
Date

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1.0 INTRODUCTION

This plan addresses the requirements for verification sampling and analysis of the firing range floor and site drainages at PRS 0-016 (Inactive Firing Range), and pre-shipment sampling and analysis of the lead-contaminated soil for determination of Department of Transportation (DOT) requirements.

2.0 SAMPLING AND ANALYSIS PROCEDURES

2.1 DOT Sampling and Analysis Requirements

Per 49 CFR 172.101, the reportable quantity (RQ) for lead is 10 pounds of the metal having a diameter smaller than 100 micrometers (0.004 inches). To evaluate whether the lead-contaminated soil at PRS 0-016 would fall into an RQ category, the following sampling and analysis procedures shall be followed.

2.1.1 Sampling

Twelve composite samples will be randomly collected from the lead-contaminated soil stockpiles. Five grab samples will be randomly collected from each of the 12 grids identified in Figure 1 and composited. Each grab will be collected with a 4 ounce plastic scoop and composited in a 1-gallon resealable plastic bag. Sampling is equally as important as the testing, and the sampler shall use every precaution to obtain samples that will show the nature and condition of the materials which they represent. For sample grids located at the edge of the soil berm, sampling shall follow the guidance in ASTM Method D 75, "Standard Practice for Sampling Aggregates", under "Sampling from Stockpiles". This guidance states that samples should be made up of at least three increments taken from the top third, at the mid-point, and at the bottom third of the volume of the berm. The outer layer of the sampling area, which may have become segregated, should be removed and the sample taken from the material beneath. The 12 composite samples will be properly labeled and delivered to JCI/JENV under chain-of-custody (per LANL-ER-SOP-01.04, "Sample Control and Field Documentation"), for particle size distribution and XRF screening for lead.

2.1.2 Sample Size Reduction

If it is necessary to reduce the sample obtained in the field to a convenient size for conducting testing, ASTM Method C 702, "Standard Practice for Reducing Field Samples of Aggregate to Testing Size", will be followed. Failure to carefully follow the procedures in this practice could result in providing a non-representative sample to be used in subsequent testing. All field sample reduction procedures shall be performed in a laboratory facility, not at the sampling site. All sample residue shall be returned to the samplers (ERM/Golder) for placement back on the soil berm at PRS 0-016.

Sampling Plan

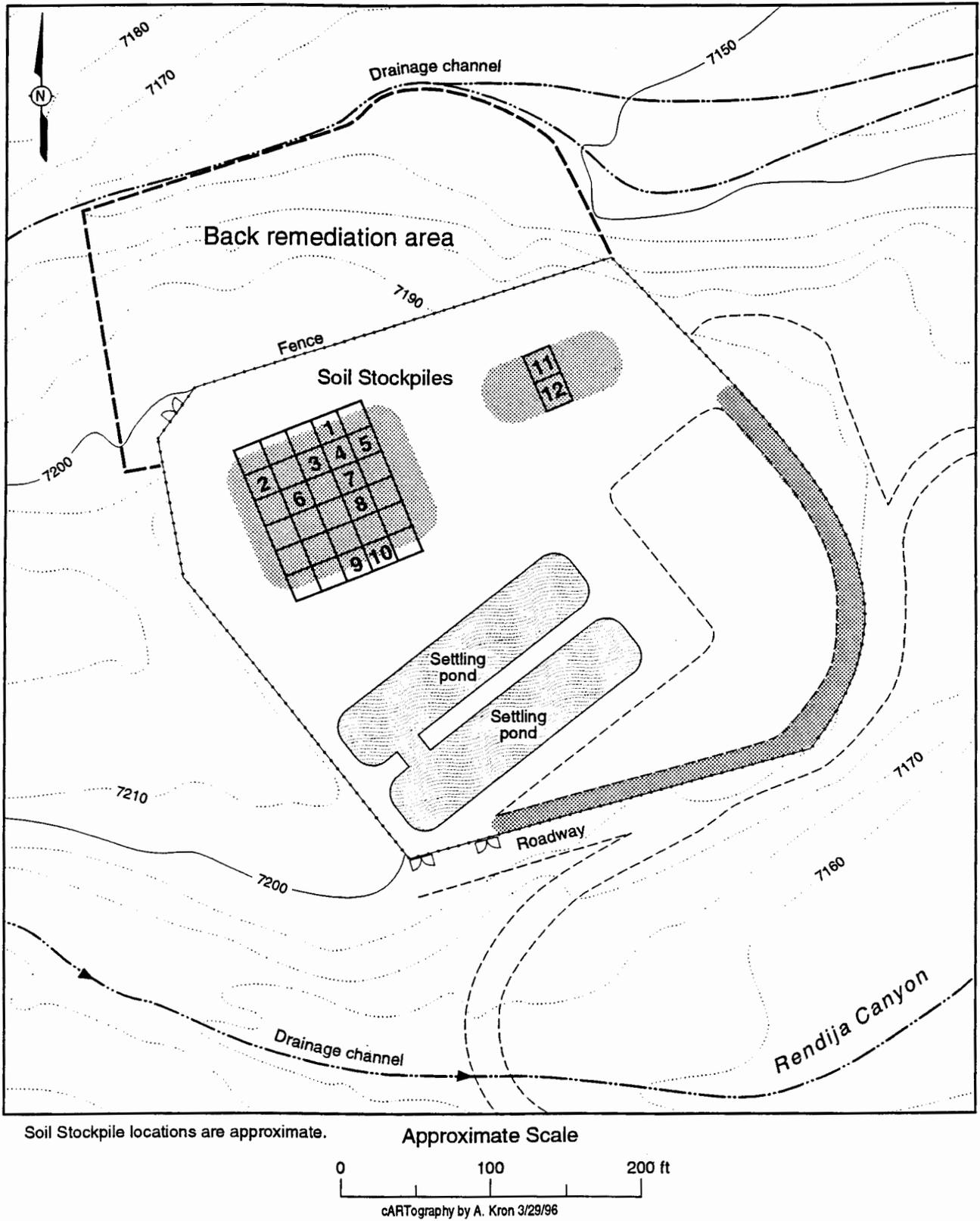


Figure 1. Sampling grids for determination of DOT shipping requirements, PRS 0-016.

2.1.3 Particle Size Distribution

The 12 composite samples will be sieved per ASTM Method C 136, "Standard Method for Sieve Analysis of Fine and Coarse Aggregates", following LANL-ER-SOP-11.02, "Particle Size Distribution of Soil/Rock Samples", to determine the weight of lead (less than 100 microns in diameter) in each sample. These values, together with XRF lead screening, will be used to determine the average weight of lead (less than 100 microns in diameter) in a shipment of lead-contaminated soil from PRS 0-016. This determination will dictate shipping protocol for the 5000 cubic yards of soil to be transported to TA-72. All sample residue shall be returned to the samplers (ERM/Golder) for placement back on the soil berm at PRS 0-016.

2.1.4 XRF Screening

Following the sieve analysis, XRF screening will be conducted on the smallest fractions (less than 100 microns) in each of the 12 soil samples to determine the lead concentrations. To ensure representative samples are being screened, proper homogenization of each sample is necessary prior to lead XRF screening.

A duplicate will be collected from the first sample and screened for lead using XRF. If there is greater than 25% variance in the results of the two samples, the collection, preparation, and analysis will be re-examined for adherence to procedures, and another sample and duplicate (from the same site material) will be screened.

All applicable LANL ER procedures shall be followed during the screening process. All sample residue shall be returned to the samplers (ERM/Golder) for placement back on the soil berm at PRS 0-016.

2.2 Verification Sampling and Analysis

Following removal of the soil stockpiles containing bullets, samples will be collected from the firing range floor and from first-order drainages that originate on the site. If samples indicate the presence of lead concentrations above the cleanup level, the soils will be further excavated and added to the soil to be processed through the Shaker Plant, in accordance with the VCA Plan dated April 1996.

2.2.1 Range Floor Screening

Prior to final confirmation/verification sample collection, the range area will be screened using a metal detector and XRF to identify areas that may require further excavation to remove residual soil containing bullets and elevated lead concentrations. Excavation of surface soils that fail the metal detector survey, XRF screening, or final verification sampling will be performed by

scraping off the surface soil in 4 to 6-inch lifts. Soils scraped from the range floor will be processed through the Shaker Plant to remove the bullets and will be characterized by the same method as the stockpiled soil.

2.2.1.1 Metal Detector Survey

Metal detector screening will be conducted over the entire site and will serve as a guide for identifying soils on the range floor that may contain elevated concentrations of lead. A determination will be made based on the number of positive metal detector responses within a given area. If 22 or more positive metal detector responses are received within a 6-foot by 6-foot square, additional soil will be excavated from the range floor in that area. This decision value is based on the criteria used for remediation of the "back area" soils, and has proven to be an effective guide. Based on the correlation established between the number of metal detector responses in 6-foot by 6-foot square, and the total lead concentration of soils within that area, 22 metal detector responses would indicate a total lead concentration of 396 mg/kg, which is nearly equivalent to the SAL of 400 mg/kg. The cleanup level for the "back area" was 500 mg/kg (the SAL at that time) which corresponds with 29 metal detector responses.

2.2.1.2 XRF Screening

Following completion of the metal detector survey, the entire site will be sampled and screened for lead by XRF as a preliminary confirmation that soils on the range floor do not contain total lead concentrations above 400 ppm. XRF screening sample locations will be based on a grid with a 50-foot spacing projected over the entire site area as illustrated in Figure 2. One grab sample will be collected from the center of each of the 49 grid-spaces, and analyzed on-site by XRF. Grid sections that exhibit lead concentrations above 400 ppm will be further excavated and re-sampled until all soils containing elevated lead concentrations are removed. Samples will be collected following LANL-ER-SOP-06.09, "Spade and Scoop Method for Collection of Soil Samples".

2.2.2 Range Floor Confirmation/Verification Sampling and Analysis

Twenty discrete grab samples will be collected from the upper 6 inches of the firing range floor to confirm that all soils containing total lead concentrations above 400 ppm have been removed from the site. Sample locations will be determined through random selection of twenty points on a grid, with a 50-foot spacing, projected over the entire range area, as illustrated in Figure 3. For the purpose of acquiring a representative distribution of random sample locations, the site was divided into four distinct areas, or strata. The strata include the perimeter stratum, the pond stratum, the soil stockpile stratum, and the soil washing plant stratum. Each of these strata are distinct due to the types of activities associated with different portions of the site. A random

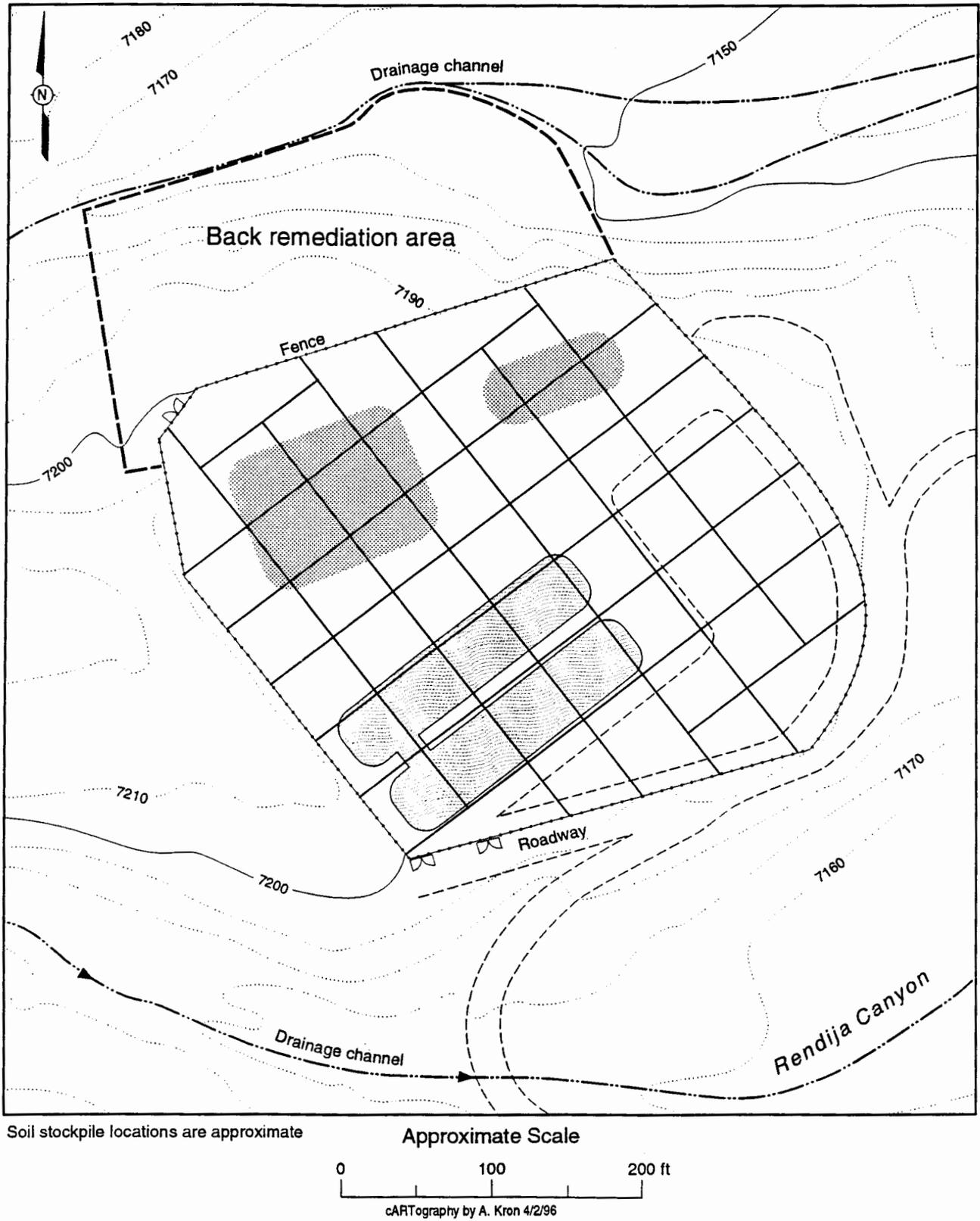
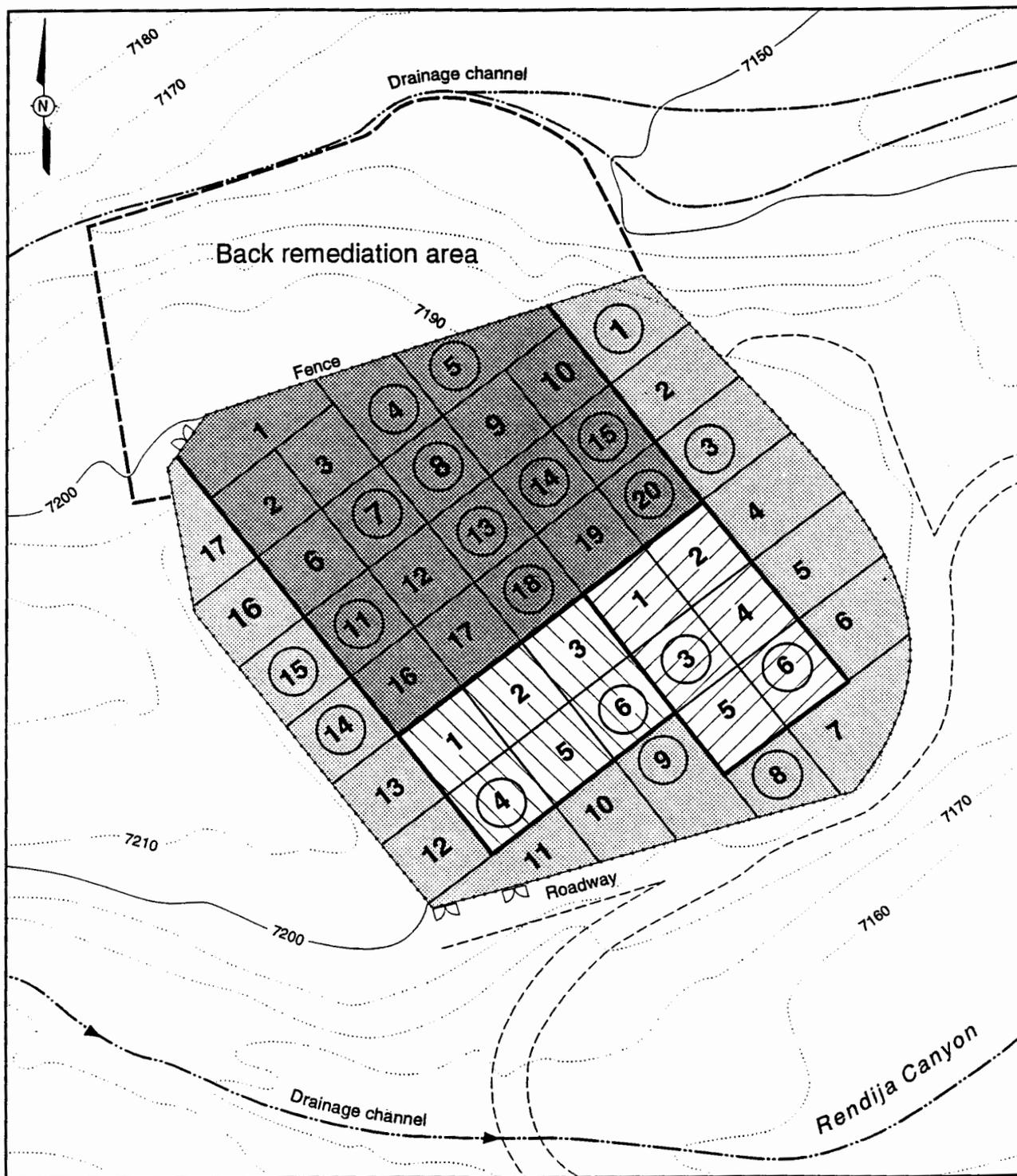
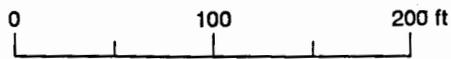


Figure 2. Sampling grids for XRF screening, PRS 0-016.



Approximate Scale



cARTography by A. Kron 4/2/96

LEGEND

-  Pond stratum
-  Soil stockpile stratum
-  Perimeter stratum
-  Soil washing plant stratum
-  ⑤ Circled grid numbers are randomly selected sample locations.

Figure 3. Final confirmation/verification sample locations, PRS 0-016.

selection of sample grid locations was performed for each stratum to ensure that all areas are sufficiently sampled for final confirmation/verification of VCA completion. If the site were treated as single stratum, there would be a potential for some areas to remain unsampled.

All verification samples will be properly containerized per LANL-ER-SOP-01.02, "Sample Containers and Preservation", and delivered to the LANL Sample Management Office (SMO) under chain-of-custody, in accordance with LANL-ER-SOP-01.04, "Sample Control and Field Documentation", for analysis of total recoverable lead, copper, and zinc by EPA SW-846 Method 6010.

Confirmation/verification samples will be analyzed by a LANL approved contract laboratory for total lead, copper, and zinc by EPA SW-846 Method 6010.

2.2.3 Drainage Sampling

Three discrete grab samples will be collected from the upper 6 inches of sediment in first-order drainages that capture the bulk of the surface water from the site. Locations of channel sediment samples will be determined in the field, based on examination of the surface-water drainage system. Samples will be analyzed by a LANL approved contract laboratory for total lead, copper, and zinc by EPA SW-846 Method 6010.

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

Project Title SWMU 0-016, Inactive Firing Range, Mechanical Sieving

TA(s) 0

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:

 IVAN WACHOB FU H&S REP, ESH-5 3/27/96
 Signature Name/Title Company Date

Field Unit Health and Safety (HS) Representative*

 Andrew Crowder, FTM/FTL ERM/Golder 3/27/96
 Signature Name/Title Company Date

FTM/DPL or FTL/JS (optional at discretion of FPL)

 CARL A. NEWTON EES-3/FU-1 3-27-96
 Signature Name/Title Company Date

Field Project Leader (FPL)

Concurrence by:

 JOHN L. WILLIAMS/wjw ERM/Golder 3/27/96
 Signature Name/Title Company Date

Subcontractor Management or HS Representative

 Signature Name/Title Company Date
 Subcontractor Management or HS Representative

**This plan was not reviewed by the FU 1 H&S Representative due to conflict of interest. It was reviewed by other ER/HS Team members.*

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

Joe Louck  ESH-5 3/27/96 K494 665-5669
 Plan Preparer Name/Signature Group Date Mailstop Phone

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LIST OF ACRONYMS and ABBREVIATIONS

ACGIH.....	American Conference of Governmental Industrial Hygienists
ALARA	As Low As Reasonably Achievable
AL	Action Level
ANSI.....	American National Standards Institute
APR.....	Air-Purifying Respirator
AR	Administrative Requirements
ATM.....	Atmosphere
°C.....	Degrees Centigrade
CFR.....	Code of Federal Regulations
CGI	Combustible Gas Indicator
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
DPL.....	Decommissioning Project Leader
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
°F	Degrees Fahrenheit
Fibers/cc.....	Fibers Per Cubic Centimeter
FID.....	Flame Ionization Detector
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
HEPA	High Efficiency Particulate Air
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
JS	Job Superintendent
LAMC	Los Alamos Medical Center
LANL	Los Alamos National Laboratory
LEL	Lower Explosive Limit
LP	Laboratory Procedure
mg/Kg	Micrograms Per Kilogram
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
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

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 scope of work 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 require a change to the terms or scope of a subcontract. Completion of a SSHASP modification form is not 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.

2.0 BACKGROUND INFORMATION

Project Title: SWMU 0-016, Inactive Firing Range, Mechanical Sieving
TA(s): 0
Objective: Removal of lead from lead containing soil through mechanical sieving
Classification of Work: VOLUNTARY CORRECTIVE ACTION (VCA)

**TABLE 2-1
SITE DESCRIPTION(S)**

DESCRIPTOR	SITE(s) SWMU 0-016
Characteristics	
Adjacent Facilities/Structures	
Roads/Highways	X
Topography	
Mesa Top	X
Pathways of Uncontrolled Release Dispersion	<i>[for land and water indicate direction, e.g., N, NE, etc.]</i>
Land	N,NE
Air	X
Water	N,NE
Emergency Accessibility	<i>[indicate "Y" or "N"]</i>
Land	Y
Air	Y
Water	N
Previous Onsite Facilities/Operations	
Firing Site	X
Previous ER Information and/or Data Available	
Knowledge of Process	X
Initial Scoping/Reconnaissance	X
Phase I	X
Analytical Data (screening)	X
Analytical Data (validated)	X
VCA	X
Remediation	X

DESCRIPTOR	SITE(s)
	SWMU 0-016
Previous Substances Used, Disposed, Detected or Suspected	
High Explosives (HE)	
Not applicable	X
Radionuclides	
Not applicable	X
Inorganics	
CORROSIVE ACIDS/BASES	
Not applicable	X
HALOGENS	
Not applicable	X
METALS	
Lead	X
MINERALS	
Silica/Quartz	X
Organics	
Not applicable	X
ALCOHOLS	
Not applicable	X
ALDEHYDES	
Not applicable	X
GASES	
Not applicable	X
HYDROCARBONS (Halogenated)	
Not applicable	X
HYDROCARBONS (Non-Halogenated)	
Not applicable	X
HYDROCARBONS (Petroleum Based)	
Not applicable	X
KETONES	

DESCRIPTOR	SITE(s)
	SWMU 0-016
Not applicable	X
PESTICIDES	
Not applicable	X
PCBs	
Not applicable	X
OTHER	
Not applicable	X

**TABLE 2-2
SCOPE OF WORK**

Task ID	Task Description	Site ID(s)	Anticipated Dates/Duration
Task 1 - Site Preparation	<p>This task will involve the installation of perimeter security fencing, mobile trailers, electrical power, telephone lines, and sanitation facilities. Associated subtasks include:</p> <p>1-A Heavy Equipment Operation: If required, the excavation subcontractor will smooth out the roads, fill in the ponds, and prep the equipment sieving area..</p>	SWMU 0-016	4/3 - 4/5/96
Task 2 - Site Remediation, Mechanical Sieving	<p>This task will involve the use of front-end loaders, a mechanical sieve, and dump trucks to remove lead from lead containing soils.</p> <p>2-A Mobilization/Demobilization: Set up and removal of site control boundaries, equipment, and supplies.</p> <p>2-B Soil Moving/Sieving: Front-end loaders and other earthmoving equipment will be used to remove stockpiled soil and deposit it in the sieve. Soils not yet stockpiled may be scraped up and added to the pile. Depending on analysis results, the once sieved material may be re-sieved. The clean soil will be deposited in dump trucks and reused as appropriate.</p> <p>2-C Soil Sampling: Soil sampling will occur throughout the project to determine and verify clean-up levels and clean-up locations. Soils will be analyzed by XRF.</p> <p>2-D Equipment Decontamination: At the end of the job, all equipment used on-site shall be rinsed and be visually clean of all dirt.</p>	SWMU 0-016	4/8 - 5/24/96
Task 3 - Site Monitoring	<p>Initial monitoring for lead and noise will be conducted during the first several days of operation.</p> <p>3-A Lead Monitoring: For the first three days a representative number of personal and area (hi-vols) samples will be obtained in order to make the initial determination. These samples will be collected and analyzed per NIOSH Method 7300. NOTE: Until an initial determination has been made, this site falls under all applicable sections of 29 CFR 1926.62. If the initial determination comes back positive, then this site will remain a lead site for the duration. If the initial determination is negative, then the site will be appropriately downgraded. If site conditions change or new tasks are added, a new determination shall be made.</p> <p>3-B Noise Monitoring: Noise screening will occur the first day of occurrence and whenever operations change warranting monitoring. Screening results will be used to determine the need for PPE and to set boundaries.</p>	SWMU 0-016	<p>Initially 4/8 - 5/12/96</p> <p>Additional monitoring as conditions warrant</p>

Task ID	Task Description	Site ID(s)	Anticipated Dates/Duration
Task 4 - On-Site Waste Management	<p>On-site coordination of waste management, including identification, handling, transport, and disposition of non-hazardous, potentially hazardous and hazardous wastes. This task will be accomplished according to the Waste Characterization Strategy Plan and may occur simultaneously as Tasks 2 or 3 are occurring. Associated subtasks include:</p> <p>4-A Containing and Labeling Wastes: Lead waste will be collected on plastic drop cloths and, either mechanically or by hand, be placed in appropriately labeled drums.</p> <p>4-B Transporting Waste Containers: Arrangements will be made to have the drums removed from the site and picked up by an appropriate recycling contractor.</p>	SWMU 0-016	4/8 - 6/7/96
Task 5 - Incident Response	<p>Response to an incident (i.e., rendering first-aid/CPR, hazardous substance release, fire, and spill containment) tasks will be performed as necessary and in accordance with Sections 7, 9 and 10 of the HASP and this SSHASP. This task includes the following subtasks:</p> <p>5-A First-aid/CPR</p> <p>5-B Fire Fighting</p> <p>5-C Incident Response <i>[in accordance with 29 CFR 1926.65(q)(6)(ii)]</i></p> <p>5-D Spill Containment <i>[in accordance with 29 CFR 1926.65(q)(6)(ii)]</i></p>	SWMU 0-016	4/3 - End of Project, as needed

3.0 ORGANIZATION, RESPONSIBILITIES, and AUTHORITY

Definition of HS roles, responsibilities, authorities, and lines of communication for key personnel identified below are defined in Section 3 of the HASP.

TABLE 3-1			
KEY PERSONNEL HAVING HS RESPONSIBILITY			
Title	Name	Organization	Phone/Pager
Field Project Management			
Field Project Leader (FPL)	Garry Allen	CST-18	667-3394
Alternate to FPL	Carl Newton	EES-3	665-9259 104-8207
Field Team Manager (FTM)	Andy Crowder	ERM/Golder	662-3700 820-4413
Field Team			
Field Team Leader (FTL)	Andy Crowder	ERM/Golder	662-3700 820-4413
Supervisor	Bill Parker	Paul Parker Construction	662-7456
Site Safety Officer (SSO)	TBD (Level 2)		
Support Personnel			
Field Unit HS Representative	Joe Louck	ESH-5	665-5669 104-6959
Subcontractor HS/Management Rep.	Paul Parker	Paul Parker Construction	662-7456
Subcontractor HS/Management Rep.	Kevin Hyde	ERM/Golder	662-3700
Alternate Personnel			
Alternate SSO	TBD (Level 2)		

Note: To access LANL pagers dial 665-9800

4.0 HAZARD ANALYSIS

Provided in this section are the task-specific hazard analysis information and requirements in accordance with Section 4 of the HASP.

4.1 PROJECT PERSONNEL

The personnel identified below by role are expected to perform the task(s) indicated.

PERSONNEL ROLE	TASK(s)				
	1	2	3	4	5
FPL [includes alternate]	AN	AN	AN	AN	AN
FTM	AN	AN	AN	AN	AN
FTL	AN	FT	AN	AN	AN
Supervisor <i>(Paul Parker Construction)</i>	AN	AN	AN	AN	AN
SSO	AN	FT	FT	AN	AN
Onsite Waste Manage- ment Coordinator	AN	AN	AN	AN	AN
Trenching/Excavation Competent Person	AN	AN			
Sampler		AN			
Laborer	AN	AN	AN	AN	AN
Heavy Equipment Operator	FT	FT		AN	

AN = As needed or as required by site conditions, activities being performed

FT = Full time, this person will be on-site full time during these tasks

Note: During site operations the FTL or the SSO shall be on-site at all times

4.2 HAZARDOUS SUBSTANCES OF OCCUPATIONAL HEALTH CONCERN

Not all chemical products used to accomplish a task or contaminants at a particular site may pose an occupational health threat. The hazardous substances of occupational health concern are identified in this section by task and by class of substance, in accordance with Section 4.1 of the HASP. Results of a health hazard assessment of each chemical product and site contaminant identified in Table 2-1 and associated rationales are provided in Appendix B. Substances that have 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 key to the hazard assessment ratings is provided below. The chemical, physical and toxicological properties for each hazardous chemical substance of occupational health concern are provided in Appendix C. For each class of substances included in Table 4-2, the most hazardous substance is identified in Table 4-3 together with corresponding administrative and engineering controls.

Key to hazard assessment ratings:				
Hazard Severity	Mishap Probability			
	Likely to Occur	Probably will Occur	Possibly could Occur	Unlikely to Occur
Catastrophic (i.e., death or life-threatening injury/illness from a single encounter)	Imminent	Imminent	Serious	Minor
Major (i.e., significant injury/illness resulting in irreversible harm)	Imminent	Serious	Moderate	Minor
Minor (i.e., injury or illness resulting in reversible harm - not likely to threaten mobility, vision)	Serious	Moderate	Minor	Negligible
Negligible	Minor	Minor	Negligible	Negligible

TABLE 4-2

HAZARDOUS SUBSTANCES OF OCCUPATIONAL HEALTH CONCERN

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 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.

HAZARDOUS SUBSTANCE	TASK(S)				
	1	2	3	4	5
Fuels/Lubricants (Petroleum-Based Hydrocarbons)					
Diesel	Min	Min		Min	
Gasoline	Min	Min		Min	
Oil	Min	Min		Min	
Site Contaminants					
METALS					
Lead	Mod	Mod	Mod	Mod	

4.3 HAZARD ASSESSMENT AND ADMINISTRATIVE AND ENGINEERING CONTROLS

Hazards included in this section are those 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 indicated below with the corresponding administrative and engineering controls for protection from and mitigation of the hazards. [Check the applicable hazards in the Table and fill in the corresponding blank boxes.]

Key to hazard assessment ratings:				
Hazard Severity	Mishap Probability			
	Likely to Occur	Probably will Occur	Possibly could Occur	Unlikely to Occur
Catastrophic (i.e., death or life-threatening injury/illness from one encounter)	Imminent	Imminent	Serious	Minor
Major (i.e., significant injury/illness resulting in irreversible harm)	Imminent	Serious	Moderate	Minor
Minor (i.e., injury or illness resulting in reversible harm - not likely to threaten mobility, vision)	Serious	Moderate	Minor	Negligible
Negligible	Minor	Minor	Negligible	Negligible

TABLE 4-3 HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS				
Hazard	Task(s)	Hazard Assessment	Hazard Assessment Rationale	Administrative & Engineering (A&E) Controls (Prevention/Mitigation Measures)
Safety Hazards and Health Concerns				
EXCAVATION/TRENCHING	PERMIT REQUIRED for excavating/trenching > 1 foot; 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			
General	1,2	Major, unlikely to occur = Minor	Site will be scaped down with heavy equipment. Trenches > 1 foot are not anticipated	No personnel entry into trench/excavation Inspections by a competent person shall be made prior to start of work, as needed throughout shift and after every rain storm or other hazard increasing occurrence (29 CFR 1926.651) Appropriate engineering controls shall be implemented in accordance with 29 CFR 1926.651 whenever the stability of a structure adjoining an excavation may be endangered Excavated materials (spoils) shall be kept at least 2 ft. away from edge of excavation

Hazard	Task(s)	Hazard Assessment	Hazard Assessment Rationale	Administrative & Engineering (A&E) Controls (Prevention/Mitigation Measures)
Underground utilities - elec./fire/explosion hazards	12	Major, unlikely to occur = Minor	No known utilities in the area of excavation activities. If trenching > 1 foot, implement excavation permit and engineering controls as per 29 CFR 1926.651.	<p>Estimated locations of utilities (i.e., sewer, telephone, gas, electric, water lines, etc.) shall be determined prior to excavating. 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 excavation location(s) and to find out specifics of utility location(s).</p> <p>If utility owner cannot establish exact location of utility installation(s), excavating may proceed with caution and provided detection equipment or other acceptable means to locate utility installation(s) are used.</p> <p>As excavating operations approach estimated location of underground utility, exact location of the installation shall be determined by safe and acceptable means (i.e., using hand held excavating equipment).</p> <p>While excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard site personnel</p>
DRILLING/HEAVY EQUIPMENT OPERATION				
General Controls	<p>Per DOE (Drilling Safety Manual, 1983 and Construction Safety Reference Guide, 1993), drilling rigs shall be designed, manufactured, erected, used, and maintained in accordance with appropriate American Petroleum Institute (API) Specifications and Recommended Practices, as a minimum, and with applicable sections of 29 CFR 1926.251, Subpart N of 29 CFR 1926, and Title 8 of the California Administrative Code (8 CAC).</p> <p>Hoists, hooks, wires, ropes, slings, and rigging accessories shall be designed, installed, operated, inspected, and tested in accordance with applicable requirements of the DOE Hoisting and Rigging Manual (April 1993, DOE/ID-10500), and with applicable sections of 29 CFR 1926.251 and Subpart N of 29 CFR 1926.</p> <p>There shall be no apparent damage, excessive wear, or deformation of any part of the drilling equipment. Equipment shall be inspected by a qualified person according to Section 12.1 and the frequencies indicated below. Defective equipment shall be removed from service and any defects shall be corrected or repaired before equipment is put into service. Records of each inspection shall be kept at the rig readily available for review. Reduction of original strength shall be noted and taken into account for determining when equipment shall be taken out of service.</p> <ul style="list-style-type: none"> - Rigs and masts shall be inspected at least weekly. - Hoists, hooks, wires, ropes, slings, and rigging accessories shall be inspected at the beginning of each shift in which they are to be used and as necessary during use to ensure safety. - Hoisting lines shall be inspected visually each day, and thoroughly at a minimum of 30-day intervals. - Guy wires in use shall be thoroughly inspected at least once a year. - Anchors shall be pull-tested along an angle approximating the wind-guy working plane within 12 months prior to use; test shall be made at poundage determined by anchor location <p>Each derrick or mast, and hoist shall be permanently marked with its rating capacity.</p> <p>Drill rigs must be leveled, anchored, and guyed in accordance with manufacturer's recommendations or where there are none, with API Specification 4E.</p> <p>Pressure-hose connections shall be secured with safety chains or clamped to prevent whipping in the event of a break.</p> <p>When engaged in work at a location 10 feet or more above the derrick floor or other working surface, the worker shall wear a safety belt with attached lanyard secured to the derrick, except during rig-up/rig-down when workers other than the rig operator shall stand clear. Safety belts, lifelines, and lanyards shall be used in accordance with 29 CFR 1926.104 and Section 7.</p>			

Hazard	Task(s)	Hazard Assessment	Hazard Assessment Rationale	Administrative & Engineering (A&E) Controls (Prevention/Mitigation Measures)
Pinch points in rotating parts	1,2,4-B	Major, unlikely to occur = Minor	Sieve does have the potential for multiple pinch hazards, however, personnel would have to physically enter the machine to access them.	Heavy equipment shall be inspected for engineering controls in compliance with applicable sections of Subparts O of 29 CFR 1926 and 29 CFR 1910 Barrier tape will be erected around the sieve to prevent personnel from accessing moving parts. Sieve shall be tagged out when maintenance is required.
Vehicle operation/ vehicular traffic accident	ALL	Major, unlikely to occur = Minor	As with all construction sites, the potential for a vehicular accident exists. Personnel shall not enter the heavy equipment operation area unless the operator is aware of their presence.	Field team personnel exposed to vehicular traffic shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material Heavy equipment shall be inspected for engineering controls in compliance with applicable sections of Subparts O of 29 CFR 1926 and 29 CFR 1910
WELDING/CUTTING/ BRAZING	PERMIT REQUIRED; A&E controls shall be implemented in accordance with applicable LANL special work permit (SWP) per Section 4.2.2.12 of the HASP and as specified below for spark/flame-producing operations; contact Field Unit HS Representative to initiate permit process Welding/Cutting/Brazing is not anticipated on the site. If it becomes necessary, a SSHASP modification with hazard assessment will be required.			
ELECTRICAL	PERMIT REQUIRED; A&E controls shall be implemented in accordance with applicable requirements of Sections 4.2.2.1 and/or 4.2.2.8 of the HASP and as specified below for lockout/tagout of energized equipment; contact Field Unit HS Representative to initiate permit process			
Electrocution - working with energized equipment (e.g., generator)	ALL	Major, unlikely to occur = Minor	The only electrical systems on site are associated with heavy equipment. These systems will be locked and tagged out before maintenance operations	Take preventative measures and identify and correct deficiencies in accordance with Subpart K of 29 CFR 1926 and Sections 4.2.2.1 and/or 4.2.2.8 of the HASP, as applicable
MISCELLANEOUS				
Sanitation	ALL	Minor, possibly could occur = Minor	Unsanitary work conditions could pose a minor threat.	Showers and change rooms shall be provided on-site in the CRZ or SZ, and used by field team members working within EZ or CRZ, whenever the duration of hazardous waste operations (under 29 CFR 1926.65) will last ≥ 6 months. Showers shall meet requirements of 29 CFR 1926.51(f)(4). Change rooms shall meet requirements of 29 CFR 1926.51(i) At least one toilet shall be provided on site for ≤ 20 field team personnel unless transportation is readily available to nearby off-site toilet facilities All personnel are required to wash hands and face at the end of the shift and prior to eating, drinking, smoking, or chewing tobacco
Uneven terrain, slips, trips, falls	ALL	Minor, possibly could occur = Minor	Minor slips and falls are always a possibility on a construction site. No steep slopes, no falls > 4 feet.	Use caution and be observant while moving in areas of potential concern; minimize threat of slick surfaces
Biological Hazards				
General	ALL	Minor	Snakes and insects are always present in the outdoors.	Refer to Table 1 of the HASP for information concerning various general hazards associated with occupational exposure to toxic and/or hazardous biological agents
Occupational Exposure to Bloodborne Pathogens	5	Catastrophic, unlikely to occur = Minor	Exposure to others body fluids can be life threatening, however, with proper training and equipment exposure can be minimized.	Refer to Table 1 and Section 4.2.2.2 of the HASP

Hazard	Task(s)	Hazard Assessment	Hazard Assessment Rationale	Administrative & Engineering (A&E) Controls (Prevention/Mitigation Measures)
Physical Health Hazards				
Excessive Noise	ALL	Minor, probably will occur = Moderate	Sieve machine is very loud. Noise monitoring will be used to set up boundaries, personal inside these boundaries shall wear hearing protection.	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
Chemical Health Hazards				
Chemical splashes - exposure to corrosives and/or substances toxic by skin absorption	1,2,4	Major, unlikely to occur = Minor	Slight possibility for fuels to splash in eyes during refueling	PPE (chemical protective clothing and/or eye/face protection) shall be used as specified in for Section 7 the corresponding task(s)/site(s) Portable emergency: Eyewash Emergency eyewash must be located within 10 seconds and not more than 100 feet of travel distance of any source of chemical splash that may be corrosive or moderately to severely irritating to body tissue. They must have a capacity to be able to provide continuous flushing for the duration of time necessary to sufficiently flush the most hazardous substance for which the device is being specified. They also shall be inspected and flushed at least weekly by the SSO or designee. Refer to ANSI Z358.1-1990 for further information.
Airborne Toxic Dust, Vapors, and/or Fumes - General	1,2,3,4	Moderate	Past personal monitoring done at this site under similar construction activities did not indicate an exposure issue. However, since the process has changed slightly we do not know the exact HA until a new determination has been done. Until this has been completed the site will be treated as a lead site with a HA = Moderate. Based on the analytical results, the hazard will be reassessed and downgraded, as appropriate.	First line of defense: implement engineering controls [e.g., local ventilation in accordance with 29 CFR 1926.55(b), 1926.57], and/or other applicable chemical-specific standard (Table 2 of the HASP) to limit airborne levels of contaminants to below action levels set in Section 6. Refer also to Section 6, 7 and Appendix C of this SSHASP and to Sections 6 and 7 of the HASP Other: Refer to 29 CFR 1926.62

5.0 SITE CONTROLS

In accordance with Section 5 of the HASP, the required site control measures are specified below for each task or group of tasks having different requirements. Any exceptions or deviations from requirements of the HASP are noted below. Site map(s) are provided in Appendix A to show where the following site control measures will be located. 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 or JS during daily HS tailgate meetings and documented in the logbook kept by the SSO.

TABLE 5 SITE CONTROL MEASURES	
CONTROL MEASURES	TASK(S)
	ALL
Exclusion Zone (EZ)	Per 29 CFR 1926.62
Localized at work site	X
Demarcated by:	
Barrier Tape	X
Fence	X
Posting(s): Other Chemical-Specific Standard (Table 2 of the HASP); Posting shall be in accordance with 29 CFR 1926.62	
Description(s): Until an initial determination has been made the following signage is required; "WARNING LEAD WORK AREA POISON NO SMOKING OR EATING"	
Contamination Reduction Zone (CRZ)	Until the initial negative determination has been made, a change room will be made available at the end of the support trailer.
Support Zone (SZ)	Per 29 CFR 1926.62
Localized at work site	X
Demarcated by:	
Other	The SZ is defined as any area outside the perimeter security fence
Equipment Staging Area	All equipment will be staged either in the SZ or the EZ. Contamination and/or cross-contamination are not issues at this site.
Equipment Decon Pad/Facility	It is not anticipated that equipment decon will be necessary at this site. If equipment becomes excessively dirty, they will be rinsed down at the east end of the site. Done at the discretion of the supervisor and SSO.
Temporary Waste Storage Area	
Located onsite	X
Demarcated by:	
Security Access	X

CONTROL MEASURES	TASK(s)
	ALL
Support Trailer(s)	
Located at work site in SZ	X
Access identified/limited by:	
Unnecessary	X
Mobile Laboratory	Samples will be analyzed in the support trailer by portable XRF or sent off-site
Located at work site SZ	X
Hand Wash Facility	Per 29 CFR 1926.62(i)(5); All employees must wash their hands and face prior to eating, drinking, smoking, or chewing tobacco and at the end of the shift
Located onsite in SZ	X
Toilet Facility	Per 29 CFR 1926.65(n)
Portable located onsite in SZ	X
Shower Facility	Per 29 CFR 1926.62 (d)(v)
Not applicable	Shower facilities are not required during the initial determination per 29 CFR 1926.62(d)(v), required if PEL is met or exceeded.
Clothing Change Facility	Per 29 CFR 1926.62(d)(v) and (i)(2)
Required for personnel decon	Refer to 29 CFR 1926.62(i)(2)
Located at work site SZ	X
Access identified/limited by:	
Unnecessary	X

6.0 EXPOSURE MONITORING AND CORRESPONDING ACTIONS

In accordance with Section 6 of the HASP, personnel exposure monitoring requirements, action levels, and the corresponding actions to be taken are specified in the tables in this section (Tables 6-1, 6-2, and 6-3) for each task or group of tasks having different requirements.

6.1 DIRECT-READING INSTRUMENTS

Requirements for exposure monitoring using direct-reading instruments and the corresponding action levels and response actions are specified in Table 6-1 for each task or group of tasks having different requirements, action levels or responses. These requirements, levels, and actions are set in accordance with Section 6 of the HASP. Any exceptions or deviations from requirements of the HASP are noted where applicable.

TABLE 6-1 DIRECT-READING INSTRUMENT REQUIREMENTS							
Hazardous Condition/ Substance	Task(s)	Instrument	Procedure	Location and Frequency of Monitoring	Action Level(s)	Response Action(s)	Action Level Rationale
HEALTH PHYSICS: NOT APPLICABLE							
PHYSICAL CONDITIONS							
Noise	1,2,3,4	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 \leq 3 feet of each other; monitor hearing zone(s) of employees affected by excessive noise 1st day of occurrence & whenever operations change warranting monitoring: 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)	\geq 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

Hazardous Condition/ Substance	Task(s)	Instrument	Procedure	Location and Frequency of Monitoring	Action Level(s)	Response Action(s)	Action Level Rationale
INDUSTRIAL HYGIENE (CHEMICALS)							
Total Airborne Dust	1,2,3,	Mini-ram MIE/PDM-3	ER Project Manual for Site HS Activities NIOSH and ACGIH Guide Books	Soil Sampling: Continuously near point of dust generation; periodically in employees' breathing zones, & downwind/ upwind as needed to characterize source/dispersion Excavation/Trenching: Continuously near point(s) of excavation; periodically in employees' breathing zones, & downwind/ upwind as needed to characterize source/dispersion	2.0 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	The OSHA PEL for total dust is 15 mg/m ³ , however, we must take lead into consideration. Thus far, the maximum amount of lead in soil has been 4100 mg/kg. Use of the Marlowe Equation gives a DAL of 2.0 mg/m ³ .

6.2 PERSONAL DOSIMETRY

Requirements for personal dosimetry and the corresponding action levels and response actions are specified in Table 6-2 for each task or group of tasks having different requirements, action levels or responses. These requirements, levels, and actions are set in accordance with Section 6 of the HASP and with the chemical-specific standards listed in Table 2 of the HASP. Any exceptions or deviations from requirements of the HASP are noted where applicable.

TABLE 6-2 PERSONAL DOSIMETRY REQUIREMENTS						
Hazardous Substance/ Condition	Task(s)	Action Level(s)	Dosimetry Requirement		Action Level(s) Rationale	
HEALTH PHYSICS (RADIATION)						
External Sources of Radiation Exposure	ALL	Potential to exceed 100 mREM/year dose limit	Monthly TLD Badge		10 CFR 835	
Hazardous Condition	Task(s)	Procedure	Instrument/ Supplies	Action Level(s)	Action Level Rationale	Response Action(s)
PHYSICAL CONDITIONS						
Noise	In the hearing zone of employees incurring excessive noise levels per Table 6-1 monitoring	ER Project Manual for Site HS Activities	Personal noise dosimeter(s)	Refer to Table 6-1		
INDUSTRIAL HYGIENE (CHEMICALS)						
Lead	2,3	29 CFR 1926.62 NIOSH 7300	Sampling method and cassette per NIOSH, personal air pumps, brand TBD	30 ug/m ³	This is the AL prescribed by OSHA	Sufficient personal samples will be obtained to make the initial determination as defined in 29 CFR 1926.62. If the AL is not approached, this site will be downgraded from a lead site. If the AL is met, then full compliance with the lead standard will be required.

6.3 AREA SAMPLING

Requirements for area sampling and the corresponding action levels and response actions are specified in Table 6-3 for each task or group of tasks having different requirements, action levels or responses. These requirements, levels, and actions are set in accordance with Section 6 of the HASP. Any exceptions or deviations from requirements of the HASP are noted where applicable. Note that the requirements of this table only pertain to occupational exposure monitoring. Environmental sampling requirements, if any, to evaluate spread of contamination to off-site locations should be provided in a site-specific document separate from this SSHASP.

TABLE 6-3 AREA SAMPLING REQUIREMENTS						
Hazardous Condition/ Task(s)	Task(s)	Instrument/ Supplies	Location and Duration of Monitoring	Sampling/ Analytical Method	Action Level(s)/ Rationale	Response Action(s)
INDUSTRIAL HYGIENE (CHEMICALS)						
Lead	1,2,3	Hi-Vol samples using either portable pumps (i.e., ALPHA) or giraffe pumps	Pumps will be set up on each side of the sieve for 3 complete shifts (6 samples total)	NIOSH 7300	OSHA prescribed AL of 30 ug/m ³	If AL is met or exceeded then full compliance with the lead standard required

7.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

In accordance with Section 7 of the HASP, PPE requirements are specified below for each task or group of tasks having different requirements. Only 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 are allowed to use the equipment specified. Any exceptions or deviations from requirements of these sections are noted below.

**TABLE 7
PERSONAL PROTECTIVE EQUIPMENT (PPE)**

PPE REQUIREMENTS	TASK(s)				
	1	2	3	4	5
Head	(per 29 CFR 1910.135, ANSI Z89.1-1986, or Z89.2 for electrical shock protection)				
Cap	Caps are recommended when working outside in areas where hard hats are not required				
Hard Hat	Hard hats shall be worn at all times while in the EZ				
Eyes	(per 29 CFR 1910.133, ANSI Z87.1-1989)				
Safety Glasses (with sideshields)	X	X	X	X	AR per BBP Standard
Chemical Goggles	Will be worn when refueling equipment/generators on-site				
Face	(per 29 CFR 1910.133, ANSI Z87.1-1989)				
Welding Helmet	No welding/cutting/brazing is anticipated. If these type operations are done, welding helmet required				
Body					
Coveralls	Until the initial determination has been made everyone entering the EZ is required to wear either disposable or cotton coveralls. These coveralls shall be removed at the end of each shift and stored apart from personnel's street clothes. If the determination is positive this practice will be required on an ongoing basis, if it is negative then this practice will be optional and no body protection will be required. See 29 CFR 1926.62(i)(2)				
WELDING:	No welding/cutting/brazing is anticipated, if these type operations are done appropriate body PPE will be required				
Hands	(per 29 CFR 1910.137 and 138, ASTM D 120-87)				
INNER GLOVES:					
None			X		
OUTER GLOVES:					
Cotton or Leather (As Needed)	X	X	X	X	
Feet	(per 29 CFR 1910.136, ANSI Z41-1991)				
SHOES OR BOOTS					
Steel-toed	X	X	X	X	X

PPE REQUIREMENTS	TASK(s)				
	1	2	3	4	5
COVERS:					
None	X	X	X	X	X
Ears	(per 29 CFR 1910.95, ANSI Z87.1-1989) As required by screening/monitoring results				
Plugs: NRR = 29	X	X	X		
Respiratory Protection	(per Section 7.1 of the HASP, 29 CFR 1910.134, and ANSI Z88.2-1992) Not applicable, do not anticipate exceeding action levels				
Fall Protection	(per 29 CFR 1926.20, 27(d)(5), 104, 105, 250(b)2, 451(i)(8) and (p)(9), 500(g)(1-6), 951(b)) Not applicable, no falls greater than 4 feet				
Miscellaneous	Not applicable				

8.0 DECONTAMINATION

In accordance with Section 8 of the HASP, personnel and/or equipment decontamination requirements are specified below for each task or group of tasks having different requirements. Any exceptions or deviations from Section 8 of the HASP are noted below.

TABLE 8 PERSONNEL AND EQUIPMENT DECONTAMINATION
--

Not applicable; rationale: Personnel decon is covered under hygiene practices (29 CFR 1926.62(i)(2), no EME to be deconned
--

Sampling and Heavy Equipment

Other Procedure: Heavy equipment will be deconned at the discretion of the SSO and Supervisor. If necessary the equipment will be taken to the east side of the site and rinsed off with water.

9.0 EMERGENCY/INCIDENT ACTION PLAN

Incident/emergency action requirements, equipment, and supplies are specified below 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. Any exceptions or deviations from requirements of the HASP are noted below.

In the event of an incident or emergency, the FTL or JS 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 each investigational site 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.

9.1 ADJACENT FACILITIES OF CONCERN

There are no facilities adjacent to SWMU 0-016 which pose a concern

TABLE 9 INCIDENT/EMERGENCY ACTION REQUIREMENTS

Incident Responders: All spills and incidents other than minor first-aid will be handled by EM&R and/or LAFD.
--

First-Aid/CPR Provider(s): TBD when SSO is selected
--

Note: This site is within 1/2 mile from LAFD Station 4. Station 4 has agreed to provide emergency response, therefore, having someone who is first-aid/CPR trained on-site at all times is not required. If a trained person is going to be on-site and has agreed to provide emergency help, then the following items must be kept on-site (Does not apply to communications equipment, which must always be on-site).

REQUIREMENTS	TASK(S)
	ALL
Communications	
Cellular phone	X
Air Horn(S)	X
Description of Air Horn Signals: Two blasts on the air horn means assemble in the SZ	
Hand/Body Signals	X
Description of Hand/Body Signals: Hands to the throat = Choking/Lack of air	
Incident Response Equipment	
Industrial first-aid kit ¹	X
Bio. pathogen and waste disposal kit ²	X
Antiseptic	X
Cold compress	X
Portable emergency eyewash ³ [specify type and capacity]	X
Transport Vehicle [Required if emergency medical attention not within 4 minutes response time]	X
Fire Fighting Equipment	
A:B:C fire extinguisher 20Lb	X
Spill Containment Equipment	There are no hazardous chemicals on-site which could pose a spill hazard. If the heavy equipment leaks hydraulic oil, it shall be parked on plastic and the oil scooped up and drummed.

- ¹ The first-aid supplies shall be approved by a consulting physician and be kept in a weatherproof container. 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 Z308.1-1978).
- ² This kit shall be kept in a weatherproof container. Contents are to be checked weekly and resupplied by SSO or deligate. Contents shall include at least the following: [specify]
- ³ Emergency eyewashes and showers must be located within 10 seconds travel time and not more than 100 feet of travel distance of any source of chemical splash that may be corrosive or moderately to severely irritating to body tissue. They must have a capacity to be able to provide continuous flushing for the duration of time necessary to sufficiently flush the most hazardous substance for which the device is being specified (usually minimum of 15 minutes and 16 gallon capacity). They also shall be inspected and flushed at least weekly by the SSO or designee. Refer to ANSI Z358.1-1990 for further information.

10.0 TRAINING

Training requirements are specified below by job title for each task or group of tasks having different requirements. Personnel shall be trained in accordance with Section 10 of the HASP 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 or JS, shall verify that personnel have met the training requirements prior to authorizing individuals to enter controlled zones of the work site.

**TABLE 10
TRAINING REQUIREMENTS**

(Sup = Supervisors; CP = Competent Person for that subject; R = Read training; C = Classroom training; F = Field training; AN = As needed per the HASP or applicable regulatory requirement depending upon the intended duties of the personnel role; ER = Employer required)

Applicable Task(s): ALL

Training Requirement	Personnel Role							
	FPL	FTM	FTL	Sup	SSO	Heavy Equip. Op	Laborer	Sampler
HASP	R	R	R	R	R	R	R	R
SSHASP	R	R	R	R	R	R	R	R
Pre- Job Start HS Briefing	F or C	F or C	F or C	F or C	F or C	F or C	F or C	F or C
Daily HS Tailgate Mtgs	F	F	F	F	F	F	F	F
General Employee Training (GET) - LANL provided only <i>[Required for anyone on site >10 consecutive work days]</i>	C	C	C	C	C	C	C	C
Employer's Hazard Communication Program <i>[29 CFR 1926.59(e)]</i>	C	C	C	C	C	C	C	C
Conduct of Operations & Occurrence Reporting	R	R	R	R	R	R	R	R
OSHA Rights & Responsibilities	R	R	R	R	R	R	R	R
Health Physics Checklist Indoctrination	AN	AN	AN	AN	AN	AN	AN	AN
40 hr. HAZWOPER	Recommended	Recommended	Recommended	Recommended	Recommended			
24 hr. Supervised Fieldwork	Recommended	Recommended	Recommended	Recommended	Recommended			

Training Requirement	Personnel Role							
	FPL	FTM	FTL	Sup	SSO	Heavy Equip. Op	Laborer	Sampler
8 hr. Annual Refresher	AN	AN	AN	AN	AN			
8 hr. HAZWOPER Supervisor	Recommended	Recommended	Recommended	Recommended	Recommended			
SSO					F/C			
1st Aid			Recommended		Recommended			
CPR			Recommended		Recommended			
First Responder Awareness Level			Recommended		Recommended			
PPE (per Section 7.1 of HASP)		F or C	F or C	F or C				
Fire Extinguisher Use [per 29 CFR 1926.150(c)(1)(xi)]			F or C		F or C			
Hearing Conservation [Per Section 4.2.2.7 of HASP]		AN/C	AN/C	AN/C	AN/C	AN/C	AN/C	AN/C
Sanitation [29 CFR 1926.51]		AN	R	R	R			
Materials Handling, Storage, Use, Disposal [29 CFR 1926.250 and 252]		AN	R	R	R	R		
Signs, Signals, Barricades [29 CFR 1926.200]		AN	R	R	R	R		
Traffic Flagging and Safety [29 CFR 1926.201]			R	R	R	R		
Tools - Hand and Power [29 CFR 1926.302(e)(1)]		AN	R	R	R	R	R	R
Excavation/Trenching Competent Person [29 CFR 1926.651(k)(1) and 32(f)]		AN/C or R	AN/C or R	AN/C or R	AN/C or R			
Electrical Safety Awareness [Subpart K of 29 CFR 1926]		AN/C or R	AN/C or R					
Lockout/Tagout (Booklet)		AN/C or R	AN/C or R					
Lockout/Tagout (Red) Control of Hazardous Energy Sources [per 29 CFR 1926.416(a)(4) and 417(a) and 32(m)]		AN/C	AN/C	AN/C	AN/C	AN/C	AN/C	

Training Requirement	Personnel Role							
	FPL	FTM	FTL	Sup	SSO	Heavy Equip. Op	Laborer	Sampler
Motor Vehicles, Mechanized Equipment, and/or Material Handling Equipment <i>[specify equip. type and training requirement per Subparts O and W of 29 CFR 1926]</i>		R	R	R	R	R		
Welding and Cutting <i>[29 CFR 1926.350(d) and 351(d) and 354(a)]</i>		AN/R	AN/R	AN/R	AN/R		AN/R	
Bloodborne Pathogens <i>[29 CFR 1910.1030]</i>			Recommended		Recommended			
Lead <i>[29 CFR 1926.62]</i>		C	C	C	C	C	C	C

11.0 MEDICAL SURVEILLANCE

The medical surveillance requirements of this section have been established in accordance with Section 11 of the HASP, unless noted otherwise below.

Hazard	Task(s)	Exposure Level Triggering Medical Surveillance Requirement	Requirement
Bloodborne Pathogens (Or Potentially Infectious Materials)	5	Any occupational exposure	29 CFR 1910.1030(f)
Hearing Protection	1,2,3,4	≥ 85 dBA	29 CFR 1910.95(g)
Lead	1,2,3,4	≥ 30 ug/m ³	29 CFR 1926.62(j)

12.0 QUALITY CONTROL & QUALITY ASSURANCE (QC/QA)

12.1 SITE INSPECTIONS

In accordance with Section 12 of the HASP, the FTL shall see that the following inspections are conducted and documented, and that appropriate actions are taken and documented to rectify identified deficiencies, if any.

TABLE 12 INSPECTION REQUIREMENTS		
Inspection	Inspector	Task(s)
Job Site, Material and Equipment (in accordance with 29 CFR 1926.20(b)(2))	SSO	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	1,2,4
Signs, Signals and Barricades (in accordance with 29 CFR 1926.200)	SSO	1,2
Motor vehicles and mechanized equip. (in accordance with Subpart O of 29 CFR 1926)	SSO, QP or CP as required	1,2,4
Material handling equipment (e.g., rubber-tired scraper, loader and dozers) equipped with rollover protective structures and overhead protection (in accordance with Subpart W of 29 CFR 1926)	QP or CP as required	1,2,4
Excavations/Trenches(per 29 CFR 1926.651(k))	QP or CP as required	AR
PPE (Section 7 and 29 CFR 1926.95)	User	All
Incident/emergency response equipment (prior to each use and at least monthly)	SSO	5
Fire fighting equipment (per 29 CFR 1926.150(a) and (c))	SSO	5
Tools - hand and power (in accordance with Subpart I of 29 CFR 1926)	User and SSO	1,2,3,4
Welding and cutting equipment (in accordance with Subpart J of 29 CFR 1926)	QP or CP as required	AR
Electrical equipment (per 29 CFR 1926.403(b) and/or 416(f)(8))	QP or CP as required	AR
QP = Qualified Person; CP = Competent Person (per 29 CFR 1926.32(f) or (m)); AR = As Required		

13.0 RECORDKEEPING

In addition to recordkeeping requirements of Section 13 of the HASP, the HS records specified below shall be completed in accordance with Section 13 of the HASP and kept onsite as indicated below.

Record/Form	Requirement Reference	Keep Onsite
HASP	HASP Section 1	X
This SSHASP	HASP Section 1	X
Completed Modification Forms	HASP Section 1	X
SSOs Daily Logbook	HASP Section 13.1	X
Documentation of Training Requirements	HASP Section 10	
Documentation of Medical Surveillance	HASP Section 11	
Exposure Monitoring Records	Section 6 of the HASP and applicable exposure monitoring methods in the ER Project <i>Manual for Site HS Activities</i>	X
HS Inspection Records	HASP Section 12.1	X
Negative Determination	29 CFR 1926.62	X

APPENDIX A

**MAP(S) OF SITE LOCATIONS,
ADJACENT FACILITIES
AND
SITE CONTROL ZONES/FACILITIES**

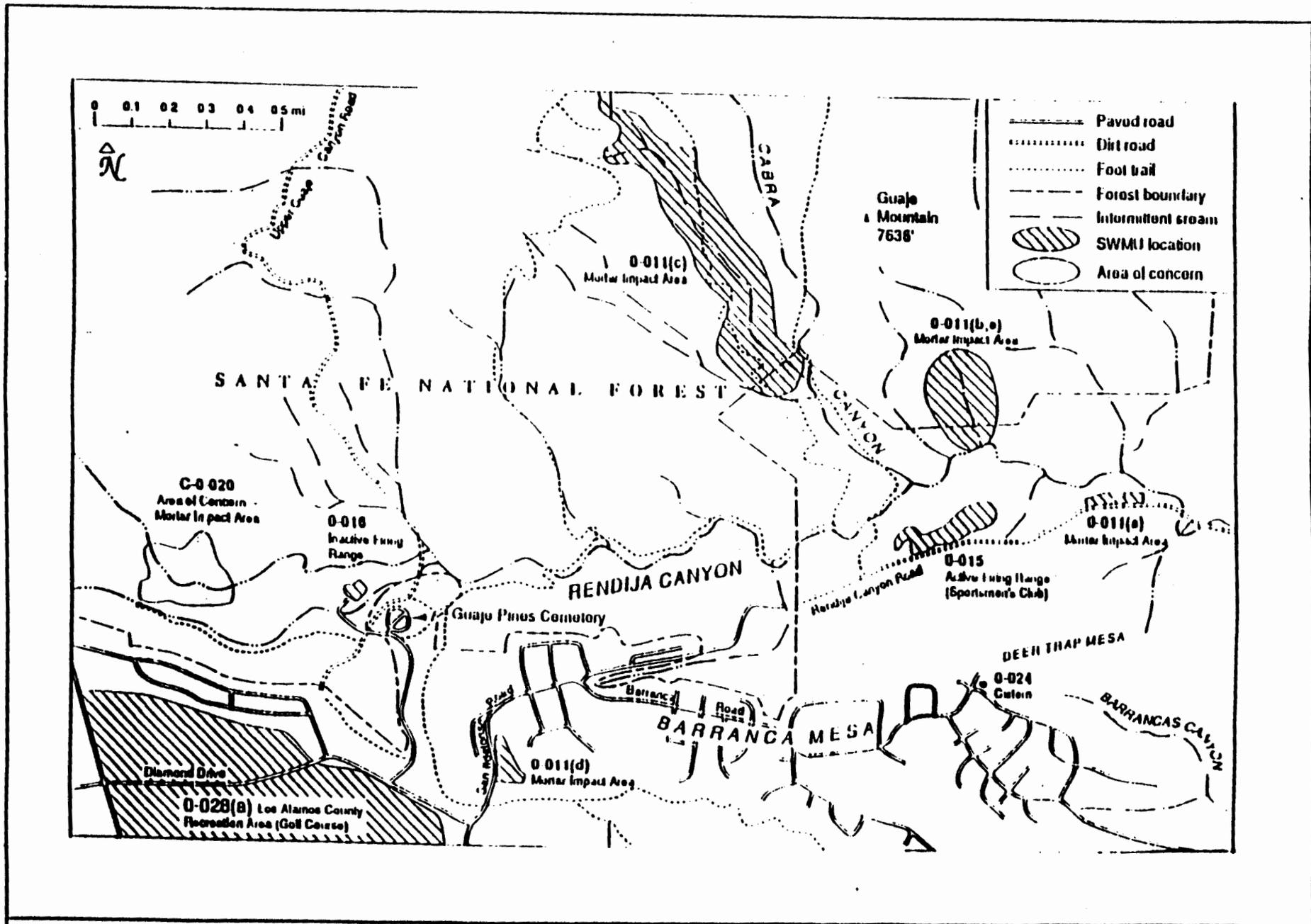


FIGURE 13.2

Location of SWMU 0-016 Inactive Firing Range

APPENDIX B

HAZARDOUS SUBSTANCE - HAZARD ASSESSMENT

**APPENDIX 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. This hazard assessment was completed in accordance with Section 4.1 of the HASP.

Substance/ Synonym	Maximum Data ¹		Hazard Assessment Rating/Rationale
	Value	Location	
CHEMICAL SUBSTANCES			
Air Monitoring or Sampling Results			
Lead	ND	Refer to 1994-95 exposure data	Personal and area monitoring results from the past few years taken at this site have never indicated a lead exposure problem, however, since this is a slightly new process which could generate more dust we will perform a new initial determination. A hazard assessment rating of moderate will be used until the results of the new determination are reviewed. A new hazard assessment will be performed based on the new data and the HA will be downgraded, as appropriate.
Silica	< 0.07 mg/m ³	Refer to 1994-95 exposure data	Negligible; maximum value is far below PEL. Monitoring for silica at LANL was given high priority in the past few years with samples collected at a wide variety of sites and conditions. Results have never indicated a silica exposure issue.

¹ Reference resources where data reported, and either here or in the "location" column include a brief description of the sample location (e.g., borehole number, depth, etc).

APPENDIX C

**CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES
OF HAZARDOUS CHEMICAL SUBSTANCES**

Substance/ Synonym(s)	Exposure Limit ^{1,2} / IDLH ¹ (ppm)			Physical Characteristics ¹	Route(s) of Entry ^{1,3}	Signs/Symptoms of Toxicity ^{1,3}	Carci- nogenicity ^{1,3}	Flash Point ^{1,3}	Vapor Press/ Density ¹	IP ^{1,4}	SC ⁵
	PEL or REL	TLV	IDLH								

APPENDIX C
PHYSICAL, CHEMICAL, AND TOXICOLOGICAL PROPERTIES
OF HAZARDOUS CHEMICAL SUBSTANCES

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. *Quick Selection Guide to Chemical Protective Clothing*
4. *29 CFR 1926.62*

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:

LANL HAZMAT Team (EM&R).....**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**

FPL: Garry Allen.....**667-3394**

Alternate FPL: Carl Newton**665-9259/106-8207**

FTM/FTL: Andy Crowder.....**662-3700/470-2497(cell)**
820-4413 (pager)

Field Unit HS Rep.: Joe Louck**665-5669/104-6959**

Management Contacts:

John Williams, ERM/Golder: 662-3700 or 470-2485

Al Funk, ERM/Golder: 662-3700

Paul Parker, Paul Parker Construction: 662-7456

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

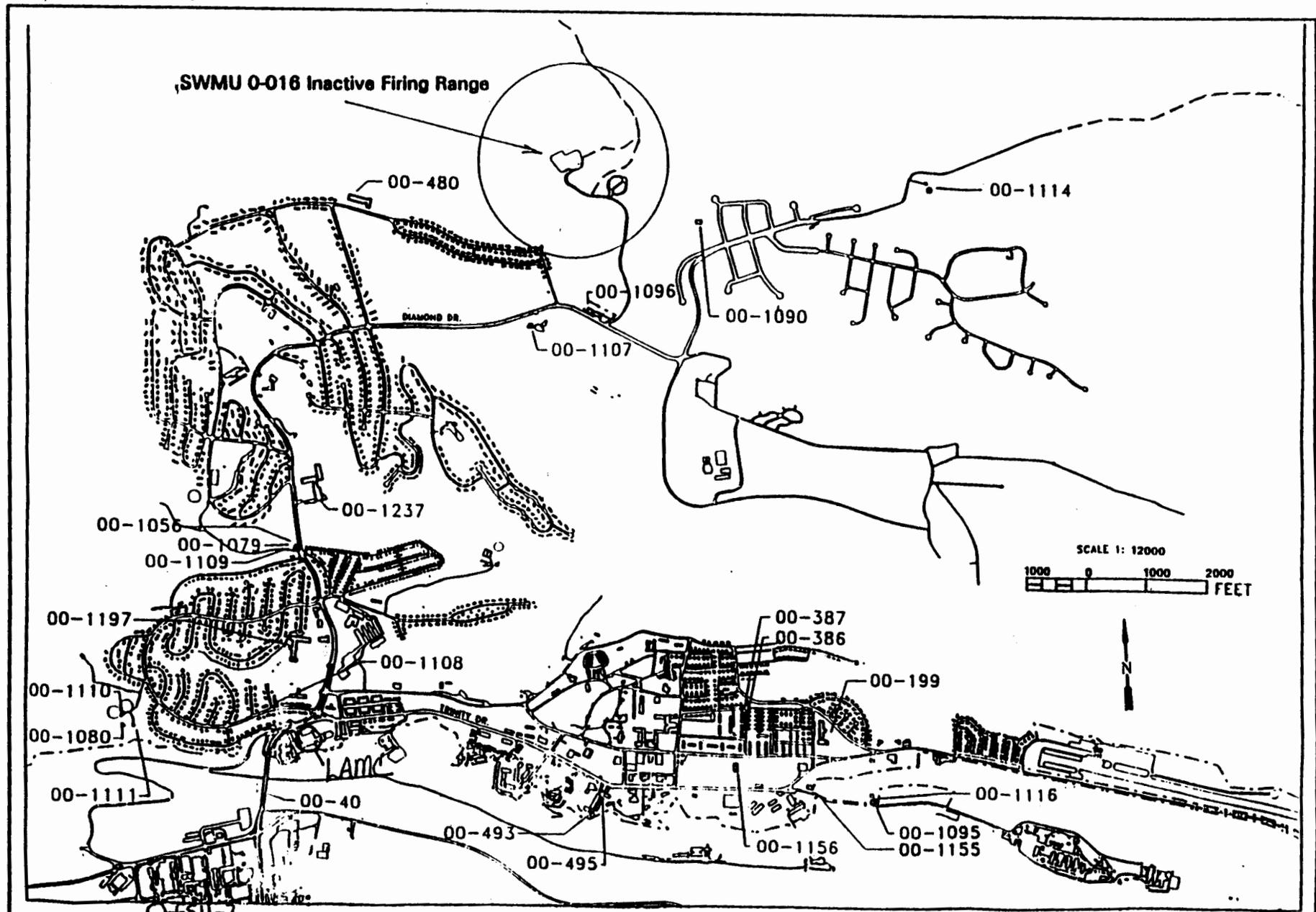


FIGURE 13.3

Location of SWMU 0-016 Inactive Firing Range in relation to Los Alamos New Mexico