

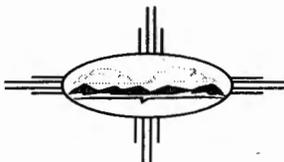
TA14

---

**PRS 14-003**

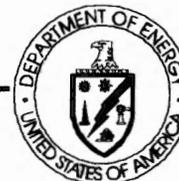
**Burn Area  
TA-14, Q-Site  
SRS Score = 26  
HWSA Permit**

3876



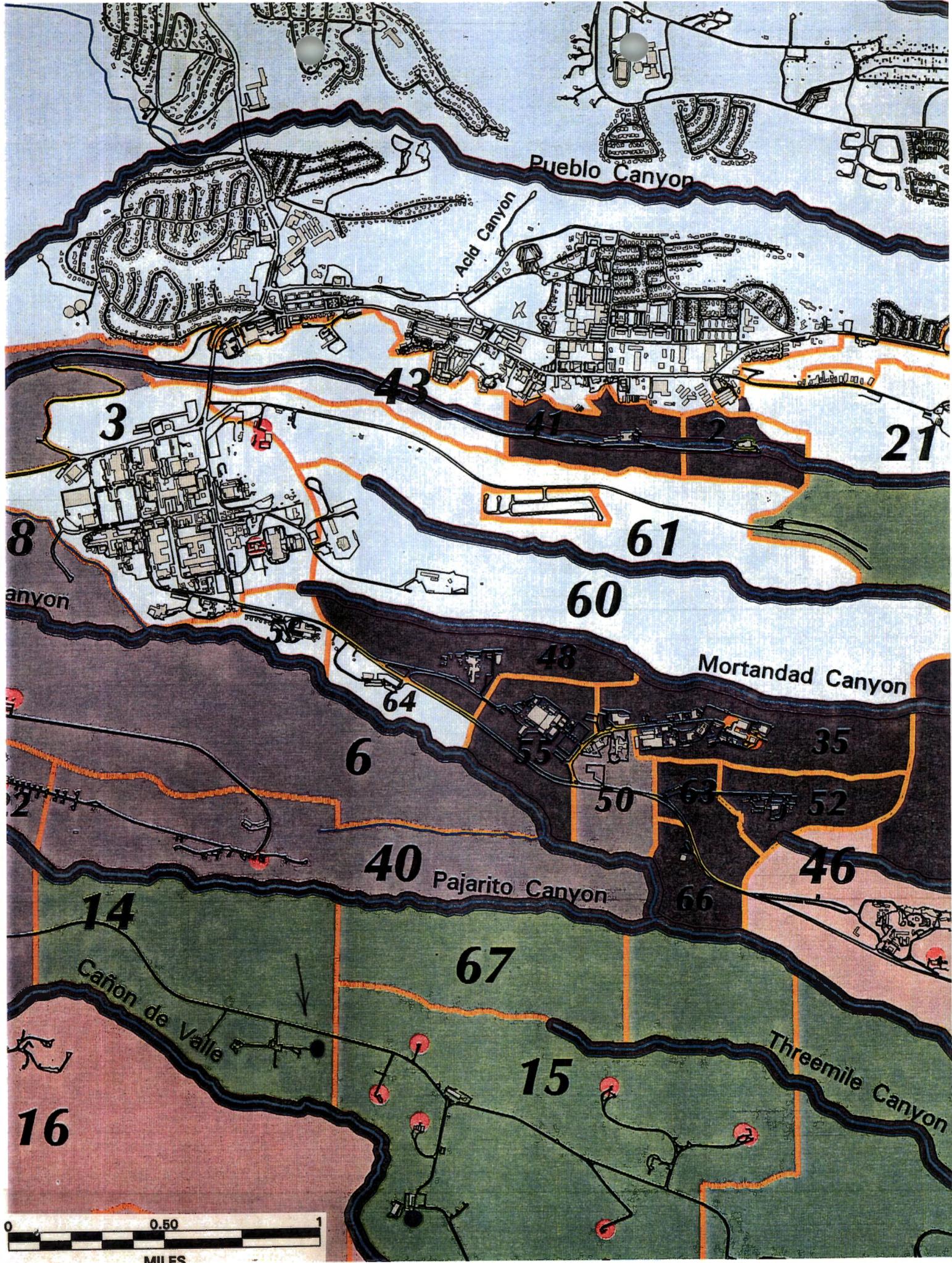
---

*Los Alamos National Laboratory  
Environmental Restoration Project*



VG-97-008 (12)

2110199



Pueblo Canyon

Acid Canyon

Mortandad Canyon

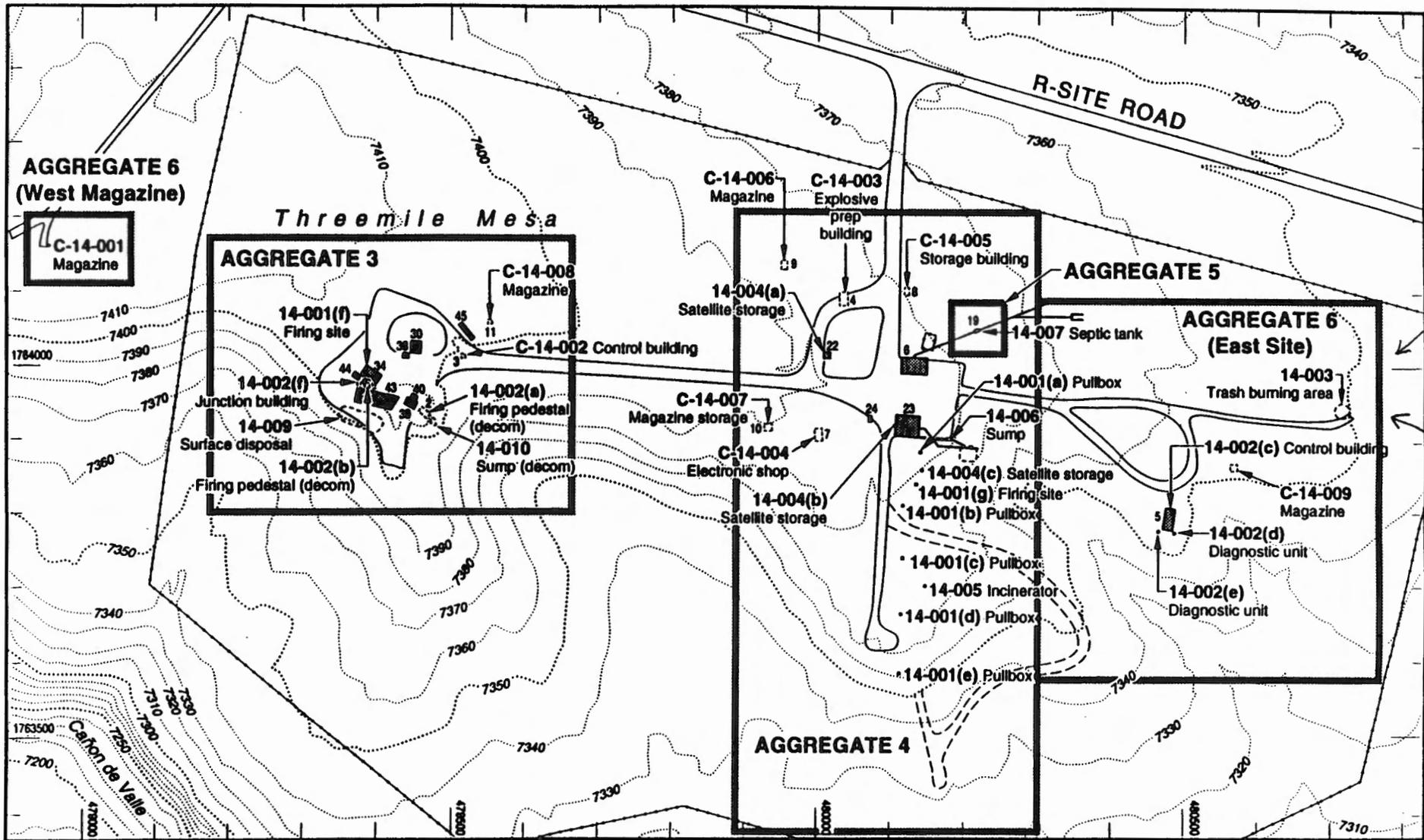
Pajarito Canyon

Cañon de Valle

Threemile Canyon



MILES



**AGGREGATE 6  
(West Magazine)**

C-14-001  
Magazine

**AGGREGATE 3**

14-001(f) Firing site  
14-002(f) Junction building  
14-009 Surface disposal  
14-002(b) Firing pedestal (decom)  
14-002(a) Firing pedestal (decom)  
14-010 Sump (decom)  
C-14-008 Magazine  
C-14-002 Control building

C-14-006 Magazine  
C-14-003 Explosive prep building

C-14-005 Storage building

**AGGREGATE 5**

**AGGREGATE 6  
(East Site)**

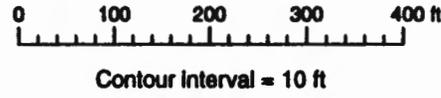
14-004(a) Satellite storage  
14-007 Septic tank  
14-001(a) Pullbox  
14-003 Trash burning area  
14-006 Sump  
14-002(c) Control building  
C-14-009 Magazine  
14-002(d) Diagnostic unit  
14-002(e) Diagnostic unit  
14-004(c) Satellite storage  
14-001(g) Firing site  
14-001(b) Pullbox  
14-001(c) Pullbox  
14-005 Incinerator  
14-001(d) Pullbox  
14-001(e) Pullbox

**AGGREGATE 4**

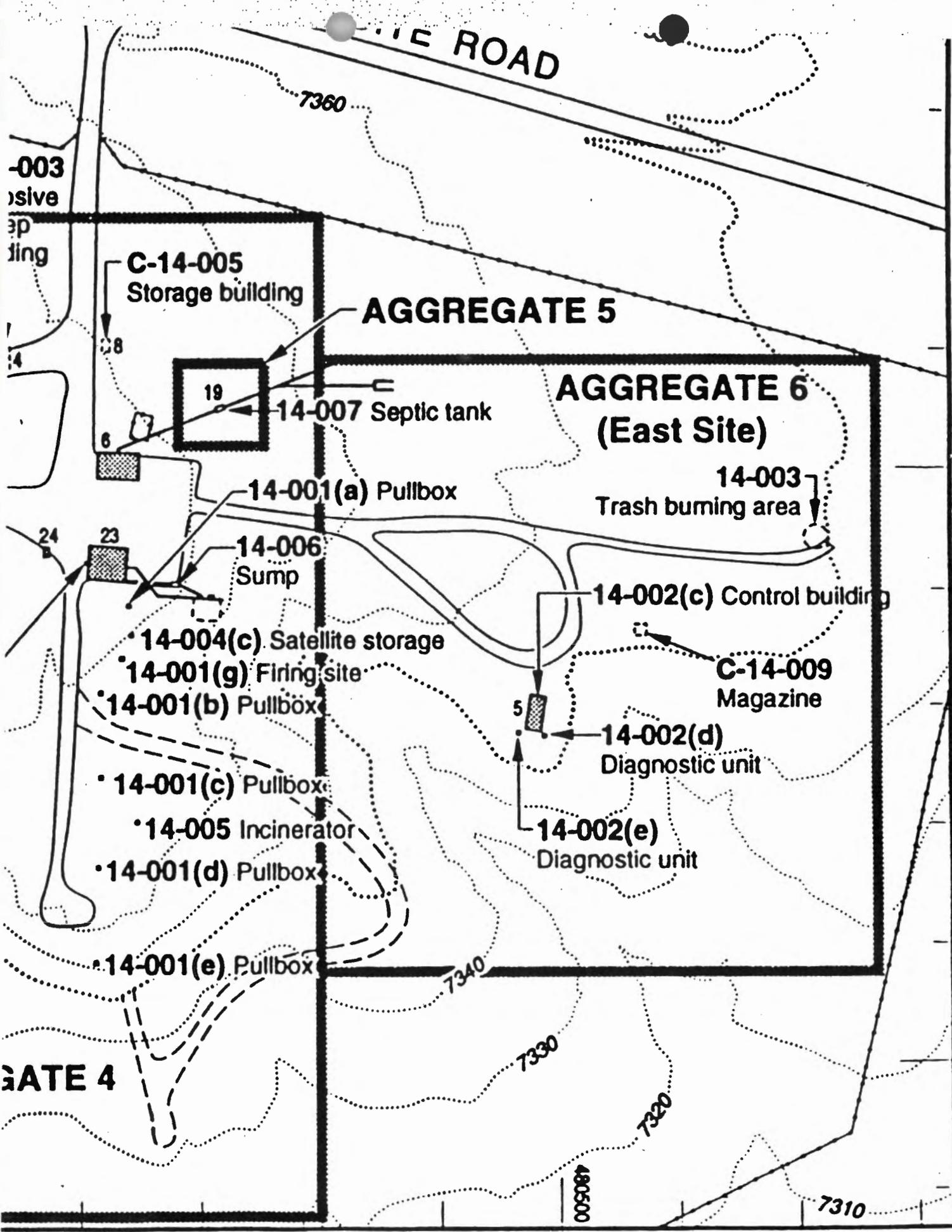
C-14-007 Magazine storage  
C-14-004 Electronic shop  
14-004(b) Satellite storage

- Existing building or structure
- Former building or structure
- Paved road
- Unimproved road

- Fence
- Pipeline and leach field
- Area of Concern (AOC)



Sources: FIMAD 1993 G100991; LANL 1988, ENG-C45511  
Modified by: CARTography by A. Kron 5/16/94



**AGGREGATE 5**

**AGGREGATE 6  
(East Site)**

**C-14-005**  
Storage building

19

**14-007** Septic tank

**14-001(a)** Pullbox

**14-006**  
Sump

**14-004(c)** Satellite storage

**14-001(g)** Firing site

**14-001(b)** Pullbox

**14-001(c)** Pullbox

**14-005** Incinerator

**14-001(d)** Pullbox

**14-001(e)** Pullbox

**14-003**  
Trash burning area

**14-002(c)** Control building

**C-14-009**  
Magazine

**14-002(d)**  
Diagnostic unit

**14-002(e)**  
Diagnostic unit

**-003**  
osive  
p  
ding

**AGGREGATE 4**

480500

7310

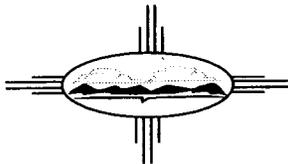


PRS 14-003 Burn Area

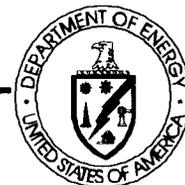
# PRS Description

---

- **Burn Area - 4 ft. high horseshoe shaped soil berm**
  - ~ 27 ft. x 30 ft. outside dimensions
  - located ~ 300 ft. northeast of Bldg. Q-5
  - HE, combustible, and non-combustible materials (e.g. switches, metals) deposited and burned
- **Used in the 1950's, length of time unknown**
- **Land use scenario - industrial**
- **Location - in secured area**
- **Nearest water course approximately 1/4 mile** - Cañon de Valle
- **~ 2.5% slope of land**
- **RFI report contains results, dated February 1996** - Phase I



*Los Alamos National Laboratory  
Environmental Restoration Project*



VG-97-008 (12)

**PRS 14-003**

*underline => SAL*

**14-1093**

- 0120 - Antimony, Barium, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Zinc, 2-amino-4,6-dinitrotoluene, 4-amino-2,6-dinitrotoluene, BDX, Total Uranium, Uranium-238

**14-1094**

- 0121 - Antimony, Arsenic, Barium, Chromium, Copper, Lead, Manganese, Nickel, Silver, Zinc, 2-amino-4,6-dinitrotoluene, 4-amino-2,6-dinitrotoluene



PRS 14-003

**MARKERS**

- Sample Location
- ▬ Paved Road/Parking
- - - Cleanup Area
- ▨ Soil Removal Area

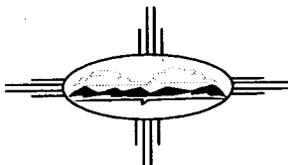
GIS Data: FIMAD  
Layout: D. Kuhn  
J06218.MAP

0 25 50 Feet

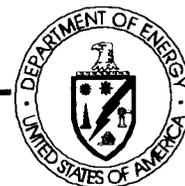
# Characterization

---

- **Screened for HE using HE Spot Test Kit**
- **Screened for radioactivity (alpha, beta, and gamma)**
- **Two samples collected (6 to 12 in. depth) and submitted to fixed laboratory in accordance with approved work plan**
- **Analyzed for radionuclides, isotopic uranium, TAL metals, HE, and SVOCs**



*Los Alamos National Laboratory  
Environmental Restoration Project*



VG-97-008 (13)

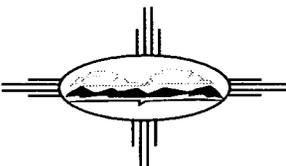
# Analytical Results

---

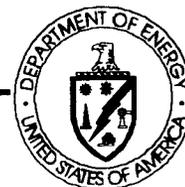
SAMPLE ID	LOCATION ID	DEPTH (in.)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)
SAL	N/A	N/A	0.38	5300	38
0214-95-0120	14-1093	6-12	7.5	10300	69
0214-95-0121	14-1094	6-12	11.1	929	1.27

N/A = Not Applicable

SAMPLE ID	LOCATION ID	DEPTH (in.)	Copper (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
SAL	N/A	N/A	2800	400	380
0214-95-0120	14-1093	6-12	46200	5380	3910
0214-95-0121	14-1094	6-12	1400	13100	715



**Los Alamos National Laboratory**  
**Environmental Restoration Project**



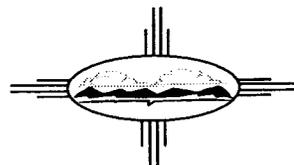
VG-97-008 (14)

# Analytical Results (concluded)

---

SAMPLE ID	LOCATION ID	DEPTH (in.)	2-Amino-4,6-Dinitrotoluene (mg/kg)	4-Amino-2,6-Dinitrotoluene (mg/kg)	RDX (mg/kg)
SAL	N/A	N/A	No SAL	No SAL	4
0214-95-0120	14-1093	6-12	2.72	2.9	2680
0214-95-0121	14-1094	6-12	0.19	0.25	ND

N/A = Not Applicable  
ND = Not Detected



**Los Alamos National Laboratory  
Environmental Restoration Project**

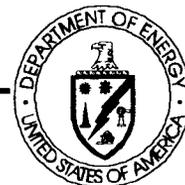
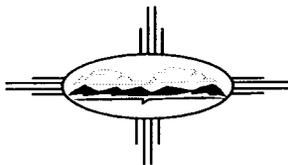


VG-97-008 (15)

# Proposed Cleanup

---

- Excavate and remove using hand shovels
- Field screening for Mn, Pb, U, and HE, *don't know extent of contamin.*
  - continue process until LIBS, Rad, and DTECH screening indicate results < cleanup goals
- Confirm with fixed lab samples
- Site-specific PRGs (cancer risk  $10^{-6}$ ; HI of 1 for non-carcinogen)
- Land use scenario - industrial
- Exposure - non-intrusive for a generic worker



# Site Specific PRGs

COPC	Sample Value (mg/kg)	PRG <sup>1</sup> (mg/kg)	Rationale
Antimony	27.6	818	Noncarcinogen; based on hazard index of 1
<b>Arsenic</b>	11.1	2.15	Carcinogen; based on 1E-06 acceptable risk. Risk level of 1E-06 creates a cleanup level lower than background of 7.82 mg/kg
Barium	10,300	7,680	Noncarcinogen; based on hazard index of 1
<b>Cadmium</b>	69	25.2	Carcinogen; based on 1E-06 acceptable risk
Copper	46,200	81,800	Noncarcinogen; based on hazard index of 1
<b>Lead</b>	5,380	1,000	Based on EPA Region VI guidance
<b>Manganese</b>	3,910	504	Noncarcinogen; based on hazard index of 1
Silver	167	10,200	Noncarcinogen; based on hazard index of 1
Total Uranium	64.2	378	Radionuclide; based on a dose of 15 mrem/yr.
Zinc	8,040	613,000	Noncarcinogen; based on hazard index of 1
<b>RDX</b>	2,680	52	Carcinogen; based on 1E-06 acceptable risk

<sup>1</sup> Based on nonintrusive industrial exposure scenario  
 Shaded areas and bolding indicates chemicals exceeding PRG



Los Alamos National Laboratory  
 Environmental Restoration Project

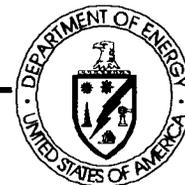
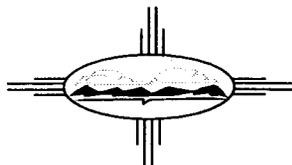


VG-97-008 (17)

# **Waste Volume Estimate**

---

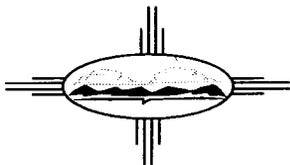
- **Worst case estimate**
- **Interior ~ 18 cu.yds.**
  - assuming ~ 1 ft. of soil removed
- **Bermed area ~ 142 cu.yds.**
- **Total approximately 160 cu.yds. plus swell @ 25%  
= 200 cu.yds.**



# Schedule/Cost Estimate

---

- **Timeframe - Summer 1997**
- **Duration - three weeks**
  - mobilization
  - removal/field characterization
  - demobilization
- **Cost estimate - \$135K**



*Los Alamos National Laboratory  
Environmental Restoration Project*

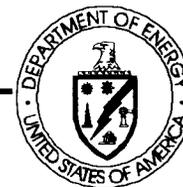
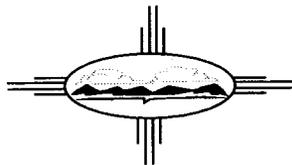


VG-97-008 (20)

# Implementation

---

- **Storm Water Pollution Prevention Plan**
- **Straw bales/silt fencing**
- **Remove interior of bermed area to depth of 1 ft.**
- **Field screening (Rad, LIBS, and DTECH)**
- **Remove additional material (if necessary) based on screening**
- **Field screen inside face and top of berm, remove material (inside towards outside) until cleanup achieved**



## **Implementation (concluded)**

- **Collect confirmatory samples (statistically based plan) to verify cleanup was achieved**
- **Regrade and reseed**
- **Dispose of waste**
- **Write completion report**
- **Submit NFA permit modification request**
- **Monitor/report condition of runoff prevention controls**

