Sandia National Laboratories

PROPOSAL FOR ADMINISTRATIVE NO FURTHER ACTION ENVIRONMENTAL RESTORATION SITE 69, OLD BORROW PIT OPERABLE UNIT 1334

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Environmental
Restoration
Project

United States Department of Energy
Albuquerque Operations Office

PROPOSAL FOR ADMINISTRATIVE NO FURTHER ACTION ENVIRONMENTAL RESTORATION SITE 69, OLD BORROW PIT OPERABLE UNIT 1334 AUGUST 1994

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Prepared for the
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1.0 INTRODUCTION

1.1 ER Site Identification Number and Name

Sandia National Laboratories/New Mexico (SNL/NM) is proposing an administrative no further action (NFA) decision for Environmental Restoration (ER) Site 69, Old Borrow Pit, Operable Unit (OU) 1334. ER Site 69, formerly included in OU 1297, was identified as the "Firing Site" in the Hazardous and Solid Waste Amendment (HSWA) Module IV (EPA August 1993) of the SNL/NM Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management Facility Permit (NM5890110518) (EPA 1992). SNL/NM is proposing that the name be changed in the HSWA Module IV to the "Old Borrow Pit" to reflect newly obtained historical information presented in this proposal.

1.2 SNL/NM Administrative NFA Process

This proposal for a determination of an administrative NFA decision has been prepared using the criteria presented in Section 4.5.3. of the SNL/NM Program Implementation Plan (SNL/NM February 1994). Specifically, this proposal will "contain information demonstrating that there are no releases of hazardous waste (including hazardous constituents) from solid waste management units (SWMU) at the facility that may pose a threat to human health or the environment" (as proposed in the Code of Federal Regulations (CFR) Section 40 Part 264.51[a] [2]) (EPA July 1990). The HSWA Module IV contains the same requirements for an NFA demonstration:

> Based on the results of the RFI [RCRA Facility Investigation] and other relevant information, the Permittee may submit an application to the Administrative Authority for a Class III permit modification under 40 CFR 270.42(c) to terminate the RFI/CMS [corrective measures study] process for a specific unit. This permit modification application must contain information demonstrating that there are no releases of hazardous waste including hazardous constituents from a particular SWMU at the facility that pose threats to human health and/or the environment, as well as additional information required in 40 CFR 270.42(c) (EPA August 1993).

In requesting an administrative NFA decision for ER Site 69, Old Borrow Pit, this proposal is using existing administrative/archival information to satisfy the permit requirements. This unit is eligible for an administrative NFA proposal based on one or more of the following criteria taken from the RCRA Facility Assessment Guidance (EPA October 1986):

Criterion A: The unit has never contained constituents of concern

Criterion B: The unit has design and/or operating characteristics that effectively prevent releases to the environment

Criterion C: The unit clearly has not released hazardous waste or constituents into the environment

Specifically, ER Site 69 is being proposed for an administrative NFA decision because the SWMU never contained hazardous waste or constituents (Criterion A).

1.3 Local Setting

SNL/NM occupies 2,829 acres (ac) of land owned by the Department of Energy (DOE), with an additional 14,920 ac of land provided by land-use permits with Kirtland Air Force Base (KAFB), the United States Forest Service, the State of New Mexico, and the Isleta Indian Reservation. Sandia Corporation (a subsidiary of AT&T) operated SNL/NM for DOE from the time of its opening in 1945 until September 1993, when Martin Marietta Corporation undertook operation. SNL/NM has been involved in nuclear weapons research, component development, assembly, testing, and other nuclear activities since 1945.

ER Site 69 (Figure 1-1) is owned by KAFB (unassigned) and located on SNL/NM near the southern boundary of KAFB between the United States Geological Survey (USGS) Albuquerque Seismological Laboratory to the southeast and an unnamed dirt road to the west. The site lies on 0.97 ac of land at a mean elevation of 5,950 feet (ft) above sea level (SNL/NM April 1994).

This inactive site is near a small unnamed arroyo channel that discharges to the west and is located on alluvial deposits correlated with the Ildefonso soil unit (IT May 1994b), with permeabilities ranging from 2.0 to 6.0 inches per hour (USDA 1977). The geologic and hydrologic conditions at ER Site 69 are expected to be similar to those measured at the Starfire Optical Range well (approximately 1 mile north), because both locations lie to the east of Coyote Fault and its associated splays. Geologic information obtained from the lithologic log compiled for the Starfire Optical Range well indicates that the local area is covered with 20 to 40 ft of proximal to mid-fan alluvial deposits underlain by Precambrian granite. When the Starfire Optical Range well was completed in 1987, the depth to groundwater was measured at 150 ft (IT May 1994b). Depth to groundwater at ER Site 69 is estimated to be 115 ft (DOE July 1994).

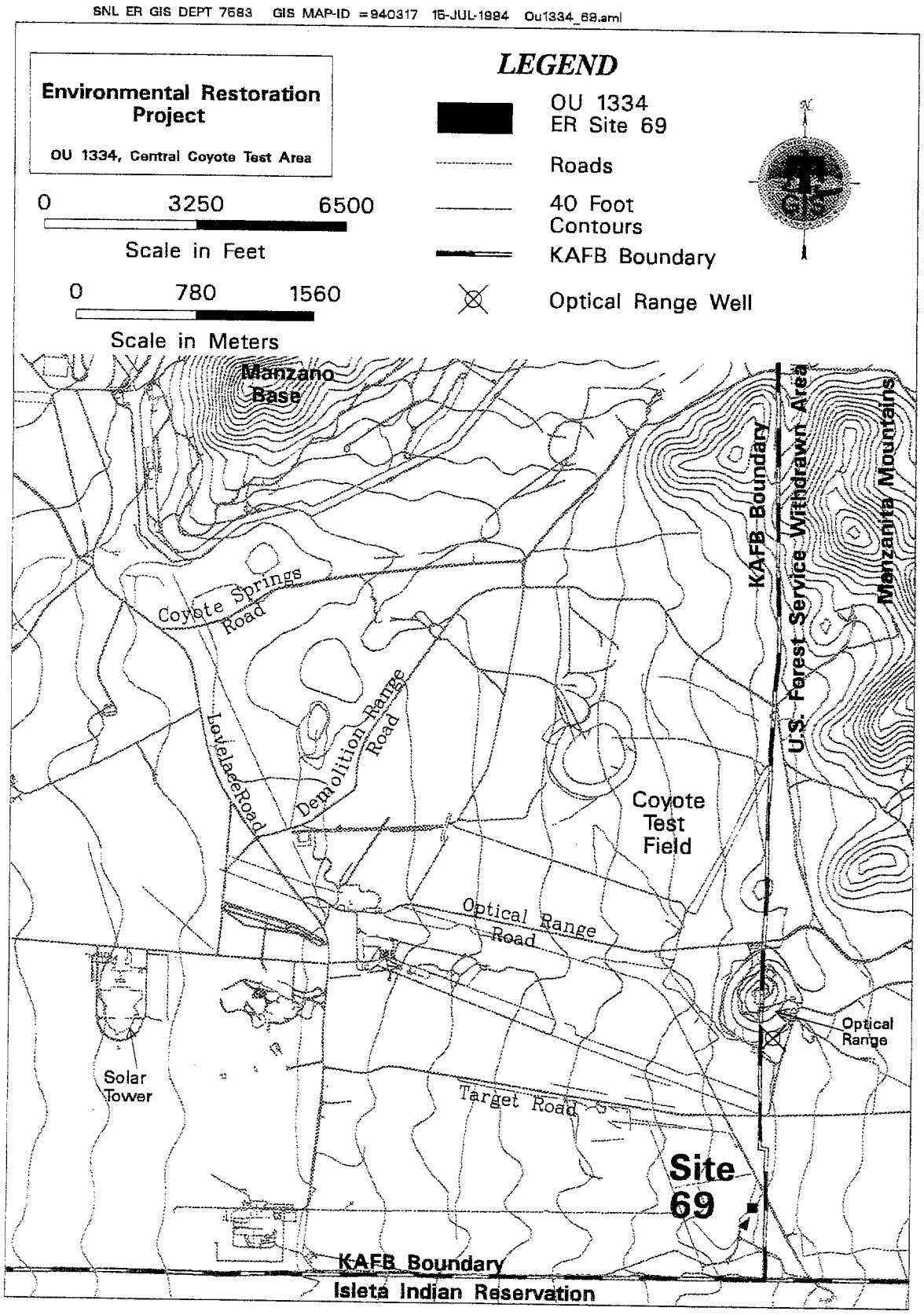

Figure 1-1
Location of ER Site 69, Old Borrow Pit

2.0 HISTORY OF THE SWMU

2.1 Previous Audits, Inspections, and Findings

ER Site 69 was first listed as a potential release site based on the Comprehensive Environmental Assessment and Response Program (CEARP) interviews in 1985 (DOE September 1987), which noted old firing cables and shrapnel were present in the area. The regulatory disposition of the SWMU remained uncertain, however, because of a lack of information regarding the nature of the debris. Insufficient information also prevented calculating a Hazard Ranking System score for the SWMU. During recent site visits, it was observed that the old firing cables were military field telephone cable and the reported shrapnel is metal scrap unrelated to ordnance (Dan Sandhaus, personal communication).

As a result of the CEARP investigation, ER Site 69 was one of five sites identified to have limited sampling conducted by DOE-Albuquerque Office Environment and Health Division, ER Program Project Group. This sampling was completed in September 1987 (69-5), and results are discussed in Section 3.4.1.

Subsequent to the CEARP inspection, the Environmental Protection Agency (EPA) conducted a RCRA Facility Assessment (RFA), but this SWMU was not included in the RFA report (EPA April 1987).

2.2 Historical Operations

ER Site 69 (Figure 2-1) consists of a broad, shallow irregularly shaped pit (Figure 2-2) located approximately 200 ft north of a small unnamed arroyo channel that discharges to the west. Interviews with current and former SNL/NM personnel most familiar with work performed in the vicinity of ER Site 69 produced no information on activities related to this site (69-6 through 69-11). Several ER interview records from ER Site 61 (69-25, 69-26) note that the irregular shape of the depression and lack of an explosion berm are inconsistent with the morphologic features of blast or explosion craters found at known firing sites. The morphology of the pit and the lack of explosives-testing debris suggest that it is most likely a borrow pit.

An aerial photograph taken in 1961 (USGS 1961) does not show the pit, but it is present in a 1971 aerial photograph (USGS 1971). Also appearing in the 1971 aerial photo are three newly constructed access roads and the extension of Target Road to the USGS facility. The old borrow pit is within a few hundred feet of the new extension of Target Road (Figure 2-1) and was most likely accessed to obtain fill material for the grading of this road.

ER Site 69 is in an area south of Target Road that is historically known as the Flats Combat Zone (61-78). The old firing cables and shrapnel noted in the CEARP report may be related to KAFB activities carried out in the Flats Combat Zone during the late 1970s and early 1980s (61-78). However, during recent ER site inspections, the old firing cables were found to be military field telephone cable, and the reported shrapnel is metal scrap unrelated to ordnance.

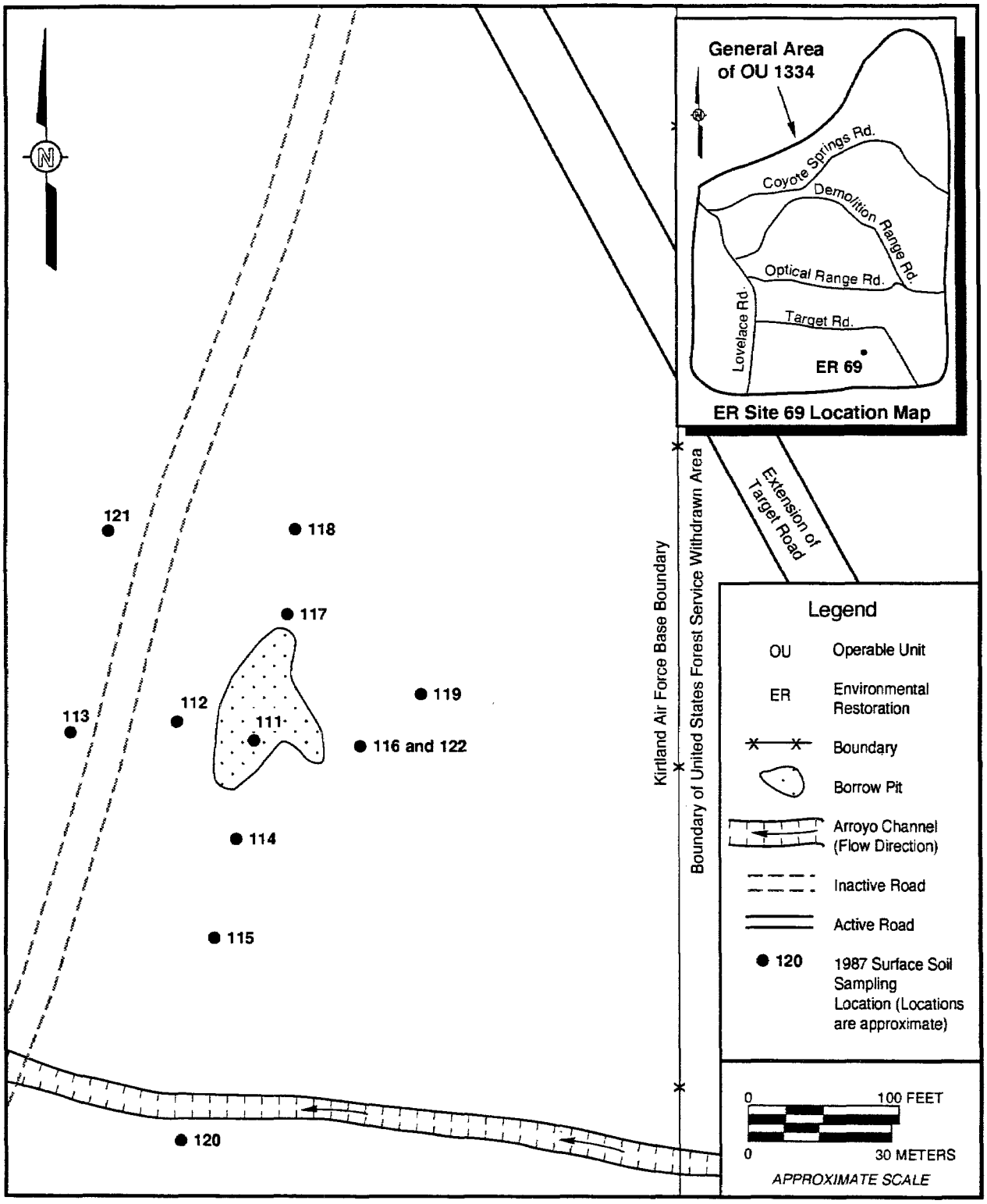

Figure 2-1
Site Map and 1987 Sample Locations for ER Site 69, Old Borrow Pit

North-south trending borrow pit, ER Site 69. Note irregular, elongated shape is not characteristic of a crater formed from explosive testing. View to the south.

Figure 2-2
ER Site 69 Photograph

2.3 Discussion of Information Conflicts

The original designation of ER Site 69 as a firing site was based on the presence of firing cables and shrapnel, as noted in the CEARP report (DOE September 1987). This conclusion is in conflict with ER Project interviews, the morphology of the pit, and aerial photographs. During recent ER site inspections, the old firing cables were found to be military field telephone cable, and the reported shrapnel is metal scrap that does not appear to be related to ordnance (Dan Sandhaus, personal communication). ER Project interviews (69-25, 69-26) note that the morphology of the pit is not consistent with explosion craters at known firing sites. Aerial photographs suggest the pit was formed when material was borrowed to construct the extension of Target Road.

3.0 EVALUATION OF RELEVANT EVIDENCE

3.1 Unit Characteristics

ER Site 69 consists of an irregular shaped pit containing vegetative cover similar to surrounding areas. Explosive experts at SNL/NM indicated that the pit morphology is not consistent with the morphology observed for explosion craters (69-25, 69-26).

3.2 Operating Practices

There are no archival records or ER Project interviews that associate this site with hazardous waste or constituents (69-6 through 69-11).

3.3 Presence or Absence of Visual Evidence

There is no physical or documented evidence to suggest that the pit at ER Site 69 resulted from ordnance or explosive firing tests. The morphology of the pit is dissimilar to explosion craters formed at known firing sites (69-25, 69-26), and the only debris present is old military field telephone cable and scrap metal unrelated to ordnance (Dan Sandhaus, personal communication).

3.4 Results of Previous Sampling/Surveys

3.4.1 Surface-Soil Sampling

Surface-soil samples were collected and analyzed from ER Site 69 in September 1987 to support an NFA decision. Three grab soil samples and five composite soil samples were collected from the bottom of the pit and from the area surrounding the pit (Figure 2-1). A description of the sampling activities does not include the depths at which the samples were collected, but it is assumed that they were surface samples because stainless steel spoons were used to collect the samples instead of ring samplers (69-5). Results of radiation screening conducted during sampling were consistent with background (10 to 16 microroentgen per hr). Organic vapor screening yielded results of 0 to 1 parts per million. However, the sampling team was unable to calibrate the instrument because of an apparent lack of proper calibration equipment. Windy site conditions also decreased the reliability of the organic vapor survey results. However, arid climate and dry soil conditions preclude any potential for the presence of volatile organic compounds in surface soils.

3.4.1.1 Sample Descriptions

Figure 2-1 shows the approximate sample locations at the site, and Table 3-1 correlates the sample location and number.

Table 3-1
Soil Samples Collected at ER Site 69 in 1987

Sample Number	Location
SNA 69-111	Sample from floor of pit (111)
SNA 69-112	Composite sample of locations 112 and 113
SNA 69-114	Composite sample of locations 114 and 115
SNA 69-116	Composite sample of locations 116 and 119
SNA 69-117	Composite sample of locations 117 and 118
SNA 69-120	Background sample (120)
SNA 69-121	Background sample (121)
SNA 69-122	Duplicate of SNL 69-116

3.4.1.2 Analytical Results

Requested analyses included Toxicity Characteristic Leaching Procedure (TCLP) metals and SVOCs; extraction procedure (EP) toxicity metals; pesticides/polychlorinated biphenyls (PCB); herbicides (TCLP and EP toxicity); Hazardous Substance List (HSL) metals, 2,4,6-trinitrotoluene (TNT); uranium (total and isotopic), and three additional metals—titanium, cerium, and zirconium. Analytical results obtained from this sampling event are reported in the draft document "Reconnaissance Data Report," January 1989 (69-5). Results for TCLP, EP toxicity, HSL, and uranium are tabulated and briefly discussed below. Analytical results for semivolatile organic compounds (SVOC), pesticides/PCBs, herbicides, and TNT were all below the detection limit of the analytical method.

TCLP Metals

TCLP metals were analyzed after extraction (EPA Method 1311) for arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Table 3-2 summarizes the analytical methods and results. All sample locations showed detectable levels of barium, ranging from 1,380 to 2,580 micrograms per liter (µg/L). Barium is found as a trace-to-minor element in the Pennsylvanian carbonate rocks and Precambrian metamorphic that are present as weathered rock fragments in the soil samples (i.e., all samples had barium concentrations

similar to the background sample concentrations of 1,400 and 2,480 µg/L). There were no detectable levels of the other TCLP metals.

Table 3-2
TCLP Metals Extracted from ER Site 69 Soil Samples

Analytes	Method of Analysis	Background Range (µg/L)		Sample Range (µg/L)					
		SNA 69-120	SNA 69-121	SNA 69-111	SNA 69-112	SNA 69-114	SNA 69-116	SNA 69-117	SNA 69-122
Arsenic	EPA 206.2	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500
Barium	EPA 200.7	1,400	2,480	1,380	2,000	1,850	2,580	2,100	2,210
Cadmium	EPA 200.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Chromium	EPA 200.7	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500
Lead	EPA 239.2	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500
Mercury	EPA 245.1	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Selenium	EPA 270.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Silver	EPA 200.7	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500

µg/L = Micrograms per liter.

EP Toxicity Metals

Table 3-3 lists the EP toxicity metals were analyzed after extraction (EPA Method EP) by the same methods listed for TCLP (69-5). Consistent with the TCLP data, all sample locations (except one) showed detectable levels of barium, ranging from less than 1,000 to 2,570 µg/L. There were no detectable levels of other EP toxicity metals.

HSL Metals and Cerium, Titanium, and Zirconium

Table 3-4 presents methods and analytical results for data obtained from the HSL inorganic analysis of soil samples (EPA Method 6010) (69-5). The samples were also analyzed for cerium, titanium, and zirconium, although it is unknown why these elements were selected for analysis. All of the sampling locations had detectable levels of aluminum, barium, calcium, chromium, iron, potassium, magnesium, manganese, lead, titanium, vanadium, and zinc that are similar to the concentrations reported for background samples SNA 69-120 and SNA 69-121. The most abundant metal observed in the samples was calcium, reflecting the high percentage of Pennsylvania carbonate rock fragments in the soil samples. Samples

Table 3-3
EP Toxicity Metals Extracted from ER Site 69 Soil Samples

Analytes	Method of Analysis	Background Range (µg/L)		Sample Range (µg/L)					
		SNA 69-120	SNA 69-121	SNA 69-111	SNA 69-112	SNA 69-114	SNA 69-116	SNA 69-117	SNA 69-122
Arsenic	EPA 206.2	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500
Barium	EPA 200.7	<1,000	1,960	1,920	2,570	1,670	2,000	2,220	2,020
Cadmium	EPA 200.7	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Chromium	EPA 200.7	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500
Lead	EPA 239.2	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500
Mercury	EPA 245.1	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Selenium	EPA 270.2	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Silver	EPA 200.7	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500

µg/L = Micrograms per liter.

SNA 69-111 and SNA 69-116 had detectable levels of arsenic of 4.9 and 2.1 micrograms per gram (µg/g), respectively. These arsenic concentrations are comparable to the value reported for background sample SNA 69-121 (2.0 µg/g). The concentration of beryllium in sample SNA 69-111 was 1.0 µg/g, which is slightly higher than the background samples. Copper concentrations ranged from 4.9 to 5.8 µg/g in samples SNA 69-114, -116, and -122, all of which are below the background value of 6.0 µg/g (SNA 69-120). Sample SNA 69-122 has a nickel concentration of 8.3 µg/g, slightly above the detection limit values for background samples.

Sample SNA 69-114 contained cerium at a concentration of 23.1 µg/g, which is about 20 percent higher than the detection limit values of 18.1 and 19 µg/g reported for background samples. Cerium is a rare earth element present in the common minerals apatite, zircon, and amphibole at concentrations that may vary from 400 (amphibole) to 5,600 (apatite) µg/g (Deer et al., 1978). These minerals are found in the granitic rocks that crop out in the Coyote Canyon test area, and soil samples that contain a naturally high distribution of these minerals would be expected to have elevated cerium concentrations. There is no documented use of cerium at ER Site 69.

Total and Isotopic Uranium

Total uranium concentrations were analyzed by fluorometry, with results (Appendix B) ranging from 0.89 µg/g at SNA 69-120 to 1.4 µg/g at SNA 69-111. Isotopic uranium results, obtained

Table 3-4
HSL Metals and Cerium, Titanium, and Zirconium in ER Site 69 Soil Samples

Analytes	Method of Analysis	Background Range (µg/g)		Sample Range (µg/g)					
		SNA 69-120	SNA 69-121	SNA 69-111	SNA 69-112	SNA 69-114	SNA 69-116	SNA 69-117	SNA 69-122
Aluminum	EPA 6010 ICP	6,440	3,700	8,340	5,070	6,140	5,470	4,690	7,100
Antimony	EPA 7041 AAF	< 10.8	< 11.4	< 12.3	< 11.9	< 12.0	< 11.5	< 11.2	< 11.9
Arsenic	EPA 7060 AAF	< 1.7	2.0	4.9	< 2.0	< 1.9	2.1	< 1.9	< 1.9
Barium	EPA 6010 ICP	92.0	83.0	144	99.8	106	99.6	110	120
Beryllium	EPA 6010 ICP	< 0.9	< 0.95	1.0	< 0.99	< 1.0	< 0.96	< 0.94	< 0.99
Calcium	EPA 6010 ICP	11,100	32,300	84,400	39,000	27,600	30,000	45,200	57,100
Cadmium	EPA 6010 ICP	< 0.9	< 0.95	< 1.0	< 0.99	< 1.0	< 0.96	< 0.94	< 0.99
Cerium	EPA 6010 ICP	< 18.1	< 19.0	< 20.4	< 19.8	23.1	< 19.2	< 18.7	< 19.8
Cobalt	EPA 6010 ICP	< 9.0	< 9.5	< 10.2	< 9.9	< 10.0	< 9.6	< 9.4	< 9.9
Chromium	EPA 6010 ICP	6.1	3.6	6.6	5.0	5.5	4.9	4.8	7.2
Copper	EPA 6010 ICP	6.0	< 4.8	< 5.1	< 5.0	5.8	4.9	< 4.7	5.5
Iron	EPA 6010 ICP	6,870	3,610	7,740	4,900	5,750	5,630	4,350	7,120
Lead	EPA 7421 AAF	8.8	10.7	11.0	9.9	7.9	10.2	8.9	10.5
Magnesium	EPA 6010 ICP	2,800	2,000	8,210	2,690	2,810	2,570	2,690	3,280
Manganese	EPA 6010 ICP	222	140	169	156	192	154	181	210
Mercury	EPA 7471 CV	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	EPA 6010 ICP	< 7.2	< 7.6	< 8.2	< 7.9	< 8.0	< 7.7	< 7.5	8.3
Potassium	EPA 6010 FE	1,630	1,060	1,710	1,260	1,610	1,230	1,430	1,380
Selenium	EPA 7741 AAF	< 0.87	< 0.97	< 1.0	< 0.99	< 0.95	< 1.0	< 0.97	< 0.97
Silver	EPA 6010 ICP	< 1.8	< 1.9	< 2.0	< 2.0	< 2.0	< 1.9	< 1.9	< 2.0
Sodium	EPA 6010 FE	< 903	< 952	< 1,020	< 991	< 997	< 962	< 935	< 988
Thallium	EPA 7841 AAF	< 1.7	< 1.9	< 2.1	< 2.0	< 1.9	< 2.0	< 1.9	< 1.9
Titanium	EPA 6010 ICP	192	117	200	142	178	130	149	158
Vanadium	EPA 6010 ICP	13.2	< 9.5	66.5	10.9	11.9	11.7	9.5	15.1
Zinc	EPA 6010 ICP	22.3	16.0	22.4	19.1	28.1	22.2	15.7	27.2
Zirconium	EPA 6010 ICP	< 18.1	< 19.0	< 20.4	< 19.8	< 20.0	< 19.2	< 18.7	< 19.8

ICP = Inductively coupled plasma emission.
AAF = Atomic absorption by furnace.
FE = Flame emission.
CV = Cold vapor.
µg/g = Micrograms per gram.

by alpha spectrometry (Table 3-5), show that the uranium-234/uranium-238 activity ratio is approximately equal to 1, which indicates that the uranium is in secular equilibrium and naturally occurring (i.e., the uranium is not derived from process waste or explosive tests conducted with depleted uranium).

Table 3-5
Isotopic Uranium Activities and Total Uranium Concentration in ER Site 69 Soil Samples

Analytes	Method of Analysis	Units	Background Range		Sample Range					
			SNA 69-120	SNA 69-121	SNA 69-111	SNA 69-112	SNA 69-114	SNA 69-116	SNA 69-117	SNA 69-122
Uranium-234	Alpha spec.	pCi/g	0.7±0.1	0.6±0.1	0.7±02	0.6±0.2	0.5±0.1	0.6±0.1	0.6±0.2	0.5±0.1
Uranium-235	Alpha spec.	pCi/g	0.05±0.03	0.05±0.04	0.00±0.08	0.07±0.07	0.00±0.03	0.00±0.04	0.00±0.05	0.06±0.05
Uranium-238	Alpha spec.	pCi/g	0.7±0.1	0.6±0.1	0.6±0.2	0.7±0.3	0.5±0.1	0.5±0.1	0.5±0.2	0.7±0.1
Total Uranium	Fluor-ometry	µg/g	0.89	1.1	1.4	1.0	0.1	1.1	1.0	1.0

Alpha-spec = Alpha spectrometry.
pCi/g = Picocurie(s) per gram.
µg/g = Micrograms per gram.

Pesticides/PCBs and Herbicides

Pesticides/PCBs and herbicides (EPA 509B) were reported along with metals in the EP toxicity and TCLP suites (69-5). The samples contained no detectable concentration of pesticides/PCBs or herbicides.

TCLP SVOCs

TCLP SVOCs were analyzed using the EPA Contract Laboratory Program procedures (69-5). The samples contained no detectable concentrations of TCLP SVOCs.

TNT

Soil samples were analyzed for 2,4,6-TNT by the USATHAMA LW02 method (47-10). The samples contained no detectable concentration of TNT.

3.4.1.3 Analytical Quality Assurance/Quality Control

There were no detectable contaminants in any of the method blanks analyzed with ER Site 69 samples. Laboratory quality assurance/quality control (QA/QC) data reported in Appendix C of the Reconnaissance Data Report for ER Site 69 (69-5) indicate that all analytes in spiked samples have a percent recovery outside of acceptable ranges for the established protocol. An introductory narrative notes that spike samples were prepared by adding a known amount of contaminant to reagent-grade water or to a soil matrix. If spikes were added to a soil matrix, the poor recoveries may be the result of surface chemistry reactions (i.e., adsorption/desorption) between the spike solution and the soil matrix. An additional problem associated with recovery of spike from a soil matrix is the heterogeneity of the soil matrix. There is a high percentage of difference in some analytes for duplicate analyses run on these soil splits, ranging from 2.9 percent for lead to 62.3 percent for calcium. This implies that the spike added to a duplicate soil sample may also contain a large error associated with the heterogeneity of the soil matrix.

In summary, QA/QC support data for these soil samples indicate that the samples do not meet Level III or Level IV criteria. However, the relative comparison between background and potentially contaminated samples indicates that there is no significant difference between the reported analytical results.

3.4.2 Unexploded Ordnance/High Explosive (UXO/HE) Survey

In December 1993, KAFB Explosive Ordnance Disposal completed a surface UXO/HE survey at the site. No live UXO/HE or significant UXO/HE debris was found during this survey (69-23).

3.4.3 Gamma Radiation Survey

In February 1994, RUST Geotech Inc. conducted a surface radiation survey at the site. The survey used a scintillometer containing a sodium-iodide detector to measure gamma radiation. The entire site was surveyed and no detections were found above the background readings of 10 to 12 microroentgen per hour (RUST Geotech Inc. July 1994).

3.5 Assessment of Gaps in Information

There is an absence of definitive records stating that hazardous waste or constituents were ever handled, stored, or disposed of at ER Site 69. However, the lack of morphologic evidence characteristic of a firing site, recent ER Project interviews, historical aerial photographs, negative results for the UXO/HE and gamma radiation surveys, and the laboratory analyses of surface-soil samples fill the data gap arising from the insufficient or incomplete archival records. The physical and chemical data indicate that the site never contained hazardous waste or constituents.

3.6 Rationale for Pursuing An Administrative NFA Decision

SNL/NM is proposing an administrative NFA decision for ER Site 69 because the SWMU never contained hazardous waste or constituents (Criterion A). The site consists of an irregular shaped pit that was most likely formed when material was borrowed for grading the extension to Target Road (USGS; 1961; USGS 1971). Several interviewees who are cratering experts (69-25, 69-26) noted that the irregular shape of the depression and lack of an explosion berm are inconsistent with the morphologic features of blast or explosion craters. Based on the morphology of the pit, ER Site 69 is most likely a borrow pit.

Fifteen years after the site was abandoned, an inspection conducted under the CEARP reported the presence of firing cables and shrapnel at the site (DOE September 1987), and the site was listed as an explosive firing site. However, a recent inspection of the site found only military telephone cable and metal debris near the pit (Dan Sandhaus, personal communication). Surface-soil samples were collected during the CEARP field investigation from the pit and surrounding area (69-5). These samples contained no detectable concentrations of SVOCs or TNT, and detectable concentrations of hazardous metals were consistent with those observed in background samples (69-5).

In December 1993, a UXO/HE survey conducted by KAFB found no live UXO/HE or significant UXO/HE debris at the site (69-23). A gamma radiation survey of surface soils was performed by RUST Geotech Inc. in February 1994, and no readings above background levels were recorded (RUST Geotech Inc. July 1994). Therefore, based on recent surveys and newly obtained historical information, ER Site 69 is recommended for an administrative NFA decision because the SWMU never contained hazardous waste or constituents (Criterion A).

4.0 CONCLUSION

Based upon the evidence cited above, no potential remains for a release of hazardous waste (including hazardous constituents) which may pose a threat to human health or the environment.

5.0 REFERENCES

5.1 ER Site References

Section 5.1 contains a comprehensive bibliographical list of the documents relating to ER Site 69. This list is arranged numerically by the numbers assigned to each document.

ER Site Reference Number	Reference
69-1.	Sandia National Laboratories, August 1993. Site 69 Firing Pits (Near USGS), OU 1293 SWMU Descriptions, Sandia National Laboratories, Albuquerque, New Mexico.
69-2.	Sandia National Laboratories, November 1993. "Environmental Restoration Program Information Sheet," Firing Pits (Near USGS), Sandia National Laboratories, Albuquerque, New Mexico.
69-3.	Van Busbink, D. Handwritten notes, Sergent, Hauskins, & Beckwith, Albuquerque, New Mexico. [n.d.].
69-4.	Lojek, C. Memorandum to D. Bleakly, IT Corporation, Albuquerque, New Mexico. July 15, 1993.
69-5.	Department of Energy, Albuquerque Operations Office, January 1989. Reconnaissance Data Report, Sandia National Laboratories Albuquerque (Draft), Environmental Restoration Program, Department of Energy, Albuquerque Operations Office, Albuquerque, New Mexico.
69-6.	Sandia National Laboratories/New Mexico, October 1989, Environmental Operations Records Center Record Number ER/1334 069/INT/94-001.
69-7.	Sandia National Laboratories/New Mexico, October 1989, Environmental Operations Records Center Record Number ER/1334 069/INT/94-002.
69-8.	Sandia National Laboratories/New Mexico, October 1989, Environmental Operations Records Center Record Number ER/1334 069/INT/94-003.
69-9.	Sandia National Laboratories/New Mexico, October 1989, Environmental Operations Records Center Record Number ER/1334 069/INT/94-004.
69-10.	Sandia National Laboratories/New Mexico, October 1989, Environmental Operations Records Center Record Number ER/1334 069/INT/94-005.

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69-13. Wilson, S., and D. Miller. Memorandum to D. Gonzales, Sandia National Laboratories, Albuquerque, New Mexico. September 30, 1987.

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69-18. Lojek, C. Field Activity Daily Log, SNLER OU 1293, Visit to "Fact Site," SWMUs #47 and 69, Sandia National Laboratories, Albuquerque, New Mexico. July 15, 1993.

69-19. Lojek, C. Field Activity Daily Log, Site #69, Firing Pits, Sandia National Laboratories, Albuquerque, New Mexico. July 21, 1993.

69-20. Lojek, C., and M. Young. Field Activity Daily Log, Schoolhouse Mesa RFI, Tour of North and South Coyote Test Field, Sandia National Laboratories, Albuquerque, New Mexico. January 27, 1993.

69-21. Sandia National Laboratories/New Mexico, October 1993, Environmental Operations Records Center Record Number ER/1334 069/INT/94-007.

69-22. Sandia National Laboratories/New Mexico, February 1994, Environmental Operations Records Center Record Number ER/1334 069/INT/94-008.

69-23. Young, M. Memorandum to Distribution, Sandia National Laboratories, Albuquerque, New Mexico. February 24, 1994.

69-24. Sandia National Laboratories/New Mexico, February 1994, Environmental Operations Records Center Record Number ER/1334 069/INT/94-009.

69-25. Sandia National Laboratories/New Mexico, January 1993, Environmental Operations Records Center Record Number ER/1334 069/INT/94-010.

69-26. Sandia National Laboratories/New Mexico, December 1993, Environmental Operations Records Center Record Number ER/1334 069/INT/94-011.

61-78. Lojek, C. and D. Sandhaus. Memorandum to Project File OU 1334, Sandia National Laboratories, Albuquerque, New Mexico. December 21, 1993.

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5.3 Aerial Photographs

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