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Environmental Restoration Program
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Date: June 19, 2000
Refer to: ER2000-0226

2000
RECEIVED

Mr. John Kieling
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502

SUBJECT: HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984, PERMIT MODIFICATION REQUEST, NO FURTHER ACTION PROPOSALS, JUNE 2000

Dear Mr. Kieling:

In accordance with 20 NMAC 4.1 Subparts IX and X, et. seq., the Department of Energy and the Los Alamos National Laboratory request a Class III permit modification to the Hazardous and Solid Waste Amendments Module VIII of the Resource Conservation and Recovery Act (RCRA) Hazardous Waste Facility Permit.

The Class III permit modification requests the removal of nine solid waste management units (SWMUs) from the permit. These units have been investigated and recommended for no further action in a RCRA facility investigation report, a voluntary corrective action completion report, or the implementation of a RCRA closure in accordance with an approved closure plan. Your Bureau has concurred with the determination that no further action is appropriate for eight of the nine SWMUs via approval of the aforementioned reports and closure certifications. The remaining SWMU has received an approved closure letter from the New Mexico Environment Department Underground Storage Tank Bureau. A Class III permit modification request is the appropriate vehicle to remove the nine units from the permit.

Enclosed please find three copies of the permit modification request to remove nine SWMUs from Module VIII of the Laboratory Hazardous Waste Facility Permit. Also enclosed is a certification statement signed by the designee owner and operator of the Laboratory.

The facility will publish in local newspapers a designated notice of the modification required and will send notices to all persons on the facility mailing list. The notice will contain, at a minimum, all information as prescribed in 20 NMAC 4.1 Subpart IX, Subsection 901B.

15850

If you have any further questions regarding the permit modification, please contact Dave McInroy at (505) 667-0819 or Joe Mose at (505) 667-5808.

Sincerely,

Julie A. Canepa, Program Manager
Los Alamos National Laboratory
Environmental Restoration

Sincerely,

Theodore J. Taylor, Program Manager
Department of Energy
Los Alamos Area Office

JC/TT/LN/ev

Enclosure: 1) Hazardous and Solid Waste Amendments of 1984, Permit Modification Request, No Further Action Proposals, June 2000
2) Certification

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J. Bearzi, NMED-HRMB
S. Dinwiddie, NMED-HRMB

CERTIFICATION

I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

Document Title: Hazardous and Solid Waste Amendments of 1984, Permit Modification Request, No Further Action Proposal, June 2000

Name: _____ Date: 6/14/00

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or

Mike Baker, Program Director
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Name: _____ Date: 6-19-00

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Joseph Vozella,
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A Department of Energy
Environmental Cleanup Program

LA-UR-00-2265
June 2000
ER2000-0197

Hazardous and Solid Waste Amendments of 1984 Permit Modification Request

No Further Action Proposals

Los Alamos
NATIONAL LABORATORY
Los Alamos, NM 87545

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environmental restoration project

A Department of Energy
Environmental Cleanup Program

LA-UR-00-2265
June 2000
ER2000-0197

Hazardous and Solid Waste Amendments of 1984 Permit Modification Request

No Further Action Proposals

Los Alamos
NATIONAL LABORATORY
Los Alamos, NM 87545

Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by the University of California for the United States Department of Energy under contract W-7405-ENG-36.

EXECUTIVE SUMMARY

The Los Alamos National Laboratory (the Laboratory) is requesting from the New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Bureau a Class III permit modification for removal of nine solid waste management units (SWMUs) from Module VIII of the Laboratory's Hazardous Waste Facility Permit.

SWMUs are proposed for removal from Module VIII based on one of five no further action (NFA) criteria. In this request for permit modification, the following two SWMUs are being proposed for removal from Module VIII of the Laboratory's Hazardous Waste Facility Permit under NFA Criterion 1:

SWMU 02-008(b), an inactive outfall (nonexistent)

SWMU 15-012(a), an operational release (reputed)

The following two SWMUs are proposed for removal from Module VIII under NFA Criterion 3:

SWMU 06-003(g), an inactive firing pad and the footprint of a former building that was used for processing high explosives

SWMU 15-009(j), a former septic tank and associated seepage pits

The following two SWMUs are proposed for removal from Module VIII under NFA Criterion 4:

SWMU 00-033(a), a former underground storage tank

SWMU 40-003(a), a former detonation site

The following three SWMUs are proposed for removal from Module VIII under NFA Criterion 5:

SWMU 00-016, a former small-arms firing range

SWMU 15-012(b), a former wash area for explosive devices

SWMU 21-005, a former nitric acid pit

The NMED Hazardous and Radioactive Materials Bureau has concurred with the NFA proposals for eight of the nine SWMUs via approval of a Resource Conservation and Recovery Act (RCRA) facility investigation report, a voluntary corrective action completion report, or the implementation of a RCRA closure in accordance with an approved closure plan. The remaining SWMU [00-033(a)] has received an approved closure letter from the NMED Underground Storage Tank Bureau.

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1.0 INTRODUCTION

The Los Alamos National Laboratory (the Laboratory) is requesting from the New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Bureau (HRMB) a Class III permit modification for the removal of nine solid waste management units (SWMUs) from Module VIII of the Laboratory's Hazardous Waste Facility Permit. The proposals for the removal of these nine units are based on field investigations, archival investigations, and/or site cleanups performed by the Laboratory's Environmental Restoration (ER) Project.

Each SWMU proposed in this request for permit modification has been evaluated for potential risks to human health and the ecosystem. Additionally, an assessment has been made of applicable regulations and standards that may be appropriate to each site. Applicable regulations and standards investigated include surface water standards, groundwater standards, air emissions requirements, polychlorinated biphenyl (PCB) management requirements, and underground storage tank (UST) regulations (when applicable). The Laboratory ER Project has determined that each of the no further action (NFA) proposals for permit modification presented in this request is valid based on human health and ecological evaluations, as well as all other applicable regulations and standards. Documentation supporting each proposed modification is attached.

The ER Project has proposed eight of the nine SWMUs for NFA via a Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) report, a voluntary corrective action completion report, or the implementation of a RCRA closure in accordance with an approved closure plan. The NMED-HRMB has approved each of the reports and the RCRA closure, thereby concurring with the proposals for NFA. The eight SWMUs are 00-016, 02-008(b), 06-003(g), 15-009(j), 15-012(a), 15-012(b), 21-005, and 40-003(a).

Based on an approved closure letter from the NMED UST Bureau, the remaining SWMU [00-033(a)] is being proposed both for NFA and removal from Module VIII of the Laboratory's Hazardous Waste Facility Permit via this request for permit modification.

1.1 NFA Criteria

Within the Laboratory ER Project, there are five criteria for proposing NFA for SWMUs. The NMED-HRMB and the Laboratory have agreed upon these criteria for determining NFA. The five NFA criteria are listed below.

NFA Criterion 1. The site does not exist; is a duplicate of another site; cannot be located, or is located within another site, and has been or will be, investigated as part of that site.

NFA Criterion 2. The site was never used for the management (that is, generation, treatment, storage or disposal) of RCRA solid or hazardous wastes and/or constituents.

NFA Criterion 3. The site is not known or suspected of releasing RCRA solid or hazardous wastes and/or constituents to the environment. The term "release" means any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous wastes (including hazardous constituents) into the environment.

NFA Criterion 4. The site is regulated under another state and/or federal authority. If the site is known or suspected of releasing RCRA solid or hazardous wastes and/or constituents to the environment, it has been or will be investigated and/or remediated in accordance with the applicable state/and or federal regulations.

NFA Criterion 5. The site was characterized or remediated in accordance with applicable state/and or federal regulations, and the available data indicate that contaminants pose an acceptable level of risk under current and projected future land use.

An administrative NFA proposal based on Criteria 1 through 3 is supported by acceptable knowledge of process and/or documented information that indicates that there has not been a release at the site, thus precluding the need for characterization and/or remediation.

An NFA proposal based on Criterion 4 is supported by acceptable knowledge of process and/or documented information that confirms that if there was a release, the site was adequately characterized and/or remediated in accordance with a regulatory authority other than that which oversees RCRA corrective action. NFA Criterion 4 is based on the fact that cleanup levels prescribed under other regulatory authorities, such as the EPA Toxic Substances Control Act (TSCA) or NMED UST regulations, were developed to incorporate human health and ecological risk considerations. Therefore, SWMUs managed in accordance with other regulatory programs normally do not require subsequent action under RCRA corrective action. However, any of the above five criteria may be supported with confirmatory sampling when necessary.

An NFA proposal based on Criterion 5 is supported by data and acceptable knowledge of process and/or documented information that confirms that the site was adequately characterized and/or remediated in accordance with the Hazardous and Solid Waste Amendments of 1984 (HSWA) corrective action process.

None of the SWMUs presented in this request for permit modification have been proposed under Criterion 2.

1.2 Applicability of the Evaluation of Human Health Risk, Ecological Risk, and Other Applicable Regulations and Standards to NFA Criteria 1 Through 4

NFA proposals based on administrative NFA Criteria 1 through 3 require adequate supporting documentation to establish justification for NFA. However, Criteria 1, 2, and 3 NFA proposals generally do not require environmental sampling and analyses, evaluations for risks to human health or the ecosystem, or an evaluation of the applicability of other regulations and standards.

An NFA proposal based on Criterion 4 (the site was remediated in accordance with another state and/or federal authority) indicates that these SWMUs are/were characterized and managed in accordance with the requirements specified in other applicable regulations and/or standards. Other applicable regulations and standards include surface water standards, groundwater standards, air emission standards, UST regulations, and PCB regulations. Human health and ecological health risk evaluations are inherent in (or addressed by) the cleanup levels established by other regulatory authorities, such as TSCA requirements or NMED UST Bureau regulations. Such requirements or regulations specify the human health and ecologically based cleanup levels that must be met (in the event of a release) to achieve NFA. Criterion 4 SWMUs with a confirmed release require documentation confirming that the release was cleaned to the requirements and/or standards of the applicable regulatory authority.

1.3 Variation from the Outline for HSWA Permit Modification Request Provided in Section II.B.4.a(4)(a) of the March 3, 1998, HRMB Document, RCRA Permits Management Program Document Requirement Guide

As discussed in Section 1.2, environmental sampling and analyses and site assessments (human health, ecological, and other) do not apply to SWMUs being proposed for NFA under Criteria 1 through 4.

Therefore, on May 4, 1999, the ER Project negotiated an agreement with the NMED-HRMB to vary from the outline for a HSWA Permit Modification Request provided in Section II.B.4a(4)(a) of the March 1998 HRMB document, RCRA Permits Management Program Document Requirement Guide (NMED 1998, 57897). Documentation of the negotiation and the revised outline for Criteria 1 through 4 SWMUs being requested for release from Module VIII of the Laboratory's Hazardous Waste Facility Permit are included as Appendix E of this document.

1.4 Organization of this Request

Text for each SWMU in this permit modification request is separated by an indexed tab labeled with its SWMU number. Section X.1 is a brief summary of the SWMU. Section X.2 contains a description of the SWMU (including site maps, if applicable) and its operational history. The text for each SWMU is based on an RFI report, voluntary corrective action (VCA) completion report, or RCRA closure report, as applicable to that SWMU. The current and future land use of each SWMU is contained in Section X.3. Section X.4 (X.7 for Criterion 5 SWMUs) summarizes the justification for the NFA decision and states the specific NFA criterion under which each SWMU is being proposed for permit modification. The supporting documentation for each SWMU is listed in Section X.5 (X.8 for Criterion 5 SWMUs) and attached at the end of each SWMU write-up. (In order to avoid unnecessary duplication, attachments that are common to more than one SWMU are included in Appendix D.) For some attachments, the information applicable to support NFA has been highlighted to point the reader to the exact location that was referenced in the SWMU discussion. When only a small portion of a document is applicable, only the relevant pages have been included. Complete attachments are available upon request.

Section X.6 (X.9 for Criterion 5 SWMUs) provides the reference on which the text of the request for permit modification for a particular SWMU is based. Lastly, Section X.7 (X.10 for Criterion 5 SWMUs) provides a history of the regulatory deliverables for each SWMU.

For Criterion 5 SWMUs, Section X.4 provides a description of investigation activities for each SWMU; Section X.5 provides a description of the site conceptual model; and Section X.6 provides a description of the applicable site assessments, such as human health or ecological screening assessments, conducted for the SWMU.

Appendix A includes a list of acronyms and a glossary of terms used in this request. Appendix B includes the Laboratory's requested modifications to Tables A and B of Module VIII of the Laboratory's Hazardous Waste Facility Permit (none of the SWMUs addressed in this request for permit modification affect Table C; therefore, the current version of Table C is included). The date of the permit modification request is indicated next to the number of the unit proposed for modification. Appendix C includes the Proposed Tables A and B and the current version of Table C of Module VIII. These tables represent Module VIII upon final approval of all NFA requests to date. Records pertaining to this modification request are kept on file at the ER Project's Records Processing Facility. Appendix D contains attachments common to more than one SWMU. Appendix E contains the supporting documentation for varying from the outline for HSWA Permit Modification Request provided in Section II.B.4.a(4)(a) of the March 1998 HRMB document, RCRA Permits Management Program Document Requirement Guide (NMED 1998, 57897).

REFERENCE

NMED (New Mexico Environment Department), 1998. "RPMP Document Requirement Guide," Hazardous and Radioactive Materials Bureau, RCRA Permits Management Program, Santa Fe, New Mexico. (NMED 1998, 57897)

2.0 SWMU 00-016
FORMER SMALL-ARMS FIRING RANGE

2.1 Summary

SWMU 00-016 is a former firing range used by Laboratory security forces for small-arms target practice. The Laboratory ER Project implemented a VCA at this SWMU. VCA activities involved characterization and remediation of the site in accordance with applicable state/federal regulations. Confirmation sampling verified that residual contamination is at concentrations that pose an acceptable level of risk under current and projected future land use. NMED approved the final VCA completion report in a letter dated September 22, 1999, and approved the Laboratory's response to two NMED comments about this SWMU in a letter dated December 1, 1999. SWMU 00-016 is being proposed for NFA under NFA Criterion 5 (the site was characterized and remediated in accordance with state and/or federal regulations).

2.2 Description and Operational History

2.2.1 Site Description

SWMU 00-016 is the site of a former small-arms firing range located in Rendija Canyon. The SWMU is located on US Forest Service (USFS) property in the Santa Fe National Forest.

The site comprises approximately two acres. Prior to VCA activities, the firing site had earthen ridges (berms) arranged in a semicircle to retain bullets from target practice. The firing range consisted of a backstop berm along the northern edge of the firing range floor, a side berm along the eastern edge, a tuff slope along the western edge of the range floor, and a medial berm running north and south that separated the site into two firing areas (Figure 2.2-1). Backstop berms were approximately 8 to 12 ft high and 35 to 50 ft wide. Both firing areas consisted of several firing lanes; bullets were fired in a northwest direction.

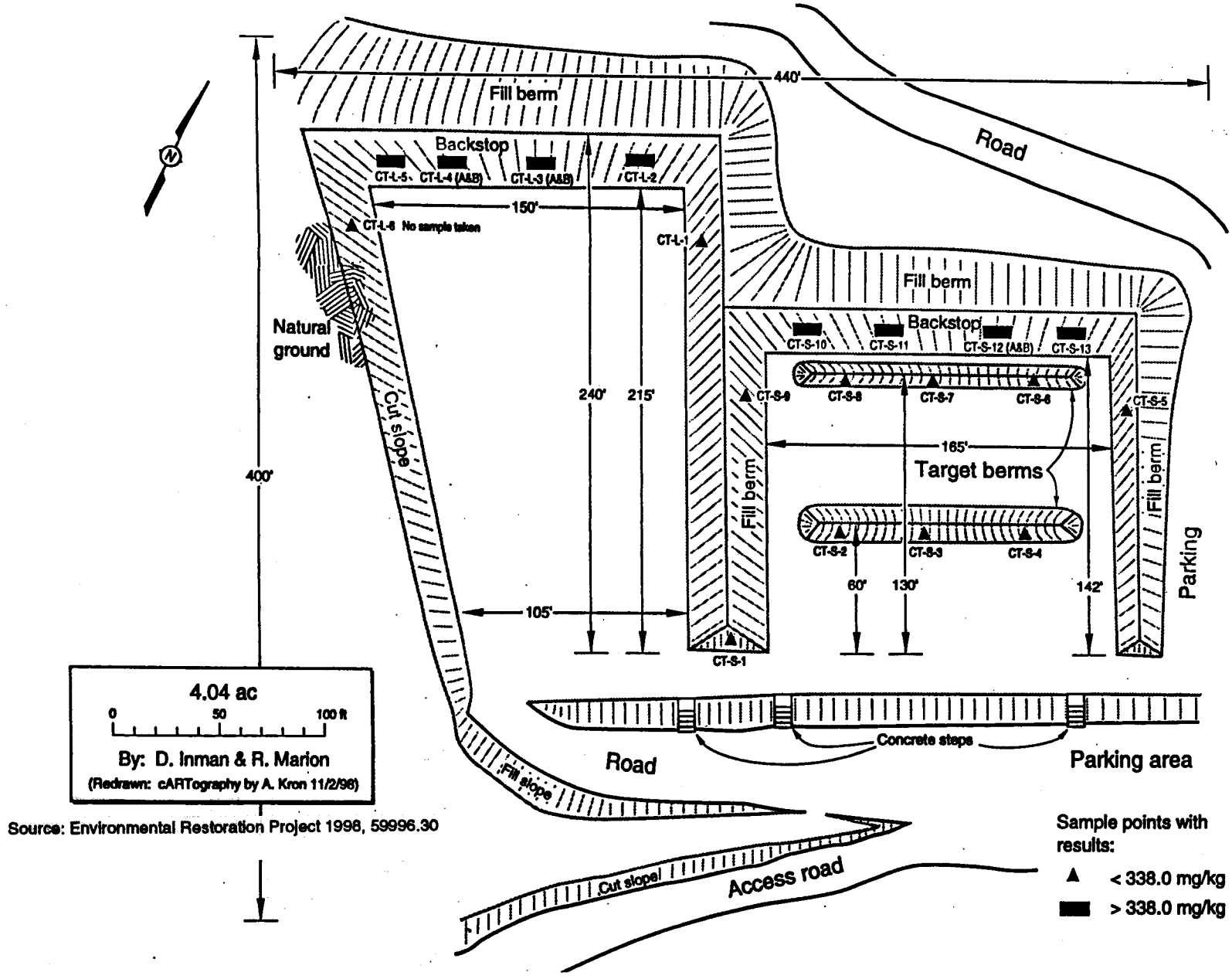
The western target area measured approximately 215 ft in length and 105 ft in width at its front and 150 ft in width at its back. This target area was bounded on the east by the central longitudinal berm, which measured approximately 240 ft long, 30 to 40 ft wide, and 8 ft high. This target area was bounded on the west by a tuff slope approximately 230 ft long and ranging from 9 to 15 ft in height.

The eastern target area measured approximately 142 ft in length and 165 ft in width. This area was bounded on the east by a longitudinal berm approximately 160 ft long, 25 to 35 ft wide, and 5 to 8 ft high and on the west by the central longitudinal berm separating the two target areas. This target area also contained two smaller, transverse berms each approximately 120 to 130 ft long, 12 to 18 ft wide, and 2 ft high.

2.2.2 Operational History

The small-arms firing range (SWMU 00-016) was constructed in 1947 for use by the Laboratory security force. The security force continued to use the firing range for target practice until the current firing range was built in Sandia Canyon in the early 1960s. In 1976, the US Department of Energy (DOE) released the Rendija Canyon small-arms firing range and surrounding areas to the USFS. The general public unofficially used the site for recreational target practice from the time the security force vacated the site in the early 1960s until 1992.

In 1991, as part of the process for initiating a projected land transfer, the USFS conducted a study of SWMU 00-016 that included analyses of soil for lead. Soil sampling results ranged between 20 to 156,100 mg/kg lead. Contamination was attributed to the presence of lead bullets. As a result of this study, the Laboratory ER Project initiated a VCA to remediate SWMU 00-016.



Source: Environmental Restoration Project 1998, 59996.30

Figure 2.2-1. USDA Forest Service drawing of the original firing range

A fence was erected around the SWMU in 1992 to control access to the site during the initial planning stage of the VCA. VCA activities were conducted from September 1993 through May 1997. Pending completion of the land exchange between the USFS and a private land developer, the USFS is allowing the developer to use the site as a storage area for construction equipment and materials.

2.3 Land Use

2.3.1 Current

The site where SWMU 00-016 was formerly situated is located on USFS property in the Santa Fe National Forest. The USFS and the County of Los Alamos requested that the SWMU be remediated prior to transfer of the land as part of a larger public-private land exchange. The USFS land surrounding and/or adjacent to the site where the SWMU was formerly located is currently being developed for residential housing. Prior to the 1992 installation of a fence around the site where SWMU 00-016 was formerly located, access to the site was not restricted.

2.3.2 Future/Proposed

Upon removal of SWMU 00-016 from the Laboratory's Hazardous Waste Facility Permit, the USFS will transfer the land parcel on which the SWMU was formerly located to a Los Alamos land developer who plans to develop the land for residential housing.

2.4 Investigation Activities

A complete and detailed discussion of all investigation activities is presented in the final VCA completion report for SWMU 00-016 (LANL 1998, 59996.30) submitted to HRMB in November 1998 and approved by NMED December 1, 1999. A summary of those activities is presented in Sections 2.4.1 through 2.4.3 of this request for permit modification.

2.4.1 Summary

Based on the results of a USFS study of SWMU 00-016, the ER Project conducted a VCA of the site. Confirmation sampling determined that all soils containing elevated concentrations of lead, copper, and zinc, the chemicals of potential concern (COPCs) identified for this SWMU, had been effectively removed from the site. Human health and ecological screening assessments were conducted on data from confirmation samples collected from SWMU 00-016 after the remediation of the site. Lead was detected above its background value (BV) in some confirmation samples; however, it was eliminated as a COPC because the maximum detected concentration of lead was 85.6 mg/kg, which is well below the 400-mg/kg residential cleanup level for lead. Therefore, no human health risk assessment was conducted. No COPCs were identified in the ecological screening assessment; therefore, no ecological risk assessment was performed.

2.4.2 Investigation #1: USFS Study of SWMU 00-016

In 1991, the USFS conducted a study of SWMU 00-016. Twenty-one surface soil samples were collected from the earthen berms and analyzed for total lead only. Analytical results ranged between 20 and 156,100 mg/kg lead, indicating the presence of lead contamination in the soil. Contamination was attributed to the presence of lead bullets on the surface of the berms.

As a result of this study, the Laboratory ER Project initiated a VCA to address the lead contamination in surface soils at SWMU 00-016.

2.4.2.1 Nonsampling Data Collection

This section is not applicable for the USFS study of SWMU 00-016.

2.4.2.2 Sampling Data Collection

Twenty-one surface soil samples were collected from the earthen berms. The samples were analyzed for total lead only, using EPA Method 7421 (atomic absorption spectroscopy).

2.4.2.3 Data Gaps

This section is not applicable for the USFS study of SWMU 00-016.

2.4.3 Investigation #2: VCA Remediation of SWMU 00-016

VCA activities were conducted from September 1993 through May 1997. Two screening methods were used to assist in determining the extent of contamination and to screen the soil prior to the collection of samples: metal detection of lead and bullets in the soil and analysis of lead in the soil using x-ray fluorescence (XRF). Use of these methods allowed for sample location selection that targeted higher concentrations of lead.

Two methods of remediation were used during VCA activities. The first involved soil washing to remove the lead bullets and fine lead particles by density separation. The second method involved mechanical separation (using a shaker plant) to sieve the soil to remove the lead bullets and lead fragments.

Following the excavation and processing of contaminated soils, confirmation sampling was conducted on the range floor, the back area of the range, the utility right-of-way (that eventually would be used by the private land developer), and in first-order drainages around the site. Confirmation samples confirmed that all soils containing elevated concentrations of lead, copper, and zinc had been effectively removed from soils at the site.

Site restoration was conducted on the floor and in the back area of the range after completing confirmation sampling. Restoration activities included recontouring, grading, installing permanent storm water run-off and erosion controls, and revegetating denuded areas. The range floor was reseeded and mulched with straw to facilitate revegetation and prevent erosion. The area is currently well revegetated and shows no evidence of erosion. Restoration of the back area included replacing removed soils with clean top soil, reseeding the area, and covering it with biodegradable erosion-control matting. The area is currently well vegetated and no significant erosion has been observed.

Based on an EPA ruling that allowed processed soils with less than 400 mg/kg of total lead to be reused, the private land developer used approximately 6000 yd^3 of processed soils from SWMU 00-016 for the widening and elevation of 400 ft of Range Road prior to its paving. This fill area extends under the pavement south of Aspen Drive to the bend in the road at the first guard rail on the west side of the road. (Parker 1998, 62234) (Attachment A). The fill area lies more than 50 yd away from the nearest watercourse and is located in an area that has low erosion potential because of its topography and vegetative cover.

2.4.3.1 Nonsampling Data Collection

Two methods were used to help determine the extent of contamination, refine the soil washing process, and screen the soil prior to the collection of fixed-site-laboratory samples. The methods used were metal

detection of the lead and bullets in the soil, and analysis of lead in the soil using XRF in a mobile laboratory set up at the SWMU. These methods allowed for sample location selection that targeted higher concentrations of lead as well as rapid turnaround of sample results. Without these field screening techniques, site activities would have stopped during periods of fixed-site-laboratory analytical testing.

2.4.3.2 Sampling Data Collection

Post-VCA excavation and processing confirmatory sampling was conducted in the range floor, the back area, the right-of-way, and the first-order drainages to demonstrate that materials containing elevated concentrations of copper, lead, and zinc had been removed. A total of 54 confirmatory samples were collected and submitted to a fixed-site analytical laboratory for analysis of total recoverable copper, lead, and zinc by EPA SW-846 methods.

2.4.3.3 Data Gaps

There were no data gaps. Sufficient data were collected to adequately determine nature and extent (horizontal and vertical) of contamination.

2.5 Site Conceptual Model

A complete and detailed discussion of the site conceptual model is presented in the VCA completion report for SWMU 00-016 (LANL 1998, 59996.30) submitted to HRMB in November 1998. A summary of the site conceptual model is presented in Sections 2.5 through 2.5.2 of this request for permit modification.

SWMU 00-016 was a small-arms firing range with earthen berms arranged to retain bullets. The primary release of contaminants was via the deposition of lead bullets into the range berm and floor soils during the active use of the site. A secondary release of contamination might have occurred, caused by weathering and dispersal through wind and/or waterborne erosion.

2.5.1 Nature and Extent of Contamination

The lead bullets and associated fragments were assumed to be largely restricted to the range itself, with a majority of the bullets remaining in the target and backstop berms. The primary COPC was elemental lead; however, copper and zinc, commonly present as minor components of lead bullets used with small arms, were also considered as COPCs.

Based on the physical process that created the contamination (the firing of bullets into targets), it was expected that lead concentrations would decrease with increasing distance from and depth beneath the surface. Concentrations were pursued using metal detector responses, XRF lead results, and fixed-laboratory results for lead, copper, and zinc. Horizontal and vertical extent were determined as residual concentrations decreased to less than the cleanup levels for lead, copper, and zinc, based on confirmation sample results. Residential cleanup levels were 400, 2800, and 22,000 mg/kg for lead, copper, and zinc, respectively. Soil containing lead contamination was removed until sample results were less than the established cleanup levels. This process also removed any unexploded bullets remaining in the soil. After soil processing and removal of the berms and soils from the back and floor of the firing range, confirmation samples across the range floor and in the back area of the site were all below the cleanup level; thus confirming the remediation of both horizontal and vertical extent.

2.5.2 Environmental Fate

Water solubility, soils adsorption, and vaporization were considered because they are the main routes by which metals enter and are distributed in the environment. Metallic cations are insoluble in soil, especially in neutral pH soils such as those present at the firing range. Adsorption particulate matter is a major mechanism by which metals are retained in neutral pH soils and prevented from moving in solution. Vaporization of the lead, copper, and zinc was considered to be highly unlikely because of the low vapor pressures of these metals.

2.6 Site Assessments

2.6.1 Summary

Lead was detected above its BV in some confirmation samples for SWMU 00-016; however, it was eliminated as a COPC in the human health screening assessment because it posed no unacceptable risk to human health. Therefore, no human health risk assessment was necessary. No COPCs were identified in the ecological screening assessment; therefore, no ecological risk assessment was necessary.

2.6.2 Screening Assessments

A complete and detailed discussion of the screening assessments is presented in the VCA completion report for SWMU 00-016 (LANL 1998, 59996.30) submitted to HRMB in November 1998. A summary of the screening assessments is presented in Sections 2.6.2.1 and 2.6.2.2 of this request for permit modification.

2.6.2.1 Human Health

The future land use for SWMU 00-016 is residential. Therefore the exposure assumption is that people will be living on the land 24 hours a day for 70 years. The exposure pathways identified were inhalation, ingestion, and dermal contact of contaminated soil.

The data review indicated that lead was present at a concentration greater than its BV of 22.3 mg/kg. The maximum concentration of lead in confirmation samples (85.6 mg/kg) was compared with the residential cleanup level for lead (400 mg/kg) to determine if lead was present at concentrations of potential concern. Because lead was the only COPC at the site detected at concentrations greater than BVs, no adjustment to the cleanup level was required to account for potential toxicity interactions with other noncarcinogens. Because the maximum concentration of lead (85.6 mg/kg) was well below the cleanup level of 400 mg/kg for lead, lead was eliminated as a COPC in the human health screening evaluation. Therefore, no unacceptable risk to human health is present at this SWMU, and a human health risk assessment is not necessary.

2.6.2.2 Ecological

Copper and zinc were not detected above their respective BVs of 14.7 and 48.8 mg/kg in any of the confirmation samples collected at SWMU 00-016 and were therefore eliminated as COPCs in the ecological screening assessment. Lead was reported above its BV of 22.3 mg/kg in 16 of the 30 confirmation samples collected from the firing range exposure area, with concentrations ranging from 23.7 to 85.6 mg/kg. The firing range exposure area consists of the range floor, the utility right-of-way, the pond location, and the first-order drainages. Lead was also reported above its BV in 6 of the 18 confirmation samples collected from the back exposure area with concentrations ranging from 28.4 to

58.6 mg/kg. The back exposure area encompasses approximately 1.25 acres of ponderosa pine forest and consists of the descending slope north of the firing range, which runs to an ephemeral drainage channel (a branch of Rendija Canyon).

Since completion of the VCA, the firing range floor area has undergone further modification to meet the needs of the private land developer. Modification included further excavation and soil removal to promote the desired grade for proper surface drainage and edge contouring. The area was also covered with a 1-ft layer of base course. These modifications, considered with the current land use of the site and information from the ecological scoping checklist for SWMU 00-016, support a determination that no ecological receptors are present and no viable exposure pathways or off-site transport pathways exist at this exposure area. Therefore, no ecological risk assessment is required for this exposure area.

The soil removed from the back area during VCA activities was replaced with clean topsoil, and the area was reseeded and covered with erosion-control matting. Although there appears to be limited ecological exposure potential due to covering and revegetating the area, the root zone can be penetrated by the vegetative cover. Therefore, the back area exposure unit was subjected to further ecological screening evaluation to determine if residual lead concentrations reported in confirmation soil samples presented an ecological concern. The maximum reported concentration of lead for this area exceeded the ecological screening level for only one of the nine screening receptors identified. In addition, the uncertainty analysis of this exposure area concluded that lead does not pose the potential for ecological risk at this SWMU. Therefore, no ecological risk assessment is required for this exposure area or for the entire SWMU.

2.6.3 Risk Assessments

2.6.3.1 Human Health

Lead was detected above its BV in 22 of 54 confirmation samples; however, it was eliminated as a COPC because the maximum detected concentration of lead was 85.6 mg/kg, which is well below the 400-mg/kg residential cleanup level for lead. Therefore, no human health risk assessment was necessary for SWMU 00-016.

2.6.3.2 Ecological

No COPCs were identified in the ecological screening assessment conducted for SWMU 00-016. Therefore, no ecological risk assessment was necessary.

2.6.4 Other Applicable Assessments

2.6.4.1 Surface Water

The ER Project has developed a procedure to assess sediment transport and erosion concerns at individual SWMUs. It provides a basis for prioritizing and scheduling actions to control the erosion of potentially contaminated soils at specific SWMUs. The procedure is a two-part evaluation. Part A is a compilation of existing analytical data for the SWMU, site maps, and knowledge-of-process information. Part B is an assessment of the erosion/sediment transport potential at the SWMU. Erosion potential is numerically rated from 1 to 100 using a matrix system. SWMUs that score below 40 have a low erosion potential; those that score from 40 to 60 have a medium erosion potential; and those that score above 60 have a high erosion potential.

A surface water assessment for SWMU 00-016 was conducted on May 14, 1997. The assessment resulted in a low score of 17.5, indicating that the site has very low erosion potential.

The assessment found no debris in any watercourse. There are no man-made or natural hydraulic structures or features that might affect the hydrology of the site. Interflow is not a suspected pathway for contaminant migration because of the relatively insoluble nature of lead, copper, and zinc. Therefore, the results of the surface water assessment indicated little potential for contaminant transport via surface water or sediment.

There are no wetlands or springs, no active or inactive local water supply and productions wells in the vicinity of SWMU 00-016.

2.6.4.2 Groundwater

SWMU 00-016 presents no potential pathway for contaminant release to groundwater. The regional aquifer is approximately 875 to 1100 ft below the ground surface at TA-16 and well below the vertical extent of contamination at SWMU 00-016, which was defined. Also lead, copper, and zinc are relatively insoluble in nature.

2.6.4.3 Underground Storage Tank

This section not applicable.

2.6.4.4 Other

This section not applicable.

2.7 No Further Action Proposal

2.7.1 Rationale

The VCA implemented at SWMU 00-016 involved two methods of remediation. The first method employed soil washing to remove lead bullets and fine lead fragments from the soil by density separation. The second method involved using a shaker plant to mechanically sieve the soil to remove lead bullets and fragments.

The Laboratory ER Project submitted a final VCA completion report for SWMU 00-016, dated November 1998 (LANL 1998, 59996.30) to HRMB. The VCA completion report

- documents all cleanup activities and sampling results;
- states that the confirmation sampling performed for copper, lead, and zinc (the three metals commonly found in small-arms ammunition) at SWMU 00-016 verified that residual contamination for the three metals is at concentrations that pose an acceptable level of risk under current and projected future land use; and
- proposes that this SWMU be considered for NFA under Criterion 5.

In a September 22, 1999, letter, HRMB approved the report, with comment (NMED 1999, 64564) (Attachment B). In a November 1, 1999, letter, the ER Project responded to the comments (LANL 1999, 65106) (Attachment C). In a December 1, 1999, letter, HRMB approved the Laboratory's resolution of their comments (NMED 1999, 65312) (Attachment D).

2.7.2 Criterion

Based on the information presented in Sections 2.2 through 2.6, SWMU 00-016 is proposed for NFA under Criterion 5.

2.8 Supporting Documentation Attached

Attachment A: Letter from P. Parker, October 1998. Letter from private land developer concerning use of processed soil from SWMU 00-016. (Parker 1998, 62234)

Attachment B: NMED-HRMB letter from J. Kieling, September 1999. Approval and concerns response to rejection of 00-016 VCA completion report. (NMED 1999, 64564)

Attachment C: LANL letter E/ER:99-318 from J. Canepa and T. Taylor, November 1999. Response to approval and concerns of 00-016 VCA report and revised 00-016 completion report. (LANL 1999, 65106)

Attachment D: NMED-HRMB letter from J. Bearzi, December 1999. SWMU 00-016 concerns. (NMED 1999, 65312)

2.9 Reference Used for Text of the Request for Permit Modification for SWMU 00-016

Environmental Restoration Project, November 1998. "Voluntary Corrective Action Completion Report for SWMU 0-016, Revision 1," Los Alamos National Laboratory Report LA-UR-97-2745, Los Alamos, New Mexico. (Environmental Restoration Project 1998, 59996.30)

2.10 History of Regulatory Deliverables

LANL, November 1998:	VCA completion report for SWMU 00-016, Revision 1, submitted to HRMB (ER Project 1998, 59996.30)
NMED, September 22, 1999:	Approval of and two concerns about VCA completion report. (NMED 1999, 64564)
LANL, November 1, 1999:	Response to concerns about VCA completion report. (LANL 1999, 65106)
NMED, December 1, 1999:	Approval of LANL's response to concerns and final approval of VCA completion report. (NMED 1999, 65312)

2.10.1 References for Regulatory Deliverables

Environmental Restoration Project, November 1998. "Voluntary Corrective Action Completion Report for SWMU 0-016, Revision 1," Los Alamos National Laboratory Report LA-UR-97-2745, Los Alamos, New Mexico. (Environmental Restoration Project 1998, 59996.30)

NMED (New Mexico Environment Department), September 22, 1999. "Approval and Concerns Response to Rejection of 00-016 VCA Completion Report, Los Alamos National Laboratory NM0890010515," New Mexico Environment Department-Hazardous and Radioactive Materials Bureau letter to J. Browne (Laboratory Director) and T. Taylor (DOE ER Project Manager) from J. Kieling (LANL Project Leader, HRMB), Santa Fe, New Mexico. (NMED 1999, 64564)

LANL (Los Alamos National Laboratory), November 1, 1999. "Approval and Concerns of 0-016 VCA Report and the Revised 0-016 Completion Report," Los Alamos National Laboratory letter (E/ER:99-318) to J. Bearzi (NMED-HRMB) from J. Canepa (ER Project Project Manager) and T. Taylor (DOE ER Program Manager) Los Alamos, New Mexico. (LANL 1999, 65106)

NMED (New Mexico Environment Department), December 1, 1999. "Solid Waste Management Unit 00-016 Concerns," New Mexico Environment Department-Hazardous and Radioactive Materials Bureau letter to L. Atencio (US Department of Agriculture Forest Supervisor) from J. Bearzi (Chief, HRMB), Santa Fe, New Mexico. (NMED 1999, 65312)

00-016

ATTACHMENTS

Attachment A

David McInroy
Mail Stop M992
Los Alamos National Laboratory
Environmental Restoration Project
Los Alamos, New Mexico 87545

October 21, 1998

Dear Mr. McInroy,

The purpose of this letter is to document conversations and site tour that was held on July 23, 1998, at the former location of the Department of Energy (DOE) small arms range (SWMU 0-016). You inquired about the utilization and location of the soil which was processed by the Los Alamos National Laboraty's Environmental Restoration Project, as a result of a remediation of the area.

Parker Construction was informed by your department, as a result of an Environmental Protection Agency (EPA) ruling, that the soil had been cleaned to levels that would be appropriate to use as road fill material. During the time frame of May through October, 1994 we utilized approximately 6,000 cubic yards of the processed soil in the construction and elevating of Range Road. The processed soil was used exclusively for the construction of approximately 400 feet of Range Road, south of Aspen Drive to the bend in the road or the first guard rail on the west side of the road.

If I can be of further assistance please feel free to contact me,

Sincerely,

Paul Parker

Paul Parker
Parker Construction

Attachment B

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous and Radioactive Materials Bureau
2044A Galisteo, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Telephone (505) 827-1567
Fax (505) 827-1544

GARY E. JOHNSON
GOVERNOR

PETER MAGGIORE
SECRETARY

ER PROJECT OFFICE RECEIVED SEP 28

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

September 22, 1999

Dr. John Browne, Director
Los Alamos National Laboratory
P. O. Box 1663, Mail Stop A100
Los Alamos, New Mexico 87545

Mr. Theodore Taylor, Project Manager
Los Alamos Area Office
Department of Energy
528 35th Street, Mail Stop A316
Los Alamos, New Mexico 87544

RE: **Approval and Concerns**
Response to Rejection of 00-016 VCA Report and the
Revised 00-016 VCA Completion Report
Los Alamos National Laboratory
NM0890010515

Dear Dr. Browne and Mr. Taylor:

The New Mexico Environment Department's Hazardous and Radioactive Materials Bureau (HRMB) has reviewed and approves the Response to the Rejection of 00-016 VCA Report (dated November 19, 1998 and referenced by EM/ER:98-453[1]) and revised 00-016 VCA Completion Report (LA-UR-97-2745). However, HRMB's review identified two outstanding issues that require resolution.

The potential migration of contaminants present at 00-016 prior to remediation and those remaining post-remediation into Rendija Canyon is a concern. This reach of the canyon should be included in the Canyons Focus Area investigations to be conducted in the future.

The other concern is related to the off-site transport and disposition of soils contaminated with less than 400 parts per million of lead. It is HRMB's understanding that these contaminated soils were utilized in the regrading and widening of Range Road between Aspen and Diamond Drives

[1]The footer of the Response to the Rejection also references EM/ER: 97-423.

and may have been deposited in a watercourse. Although these soils meet EPA-designated human health risk levels, they may pose an excessive risk to the ecological health of the watercourse and terrestrial environments.

HRMB requests that these two issues be scheduled and opened for discussion at the next available ER Monthly Meeting. If you have any questions regarding this letter, please contact me at (505) 827-1558 x1012.

Sincerely,

John E. Kieling

John E. Kieling
LANL Project Leader
RCRA Permits Management Program
Hazardous and Radioactive Materials Bureau

cc: J. Bearzi, NMED HRMB
R. Dinwiddie, NMED HRMB
B. Toth, NMED HRMB
P. Young, NMED HRMB
J. Parker, NMED DOE OB
S. Yanicak, NMED DOE OB, MS J993
M. Leavitt, NMED GWQB
J. Davis, NMED SWQB
D. Neleigh, EPA 6PD-N
J. Vozella, DOE LAAO, MS A316
J. Canepa, LANL EM/ER, MS M992
M. Kirsch, LANL EM/ER, MS M992
D. McInroy, LANL EM/ER, MS M992
File: Reading and HSWA LANL 1/1071/00/00-016

Attachment C

Environmental Restoration
University of California
Environmental Science and Waste Technology (E)
Environmental Restoration, MS M992
Los Alamos, New Mexico 87545
505-667-0808/FAX 505-665-4747

U.S. Department of Energy
Los Alamos Area Office, MS A316
Environmental Restoration Program
Los Alamos, New Mexico 87544
505-667-7203/FAX 505-665-4504

Date: November 1, 1999
Refer to: E/ER:99-318

Mr. James Bearzi
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502

SUBJECT: APPROVAL AND CONCERNS OF 0-016 VCA REPORT AND THE REVISED 0-016 VCA COMPLETION REPORT

Dear Mr. Bearzi:

Los Alamos National Laboratory is in receipt of your September 22, letter regarding the Approval and Concerns of the 0-016 VCA Report and the Revised 0-016 VCA Completion Report. The Environmental Restoration (ER) Program appreciates HRMB's approval for no further action at this site and has taken the following actions to address the two concerns outlined in your letter.

1. *The potential migration of contaminants present at 0-016 prior to remediation and those remaining post-remediation into Rendija Canyon is a concern. This reach of the canyon should be included in the Canyons Focus Area investigations to be conducted in the future.*

The Canyons Focus Area has added a reach to be investigated in Rendija Canyon.

2. *The second concern is the off-site transport and disposition of soils contaminated with less than 400 parts per million of lead. It is HRMB's understanding that these contaminated soils were utilized in the regrading and widening of Range Road between Aspen and Diamond Drives and may have been deposited in a watercourse. Although these soils meet EPA-designated human health risk levels, they may pose an excessive risk to the ecological health of the watercourse and terrestrial environment.*

The Laboratory did use some of the processed soils as road fill material as approved by EPA. This fill material was placed more than fifty yards away from a watercourse. Because of the groundcover and topography between the road and the watercourse the area has a very low erosion potential, combined with the fact that the material was placed beneath the present location of the road, it is very unlikely any significant amounts of residual contamination would migrate to the watercourse.

LANL has met with members of your staff as well as discussing the two concerns with Barbara Hoditscheck of the Surface Water Quality Bureau and visiting the site with Ralph Ford-Schmidt of the DOE Oversight Bureau. ER Project personnel also met with the Surface Water Assessment Team (SWAT) regarding this site. At the request of the SWAT, a post-remediation *Surface Water Site Assessment* (AP 2.01) was performed at the site. This evaluation concluded that the site is still a low priority site with little or no erosion taking place as a result of ER activities.

It appeared that both of the Bureau's representatives were satisfied with LANL's responses to the concerns and had no major issues associated with the stabilization efforts associated with the remediation. LANL however, has committed to the stabilization of some of the areas associated with the road fill that shows some evidence of minor rill erosion. The Program will also be informing the county of the importance of maintaining the shoulder of Range Road.

LANL believes that the combined concurrence of your bureau with our no further action request, along with resolving the two issues with the Surface Water Bureau makes this site an excellent candidate for removal from the HSWA Permit by a Class 3 Permit Modification. This request will occur at some point in the future along with other sites which will make this request a cost effective one. Should you have any questions please feel free to call Dave McInroy at 667-0819 or Joe Mose at 667-5808.

Sincerely,

Julie A. Canepa, Program Manager
Los Alamos National Laboratory
Environmental Restoration

Sincerely,

Theodore J. Taylor, Program Manager
Department of Energy
Los Alamos Area Office

JC/TT/DM/eim

Cy:
M. Buska, E/ET, MS M992
J. Canepa, E/ER, MS M992
D. McInroy, E/ER, MS M992
J. Mose, LAAO, MS A316
W. Neff, E/ET, MS M992
T. Rust, E/ER, MS M992
B. Hoditscheck, NMED-SWQB
J. Kieling, NMED-HRMB
J. Parker, NMED-AIP
S. Yanicak, NMED-AIP, MS J993
ER Catalog # 199900161
RPF, MS M707
E/ER File, MS M992

John Bruen, US Forest Service
475 20th Street, Suite B
Los Alamos, NM 87544

Paul Parker
P. O. Box 459
Los Alamos, NM 87544

Attachment D

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous and Radioactive Materials Bureau
2044A Galisteo, P.O. Box 26110
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GARY E. JOHNSON
GOVERNOR

PETER MAGGIORE
SECRETARY

ER PROJECT OFFICE RECEIVED DEC 10 1999

December 1, 1999

Mr. Leonard Atencio
Forest Supervisor
U.S. Department of Agriculture
1474 Rodeo Road
P.O. Box 1689
Santa Fe, New Mexico 87505

RE: Solid Waste Management Unit 00-016 Concerns

Dear Mr. Atencio:

This letter is in response to your request for written documentation of the New Mexico Environment Department's Hazardous and Radioactive Materials Bureau's (HRMB) concurrence on two issues regarding solid waste management unit (SWMU) 00-016. On September 22, 1999, HRMB approved the Department of Energy/Los Alamos National Laboratory's (DOE/LANL) Voluntary Corrective Action (VCA) Report for the above-mentioned SWMU. In its approval letter, HRMB identified two concerns related to the VCA which required additional DOE/LANL action.

HRMB believes that the actions taken to date and the approach outlined in DOE/LANL's November 1, 1999 response (referenced by E/ER:99-318) are appropriate to allay the concerns HRMB has with the conditions at SWMU 00-016. Specifically, DOE/LANL has agreed to include the potentially affected surface water reach into the Canyons Focus Area investigations and has worked with both the DOE Oversight and Surface Water Quality Bureaus to resolve any outstanding issues regarding the off-site transport and disposition of potentially contaminated soils.

If you have any questions regarding this letter, please contact me at (505) 827-1567 or Mr. John Kieling at (505) 827-1558 x1012.

Sincerely,

James P. Bearzi
Chief
Hazardous and Radioactive Materials Bureau

cc: R. Dinwiddie, NMED HRMB
J. Kieling, NMED HRMB
P. Young, NMED HRMB
J. Parker, NMED DOE OB
S. Yanicak, NMED DOE OB, MS J993
M. Leavitt, NMED GWQB
J. Davis, NMED SWQB
D. Neleigh, EPA 6PD-N
T. Taylor, DOE LAAO, MS A316
J. Vozella, DOE LAAO, MS A316
J. Canepa, LANL EM/ER, MS M992
M. Kirsch, LANL EM/ER, MS M992
D. McInroy, LANL EM/ER, MS M992
File: Reading and HSWA LANL 1/1071/00/00-016

3.0 SWMU 00-033(a) FORMER UNDERGROUND STORAGE TANK

3.1 Summary

SWMU 00-033(a) is a former UST that contained heating fuel oil. In 1995, the Laboratory ER Project implemented a VCA cleanup of this SWMU that removed the UST in accordance with NMED UST Bureau regulations. The NMED UST Bureau concurred that the site met UST Bureau closure requirements in a letter dated January 23, 1996. SWMU 00-033(a) is being proposed for NFA under NFA Criterion 4 (the site was remediated in accordance with another state and/or federal authority).

3.2 Description and Operational History

3.2.1 Site Description

Prior to VCA activities, SWMU 00-033(a) was situated on the north side of 6th Street Warehouses 3 and 4 (formerly known as the Zia Warehouses 3 and 4). The warehouses are located south of the intersection of DP Road and Trinity Drive (Figure 3.2-1). The UST was a 5000-gal. steel tank that formerly contained heating fuel oil.

3.2.2 Operational History

The SWMU 00-033(a) UST was taken out of service in 1960. From 1961 until the early 1990s, the Laboratory leased Warehouses 3 and 4 for commercial use by private businesses. From the early 1990s to the present, the warehouses have been used for the storage of Laboratory archival material.

The UST contained fuel oil that supplied the oil burner located in the boiler room of Warehouse 3. The oil burner furnished heat to both Warehouse 3 and Warehouse 4.

On November 13, 1995, the UST was excavated and removed in accordance with NMED UST Bureau regulations.

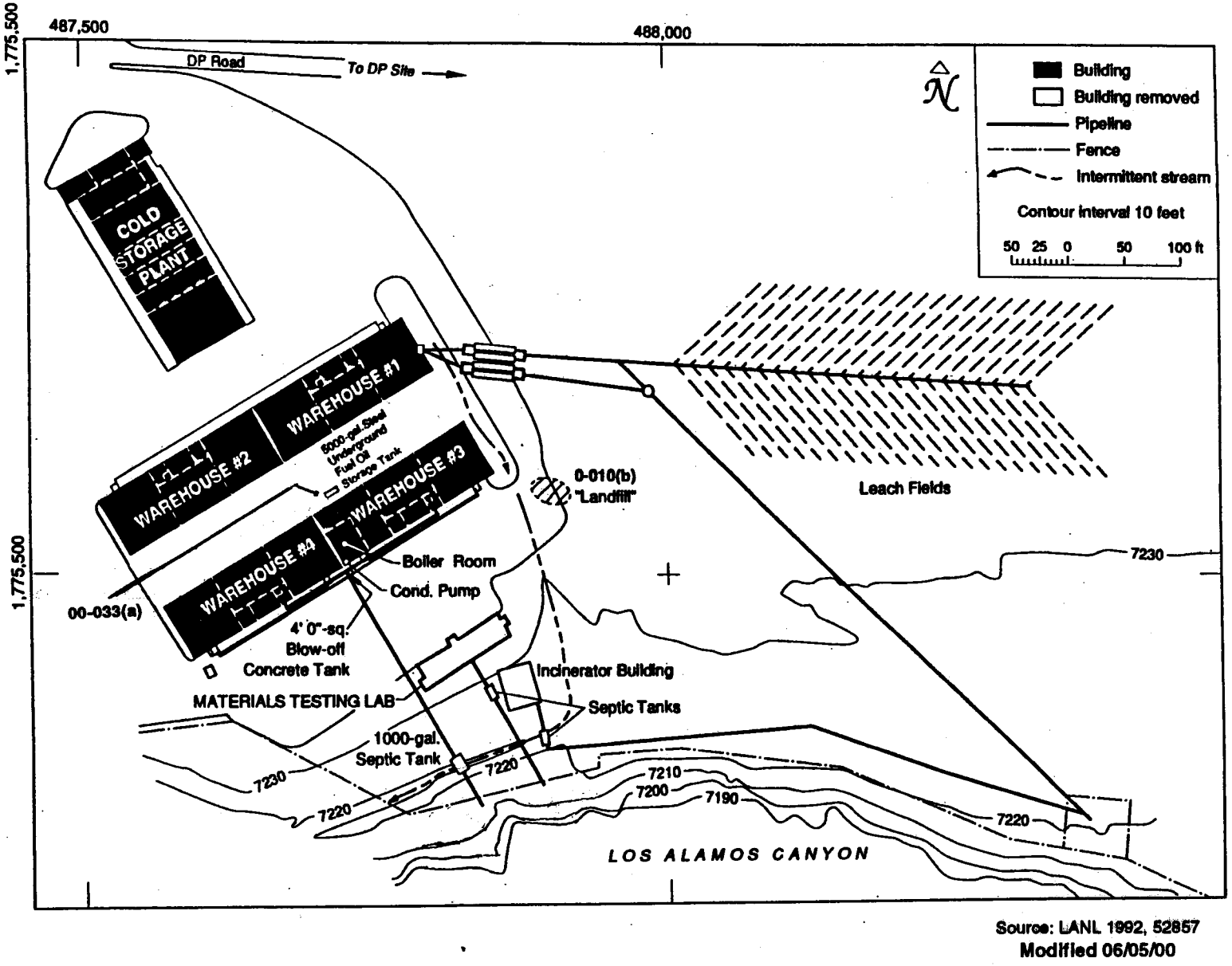
3.3 Land Use

3.3.1 Current

The site where SWMU 00-033(a) was formerly situated is located on Laboratory property near the commercial business area of Los Alamos. The area is used for light industrial activities, is not fenced, and access is not restricted. The area surrounding the location of the former UST is used by commercial businesses.

3.3.2 Future/Proposed

Within the next five years, the DOE will transfer the land parcel on which this SWMU was formerly located to the County of Los Alamos. The county has indicated that it plans to use this land parcel for commercial and/or industrial development.



Source: LANL 1992, 52857
Modified 06/05/00

Figure 3.2-1. Location of SWMU 00-033(a)

3.4 No Further Action Proposal

3.4.1 Rationale

The VCA for SWMU 00-033(a) consisted of excavating and removing the UST in accordance with NMED UST Bureau regulations. The Laboratory ER Project submitted a VCA completion report for SWMU 00-033(a) (which included two other SWMUs) dated August 1996 (LANL 1996, 55203) to HRMB (submitted September 6, 1996). The VCA completion report received a request for supplemental information (RSI) from HRMB on September 24, 1997 (NMED 1997, 56682) (Attachment A). The ER Project provided the requested information to HRMB on November 18, 1997 (LANL 1997, 57020) (Attachment B). HRMB issued a notice of deficiency (NOD) for the VCA completion report on June 26, 1998 (NMED 1998, 59654) (Attachment C); however, none of the deficiencies applied to SWMU 00-033(a).

The Laboratory ER Project submitted a 45-day Minimum Site Assessment Report to the UST Bureau in January 1996. This report was submitted to HRMB as Attachment I of the Laboratory's response to HRMB's September 24, 1997, request for supplemental information. In a January 23, 1996, letter (NMED 1996, 53853) (Attachment D), the UST Bureau concurred that the site poses no immediate threat to public health or to the environment based on the following reasons:

- The horizontal and vertical extents of soil contamination were adequately defined.
- Contaminated soils were excavated and properly disposed.
- Depth to groundwater at the site is greater than 1000 ft below ground surface.

The Laboratory ER Project is proposing SWMU 00-033(a) for NFA based on

- UST Bureau concurrence; and
- in the June 26, 1998, notice of deficiency from HRMB, no deficiencies addressed SWMU 00-033(a).

3.4.2 Criterion

Based on the information presented in Sections 3.2 through 3.4, SWMU 00-033(a) is being proposed for NFA under Criterion 4.

3.5 Supporting Documentation Attached

Attachment A: NMED-HRMB letter, September 24, 1997. RSI for VCA completion report. (NMED 1997, 56682)

Attachment B: LANL letter, November 18, 1997. Response to RSI for VCA completion report for PRSs 00-030(l), 00-030(m), and 00-033(a). (LANL 1997, 57020)

Attachment C: NMED-HRMB letter from R. Dinwiddie, June 26, 1998. NOD for VCA report for SWMUs 00-030(l), 00-030(m), 00-033(a). (NMED 1998, 59654)

Attachment D: NMED-UST Bureau Letter to J. Vozella, January 23, 1996. Approval of 45-day assessment report for UST at TA-0, 6th Street. (LANL 1997, 53853)

3.6 Reference Used for Text of the Request for Permit Modification for SWMU 00-033(a)

Environmental Restoration Project, August 1996. "Voluntary Corrective Action Completion Report for Potential Release Sites 0-030(l), 0-030(m), 0-033(a), 6th Street Warehouse, Field Unit 1," Los Alamos National Laboratory report LA-UR-96-2901, Los Alamos, New Mexico. (Environmental Restoration Project 1996, 55203)

3.7 History of Regulatory Deliverables

LANL, August 1996:	VCA completion report for SWMU 00-033(a) [and PRSs 0-030(l), 0-030(m)] submitted to HRMB (ER Project 1996, 55203)
NMED, September 24, 1997:	RSI for VCA completion report. (NMED 1997, 56682)
LANL, November 18, 1997:	Response to RSI for VCA completion report (LANL 1997, 57020)
NMED, June 26, 1998:	NOD for VCA completion report; however, none of the deficiencies addressed SWMU 00-033(a). (NMED 1998, 59654)
NMED, January 23, 1996:	Approval by UST Bureau of 45-day assessment report for UST at TA-0, 6th Street. (LANL 1997, 53853)

3.7.1 References for Regulatory Deliverables

Environmental Restoration Project, August 1996. "Voluntary Corrective Action Completion Report for Potential Release Sites 0-030(l), 0-030(m), 0-033(a), 6th Street Warehouse, Field Unit 1," Los Alamos National Laboratory report LA-UR-96-2901, Los Alamos, New Mexico. (Environmental Restoration Project 1996, 55203)

NMED (New Mexico Environment Department) September 24, 1997. "Request for Supplemental Information Voluntary Corrective Action Completion Report Potential Release Sites (PRSs) 0-030(l), 0-030(m) & 0-033(a) Los Alamos National Laboratory NM0890010515," New Mexico Environment Department-Hazardous and Radioactive Materials Bureau Letter to G. T. Todd (DOE-LAAO Area Manager) and S. Hecker (Laboratory Director), Santa Fe, New Mexico. (NMED 1997, 56682)

LANL (Los Alamos National Laboratory), November 18, 1997. "Response to Request for Supplemental Information for VCA Completion Report for PRSs 0-030(l), 0-030(m), and 0-033(a) in TA-0 (Former OU 1071)," Los Alamos National Laboratory letter EM/ER:97-486, Los Alamos, New Mexico. (LANL 1997, 57020)

NMED (New Mexico Environment Department) June 26, 1998. "Notice of Deficiency for the Voluntary Corrective Action (VCA) Completion Report for SWMUs 0-030(l), 0-030(m), 0-033(a) Los Alamos National Laboratory NM0890010515," New Mexico Environment Department-Hazardous and Radioactive Materials Bureau Letter to G. T. Todd (DOE-LAAO Area Manager) and S. Hecker (Laboratory Director), Santa Fe, New Mexico. (NMED 1997, 59654)

NMED (New Mexico Environment Department), January 23, 1996. "No Further Action Required at TA-0, 6th Street Site, Los Alamos National Laboratory, Los Alamos, New Mexico," Underground Storage Tank Bureau Letter to J. Vozella (DOE-LAAO), from A. Moreland (UST Bureau geologist), Santa Fe, New Mexico. (NMED 1996, 53853)

00-033(a)

ATTACHMENTS

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous & Radioactive Materials Bureau
2044 Galisteo
P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-1557
Fax (505) 827-1544

GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

Attachment A

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

ER PROJECT OFFICE RECEIVED OCT 01 1997

ER PROJECT OFFICE RECEIVED OCT 01 1997

September 24, 1997

Mr. G. Thomas Todd, Area Manager
Los Alamos Area Office
Department of Energy
528 35th Street
Los Alamos, New Mexico 87544

Dr. Sigfried Hecker, Director
Los Alamos National Laboratory
P. O. Box 1663, Mail Stop A100
Los Alamos, New Mexico 87545

RE: Request for Supplemental Information
Voluntary Corrective Action Completion Report
Potential Release Sites (PRSs) 0-030(l), 0-030(m) & 0-033(a)
Los Alamos National Laboratory
NM0890010515

Dear Mr. Todd and Dr. Hecker:

The RCRA Permits Management Program (RPMP) of the New Mexico Environment Department has reviewed the Voluntary Corrective Action Completion Report (LA-UR-96-2901) for PRSs 0-030(l), 0-030(m) & 0-033(a), dated October 11, 1996 and referenced by EM/ER:96-489, and requests supplemental information detailed in the attachment.

LANL must respond to the request for supplemental information within thirty (30) days of the receipt of this letter. If LANL does not submit a complete response to this request within thirty (30) calendar days, LANL should be advised that a Notice of Deficiency will be issued.

Should you have any questions regarding this letter, please contact me or Mr. John Kieling, RPMP's LANL Facility Manager, at (505) 827-1558.

Sincerely,

Robert S. ("Stu") Dinwiddie, PH. D., Manager
RCRA Permits Management Program

RSD:kth

attachment

cc w/ attachment:

T. Baca, LANL EM-DO, MS J591
T. Davis, NMED HRMB
B. Garcia, NMED HRMB
T. Glatzmaier, LANL DDEES/ER, MS M992
K. Hill, NMED HRMB
J. Jansen, LANL EM/ER, MS M992
M. Johansen, DOE LAAO, MS A316
J. Kieling, NMED HRMB
M. Leavitt, NMED GWQB
H. LeDoux, DOE LAAO, MS A316
D. McInroy, LANL EM/ER, MS M992
D. Neleigh, EPA 6PD-N
J. Parker, NMED DOE OB
G. Saums, NMED SWQB
T. Taylor, DOE LAAO, MS A316
S. Yanicak, NMED DOE OB, MS J993
File: Reading and HSWA LANL 1/1071/0
Track: LANL, doc date, NA, DOE/LANL, HRMB/kth, RE, file

Attachment B

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

U. S. Department of Energy
Los Alamos Area Office, MS A316
Environmental Restoration Program
Los Alamos, New Mexico 87544
505-667-7203/FAX 505-665-4504

Date: November 18, 1997
Refer to: EM/ER:97-486

Dr. Stu Dinwiddie
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502

SUBJECT: RESPONSE TO REQUEST FOR SUPPLEMENTAL INFORMATION FOR VCA COMPLETION REPORT FOR PRSs 0-030(l), 0-030(m), and 0-033(a) IN TA-0 (FORMER OU 1071)

Dear Dr. Dinwiddie:

Enclosed is the Los Alamos National Laboratory's Response to the New Mexico Environment Department Hazardous and Radioactive Bureau's Request for Supplemental Information for Voluntary Corrective Action Completion Report for Potential Release Sites 0-030(l), 0-030(m), and 0-033(a) in Technical Area 0.

If you have any questions, please contact Gary McMath at (505) 665-4969 or Bonnie Koch at (505) 665-7202.

Sincerely,

Brad Martin for
Julie A. Canepa, Program Manager
LANL/ER Project

Sincerely,

for Theodore J. Taylor, Program Manager
DOE/LAAO

JC/TT/ss

Enclosures (1) Response to Request for Supplemental Information for VCA Completion Report for PRSs 0-030(l), 0-030(m), and 0-033(a) in TA-0 (former OU 1071)

Cy (w/enc.):
D. Griswold, AL-ERD, MS A906
J. Harry, EES-5, MS M992
B. Koch, LAAO, MS A316
G. McMath, EM/ER, MS E525
D. Neleigh, EPA, R.6, 6PD-N
C. Rodriguez, CIO/ER, MS M769
T. Taylor, LAAO, MS A316
J. White, ESH-19, MS K490
S. Dinwiddie, NMED-HRMB
M. Leavitt, NMED-GWQB
J. Parker, NMED-HRMB
G. Saums, NMED-SWQB
S. Yanicak, NMED-AIP, MS J993
EM/ER File (CT# C376), MS M992
RPF, MS M707

Information Only (w/o enc.):
T. Baca, EM, MS J591
T. Glatzmaier, DDEES/ER, MS M992
T. Longo, DOE-HQ, EM-453
D. McInroy, EM/ER, MS M992
J. Plum, LAAO, MS A316
S. Rae, ESH-18, MS K497
G. Rael, AL-ERD, MS A906
J. Vozella, LAAO, MS A316
EM/ER File, MS M992

TABLE 1

RESULTS OF THE CONCENTRATION-TO-PRG RATIO COMPARISON

NONCARCINOGENIC COPC	MAXIMUM CONCENTRATION (mg/kg)	PRG (mg/kg)	CONC/PRG
Lead	77.8	400	0.2
Uranium	35.4	230	0.2
Hazard Index			0.4
Carcinogenic COPC			
Benzo(a)anthracene	0.082 J [a]	0.61	0.13
Benzo(a)pyrene	0.089 J	0.061	1.5
Benzo(b)fluoranthene	0.081 J	0.61	0.13
Indeno(1,2,3-cd)pyrene	0.065 J	0.61	0.11
DDE	0.16	1.3	0.12
DDT	0.28	1.3	0.21
Lifetime Cancer Risk			2×10^{-6}

[a] "J" signifies that the analyte was positively identified and the associated numerical value is estimated to be more uncertain than would normally be expected for that analysis.

PRS 0-033(a), Fuel Oil Underground Storage Tank, OU 1114

NMED Comment

13. LANL should include the soil boring logs and field screening results of soil samples obtained during the RFI.

LANL Response

13. The soil boring logs for PRS 0-033(a) are included in Attachment G of this response. Because it was already known that the UST was going to be removed before the RFI for this area, field screening was not conducted at this PRS.

NMED Comment

14. LANL should provide a figure indicating the locations of samples obtained during the RFI.

LANL Response

14. As stated above in LANL's response to NMED comment 13, no samples were taken at this PRS because it was already known that the UST would be removed.

NMED Comment

15. LANL should provide a copy of the NMED UST Bureau's approval letter in the RFI.

LANL Response

15. A copy of the NMED UST Bureau's approval letter for removal of this UST is presented in Attachment H.

NMED Comment

16. Page 62, Remedial Implementation: LANL should provide the referenced NMED UST Bureau 45-day site assessment report which details closure activities.

LANL Response

16. The NMED UST Bureau 45-day site assessment report should have been included in Appendix B of the VCA Completion Report for PRSs 0-030(l, m) and 0-033(a). The 45-day site assessment report is included in Attachment I of this response.

NMED Comment

17. Page E-1, Appendix E: LANL should provide the closure form or worksheet as indicated.

LANL Response

17. The closure form/worksheet for this UST is provided in Attachment J of this response. The sampling depths for all samples (including: VOCs, SVOCs, PCBs, pesticides, XRF metals, TAL metals, and radionuclides) taken at PRS 0-030(l) are presented in Attachment C.

Attachment C

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous & Radioactive Materials Bureau
2044 Galisteo
P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-1557
Fax (505) 827-1544

GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

CERTIFIED MAIL
~~RETURN RECEIPT REQUESTED~~

June 26, 1998

Mr. Theodore Taylor, Program Manager
Los Alamos Area Office
Department of Energy
528 35th Street, MS A100
Los Alamos, New Mexico 87544

Dr. John C. Browne, Director
Los Alamos National Laboratory
P. O. Box 1663, MS A100
Los Alamos, New Mexico 87545

RE: Notice of Deficiency for the Voluntary Corrective Action (VCA) Completion Report for SWMUs 0-030(l), 0-030(m), 0-033(a)
Los Alamos National Laboratory (LANL) EPA I.D. NM0890010515

Dear Mr. Taylor and Dr. Browne:

The RCRA Permits Management Program (RPMP) of the Hazardous and Radioactive Materials Bureau (HRMB) has reviewed LANL's August 1996 (LAUR 96-2901) Voluntary Corrective Action Completion Report for SWMUs 0-030(l), 0-030(m), 0-033(a), and Supplemental Information dated November 19, 1997 (EM/ER:97:486), and found them to be insufficient. Furthermore, two occurances of improperly reporting data cast doubt on the validity of the entire RFI Report (see specific comments for details).

LANL must respond to the Notice of Deficiency items listed in the Attachment within thirty (30) calendar days of receipt of this letter. If DOE/LANL does not submit a complete response to the Notice of Deficiency within thirty (30) calendar days an enforcement action may be taken.

Should you have any questions regarding this matter, please contact me or Mr. John Kieling, RPMP's LANL Facility Manager, at (505) 827-1558.

06-29-98 A11:11 IN

Sincerely,

Stephanie Kruse

for Robert S. (Stu) Dinwiddie, Ph.D., Manager
RCRA Permits Management Program
Hazardous & Radioactive Materials Bureau

RSD:rw

cc w/attachments:

J. Canepa, LANL EM/ER, MS M992
J. Davis, NMED SWQB
B. Garcia NMED HRMB
M. Johansen, DOE LAAO, MS A316
J. Kieling, NMED HRMB
S. Kruse, NMED HRMB
M. Leavitt, NMED GWQB
H. LeDoux, DOE LAAO, MS A316
D. McInroy, LANL EM/ER, MS M992
D. Neleigh, EPA, 6PD-N
J. Parker, NMED DOE OB
S. Yanicak, NMED DOE OB, MS J993
File: Reading and HSWA LANL 1/1071/0
Track: LANL, 6/26/98, NA, DOE/LANL, HRMB/Dinwiddie, RE, File

Attachment D

State of New Mexico
ENVIRONMENT DEPARTMENT
Underground Storage Tank Bureau
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-0188
(505) 827-0310 Fax

GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

January 23, 1996

Los Alamos National Laboratory
Joe Vozella, LAAO
Environment, Safety & Health Group
Mailstop A316
Los Alamos, NM 87545

RE: No Further Action Required at TA-0, 6th Street Site, Los Alamos National Laboratory, Los Alamos, New Mexico

Dear Mr. Vozella:

The New Mexico Environment Department has reviewed the 45 day Minimum Site Assessment Report received on January 18, 1996 for the above-referenced site. The Department has determined that this site does not pose an immediate public health or environmental threat for the following reasons:

1. The horizontal extent of soil contamination has been adequately defined. The vertical extent of soil contamination has been adequately defined and is greater than 900 feet above high static ground water.

2. Contaminated soils have been excavated and properly disposed.

3. Depth to ground water at the site is greater than 1000 feet below ground surface.

Based on this information, the Department requires no additional work at this time, although it reserves the right to do so should petroleum hydrocarbon contamination resulting in a threat to public health or the environment is discovered.

Thank you for your cooperation in this matter.

Sincerely,

Anthony Moreland
Geologist
Underground Storage Tank Bureau

cc: NMED District II Office
NMED Espanola Field Office
Jeff Carmichael, Los Alamos National Laboratory, ES&H Group, Mailstop K490, Los Alamos, New Mexico 87545

4.0 SWMU 02-008(b) INACTIVE OUTFALL

4.1 Summary

The SWMU report and the RFI work plan for Operable Unit (OU) 1098 incorrectly identified SWMU 02-008(b) as an inactive photo-processing outfall from Building TA-2-4. Archival information, site visits, and engineering surveys demonstrate that this site does not exist. This site was proposed for NFA in an RFI report, which was approved by NMED in a letter dated September 23, 1997. SWMU 02-008(b) is being proposed for NFA under Criterion 1 (the site does not exist).

4.2 Description and Operational History

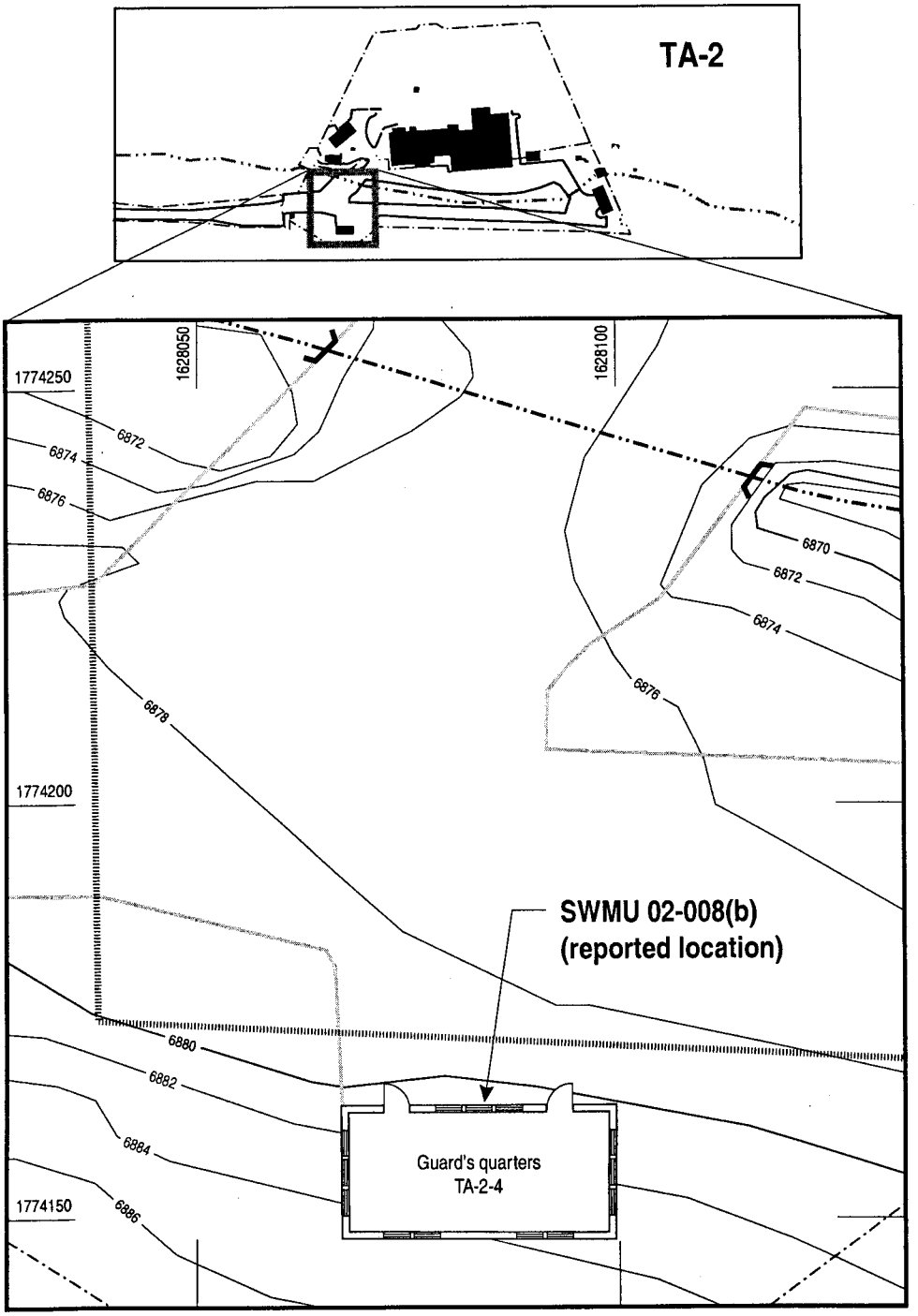
4.2.1 Site Description

SWMU 02-008(b) was identified in the SWMU report (LANL 1990, 07511, p. 2-008 (Attachment A) and the RFI work plan for OU 1098 (LANL 1993, 62956, p. 7.9-1) (Attachment B) as an inactive outfall from Building TA-2-4, which reportedly housed a photo-processing operation (i.e., a room to develop photographs of research experiments). The work plan states that the exact location of the outfall was unknown, it had been inactive for at least 10 years, and it was not listed on the Laboratory's current National Pollutant Discharge Elimination System permit. The investigating field team was unable to locate the outfall on engineering drawings of TA-2-4 or during a site visit. The RFI report for Potential Release Sites 02-004(a–f), 02-008(b) and 02-012 (LANL 1996, 55226, pp. 5-11, 5-12, 5-14) (Attachment C) reports that SWMU 02-008(b) could not be located, presents evidence documenting that SWMU does not exist, and proposes the SWMU for NFA under Criterion 1.

The investigating field team performed an engineering survey on March 9, 1995. The survey consisted of a review of existing engineering drawings and documentation and a site reconnaissance (Stellavato 1995, 54904, pp. 1, 4 of 4, 5–6) (Attachment D) to locate eight SWMUs in the vicinity of Buildings TA-2-1 and -4 (Figure 4.2-1). The survey team walked the area with the Technical Area (TA)-2 facility manager. Neither the survey team nor the facility manager was able to locate any drains inside Building TA-2-4. The team and facility manager also walked the Los Alamos Creek stream bed north of the building, moving soil and boulders as they progressed, but still were unable to locate any signs of an outfall. Next, the team checked the asphalt road north of TA-2-4 (Los Alamos Canyon Roadway), but found no signs of a cutout (which might have shown the direction of a drain, if it existed). Finally, to determine whether the outfall might have been sealed during construction of an adjacent retaining wall, personnel from Johnson Controls World Services, Inc. (JCI) were brought in to search the area with pipe locators, but no pipes were detected (Attachment D).

The nonexistence of drains or outfalls associated with Building TA-2-4 is corroborated in a 1993-1994 wastewater stream characterization study conducted by Santa Fe Engineering. The purpose of the study was to identify building drain piping, locate outfalls, and characterize wastewater flows and sources that existed throughout the Laboratory at the time of the study. Drain piping throughout the Laboratory was verified by dye checking. The wastewater stream characterization report for TA-2-4 verifies that Building TA-2-4 has no water supplies, drains, or fixtures. (Santa Fe Engineering 1993, 54956; Executive Summary, p.8, Report 63 Table, and TA-2-Site Drain Schematic) (Attachment E).

Additionally, an interview with the former supervisor of TA-2 operations (Gainer 1996, 54717) (Attachment F) established that Building TA-2-4 never housed a photo-processing laboratory and also confirmed that there is no plumbing in the building.



FIMAD G104938 / ENG-C1712

F5.2.4-1 / TA-2 RFI RPT / 092596
Modified 050400

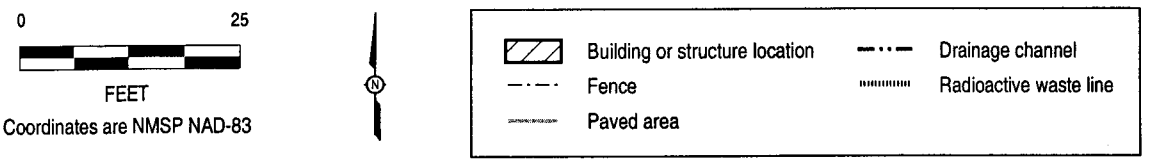


Figure 4.2-1. Reported location of SWMU 02-008(b)

4.2.2 Operational History

Building TA-2-4 was constructed in the late 1940s and used for guard quarters. When it was no longer needed as guard quarters, it was used for storage. In the past, the building stored graphite for shielding (Attachment F). Currently it is used to store radioactively contaminated equipment (Santa Fe Engineering, 54956, p. 8) (Attachment E). A photographic processing laboratory was not housed in Building TA-2-4, but rather in Building TA-2-1 (Attachment F), which is located approximately 150 ft northeast of Building TA-2-4.

Since 1944, TA-2 has been used continuously to house a series of small fission reactors used for research purposes. The three reactors housed at TA-2 included the water boiler, Clementine, and the Omega West Reactor. The water boiler operated from 1944 to 1974 and was decontaminated and decommissioned from 1986–87. Clementine operated from 1946 until its decommissioning in 1953. The Omega West Reactor operated from 1956 until 1993, when it was placed on standby status. The reactor is currently inactive and slated for future decommissioning sometime after the year 2000.

4.3 Land Use

4.3.1 Current

TA-2 is an industrial area with restricted access that has been operated under institutional control since 1944. A chain-link fence topped with barbed wire encloses this technical area. Access through the fence is obtained only by passing through one of two gates. Within this outer fence, access to the buildings housing the reactor is controlled by a second chain-link fence, topped with barbed wire. Access through the second fence is obtained only by passing through a badge-reader. These security measures effectively eliminate the possibility of inadvertent site intrusion.

4.3.2 Future/Proposed

The Laboratory does not anticipate any change from the industrial use with restricted access of TA-2 for the operational life of the Laboratory (LANL 1995, 57224, pp.11–12) (Appendix D). Although this area will no longer be used for reactor research, it will continue to remain under institutional control.

4.4 No Further Action Proposal

4.4.1 Rationale

The attached documentation supports that the inactive photo-processing outfall from Building TA-2-4 as identified in the SWMU report actually does not exist:

- Interviews with knowledgeable site personnel have established that Building TA-2-4 did not house a photo-processing operation.
- Engineering drawings, site visits, interviews with site personnel, and the 1993 wastewater stream characterization report have established that no plumbing fixtures or drains have ever existed in Building TA-2-4.
- Neither the 1993 wastewater stream characterization study conducted by Santa Fe Engineering personnel nor a March 9, 1995, engineering survey conducted by investigating field team personnel were able to locate any signs of an outfall associated with Building TA-2-4.

A description of the investigation of SWMU 02-008(b) and an NFA proposal under Criterion 1 for this SWMU were submitted to NMED (HRMB) in the RFI report for Potential Release Sites (PRSs) 02-004(a–f), 02-008(b) and 02-012 (Attachment C). The HRMB approved the RFI report for SWMU 02-008(b) in a letter dated September 23, 1997 (NMED 1997, 56674) (Attachment G).

4.4.2 Criterion

Based on the information presented in Sections 4.2 through 4.4, SWMU 02-008(b) is being proposed for NFA under Criterion 1.

4.5 Supporting Documentation Attached

Attachment A: LANL, November 1990. SWMU report, Volume I, p. 2-008. (LANL 1990, 07511)

Attachment B: LANL, June 1993. RFI work plan for OU 1098, p. 7.9-1. (LANL 1993, 62956)

Attachment C: ER Project, September 1996. RFI report for PRSs 02-004(a–f), 02-008(b), 02-012. pp. 5-11, 5-12, 5-14. (Environmental Restoration Project 1996, 55226)

Attachment D: Stellavato, March 9, 1995. ER Project daily report form and site visit log, pp. 1, 4 of 4, 5–6. (Stellavato 1995, 54904)

Attachment E: Santa Fe Engineering, Ltd., May 1993. Wastewater stream characterization report (Santa Fe Engineering 1993, 54956)

Attachment F: LANL memorandum from G. Gainer, August 28, 1996. Conversations with Glenn Neely. (Gainer 1996, 54717)

Attachment G: NMED letter from R. Dinwiddie, September 23, 1997. Approval of RFI report, for PRSs 02-004(a–f), 02-008(b), and 02-012. (NMED 1997, 56674)

Appendix D: LANL 1995. Site development plan, annual update 1995, pp. 11–12. (LANL 1995, 57224)

4.6 Reference Used for Text of the Request for Permit Modification for SWMU 02-008(b)

Environmental Restoration Project, September 1996. "RFI Report for Potential Release Sites 2-004(a through f), 2-008(b), 2-012 (located in former Operable Unit 1098), Field Unit 4," Los Alamos National Laboratory report LA-UR-96-3155, Los Alamos, New Mexico, pp. 5-11, 5-12, 5-14. (Environmental Restoration Project 1996, 55226)

4.7 History of Regulatory Deliverables

LANL, September 1996: RFI report for PRSs 02-004(a–f), 02-008(b), and 02-012 submitted to HRMB. (ER Project 1996, 55226)

NMED, September 23, 1997: Approval of RFI report. (NMED 1997, 56674)

4.7.1 References for Regulatory Deliverables

Environmental Restoration Project, September 1996. "RFI Report for Potential Release Sites 2-004(a through f), 2-008(b), 2-012 (located in former Operable Unit 1098), Field Unit 4," Los Alamos National

Laboratory report LA-UR-96-3155, Los Alamos, New Mexico, pp. 5-11, 5-12, 5-14. (Environmental Restoration Project 1996, 55226)

NMED (New Mexico Environment Department), September 23, 1997. "Approval of the RCRA Facility Investigation (RFI) Report, Potential Release Sites 2-004(a–f), 2-008(b) and 2-012, Los Alamos National Laboratory, NM890010515," NMED Letter to G. T. Todd (DOE-LAAO Area Manager) and S. Hecker (Laboratory Director), Santa Fe, New Mexico. (NMED 1997, 56674)

02-008(b)

ATTACHMENTS

SUMMARY

LOCATION : TA-2
TYPE OF UNIT(s) : OPERATIONAL RELEASE
UNIT USE : DISPOSAL
OPERATIONAL STATUS : INACTIVE/ACTIVE
PERIOD OF USE : EST. 1940s - PRESENT
HAZARDOUS RELEASE : KNOWN
RADIOACTIVE RELEASE : SUSPECTED

MATERIALS MANAGED : HAZARDOUS WASTE
RADIOACTIVE WASTE

UNIT INFORMATION

The cooling tower blowdown in early days of operations discharged through an outfall to Los Alamos Canyon [2-008(a)]. The 1987 CEARP indicates that coolant water containing radioisotopes of chromium, zinc, and antimony were discharged into the creek bed periodically until 1963, when the liquid waste storage system was added. The site of these releases may have been outfall 2-008(a). The RFA notes a photo processing outfall from building TA-2-4 [2-008(b)]; this outfall has been inactive, however, for at least 10 years. During the Phase I decommissioning effort at TA-2 in 1985 and 1986, a 6" clay pipe from the basement of TA-2-1 was disconnected from the septic tank being removed (TA-2-43) and joined to a 6" PVC pipe from a sump discharging into the stream a few feet downstream from the concrete debris catcher TA-3-29 [2-008(c)]. The new line became plugged in 1988 and was abandoned in place. A new line was installed from the sump that discharges to the creek just to the west of the East Bridge. An NPDES permit application was issued for this site at that time. None of these sites are current NPDES-permitted outfalls.

WASTE INFORMATION

The blowdown from the cooling tower [2-008(a)] contained chromium. The discharge may also have included radioisotopes of chromium, zinc, and antimony. The photo processing outfall [2-008(b)] discharged solutions containing hazardous wastes. The waste reportedly being discharged from TA-2-1 [2-008(c)] was spring water that was infiltrating the basement and being pumped out. There is no indication of additional wastes that may have been included in the discharge from 2-008(c).

RELEASE INFORMATION

In 1969, hexavalent chromium discharged from 2-008(a) was found to exceed the chemical limit downstream from TA-2. Since that time dilution has occurred. Photo processing chemicals were released into the stream from 2-008(b). No information is available indicating hazardous or radioactive releases from 2-008(c).

SWMU CROSS-REFERENCE LIST

SWMU NUMBER	CEARP IDENTIFICATION NUMBER(S)	RFA UNIT	E.R. RELEASE SITE INFO.	ASSOCIATED STRUCTURES
2-008(a)	TA2-3-CA/O-A/I-HW/RW			SOUTH OF TA-2-1
2-008(b)	**	2.002		TA-2-4
2-008(c)	TA2-3-CA/O-A/I-HW/RW			TA-2-1

** No corresponding E. R. Program unit.

7.9 SWMU 2-008, DESCRIPTION OF OUTFALLS

7.9.1 Site Description and History

SWMU 2-008 consists of three subparts [(a) through (c)] (Figure 7.9-1):

1. The SWMU report indicates that 2-008(a) is an outfall from the cooling tower blowdown. This outfall has discharged secondary cooling water from the cooling tower since its construction in 1957. Until the mid-1970s, potassium dichromate was routinely added to the secondary cooling water to prevent corrosion of aluminum heat exchangers in the tower (Neely 1992, 14-0008). Most of the potassium dichromate would adhere onto the aluminum heat exchangers, creating a protective seal; however, some hexavalent chromium was discharged continuously in water out of this outfall. In the mid-1970s, the aluminum heat exchangers were replaced with stainless steel heat exchangers, and the use of potassium dichromate was discontinued. Currently this outfall is NPDES permitted (serial no. 020).
2. SWMU 2-008(b) is an outfall from building TA-2-4, which had a photo processing facility (DOE 1987, 0264). The exact location of this outfall is unknown at this time. This outfall has been inactive for at least 10 yrs, according to the SWMU report. Solutions containing hazardous chemicals from the photo processing facility are likely to have been discharged through this outfall, although specific amounts are unknown at this time. There is not a current National Pollutant Discharge Elimination System (NPDES) permit for this outfall.
3. SWMU 2-008(c) is an outfall that discharges directly to the stream a few feet downstream from the concrete debris catcher (TA-2-39) (DOE 1987, 0264) east of building TA-2-1. During the Phase I decommissioning effort at TA-2 in 1985 and 1986, a 6-in. clay pipe from the basement of building TA-2-1 was disconnected from the septic tank being removed (TA-2-43) and joined to a 6 in. PVC pipe which discharged to the creek. The SWMU report indicates this PVC pipe was connected to a sump; however, this structure is not found on engineering drawings. This line became plugged in 1988 and was abandoned in place. A new line was installed, possibly from the sump, just to the west of the East Bridge. Spring water that infiltrated the basement of building TA-2-1 was reportedly discharged through this outfall. There is no indication that there have been any additional wastes included in the discharge through this outfall. A NPDES permit application was issued for the outfall when the new line was installed to the west of the East Bridge.

5.2 PRS No. 2-008(b)

The work plan (LANL 1993, 21404) identifies PRS No. 2-008(b) as the outfall from a photographic processing laboratory in building TA-2-4. However, archival research and engineering surveys of the site showed that TA-2-4 contains no outfall, drains, or fixtures. Also, interviews and archival research showed that TA-2-4 has never housed a photographic processing laboratory (Gainer 1996, 54717; Santa Fe Engineering 1993, 54956).

PRS No. 2-008(b) is recommended for no further action (NFA) based on NFA criterion number 1 (LANL 1995, 53863).

5.2.1 History

PRS No. 2-008(b) is discussed in Section 7.9 of the work plan, which states that the exact location of the outfall is unknown. The work plan also states that the outfall has been inactive for at least 10 years and is not listed on the current National Pollutant Discharge Elimination System permit (LANL 1993, 21404).

5.2.2 Description

The PRS is described in the work plan (LANL 1993, 21404) as an outfall from a photographic processing facility in TA-2-4. However, engineering drawings from TA-2-4 show no drains inside the building and no outfalls from the building. Also, the outfall could not be located during the site investigation.

5.2.3 Previous Investigations

During January 1993, Santa Fe Engineering personnel conducted a study to identify building drain piping, locate outfalls, and characterize waste water flows and sources that existed at the time of the study. They verified drain piping by dye checking. They stated that there were no drains or fixtures present in TA-2-4 (Santa Fe Engineering 1993, 54956).

5.2.4 Field Investigation

The objective of this Phase I RFI was to detect any possible contaminants at PRS No. 2-008(b).

The conceptual model (described in the work plan) for contaminant transport associated with the outfall from TA-2-4 assumes that the contaminants are associated with releases from the photographic processing facility. Migration of contaminants from an outfall area is thought to involve the following pathways and associated release mechanisms: soil and sediment erosion, surface water transport, ground water transport, and airborne particle transport.

5.2.4.1 Environmental and Engineering Surveys

An engineering survey was performed on March 9, 1995. It consisted of a review of engineering drawings and other documentation as well as a site reconnaissance to locate the outfall from TA-2-4. During the site reconnaissance, the field team leader and the TA-2 facility manager could not locate any drains in TA-2-4. They walked the stream bed and moved boulders; an outfall could not be located (Stellavato 1995,

54904). Johnson Controls World Services, Inc., personnel tried to locate the outfall with a pipe locator but had no success (Stellavato 1995, 54904).

In August 1996 additional archival research and interviews were conducted. An interview with a former supervisor of TA-2 operations indicated that TA-2-4 has never housed a photographic processing laboratory (Gainer 1996, 54717). Engineering drawing ENG-C1712 (LASL 1946, 54955) supports that information. The drawing shows TA-2-4 as a guard shack and storage area, which was confirmed by the former supervisor of TA-2 operations (Gainer 1996, 54717). Figure 5.2.4-1 is a map that shows the location of TA-2-4 and includes information from the engineering drawing. Additional TA-2 personnel were interviewed about the existence of the photographic processing laboratory. Their recollection was that TA-2-4 was only a guard shack and storage area (Cramer 1996, 54905). Also, one of the documents uncovered during the archival research, "Wastewater Stream Characterization for TA-2-1, 4, 21, 27, 36, 44, 46, 49, 50, 51, 57, 63, 69 and 70," states that TA-2-4 has no water supply, drains, or fixtures (Santa Fe Engineering 1993, 54956).

5.2.4.2 Deviations from the Sampling and Analysis Plan

The SAP specified that a borehole be drilled and a surface sample be collected at the location of the outfall from TA-2-4. However, because the outfall could not be located, samples were not collected.

5.2.4.3 Sampling Activities

Samples were not collected at PRS No. 2-008(b) because the outfall could not be located.

5.2.5 Background Comparisons

This section is not applicable because this PRS does not exist.

5.2.6 Evaluation of Radionuclides

This section is not applicable because this PRS does not exist.

5.2.7 Evaluation of Organic Chemicals

This section is not applicable because this PRS does not exist.

5.2.8 Risk-Based Screening Assessment

A risk-based screening assessment was not performed because this PRS does not exist.

5.2.9 Human Health Risk Assessment

No human health risk assessment was performed for this PRS.

5.2.10 Preliminary Ecological Assessment

Ecological risk assessment at this site is not needed because this PRS does not exist.

5.2.11 Conclusions and Recommendations

Based on NFA criterion number 1 (LANL 1995, 53863), a Class III permit modification will be requested to remove PRS No. 2-008(b) from the Hazardous and Solid Waste Amendments Module of the Laboratory's RCRA operating permit. The PRS cannot be located; apparently it never existed. Archival research and engineering surveys of the site showed that TA-2-4 contains no outfall, drains, or fixtures. Also, interviews and archival research showed that TA-2-4 has never housed a photographic processing laboratory. During interviews, the former supervisor of TA-2 operations indicated that there were two photographic processing laboratories in TA-2-1 (Gainer 1996, 54717). Investigation of outfalls or drain lines from the photographic processing laboratories in building TA-2-1 are covered in PRS Nos. 2-006 and 2-011(a).

Attachment D

Los Alamos National Laboratory Environmental Restoration Program
DAILY REPORT FORM

Name: Stephen K. Stellavato **Position or Title:** Field Team Leader

Date of Activities: March 09, 1995 **OU #:** 1098 **TA:** 41

Date/Time of Report: March 9, 1995 / 1530 hours

PRS #: 41-002 **Project #:** 19568 **Index #:** 1.4

Page 1 of 1

Field Activities

The ERM/Golder Field Team conducted engineering surveys of SWMU's 2-006 (b) (e), 2-008 (a) (b), 2-004 (b) (c) (d) (e) (f).

Surveys

Utility markouts were performed by JCI and radiological monitoring performed by ERM/Golder SSO.

Sampling

None.

Field Monitoring Results

Several structures at Omega West were well above background levels but avoided by field team personnel.

Unexpected Events

Could not locate outfall 2-008 (b).

Weather

Partly cloudy, cool, dry, approx. 55 degrees F.

Post-it® Fax Note 7671

To Felicia A	Date
Co./Dept LATA	From Steve S.
Phone #	Co ERM/Golder
Fax #	Phone #
	Fax #

SEP 1 3 1996
Vic

7. TRANSFORTATION/MANAGEMENT OF HAZARDOUS MATERIALS

Can hazardous materials be stored on-site? ✓ YES ____ NO

How will hazardous materials be transported? By government vehicle according to all applicable regulations.

8. INTERVIEW COMMENTS. Describe time, place, and personnel interviewed regarding items 1 - 7. Discuss any additional pertinent information necessary to implement field plan.

located SWMU 2-008 (a) with the help of Donald Hull (CST-11). This outfall is EPA permitted, EPA O3A012C TA-2-49, and discharges approximately 12 feet from the stream on the north side. Currently the discharge outfall is dry.

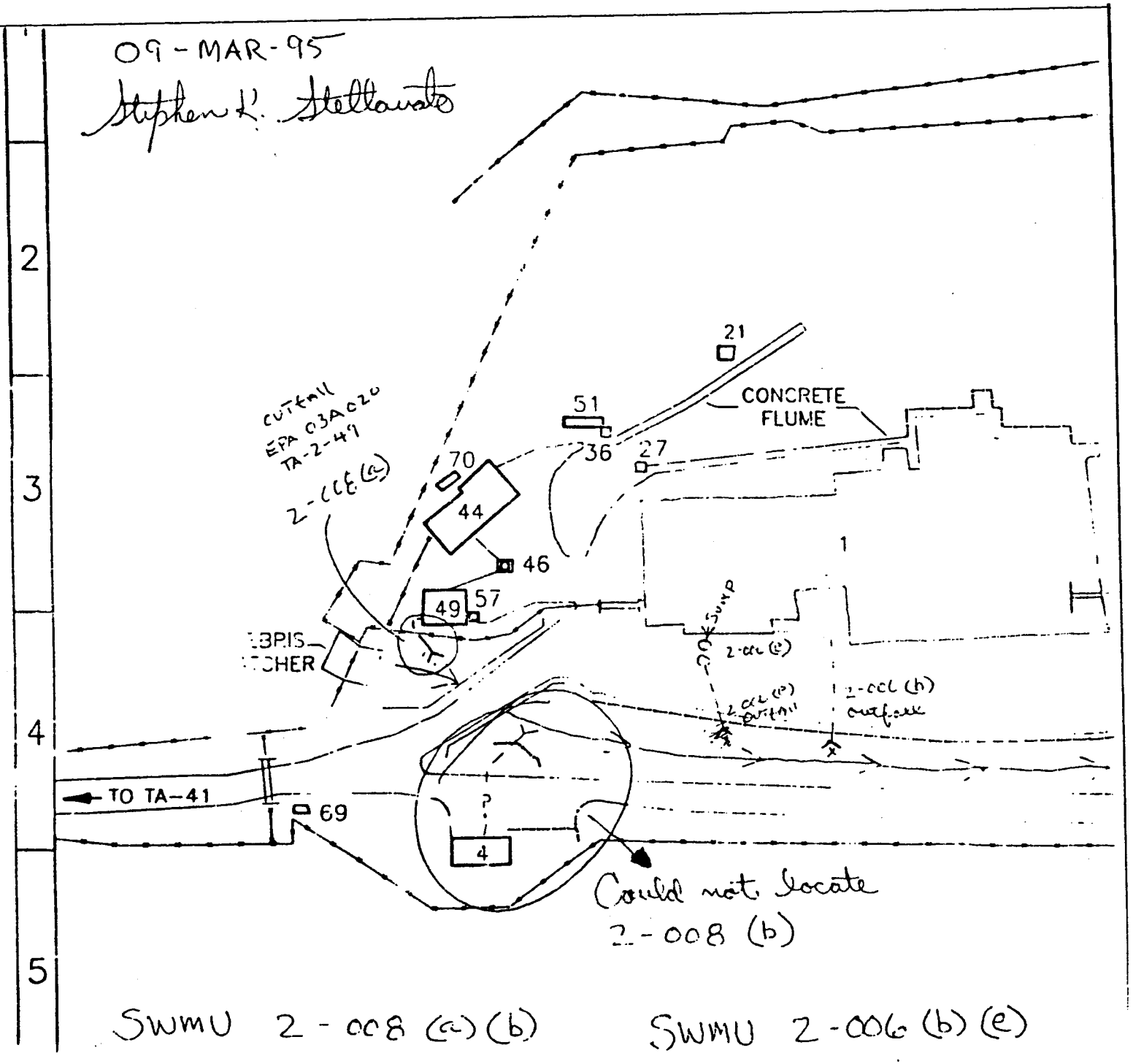
For SWMU 2-008 (b), neither Donald Hull or myself could locate this outfall. We entered building TA-2-4 and could not locate any drains whatsoever. We walked the stream bed and moved soil / boulders and could not locate the outfall. The asphalt in front of building TA-2-4 did not show any signs of cutouts which could have shown the direction of this drain. Possibly, when the retaining wall was installed, construction crews could have sealed the outfall, constructed the retaining wall, and backfilled to cover this outfall.

Utility markouts were performed by ICI utilities at 2-008 (a) and sampling locations were marked.

For 2-008 (b) ICI Utilities, Gene Valasquez and Carl Valdez, tried to locate the outfall from building TA-2-4 with pipe locators but could not locate any outfall.

09-MAR-95

Stephen K. Stellavato



SWMU 2-008 (a) (b) SWMU 2-006 (b) (e)

ENG R 5102

page 5

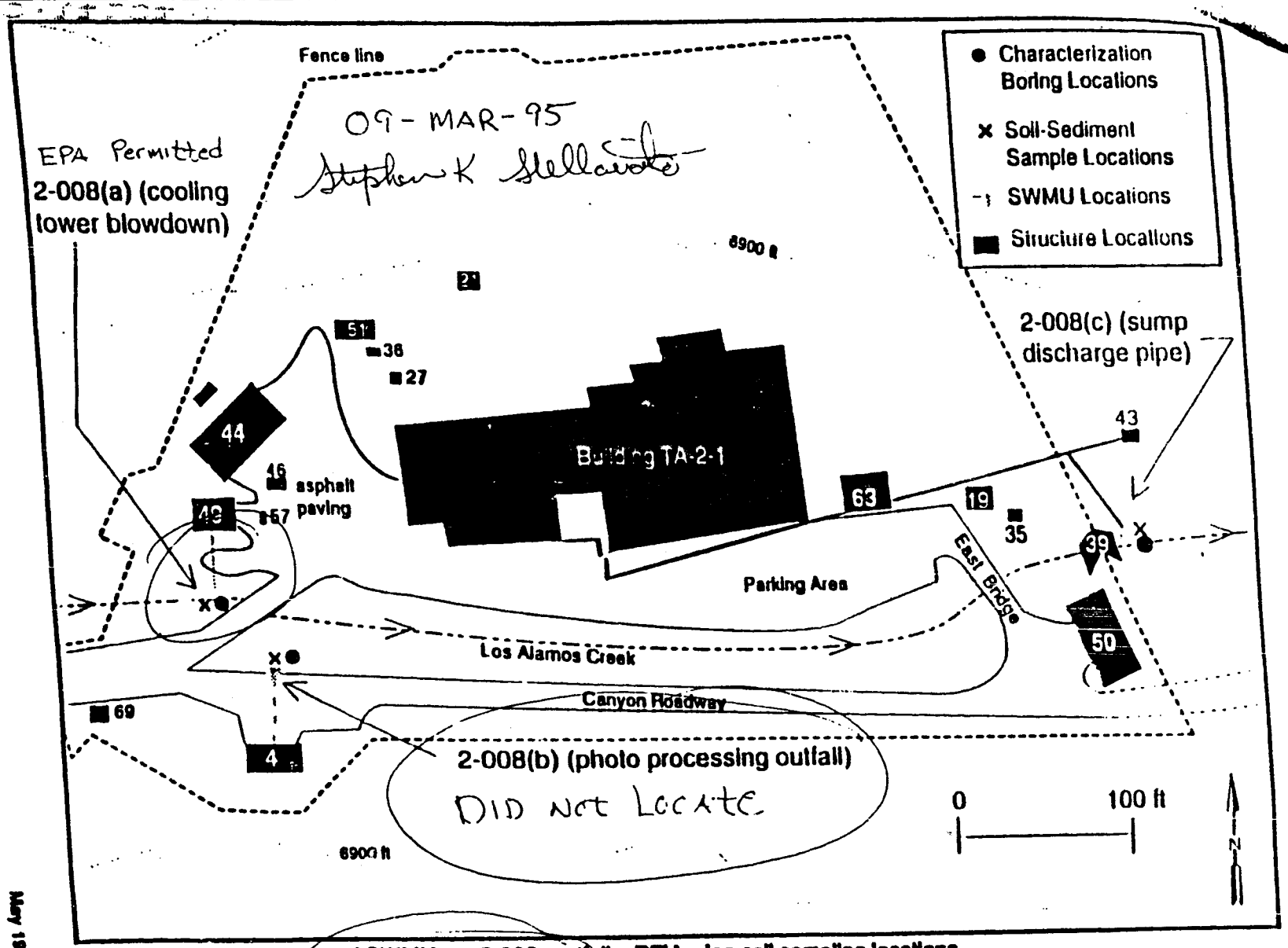


Figure 7.9-1 Proposed SWMU no. 2-008, outfalls, RFI boring-soil sampling locations.

JCI Utilities, Gene Velasquez and Carl Valdez, could not locate this photo processing outfall.

Attachment E

WASTEWATER STREAM CHARACTERIZATION FOR TA-2-1, 4, 21, 27, 36, 44, 46, 49, 50, 51, 57, 63, 69 AND 70

ENVIRONMENTAL STUDY

prepared for:
THE LOS ALAMOS NATIONAL LABORATORY
Los Alamos, New Mexico

under subcontract 9-XG8-2874P-1

by:
Santa Fe Engineering, Ltd.
1429 Second Street
Santa Fe, New Mexico 87501
(505) 988-7438

Los Alamos Environmental Restoration Records Processing Facility

May, 1993

ER Record I.D.# 0054956

Received by ER-RPF
SEP 16 1996
DIC

EXECUTIVE SUMMARY

Buildings 1, 4, 21, 27, 36, 44, 46, 49, 50, 51, 57, 63, 69 and 70 in TA-2 were visited to document all drain piping and building outflows and to make permitting recommendations. The pipes exiting the building are as follows:

1. from building 2-1: one sanitary sewer connection, one radioactive liquid waste drain, seven fire line drains, seven storm drains, one sanitary sewer vent and two equipment exhaust vents,

2. buildings 2-4, 21, 50, 51, 69 and 70: no water supplies and no drains,

3. building 2-27: one storm drain,

4. from building 2-36: one storm drain,

5. from building 2-44: one radioactive liquid waste drain, one permitted outfall (03A-020) and one water heater pressure relief valve drain,

6. from structure 2-46: one dry well,

7. from building 2-49: one permitted outfall (03A-020),

8. from building 2-57: one fire line drain,

9. from building 2-63: one sanitary sewer connection and two air compressor exhaust vents,

Recommendations for repiping are provided to allow outfall consolidation to minimize permit maintenance requirements and to bring the facility into compliance with the Laboratory's NPDES Permit. Floor drain plugging is recommended where the potential of discharge of pollutants exists.

A Waste Stream Database has been prepared listing the waste water and flow rate for each outfall.

3.7 Outfall 2-1-OPN-13

This outfall is an emergency generator exhaust pipe which discharges to the atmosphere next to the building. No piping changes are recommended and no EPA forms were completed.

3.8 Outfall 2-1-OPN-16

This outfall is a vacuum pump air exhaust which discharges to the atmosphere next to the building. No piping changes are recommended. No EPA forms were completed.

4.0 RECOMMENDATIONS FOR BUILDING 2-4

This building and the underground storage bunker adjacent to this building are currently used as a storage facility for radioactive contaminated equipment. There are no drains or fixtures present in this building or the underground bunker. A record of the contents is currently posted on the entrance to this building. No permitting is recommended and no EPA forms were prepared.

5.0 RECOMMENDATIONS FOR BUILDINGS 2-21, 50 AND 69

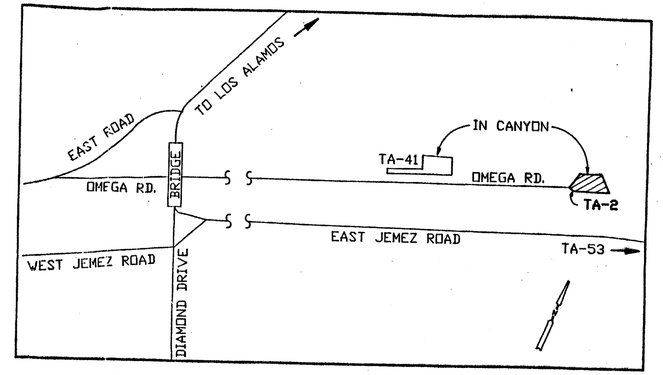
Structures 2-21, 50 and 69 have been investigated and it was discovered they do not have any drains or any source of water.

6.0 RECOMMENDATIONS FOR BUILDING 2-27

Table 2 is a list of the drains to the building outfall and Figure 5 is a schematic of the piping. The table lists the drains that connect to the outfall pipe and includes recommendations for changes to the drain piping. This building is a storm water drop inlet enclosure with four

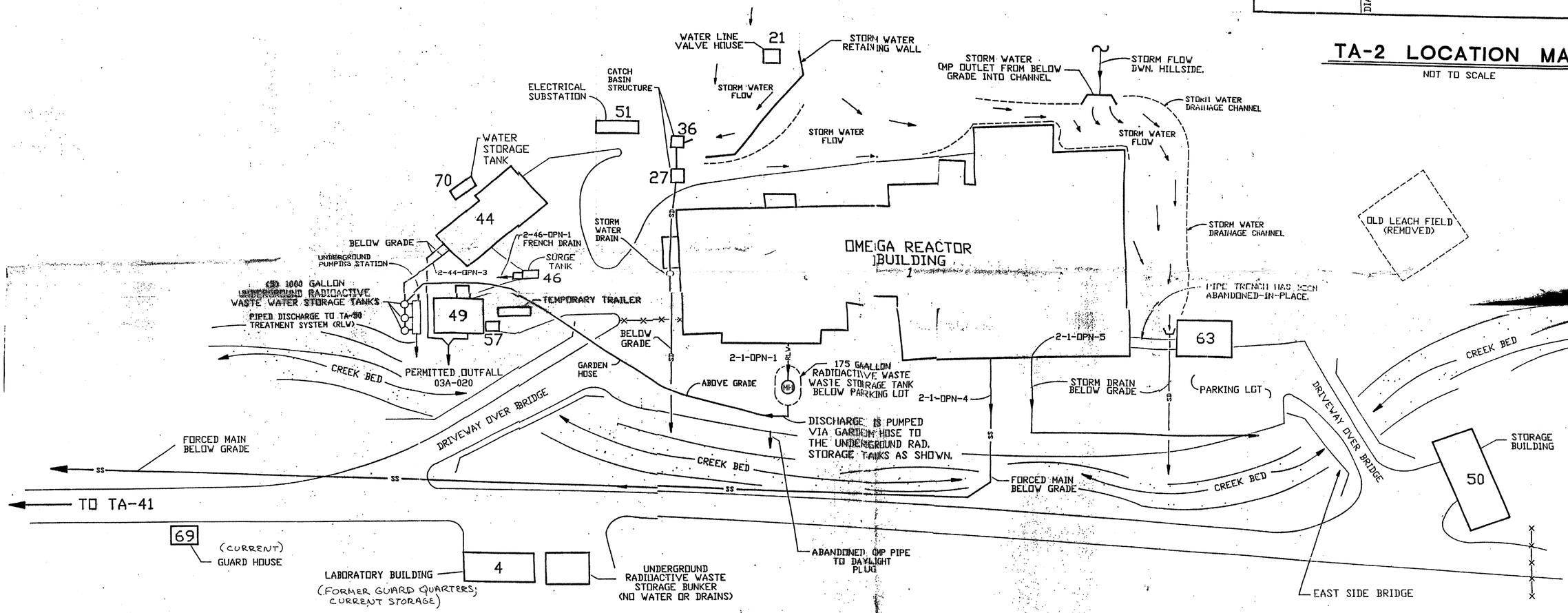
REPORT # 63

TA	BLDG	OUTLET PIPING NO	EPA OUTFALL #	DRAIN #	ROOM #	ROOM DESCRIPTION	FLOW RATE		PERIODICITY	SEASONAL	SOURCE TYPES
2	1	2-1-OPN-10	N/A	N/A		ROOF		N/A	MOSTLY IN SUMMER	No	STORM WATER
2	1	2-1-OPN-11	N/A	N/A	122	WEIGHT ROOM		N/A	ONCE ANNUALLY	No	FIRE LINE DRAIN
2	1	2-1-OPN-12	N/A	N/A	122	WEIGHT ROOM		N/A	ONCE ANNUALLY	No	FIRE LINE DRAIN
2	1	2-1-OPN-13	N/A	N/A	116A	DIESEL GENERATOR ROOM		N/A	ONLY IN AN EMERGENC	No	EMERGENCY GENERATOR EXHAUST
2	1	2-1-OPN-14	N/A	N/A		ROOF		N/A	MOSTLY IN SUMMER	No	STORM WATER
2	1	2-1-OPN-15	N/A	N/A	106	CONFERENCE ROOM		N/A	ONCE ANNUALLY	No	FIRE LINE DRAIN
2	1	2-1-OPN-16	N/A	N/A	106	CONFERENCE ROOM		N/A	NO FLOW	No	VACUUM PUMP EXHAUST
2	1	2-1-OPN-17	N/A	N/A		ROOF		N/A	MOSTLY IN SUMMER	No	STORM WATER
2	1	2-1-OPN-18	N/A	N/A		ROOF		N/A	MOSTLY IN SUMMER	No	STORM WATER
2	1	2-1-OPN-19	N/A	N/A		ROOF		N/A	MOSTLY IN SUMMER	No	STORM WATER
2	4	TA-2-04	N/A	N/A		STORAGE BUILDING		N/A	NO FLOW	No	NONE
2	21	TA-2-21	N/A	N/A		WATER LINE VALVE HOUSE		N/A	NO FLOW	No	NONE
2	27	TA-2-27	N/A	N/A		STORM WATER DRAIN		N/A	MOSTLY IN SUMMER	No	STORM WATER
2	36	TA-2-36	N/A	N/A		STORM WATER DRAIN		N/A	MOSTLY IN SUMMER	No	STORM WATER
2	44	2-44-OPN-1	N/A	1WH1		MECHANICAL ROOM		N/A	FLOW IS NIL	No	WATER HTR. DRAIN
2	44	2-44-OPN-2	03A-020	N/A		MECHANICAL ROOM	272	GPD	8 MONTHS/YR.	Yes	COOLING UNIT BLOWDOWN
2	44	2-44-OPN-3	051	1CFD1		MECHANICAL ROOM		N/A	FLOW IS NIL	No	AIR COMPRES. BLOWOFF/BFP DRAIN
2	44	2-44-OPN-3	051	1CFD2		MECHANICAL ROOM		N/A	NO FLOW	No	NONE
2	44	2-44-OPN-3	051	1CFD3		MECHANICAL ROOM		N/A	UNKNOWN	No	NOT FOUND
2	44	2-44-OPN-3	051	1CSD1		MECHANICAL ROOM		N/A	AS REQUIRED	No	HAND WASHING
2	49	2-49-OPN-1	03A-020	N/A		COOLING TOWER	6126	GPD	8 MONTHS/YR.	Yes	COOLING TOWER BLOWDOWN
2	50	TA-2-50	N/A	N/A		STORAGE BUILDING		N/A	NO FLOW	No	NONE
2	51	2-46-OPN-1	N/A	N/A		COOLING WATER SURGE TANK		N/A	NO FLOW	No	COOLING WATER
2	51	TA-2-51	N/A	N/A		ELECTRICAL SUBSTATION		N/A	NO FLOW	No	NONE
2	57	2-57-OPN-1	N/A	N/A		WATER VALVE HOUSE		N/A	ONCE ANNUALLY	No	FIRE LINE DRAIN
2	63	2-63-OPN-1	01S	1ED1	100	MECHANICAL ROOM		N/A	FLOW IS NIL	No	BFP/VACUUM FILTER DRAINS
2	63	2-63-OPN-1	01S	1ED3	100	MECHANICAL ROOM		N/A	FLOW IS NIL	No	BOILER DRAIN/PRESS. RELIEF VALVE DR
2	63	2-63-OPN-1	01S	1ED3	100	MECHANICAL ROOM		N/A	FLOW IS NIL	No	WATER HTR. PRESS. RELIEF VALVE
2	63	2-63-OPN-1	01S	1ED4	100	MECHANICAL ROOM		N/A	FLOW IS NIL	No	AIR COMPRESSOR BLOWOFFS(2)
2	63	2-63-OPN-2	N/A	1SD4	160	MECHANICAL ROOM		N/A	NO FLOW	No	AIR COMPRESSOR EXHAUST VENT
2	63	2-63-OPN-3	N/A	N/A	100	MECHANICAL ROOM		N/A	NO FLOW	No	AIR COMPRESSOR EXHAUST VENT
2	69	TA-2-69	N/A	N/A		GUARD STATION		N/A	NO FLOW	No	NONE
2	70	TA-2-70	N/A	N/A		WATER STORAGE TANK		N/A	NO FLOW	No	NONE



TA-2 LOCATION MAP

NOT TO SCALE



TA-2-SITE PLAN

NOT TO SCALE

SYMBOL LEGEND	
MH	MANHOLE
—RLW—	RADIOACTIVE LIQUID WASTE
—SD—	STORM DRAIN PIPE
—SS—	SANITARY SEWER PIPE

15850

NOTES:

1. THIS SITE DRAIN SCHEMATIC WAS DERIVED FROM LANL UTILITY DRAWINGS C-5144, SHEET NE-16 AND SITE VISIT.

Received by ER-HPF
SEP 16 1996
Dic

Attachment E

ERID # 51956

SANTA FE ENGINEERING, LTD.

TA-2-SITE DRAIN SCHEMATIC

DRAWN	D.A.H.
DESIGN	M.E.W.
CHECKED	P.E.B.
RELEASED	
DATE	5-18-93

SUBMITTED | RECOMMENDED | APPROVED

Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

SHEET 1 OF 1

CLASSIFICATION | REVIEWER | DATE

REQUESTING DIVISION | LAB JOB NO. 11056-63 | DRAWING NO. FIGURE 1 | REV.

REQUESTING GROUP

Attachment F

MEMORANDUM

TO: FU04 File, M321

FROM: Gabriela Gainer, Phone 662-1817, fax 662-1757, MS M321

DATE: August 28, 1996

SUBJECT: DOCUMENTATION OF CONVERSATION WITH GLENN NEELY

On Tuesday, August 27, 1996, Pat Longmire (CST-7), Ralph Perona (Neptune and Co.), Jenny Harris (ERM), and I met with Mr. Glenn Neely to inquire about structures and processes at the site of the Omega West Reactor, TA-2. Mr. Neely was on site at TA-2 for about 19 years, he had many roles including reactor operator, site health physics technician, and supervisor of TA-2 operations. His term at TA-2 started in 1959. During the meeting we asked Glenn questions about the photographic processing laboratory in building TA-2-4, the septic tank TA-2-43 (PRS No. 2-007), the gaseous effluent line PRS No. 2-003(d), the tanks associated with PRS No. 2-012, and the portable tank associated with PRS No. 2-004(g).

TA-2-4

Mr. Neely stated that this building was a storage area. The building stored graphite for shielding, and some low level radioactive material. He had no knowledge of a photo processing laboratory ever being housed there. He stated that there used to be two photographic laboratories in building TA-2-1. He recalled that the building had also been guard quarters and that there used to be some bunk beds in the building. He also confirmed that there is no plumbing in that building.

Septic tank TA-2-43 (PRS No. 2-007)

Mr. Neely had no recollection of a leach field from the septic system or of the removal of a leach field in TA-2. He stated that a tile pipe from the septic system would overflow to Los Alamos Creek.

The gaseous effluent line PRS No. 2-003(d)

Mr. Neely stated that there used to be a garden hose before the stainless steel line was put in place. He established that it came out the south side of building TA-2-1, crossed the road, and went up to the mesa top were it was tied to a tree. The purpose of the line was to get the gases that built up in the reactor out of the reactor and out of the canyon. He said that in the early years, the water boiler reactor in the east of the building TA-2-1 had a line that went out of the door to building 3, then to building 19. The fist condensing trap was in building 19, then it had a condensing trap at TA-2-62, and then one at TA-2-48, then to the delay tanks. When they pumped the condensate from the traps they got 50 to 150 ml of solution with mostly pure Cs-137. The stainless steel line (gaseous effluent line) that goes to the top of the mesa is welded stainless steel pipe which had negative pressure. This line was buried 6 to 8 ft below the surface. He stated that to his knowledge the line is still there.

Tanks TA-2-67 and TA-2-29.

Mr. Neely said that the tank (TA-2-67) on the north side of the building TA-2-1 may have not had good integrity and that may have been the reason it was removed. He thought the tank (TA-2-29) on the south side of TA-2-1 was used to store oil for heating.

Portable Tank PRS No. 2-004(g)

There are three stainless steel underground storage tanks that were used to store the flushed effluent from the ion-exchange system. The portable tank was used to take the liquids from the tanks to TA-50. Mr Neely stated that They had a line that was above ground, ran over the fence, and emptied into the potable tank, which was located next to the fence, and next to the creek, on the north side of the road. Mr. Neely thought the tank was a 1,000-gal. tank that sat on an asphalt pad.

CY:
Gabriela Gainer, LATA, M321
Pat Longmire, CST-7, J534
Ralph Perona, Neptune, M769
Jenny Harris, ERM, M327

Attachment G

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous & Radioactive Materials Bureau
2044 Galisteo
P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-1557
Fax (505) 827-1544

GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

September 23, 1997

Mr. G. Thomas Todd, Area Manager
Los Alamos Area Office
Department of Energy
528 35th Street
Los Alamos, New Mexico 87544

Dr. Sigfried Hecker, Director
Los Alamos National Laboratory
P. O. Box 1663, MS A100
Los Alamos, New Mexico 87545

RE: Approval of the RCRA Facility Investigation (RFI) Report
Potential Release Sites 2-004(a-f), 2-008(b) and 2-012
Los Alamos National Laboratory
NM0890010515

Dear Mr. Todd and Dr. Hecker:

The RCRA Permits Management Program (RPMP) of the New Mexico Environment Department has reviewed and approves the RCRA Facility Investigation Report, dated September 1996 and referenced by LA-UR-96-3155, for Technical Area 2 for PRS 2-008(b). The information regarding the dferred sites PRSs 2-004(a-f) and 2-012 will be reviewed when submitted in a future RFI report. Therefore, the RPMP grants deferral of corrective action activities at 2-004(a-f) and 2-012.

Should you have any questions regarding this letter, please contact me or Mr. John Kieling, RPMP's LANL Facility Manager, at (505) 827-1558.

Sincerely,

Robert S. ("Stu") Dinwiddie, Manager
RCRA Permits Management Program

RSD:kth

5.0 SWMU 06-003(g) INACTIVE FIRING PAD AND FOOTPRINT OF FORMER HE PROCESSING BUILDING

5.1 Summary

SWMU 06-003(g) is the location of an inactive firing pad and former high explosives (HE) processing building. ER Project field sampling demonstrated that no release of RCRA constituents occurred at this SWMU. In a letter dated March 14, 2000, the NMED concurred with NFA for this site based on no known or suspected release of RCRA constituents. SWMU 06-003(g) is being proposed for NFA under Criterion 3 (no release).

5.2 Description and Operational History

5.2.1 Site Description

SWMU 06-003(g) is located on the eastern end of Twomile Mesa (Figure 5.2-1) and consists of an inactive firing pad and the adjacent concrete footings of a former building (TA-6-10).

The approximately 10-ft-square firing pad is made of gravel. At the time the pad was used, it had wooden walls 8 ft high located at its north and west sides. Steel deflector plates (0.5 in thick) were mounted on each wall.

Former Building TA-6-10 was a wood frame structure approximately 30 ft long, 12 ft wide, and 8 ft high.

The concrete footing of former Building TA-6-10 and the gravel firing pad remain, but the building itself and the firing pad walls have been removed.

Per HRMB request, SWMU 06-003(g) was consolidated with the following areas of concern: C-06-003, C-06-007, C-06-008, C-06-009, C-06-010, C-06-011, C-06-012, C-06-013, C-06-014, C-06-015, C-06-017, C-06-018, and C-06-021, which are the former locations of explosives storage magazines. The consolidated units are now designated as 06-003(g)-00

5.2.2 Operational History

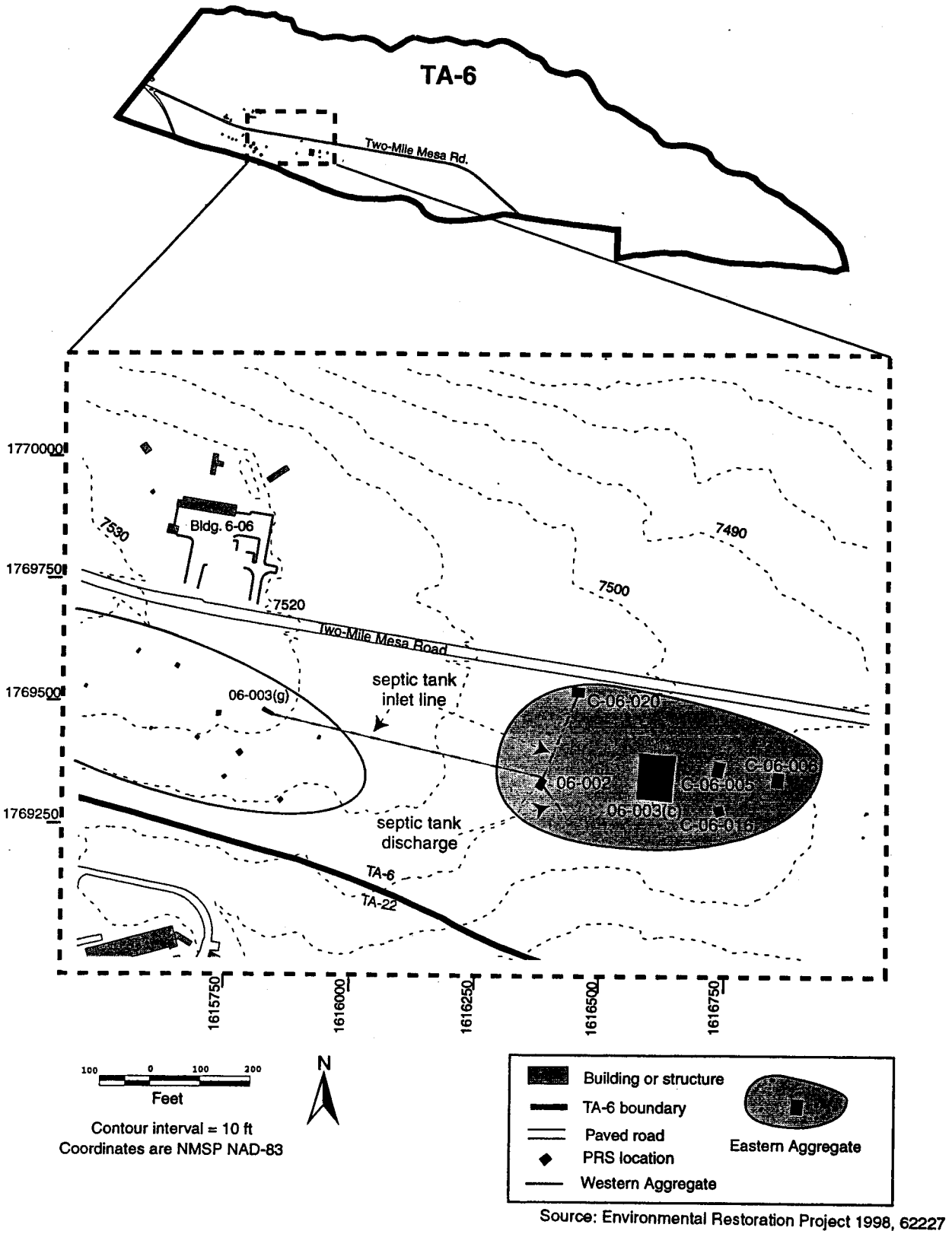
TA-6 was established as part of the Laboratory's Manhattan Project in 1943 and used for the testing, development, and production of detonators.

SWMU 06-003(g) was originally used in 1943 and 1944 for testing primacord (a fuse containing HE used to initiate detonation) timing. Primacord test firing took place on the gravel firing pad for only a few months. At the conclusion of the primacord testing, Building TA-6-10 was built immediately adjacent to the firing pad. The building housed chemical processes for dissolving impure PETN (HE) in acetone or carbon tetrachloride, followed by recrystallization and drying operations. In January of 1960, Building TA-6-10 and the walls of the firing pad were removed by burning.

5.3 Land Use

5.3.1 Current

SWMU 06-003(g) is located within TA-6, an industrial area with restricted access that has been operated under institutional control since 1943. A chain-link fence topped with barbed wire encloses this technical area. Access through the fence is obtained only by passing through a controlled gate. These security measures effectively eliminate the possibility of inadvertent site intrusion.



Source: Environmental Restoration Project 1998, 62227

Figure 5.2-1. Location of PRSs in the vicinity of the Eastern Aggregate

5.3.2 Future/Proposed

The Laboratory does not anticipate any change from the industrial use with restricted access of TA-6 for the operational life of the Laboratory (LANL 1995, 57224, pp.11–12) (Appendix D). Thus, this area will continue to remain under institutional control.

5.4 No Further Action Proposal

5.4.1 Rationale

The Laboratory ER Project submitted to HRMB an RFI report for PRSs in the eastern and western aggregates at TA-6, dated September 30, 1998 (LANL 1998, 62227). The RFI report

- documents all activities and sampling results associated with SWMU 06-003(g);
- states that available data for SWMU 06-003(g) indicate that contaminants pose an acceptable level of human health and ecological risk; and
- proposes that this SWMU be considered for NFA under Criterion 5

The HRMB requested supplemental information to the RFI report in a letter dated November 4, 1999 (NMED 1999, 65053) (Attachment A). The Laboratory ER Project submitted the requested supplemental information to HRMB in a letter dated January 18, 2000 (LANL 2000, 65410) (Attachment B).

In a March 14, 2000, letter (NMED 2000, 65411) (Attachment C), HRMB approved the report and concurred with NFA for SWMU 06-003(g) under Criterion 3, rather than Criterion 5.

5.4.2 Criterion

Based on the information presented in Sections 5.2 through 5.4 and NMED's March 14, 2000, letter of concurrence, SWMU 06-003(g) is being proposed for NFA under Criterion 3.

5.5 Supporting Documentation Attached

Attachment A: NMED-HRMB, November 4, 1999. RSI for RFI report for eastern and western aggregates at TA-6. (NMED 1999, 65053)

Attachment B: LANL, January 18, 2000. RSI response for RFI report for eastern and western aggregates at TA-6. (LANL 2000, 65410)

Attachment C: NMED-HRMB, March 14, 2000. Approval of RFI report for TA-6. (NMED 2000, 65411)

Appendix D: LANL 1995. Site development plan, annual update 1995, pp. 11–12. (LANL 1995, 57224)

5.6 Reference Used for Text of the Request for Permit Modification for SWMU 06-003(g)

Environmental Restoration Project, September 30, 1998. "RFI Report for Potential Release Sites in the Eastern and Western Aggregates at TA-6," Los Alamos National Laboratory report LA-UR-98-3710, Los Alamos, New Mexico. (Environmental Restoration Project 1998, 62227)

5.7 History of Regulatory Deliverables

LANL, September 1998: RFI report for PRSs in the eastern and western aggregates at TA-6 submitted to HRMB. (ER Project 1998, 62227)

NMED November 4, 1999: RSI for RFI report. (NMED 1999, 65053)

LANL, January 18, 2000: RSI response for RFI report. (LANL 2000, 65410)

NMED, March 14, 2000: Approval of RFI report. (NMED 2000, 65411)

5.7.1 References for Regulatory Deliverables

Environmental Restoration Project, September 30, 1998. "RFI Report for Potential Release Sites in the Eastern and Western Aggregates at TA-6," Los Alamos National Laboratory report LA-UR-98-3710, Los Alamos, New Mexico. (Environmental Restoration Project 1998, 62227)

NMED (New Mexico Environment Department), November 4, 1999. "Supplemental Information Request RCRA Facility Investigation Report, Eastern and Western Aggregates at Technical Area 6, Los Alamos National Laboratory NM0890010515," Santa Fe, New Mexico. (NMED 1999, 65053)

LANL (Los Alamos National Laboratory), January 18, 2000. "Submittal of Response to Request for Supplemental Information (RSI) for the Resource Conservation and Recovery Act (RCRA) Facility Investigation Report (RFI) for Potential Release Sites in the Eastern and Western Aggregates at Technical Area (TA) 6," Supplement to Los Alamos National Laboratory report LA-UR-98-3710, Los Alamos, New Mexico. (LANL 2000, 65410)

NMED (New Mexico Environment Department), March 14, 2000. "Approval of RFI Report for Technical Area (TA) 6, Los Alamos National Laboratory NM0890010515," Santa Fe, New Mexico. (NMED 2000, 65411)

06-003(g)

ATTACHMENTS

Attachment A

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous and Radioactive Materials Bureau
2044A Galisteo, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Telephone (505) 827-1567
Fax (505) 827-1544

GARY E. JOHNSON
GOVERNOR

PETER MAGGIORE
SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

November 4, 1999

ER PROJECT OFFICE RECEIVED NOV 1 0 1999

Dr. John Browne, Director
Los Alamos National Laboratory
P. O. Box 1663, Mail Stop A100
Los Alamos, New Mexico 87545

Mr. Theodore Taylor, Project Manager
Los Alamos Area Office
Department of Energy
528 35th Street, Mail Stop A316
Los Alamos, New Mexico 87544

RE: Supplemental Information Request
RCRA Facility Investigation Report
Eastern and Western Aggregates at Technical Area 6
Los Alamos National Laboratory
NM0890010515

Dr. Browne and Mr. Taylor:

The RCRA Permits Management Program (RPMP) of the New Mexico Environment Department's Hazardous and Radioactive Materials has reviewed the RCRA Facility Investigation Report (RFI) for Potential Release Sites in the Eastern and Western Aggregates at Technical Area 6 (referenced by LA-UR-98-3710 and EM/ER:98-396) and requests supplemental information as detailed in the attachment.

LANL must respond to the request for supplemental information within thirty (30) days of the receipt of this letter.

Should you have any questions regarding this letter or you would like to discuss the comments prior to your response, please contact Roland Rocha at (505) 846-0053 or myself at (505) 827-1558 x1012.

Sincerely,

John E. Kieling, Acting Manager
RCRA Permits Management Program
Hazardous and Radioactive Materials Bureau

JEK:rr

attachment

cc w/ attachment:

J. Bearzi, NMED HRMB
J. Canepa, LANL EM/ER, MS M992
J. Davis, NMED SWQB
R. Dinwiddie, NMED HRMB
M. Kirsch, LANL EM/ER, MS M992
D. McInroy, LANL EM/ER, MS M992
D. Neleigh, EPA 6PD-N
J. Parker, NMED DOE OB
R. Rocha, NMED HRMB
J. Vozella, DOE LAAO, MS A316
S. Yanicak, NMED DOE OB, MS J993
P. Young, NMED HRMB
File: Reading and HSWA LANL HSWA 5/1111/6

Environmental Restoration
University of California
Environmental Science and Waste Technology (E)
Environmental Restoration, MS M992
Los Alamos, New Mexico 87545
505-667-0808/FAX 505-665-4747

U.S. Department of Energy
Los Alamos Area Office, MS A316
Environmental Restoration Program
Los Alamos, New Mexico 87544
505-667-7203/FAX 505-665-4504

Date: January 18, 2000
Refer to: E/ER:00-014

Mr. John Kieling
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502

SUBJECT: SUBMITTAL OF RESPONSE TO REQUEST FOR SUPPLEMENTAL INFORMATION (RSI) FOR THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) FACILITY INVESTIGATION REPORT (RFI) FOR POTENTAL RELEASE SITES IN THE EASTERN AND WESTERN AGGREGATES AT TECHNICAL AREA (TA)-6

Dear Mr. Kieling:

Enclosed is the Los Alamos National Laboratory Environmental Restoration (ER) Project's Response to your RSI on the RFI Report for the Eastern and Western Aggregates at TA-6. The RSI was received at the ER Project Office on November 10, 1999. Your office approved an extension request for our response until January 25, 2000.

If you have any questions or concerns please feel free to call Dave McInroy at (505) 667-0819 or Joe Mose at (505) 667-5808.

Sincerely,

Julie A. Canepa, Program Manager
Los Alamos National Laboratory
Environmental Restoration

Sincerely,

Theodore J. Taylor, Program Manager
Department of Energy
Los Alamos Area Office

JC/TT/NR/ev-nr

Enclosure: Response to RSI

Cy (w/enc.):
M. Buksa, E/ET, MS M992
D. Hickmott, EES-1, MS M992
B. Kopp, ESH-19, MS M992
J. Mose, LAAO, MS A316
N. Riebe, E/ET, MS M992
C. Rodriguez, CRO-1, MS M992
T. Taylor, LAAO, MS A316
J. Parker, NMED-AIP
S. Yanicak, NMED-AIP, MS J993
E/ER File (CT #'s C772 and C782), MS M992
E/ER File, MS M992
RPF, (ER Catalog # 200000011), MS M707

Cy (w/o enc.):
J. Canepa, E/ER, MS M992
D. McInroy, E/ER, MS M992
V. Rhodes, Aurora, MS M992
J. Bearzi, NMED-HRMB

Attachment C

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous and Radioactive Materials Bureau
2044 A Galisteo, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Telephone (505) 827-1557
Fax (505) 827-1544

GARY E. JOHNSON
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PETER MAGGIORE
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PAUL R. RITZMA
DEUPTY SECRETARY

Received by ER Project Office 3.17.00

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

March 14, 2000

John Browne, Director
Los Alamos National Laboratory
P. O. Box 1663, Mail Stop A100
Los Alamos, New Mexico 87545

Theodore Taylor, Project Manager
Los Alamos Area Office
Department of Energy
528 35th Street, Mail Stop A316
Los Alamos, New Mexico 87544

RE: **APPROVAL OF RFI REPORT FOR TECHNICAL AREA (TA) 6**
LOS ALAMOS NATIONAL LABORATORY
NM0890010515

Dear Dr. Browne and Mr. Taylor:

The Hazardous and Radioactive Materials Bureau (HRMB) of the New Mexico Environment Department has completed review of the Los Alamos National Laboratory RCRA Facility Investigation (RFI) Report for Potential Release Sites in the Eastern and Western Aggregates at TA-6. HRMB's review incorporated the RFI Report dated September 30, 1998 and Los Alamos National Laboratory's (LANL's) response to HRMB's request for supplementary information of January 18, 2000.

HRMB hereby approves the RFI Report and the Response to the Request for Supplemental Information (RSI). As outlined in LANLs RSI response, additional characterization is necessary at Potential Release Sites (PRSs) 06-002 and C-06-005 (see attachment). If additional characterization of PRSs 06-002 and C-06-005 support a No Further Action (NFA), then LANL should re-submit these PRSs for further review by HRMB. HRMB acknowledges the PRSs of the Eastern and Western Aggregates will be consolidated into two PRSs, tentatively identified as PRSs 06-002-00 and 06-003(g) respectively and PRSs of the Eastern Aggregate will be submitted for Class 3 Permit Modification upon completion of additional characterization of PRSs 06-002 and C-06-005.

Should you have any questions regarding this letter please contact me, at (505) 827-1558 ext. 1012, or Roland Rocha at (505) 846-0053.

Sincerely,

John E. Kieling, Acting Manager
Permits Management Program
Hazardous and Radioactive Materials Bureau

JEK:rr

attachment
cc w/ attachment:

J. Bearzi, NMED HRMB
R. Dinwiddie, NMED HRMB
R. Rocha, NMED HRMB
P. Young, NMED HRMB
J. Parker, NMED DOE OB
S. Yanicak, NMED DOE OB, MS J993
J. Davis, NMED SWQB
D. Neleigh, EPA 6PD-N
J. Vozella, DOE LAAO, MS A316
J. Canepa, LANL EM/ER, MS M992
M. Kirsch, LANL EM/ER, MS M992
D. McInroy, LANL EM/ER, MS M992
File: Reading and HSWA LANL 5/1111/6

Approval Letter
RFI Report for Potential Release Sites in the Eastern and Western Aggregates at Technical Area 6
LA-UR-98-3710
EM/ER: 98-396

Los Alamos National Laboratory
NM0890010515

ATTACHMENT

The following table includes a complete listing of the potential release sites (PRSs) presented in this document, LANL's (Los Alamos National Laboratory) proposed actions, and the rationale for the Administrative Authority's (AA) concurrence or non-concurrence on each proposed action.

Eastern Aggregate

PRS	LANL's Proposed Action	Does AA Concur?	AA Rationale
06-002	NFA	No	Extent of release not adequately determined
06-003(c)	NFA	Yes	No known or suspected release of RCRA constituents
C-06-005	NFA	No	Extent of release not adequately determined
C-06-006	NFA	Yes	No known or suspected release of RCRA constituents
C-06-016	NFA	Yes	No known or suspected release of RCRA constituents
C-06-020	NFA	Yes	No known or suspected release of RCRA constituents

Western Aggregate

PRS	LANL's Proposed Action	Does AA Concur?	AA Rationale
C-06-003	NFA	Yes	No known or suspected release of RCRA constituents
06-003(g)	NFA	Yes	No known or suspected release of RCRA constituents
C-06-007	NFA	Yes	No known or suspected release of RCRA constituents
C-06-008	NFA	Yes	No known or suspected release of RCRA constituents
C-06-008	NFA	Yes	No known or suspected release of RCRA constituents
C-06-009	NFA	Yes	No known or suspected release of RCRA constituents
C-06-010	NFA	Yes	No known or suspected release of RCRA constituents
C-06-011	NFA	Yes	No known or suspected release of RCRA constituents
C-06-012	NFA	Yes	No known or suspected release of RCRA constituents
C-06-013	NFA	Yes	No known or suspected release of RCRA constituents
C-06-014	NFA	Yes	No known or suspected release of RCRA constituents
C-06-015	NFA	Yes	No known or suspected release of RCRA constituents
C-06-017	NFA	Yes	No known or suspected release of RCRA constituents
C-06-018	NFA	Yes	No known or suspected release of RCRA constituents
C-06-021	NFA	Yes	No known or suspected release of RCRA constituents

6.0 SWMU 15-009(j)
FORMER SEPTIC TANK AND ASSOCIATED SEEPAGE PITS

6.1 Summary

SWMU 15-009(j) is a former septic tank and two seepage pits that were used to process sanitary waste from Building TA-15-285. The Laboratory ER Project implemented a VCA at this SWMU. VCA activities involved remediation of the site in accordance with applicable state/federal regulations. Confirmation sampling verified that no release occurred at this site. NMED approved the VCA completion report for this SWMU in a letter dated March 16, 1999. SWMU 15-009(j) is being proposed for NFA under Criterion 3 (no release).

6.2 Description and Operational History

6.2.1 Site Description

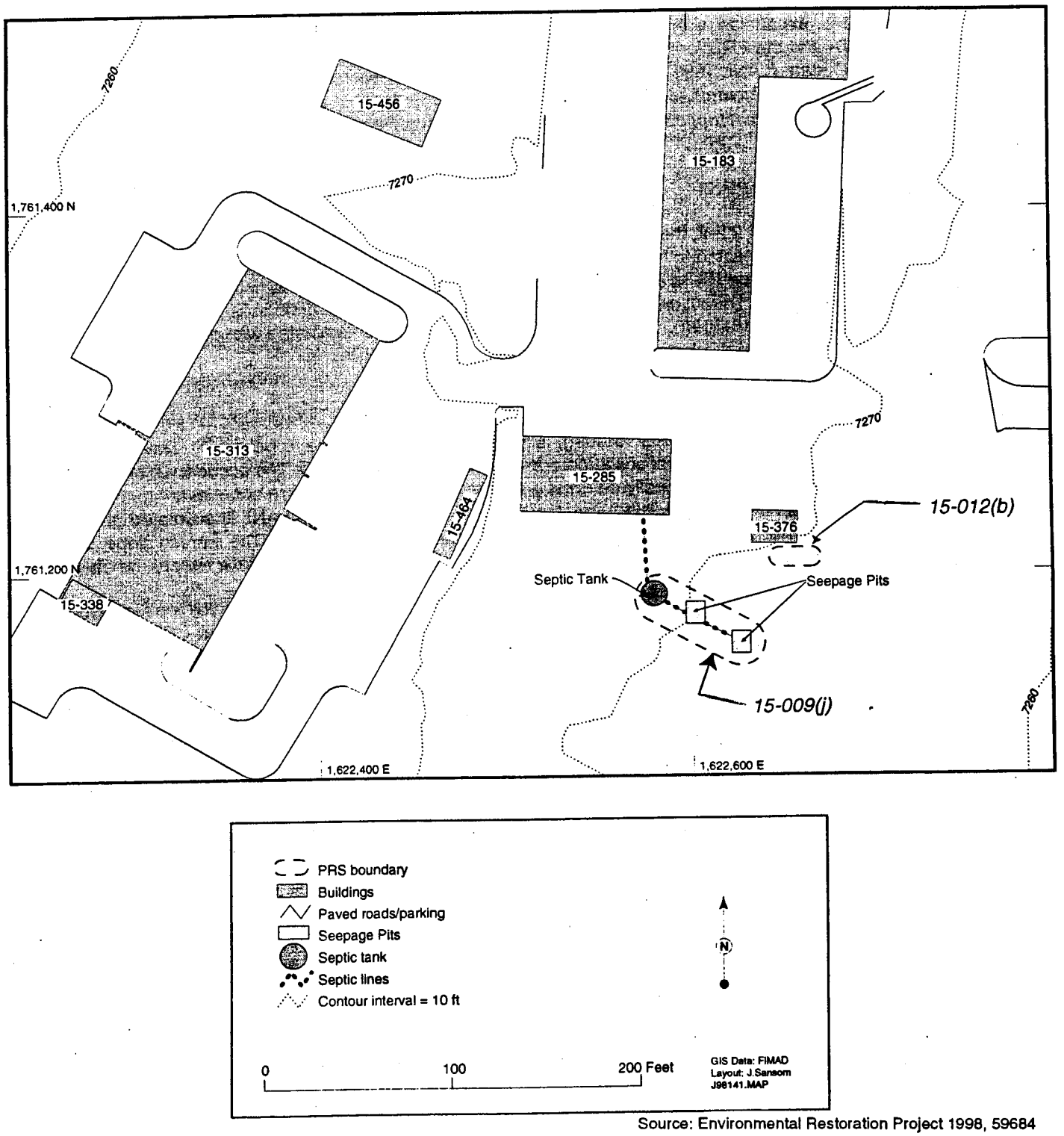
Prior to VCA activities, SWMU 15-009(j) consisted of an inactive subsurface septic tank (structure no. TA-15-286) and two inactive seepage pits. The SWMU was located near the western edge of TA-15. The septic tank was located approximately 50 ft southeast of Building TA-15-285, while the seepage pits were located approximately 15 ft and 30 ft southeast of the septic tank (Figure 6.2-1).

The former septic tank was constructed of fiberglass, had an approximate capacity of 1500 gal., and received sanitary waste from Building TA-15-285, which included drainage from a shower, toilet, sink, and water fountain. The top of the septic tank was approximately 2 ft below ground surface; the bottom, approximately 8 ft below the surface and connected to the building by 4-in. polyvinyl chloride (PVC) pipe. Its dimensions were approximately 8 ft x 4 ft x 6 ft. Discharge from the septic tank flowed to two 4-ft-diameter, 50-ft-deep seepage pits that were connected in series with the septic tank discharge line via subsurface piping. The seepage pits were uncased holes drilled into tuff and filled with stone cobbles.

6.2.2 Operational History

Building TA-15-285 housed industrial work such as electronic soldering, silver soldering, and machining, including cleaning metal spheres that contained explosives. From 1979 to 1986, parts were rinsed in an acid bath (a brightening tank) to remove excess flux from silver soldering. Rinsing in a water bath to remove the acid solution followed the acid bath rinse. Solvents were not used in this process. Workers at Building TA-15-285 used the shower facilities.

The SWMU 15-009(j) septic tank and seepage pits were constructed in 1981. The system was abandoned in place, with the inlet cut and capped at a manhole, in the fall of 1992 when the Laboratory's Sanitary Wastewater System Consolidation Plant was installed. In 1995, initial chemical characterization of the contents of the septic tank revealed a few inches of water (presumably from infiltrating precipitation) that contained detectable concentrations of metals and uranium. Because TA-15 facility management requested that the tank be removed to accommodate potential development at the site, the Laboratory ER Project implemented a VCA to remove the tank and its contents and to investigate the possible release of contaminants from the seepage pits. The VCA was conducted from July to August 1997.



Source: Environmental Restoration Project 1998, 59684

Figure 6.2-1. Location of septic tank and seepage pits at SWMU 15-009(j)

6.3 Land Use

6.3.1 Current

SWMU 15-009(j) was located in TA-15, an industrial area with high-security restricted access. A chain-link fence topped with barbed wire encloses this technical area. Access through the fence is obtained only by passing through a guard gate. These security measures effectively eliminate the possibility of inadvertent site intrusion.

6.3.2 Future/Proposed

The Laboratory does not anticipate any change from the industrial use with restricted access of TA-15 for the operational life of the Laboratory (LANL 1995, 57224, pp.11–12) (Appendix D). Thus, this area will remain under institutional control.

6.4 No Further Action Proposal

6.4.1 Rationale

The VCA for SWMU 15-009(j) consisted of hydrating and removing dried sludge from the septic tank, removing the septic tank and back filling the excavation, decontaminating the interior of the septic tank, and collecting soil and tuff samples to characterize the area surrounding the septic tank. The VCA also included conducting investigative sampling at the associated seepage pits, which were left in place because no contamination was found in their vicinity. Lastly, confirmation samples were collected to verify the success of the tank removal.

The Laboratory ER Project submitted to HRMB a VCA completion report for SWMU 15-009(j), dated September 30, 1998 (LANL 1998, 59684). The VCA completion report

- documents all activities and sampling results associated with the tank removal;
- states that when excavated, the septic tank was found to be intact, indicating that no leakage around the tank occurred;
- states that the confirmation sampling performed for metals, high explosives, volatile organic compounds, semivolatile organic compounds, and uranium at SWMU 15-009(j) verified that there was no release; and
- proposes that this SWMU be considered for NFA under Criterion 3.

In a March 16, 1999, letter (NMED 1999, 65409) (Attachment A), HRMB approved the VCA report.

6.4.2 Criterion

Based on the information presented in Sections 6.2 through 6.4, SWMU 15-009(j) is being proposed for NFA under Criterion 3.

6.5 Supporting Documentation Attached

Attachment A: NMED-HRMB, March 16, 1999. Approval of VCA report for PRS 15-009(j). (NMED 1999, 65409)

Appendix D: LANL, 1995. Site development plan, annual update 1995, pp. 11–12. (LANL 1995, 57224)

6.6 Reference Used for Text of the Request for Permit Modification for SWMU 15-009(j)

Environmental Restoration Project, September 30, 1998. "Voluntary Corrective Action Report for Potential Release Site 15-009(j) Septic Tank," Los Alamos National Laboratory report LA-UR-98-3925, Los Alamos, New Mexico. (Environmental Restoration Project 1998, 59684)

6.7 History of Regulatory Deliverables

LANL, September 30,1998: VCA completion report for SWMU 15-009(j) submitted to HRMB. (ER Project 1998, 59684)

NMED, March 16,1999: Approval of VCA completion report. (NMED 1999, 65409)

6.7.1 References for Regulatory Deliverables

Environmental Restoration Project, September 30, 1998. "Voluntary Corrective Action Report for Potential Release Site 15-009(j) Septic Tank," Los Alamos National Laboratory Report LA-UR-98-3925, Los Alamos, New Mexico. (Environmental Restoration Project 1998, 59684)

NMED (New Mexico Environment Department) March 16, 1999. "Approval of the Voluntary Corrective Action Completion Report Potential Release Site 15-009(j), Los Alamos National Laboratory NM0890010515," NMED Letter to T. Taylor (DOE-LAAO Project Manager) and J. Browne (Laboratory Director), Santa Fe, New Mexico. (NMED 1999, 65409)

15-009(j)

ATTACHMENTS

Attachment A

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous & Radioactive Materials Bureau
2044 Galisteo Street
P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-1557
Fax (505) 827-1544

GARY E. JOHNSON
GOVERNOR

PETER MAGGIORE
SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

March 16, 1999

Mr. Theodore Taylor, Project Manager
Los Alamos Area Office
Department of Energy
528 35th Street
Los Alamos, New Mexico 87544

Mr. John Browne, Director
Los Alamos National Laboratory
P. O. Box 1663, MS A100
Los Alamos, New Mexico 87545

RE: Approval of the Voluntary Corrective Action Completion Report
Potential Release Site 15-009(j)
Los Alamos National Laboratory
NM0890010515

Dear Mr. Taylor and Mr. Browne:

The RCRA Permits Management Program (RPMP) of the New Mexico Environment Department has reviewed and approves the Voluntary Corrective Action Completion Report for 15-009(j) dated September 30, 1998 and referenced by LA-UR-98-3925.

Should you have any questions regarding this letter, please contact me or Mr. John Kieling, RPMP's LANL Facility Manager, at (505) 827-1558 x1012.

Sincerely,

Robert S. ("Stu") Dinwiddie, PhD, Manager
RCRA Permits Management Program
Hazardous and Radioactive Materials Bureau

RSD:kth

cc: J. Canepa, LANL EM/ER, MS M992
J. Davis, NMED SWQB
B. Garcia, NMED HRMB
K. Hill, NMED HRMB
M. Johansen, DOE LAAO, MS A316
J. Kieling, NMED HRMB
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H. LeDoux, DOE LAAO, MS A316
D. McInroy, LANL EM/ER, MS M992
D. Neleigh, EPA, 6PD-N
J. Parker, NMED DOE OB
J. Vozella, DOE LAAO, MS A316
S. Yanicak, NMED DOE OB, MS J993
File: HSWA LANL HSWA LANL 2/1086/15
Track: LANL, Doc date, NA, DOE/LANL, NMED HRMB/Dinwiddie, RE, File

7.0 SWMU 15-012(a) OPERATIONAL RELEASE

7.1 Summary

The Laboratory ER Project has never been able to locate SWMU 15-012(a), a reputed operational release of vacuum pump oil. NMED concurred that this SWMU meets NFA Criterion 1 (the site cannot be located) in Attachment B (page 2) of a letter dated June 11, 1997.

7.2 Description and Operational History

7.2.1 Site Description

The SWMU report describes SWMU 15-012(a) as an area where an operational release of vacuum pump oil occurred. However, the Laboratory ER Project has never been able to locate SWMU 15-012(a) (see Section 7.4.1)

7.2.2 Operational History

This section not applicable.

7.3 Land Use

7.3.1 Current

TA-15 is an industrial area with high-security restricted access. A chain-link fence topped with barbed wire encloses this technical area. Access through the fence is obtained only by passing through a guard gate. These security measures effectively eliminate the possibility of inadvertent site intrusion.

7.3.2 Future/Proposed

The Laboratory does not anticipate any change from the industrial use with restricted access of TA-15 for the operational life of the Laboratory (LANL 1995, 57224, pp.11–12) (Appendix D). Thus, this area will continue to remain under institutional control.

7.4 No Further Action Proposal

7.4.1 Rationale

Documentation supports that SWMU 15-012(a) cannot be located:

- The SWMU report (LANL 1990, 07512) (Attachment A) describes SWMU 15-012(a) as an area where an operational release of vacuum pump oil occurred; however, no location and no associated structure number are provided. According to a footnote in the SWMU report, this SWMU is not identified in the DOE Comprehensive Environmental Assessment and Response Program (CEARP) report. The SWMU report does identify Task 24, record number 1589 (LANL 1989, 11963) (Attachment B) with this SWMU.

- The Site Database, Task 24, record number 1589 (Attachment B) confirms that no location or associated structure number is available. Site Database, Task 24: 1589 further states that the site could not be located.

Thus the Laboratory ER Project has no basis on which to find this SWMU.

Because the site for SWMU 15-012(a) cannot be located, the SWMU was proposed for NFA (under NFA Criterion 1) in the RFI report for PRSs at TA-15 (Environmental Restoration Project 1996, 62847). Although the report received a notice of deficiency, HRMB concurred that SWMU 15-012(a) meets NFA Criterion 1 in a letter dated June 11, 1997, Attachment B, page 2 (NMED 1997, 59155) (Attachment C).

7.4.2 Criterion

Based on the information presented in Sections 7.2 through 7.4, SWMU 15-012(a) is being proposed for NFA under Criterion 1.

7.5 Supporting Documentation Attached

Attachment A: LANL, November 1990. SWMU report, Volume II, p. 15-012. (LANL 1990, 07512)

Attachment B: Site Database, Task 24, record number 1589. (LANL 1999, 11963)

Attachment C: NMED, June 11, 1997. NOD for RFI report for TA-15 with approval of NFA for SWMU 15-012(a). (NMED 1997, 59155)

Appendix D: LANL, 1995. Site development plan, annual update 1995, pp. 11–12. (LANL 1995, 57224)

7.6 Reference Used for Text of the Request for Permit Modification for SWMU 15-012(a)

Environmental Restoration Project, May 1996. "RFI Report for Potential Release Sites at TA-15, 15-001, 15-002, 15-004(g,h), 15-005(b,c), 15-006(c.d), 15-007(a), 15-008(c,g) 15-009(a,f,l,k), 15-010(a-c), 15-011(a-c),15-012(a), 15-014(a,b,d,e,g-l), C-15-001, C-15-005, C-15-006, C-15-007, C-15-010 and C-15-011 (located in Former Operable Unit 1086) Field Unit 2," Los Alamos National Laboratory report LA-UR-95-1685, Los Alamos, New Mexico. (Environmental Restoration Project 1996, 62847)

7.7 History of Regulatory Deliverables

LANL, May 1996: RFI report for PRSs at TA-15 [including SWMU 15-012(a)] submitted to HRMB. (ER Project 1996, 62847)

NMED, June 11, 1997: NOD for RFI report with approval of NFA for SWMU 15-012(a). (NMED 1997, 59155)

7.7.1 References for Regulatory Deliverables

Environmental Restoration Project, May 1996. "RFI Report for Potential Release Sites at TA-15, 15-001, 15-002, 15-004(g,h), 15-005(b,c), 15-006(c,d), 15-007(a), 15-008(c,g) 15-009(a,f,l,k), 15-010(a–c), 15-011(a–c),15-012(a), 15-014(a,b,d,e,g–l), C-15-001, C-15-005, C-15-006, C-15-007, C-15-010 and C-15-011 (located in Former Operable Unit 1086) Field Unit 2," Los Alamos National Laboratory report LA-UR-95-1685, Los Alamos, New Mexico. (Environmental Restoration Project 1996, 62847)

NMED (New Mexico Environment Department) June 11, 1997. "Notice of Deficiency and Request for Workplan Modification, RCRA Facility Investigation Report, TA-15, Los Alamos National Laboratory NM0890010515," NMED Letter to G. T. Todd (LAAO Area Manager) from B. Garcia (Chief, HRMB), Santa Fe, New Mexico. (NMED 1997, 59155)

15-012(a)

ATTACHMENTS

SUMMARY

LOCATION : TA-15
TYPE OF UNIT(s) : OPERATIONAL RELEASE
UNIT USE : DISPOSAL
OPERATIONAL STATUS : INACTIVE
PERIOD OF USE : ?
HAZARDOUS RELEASE : SUSPECTED
RADIOACTIVE RELEASE : UNKNOWN

MATERIALS MANAGED : SUSPECTED HAZARDOUS WASTE
RADIOACTIVE WASTE

UNIT INFORMATION

The RFA notes a vacuum pump oil disposal area [15-012(a)]. A location is not given. During containment experiments, vessels were washed out in a bermed area near TA-15-285 [15-012(b)]. One employee remembered uranium contamination of the soil in this area and the soil being removed from the area. The exact location is unknown.

WASTE INFORMATION

The pump oil disposal area is suspected to contain mercury and tritium. Containment experiment shots contained uranium, beryllium, lead, boron, cadmium, gold, aluminum, and tungsten.

RELEASE INFORMATION

Lateral and vertical extent of any contamination is unknown. During a 1988 E.R. site reconnaissance, the containment vessel washing area was 22 microRem/hour and 300 to 700 cpm beta-gamma above background.

NOTES

Unit 15-012(b) was an outfall from a septic system described in 15-010(c). Units 15-012(c), (d), (e), (f), and (g) were outfalls from drainlines that are described as 15-014(m), (k), (l), (i), and (j), respectively.

SWMU CROSS-REFERENCE LIST

SWMU NUMBER	CEARP IDENTIFICATION NUMBER(S)	RFA UNIT	E.R. RELEASE SITE INFO.	ASSOCIATED STRUCTURES
15-012(a)	**	15.008	Tsk 24 : 1589	UNKNOWN
15-012(b)	TA15-5-CA/OL-I-HW/RW		Tsk 22 : 1529	NEAR TA-15-285

** No corresponding E. R. Program unit.

TA-15 SOLID WASTE MANAGEMENT UNITS (SWMUs) FIGURE INDEX
(CONTINUED)

SWMU	FIGURE NUMBER
15-010(a)	15-2
15-010(b)	15-2
15-010(c)	15-2
15-011(a)	15-2
15-011(b)	15-1
15-011(c)	15-2
15-012(a)	Not shown, location unknown
15-012(b)	15-1
15-013(a)	Not shown, moved to TA-49
15-013(b)	15-1
15-014(a)	15-3
15-014(b)	15-3
15-014(c)	15-3
15-014(d)	15-5
15-014(e)	15-5
15-014(f)	15-4
15-014(g)	15-3
15-014(h)	15-3
15-014(i)	15-3
15-014(j)	15-3
15-014(k)	15-3
15-014(l)	15-5
15-014(m)	15-4

NOTE: Some structure locations may contain more than one SWMU.

Rev. 1, 5/23/90

Environmental Restoration Program

Attachment B

Los Alamos Environmental Restoration Records Processing Facility

ER Record I.D.# 0011963

Site Database Task 24 TA-15

Los Alamos National Laboratory
Los Alamos, New Mexico

Working Draft

Prepared by:
Roy F. Weston, Inc.

For:
U.S. Department of Energy
Albuquerque Operations Office

Environmental Restoration Program
Technical Support Office
Los Alamos National Laboratory

September 1989

1. Project Name : ER PROGRAM

2. Installation : LOS ALAMOS NATIONAL LABORATORY

3. Site Name : Surface soil contamination

4. Task Number : AL-LA-024

5. Phase 1 Heading : TA-15-5-CA/OL-I-HW/RW (Disposal areas)

6. Release Site Descriptor : TA-15-06-007-0000

7. Installation Identifier : TA-15-5d15

8. Alternative Identifier : SWMU# 15-008a,RFA# 15.008

9. Site Description :
Vacuum pump oil disposal area suspected of containing pump oil, mercury, tritium, hazardous, and radioactive waste (R02r). The location for this area is not given in the RFA report. It was not located during the ER Program site recon visit (R01s).

10. Site Location:
Coordinate system and units : To be determined
The site has not been surveyed
Coordinates : Not identified
Elevation : Not identified

11. Program Phase : RI Scoping

12. Program Phase Rationale :
The site was identified in the SWMU report and is considered worthy of further investigation under a RI scoping.

13. Current Operational Status : Not Operational
Current Owner/Operating Group : M-4

14. Site Type : Surface soil contamination

15. Potential Pathways : Not identified

16. Generic Waste Type : Not identified

17. EPA Waste Characteristics : Not identified

18. EPA Waste Types : Not identified

19. Contaminants of Concern:

Name of contaminant	Data Quality	Index Type	Index Number	Reference
TRITIUM	U	ERP	H-3	R02r
TOTAL PETROLEUM PRODUCTS	U	ERP	TPP	R02r
MERCURY, TOTAL	U	CAS	7439-97-6	R02r
RADIONUCLIDES	U	ERP	RAD	R02r
UNKNOWN	U	ERP	TIC9	R02r

21. Chronological Events:

Description	Date	Reference
•ER Program site recon visit.	09/12/88-09/14/88	R01s

22. Comments:

The RFA report states, "...contaminated areas include an inactive vacuum pump oil disposal area suspected of containing pump oil, mercury, tritium, hazardous, and radioactive waste...."

This disposal area was not located during the ER Program site recon visit (R01s).

23. Information Resources

Reports

• Reference R01r
Title : SWMU Report
Author : LANL
Date : 1988
Location: ER Program document control system, Roy F. Weston, Albuquerque, NM

- Reference R02r
  Title : RCRA Facility Assessment... PR/VSI Report of... LANL
  Author : EPA
  Date : 08/87
  Location: ER Program document control system, Roy F. Weston, Albuquerque, NM

Site Visits

- Reference R01s
  Title : ER Program site recon visit
  Author : Roy F. Weston
  Date : 09/12/88-09/14/88
  Location: Field notebook #72, ER Program document control system, Roy F. Weston, Albuquerque, NM

Attachment C

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous & Radioactive Materials Bureau
2044 Galisteo
P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-1557
Fax (505) 827-1544

GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

June 11, 1997

Mr. G. Thomas Todd, Area Manager
Los Alamos Area Office
Department of Energy
528 35th Street
Los Alamos, New Mexico 87544

RE: Notice of Deficiency and Request for Workplan Modification
RCRA Facility Investigation Report
Technical Area 15
Los Alamos National Laboratory
NM0890010515

Dear Mr. Todd:

The Hazardous and Radioactive Materials Bureau (HRMB) of the New Mexico Environment Department has conducted an extensive review of the RCRA Facility Investigation (RFI) Report for Technical Area 15 dated May 1996 and referenced by EM/ER:96-278 and found it to be deficient. Attachment A details the requested Workplan modifications and Attachments B and C list the deficiencies identified during the review of this document. LANL must address both the Workplan modifications (Attachment A) and the deficiencies (Attachments B and C) within thirty (30) days of the receipt of this letter.

Received by ER RPF
SEP 24 1998

Should you have any questions regarding this letter, please contact me or Mr. John Kieling, HRMB's LANL Facility Manager, at (505) 827-1558.

Sincerely,

Benito J. Garcia, Chief
Hazardous and Radioactive Materials Bureau

BJG:kth

attachments

cc: T. Davis, NMED HRMB
R. Dinwiddie, NMED HRMB
T. Glatzmaier, LANL DDEES/ER, MS M992
K. Hill, NMED HRMB
J. Jansen, LANL ER, MS A316
M. Johansen, DOE LAAO, MS A316
M. Leavitt, NMED GWQB
D. McInroy, LANL EM/ER, MS M992
D. Neleigh, EPA, 6PD-N
J. Parker, NMED DOE OB
S. Pierce, NMED SWQB
G. Saums, NMED SWQB
T. Taylor, DOE LAAO, MS A316
S. Yanicak, NMED DOE OB, MS J993
File: HSWA LANL 2/1086/15
Track: LANL, doc date, na, DOE/LANL, HRMB/kth, re, file
Reading File

ATTACHMENT A - REQUEST FOR WORKPLAN MODIFICATION

RCRA Facility Investigation Report
Technical Area 15
May 1996

1. LANL must obtain a representative number of samples to characterize the nature and extent of contamination at the PRS. One or two samples per PRS [e.g., 15-005(c) and 15-010(a)] are, in most cases, insufficient to support a NFA proposal.

2. LANL shall obtain confirmatory samples at all PRSs where the HE spot test was used to determine the presence or absence of HE.

ATTACHMENT B - SUMMARY OF CONCLUSIONS
RCRA Facility Investigation Report
Technical Area 15
May 1996

PRS	LANL'S PROPOSED ACTION	DOES HRMB CONCUR?	HRMB'S RATIONALE
15-001	Deferred	No	Documentation of prior approval of deferred action required
15-002	NFA	No	Response to PRS-specific comments in Attachment B required
15-004(g)[1]	IA	No	Additional information required to determine if proposed action is appropriate (information not provided within RFI report)
15-004(h)	Deferred	No	Documentation of prior approval of deferred action required
15-005(b)	NFA	No	Response to PRS-specific comments in Attachment B required
15-005(c)	NFA	No	Response to PRS-specific comments in Attachment B required
15-006(c)	EC	No	Additional information required to determine if proposed action is appropriate (information not provided within RFI report)
15-006(d)	NFA	No	Response to PRS-specific comments in Attachment B required
15-007(a)	NFA	No	Response to PRS-specific comments in Attachment B required
15-008(c)	IA	No	Additional information required to determine if proposed action is appropriate (information not provided within RFI report)
15-008(g)	NFA	No	Response to PRS-specific comments in Attachment B required
15-009(a)	Deferred	No	Documentation of prior approval of deferred action required
15-009(f)	NFA	No	Interim Action recommended based on analytical results
15-009(i)	Deferred	No	Documentation of prior approval of deferred action required
15-009(k)	NFA	No	Interim action recommended based on analytical results
15-010(a)	Phase II	No	Additional information required to determine if proposed action is appropriate (information not provided within RFI report)
15-010(b)	NFA	No	Deviations from approved Workplan; additional sampling required
15-010(c)	NFA	No	Response to PRS-specific comments in Attachment B required
15-011(a)	NFA	No	Response to PRS-specific comments in Attachment B required
15-011(b)	NFA	No	PRS proposed for NFA based on Criteria #5[2] ; however, issues set forth in General Comments 7 and 8 must be evaluated. See Specific Comments.

[1] Bold italicized text indicates PRSs with potential Surface Water Quality Bureau concerns.

[2] NFA Criteria as defined in the Environmental Restoration Document of Understanding, Annex B dated February 1, 1996, Revision 0

PRS	LANL'S PROPOSED ACTION	DOES HRMB CONCUR?	HRMB'S RATIONALE
15-011(c)	NFA	No	PRS proposed for NFA based on Criteria #5 ; however, issues set forth in General Comments 7 and 8 must be evaluated. See Specific Comments
15-012(a)	NFA	Yes	PRS meets NFA Criteria #1
15-014(a)	NFA	No	PRS proposed for NFA based on Criteria #5 ; however, issues set forth in General Comments 7 and 8 must be evaluated. See Specific Comments.
15-014(b)	NFA	No	Hazard Index > 1, conduct risk assessment
15-014(d)	NFA	No	Response to PRS-specific comments in Attachment C required
15-014(e)	NFA	No	Response to PRS-specific comments in Attachment C required
15-014(g)	NFA	No	Response to PRS-specific comments in Attachment C required
15-014(h)	NFA	No	Response to PRS-specific comments in Attachment C required
15-014(i)	NFA	No	Response to PRS-specific comments in Attachment C required
15-014(j)	NFA	No	Additional information/sampling required
15-014(k)	NFA	No	Response to PRS-specific comments in Attachment C required
15-014(l)	NFA	No	Response to PRS-specific comments in Attachment C required
C-15-001	Phase I continued	No	Additional information required to determine if proposed action is appropriate (information not provided within RFI report)
C-15-005	NFA	No	Response to PRS-specific comments in Attachment C required
C-15-006	NFA	No	Response to PRS-specific comments in Attachment C required
C-15-007	Deferred	No	Documentation of prior approval of deferred action required
C-15-010	Phase II	No	Additional information required to determine if proposed action is appropriate (information not provided within RFI report)
C-15-011	NFA	No	Response to PRS-specific comments in Attachment C required

ATTACHMENT C - NOTICE OF DEFICIENCY COMMENTS
RCRA Facility Investigation Report
Technical Area 15
May 1996

GENERAL COMMENTS

Approach/Conceptual Model

1. LANL must determine the source and extent of contamination for those Potential Release Sites (PRSs) whose analytical results exceeded background and Screening Action Levels (SALs). Under State and Federal regulations, LANL has the responsibility to investigate further to ensure that the rate, nature and extent of contamination has been determined.

   The following is a summary of those PRSs with identified concerns which were investigated under this RCRA Facility Investigation (RFI):

COPCs >SALs	15-004(g), 15-008(c), 15-014(b), C-15-010
COPCs<SALs; MCE≥1	15-014(b), 15-009(f), 15-009(k)
COPCs<SALs; Normalized COPC values>0.1	15-002, 15-006(d), 15-007(a), 15-010(a), 15-011(b), 15-014(g), 15-014(j)

PRS 15-014(b), which has contaminants of Potential Concern (COPCs) greater than SALS, is inappropriately proposed for no further action (NFA). PRSs 15-009(f) and 15-009(k), which have COPCs less than SALs but a Multiple Chemical Evaluation (MCE) greater than 1, are inappropriately proposed for NFA. In addition, all the PRSs with COPCs less than SALs but with normalized values greater than 0.1 should be carried forward to a baseline risk assessment.

LANL shall not significantly revise the scope of work performed after the approval of the RFI Workplan without obtaining approval from the Administrative Authority (AA). At PRSs 15-009(f and k) and 15-010(b), LANL deviated from the approved RFI Workplan by reducing the number of samples obtained for analyses. Homogeneity of septic tank liquids and sludges cannot be assumed (see PRS 0-30(g) [catholic church septic tank]). LANL shall perform the sampling as agreed upon in the approved RFI Workplan.

LANL shall base its SALs on US Environmental Protection Agency (USEPA) Region IX residential Potential Remediation Goals (PRGs). LANL may, in addition to performing the MCE based on residential risk, present an evaluation of risk based on projected future land use. In response to this Notice of Deficiency (NOD) comment, LANL shall submit a table of revised SALs, SALs applied in the RFI report, and discuss any resulting differences which may affect the decisions made within this RFI Report.

4 For those SALs absent from the USEPA Region IX PRGs, LANL shall calculate the SAL using toxicity data obtained from USEPA Region III risk-based concentration tables or the latest Integrated Risk Information System/Health Effects Summary Tables (IRIS/HEAST) data using USEPA Region IX default values applicable to the projected future land use.

5 LANL must perform a baseline risk assessment (BRA) for those PRS where one or more COPCs exceed a SAL These evaluations must also include those COPCs which did not exceed SALs, but had normalized values that exceeded 0.1. The PRSs which must be further evaluated include the following: 15-009(f), 15-009(k), and 15-014(b).

6 LANL shall carry forward to a BRA all COPCs whose concentrations exceed SALs, but are less than the background concentration.

7 LANL shall consider the cumulative risk posed to human health and the environment from multiple, nearby PRSs. Many sites within Technical Area (TA) 15 present carcinogenic, noncarcinogenic, or radiological risks which, in total, may present an unacceptable human health or ecological risk.

8 The use of tolerance intervals is an alternate approach to the analysis of variance in determining the presence of statistically significant contamination. A tolerance interval is constructed from data obtained from (uncontaminated) background soil locations. The concentrations from the site investigations are then compared with the tolerance interval. If the site constituent concentrations fall outside the tolerance interval, statistically significant contamination is evinced. Tolerance intervals may be used for determining statistically significant contaminant concentrations; however, the following criteria must be met and documented:

- The presence of homogeneous soil types must be verified. The use of Upper Tolerance Limits (UTLs) is appropriate for sites that overlie extensive homogeneous geologic deposits (e.g., thick homogeneous lacustrine clays) that do not naturally display geochemical variations.
- The tolerance interval must be calculated using an adequate data set (minimum of 8 data points)
- Calculated UTLs must be compared to human health and ecological screening values to determine their relevance.
- For adequate review, the Administrative Authority (AA) must be provided the entire data set (including non-detectable concentrations) used to perform the statistical analysis and the type of statistical analysis performed.
- For adequate review, the AA must be provided all background data points
- Variability within each data set must be defined (i.e., minimum and maximum constituent concentrations, average constituent concentration value and the standard deviation)
- A normality test must be applied to the data set prior to the derivation of an UTL

- The data set must be inspected for outliers (i.e., unusually high or low values) and their identity and source (such as analytical laboratory transcription errors) should be documented.

If these criteria are met, LANL must recalculate UTLs based on the 95 percent confidence level of the 95th percentile of distribution [USEPA, 1989, *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities - Interim Final Guidance*, NTIS PB89-151047]. If these criteria cannot be met, LANL must calculate the background concentration based on the 95 percent upper confidence level of the arithmetic average concentration.

9. LANL shall assess ecological risk prior to recommending NFA for a PRS.
10. LANL shall revise and resubmit the Phase II Sampling and Analysis Plans (SAP) for PRSs C-15-010 and 15-010(a). The information presented within the Phase II SAP is not adequate to determine the effectiveness of the proposed sampling.
11. On several occasions, LANL makes reference to the NFA criteria. LANL shall include an explanation of these criteria and provide reference to the Environmental Restoration Document of Understanding.
12. Section 3.3 implies that screening of other radionuclides occurred; however, samples from many PRSs [e.g. 15-014(g)] were analyzed for uranium only. Please clarify the methodology used.

Supporting Documentation

1. LANL shall provide the following pertinent information in an addendum to the RFI Report: a tabulated summary of field screening instrumentation readings, calibration records, and detection limits, auger logs, boring logs, and log books.
2. LANL shall provide a map indicating all springs, wells, and seeps within the same canyon system(s) or within a 1-mile radius of the PRSs being investigated within the RFI Report.
3. For PRSs that are underground storage tanks, LANL shall contact the Underground Storage Tank (UST) Bureau to obtain a certified closure statement or documentation indicating that the UST is exempt from the State UST regulations.

Reporting of Sampling and Analyses Results and Activities

1. LANL shall submit a table detailing the variances from the approved RFI Workplan (on a PRS-by-PRS basis) and their rationale.
2. LANL shall provide a checkplot and table summarizing the all sampling locations and analytical results for the site-wide and the site-specific (if any) background studies.

3. LANL shall provide a checkplot presenting a compilation of all the sampling locations (including site-specific background sampling locations).
4. LANL shall provide a statistical summary of all contaminant concentrations greater than background and greater than SALs.
5. For each PRS, LANL shall provide a table summarizing the date(s) of the sampling event(s), number of samples obtained, types of analyses conducted, analytical methods utilized, date(s) of analyses, and type of laboratory that performed the analyses (fixed/mobile, on-site/off-site, etc.).
6. LANL shall provide the number or percentage of media samples from each PRS that were analyzed by a fixed laboratory and indicate whether the laboratory was off-site or on-site. The AA requires 20% of the samples collected for fixed laboratory analysis be analyzed by an off-site laboratory.
7. LANL shall not use field instrumentation to determine the types of analyses to be conducted at investigations aimed at determining the presence or absence of contamination. When field instrumentation is used for screening, LANL shall provide assurances (such as detection limits and calibration records) that appropriate Quality Assurance/Quality Control (QA/QC) criteria were adhered to. In addition, LANL must obtain confirmatory samples when using field screening to determine the presence or absence of contamination.
8. LANL must conduct Toxicity Characteristic Leachate Procedure (TCLP) analyses for waste characterization and present the results in the RFI report when offsite disposal of wastes is proposed. [*Programmatic Issues from NODs* dated January 16, 1995]
9. LANL shall provide documentation indicating that appropriate (rate and frequency of) QA/QC samples were obtained and analyzed per USEPA guidance. To substantiate that the appropriate QA/QC samples were obtained, a discussion of the QA/QC samples obtained and analyzed must be presented along with a description of QA/QC problems encountered [*Programmatic Issues from NODs* dated January 16, 1995]

SPECIFIC COMMENTS

Report Format

1. Appendices
   (a) LANL shall provide a summary of all analytical data in Appendix A including non-detectable concentrations.
   (b) In Appendix D (page D-1), concentrations of lead and uranium (132,000 and 45,000 ppm, respectively) are eliminated from the data set as outliers. LANL shall provide an explanation of the criteria it used to eliminate these data from the data set.
   (c) LANL shall provide axis labels for the graphs in Appendix E

PRS Types

1. Septic Systems
   (a) Hazardous constituents were identified above background concentrations in the shallow subsurface near septic or settling tanks. LANL shall conduct further investigations at those PRSs to determine the integrity of the tank and drain lines.
   (b) Hazardous constituents were identified above background in the septic settling or holding tanks at PRSs 15-009(f and k). HRMB recommends that LANL perform interim measures at these PRSs to mitigate potential releases to the environment.
   (c) LANL shall ensure that seals have been emplaced such that flow into and out of all inactive septic tank PRSs has been eliminated. Each inactive septic tank should be removed or, at a minimum, be backfilled with a solid, non-porous material (such as flow crete). However, any action other than removal of the tank and associated lines may not be considered in the future as a final disposition of the PRS.
2. Firing Sites
   (a) LANL shall not use the High Explosive (HE) spot test to determine the presence or absence of HE. LANL may only use the HE spot test to bias Phase I sampling locations [letters from W. Honker to T. Taylor dated April 19, and June 19, 1995].
3. Outfalls
   (a) In order to address Water Quality Control Commission concerns, LANL shall plug outfall piping at the origin and remove all associated piping.

Potential Release Sites

1. 15-001 Storage Area
   (a) LANL shall obtain approval to defer the investigation of a PRS prior to the performance of the RFI which was originally intended to investigate it. LANL shall provide documentation that this PRS received deferral approval by the AA prior to the implementation of the RFI Workplan.
2. 15-002 Pit
   (a) The RFI Report is a stand-alone document. LANL shall present the information referenced from the RFI Workplan in the RFI Report (Section 5.12.1).
   (b) LANL shall clarify the dimensions of the bermed area (Section 5.12.2).
   (c) LANL shall explain the rationale for not analyzing samples obtained from a "...HE burn area..." (Section 5.12.1) for HE.
   (d) LANL shall clarify the number of samples obtained at this PRS; the number of samples found in the two paragraphs of Section 5.12.4.3 conflict.
   (e) LANL shall provide the PRS-specific calculations and concentrations used to determine that the distribution of the uranium concentrations were not statistically different from background (Section 5.12.5)
   (f) LANL shall revise Figure 5.12.4.3-1 such that it more clearly indicates the sampling locations.

(g) LANL shall revise the sample identification numbers on either the "Sample ID" column of Table 5 12 5-1 or Figure 5 12 4 3-1 to directly correlate with one another For example, sample 0215-95-0205 (as indicated in the table) cannot be found (as such) on the figure (sample 15-2560 205).

(h) LANL shall show the calculations used to determine the normalized concentrations in Table 5 12 7 1-1 Perhaps LANL could revise the table to include additional columns and a legend showing the formula used

3. *15-004(g) Inactive Firing Site*

(a) LANL shall provide the rationale (including analytical data, when available) for the further action recommendation at this PRS within the RFI Report.

4. *15-004(h) Inactive Firing Site*

(a) LANL shall obtain approval to defer the investigation of a PRS prior to the performance of the RFI which was originally intended to investigate it LANL shall provide documentation that this PRS received deferral approval by the AA prior to the implementation of the RFI Workplan.

5 *15-005(b) Container Storage Area*

(a) LANL shall explain the rationale for not analyzing samples obtained from an "...active container storage area for HE..." (Section 5.30) for HE.

(b) LANL utilized the HE spot test at two different locations 2 inches distant. One result was positive and the other result was negative The HE spot test is a screening tool used to bias sampling; however, LANL chose to obtain a sample for analyses from the location with the negative result. LANL shall clarify its choice of sampling locations.

(c) LANL shall indicate where the surface sample (0215-95-0181) was analyzed, the method used, and the analytical results for this sample.

(d) LANL shall obtain confirmatory samples to adequately document the presence or absence of HE. See Specific Comments: PRS Types 2(a).

6 *15-005(c) Container Storage Area*

(a) LANL shall explain the rationale for not analyzing samples obtained from an "...active container storage area for HE..." for HE.

(b) LANL shall obtain confirmatory samples to adequately document the presence or absence of HE. See Specific Comments: PRS Types 2(a).

7 *15-006(c) Inactive Firing Site*

(a) LANL shall provide the rationale (including analytical data, when available) for the further action recommendation at this PRS within the RFI Report.

8. *15-006(d) Inactive Firing Site*

(a) LANL shall explain the rationale for submitting only 24 out of 54 samples obtained to an offsite laboratory for analyses (Table 5.36.4.3-1) and clarify how the actions taken were in accordance with the RFI Workplan.

(b) LANL shall provide additional discussions and accompanying figures to explain the distribution of contaminants in the surface and subsurface (Section 5.36.4.3)

(c) LANL shall show the calculations used to determine the normalized concentrations in Table 5.36.7.1-1. As an improvement to the report, LANL could revise the table to include additional columns for the calculations and a legend for the formula(s) used.

(d) LANL shall clarify the collection rate and frequency of QA/QC samples such as duplicates. It appears that only one field duplicate was obtained for 24 samples.

9. *15-007(a) Landfill*

(a) The RFI Report is a stand-alone document. LANL shall present the information referenced from the RFI Workplan in the RFI Report (Section 5.13.1).

(b) LANL shall explain the function of R-Site and detail its associated COPCs (Section 5.13.1).

(c) LANL shall tabulate the results of the field screening including instrument detection limits and calibration readings (Section 5.13.4). See General Comments: Reporting of Sampling and Analyses Results and Activities 7.

(d) LANL shall clarify how radiological screening was used to determine samples for offsite laboratory submittal based on metals content (Section 5.13.4.2).

(e) LANL shall explain the rationale for submitting only 9 out of the 22 samples collected to an offsite laboratory for analyses (Section 5.13.4.3 and Table 5.13.4.3-1); and how this was this in accordance with the RFI Workplan.

(f) LANL shall revise Figure 5.13.4.3-1 to indicate the location of the roads as discussed in Section 5.13.2.

(g) LANL shall revise the sample identification numbers on either the "Sample ID" column of Table 5.13.5-1 or Figure 5.13.4.3-1 to directly correlate with one another.

(h) LANL shall provide sample identification numbers and analyte concentrations in text discussions. For example, in Section 5.13.5 Radionuclides: "Uranium [sample identification number(s)] was detected at a concentration above its background UTL..."

(i) LANL shall clarify if acetone is considered to be a COPC for this PRS: Section 5.13.6 indicates that acetone was not retained as a COPC, but Section 5.13.8 indicates that it is considered for ecological assessment.

10. *15-008(c) Surface Disposal*

(a) LANL shall provide the rationale (including analytical data, when available) for the further action recommendation at this PRS within the RFI Report.

11. *15-008(g) Surface Disposal*

(a) The RFI Report is a stand-alone document. LANL shall present the information referenced from the RFI Workplan in the RFI Report (Section 5.37.1).

(b) LANL shall provide additional information pertaining to the quantity and dimension(s) of the sand bags and the surface area which they cover (Section 5.37).

(c) LANL does not provide adequate information for evaluating this PRS. LANL shall present all of the information available regarding this PRS within the RFI Report

12 *15-009(a) Active Septic System*

(a) LANL shall obtain approval to defer the investigation of a PRS prior to the performance of the RFI which was originally intended to investigate it. LANL shall provide documentation that this PRS received deferral approval by the AA prior to the implementation of the RFI Workplan.

13 15-009(f) Active Septic System

(a) The AA recommends that LANL perform an Interim Action to remove contaminated sludge from this PRS.

(b) LANL shall present the information referenced from the RFI Workplan in the RFI Report (Section 5 28 1).

(c) LANL shall not reduce the scope of the RFI Workplan without consent from the AA (Section 5.28.4.3). See General Comments: Approach/Conceptual Model 2.

(d) LANL shall remove the following statement from p. 5-67 of the text: "In addition, the exposure pathway for the septic tank contents is ingestion of water, which is extremely conservative and unlikely under any circumstance." Section 5.28.7.1

(e) LANL shall evaluate the bias of the estimated (J'd) analytical data and provide a summary of the evaluation in response to these comments.

14. 15-009(i) Active Septic System

(a) LANL shall obtain approval to defer the investigation of a PRS prior to the performance of the RFI which was originally intended to investigate it. LANL shall provide documentation that this PRS received deferral approval by the AA prior to the implementation of the RFI Workplan.

15. *15-009(k) Active Septic System*

(a) Based on a Hazard Index (HI) approaching 1 (0.9753) and the characteristics of identified contaminants, the AA recommends that LANL conduct an Interim Action to remove contaminated sludge from this PRS.

(b) LANL shall present the information referenced from the RFI Workplan in the RFI Report (Section 5.29.1).

(c) LANL shall not reduce the scope of the RFI Workplan without explicit written consent of the AA (Section 5.29.4.3). See General Comments: Approach/Conceptual Model 2.

(d) LANL shall clarify when the metals aliquot was sampled and analyzed (Section 5.29.4.3)

16 *15-010(a) Inactive Septic System*

(a) LANL shall provide the rationale (including analytical data, when available) for the further action recommendation at this PRS within the RFI Report.

(b) LANL shall clarify if the top or bottom of the tank was approximately 4 feet below grade (Section 5.32.2).

(c) LANL shall clarify why samples were obtained at depths of 83 and 84 inches when the tank was located 4 feet (48 inches) below grade (Table 5.32.4.3-1).

(d) Since the sludges from this septic system exceeded the SAL for mercury, LANL shall either conduct an interim action to remove the tanks contents or perform a BRA for mercury and include those COPCs that exceeded a normalized value of 0.1 (chromium and lead). See General Comments: Approach/Conceptual Model 1.

(e) LANL shall clarify the relationship between the USATHMA high-performance liquid chromatography (Section 5.32.11.4) and the SW-846 Method 8330.

17. *15-010(b) Inactive Septic System*

(a) LANL shall not reduce the scope of the RFI Workplan without explicit written consent of the AA (Section 5.33.4.3). Obtaining one sample from the heterogeneous sludges of a septic tank is unacceptable. See General Comments: Approach/Conceptual Model 2.

(b) LANL shall revise Figure 5.33.4.3-1 or submit an additional figure which details the location of the inactive septic tank.

(c) LANL shall explain the rationale behind sampling at the surface (0-6 inches) and shallow subsurface (20-24 inches) when the bottom of the inactive septic tank is located 5 feet (60 inches) below grade (Section 5.33.2).

18. *15-010(c) Inactive Septic System*

(a) LANL shall provide documentation in the RFI Report demonstrating that this PRS was never utilized for the management of RCRA solid or hazardous wastes and/or constituents, or CERCLA hazardous substances.

19. *15-011(a) Sump*

(a) LANL shall provide documentation for the number of trenches and dimension(s) of the trench(es). The discussion would be much improved by the inclusion of photo documentation.

20. *15-011(b) Sump*[3]

(a) LANL shall consider this PRS in evaluating the cumulative risk posed to human health and the environment from multiple, nearby PRSs. See General Comment: Approach/Conceptual Model 7.

(b) LANL shall re-evaluate the UTLs used to compare the analytical results per General Comment: Approach/Conceptual Model 8.

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[3] HRMB performed a MCE for the grouping of PRSs within The Hollow [15-011(b and c), and 15-014(g, l, and j)]. The calculated MCE (defined by the highest concentrations of copper, lead, mercury, zinc, antimony, and silver found at The Hollow divided by their corresponding SALs) failed to exceed unity.

21 *15-011(c) Sump*
(a) LANL shall consider this PRS in evaluating the cumulative risk posed to human health and the environment from multiple, nearby PRSs. See General Comment: Approach/Conceptual Model 7.
(b) LANL shall re-evaluate the UTLs used to compare the analytical results per General Comment: Approach/Conceptual Model 8.

22. *15-012(a) Operational Release*

23. *15-014(a) Outfall*
(a) EPA administers the National Pollutant Discharge Elimination System not the Non Pollutant Discharge Elimination System as stated in Section 5.26.1. LANL shall revise the text accordingly.
(b) LANL shall consider this PRS in evaluating the cumulative risk posed to human health and the environment from multiple, nearby PRSs. See General Comment: Approach/Conceptual Model 7
(c) LANL shall re-evaluate the UTLs used to compare the analytical results per General Comment: Approach/Conceptual Model 8.

24 *15-014(b) Outfall* (obliterated)
(a) Since the MCE calculation for this PRS exceeded unity, LANL shall propose a method by which the COPCs at this PRS will be addressed.

25. *15-014(d) Outfall*
(a) LANL shall provide documentation in the RFI Report demonstrating that this PRS was never utilized for the management of RCRA solid or hazardous wastes and/or constituents, or CERCLA hazardous substances.

26 *15-014(e) Outfall*
(a) Although this PRS is a permitted outfall (presumably under the NPDES program), it is not exempt from investigation under the HSWA Module of the RCRA permit. The NPDES program does not have provisions for Corrective Action or requirements for the remediation of contaminated areas. LANL shall investigate all PRSs known or suspected to have managed RCRA solid or hazardous wastes and/or constituents, or CERCLA hazardous substances

27 *15-014(g) Outfall*
(a) LANL shall provide within the text the results of the HE spot test & DX-2 conducted at this PRS. See General Comments: Supporting Documentation 1.
(b) LANL shall clarify how sampling could have been conducted in accordance with the RFI Workplan as described in Section 5.22.4.3. The response to the NOD (Taylor to Honker dated August 30, 1994) indicated that a surficial and three foot-depth sample would be obtained from the same location at the outfall. LANL shall also explain why only surficial samples were obtained.
(c) LANL shall revise the text in order to complete the second paragraph in Section 5.22.6

28. *15-014(h) Outfall*
    (a) LANL shall revise Table 5.34 4.3-1 to include a column for "distance from actual outfall" and revise Figure 5.34.4.3-1 or provide an additional figure which more accurately demonstrates the locations of the samples relative to each of the three, labeled outfalls.
    (b) LANL shall explain why samples 0215-95-0191 through -0194 were not submitted for offsite laboratory analyses (Table 5.34.4.3-1); and explain how this in accordance with the RFI Workplan.
    (c) LANL shall provide the PRS-specific calculations and concentrations used to determine that the distribution of the lead concentrations were not statistically different from background (i.e., Gehan, Quantile, and Slippage tests).
    (d) The RFI Workplan indicates that samples will be obtained and analyzed from each of the outfall locations; however, samples from locations 15-2380 and -2381 were not submitted for offsite laboratory analyses. LANL shall explain this deviation from the approved RFI Workplan.
29. *15-014(i) Outfall*
    (a) LANL shall explain why HE was analyzed for (Section 5.20.4.3) when it was not considered a COPC (Section 5.20.2) or positively identified using the HE spot test.
30. *15-014(j) Outfall*
    (a) The following sentence excerpted from 5.21.4.3 misleads the reader into thinking that all samples, including surficial soil samples, were analyzed for Volatile Organic Compounds (VOCs): "The samples were analyzed for TAL metals, uranium, VOCs, and SVOCs." LANL shall revise this sentence to indicate that surface soil samples were not analyzed for VOCs.
    (b) One of the VOC duplicate samples exceeded holding times. LANL shall clarify which sample (sample number) exceeded holding times and provide the analytical results.
    (c) In Section 4.9.2, the report states that "...the sample was properly stored (cooled at 4 C and preserved to a pH of 2)..." LANL shall reference the Standard Operating Procedure (SOP) requiring that organic analytical samples be preserved to a pH of 2 and provide the appropriate pertinent pages of that SOP as a response to this comment.
31. *15-014(k) Outfall*
    (a) The statement, "Any contaminants transported from the site would have been detected in the 15-011(c) investigation, but none were found," is inaccurate. Several COPCs greater than background, but less than SALs, were identified.
32. *15-014(i) Outfall*
    (a) LANL shall provide documentation in the RFI Report demonstrating that this PRS was never utilized for the management of RCRA solid or hazardous wastes and/or constituents, or CERCLA Hazardous substances.

33. *C-15-001 Soil Pile*
    (a) LANL shall provide the rationale (including analytical data, when available) for the further action recommendation at this PRS within the RFI Report.
34. *C-15-005 Building TA-15-1*
    (a) LANL shall provide a more thorough discussion of the thorium contamination and substantiate remedial activities that took place at TA-15-1.
    (b) LANL shall explain why only 3 out of the 4 samples prescribed in the RFI Workplan were obtained and submitted for offsite laboratory analyses (Table 5.14.4.3-1).
    (c) LANL shall clarify why samples were obtained from depth intervals of 0 to 6 and 18 to 24 inches (Table 5.14.4.3-1).
    (d) LANL shall explain why the SAL for manganese is not provided (Table 5.14.5-1).
    (e) LANL shall revise the assessment of risk (Section 5.14.7.2) to include the evaluation of risk based on a residential land use scenario. See General Comments: Approach/Conceptual Model 3.
35. *C-15-006 Building TA-15-7*
    (a) LANL shall explain why only 1 of the 4 samples prescribed in the RFI Workplan were obtained and submitted for offsite laboratory analyses (Table 5.15.4.3-1).
    (b) LANL shall provide documentation supporting the remediation of the mercury contamination at Building TA-15-7 (Section 5.15.3).
    (c) LANL shall revise the text to indicate which of the two samples obtained were sent to an offsite laboratory for analyses (Section 5.15.4.3).
36. *C-15-007 Oil Stain* (investigation pending removal of overlying temporary building)
    (a) LANL shall obtain approval to defer the investigation of a PRS prior to the performance of the RFI which was originally intended to investigate it. LANL shall provide documentation that this PRS received deferral approval by the AA prior to the implementation of the RFI Workplan.
37. *C-15-010 Former UST*
    (a) LANL shall provide the rationale (including analytical data, when available) for the further action recommendation at this PRS within the RFI Report.
    (b) LANL shall explain why SALs for benzo(g, h, i)perylene; 2-methylnaphthalene; and phenanthrene are not available (Table 5.25.7.1).
    (c) LANL shall revise the assessment of risk (Section 5.25.7.2) to include the evaluation of risk based on a residential land use scenario.
    (d) LANL shall present the information referred from the RFI Workplan in the RFI Report (Section 5.25.11.1). See General Comments: Improvements for Future RFI Reports 4.
    (e) [Sampling and Analysis Plan] Total Petroleum Hydrocarbons (TPH) and Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) are not RCRA-

related analyses. LANL should explain the need to conduct TPH analyses as shown in Table 5.25.11.4-1.

(f) LANL shall clarify why samples were obtained at a depth of 18 to 24 inches below ground surface at this PRS.

(g) [Sampling and Analysis Plan] LANL shall investigate the potential presence of piping entering or exiting the tank (Section 5.25.11.3).

(h) [Sampling and Analysis Plan] Table 5.25.11.4-1 does not clearly indicate the units of the numbers presented in each of the columns. It is assumed that these numbers indicate the number of samples to be obtained. See General Comments: Improvements for Future RFI Reports 3.

(i) [Sampling and Analysis Plan] LANL shall expound upon the "...required field data..." (Section 5.25.11.6) by listing its components. (Sampling and Analysis Plan)

(j) [Sampling and Analysis Plan] LANL shall explain what the "EP Project" is in Section 5.25.11.6.

(k) LANL shall provide a summary of field screening results within the text of the RFI Report.

38. *C-15-011 Former UST*

(a) LANL shall clarify what type of fuel, and therefore, what associated COPCs, were stored in the tank (Section 5.7).

(b) LANL shall provide documentation substantiating that the tank was removed as stated in 1987 and if the removal met the New Mexico Environment Department's Underground Storage Tank Bureau's remediation requirements (5.7.1).

(c) LANL shall clarify the locations of the samples in reference to the tank's location (distance and depth) and provide the analytical data, including QA/QC samples (Section 5.7.4.3).

(d) LANL shall revise Figure 5.7.4.3-1 to provide sufficient detail and scale to determine the locations of the samples and to demonstrate the adequacy of the sampling.

(e) LANL shall tabulate the results of the field screening including instrument detection limits and calibration readings (Section 5.7.4.2). See General Comments: Reporting of Sampling and Analyses Results and Activities 7.

(f) LANL shall discuss the presence or absence of groundwater monitoring in the PRS's vicinity and any available analytical results (Section 5.7.3).

8.0 SWMU 15-012(b)
FORMER WASH AREA FOR EXPLOSIVE DEVICES

8.1 Summary

SWMU 15-012(b) is an area formerly used for washing explosive devices. The Laboratory ER Project implemented a VCA at this SWMU. VCA activities involved remediation of the site in accordance with applicable state/federal regulations. Confirmation sampling verified that residual contamination is at concentrations that pose an acceptable level of risk under current and projected future land use. NMED approved the VCA completion report for this SWMU in a letter dated March 16, 1999. SWMU 15-012(b) is being proposed for NFA under Criterion 5 (the site was remediated in accordance with state and/or federal regulations).

8.2 Description and Operational History

8.2.1 Site Description

The SWMU 15-012(b) wash area was located near the western edge of TA-15, directly south of Building TA-15-376 (Figure 8.2-1). Prior to VCA activities, the SWMU consisted of an inactive wash area surrounded by a soil berm approximately 63 ft long, 20 ft wide, and 1.5 ft high.

8.2.2 Operational History

Personnel from the Laboratory's Dynamic Experimentation Division used the SWMU 15-012(b) wash area for washing debris from 6-ft-diameter heavy-walled steel spheres from the late 1970s until the 1980s. The spheres were used for explosive device containment testing. The debris washed from the spheres and the wash water from the cleaning were deposited in the bermed area. The washed spheres were stored off-site at SWMU 15-001.

An RFI conducted in 1994 found beryllium, lead, cadmium, copper, mercury, and uranium above their respective background values (BVs) in soils within the bermed area. HE was not detected by field screening methods. A human health screening assessment identified antimony, beryllium, lead, and uranium as COPCs. Based on these results, a VCA was conducted at the site from August to October of 1997.

The site is currently used as an area for parking government vehicles and equipment storage.

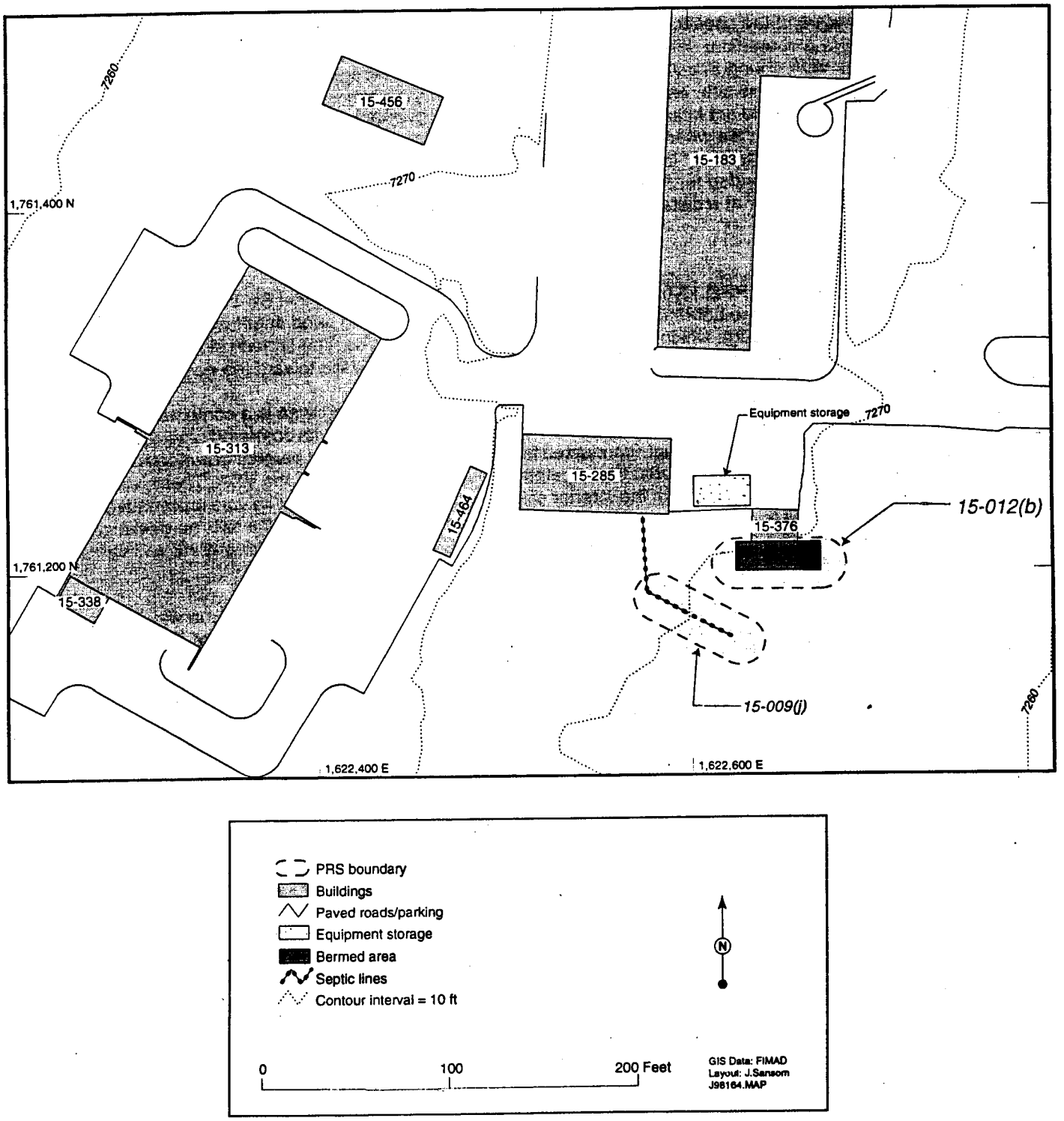
8.3 Land Use

8.3.1 Current

SWMU 15-012(b) is located within TA-15, an industrial area with high-security restricted access. A chain-link fence topped with barbed wire encloses this technical area. Access through the fence is obtained only by passing through a guard gate. These security measures effectively eliminate the possibility of inadvertent site intrusion.

8.3.2 Future/Proposed

The Laboratory does not anticipate any change from the industrial use with restricted access of TA-15 for the operational life of the Laboratory (LANL 1995, 57224, pp.11–12) (Appendix D). Thus, this area will remain under institutional control.



Source: Environmental Restoration Project 1998, 62228

Figure 8.2-1. Location of SWMU 15-012(b)

8.4 Investigation Activities

A complete and detailed discussion of all investigation activities is presented in the VCA report for the PRS 15-012(b) wash area (LANL 1998, 62228), submitted to HRMB September 30, 1998, and approved by NMED March 16, 1999. A summary of those activities is presented in Sections 8.4.1 through 8.4.3 of this request for permit modification.

8.4.1 Summary

Based on the results of the 1994 RFI of SWMU 15-012(b), the ER Project implemented a VCA of the site. Post-VCA samples collected outside the bermed area confirmed that the contamination detected during the RFI was confined to the earthen berm and the area within the berm. VCA confirmation samples determined that soils containing elevated concentrations of depleted uranium, the COPC identified for this SWMU in the VCA, had been effectively removed from the site. Human health and ecological screening assessments were conducted on the data from confirmation samples collected from SWMU 15-012(b) after the VCA remediation of the site. Depleted uranium was eliminated as a COPC because its maximum detected concentration was well below the industrial cleanup level for humans and also well below ecological screening levels for ecological receptors of concern. Therefore, no human health or ecological risk assessment was necessary.

8.4.2 Investigation #1: RFI Investigation of SWMU 15-012(b)

An RFI was completed for SWMU 15-012(b) in 1994. It was designed to determine if the area encompassed by the earthen berm was contaminated from sphere-washing operations. Samples were obtained from surface and subsurface depths at six locations. The RFI found that uranium, beryllium, lead, cadmium, copper, and mercury were above BVs. Field screening methods (HE spot test) did not detect the presence of HE in the surface or subsurface soils. A human health screening assessment identified antimony, beryllium, lead, and uranium as COPCs. Although an ecological screening was performed, the methodology in place at the time did not adequately determine potential ecological impacts. Samples were not collected from outside the bermed area; therefore, contaminant extent was not determined. Based on these results, a VCA was initiated to address the COPC contamination in surface and subsurface soils at SWMU 15-012(b) and determine the extent of soil contamination.

8.4.2.1 Nonsampling Data Collection

Prior to sampling, the six surface locations were screened for the presence of HE using the HE spot test, for the presence of metals using XRF, and for the presence of radionuclides using a pancake probe. The HE spot test kit revealed no samples positive for HE. Field screening was performed to screen for metals and for radionuclides prior to choosing samples for fixed-laboratory analysis.

8.4.2.2 Sampling Data and Collection

The objectives of the RFI sampling for SWMU 15-012(b) were to determine the extent, concentration, and depth profile of COPCs. Six locations were chosen based on the RFI work plan for OU 1098 (LANL 1993, 20946) and the results of a radiation survey (see Section 8.4.3.1). Prior to sampling, the six surface sampling locations were screened for the presence of HE with the LANL HE spot test.

Samples were obtained from surface (0–6 in.) and subsurface (18–24 in.) depths using the spade and scoop and hand-auguring techniques, respectively. All samples collected were sent to a mobile radioanalysis van, then to a mobile chemistry van for x-ray fluorescence spectroscopy (XRF) and laser-

induced breakdown spectroscopy (LIBS) analyses. XRF was used to screen for metals (mercury, lead, and uranium), and LIBS was used to screen for beryllium content.

The RFI work plan required that a minimum of three surface and three subsurface samples be submitted for fixed-laboratory analyses of inorganics, organics (less HE), and radionuclides. Samples submitted for fixed-laboratory analyses were selected based on the results of the screening described above. The three surface soil samples showing the highest levels of lead and uranium were sent to the fixed laboratory for analysis; samples indicating the highest levels for subsurface soils were also submitted. The highest screening values for surface and subsurface occurred at the same sampling locations.

8.4.2.3 Data Gaps

No data gaps were identified in the RFI report for SWMU 15-012(b) (ER Project 1995, 50294). The analytical results for this SWMU indicated the presence of uranium-contaminated soils. Consequently, a recommendation was made in the report to excavate and remove the contaminated soils from the site.

8.4.3 Investigation #2: VCA Remediation of SWMU 15-012(b)

VCA activities for SWMU 15-012(b) were conducted from August 20 through August 27, 1997. Field screening was conducted for HE, metals, and radionuclides. Based on the field screening and observation of visible depleted uranium present in the soil matrix, VCA cleanup activities removed the uranium-contaminated soil to background levels. Contaminated soils (including the berm) were removed from the site and disposed of in accordance with applicable regulatory requirements. Several inches of base course were placed over the site, which is currently used as an area for parking government vehicles and equipment storage. After soil removal was completed, confirmation samples were collected. Results of the confirmation samples indicated that no RCRA constituents exceeded background values.

8.4.3.1 Nonsampling Data Collection

This section is not applicable for SWMU 15-012(b). All data collected during the VCA for SWMU 15-012(b) was collected from discrete sample-specific locations.

8.4.3.2 Sampling Data Collection

After VCA soil removal was completed, 14 confirmation samples were collected from 6 surface locations on August 28, 1997, to determine if any residual inorganic chemicals or isotopic uranium remained. Seven surface confirmation samples were collected in October 1997 to determine if any residual HE remained. Sixteen surface and 10 subsurface confirmation samples were collected in July 1998 to confirm the absence of contamination outside the former bermed area. Six surface samples (from the same six locations as the August 28, 1997, sampling) were also collected to obtain accurate antimony sample results (previous analytical methods did not use acceptable detection limits for antimony). Results of the confirmation samples indicated that no RCRA constituents exceeded BVs. Two additional confirmation samples were collected at depths of approximately 3 ft and 6 ft from sample location 15-3445 to determine vertical extent of depleted uranium because depleted uranium was detected above the BV at this location during the original confirmation sampling.

8.4.3.3 Data Gaps

There were no data gaps associated with the VCA of SWMU 15-012(b). Sufficient data were collected to adequately determine nature and extent (horizontal and vertical) of contamination.

8.5 Site Conceptual Model

A complete and detailed discussion of the site conceptual model is presented in the VCA report for the PRS 15-012(b) wash area (LANL 1998, 62228), submitted to HRMB in September 1998. A summary of the site conceptual model is presented in Sections 8.5 through 8.5.2 of this request for permit modification.

SWMU 15-012(b) was a wash area for washing debris from steel spheres that were used for explosive device containment testing. The debris and wash water from the cleaning process were deposited within the bermed area. The primary release of contaminants was via the debris washed from the spheres and the wash water that were deposited in the bermed area. Once released to the surrounding soils, contaminants might migrate vertically and/or horizontally.

8.5.1 Nature and Extent of Contamination

Prior to the RFI and VCA at SWMU 15-012(b), any residual contamination was assumed to be largely confined to the bermed area. The debris was assumed to contain metals (largely uranium, beryllium, and lead). Because the explosive tests were designed to fully consume HE and no fragments of HE were visually observed, HE was not considered as a COPC. COPC concentrations were expected to decrease with depth. RFI analytical results were consistent with this preliminary model in that uranium, beryllium, and lead were detected above their respective BVs in surface and subsurface soils. In addition, natural uranium, copper, and mercury were also detected above BVs. Of these COPCs, only depleted uranium remained following completion of the VCA. Confirmation sampling determined that the contamination detected during the RFI was confined to the earthen berm and the area within the berm. HE was not detected.

8.5.2 Environmental Fate

The physiochemical properties of metals such as uranium, beryllium, lead, copper, and mercury cause them to bind to soil and move via transport of soil particles by water as opposed to moving in air because of volatilization or moving in water as dissolved chemicals. Based on this information and the presence of the 1.5 ft-high containment berm, it is unlikely that any contamination present at SWMU 15-012(b) would have the potential for off-site migration.

8.6 Site Assessments

8.6.1 Summary

Depleted uranium was detected above its BV in one confirmation sample for SWMU 15-012(b) following VCA remediation. However, it was eliminated as a COPC because it posed no unacceptable risk to human health. Therefore, no human health risk assessment was necessary. Because the ecological screening assessment demonstrated that no unacceptable risk to ecological receptors is present at this SWMU, an ecological risk assessment was also not necessary.

8.6.2 Screening Assessments

A complete and detailed discussion of all screening assessments is presented in the VCA report for the PRS 15-012(b) wash area (LANL 1998, 62228), submitted to HRMB in September 1998. A summary of the screening assessments is presented in Sections 8.6.2.1 and 8.6.2.2 of this request for permit modification.

8.6.2.1 Human Health

The future land use for SWMU 15-012(b) is industrial. Therefore, the exposure assumption was evaluated using the nonintrusive industrial worker scenario, which assumes that people will be working at the site 8 hours a day, 250 days of the year for 25 years. The exposure pathways identified were inhalation, ingestion, and dermal contact of contaminated soil.

The data review indicated that, within and around the perimeter of the wash area, depleted uranium was greater than its BV of 5.4 mg/kg in one of the seven confirmation samples (at a concentration of 40 mg/kg). This concentration of 40 mg/kg was well below the industrial cleanup level of 1090 mg/kg for depleted uranium and also well below the residential screening action level for depleted uranium (130 mg/kg). Concentrations of depleted uranium in confirmation samples from the perimeter of the wash area and at 3-ft and 6-ft depths were all below the BV of 5.4 mg/kg.

The industrial cleanup level of 1090 mg/kg for depleted uranium was derived using the RESRAD computer code and a target dose limit of 15 mrem/yr and is consistent with DOE orders. Thus the cleanup level of 1090 mg/kg satisfies the as-low-as-reasonably-achievable (ALARA) principle to ensure that radiation dose is minimized and less than the DOE dose limit of 100 mrem/yr (proposed rule 10 CFR 843.5).

Because the maximum concentration of depleted uranium (40 mg/kg) was well below the industrial cleanup level of 1090 mg/kg for depleted uranium, depleted uranium was eliminated as a COPC in the human health screening evaluation.

The other COPCs (antimony, beryllium, copper, and lead) identified by the RFI were either undetected or detected below their respective BVs following VCA remediation.

Thus, the VCA was successful in reducing concentrations of human COPCs at SWMU 15-012(b) to concentrations below risk-based industrial cleanup levels. Because no unacceptable risk to human health was present at this SWMU, a human health risk assessment was not required.

8.6.2.2 Ecological

The VCA remediation of the wash area reduced the number and concentrations of contaminants from that found during the original RFI. Although total uranium was detected at or above the BV for soil at four (out of seven) locations within and around the perimeter of the wash area, the detected concentrations were equivalent to or below ecological screening levels for terrestrial vertebrate receptors. The uncertainty analysis indicated that site conditions and the Laboratory industrial use of the area precluded any potential ecological impacts to plants from residual uranium levels in the soil. Additionally, the uncertainty analysis indicated that there was no impact from any residual uranium levels in the soil to terrestrial vertebrate receptors.

Because no unacceptable risk to ecological receptors is present at this SWMU, an ecological risk assessment was not necessary.

8.6.3 Risk Assessments

8.6.3.1 Human Health

Based on the elimination of all COPCs in the human health screening assessment for SWMU 15-012(b), no human health risk assessment was necessary.

8.6.3.2 Ecological

Based on the elimination of all COPCs in the ecological screening assessment for SWMU 15-012(b), no ecological risk assessment was necessary.

8.6.4 Other Applicable Assessments

8.6.4.1 Surface Water

The ER Project has developed a procedure to assess sediment transport and erosion concerns at individual SWMUs. It provides a basis for prioritizing and scheduling actions to control the erosion of potentially contaminated soils at specific SWMUs. The procedure is a two-part evaluation. Part A is a compilation of existing analytical data for the SWMU, site maps, and knowledge-of-process information. Part B is an assessment of the erosion/sediment transport potential at the SWMU. Erosion potential is numerically rated from 1 to 100 using a matrix system. SWMUs that score below 40 have a low erosion potential; those that score from 40 to 60 have a medium erosion potential; and those that score above 60 have a high erosion potential.

A surface water assessment for SWMU 15-012(b) was conducted on November 14, 1997. The assessment resulted in a low erosion matrix score of 15.3, indicating that the site has very low erosion potential.

The assessment found no debris in any watercourse. There are no man-made or natural hydraulic structures or features that might affect the hydrology of the site. Interflow is not a suspected pathway for contaminant migration because of the relatively insoluble nature of metals. Therefore, the results of the surface water assessment indicated little potential for contaminant transport via surface water or sediment.

There are no wetlands or springs, no active or inactive local water supplies, and no production wells in the vicinity of SWMU 15-012(b).

8.6.4.2 Groundwater

SWMU 15-012(b) presents no potential pathway for contaminant release to groundwater. The regional aquifer is approximately 875 to 1100 ft below the ground surface at TA-15 and well below the vertical extent of contamination at SWMU 15-012(b), which was defined.

8.6.4.3 Underground Storage Tank

This section not applicable.

8.6.4.4 Other

This section not applicable.

8.7 No Further Action Proposal

8.7.1 Rationale

The VCA for SWMU 15-012(b) consisted of collecting samples to determine the extent of contamination, removing contaminated soils from the wash area, and collecting samples to confirm that cleanup goals were met.

The Laboratory ER Project submitted to HRMB a VCA completion report for SWMU 15-012(b), dated September 30, 1998 (LANL 1998, 62228). The VCA completion report

- documents all cleanup activities and sampling results;
- states that the nature and extent of contamination for SWMU 15-012(b) was adequately defined;
- states that confirmation sampling performed for beryllium, lead, cadmium, copper, mercury, and uranium at SWMU 15-012(b) verified that residual contamination for these chemicals is at concentrations that pose an acceptable level of risk under current and projected future land use; and
- proposes that this SWMU be considered for NFA under Criterion 5.

In a March 16, 1999, letter (NMED 1999, 65412) (Attachment A), HRMB approved the VCA report.

8.7.2 Criterion

Based on the information presented in Sections 8.2 through 8.7, SWMU 15-012(b) is being proposed for NFA under Criterion 5.

8.8 Supporting Documentation Attached

Attachment A: NMED-HRMB letter from R. Dinwiddie, March 16, 1999. Approval of VCA report for PRS 15-012(b) (NMED 1999, 65412)

Appendix D: LANL 1995. Site development plan, annual update 1995, pp. 11–12. (LANL 1995, 57224)

8.9 References Used for Text of the Request for Permit Modification for SWMU 15-012(b)

LANL (Los Alamos National Laboratory), July 1993. "RFI Work Plan for Operable Unit 1086," Los Alamos National Laboratory report LA-UR-92-3968, Los Alamos, New Mexico. (LANL 1993, 20946)

Environmental Restoration Project, October 30, 1995. "RFI Report for Field Unit 2 (OU 1086), Potential Release Sites 15-004(b,c), 15-004(a,d), 15-004(f), 15-007(b), 15-008(a,b), 15-012(b), 15-009(e,j), C-15-004," Los Alamos National Laboratory report LA-UR-95-3738, Los Alamos, New Mexico. (Environmental Restoration Project 1995, 50294)

Environmental Restoration Project, September 30, 1998. "Voluntary Corrective Action Report for Potential Release Site 15-012(b), Wash Area," Los Alamos National Laboratory report LA-UR-98-4075, Los Alamos, New Mexico. (Environmental Restoration Project 1998, 62228)

8.10 History of Regulatory Deliverables

LANL, September 30, 1998: VCA completion report SWMU 15-012(b) submitted to HRMB. (ER Project 1998, 62228)

NMED, March 16, 1999: Approval of VCA completion report for PRS 15-012(b) (NMED 1999, 65412)

8.10.1 References for Regulatory Deliverables

Environmental Restoration Project, September 30, 1998. "Voluntary Corrective Action Report for Potential Release Site 15-012(b), Wash Area," Los Alamos National Laboratory report LA-UR-98-4075, Los Alamos, New Mexico. (Environmental Restoration Project 1998, 62228)

NMED (New Mexico Environment Department) June 16, 1999. "Approval of the Voluntary Corrective Action Report, Potential Release Site 15-012(b), Los Alamos National Laboratory NM0890010515," NMED Letter to T. Taylor (LAAO Project Manager) and B. Browne (Laboratory Director) from R. Dinwiddie (RPMP Manager, HRMB), Santa Fe, New Mexico. (NMED 1999, 65412)

15-012(b)

ATTACHMENTS

Attachment A

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous & Radioactive Materials Bureau
2044 Galisteo Street
P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-1557
Fax (505) 827-1544

GARY E. JOHNSON
GOVERNOR

PETER MAGGIORE
SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

March 16, 1999

Mr. Theodore Taylor, Project Manager
Los Alamos Area Office
Department of Energy
528 35th Street
Los Alamos, New Mexico 87544

Mr. John Browne, Director
Los Alamos National Laboratory
P. O. Box 1663, MS A100
Los Alamos, New Mexico 87545

RE: Approval of the Voluntary Corrective Action Report
Potential Release Site 15-012(b)
Los Alamos National Laboratory
NM0890010515

Dear Mr. Taylor and Mr. Browne:

The RCRA Permits Management Program (RPMP) of the New Mexico Environment Department has reviewed and approves the Voluntary Corrective Action Completion Report for 15-012(b) dated September 30, 1998 and referenced by LA-UR-98-4075.

Should you have any questions regarding this letter, please contact me or Mr. John Kieling, RPMP's LANL Facility Manager, at (505) 827-1558 x1012.

Sincerely,

Robert S. ("Stu") Dinwiddie, PhD, Manager
RCRA Permits Management Program
Hazardous and Radioactive Materials Bureau

RSD:kth

cc: J. Canepa, LANL EM/ER, MS M992
J. Davis, NMED SWQB
B. Garcia, NMED HRMB
K. Hill, NMED HRMB
M. Johansen, DOE LAAO, MS A316
J. Kieling, NMED HRMB
M. Kirsch, LANL EM/ER, MS M992
S. Kruse, NMED HRMB
H. LeDoux, DOE LAAO, MS A316
D. McInroy, LANL EM/ER, MS M992
D. Neleigh, EPA, 6PD-N
J. Parker, NMED DOE OB
J. Vozella, DOE LAAO, MS A316
S. Yanicak, NMED DOE OB, MS J993
File: HSWA LANL HSWA LANL 2/1086/15
Track: LANL, Doc date, NA, DOE/LANL, NMED HRMB/Dinwiddie, RE, File

9.0 SWMU 21-005
FORMER NITRIC ACID PIT

9.1 Summary

SWMU 21-005 is the former location of a nitric acid pit used to destroy classified documents. The pit was removed in 1967. ER Project RFI activities at this SWMU involved characterization of the site in accordance with applicable state/federal regulations. RFI sampling verified that the nature and extent of contamination was defined and all detected analytes were eliminated as COPCs. Screening assessment results indicate that potential releases from the pit do not pose adverse impacts to human health or the environment under current and projected future land use. NMED approved the RFI report recommending this SWMU for NFA in a letter dated April 5, 2000. SWMU 21-005 is being proposed for NFA under Criterion 5 (the site was characterized in accordance with state and/or federal regulations).

9.2 Description and Operational History

9.2.1 Site Description

SWMU 21-005 is a decommissioned former nitric acid pit (TA-21-70). The site is located in TA-21 on DP Mesa near Buildings TA-21-30 and TA-21-31 (Figure 9.2-1). The area is entirely on DOE property and behind a locked fence. The pit consisted of a reinforced concrete box with inside dimensions of 3 ft square by 4 ft deep; it was covered with a steel plate. The total area covered by the SWMU and the surrounding area of investigation is roughly 225 ft^2. No inlet or outlet piping was connected to the acid pit. Observations during the field investigation (Section 9.4.2) indicate that the pit was formed and poured in place using the tuff bedrock as the outside form. Many septic tanks and similar structures at the Laboratory were constructed in this manner during the mid-1940s.

9.2.2 Operational History

The SWMU 21-005 nitric acid pit was constructed in 1946 to dissolve classified documents. The pit contained an unknown volume of nitric acid. The concentration of the acid used in the pit is not known. Nor is it known if the pit was ever pumped out during the period that it was in use. The pit was partially removed in 1967. Instructions to the workers who removed the concrete pit called for absorbing the acid within the pit and excavating around the sides of the pit before lifting it out in one piece. The amount of material used to absorb the acid within the pit is not known. It is assumed that clean fill was used to backfill the resulting excavation.

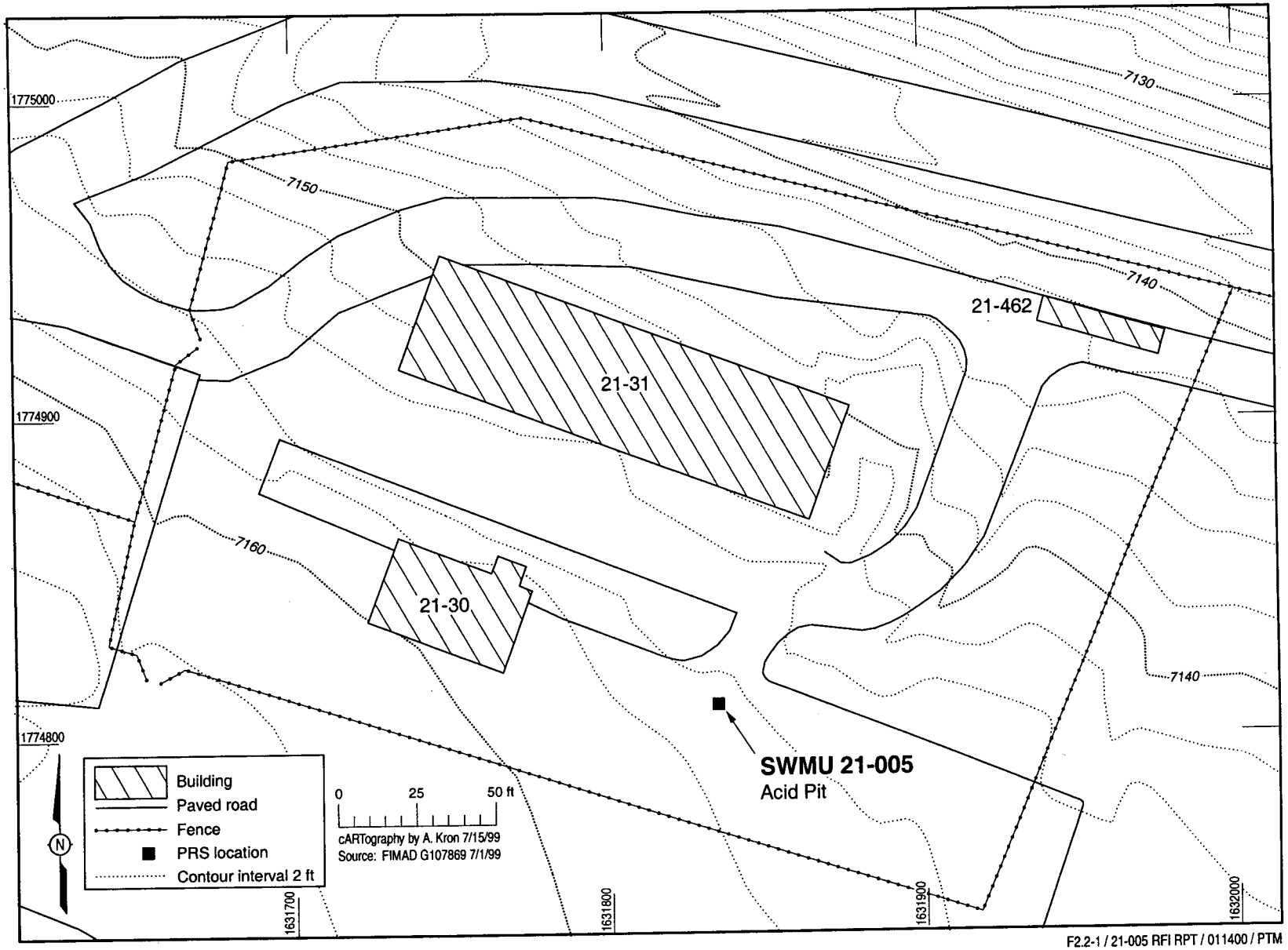
9.3 Land Use

9.3.1 Current

TA-21 is an industrial area that is currently undergoing decontamination and decommissioning. SWMU 21-005 is under DOE control and located behind a locked chain-link fence. Currently, the Johnson Controls Northern New Mexico roads and grounds group is using the site as a parking area for vehicles and ground maintenance equipment.

9.3.2 Future/Proposed

The Laboratory does not anticipate any change from the industrial use with restricted access of TA-21 for the operational life of the Laboratory (LANL 1995, 57224, pp.11–12) (Appendix D). Additionally, the TA-21 work plan and land transfer proposals assume future land use of TA-21 to be industrial.



F2.2-1 / 21-005 RFI RPT / 011400 / PTM
Modified 061300

Figure 9.2-1. Site map of SWMU 21-005

9.4 Investigation Activities

A complete and detailed discussion of all investigation activities is presented in the RFI report for SWMU 21-005 (LANL 2000, 65327) submitted to NMED-HRMB on January 18, 2000, and approved by NMED April 5, 2000. A summary of those activities is presented in Sections 9.4.1 through 9.4.3 of this request for permit modification.

9.4.1 Summary

The location of the former acid pit was originally estimated based on Laboratory engineering drawings. Excavation (with a backhoe) of the presumed location found that the bottom of the pit had been left in place and covered with fill material. The bottom of the pit was removed from the excavation, and drilling and sampling were performed to characterize the SWMU. Human health and ecological screening assessments were conducted on the data from RFI samples. The human health screening assessment indicated that COPCs retained by the data review did not pose an unacceptable risk to human health. The ecological screening assessment did not identify any chemicals of potential ecological concern. Therefore, no human health or ecological risk assessment was necessary.

9.4.2 Investigation #1: RFI Investigation of SWMU 21-005

The objectives of the RFI were to determine the location of the acid pit (structure TA-21-70); identify if contaminants were present; and, if contaminants were identified, determine their lateral and vertical extent.

RFI activities at SWMU 21-005 began on June 3, 1999, and concluded on June 15, 1999. A review was conducted of historical records, including maps, engineering drawings, and reports in order to determine an approximate location of the pit. Site visits were conducted to substantiate the available information and existing site conditions. A geodetic survey of the site was performed to confirm the size and position of buildings. The approximate pit location was estimated from historical research.

A reinforced concrete slab was identified directly north of the first exploratory borings beneath 6 in. of asphalt and 1.5 ft of fill. After excavating an area approximately 10 ft square with the backhoe and digging by hand with a shovel, the entire slab was uncovered. The slab was approximately 4 ft square with the uppermost surface approximately level. The surface appeared etched, and the outline of the missing vertical walls was visible. Based on the location of this slab, the etched appearance of the concrete and outline of the former walls, it was determined that the slab was the bottom of the former acid pit. Apparently, the bottom of the acid pit structure became detached from the rest during removal and was left in place. Examination of the excavation showed no sign of any stained soils or tuff surrounding the slab. It is assumed that the soil/absorbent used to soak up any acid within the pit was removed from the excavation either before or after the sides of the concrete box detached from the bottom.

Drilling and sampling began on the afternoon of June 14, 1999, and was completed June 15, 1999. Five borings were drilled; one in the center of the pit and four surrounding it.

9.4.2.1 Nonsampling Data Collection

This section is not applicable for SWMU 21-005. All data collected during the RFI for SWMU 21-005 was collected from discrete sample-specific locations.

9.4.2.2 Sampling Data Collection

Five borings were drilled, each to a total depth of 20 ft below ground surface, and were sampled at 5-ft intervals, unless areas were stained or fractured, in which case bias samples were taken. The first borehole was drilled at the center of the former pit location, and the four additional boreholes were drilled 5 ft north/northeast, south/southwest, east/northeast, and west/southwest of the pit center, placing them approximately 3 ft beyond the edge of the acid pit.

Soil pH was measured in the field at each 2.5-ft interval of the five 20-ft cores. Commercially prepared deionized water and pH paper were used. The initial pH of the water was measured using pH paper and was determined to be 5.0. Equal volumes of tuff and deionized water were placed in decontaminated glass jars and allowed to equilibrate for a minimum of 20 min. The pH of the water and tuff were then measured with pH paper. All samples measured had pHs of 5 to 7 showing that the pH of the tuff at SWMU 21-005 is not acidic.

Twenty-two core samples were collected at SWMU 21-005, four from each of five boreholes and a field duplicate. All of the samples were analyzed for gross alpha, beta, and gamma radiation; gamma-emitting radionuclides; isotopic plutonium; isotopic uranium; target analyte list metals including mercury; nitrates; PCBs; volatile organic compounds; and semivolatile organic compounds.

9.4.2.3 Data Gaps

There were no data gaps associated with the VCA of SWMU 21-005. Sufficient data were collected to adequately determine nature and extent (horizontal and vertical) of contamination.

9.5 Site Conceptual Model

A complete and detailed discussion of the site conceptual model is presented in the RFI report for SWMU 21-005 (LANL 2000, 65327) submitted to NMED-HRMB in January 2000. A summary of the site conceptual model is presented in Sections 9.5 through 9.5.2 of this request for permit modification.

Work orders for the removal of the acid pit, dated November 2, 1966, stated the need to add soil to absorb the acid in the pit, implying that there was still acid in the pit and that the integrity of the pit was still intact. There are no documented releases from the acid pit during the time of its use, and it is not known if the pit was periodically pumped out. However, in the 21 years the pit remained in the ground, acid may have degraded the concrete resulting in a release to the subsurface. If releases did occur from the pit, the COPCs would include inorganic chemicals, nitrates, and low pH corrosive soils. Any leakage from the pit would have been an aqueous solution, which would preferentially migrate downward into the vadose zone. Migration of any contaminants through the vadose zone would be by way of leaching and/or dispersion. Highly corrosive soils were not anticipated because carbonates within the basic soils (e.g., high pH) would aid in the neutralization of any released acid. Any residual nitrates would have biodegraded since the removal of the pit in 1967.

Because the former location of the pit is now under asphalt pavement, there are no complete exposure pathways to potential human or ecological receptors. However, if construction were to occur in the future, workers at the site could be exposed by way of incidental ingestion of tuff, inhalation of particulates, and dermal contact with the tuff.

The RFI discovered that the acid pit had been only partially removed in 1967. Excavation performed in June 1999 revealed that the bottom of the acid pit remained in the ground. Because aluminum, barium, nickel, and selenium were detected at concentrations greater than their respective BVs in a sample

beneath the former location of the acid pit, the possibility of a release from the nitric acid pit cannot be ruled out.

The conceptual model was revised to indicate that potential exposure for on-site workers would be by way of incidental ingestion of soil and dermal contact with the soil. These pathways would only be complete if the asphalt covering was removed exposing the tuff beneath. The potential significance of the exposure would be very low because of the short exposure time of the construction workers to the soil and the low concentrations of the COPCs. For biological receptors, there would be no pathways for exposure because the asphalt-covered site precludes exposure. If construction were to occur at the site in the future, no biota would be present during excavation activities, and presumably any excavated tuff would be removed from the site.

9.5.1 Nature and Extent of Contamination

Aluminum, antimony, barium, benzene, nickel, selenium, toluene, and trichloroethene are the COPCs identified by the data review. Each inorganic chemical that was detected above its BV was detected only once. Aluminum, barium, nickel, and selenium were detected (9660, 66.1, 7.9, and 0.31 mg/kg, respectively) above BVs at the 9.5- to 10-ft interval at borehole 21-11044 and could be attributed to the result of a potential release of acid to surrounding tuff from SWMU 21-005. In the next two deeper samples at that location (14.5- to 15-ft and 19.5- to 20-ft intervals), each metal was detected at less than its BV and not detected above its BV in the four surrounding boreholes. Thus, the extent from any potential release of inorganic chemicals (aluminum, barium, nickel, and selenium) from the former acid pit has been defined.

Three organic compounds were detected outside the footprint of the pit at levels below the estimated quantitation limit of 0.005 mg/kg. Benzene was detected at a depth of 14.5 ft in borehole 21-11047, trichloroethene was detected at a depth of 4.0 ft in borehole 21-11046, and toluene was detected at a depth of 9.5 ft at location 21-11046. The organic compounds were not detected beneath the former pit.

9.5.2 Environmental Fate

Antimony, benzene, toluene, and trichloroethene were chemicals detected in the subsurface adjacent to this SWMU and, as stated previously, were not related to any potential release from the SWMU. Inorganic chemicals aluminum, barium, nickel, and selenium were detected above BVs beneath the bottom of the SWMU.

Analyses were performed for nitrates to determine whether or not a release from the pit had occurred. It was hypothesized that residual nitric acid from a release would result in elevated levels of nitrates. The sample results indicated no detected concentrations of nitrates at detection limits of 2.1 to 2.4 mg/kg. These data would indicate that either there was no release of nitric acid from the pit or that, if there had been a release, the nitric acid had degraded to nitrogen and oxygen.

9.6 Site Assessments

9.6.1 Summary

A human health screening assessment and an ecological screening assessment were conducted. The human health screening assessment indicated that COPCs retained by the data review did not pose an unacceptable risk to human health, so a human health risk assessment was not conducted. The ecological screening assessment did not identify any COPCs, so an ecological risk assessment was not performed.

9.6.2 Screening Assessments

A complete and detailed discussion of all screening assessments is presented in the RFI report for the SWMU 21-005 former nitric acid pit (LANL 2000, 65327), submitted to NMED-HRMB in January 2000. A summary of the screening assessments is presented in Sections 9.6.2.1 and 9.6.2.2 of this request for permit modification.

9.6.2.1 Human Health

The COPCs identified by the data review of the inorganic and organic chemical sample results were compared with screening action levels (SALs) to determine if the chemicals were detected at concentrations of potential concern to human health. No radionuclides were identified as COPCs in the data review. The SALs used in these comparisons were values for a residential exposure scenario, calculated using the most current toxicity values from the EPA Integrated Risk Information System (IRIS) database, standard default values, and equations (EPA 1998, 58751). The screening evaluation followed guidance provided by EPA Region 6 and NMED. The maximum concentration of each COPC was compared with the SALs for Class A, B1, and B2 carcinogens; 10 times the SAL for Class C carcinogens; or 0.1 of the SAL for noncarcinogens, if there are two or more noncarcinogenic COPCs.

The results of the RFI sampling and data review indicated that there may have been a release to the environment from the nitric acid pit. Four inorganic chemicals (aluminum, barium, nickel, and selenium) were detected (borehole 21-11044) above their BVs under the pit. The concentrations of each inorganic chemical, with the exception of aluminum, were less than 0.1 of the SAL and therefore eliminated as COPCs. These results indicate that there are no potential adverse health effects resulting from exposure to barium, nickel, and selenium at the maximum detected concentrations. Therefore, these three inorganic chemicals were not evaluated further, while aluminum required further evaluation.

One inorganic (antimony) and three organic chemicals (benzene, toluene, and trichloroethene) were detected outside of the footprint of the pit but not under the pit and were not considered to be a release from this SWMU. The concentrations of these analytes were less than 0.1 of the SAL for noncarcinogens (antimony and toluene) and less than the SAL for carcinogens (benzene and trichloroethene). Therefore, there is no potential for unacceptable risk to human health from exposure to the maximum detected concentrations of these chemicals, and they were not evaluated further.

The screening assessment is a conservative comparison based on a residential land use, while the most likely future land use for SWMU 21-005 is industrial. The site is likely to remain as industrial land use even if the land is transferred to a new owner. Therefore, the screening assessment is an overestimate of the potential risk from exposure to the COPCs because the exposure assumptions are different for an industrial scenario versus a residential scenario, i.e., individuals are potentially exposed for 8 hours/day, 250 days/year for 25 years compared with 24 hours/day, for 350 days/year for 30 years, respectively.

Based on the human health screening evaluation, aluminum was the only COPC that required further evaluation. It was detected at 9660 mg/kg at a depth of 9.5 ft to 10 ft, which is greater than the Qbt 2 BV of 7340 mg/kg as well as greater than 0.1 of the SAL of 75,000 mg/kg (i.e., 7500 mg/kg). However, a direct comparison with the SAL for aluminum (75,000 mg/kg) is appropriate at this SWMU because only one concentration of aluminum was reported above the BV and no other noncarcenogenic COPC was detected above 0.1 of its SAL. The maximum aluminum concentration is approximately 0.13 of the SAL. Furthermore, because the most likely future land use for this site is industrial, a comparison with the EPA Region 9 industrial preliminary remediation goal for aluminum is appropropriate. The industrial preliminary

remediation goal is 100,000 mg/kg (EPA 1998, 58751), which is an order of magnitude greater than the maximum aluminum concentration at SWMU 21-005. Based on the above comparisons with residential as well as industrial risk values, exposure to aluminum does not pose an unacceptable risk to human health.

9.6.2.2 Ecological

The basis for the problem formulation for SWMU 21-005 was the Ecological Scoping Checklist for this SWMU. This information was used to determine whether ecological receptors might be affected; identify the type of receptors that might be present (i.e., terrestrial and/or aquatic); determine whether the SWMU should be aggregated with other SWMUs/areas of concern; determine data adequacy related to nature, rate, and extent of contamination; and develop the ecological site conceptual model for the SWMU.

SWMU 21-005 is situated in a commercially developed area and lies entirely beneath an asphalt-paved parking area. Because the SWMU is subsurface, entirely covered by asphalt, and situated in a developed area, no exposure pathways are present for terrestrial and aquatic ecological receptors on or off the site. Thus there are no on-site or off-site ecological receptors. As a result, SWMU 21-005 does not present any current or potential adverse ecological impacts.

9.6.3 Risk Assessments

9.6.3.1 Human Health

Based on the elimination of all COPCs in the human health screening assessment for SWMU 21-005, no human health risk assessment was needed.

9.6.3.2 Ecological

Because no exposure pathways to ecological receptors were identified in the ecological screening assessment for SWMU 21-005, no ecological risk assessment was needed.

9.6.4 Other Applicable Assessments

9.6.4.1 Surface Water

The ER Project has developed a procedure to assess sediment transport and erosion concerns at individual SWMUs. It provides a basis for prioritizing and scheduling actions to control the erosion of potentially contaminated soils at specific SWMUs. The procedure is a two-part evaluation. Part A is a compilation of existing analytical data for the SWMU, site maps, and knowledge-of-process information. Part B is an assessment of the erosion/sediment transport potential at the SWMU. Erosion potential is numerically rated from 1 to 100 using a matrix system. SWMUs that score below 40 have a low erosion potential; those that score from 40 to 60 have a medium erosion potential; and those that score above 60 have a high erosion potential.

A surface water assessment for SWMU 21-005 was conducted in June 1999. The assessment resulted in a low erosion matrix score of 17.5, indicating that the site has very low erosion potential.

The assessment found no debris in any watercourse. There are no man-made or natural hydraulic structures or features that might affect the hydrology of the site. Interflow is not a suspected pathway for contaminant migration because of the relatively insoluble nature of metals. Therefore, the results of the surface water assessment indicated little potential for contaminant transport via surface water or sediment.

There are no wetlands or springs, no active or inactive local water supplies, and no production wells in the vicinity of SWMU 21-005.

9.6.4.2 Groundwater

No groundwater samples were collected from SWMU 21-005 because the regional aquifer is approximately 1100 ft below the ground surface at TA-21 and well below the vertical extent of contamination at SWMU 21-005, which was defined.

However, generic soil screening levels for the protection of groundwater were referenced to provide an indication of the potential impact of these chemicals in soil to groundwater. The generic soil screening levels were derived using default values in standardized equations presented in EPA's soil screening guidance and were obtained from the most recent EPA Region 9 guidance. Because there is no evidence of shallow perched or alluvial groundwater in the area and the regional aquifer is approximately 1100 ft below the mesa-top surface, a default dilution attenuation factor of 20 was applied to account for the natural processes that would reduce contaminant concentration before reaching the groundwater. Based on this relationship, contaminants with detected concentrations less than the generic soil screening levels would indicate that there was no potential impact to the groundwater. Because the sample results from SWMU 21-005 detected all subsurface COPCs below their generic soil screening levels, there are no potential groundwater problems for these analytes.

9.6.4.3 Underground Storage Tank

This section not applicable.

9.6.4.4 Other

This section not applicable.

9.7 No Further Action Proposal

9.7.1 Rationale

The Laboratory ER Project submitted to NMED-HRMB an RFI report for SWMU 21-005, dated January, 2000 (Environmental Restoration Project 2000, 65327). The RFI report

- documents all sampling results;
- states that the nature and extent of contamination for SWMU 21-005 was adequately defined;
- states that sampling performed for aluminum, barium, and nickel at SWMU 21-005 verified that residual contamination for these chemicals is at concentrations that pose an acceptable level of risk under current and projected future land use;
- states that the single detects of benzene, toluene, trichloroethene, and antimony found outside the footprint of the acid pit are not related to a release from the pit; and
- proposes that this SWMU be considered for NFA under Criterion 5.

In an April 5, 2000, letter (NMED 2000, 65540)(Attachment A), NMED-HRMB approved the RFI report.

9.7.2 Criterion

Based on the information presented in Sections 9.2 through 9.7, SWMU 21-005 is being proposed for NFA under Criterion 5.

9.8 Supporting Documentation Attached

Attachment A: NMED-HRMB letter from J. Kieling, April 5, 2000. Approval of RFI report for PRS 21-005 (NMED 2000, 65540).

Appendix D: LANL 1995. Site development plan, annual update 1995, pp. 11–12. (LANL 1995, 57224)

9.9 References Used for Text of the Request for Permit Modification for SWMU 21-0005

Environmental Restoration Project, January, 2000. "RFI Report for Potential Release Site 21-005," Los Alamos National Laboratory report LA-UR-99-4655, Los Alamos, New Mexico. (Environmental Restoration Project 2000, 65327)

EPA (US Environmental Protection Agency), 1998. "Region 9 Preliminary Remediation Goals (PRGs) 1998," Environmental Protection Agency memorandum from S. Smucker, San Francisco, California. (EPA 1998, 58751)

9.10 History of Regulatory Deliverables

LANL, January 18, 2000: RFI report for SWMU 21-005 submitted to HRMB. (ER Project 2000, 65327)

NMED, April 5, 2000: Approval of RFI report for SWMU 21-005 (NMED 2000, 65540).

9.10.1 References for Regulatory Deliverables

Environmental Restoration Project, January, 2000. "RFI Report for Potential Release Site 21-005," Los Alamos National Laboratory report LA-UR-99-4655, Los Alamos, New Mexico. (Environmental Restoration Project 2000, 65327)

NMED (New Mexico Environment Department) April 5, 2000. "Approval and Assessment of Fees, RFI Report for SWMU 21-005, Los Alamos National Laboratory NM0890010515, HRMB-LANL-00-001," NMED Letter to T. Taylor (LAAO Project Manager) and J. Browne (Laboratory Director) from J. Kieling (RPMP Manager, HRMB), Santa Fe, New Mexico. (NMED 2000, 65540)

21-005

ATTACHMENTS

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous and Radioactive Materials Bureau
2044 A Galisteo, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Telephone (505) 827-1557
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PAUL R. RITZMA
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Attachment A

1.4.2-6.1.13.1.4

Z 433 931 752

Received By ER Project 04/10/00

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

April 5, 2000

John C. Browne, Director
Los Alamos National Laboratory
P.O. Box 1663, MS A100
Los Alamos, New Mexico 87545

Theodore Taylor, Project Manager
Los Alamos Area Office-Department of Energy
528 35th Street, MS A316
Los Alamos, New Mexico 87544

RE: APPROVAL AND ASSESSMENT OF FEES
RFI REPORT FOR SWMU 21-005
LOS ALAMOS NATIONAL LABORATORY
NM0890010515
HRMB-LANL-00-001

Dear Dr. Browne and Mr. Taylor:

The Hazardous and Radioactive Materials Bureau (HRMB) of the New Mexico Environment Department (NMED) has reviewed the January 18, 2000 RFI Report for SWMU 21-005, reference by E/ER: 00-106, at Los Alamos National Laboratory. HRMB has made a determination that the document is administratively and technically complete and hereby approves the RFI Report.

The New Mexico Hazardous Waste Management Fee Regulations 20 NMAC 4.2 require assessment of fees when administrative review of a document is complete. HRMB will issue an invoice to you under a separate letter. Payment is due within sixty (60) calendar days from the date that you receive the invoice.

Should you need to request an extension of the sixty-day period the request must be received by the New Mexico Environment Department a minimum of fourteen (14) calendar days prior to the end of the sixty-day period. Should you disagree with the fee assessed you may file an Administrative Appeal under the provisions of 20 NMAC 4.2.302.1.

If you have any questions please contact me at the address above or by telephone at (505) 827-1558 ext. 1012.

Sincerely,

John E. Kieling, Acting Manager
Permits Management Program
Hazardous and Radioactive Materials Bureau

cc: J. Bearzi, NMED HRMB
R. Dinwiddie, NMED HRMB
P. Young, NMED HRMB
J. Parker, NMED DOE OB
S. Yanicak, NMED DOE OB, MS J993
J. Davis, NMED SWQB
D. Neleigh, EPA 6PD-N
J. Vozella, DOE LAAO, MS A316
J. Canepa, LANL EM/ER, MS M992
M. Kirsch, LANL EM/ER, MS M992
D. McInroy, LANL EM/ER, MS M992
File: Reading and HSWA LANL 1/1106/21

10.0 SWMU 40-003(a) FORMER DETONATION SITE

10.1 Summary

SWMU 40-003(a) is an area formerly used for the detonation of explosive scrap materials. In 1994, the site was remediated in accordance with 40 CFR 265 under an HRMB-approved RCRA closure plan. HRMB approved the Laboratory's demonstration of clean closure for this site in a letter dated August 24, 1995. SWMU 40-003(a) is being proposed for NFA under Criterion 4 (the site was remediated in accordance with another state and/or federal authority).

10.2 Description and Operational History

10.2.1 Site Description

Prior to RCRA closure, SWMU 40-003(a) was a roughly circular area, approximately 60 ft in diameter, used as a detonation area for explosive scrap materials. The site was located at the northeastern corner of TA-40, approximately 450 ft east of Building TA-40-15, and covered approximately 2 acres (Figure 10.2-1).

Repeated detonations formed a south-facing amphitheater in the northern cliff of a mesa. The north rim of the amphitheater was a cliff rising 30 ft in height. The east and west rims dropped to the south.

10.2.2 Operational History

SWMU 40-003(a) was used for the detonation of explosive scrap materials and operated from the early 1960s until April 12,1985.

The scrap detonation site was not continually manned. Personnel were at the site only for the time needed to set up a detonation. Detonations were remotely controlled from a firing point located 1300 ft to the west. Scrap explosives and explosive-contaminated waste were delivered from other Laboratory facilities just before detonation.

Following each detonation, any scattered debris was picked up and transported to an appropriate waste disposal site. Detonated materials included scrap explosive pieces, chips, powder, and waste detonators. Soils remaining after detonation were nonreactive and nonignitable.

SWMU 40-003(a) underwent RCRA closure in 1994.

10.3 Land Use

10.3.1 Current

TA-40 is an industrial area used for the research, development, and testing of HE. It is a high-security area with restricted access. A chain-link fence topped with barbed wire encloses this technical area. Access through the fence is obtained only by passing through a guard gate. These security measures effectively eliminate the possibility of inadvertent site intrusion.

10.3.2 Future/Proposed

The Laboratory does not anticipate any change from the industrial use with restricted access of TA-40 for the operational life of the Laboratory (LANL 1995, 57224, pp.11–12) (Appendix D). Thus, this area will continue to remain under institutional control.

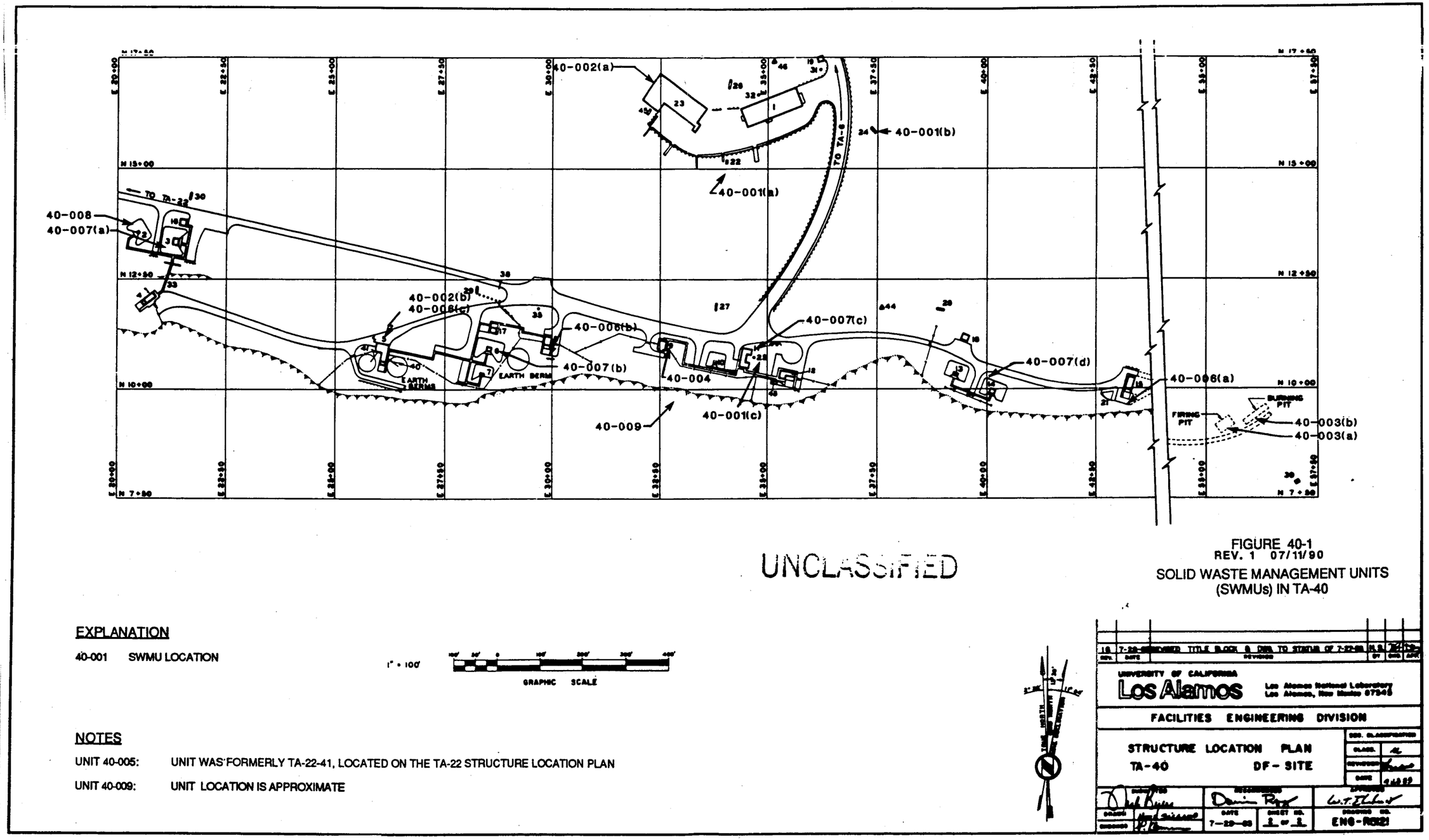

Figure 10.2-1. Structure Location Plan, TA-40, DF-Site

10.4 No Further Action Proposal

10.4.1 Rationale

SWMU 40-003(a) is appropriate for NFA under Criterion 4 because it was remediated in accordance with applicable state and federal regulations:

- From April 1992 through December 1994, Laboratory personnel removed and remediated SWMU 40-003(a).
- Remediation activities were performed in accordance with 40 CFR 265 under an HRMB-approved closure plan. Clean closure was demonstrated and a final closure report was submitted to HRMB on March 27, 1995.
- HRMB approved the Laboratory's demonstration of clean closure for this site in letters dated July 28, 1995 (NMED 1995, 49620) (Attachment A) and August 24, 1995 (NMED 1995, 65408) (Attachment B).

10.4.2 Criterion

Based on the information presented in Sections 10.2 through 10.4, SWMU 40-003(a) is being proposed for NFA under Criterion 4.

10.5 Supporting Documentation Attached

Attachment A: NMED-HRMB Letter from E. Kelley, July 28, 1995. Letter to L. Kirkman regarding conditional approval of TA-40 scrap detonation site (NMED 1995, 49620).

Attachment B: NMED-HRMB Letter from E. Kelley, August 24, 1995. Approval of TA-40 scrap detonation final clean closure. (NMED 1995, 65408).

Appendix D: LANL 1995. Site development plan, annual update 1995, pp. 11–12. (LANL 1995, 57224)

10.6 Reference Used for Text of the Request for Permit Modification for SWMU 40-003(a)

LANL (Los Alamos National Laboratory), March 1995. "Closure Certification Report for the Technical Area 40 Scrap Detonation Site," Volume I, Prepared by IT Corporation, Los Alamos National Laboratory report, Los Alamos, New Mexico. (LANL 1995, 45366)

10.7 History of Regulatory Deliverables

LANL, March 1995: Closure certification report for TA-40 scrap detonation site submitted to HRMB. (LANL 1995, 45366)

NMED, August 24, 1995: Approval of TA-40 scrap detonation final clean closure. (NMED 1995, 65408)

10.7.1 References for Regulatory Deliverables

LANL (Los Alamos National Laboratory), March 1995. "Closure Certification Report for the Technical Area 40 Scrap Detonation Site," Volume I, Prepared by IT Corporation, Los Alamos National Laboratory report, Los Alamos, New Mexico. (LANL 1995, 45366)

NMED (New Mexico Environment Department), August 24, 1995. "Approval of TA-40 Scrap Detonation Site Final Closure," Letter to L. Kirkman (DOE-LAAO), Santa Fe, New Mexico. (NMED 1995, 65408)

40-003(a)

ATTACHMENTS

Attachment A

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous & Radioactive Materials Bureau
525 Camino De Los Marquez
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MARK E. WEIDLER
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EDGAR T. THORNTON, III
DEPUTY SECRETARY

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

July 28, 1995

Mr. Larry Kirkman
Department of Energy
Los Alamos Area Office
528 35th Street
Los Alamos, NM 87544

Dear Mr. Kirkman:

RE: Conditional Approval of TA-40 Scrap Detonation Site Final Closure
EPA ID No. NM 0890010515-1

The New Mexico Environment Department (NMED) has determined, pursuant to the requirements of the New Mexico Hazardous Waste Management Regulations 20 NMAC 4.1, Subpart IX, §270.1(c)(5) and (6), that the Department of Energy/Los Alamos National Laboratory (DOE/LANL) has successfully demonstrated clean closure for the former site of the Scrap Detonation Site (SDS) in Technical Area 40 (TA-40). The SDS is defined in the approved final closure plan as consisting of a burn area, a detonation area, and the surrounding area centered near NMSP coordinates E481920, N1767000. The clean closure determination was based on an administrative and technical review of the closure report with accompanying certification submitted to NMED on March 27, 1995.

Based on this closure report and its findings, NMED has determined that the soil and groundwater beneath the closed site have no demonstrated potential to be impacted by the hazardous waste once treated at the former site of the TA-40 SDS. In addition, DOE/LANL has successfully demonstrated under 20 NMAC 4.1, Subpart V, §264.90(c)(1) that all waste, waste residues, contaminated containment system components, and contaminated subsoils associated with the TA-40 SDS were removed or decontaminated at closure.

However, contamination remains in the burn pit west of the site designated as Burn Area East. As described in the closure report, this contamination is associated with hazardous waste management activities subject to corrective action under the Hazardous and Solid Waste Amendments (HSWA) and not Resource and Conservation Recovery Act (RCRA) closure requirements for interim status units. Therefore, DOE/LANL will address corrective action at this burn pit

as part of environmental restoration activities conducted within Field Unit 5.

During a site visit by NMED staff Frank Sanchez and Steve Zappe conducted on July 11, they observed gross discrepancies between the locations of the Burn Cage and Burn Area East on Figures 2 and 3 of the Closure Certification Report and their field observations. This report cannot be accepted as complete until the locations for both areas and their associated sampling locations are accurately represented on a map. NMED suggests the locations currently shown in Figure 3 of the Closure Certification Report be presented in a manner similar to that used in Figure 2.1 of the May 1993 Amendment to the Final Closure Plan.

NMED will approve clean closure of the former Scrap Detonation Site located in TA-40 upon receipt of a map which accurately depicts the sampling locations and extent of excavations conducted during cleanup activities. The effective date of approval of clean closure for this unit will be the date of acceptance of the corrected map by Barbara Hoditschek, RCRA Permits Program Manager in NMED's Hazardous and Radioactive Materials Bureau.

If you have any questions, please contact Steve Zappe of my staff at (505) 827-4308.

Sincerely,

Ed Kelley

Ed Kelley, Ph.D.
Director, Water and Waste Management Division

EK:SOZ:soz

cc: David Neleigh, EPA Region 6
Benito Garcia, Chief HRMB
Barbara Hoditschek, HRMB
Ron Kern, HRMB
File-LANL Red '95

Attachment B

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous & Radioactive Materials Bureau
525 Camino De Los Marquez
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MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

August 24, 1995

Mr. Larry Kirkman
Department of Energy
Los Alamos Area Office
528 35th Street
Los Alamos, NM 87544

Dear Mr. Kirkman:

RE: Approval of TA-40 Scrap Detonation Site Final Closure
EPA ID No. NM 0890010515-1

On July 28, 1995, the New Mexico Environment Department (NMED) issued conditional approval to the Department of Energy/Los Alamos National Laboratory (DOE/LANL) of final clean closure for the former Scrap Detonation Site (SDS) in Technical Area 40. The condition for final approval required LANL to submit a map which accurately depicts the sampling locations and extent of excavations conducted during cleanup activities at the SDS. On August 22, 1995, Mr. Roy Bohn of LANL delivered two sets of maps to the Hazardous and Radioactive Materials Bureau office which satisfy all requirements of the July 28 letter.

NMED hereby approves clean closure of the former Scrap Detonation Site in Technical Area 40. The effective date of approval of clean closure for this unit is August 23, 1995.

If you have any questions, please contact Steve Zappe of my staff at (505) 827-4308.

Sincerely,

Ed Kelley, Ph.D.
Director, Water and Waste Management Division

cc: David Neleigh, EPA Region 6
Benito Garcia, Chief HRMB
Barbara Hoditschek, HRMB
Ron Kern, HRMB
File-LANL Red '95

Appendix A

Acronyms and Glossary

APPENDIX A ACRONYMS AND GLOSSARY

A-1.0 ACRONYMS AND ABBREVIATIONS

CEARP	Comprehensive Environmental Assessment and Response Program
CFR	Code of Federal Regulations
COPC	chemicals of potential concern
BV	background value
DOE	US Department of Energy
DOE-LAAO	US Department of Energy/Los Alamos Area Office
EPA	US Environmental Protection Agency
ER	Environmental Restoration (Project)
HE	high explosive
HRMB	Hazardous and Radioactive Materials Bureau
HSWA	Hazardous and Solid Waste Amendments
IRIS	Integrated Risk Information System
JCI	Johnson Controls World Services Inc.
Laboratory	Los Alamos National Laboratory
LANL	Los Alamos National Laboratory
LIBS	laser-induced breakdown spectroscopy
NFA	no further action
NMED	New Mexico Environment Department
NOD	notice of deficiency
OU	operable unit
PCB	polychlorinated biphenyl
PRS	potential release site
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
RSI	request for supplemental information
SAL	screening action level
SWMU	solid waste management unit
TA	technical area
TSCA	Toxic Substances Control Act
USFS	US Forest Service
UST	underground storage tank
VCA	voluntary corrective action
XRF	x-ray fluorescence

A-2.0 GLOSSARY

area of concern (AOC). Areas at the Laboratory that might warrant further investigation for releases based on past facility waste-management activities.

adsorption. The surface retention of solid, liquid, or gas molecules, atoms, or ions by a solid or a liquid.

analysis. Includes physical analysis, chemical analysis, and knowledge-of-process determinations. (Laboratory Hazardous Waste Facility Permit)

as low as reasonably achievable (ALARA). An approach to radiation protection to control or manage exposures (both individual and collective) to the work force and the general public. Also to control or manage releases of radioactive material to the environment as low as social, technical, economic, practical, and public-policy considerations permit. Used in this sense, ALARA is not a dose limit.

background level. Naturally occurring concentrations (levels) of an inorganic chemical and naturally occurring radionuclides in soil, sediment, and tuff.

background value (BV). A threshold used to identify site sample results that may be greater than background levels.

chemical of potential concern (COPC). A chemical, detected at a site, that has the potential to adversely affect human receptors due to its concentration, distribution, and mechanism of toxicity. A COPC remains a concern until exposure pathways and receptors are evaluated in a site-specific human health risk assessment.

cleanup levels. Media-specific contaminant concentration levels that must be met by a selected corrective action. Cleanup levels are established by using criteria such as protection of human health and the environment; compliance with regulatory requirements; reduction of toxicity, mobility, or volume through treatment; long- and short-term effectiveness; implementability; cost; and public acceptance.

corrective action. Action to rectify conditions adverse to human health or the environment.

ecological screening level (ESL). An organism's exposure-response threshold for a given chemical constituent. The concentration of a substance in a particular medium corresponds to a hazard quotient (HQ) of 1.0 for a given organism below which no risk is indicated.

exposure pathway. Mode by which a receptor may be exposed to contaminants in environmental media (e.g., drinking water, ingesting food, or inhaling dust).

exposure unit. The bounded area or volume within which a person or other receptor may be exposed to contaminants that have been released to the environment.

groundwater. Water in a subsurface saturated zone; water beneath the regional water table.

Hazardous and Solid Waste Amendments (HSWA). The Hazardous and Solid Waste Amendments of 1984 (Public Law No. 98-616, 98 Stat. 3221), which amended the Resource Conservation and Recovery Act of 1976, 42 U.S.C. § 6901 et seq.

HSWA module. Module VIII of the Laboratory's Hazardous Waste Facility Permit. This permit allows the Laboratory to operate as a treatment, storage, and disposal facility.

industrial-use scenario. Industrial use is the scenario in which current Laboratory operations continue. Any necessary remediation involves cleanup to standards designed to ensure a safe and healthy work environment for Laboratory workers.

institutional controls. Controls that prohibit or limit access to contaminated media: use restrictions, permitting requirements, standard operating procedures, Laboratory Implementation Requirements, Laboratory Implementation Guidance, Laboratory Performance Requirements, etc.

migration. The movement of inorganic and organic species through unsaturated or saturated materials.

migration pathway. A route (e.g., a stream or subsurface flow path) that controls the potential movement of contaminants to environmental receptors (plants, animals, humans).

no further action (NFA). A recommendation that no further investigation or remediation is warranted based on specific criteria.

notice of deficiency (NOD). A notice issued to DOE and the Laboratory by the administrative authority which states that some aspect(s) of a plan, report, or application does not meet their requirements or that requires clarification or correction.

operable unit (OU). At the Laboratory, one of 24 areas originally established for administering the ER Project. Set up as groups of potential release sites, the OUs were aggregated based on geographic proximity for the purpose of planning and conducting RCRA facility assessments and RCRA facility investigations. As the project matured, it became apparent that 24 were too many to allow efficient communication and to ensure consistency in approach. Therefore, in 1994, the 24 OUs were reduced to 6 administrative "field units."

permit modification. A request by either the permittee or the administrative authority to change a condition of the Laboratory's Hazardous Waste Facility Permit.

polychlorinated biphenyls (PCBs). Any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substances. PCBs are colorless, odorless compounds that are chemically, electrically, and thermally stable and have proven to be toxic to both humans and animals.

potential release site (PRS). Refers to potentially contaminated sites at the Laboratory that are identified either as solid waste management units (SWMUs) or areas of concern (AOCs). PRS refers to SWMUs and AOCs collectively.

radionuclide. A nuclide (species of atom) that exhibits radioactivity.

RCRA facility investigation (RFI). The investigation that determines if a release has occurred and the nature and extent of the contamination at a hazardous waste facility. The RFI is generally equivalent to the remedial investigation portion of the Comprehensive Environment Response, Compensation, and Liability Act (CERCLA) process.

receptor. A person, plant, animal, or geographical location that is exposed to a chemical or physical agent released to the environment by human activities.

release. Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing of hazardous waste or hazardous constituents into the environment

(including the abandonment or discarding of barrels, containers, and other closed receptacles that contain any hazardous wastes or hazardous constituents).

request for supplemental information (RSI). A request issued to DOE and the Laboratory by the administrative authority which states that some aspect(s) of a plan or report does not meet their requirements. The ER Project must respond by providing additional information to address the identified issue or concern.

residential-use scenario. The standards for residential use are the most stringent of the three current- and future-use scenarios being considered by the ER Project and is the level of cleanup the EPA is currently specifying for SWMUs located off the Laboratory site and for those released for non-Laboratory use.

Resource Conservation and Recovery Act (RCRA). The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976. (40 CFR 270.2)

restricted area. Any area to which access is controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials. "Restricted area" shall not include areas used as residential quarters, although a separate room or rooms in a residential building may be set apart as a restricted area (10 CFR 60.2).

screening assessment. A process designed to determine whether contamination detected in a particular medium at a site may present a potentially unacceptable human-health and /or ecological risk. The assessment utilizes screening levels that are either human-health or ecologically based concentrations derived by using chemical-specific toxicity information and standardized exposure assumptions below which no additional actions are generally warranted.

site characterization. Defining the pathways and methods of migration of the hazardous waste or constituents, including the media affected, the extent, direction, and speed of the contaminants, complicating factors influencing movement, concentration profiles, etc. (US Environmental Protection Agency, May 1994. "RCRA Corrective Action Plan, Final," Publication EPA-520/R-94/004, Office of Solid Waste and Emergency Response, Washington, DC)

site conceptual model. A qualitative or quantitative description of sources of contamination, environmental transport pathways for contamination, and biota that may be impacted by contamination (called receptors) and whose relationships describe qualitatively or quantitatively the release of contamination from the sources, the movement of contamination along the pathways to the exposure points, and the uptake of contaminant by the receptors.

solid waste management unit (SWMU). Any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released. This definition includes regulated units (i.e., landfills, surface impoundments, waste piles, and land treatment units) but does not include passive leakage or one-time spills from production areas and units in which wastes have not been managed (e.g., product-storage areas).

technical area (TA). The Laboratory established technical areas as administrative units for all its operations. There are currently 49 active TAs spread over 43 square miles.

underground storage tank. [as defined in Section 9001(1) of the Solid Waste Disposal Act]. The term "underground storage tank" means any one or combination of tanks (including underground pipes connected thereto) which is used to contain an accumulation of regulated substances, and the volume

of which (including the volume of the underground pipes connected thereto) is 10% or more beneath the surface of the ground. Such term does not include any

(a) farm or residential tank of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;

(b) tank used for string heating oil for consumptive use on the premises where stored;

(c) septic tank;

(d) pipeline facility (including gathering lines) regulated under

  (i) the Natural Gas Pipeline Safety Act of 1968 (49 USC App. 1671 et seq.),

  (ii) the Hazardous Liquid Pipeline Safety Act of 1979 (49 USC App. 2001 et seq.), or

  (iii) which is an intrastate pipeline facility regulated under state laws comparable to the provisions of law referred to in Clause (i) or (ii) of this subparagraph;

(e) surface impoundment, pit, pond, or lagoon;

(f) stormwater or wastewater collection system;

(g) flow-through process tank;

(h) liquid trap or associated gathering lines directly related to oil or gas production and gathering operations; or

(i) storage tank situated in an underground area (such as a basement, cellar, mine working, drift, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

unrestricted area. Any area, access to which is not controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials and any area used for residential quarters (10 CFR 60.2).

Appendix B

Requested Modifications to Tables A and B of Module VIII of the Laboratory's Hazardous Waste Facility Permit

Note:

This appendix contains the requested modifications to Tables A and B of Module VIII. Table C is included, but no changes are requested for that table. The date of each request is provided next to the SWMU proposed for deletion. Strike-through text indicates deletions, and bolded text indicates new text. The number at the bottom of each technical area listing denotes the number of SWMUs on Module VIII for that area.

Requested Modifications to Table A

Technical Area 0

SWMU Number
0-001
0-003
0-011(a)
0-011(c)
0-011(d)
0-011(e)
0-012
~~0-016~~ June 2000
0-017
0-018(a)
0-019
0-028(a)
0-028(b)
0-030(a)
0-030(b)
0-030(g)
0-030(l)
0-030(m)
~~0-033~~ June 2000
0-039 ~~(20)~~ **(18)** June 2000

Technical Area 1

1-001(a)
1-001(b)
1-001(c)
1-001(d)
1-001(e)
1-001(f)
1-001(g)
1-001(m)
1-001(o)
1-001(s)
1-001(t)
1-001(u)
1-002
1-003(a)
1-003(d)
1-003(e)
1-006(a)
1-006(b)
1-006(c)
1-006(d)
1-006(h)
1-006(n)
1-006(o)
1-007(a)
1-007(b)
1-007(c)
1-007(d)
1-007(e)
1-007(j)
1-007(l) (30)

Technical Area 2

2-005
2-006(a)
2-006(b)
2-007
2-008(a)
~~2-008(b)~~ June 2000
2-009(a)
2-009(b)
2-009(c) ~~(9)~~ **(8)** June 2000

Technical Area 3

3-001(k)
3-002(c)
3-003(a)
3-003(b)
3-003(c)
3-009(a)
3-009(c)
3-009(d)
3-009(g)
3-010(a)
3-012(b)
3-013(a)
3-014(a)
3-014(b)
3-014(c)
3-014(d)
3-014(e)
3-014(f)
3-014(g)
3-014(h)
3-014(i)
3-014(j)
3-014(k)
3-014(l)
3-014(m)
3-014(n)
3-014(o)
3-014(p)
3-014(q)
3-014(r)
3-014(s)
3-014(t)
3-014(u)
3-015
3-026(d)
3-028
3-033
3-036(a)
3-036(c)
3-036(d)
3-037
3-038(a)
3-038(b)
3-043(e)
3-044(a)
3-056(a)
3-056(c) (47)

Technical Area 4

4-001
4-002
4-003(a)
4-003(b) (4)

Technical Area 5

5-001(a)
5-001(b)
5-002
5-003
5-004
5-005(a)
5-005(b)
5-006(b)
5-006(c)
5-006(e)
5-006(h) (11)

Technical Area 6

6-001(a)
6-001(b)
6-002
6-003(a)
6-003(c)
6-003(d)
6-003(e)
6-003(f)
~~6-003(g)~~ June 2000
6-003(h)
6-005
6-006
6-007(a)
6-007(b)
6-007(c)
6-007(d)
6-007(e)
6-007(f)
6-007(g) ~~(19)~~ **(18)** June 2000

Technical Area 7

7-001(a)
7-001(b)
7-001(c)
7-001(d) (4)

Technical Area 8

8-002
8-003(a)
8-004(a)
8-004(b)
8-004(c)
8-004(d)
8-005
8-006(a)
8-009(a)
8-009(d)
8-009(e)
C-8-010 (12)

Technical Area 9

9-001(a)
9-001(b)
9-001(c)
9-001(d)
9-002
9-003(a)
9-003(b)
9-003(d)
9-003(e)
9-003(g)
9-003(h)
9-003(i)
9-004(a)
9-004(b)
9-004(c)
9-004(d)
9-004(e)
9-004(f)
9-004(g)
9-004(h)
9-004(i)
9-004(j)
9-004(k)
9-004(l)
9-004(m)
9-004(n)
9-004(o)
9-005(a)
9-005(d)
9-005(g)
9-006
9-008(b)
9-009
9-013
C-9-001 (35)

Technical Area 10

10-001(a)
10-001(b)
10-001(c)
10-001(d)
10-002(a)
10-002(b)
10-003(a)
10-003(b)
10-003(c)
10-003(d)
10-003(e)
10-003(f)
10-003(g)
10-003(h)
10-003(i)
10-003(j)
10-003(k)
10-003(l)
10-003(m)
10-003(n)
10-003(o)
10-004(a)
10-004(b)
10-005
10-006
10-007 (26)

Technical Area 11

11-001(a)
11-001(b)
11-001(c)
11-002
11-004(a)
11-004(b)
11-004(c)
11-004(d)
11-004(e)
11-005(a)
11-005(b)
11-005(c)
11-006(a)
11-006(b)
11-006(c)
11-006(d)
11-009
11-011(a)
11-011(b)
11-011(c)

Requested Modifications to Table A

11-011(d) (21)

Technical Area 12

12-001(a)
12-001(b)
12-002 (3)

Technical Area 13

13-001
13-002
13-003(a)
13-004 (4)

Technical Area 14

14-002(a)
14-002(b)
14-002(c)
14-002(d)
14-002(e)
14-002(f)
14-003
14-005
14-006
14-007
14-009
14-010 (12)

Technical Area 15

15-002
15-003
15-004(a)
15-004(b)
15-004(c)
15-004(f)
15-004(g)
15-004(i)
15-006(a)
15-006(b)
15-006(c)
15-006(d)
15-007(a)
15-007(b)
15-007(c)
15-007(d)
15-008(a)
15-008(b)
15-008(c)
15-008(d)
15-009(a)
15-009(b)
15-009(c)
15-009(e)
15-009(f)
15-009(g)
15-009(h)
15-009(i)
~~15-009(j)~~ June 2000
15-009(k)
15-010(a)
15-010(b)
15-010(c)
15-011(a)
15-011(b)
15-011(c)
~~15-012(a)~~ June 2000
~~15-012(b)~~ June 2000
15-014(a)
15-014(b)
15-014(i)
15-014(j)
15-014(k)
15-014(l) ~~(44)~~ **(41)** June 2000

Technical Area 16

16-001(a)
16-001(b)
16-001(c)
16-001(d)
16-001(e)
16-003(a)
16-003(b)
16-003(c)
16-003(d)
16-003(e)
16-003(f)
16-003(g)
16-003(h)
16-003(i)
16-003(j)
16-003(k)
16-003(l)
16-003(m)
16-003(n)
16-003(o)
16-004(a)
16-004(b)
16-004(c)
16-004(d)
16-004(e)
16-004(f)
16-005(g)
16-005(n)
16-006(a)
16-006(c)
16-006(d)
16-006(e)
16-007(a)
16-008(a)
16-009(a)
16-010(a)
16-010(b)
16-010(c)
16-010(d)
16-010(e)
16-010(f)
16-010(h)
16-010(i)
16-010(j)
16-010(k)
16-010(l)
16-010(m)
16-010(n)
16-013
16-016(a)
16-016(b)
16-016(c)
16-018
16-019
16-020
16-021(a)
16-021(c)
16-026(b)
16-026(c)
16-026(d)
16-026(e)
16-026(h2)
16-026(j2)
16-026(v)
16-029(a)
16-029(b)
16-029(c)
16-029(d)
16-029(e)
16-029(f)
16-029(g)
16-030(h)
16-035
16-036 (74)

Technical Area 18

18-001(a)
18-001(b)
18-001(c)
18-002(a)
18-002(b)
18-003(a)
18-003(b)
18-003(c)
18-003(d)
18-003(e)
18-003(f)
18-003(g)
18-003(h)
18-004(a)
18-004(b)
18-005(a)
18-007
18-012(a)
18-012(b) (19)

Technical Area 19

19-001
19-002
19-003 (3)

Technical Area 20

20-001(a)
20-001(b)
20-001(c)
20-002(a)
20-002(b)
20-002(c)
20-002(d)
20-003(a)
20-005 (9)

Technical Area 21

21-002(a)
21-003
21-004(b)
21-004(c)
~~21-005~~ June 2000
21-006(a)
21-006(b)
21-006(c)
21-006(d)
21-006(e)
21-007
21-010(a)
21-010(b)
21-010(c)
21-010(d)
21-010(e)
21-010(f)
21-010(g)
21-010(h)
21-011(a)
21-011(b)
21-011(c)
21-011(d)
21-011(e)
21-011(f)
21-011(g)
21-011(i)
21-011(j)
21-011(k)
21-012(b)
21-013(a)
21-013(b)
21-013(c)
21-013(d)
21-013(e)
21-014
21-015
21-016(a)
21-016(b)
21-016(c)
21-017(a)
21-017(b)
21-017(c)
21-018(a)
21-018(b)
21-021
21-022(a)
21-022(b)
21-022(c)
21-022(d)
21-022(e)
21-022(f)
21-022(g)
21-022(h)
21-022(i)
21-022(j)
21-023(a)
21-023(b)
21-023(c)
21-023(d)
21-024(a)
21-024(b)
21-024(c)
21-024(d)
21-024(e)
21-024(f)
21-024(g)
21-024(h)
21-024(i)
21-024(j)
21-024(k)
21-024(l)
21-024(n)
21-024(o)
21-026(a)
21-026(b)

Requested Modifications to Table A

21-027(a)
21-027(c)
21-027(d)
21-029 ~~(80)~~ **(79)** June 2000

Technical Area 22

22-010(a)
22-010(b)
22-011
22-012
22-014(a)
22-014(b)
22-015(a)
22-015(b)
22-015(c)
22-015(d)
22-015(e)
22-016 (12)

Technical Area 26

26-001
26-002(a)
26-002(b)
26-003 (4)

Technical Area 27

27-001
27-002
27-003 (3)

Technical Area 31

31-001 (1)

Technical Area 32

32-001
32-002(a)
32-002(b) (3)

Technical Area 33

33-001(a)
33-001(b)
33-001(c)
33-001(d)
33-001(e)
33-002(a)
33-002(b)
33-002(c)
33-002(d)
33-002(e)
33-003(a)
33-003(b)
33-004(a)
33-004(b)
33-004(c)
33-004(d)
33-004(g)
33-004(h)
33-004(i)
33-004(j)
33-004(k)
33-004(m)
33-005(a)
33-005(b)
33-005(c)
33-006(a)
33-006(b)
33-007(a)
33-007(b)
33-007(c)
33-008(a)
33-008(b)
33-009
33-010(a)
33-010(b)
33-010(c)
33-010(d)
33-010(f)
33-010(g)
33-010(h)
33-011(a)
33-011(c)
33-011(d)
33-011(e)
33-012(a)
33-013
33-014
33-015
33-016
33-017 (50)

Technical Area 35

35-002
35-003(a)
35-003(b)
35-003(c)
35-003(d)
35-003(e)
35-003(f)
35-003(g)
35-003(h)
35-003(j)
35-003(k)
35-003(l)
35-003(m)
35-003(n)
35-003(o)
35-003(p)
35-003(q)
35-004(a)
35-004(b)
35-004(e)
35-004(g)
35-004(h)
35-006
35-008
35-009(a)
35-009(b)
35-009(c)
35-009(d)
35-009(e)
35-010(a)
35-010(b)
35-010(c)
35-010(d)
35-011(a)
35-013(a)
35-013(b)
35-013(c)
35-013(d)
35-014(a)
35-014(b)
35-014(e)
35-014(g)
35-015(a)
35-015(b)
35-016(a)
35-016(c)
35-016(d)
35-016(i)
35-016(k)
35-016(m)
35-016(o)
35-016(p)
35-016(q) (53)

Technical Area 36

36-001
36-002
36-003(a)
36-003(b)
36-004(d)
36-005
36-006
C-36-003 (8)

Technical Area 39

39-001(a)
39-001(b)
39-002(a)
39-004(a)
39-004(b)
39-004(c)
39-004(d)
39-004(e)
39-005
39-006(a)
39-007(a)
39-008 (12)

Technical Area 40

40-001(b)
40-001(c)
~~40-003(a)~~ June 2000
40-004
40-005
40-006(a)
40-006(b)
40-006(c)
40-009
40-010 ~~(10)~~ **(9)** June 2000

Technical Area 41

41-001
41-002(a)
41-002(b)
41-002(c) (4)

Technical Area 42

42-001(a)
42-001(b)
42-001(c)
42-002(b)
42-003 (5)

Technical Area 43

43-001(a)
43-002 (2)

Technical Area 45

45-001
45-002
45-003
45-003 (4)

Technical Area 46

46-002
46-003(a)
46-003(b)
46-003(c)
46-003(d)
46-003(e)
46-003(f)
46-003(g)
46-003(h)
46-004(a)
46-004(b)
46-004(c)
46-004(d)
46-004(e)
46-004(f)
46-004(g)
46-004(h)
46-004(a2)
46-004(b2)
46-004(c2)
46-004(d2)
46-004(m)
46-004(p)
46-004(q)
46-004(r)
46-004(s)
46-004(t)
46-004(u)
46-004(v)
46-004(w)
46-004(x)
46-004(y)
46-004(z)
46-005
46-006(a)
46-006(b)
46-006(c)
46-006(d)
46-006(f)
46-006(g)
46-007
46-008(a)
46-008(b)
46-008(d)
46-008(e)
46-008(f)
46-008(g)
46-009(a)
46-009(b)
46-010(d) (50)

Technical Area 48

48-002(a)
48-002(b)
48-003
48-004(a)
48-004(b)
48-004(c)

Requested Modifications to Table A

48-005
48-007(a)
48-007(b)
48-007(c)
48-007(d)
48-007(f)
48-010 (13)

Technical Area 49

49-001(a)
49-001(b)
49-001(c)
49-001(d)
49-001(e)
49-001(f)
49-001(g)
49-003
49-004
49-005(a)
49-006 (11)

Technical Area 50

50-001(a)
50-002(a)
50-002(b)
50-002(c)
50-004(a)
50-004(b)
50-004(c)
50-006(a)
50-006(c)
50-006(d)
50-009
50-011(a) (12)

Technical Area 52

52-001(d)
52-002(a) (2)

Technical Area 53

53-001(a)
53-001(b)
53-002(a)
53-002(b)
53-005
53-006(b)
53-006(c)
53-006(d)
53-006(e)
53-006(f)
53-007(a) (11)

Technical Area 54

54-001(a)
54-004 (excluding Shaft No. 9)
54-005
54-006
54-007(a)
54-007(b)
54-007(c)
54-012(b)
54-013(b)
54-014(b)
54-014(c)
54-014(d)
54-015(h)
54-015(k)
54-017
54-018
54-019
54-020 (18)

Technical Area 55

55-008
55-009 (2)

Technical Area 59

59-001 (1)

Technical Area 60

60-002
60-005(a)
60-006(a)
60-007(a)
60-007(b) (5)

Technical Area 61

61-002
61-004(a)
56.00
61-006
61-007 (5)

Technical Area 63

63-001(a)
63-001(b) (2)

Technical Area 69

69-001 (1)

Technical Area 73

73-001(a)
73-001(b)
73-001(c)
73-001(d)
73-002
73-004(a)
73-004(b)
73-004(c)
73-004(d)
73-005
73-006 (11)

Total SWMUs in Table A = ~~801~~ **792**
June 2000

Table A.1
No Further Action
SWMUs removed from Table A through a Class III Permit Modification and date of removal

0-005	12-23-98	3-039(a)	12-23-98	16-005(o)	12-23-98	16-012(t)	12-23-98	52-002(b)	12-23-98
0-016		**6-003(g)**		16-006(b)	12-23-98	16-012(u)	12-23-98	52-002(c)	12-23-98
0-033(a)		7-003(c)	12-23-98	16-006(f)	12-23-98	16-012(v)	12-23-98	52-002(d)	12-23-98
1-001(h)	12-23-98	7-003(d)	12-23-98	16-010(g)	12-23-98	16-012(w)	12-23-98	52-002(e)	12-8-97
1-001(i)	12-23-98	8-003(b)	12-23-98	16-012(a)	12-23-98	16-012(x)	12-23-98	52-002(f)	12-23-98
1-001(j)	12-23-98	8-003(c)	12-23-98	16-012(b)	12-23-98	16-012(y)	12-23-98	53-007(b)	12-23-98
1-001(k)	12-23-98	8-006(b)	12-23-98	16-012(c)	12-23-98	16-012(z)	12-23-98	54-001(c)	12-23-98
1-001(l)	12-23-98	8-007	12-23-98	16-012(d)	12-23-98	**21-005**		54-013(a)	12-23-98
1-001(n)	12-23-98	9-003(c)	12-23-98	16-012(e)	12-23-98	21-012(a)	12-23-98		
2-008(b)		9-003(f)	12-23-98	16-012(f)	12-23-98	21-024(m)	12-23-98	SWMUs removed from Table A = ~~91~~ **100**	
3-001(a)	12-23-98	9-005(b)	12-23-98	16-012(g)	12-23-98	21-027(b)	12-23-98	**June 2000**	
3-001(b)	12-23-98	9-005(c)	12-23-98	16-012(h)	12-23-98	33-004(e)	12-23-98		
3-001(c)	12-23-98	9-005(e)	12-23-98	16-012(i)	12-23-98	33-004(f)	12-23-98		
3-002(b)	12-23-98	9-005(f)	12-23-98	16-012(j)	12-23-98	35-003(i)	12-23-98		
3-009(b)	12-23-98	9-005(h)	12-23-98	16-012(k)	12-23-98	36-003(c)	12-23-98		
3-009(e)	12-23-98	9-007	12-23-98	16-012(l)	12-23-98	39-003	12-23-98		
3-009(f)	12-23-98	11-007	12-23-98	16-012(m)	12-23-98	39-006(b)	12-23-98		
3-009(h)	12-23-98	14-004(b)	12-23-98	16-012(n)	12-23-98	40-001(a)	12-23-98		
3-012(a)	12-23-98	**15-009(j)**		16-012(o)	12-23-98	**40-003(a)**			
3-018	12-23-98	**15-012(a)**		16-012(p)	12-23-98	46-008(c)	12-23-98		
3-020(a)	12-23-98	**15-012(b)**		16-012(q)	12-23-98	52-001(a)	12-23-98		
3-035(a)	12-23-98	15-014(m)	12-23-98	16-012(r)	12-23-98	52-001(b)	12-23-98		
3-035(b)	12-23-98	16-005(i)	12-23-98	16-012(s)	12-23-98	52-001(c)	12-23-98		

Requested Modifications to Table B
Priority SWMUs*

SWMU Number			
1-001(a)	11-004(e)	16-007	21-011(h)	36-003(a)
1-001(b)	11-005(a)	16-008(b)	21-011(i)	36-003(b)
1-001(c)	11-005(b)	16-016	21-014	39-001(a)
1-001(d)	11-006(a)	16-018	21-015	39-001(b)
1-001(e)	13-004	16-019	21-016(a)	41-001
1-001(f)	15-002	16-020	21-017(a)	46-002
1-001(g)	15-006(a)	16-021(a)	21-017(b)	46-006(a)
1-001(m)	15-006(b)	18-001(a)	21-017(c)	46-006(b)
1-002	15-006(c)	18-003(a)	21-018(a)	46-006(c)
1-003(a)	15-006(d)	18-003(b)	21-018(b)	46-006(d)
2-005	15-007(a)	18-003(c)	22-015(c)	46-007
2-008(a)	15-007(b)	18-003(d)	33-002(a)	49-001(a)
3-010(a)	15-007(c)	18-003(e)	33-002(b)	50-006(a)
3-012(b)	15-007(d)	18-003(f)	33-002(c)	50-006(c)
3-013(a)	15-008(a)	18-003(g)	33-017	50-006(d)
3-015	15-008(b)	18-003(h)	35-003(a)	50-009
3-029(a)	15-008(c)	21-006(a)	35-003(b)	54-004
5-005(a)	15-008(d)	21-006(b)	35-003(c)	(except Shaft No. 9)
6-007(a)	15-009(a)	21-006(c)	35-003(d)	54-005
8-003(a)	15-009(b)	21-006(d)	35-003(e)	54-015(h)
9-008(a)	~~15-012(a)~~ June 2000	21-006(e)	35-003(f)	60-005(a)
9-008(b)	~~15-012(b)~~ June 2000	21-010(a)	35-003(g)	73-001(a)
9-009	15-012(c)	21-010(b)	35-003(h)	
9-013	15-012(d)	21-010(c)	35-003(j)	
10-003(a)	15-012(e)	21-010(d)	35-003(k)	
10-003(b)	15-012(f)	21-010(e)	35-003(l)	
10-003(c)	15-012(g)	21-010(f)	35-003(m)	
10-003(d)	16-001(b)	21-010(g)	35-003(n)	
10-003(e)	16-001(c)	21-010(h)	35-003(o)	
10-003(f)	16-001(d)	21-011(a)	35-003(p)	
10-006	16-001(e)	21-011(b)	35-003(q)	
11-004(a)	16-005(n)	21-011(c)	35-006	
11-004(b)	16-006(a)	21-011(d)	35-010(a)	
11-004(c)	16-006(c)	21-011(e)	35-010(b)	
11-004(d)	16-006(d)	21-011(f)	35-010(c)	
	16-006(e)	21-011(g)	35-010(d)	

Total SWMUs in Table B = ~~164~~ **162**
June 2000

* As RFI work progresses, EPA may identify more SWMUs to be added to the list to be addressed in the installation work plans.

Table B.1
No Further Action
SWMUs removed from Table B through a Class III Permit Modification and date of removal

0-005	12-23-98	1-001(l)	12-23-98	8-003(c)	12-23-98	16-006(f)	12-23-98
1-001(h)	12-23-98	1-001(n)	12-23-98	8-007	12-23-98	21-012(a)	12-23-98
1-001(i)	12-23-98	3-012(a)	12-23-98	**15-012(a)**		35-003(i)	12-23-98
1-001(j)	12-23-98	3-020(a)	12-23-98	**15-012(b)**		36-003(c)	12-23-98
1-001(k)	12-23-98	8-003(b)	12-23-98	16-005(o)	12-23-98		

SWMUs removed from Table B = ~~17~~ **19**
June 2000

Table C

RFI Work Plan due July 7, 1994: Technical Area 16
16-005(a)
16-005(b)
16-005(c)
16-005(d)
16-005(e)
16-005(h)
16-005(j)
16-005(k)
16-005(l)
16-005(m)
16-006(g)
16-006(h)
16-015(a)
16-015(b)
16-017
16-024(e)
16-025(a)
16-025(b)
16-025(b2)
16-025(c2)
16-025(d)
16-025(e)
16-025(f)
16-025(g)
16-025(h)
16-025(i)
16-025(j)
16-025(k)
16-025(l)
16-025(m)
16-025(n)
16-025(o)
16-025(p)
16-025(q)
16-025(r)
16-025(s)
16-025(t)
16-025(u)
16-025(v)
16-025(w)
16-025(x)
16-025(y)
16-025(z)
16-026(m)
16-026(n)
16-026(o)
16-026(p)
16-026(q)
16-026(s)
16-026(w)
16-028(a)
16-029(a2)
16-029(b2)
16-029(c2)
16-029(d2)
16-029(e2)
16-029(f2)
16-029(g2)
16-029(h2)
16-029(k)
16-029(l)
16-029(m)
16-029(n)
16-029(o)
16-029(p)
16-029(q)
16-029(r)
16-029(s)
16-029(t)
16-029(u)
16-029(v)
16-029(w)
16-029(x)
16-029(y)
16-029(z)
16-031(c)
16-031(d)
16-032(a)
16-032(c)
16-034(a)
16-034(b)
16-034(c)
16-034(d)
16-034(e)
16-034(f)
16-034(l)
16-034(m)
16-034(n)
16-034(o)
16-034(p)
C-16-025
C-16-026
Total SWMUs = **92***

RFI Work Plan due July 7, 1995: Technical Area 16
16-016(d)
16-016(e)
16-016(g)
16-025(a2)
16-025(d2)
16-025(e2)
16-025(f2)
16-025(h2)
16-026(a)
16-026(a2)
16-026(b2)
16-026(c2)
16-026(d2)
16-026(e2)
16-026(f)
16-026(f2)
16-026(g)
16-026(g2)
16-026(h)
16-026(i)
16-026(j)
16-026(k)
16-026(k2)
16-026(l)
16-026(r)
16-026(t)
16-026(u)
16-026(x)
16-026(y)
16-026(z)
16-028(b)
16-028(c)
16-028(d)
16-028(e)
16-029(h)
16-029(i)
16-029(j)
16-030(a)
16-030(b)
16-030(c)
16-030(e)
16-030(f)
16-031(a)
16-031(b)
16-031(e)
16-031(f)
16-031(h)
16-034(h)
16-034(i)
16-034(j)
16-034(k)
Total SWMUs = **51**

RFI Work Plan due May 21, 1995: Operable Unit 1114
3-002(a)
3-002(d)
3-009(c)
3-009(i)
3-009(j)
3-011
3-019
3-021
3-025(a)
3-025(b)
3-026(b)
3-026(c)
3-029
3-031
3-032
3-034(a)
3-034(b)
3-043(c)
3-045(a)
3-045(b)
3-045(c)
3-045(e)
3-045(f)
3-045(g)
3-045(h)
3-045(i)
3-046
3-049(a)
3-049(b)
3-049(c)
3-049(d)
3-049(e)
3-050(a)
3-050(d)
3-050(e)
3-050(f)
3-050(g)
3-052(a)
3-052(c)
3-052(e)
3-052(f)
3-054(a)
3-054(b)
3-054(c)
3-054(d)
3-054(e)
3-055(a)
3-055(c)
3-055(d)
3-056(d)
3-056(l)
3-056(m)
3-056(n)
3-059
Total SWMUs = **54**

* 20 additional SWMUs were added after work plan review

Table C.1
No Further Action
SWMUs removed from Table C through a Class III Permit Modification

3-024	12-8-97	16-006(i)	12-23-98	16-026(i2)	12-23-98	16-032(e)	12-23-98	SWMUs removed from Table C = **11**
3-045(d)	12-8-97	16-025(c)	12-23-98	16-031(g)	12-23-98	16-034(g)	12-23-98	
16-005(f)	12-23-98	16-025(g2)	12-23-98	16-032(d)	12-23-98			

Appendix C

Proposed Tables A and B of Module VIII of the Laboratory's Hazardous Waste Facility Permit

Note:

This appendix contains proposed Tables A and B of Module VIII. The number at the bottom of each technical area listing denotes the number of SWMUs on Module VIII for that area. Table C is included, but no changes are requested for that table.

Proposed Table A

Technical Area 0	
SWMU Number	
0-001	
0-003	
0-011(a)	
0-011(c)	
0-011(d)	
0-011(e)	
0-012	
0-017	
0-018(a)	
0-019	
0-028(a)	
0-028(b)	
0-030(a)	
0-030(b)	
0-030(g)	
0-030(l)	
0-030(m)	
0-039	(18)

Technical Area 1	
1-001(a)	
1-001(b)	
1-001(c)	
1-001(d)	
1-001(e)	
1-001(f)	
1-001(g)	
1-001(m)	
1-001(o)	
1-001(s)	
1-001(t)	
1-001(u)	
1-002	
1-003(a)	
1-003(d)	
1-003(e)	
1-006(a)	
1-006(b)	
1-006(c)	
1-006(d)	
1-006(h)	
1-006(n)	
1-006(o)	
1-007(a)	
1-007(b)	
1-007(c)	
1-007(d)	
1-007(e)	
1-007(j)	
1-007(l)	(30)

Technical Area 2	
2-005	
2-006(a)	
2-006(b)	
2-007	
2-008(a)	
2-009(a)	
2-009(b)	
2-009(c)	(8)

Technical Area 3	
3-001(k)	
3-002(c)	
3-003(a)	
3-003(b)	
3-003(c)	
3-009(a)	
3-009(c)	
3-009(d)	
3-009(g)	
3-010(a)	
3-012(b)	
3-013(a)	
3-014(a)	
3-014(b)	
3-014(c)	
3-014(d)	
3-014(e)	
3-014(f)	
3-014(g)	
3-014(h)	
3-014(i)	
3-014(j)	
3-014(k)	
3-014(l)	
3-014(m)	
3-014(n)	
3-014(o)	
3-014(p)	
3-014(q)	
3-014(r)	
3-014(s)	
3-014(t)	
3-014(u)	
3-015	
3-026(d)	
3-028	
3-033	
3-036(a)	
3-036(c)	
3-036(d)	
3-037	
3-038(a)	
3-038(b)	
3-043(e)	
3-044(a)	
3-056(a)	
3-056(c)	(47)

Technical Area 4	
4-001	
4-002	
4-003(a)	
4-003(b)	(4)

Technical Area 5	
5-001(a)	
5-001(b)	
5-002	
5-003	
5-004	
5-005(a)	
5-005(b)	
5-006(b)	
5-006(c)	
5-006(e)	
5-006(h)	(11)

Technical Area 6	
6-001(a)	
6-001(b)	
6-002	
6-003(a)	
6-003(c)	
6-003(d)	
6-003(e)	
6-003(f)	
6-003(h)	
6-005	
6-006	
6-007(a)	
6-007(b)	
6-007(c)	
6-007(d)	
6-007(e)	
6-007(f)	
6-007(g)	(18)

Technical Area 7	
7-001(a)	
7-001(b)	
7-001(c)	
7-001(d)	(4)

Technical Area 8	
8-002	
8-003(a)	
8-004(a)	
8-004(b)	
8-004(c)	
8-004(d)	
8-005	
8-006(a)	
8-009(a)	
8-009(d)	
8-009(e)	
C-8-010	(12)

Technical Area 9	
9-001(a)	
9-001(b)	
9-001(c)	
9-001(d)	
9-002	
9-003(a)	
9-003(b)	
9-003(d)	
9-003(e)	
9-003(g)	
9-003(h)	
9-003(i)	
9-004(a)	
9-004(b)	
9-004(c)	
9-004(d)	
9-004(e)	
9-004(f)	
9-004(g)	
9-004(h)	
9-004(i)	
9-004(j)	
9-004(k)	
9-004(l)	
9-004(m)	
9-004(n)	
9-004(o)	
9-005(a)	
9-005(d)	
9-005(g)	
9-006	
9-008(b)	
9-009	
9-013	
C-9-001	(35)

Technical Area 10	
10-001(a)	
10-001(b)	
10-001(c)	
10-001(d)	
10-002(a)	
10-002(b)	
10-003(a)	
10-003(b)	
10-003(c)	
10-003(d)	
10-003(e)	
10-003(f)	
10-003(g)	
10-003(h)	
10-003(i)	
10-003(j)	
10-003(k)	
10-003(l)	
10-003(m)	
10-003(n)	
10-003(o)	
10-004(a)	
10-004(b)	
10-005	
10-006	
10-007	(26)

Technical Area 11	
11-001(a)	
11-001(b)	
11-001(c)	
11-002	
11-004(a)	
11-004(b)	
11-004(c)	
11-004(d)	
11-004(e)	
11-005(a)	
11-005(b)	
11-005(c)	
11-006(a)	
11-006(b)	
11-006(c)	
11-006(d)	
11-009	
11-011(a)	
11-011(b)	
11-011(c)	
11-011(d)	(21)

Proposed Table A

Technical Area 12

12-001(a)
12-001(b)
12-002 (3)

Technical Area 13

13-001
13-002
13-003(a)
13-004 (4)

Technical Area 14

14-002(a)
14-002(b)
14-002(c)
14-002(d)
14-002(e)
14-002(f)
14-003
14-005
14-006
14-007
14-009
14-010 (12)

Technical Area 15

15-002
15-003
15-004(a)
15-004(b)
15-004(c)
15-004(f)
15-004(g)
15-004(i)
15-006(a)
15-006(b)
15-006(c)
15-006(d)
15-007(a)
15-007(b)
15-007(c)
15-007(d)
15-008(a)
15-008(b)
15-008(c)
15-008(d)
15-009(a)
15-009(b)
15-009(c)
15-009(e)
15-009(f)
15-009(g)
15-009(h)
15-009(i)
15-009(k)
15-010(a)
15-010(b)
15-010(c)
15-011(a)
15-011(b)
15-011(c)
15-014(a)
15-014(b)
15-014(i)
15-014(j)
15-014(k)
15-014(l) (41)

Technical Area 16

16-001(a)
16-001(b)
16-001(c)
16-001(d)
16-001(e)
16-003(a)
16-003(b)
16-003(c)
16-003(d)
16-003(e)
16-003(f)
16-003(g)
16-003(h)
16-003(i)
16-003(j)
16-003(k)
16-003(l)
16-003(m)
16-003(n)
16-003(o)
16-004(a)
16-004(b)
16-004(c)
16-004(d)
16-004(e)
16-004(f)
16-005(g)
16-005(n)
16-006(a)
16-006(c)
16-006(d)
16-006(e)
16-007(a)
16-008(a)
16-009(a)
16-010(a)
16-010(b)
16-010(c)
16-010(d)
16-010(e)
16-010(f)
16-010(h)
16-010(i)
16-010(j)
16-010(k)
16-010(l)
16-010(m)
16-010(n)
16-013
16-016(a)
16-016(b)
16-016(c)
16-018
16-019
16-020
16-021(a)
16-021(c)
16-026(b)
16-026(c)
16-026(d)
16-026(e)
16-026(h2)
16-026(j2)
16-026(v)
16-029(a)
16-029(b)
16-029(c)
16-029(d)
16-029(e)
16-029(f)
16-029(g)
16-030(h)
16-035
16-036 (74)

Technical Area 18

18-001(a)
18-001(b)
18-001(c)
18-002(a)
18-002(b)
18-003(a)
18-003(b)
18-003(c)
18-003(d)
18-003(e)
18-003(f)
18-003(g)
18-003(h)
18-004(a)
18-004(b)
18-005(a)
18-007
18-012(a)
18-012(b) (19)

Technical Area 19

19-001
19-002
19-003 (3)

Technical Area 20

20-001(a)
20-001(b)
20-001(c)
20-002(a)
20-002(b)
20-002(c)
20-002(d)
20-003(a)
20-005 (9)

Technical Area 21

21-002(a)
21-003
21-004(b)
21-004(c)
21-006(a)
21-006(b)
21-006(c)
21-006(d)
21-006(e)
21-007
21-010(a)
21-010(b)
21-010(c)
21-010(d)
21-010(e)
21-010(f)
21-010(g)
21-010(h)
21-011(a)
21-011(b)
21-011(c)
21-011(d)
21-011(e)
21-011(f)
21-011(g)
21-011(i)
21-011(j)
21-011(k)
21-012(b)
21-013(a)
21-013(b)
21-013(c)
21-013(d)
21-013(e)
21-014
21-015
21-016(a)
21-016(b)
21-016(c)
21-017(a)
21-017(b)
21-017(c)
21-018(a)
21-018(b)
21-021
21-022(a)
21-022(b)
21-022(c)
21-022(d)
21-022(e)
21-022(f)
21-022(g)
21-022(h)
21-022(i)
21-022(j)
21-023(a)
21-023(b)
21-023(c)
21-023(d)
21-024(a)
21-024(b)
21-024(c)
21-024(d)
21-024(e)
21-024(f)
21-024(g)
21-024(h)
21-024(i)
21-024(j)
21-024(k)
21-024(l)
21-024(n)
21-024(o)
21-026(a)
21-026(b)
21-027(a)
21-027(c)
21-027(d)

Proposed Table A

21-029 (79)

Technical Area 22

22-010(a)
22-010(b)
22-011
22-012
22-014(a)
22-014(b)
22-015(a)
22-015(b)
22-015(c)
22-015(d)
22-015(e)
22-016 (12)

Technical Area 26

26-001
26-002(a)
26-002(b)
26-003 (4)

Technical Area 27

27-001
27-002
27-003 (3)

Technical Area 31

31-001 (1)

Technical Area 32

32-001
32-002(a)
32-002(b) (3)

Technical Area 33

33-001(a)
33-001(b)
33-001(c)
33-001(d)
33-001(e)
33-002(a)
33-002(b)
33-002(c)
33-002(d)
33-002(e)
33-003(a)
33-003(b)
33-004(a)
33-004(b)
33-004(c)
33-004(d)
33-004(g)
33-004(h)
33-004(i)
33-004(j)
33-004(k)
33-004(m)
33-005(a)
33-005(b)
33-005(c)
33-006(a)
33-006(b)
33-007(a)
33-007(b)
33-007(c)
33-008(a)
33-008(b)
33-009
33-010(a)
33-010(b)
33-010(c)
33-010(d)
33-010(f)
33-010(g)
33-010(h)
33-011(a)
33-011(c)
33-011(d)
33-011(e)
33-012(a)
33-013
33-014
33-015
33-016
33-017 (50)

Technical Area 35

35-002
35-003(a)
35-003(b)
35-003(c)
35-003(d)
35-003(e)
35-003(f)
35-003(g)
35-003(h)
35-003(j)
35-003(k)
35-003(l)
35-003(m)
35-003(n)
35-003(o)
35-003(p)
35-003(q)
35-004(a)
35-004(b)
35-004(e)
35-004(g)
35-004(h)
35-006
35-008
35-009(a)
35-009(b)
35-009(c)
35-009(d)
35-009(e)
35-010(a)
35-010(b)
35-010(c)
35-010(d)
35-011(a)
35-013(a)
35-013(b)
35-013(c)
35-013(d)
35-014(a)
35-014(b)
35-014(e)
35-014(g)
35-015(a)
35-015(b)
35-016(a)
35-016(c)
35-016(d)
35-016(i)
35-016(k)
35-016(m)
35-016(o)
35-016(p)
35-016(q) (53)

Technical Area 36

36-001
36-002
36-003(a)
36-003(b)
36-004(d)
36-005
36-006
C-36-003 (8)

Technical Area 39

39-001(a)
39-001(b)
39-002(a)
39-004(a)
39-004(b)
39-004(c)
39-004(d)
39-004(e)
39-005
39-006(a)
39-007(a)
39-008 (12)

Technical Area 40

40-001(b)
40-001(c)
40-004
40-005
40-006(a)
40-006(b)
40-006(c)
40-009
40-010 (9)

Technical Area 41

41-001
41-002(a)
41-002(b)
41-002(c) (4)

Technical Area 42

42-001(a)
42-001(b)
42-001(c)
42-002(b)
42-003 (5)

Technical Area 43

43-001(a)
43-002 (2)

Technical Area 45

45-001
45-002
45-003
45-003 (4)

Technical Area 46

46-002
46-003(a)
46-003(b)
46-003(c)
46-003(d)
46-003(e)
46-003(f)
46-003(g)
46-003(h)
46-004(a)
46-004(b)
46-004(c)
46-004(d)
46-004(e)
46-004(f)
46-004(g)
46-004(h)
46-004(a2)
46-004(b2)
46-004(c2)
46-004(d2)
46-004(m)
46-004(p)
46-004(q)
46-004(r)
46-004(s)
46-004(t)
46-004(u)
46-004(v)
46-004(w)
46-004(x)
46-004(y)
46-004(z)
46-005
46-006(a)
46-006(b)
46-006(c)
46-006(d)
46-006(f)
46-006(g)
46-007
46-008(a)
46-008(b)
46-008(d)
46-008(e)
46-008(f)
46-008(g)
46-009(a)
46-009(b)
46-010(d) (50)

Technical Area 48

48-002(a)
48-002(b)
48-003
48-004(a)
48-004(b)
48-004(c)
48-005

Proposed Table A

48-007(a)
48-007(b)
48-007(c)
48-007(d)
48-007(f)
48-010 (13)

Technical Area 49
49-001(a)
49-001(b)
49-001(c)
49-001(d)
49-001(e)
49-001(f)
49-001(g)
49-003
49-004
49-005(a)
49-006 (11)

Technical Area 50
50-001(a)
50-002(a)
50-002(b)
50-002(c)
50-004(a)
50-004(b)
50-004(c)
50-006(a)
50-006(c)
50-006(d)
50-009
50-011(a) (12)

Technical Area 52
52-001(d)
52-002(a) (2)

Technical Area 53
53-001(a)
53-001(b)
53-002(a)
53-002(b)
53-005
53-006(b)
53-006(c)
53-006(d)
53-006(e)
53-006(f)
53-007(a) (11)

Technical Area 54
54-001(a)
54-004 (excluding Shaft No. 9)
54-005
54-006
54-007(a)
54-007(b)
54-007(c)
54-012(b)
54-013(b)
54-014(b)
54-014(c)
54-014(d)
54-015(h)
54-015(k)
54-017
54-018
54-019
54-020 (18)

Technical Area 55
55-008
55-009 (2)

Technical Area 59
59-001 (1)

Technical Area 60
60-002
60-005(a)
60-006(a)
60-007(a)
60-007(b) (5)

Technical Area 61
61-002
61-004(a)
56.00
61-006
61-007 (5)

Technical Area 63
63-001(a)
63-001(b) (2)

Technical Area 69
69-001 (1)

Technical Area 73
73-001(a)
73-001(b)
73-001(c)
73-001(d)
73-002
73-004(a)
73-004(b)
73-004(c)
73-004(d)
73-005
73-006 (11)

Total SWMUs in Table A = **792**

Table A.1
No Further Action
SWMUs removed from Table A through a Class III Permit Modification and date of removal

0-005	12-23-98
0-016	
0-033(a)	
1-001(h)	12-23-98
1-001(i)	12-23-98
1-001(j)	12-23-98
1-001(k)	12-23-98
1-001(l)	12-23-98
1-001(n)	12-23-98
2-008(b)	
3-001(a)	12-23-98
3-001(b)	12-23-98
3-001(c)	12-23-98
3-002(b)	12-23-98
3-009(b)	12-23-98
3-009(e)	12-23-98
3-009(f)	12-23-98
3-009(h)	12-23-98
3-012(a)	12-23-98
3-018	12-23-98
3-020(a)	12-23-98
3-035(a)	12-23-98
3-035(b)	12-23-98
3-039(a)	12-23-98
6-003(g)	
7-003(c)	12-23-98
7-003(d)	12-23-98
8-003(b)	12-23-98
8-003(c)	12-23-98
8-006(b)	12-23-98
8-007	12-23-98
9-003(c)	12-23-98
9-003(f)	12-23-98
9-005(b)	12-23-98
9-005(c)	12-23-98
9-005(e)	12-23-98
9-005(f)	12-23-98
9-005(h)	12-23-98
9-007	12-23-98
11-007	12-23-98
14-004(b)	12-23-98
15-009(j)	
15-012(a)	
15-012(b)	
15-014(m)	12-23-98
16-005(i)	12-23-98
16-005(o)	12-23-98
16-006(b)	12-23-98
16-006(f)	12-23-98
16-010(g)	12-23-98
16-012(a)	12-23-98
16-012(b)	12-23-98
16-012(c)	12-23-98
16-012(d)	12-23-98
16-012(e)	12-23-98
16-012(f)	12-23-98
16-012(g)	12-23-98
16-012(h)	12-23-98
16-012(i)	12-23-98
16-012(j)	12-23-98
16-012(k)	12-23-98
16-012(l)	12-23-98
16-012(m)	12-23-98
16-012(n)	12-23-98
16-012(o)	12-23-98
16-012(p)	12-23-98
16-012(q)	12-23-98
16-012(r)	12-23-98
16-012(s)	12-23-98
16-012(t)	12-23-98
16-012(u)	12-23-98
16-012(v)	12-23-98
16-012(w)	12-23-98
16-012(x)	12-23-98
16-012(y)	12-23-98
16-012(z)	12-23-98
21-005	
21-012(a)	12-23-98
21-024(m)	12-23-98
21-027(b)	12-23-98
33-004(e)	12-23-98
33-004(f)	12-23-98
35-003(i)	12-23-98
36-003(c)	12-23-98
39-003	12-23-98
39-006(b)	12-23-98
40-001(a)	12-23-98
40-003(a)	
46-008(c)	12-23-98
52-001(a)	12-23-98
52-001(b)	12-23-98
52-001(c)	12-23-98
52-002(b)	12-23-98
52-002(c)	12-23-98
52-002(d)	12-23-98
52-002(e)	12-8-97
52-002(f)	12-23-98
53-007(b)	12-23-98
54-001(c)	12-23-98
54-013(a)	12-23-98

SWMUs removed from Table A = **100**

Proposed Table B
Priority SWMUs*

SWMU Number			
1-001(a)	11-004(e)	16-016	21-014	39-001(a)
1-001(b)	11-005(a)	16-018	21-015	39-001(b)
1-001(c)	11-005(b)	16-019	21-016(a)	41-001
1-001(d)	11-006(a)	16-020	21-017(a)	46-002
1-001(e)	13-004	16-021(a)	21-017(b)	46-006(a)
1-001(f)	15-002	18-001(a)	21-017(c)	46-006(b)
1-001(g)	15-006(a)	18-003(a)	21-018(a)	46-006(c)
1-001(m)	15-006(b)	18-003(b)	21-018(b)	46-006(d)
1-002	15-006(c)	18-003(c)	22-015(c)	46-007
1-003(a)	15-006(d)	18-003(d)	33-002(a)	49-001(a)
2-005	15-007(a)	18-003(e)	33-002(b)	50-006(a)
2-008(a)	15-007(b)	18-003(f)	33-002(c)	50-006(c)
3-010(a)	15-007(c)	18-003(g)	33-017	50-006(d)
3-012(b)	15-007(d)	18-003(h)	35-003(a)	50-009
3-013(a)	15-008(a)	21-006(a)	35-003(b)	54-004
3-015	15-008(b)	21-006(b)	35-003(c)	(except Shaft No. 9)
3-029(a)	15-008(c)	21-006(c)	35-003(d)	54-005
5-005(a)	15-008(d)	21-006(d)	35-003(e)	54-015(h)
6-007(a)	15-009(a)	21-006(e)	35-003(f)	60-005(a)
8-003(a)	15-009(b)	21-010(a)	35-003(g)	73-001(a)
9-008(a)	15-012(c)	21-010(b)	35-003(h)	
9-008(b)	15-012(d)	21-010(c)	35-003(j)	
9-009	15-012(e)	21-010(d)	35-003(k)	
9-013	15-012(f)	21-010(e)	35-003(l)	
10-003(a)	15-012(g)	21-010(f)	35-003(m)	
10-003(b)	16-001(b)	21-010(g)	35-003(n)	
10-003(c)	16-001(c)	21-010(h)	35-003(o)	
10-003(d)	16-001(d)	21-011(a)	35-003(p)	
10-003(e)	16-001(e)	21-011(b)	35-003(q)	
10-003(f)	16-005(n)	21-011(c)	35-006	
10-006	16-006(a)	21-011(d)	35-010(a)	
11-004(a)	16-006(c)	21-011(e)	35-010(b)	
11-004(b)	16-006(d)	21-011(f)	35-010(c)	
11-004(c)	16-006(e)	21-011(g)	35-010(d)	
11-004(d)	16-007	21-011(h)	36-003(a)	
	16-008(b)	21-011(i)	36-003(b)	

Total SWMUs in Table B = **162**

* As RFI work progresses, EPA may identify more SWMUs to be added to the list to be addressed in the installation work plans.

Table B.1
No Further Action
SWMUs removed from Table B through a Class III Permit Modification and date of removal

0-005	12-23-98	1-001(l)	12-23-98	8-003(c)	12-23-98	16-006(f)	12-23-98
1-001(h)	12-23-98	1-001(n)	12-23-98	8-007	12-23-98	21-012(a)	12-23-98
1-001(i)	12-23-98	3-012(a)	12-23-98	15-012(a)		35-003(i)	12-23-98
1-001(j)	12-23-98	3-020(a)	12-23-98	15-012(a)		36-003(c)	12-23-98
1-001(k)	12-23-98	8-003(b)	12-23-98	16-005(o)	12-23-98		

SWMUs removed from Table B = **19**

Table C

RFI Work Plan due July 7, 1994: Technical Area 16

16-005(a)
16-005(b)
16-005(c)
16-005(d)
16-005(e)
16-005(h)
16-005(j)
16-005(k)
16-005(l)
16-005(m)
16-006(g)
16-006(h)
16-015(a)
16-015(b)
16-017
16-024(e)
16-025(a)
16-025(b)
16-025(b2)
16-025(c2)
16-025(d)
16-025(e)
16-025(f)
16-025(g)
16-025(h)
16-025(i)
16-025(j)
16-025(k)
16-025(l)
16-025(m)
16-025(n)
16-025(o)
16-025(p)
16-025(q)
16-025(r)
16-025(s)
16-025(t)
16-025(u)
16-025(v)
16-025(w)
16-025(x)
16-025(y)
16-025(z)
16-026(m)
16-026(n)
16-026(o)
16-026(p)
16-026(q)
16-026(s)
16-026(w)
16-028(a)
16-029(a2)
16-029(b2)
16-029(c2)
16-029(d2)
16-029(e2)
16-029(f2)
16-029(g2)
16-029(h2)
16-029(k)
16-029(l)
16-029(m)
16-029(n)
16-029(o)
16-029(p)
16-029(q)
16-029(r)
16-029(s)
16-029(t)
16-029(u)
16-029(v)
16-029(w)
16-029(x)
16-029(y)
16-029(z)
16-031(c)
16-031(d)
16-032(a)
16-032(c)
16-034(a)
16-034(b)
16-034(c)
16-034(d)
16-034(e)
16-034(f)
16-034(l)
16-034(m)
16-034(n)
16-034(o)
16-034(p)
C-16-025
C-16-026
Total SWMUs = **92***

RFI Work Plan due July 7, 1995: Technical Area 16

16-016(d)
16-016(e)
16-016(g)
16-025(a2)
16-025(d2)
16-025(e2)
16-025(f2)
16-025(h2)
16-026(a)
16-026(a2)
16-026(b2)
16-026(c2)
16-026(d2)
16-026(e2)
16-026(f)
16-026(f2)
16-026(g)
16-026(g2)
16-026(h)
16-026(i)
16-026(j)
16-026(k)
16-026(k2)
16-026(l)
16-026(r)
16-026(t)
16-026(u)
16-026(x)
16-026(y)
16-026(z)
16-028(b)
16-028(c)
16-028(d)
16-028(e)
16-029(h)
16-029(i)
16-029(j)
16-030(a)
16-030(b)
16-030(c)
16-030(e)
16-030(f)
16-031(a)
16-031(b)
16-031(e)
16-031(f)
16-031(h)
16-034(h)
16-034(i)
16-034(j)
16-034(k)
Total SWMUs = **51**

RFI Work Plan due May 21, 1995: Operable Unit 1114

3-002(a)
3-002(d)
3-009(c)
3-009(i)
3-009(j)
3-011
3-019
3-021
3-025(a)
3-025(b)
3-026(b)
3-026(c)
3-029
3-031
3-032
3-034(a)
3-034(b)
3-043(c)
3-045(a)
3-045(b)
3-045(c)
3-045(e)
3-045(f)
3-045(g)
3-045(h)
3-045(i)
3-046
3-049(a)
3-049(b)
3-049(c)
3-049(d)
3-049(e)
3-050(a)
3-050(d)
3-050(e)
3-050(f)
3-050(g)
3-052(a)
3-052(c)
3-052(e)
3-052(f)
3-054(a)
3-054(b)
3-054(c)
3-054(d)
3-054(e)
3-055(a)
3-055(c)
3-055(d)
3-056(d)
3-056(l)
3-056(m)
3-056(n)
3-059
Total SWMUs = **54**

* 20 additional SWMUs were added after work plan review

Table C.1
No Further Action
SWMUs removed from Table C through a Class III Permit Modification

3-024	12-8-97	16-006(i)	12-23-98	16-026(i2)	12-23-98	16-032(e)	12-23-98	SWMUs removed from Table C = **11**
3-045(d)	12-8-97	16-025(c)	12-23-98	16-031(g)	12-23-98	16-034(g)	12-23-98	
16-005(f)	12-23-98	16-025(g2)	12-23-98	16-032(d)	12-23-98			

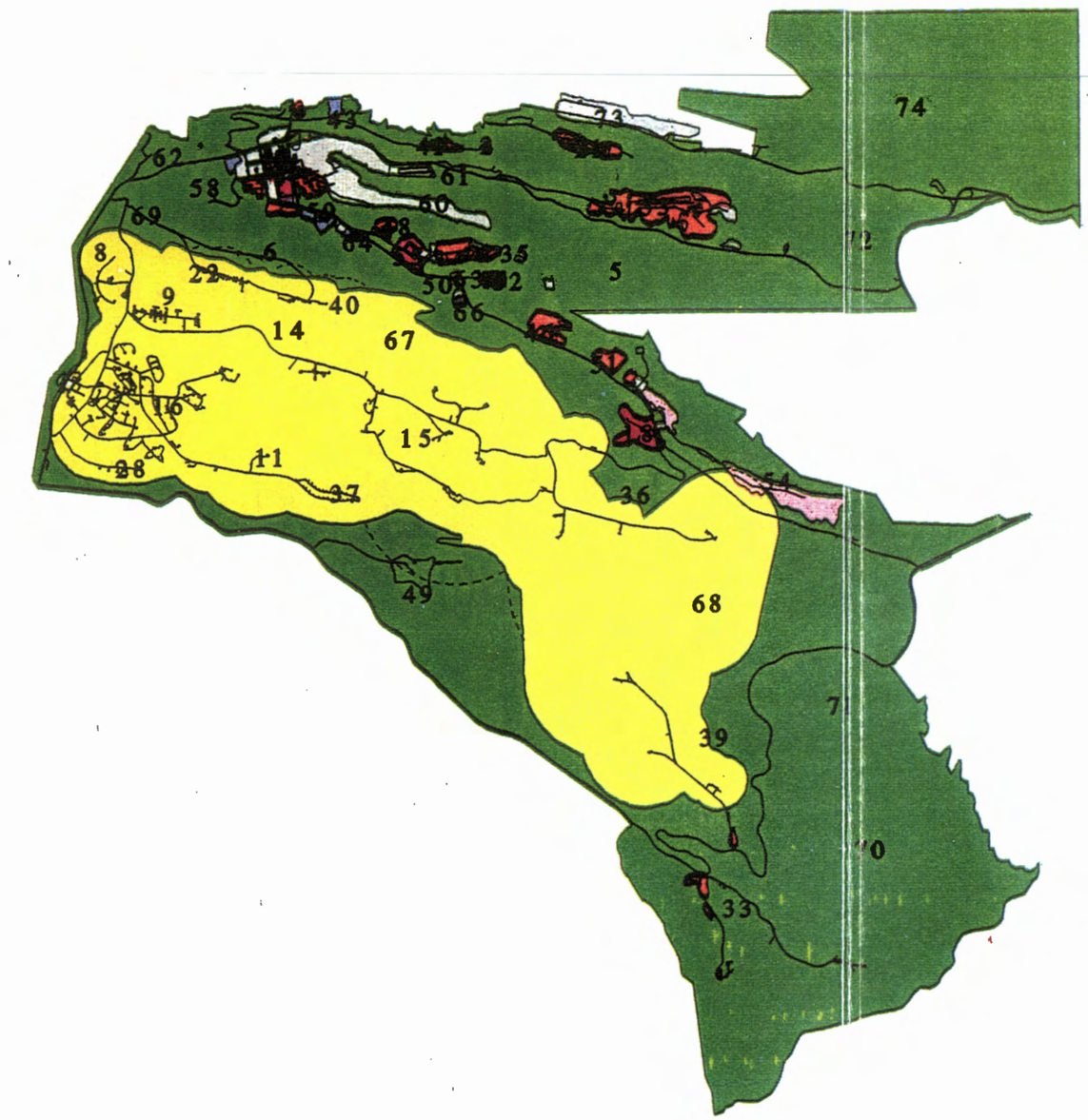
Appendix D

Attachments Common to More Than One SWMU

LANL EXISTING LAND USE (LABWIDE)

PREPARED FOR:
SITE DEVELOPMENT PLAN
ANNUAL UPDATE, 1995

Appendix D



LEGEND

- ENVIRONMENTAL RESEARCH /BUFFER (ER)
- PHYSICAL SUPPORT AND INFRASTRUCTURE (PSI)
- EXPERIMENTAL SCIENCE (EX)
- HIGH EXPLOSIVES R&D AND TESTING (HE)
- SPECIAL NUCLEAR MATERIALS R&D (SNM)
- PUBLIC AND CORPORATE INTERFACE (PC)
- ADMINISTRATIVE AND TECHNICAL SERVICES (ATS)
- WASTE MANAGEMENT (WM)
- THEORETICAL AND COMPUTATIONAL SCIENCE (TC)
- NON-DOE LAND : POTENTIALLY PSI
- HIGH EXPLOSIVES ADMINISTRATIVE AND TECHNICAL SUPPORT AREA
- 03 TECHNICAL AREA NUMBERS
- PAVED ROADS
- DOE BOUNDARY

PREPARED BY:
LOS ALAMOS NATIONAL LABORATORY
SITE PLANNING OFFICE
DATE: 03-21-95 PHONE: 505-667-9383

FEET: 3000 0 3000 6000
METERS: 914 0 914 1828

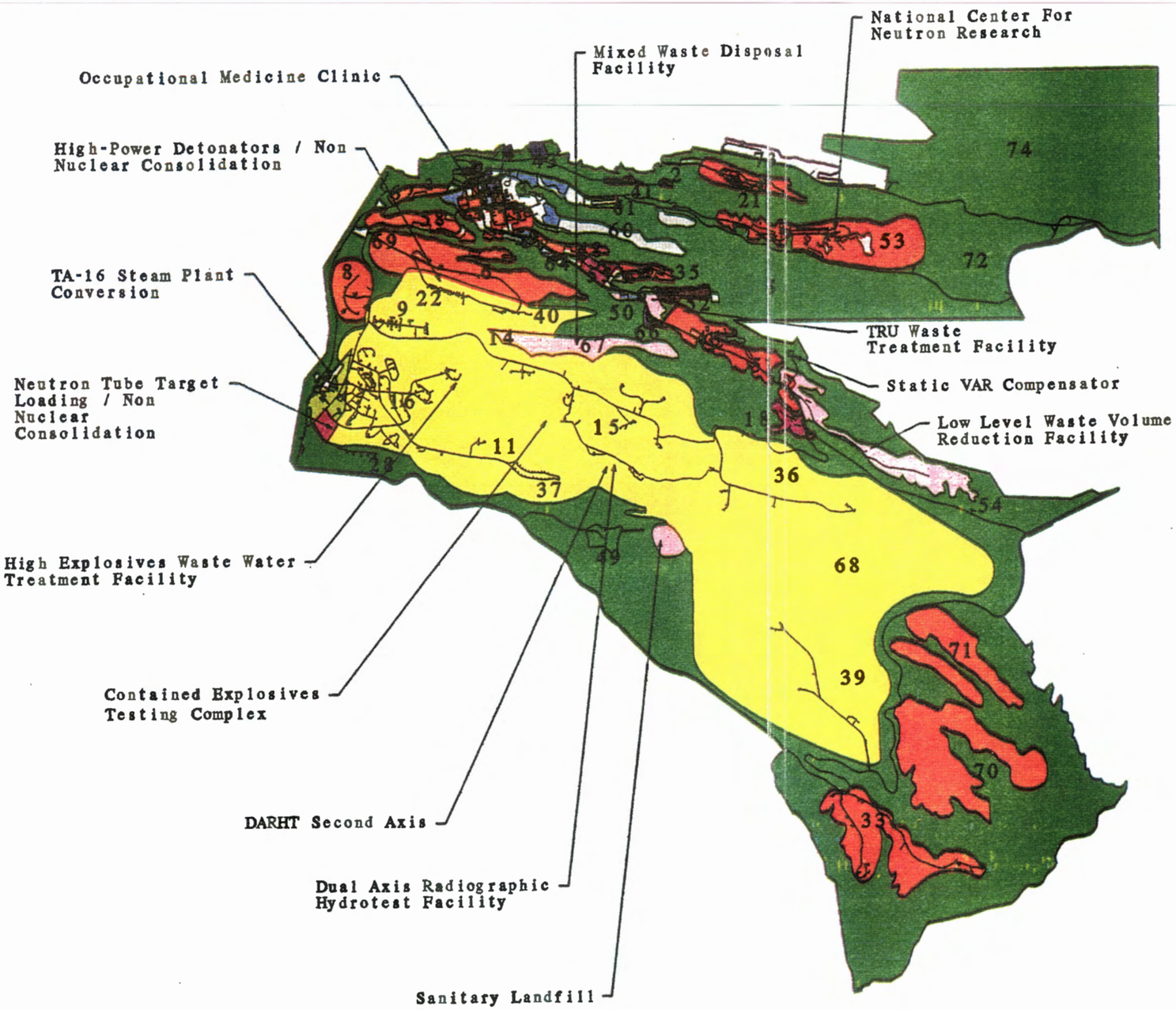
N

NEW MEXICO STATE PLANE COORDINATE SYSTEM (CENTRAL ZONE)
1927 NORTH AMERICAN DATUM

LANL FUTURE LAND USE (LABWIDE)

PREPARED FOR:
SITE DEVELOPMENT PLAN
ANNUAL UPDATE, 1995

Appendix D



LEGEND

- ENVIRONMENTAL RESEARCH /BUFFER (ER)
- PHYSICAL SUPPORT AND INFRASTRUCTURE (PSI)
- EXPERIMENTAL SCIENCE (EX)
- HIGH EXPLOSIVES R&D AND TESTING (HE)
- SPECIAL NUCLEAR MATERIALS R&D (SNM)
- PUBLIC AND CORPORATE INTERFACE (PC)
- ADMINISTRATIVE AND TECHNICAL SERVICES (ATS)
- WASTE MANAGEMENT (WM)
- THEORETICAL AND COMPUTATIONAL SCIENCE (TC)
- NON-DOE LAND : POTENTIALLY PSI
- HIGH EXPLOSIVES ADMINISTRATIVE AND TECHNICAL SUPPORT AREA
- 03 TECHNICAL AREA NUMBERS
- PAVED ROADS
- DOE BOUNDARY

PREPARED BY:
LOS ALAMOS NATIONAL LABORATORY
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N

NEW MEXICO STATE PLANE COORDINATE SYSTEM (CENTRAL ZONE)
1927 NORTH AMERICAN DATUM

Appendix E

Documentation for Varying from
HSWA Permit Modification Request Outline

EM/ER Telephone Log

Call To: Kim Hill (HRMB)
827-1558, ext. 1048
Call From: Linda Nonno (EM/ER)
Date: May 4, 1999, 3:40 pm

Discussion:

I phoned Kim Hill to discuss the outline for HSWA permit modification request NFA proposals provided in HRMB's RPMP Document Requirement Guide (3/3/98). The outline in question is located in Section II.B.4.a.(4).(a) of the 3/3/98 Document Requirement Guide.

The outline works well for sites that fall under NFA Criterion 5, but many of the sections are not applicable for sites that fall under Criteria 1 through 4. I asked Kim if it would be possible to alter the outline as per the attached example that eliminates the following sections of the outline: 2.4 Investigatory Activities, 2.5 Site Conceptual Model, and 2.6 Site Assessments (human health, ecological, and other). We discussed the best place to include a site map and agreed that it should be placed in section 2.2.1, Site Description. I also suggested adding a section for supporting documentation, to which Kim agreed. In rare cases, an applicable assessment, such as surface water SOP 2.01 (formerly AP 4.5) or a UST closure report may exist for a Criterion 1 – 4 site. When applicable, such documentation will be included as an attachment in the supporting documentation section.

We agreed to put a discussion of how and why these permit modification request NFA proposals will vary from the HRMB Document Requirement guide in both the Introduction section of the permit modification request and in the cover letter for the request.

Linda Nonno

Linda Nonno

I agree that the above telephone log accurately records the May 4 telephone conversation between Linda Nonno and myself.

Kim Hill 5/18/99

Kim Hill

LMN/KH:lmn

HSWA PERMIT MODIFICATION REQUEST
NO FURTHER ACTION PROPOSALS
OUTLINE FOR NFA CRITERIA 1 THROUGH 4

EXECUTIVE SUMMARY
1.0 INTRODUCTION
2.0 Solid Waste Management Unit/Area of Concern (SWMU/AOC) X
- 2.1 Summary
- 2.2 Description and Operational History
  - 2.2.1 Site Description
    Includes a site map
  - 2.2.2 Operational History
- 2.3 Land Use
  - 2.3.1 Current
  - 2.3.2 Future/Proposed
- 2.4 No Further Action Proposal
  - 2.4.1 Rationale
  - 2.4.2 Criterion
- 2.5 Supporting Documentation

APPENDIX A LIST OF ACRONYMS AND GLOSSARY
- A-1 List of Acronyms
- A-2 Glossary