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Los Alamos National Laboratory

ENVIRONMENTAL RESTORATION

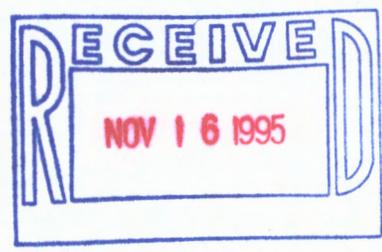
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Date: **November 14, 1995**
Refer to: **EM/ER:95-626**

Mr. David Neleigh
NM Federal Facilities Section
EPA, Region 6, 6PD-N
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733



SUBJECT: QUARTERLY TECHNICAL REPORT

Dear Mr. Neleigh:

Enclosed are two copies of the Environmental Restoration Project's Quarterly Technical Report, July–September 1995. The Quarterly Technical Reports present no analytical data, according to guidance from the Environmental Protection Agency. Also enclosed is a certification statement signed by the designee owner and operator for the Los Alamos National Laboratory.

If you have questions regarding this report, please call Dave McInroy at (505) 667-0819 or Ted Taylor at (505) 665-7203.

Sincerely,

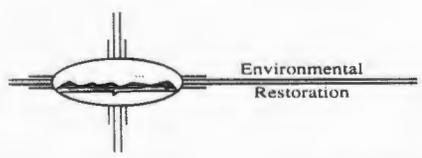
Jorg Jansen, Project Manager
Environmental Restoration

Sincerely,

Theodore J. Taylor, Program Manager
Los Alamos Area Office

JJ/TT/bp

TZ



Mr. Neleigh
EM/ER:95-626

-2-

Enclosures: (1) Two copies Quarterly Technical Report
(2) Signed Certification Form

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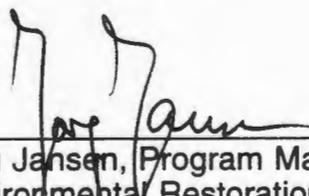
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CERTIFICATION

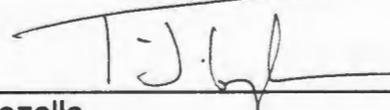
I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage 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: Quarterly Technical Report, July-September 1995

Name:  Date: 11-9-95
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Environmental Restoration Project
Los Alamos National Laboratory

or

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LA-UR-95-3911

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Los Alamos National Laboratory
Environmental Restoration
A Department of Energy Environmental Cleanup Program

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QUARTERLY TECHNICAL REPORT
JULY-SEPTEMBER 1995

November 14, 1995

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LIST OF ACRONYMS AND ABBREVIATIONS

DOE	US Department of Energy
EC	Expedited cleanup
EPA	US Environmental Protection Agency
ER	Environmental restoration
FY	Fiscal year
HSWA	Hazardous and Solid Waste Amendments
LANL	Los Alamos National Laboratory
MDA	Material disposal area
NMED	New Mexico Environment Department
PCB	Polychlorinated biphenyl
PRS	Potential release site
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
TA	Technical area
UST	Underground storage tank
VCA	Voluntary corrective action

**QUARTERLY TECHNICAL REPORT
JULY-SEPTEMBER 1995
LOS ALAMOS NATIONAL LABORATORY
ENVIRONMENTAL RESTORATION PROJECT**

ALBUQUERQUE OPERATIONS OFFICE

CONTRACTOR: University of California

PROJECT MANAGER: Jorg Jansen

NUMBER OF POTENTIAL RELEASE SITES (sampling sites): Approximately 2,100

POTENTIAL WASTE: Radionuclides, High Explosives, Metals, Solvents, Organics

1.0 INTRODUCTION

This quarterly report describes the technical status of activities in the Los Alamos National Laboratory (the Laboratory) Environmental Restoration (ER) Project. The activities are divided according to field units. Each activity is then identified by the technical area (TA) where the activity is located. The Hazardous and Solid Waste Amendments (HSWA) portion of the facility operating permit (Module VIII, Section P, Task V, C) requires the submission of a technical progress report on a quarterly basis. This report, submitted to fulfill the permit's requirement, summarizes much of the fieldwork performed this quarter in the ER Project.

2.0 FIELD UNITS

2.1 Field Unit 1 — Technical Areas 0, 1, 3, 10, 19, 21, 26, 30, 31, 32, 43, 45, 59, 60, 61, 64, 73, and 74 (Field Project Leader: Garry Allen)

2.1.1 General Information for Field Unit 1

The FY96 Baseline was completed and reviewed by the US Department of Energy (DOE).

Personnel are incorporating regulations regarding closure of septic tanks, as applicable, into existing Resource Conservation and Recovery Act (RCRA) facility investigations (RFIs), voluntary corrective action (VCA) plans, and expedited cleanup (EC) plans. The New Mexico Environment Department (NMED) regulations being incorporated, the Uniform Plumbing Code, Section I11, state that abandoned tanks may be emptied and backfilled with a non-compactable material such as gravel or sand.

The RFI work plan for former Operable Unit 1114, Addendum 1 was delivered to the DOE on July 21, 1995. This work plan addresses 186 potential release sites (PRSs) in TAs 3, 59, 60, and 61.

The RFI report is being drafted for 1994 field investigations at TAs 3, 59, 60, and 61. The report will include Phase II sampling plans for PRSs 3-012(b) and 3-014(c2). The technical team will review the report as soon as the ecological screening assessment and the human health risk assessments are complete.

2.1.2 Technical Area Activities

2.1.2.1 TA-0

A RCRA metals analysis was performed on soil samples from backstop berms at PRS 0-016, the site of the former small-arms range, in preparation for moving the soil to an active pistol range at TA-72. All metals except lead were at background levels. Work at the site has been suspended pending regulatory review and approval from the NMED to transfer the soil. Additionally, personnel are looking at other characterization and remediation options for the site.

Review of final data and preparation of summary reports continues for PRSs 0-030(e)North, 0-030(e)South, and 0-030(f).

The final draft of the RFI report for PRS 0-030(g) was submitted for final Laboratory and DOE review in mid-September.

Fieldwork was performed at the 6th Street Warehouse site. Magnetic and ground-penetrating radar surveys were completed, and trenches were cut to uncover the septic tank and lines at PRS 0-030(m); the outfall lines at PRSs 0-030(l and m) and 0-033; and the leach field and drain lines at PRS 0-030(b). Samples were collected from the septic tank and drain lines at PRS 0-030(l). Data from the investigation were assessed and, based on the results, more samples were submitted for analysis for target-analyte-list and toxicity-characteristic-leaching-procedure metals, uranium isotopes, and plutonium isotopes. These data are needed to determine if the septic tanks should be left in place or removed. DOE comments concerning tank removal are needed because Los Alamos County is interested in this land as part of a land transfer from the DOE.

Archival data and drawings were gathered in preparation for fieldwork at PRS 0-031(a), the former Hilltop House service station. RFI work was suspended pending a legal interpretation of conveyance documents and lease agreements.

The RFI report is being written for PRS 0-031(b), the site of underground storage tanks at the former Zia Motor Pool service station. Data assessment is in progress.

The storm drain line and sumps were removed from PRS 0-032, the former Zia Motor Pool site. The pipe contaminated with total petroleum hydrocarbons was placed in a roll-off bin for off-site disposal, thus completing the VCA. The VCA report addressing the removal of the drain line was delivered to the DOE.

A construction crew discovered a 5,000-gallon underground storage tank (UST) at PRS 0-032, the former Zia Motor Pool site. Personnel sampled the tank and found it to contain mostly water mixed with motor oil and 90 mg/L of trichloroethylene, which is a hazardous waste. The layer of sludge on the bottom contains organic and metal debris. The UST and its contents will be removed early in FY96.

Two separate organic solvent plumes, one of Stoddard solvent and one of tetrachloroethane, were discovered during the investigation of PRS 0-039, the site of former dry-cleaning-solvent USTs in the Community Center. Fieldwork is complete, all hazardous waste drums have been removed from the site, and an RFI report on the work is in progress.

The VCA fieldwork was completed at PRSs C-0-036(a, b, c, and d), the Borrow Pits at Bandelier National Monument; a VCA report was completed.

The VCA report was completed for PRS C-0-041, the Tar Disposal Site.

2.1.2.2 TA-1

The VCA plan for PRS 1-001(d), Hillside 138, was submitted for external review and is being revised according to reviewer comments.

VCA activities were completed at PRS 1-001(f), Hillside 140. Uranium-contaminated soil was removed, and four B-25 burial boxes were filled and disposed in a pit at Material Disposal Area (MDA) G. The VCA report for PRS 1-001(f) was delivered to the DOE.

Work on RFI reports continued this quarter. RFI reports for Aggregates A, B, H, I, and J; Aggregates C and D; and Aggregates E and G are nearly complete. The report for Aggregate F was sent to the US Environmental Protection Agency (EPA) on August 7, and the report for Aggregates K-P is in the quality assessment/quality control phase.

VCA field activities are complete at the original can disposal area of the Can Dump Site, PRS 1-003(d). The cleanup involved the disposal of 1340 pounds of cans at the county landfill. During VCA activities, field personnel discovered an old paint spill up-slope from the Can Dump Site. Samples of the dried paint were analyzed for metals using x-ray fluorescence and for organic compounds using a mobile lab. Weathered paint and contaminated dirt were removed and placed in drums, and the underlying tuff was sampled. The VCA plan is being amended to address the sampling and cleanup of the paint. Field activities and the final VCA report for PRS 1-003(d) will be completed in FY96.

2.1.2.3 TA-3

VCA plans were prepared, and field activities were completed for the following PRSs: PRS 3-003(p), a former storage yard; PRS 3-022, a decommissioned secondary containment for dielectric oil tanks; PRS 3-047(d), a decommissioned drum storage area; and PRS 3-051(c), vacuum pump exhaust stains. The VCA reports for these sites were completed and submitted to DOE on September 29, 1995.

Excavation activities are in progress at PRS 3-056(c), the site of polychlorinated biphenyl (PCB)-contaminated soil northeast of TA-3-223. The area affected and concentrations of PCBs in the soil were much greater than expected, and the volume of PCB-contaminated soil is at least an order of magnitude greater than the anticipated 45-100 cubic yards. Additional Phase I sampling produced a high reading (360 ppm of PCBs) approximately 25 ft north of the chain-link fence surrounding the storage area for non-PCB-containing capacitors. Samples were also collected at 50-ft intervals in the storm-drain channels trending northeast to Sandia Canyon, approximately 220 ft northeast of the chain-link fence. Nine of the eleven sediment samples had PCB contamination ranging from 0.16 to 5.6 ppm. Additional sampling is being conducted for semivolatile organic compounds, volatile organic compounds, target-analyte-list metals, and for gamma spectroscopy to determine the vertical extent of contamination in the soil north of the chain-link fence. Excavation of soil on the west side of the site continues.

2.1.2.4 TA-10

The RFI report for PRSs 10-001(a-d) was sent to the EPA September 29, 1995. Work has begun on an addendum to this report, characterizing the risk associated with the remaining shrapnel in the canyon.

The RFI report for PRSs 10-002(a and b), 10-003(a-o), 10-004(a and b), 10-005, and 10-007 is in the initial stages of drafting. The technical team has reviewed the data, is preparing the quality assessment/quality control section of the report, and has begun the background comparison.

VCA fieldwork has been completed for PRS C-10-001, and a VCA report has been completed. The area consisted of two small sites of soil contaminated with strontium-90. The sites were discovered using hand-held radiation screening instruments during routine shrapnel removal

operations in the summer and fall of 1994. Approximately one cubic yard of radioactive-contaminated soil was removed from the site, and the site was restored to its original condition.

2.1.2.5 TA-19

VCA fieldwork has been completed at PRS 19-002, the Battery Site surface disposal, and a VCA report has been submitted to the DOE. In the course of the activities, a new battery disposal area was discovered and cleaned. Approximately 1.5 cubic yards of battery debris, 2.0 cubic yards of concrete, and a minor amount of fencing material were removed. Most of the material was taken to the county landfill, and a small portion of the newly discovered battery debris is being held, pending final waste characterization results.

2.1.2.6 TA-21

VCA fieldwork and VCA reports have been completed for PRSs 21-013(c, d, and e), surface disposal sites; PRS 21-022(j), the location of a former sump; PRSs 21-024(d, e, and h), the locations of the septic tanks and outfalls; and PRS C-21-027, the location of a former cooling tower at the south end of Building 3.

The initial drafts of RFI reports have been completed for PRS 21-015, MDA B; PRSs 21-016(a, b, and c); and PRS 21-028(a), MDA T. The technical teams are evaluating future concerns about potential migration of contaminants from these sites.

A sampling plan is being developed for PRS 21-018(b), the former laundry facility. Field activities at TA-21 include ongoing capping studies at MDA B, soil-washing bench pilot studies for uranium and plutonium at PRS 21-027(a), and in-situ stabilization of cesium-137 at PRS 21-011(k).

A 45-day report was submitted to the NMED UST Bureau for activities at PRS 21-029, the DP Tank Farm. The RFI report for this PRS has been completed, and review comments are being incorporated.

Data tracking and assessment continues for the national pollutant discharge elimination system outfalls at TA-21 as part of the RFI work plan investigation.

2.1.2.7 TA-31

The VCA fieldwork and VCA report were completed for PRS 31-001, the septic system outfall.

2.1.2.8 TA-45

The RFI addendum report for radioactive isotope investigation at PRSs 1-002, 45-001, 45-002, 45-003, 45-004, and C-45-001 was delivered to the DOE in August for review. Completion is pending DOE review comments.

2.1.2.9 TA-73

A soil-gas survey was completed at the airport, including PRS 73-001(a), the main landfill; PRS 73-001(b), the waste oil pit; and PRS 73-001(d), the debris disposal area. Survey results from the main landfill indicated that concentrations of volatile organic compounds from 0-12 ft depth were greatly reduced from last year's analysis. Sampling from 0-6 ft depth at the waste oil pit indicated no volatile organic compounds.

The flux chamber sampling of PRSs 73-001(a and d) was conducted according to a plan prepared with guidance from a consultant. Preparations were completed for cone penetrometer testing of PRSs 73-001(a, b, and d).

2.2 Field Unit 2 — Technical Areas 12, 14, 15, 18, 20, 27, 36, 39, 53, 65, 67, 68, 71, and 72 (Field Project Leader: Gene Gould)

2.2.1 Technical Area Activities

2.2.1.1 TAs 12 and 14

Seventy-eight samples were collected at TAs 12 and 14 and sent for laboratory analysis.

2.2.1.2 TA-15

Personnel collected 302 samples and sent them for laboratory analysis. Four samples indicated the presence of high explosives. Further analysis indicated less than 2% high explosives. Additional samples were collected at PRSs 15-004(b and c) for x-ray fluorescence analysis to determine the extent of lead contamination.

2.2.1.3 TA-18

ECs at PRSs 18-001(b) and 18-003(e) and a VCA at PRS 18-001(a) were completed during September. Final reports for these cleanups were written and submitted to the DOE. Additional groundwater sampling was conducted at PRSs 18-001(a and b).

A draft of the RFI report for PRSs in TA-18 and TA-27 was submitted to Laboratory and DOE reviewers on September 22. The final report is scheduled for delivery to the EPA on October 31.

2.2.1.4 TA-20

A VCA plan was drafted and approved for PRS 20-003(c). The site was remediated and the final report was submitted to the DOE.

2.2.1.5 TA-36

The RFI report for PRSs 36-003(a and b), 36-005, and C-36-003 was prepared and submitted to EPA on September 29. A VCA was completed at PRS C-36-001, and an EC was completed at PRS 36-003(a); the final reports were submitted to the DOE on September 29.

2.2.1.6 TA-39

Personnel submitted a recommendation to the EPA for a modification to the sampling plan for PRSs 39-001(a and b) (landfills) and for an extension to the RFI report due date. The EPA approved the recommendations.

The team mobilized to the field on July 19. Team members conducted radiological surveys at the firing sites [PRSs 30-004(a-e)] and the gas gun site (PRS 39-008). Approximately 200 samples were collected and submitted for laboratory analysis. Preparations are under way for excavation at PRSs 39-001(a and b).

2.2.1.7 TA-53

A VCA plan was drafted and approved for PRS 53-010. The site was remediated, and the final report was submitted to the DOE.

Comments were received from the NMED concerning the TA-53 surface impoundments. Laboratory personnel prepared and submitted responses to those comments.

2.3 Field Unit 3 — Technical Area 11, 13, 16, 24, 25, 28, 33, 37, 46, and 70 (Field Project Leader: Brad Martin)

2.3.1 General Information for Field Unit 3

Volume III of the work plan for former Operable Unit 1082 was delivered to DOE for submittal to EPA. Fieldwork for 54 PRSs in former Operable Unit 1082 is in progress and will be completed early in FY96. Two RFI reports addressing a combined total of 13 PRSs at TA-33 were delivered to DOE for submittal to EPA. All of the data from the 1994 field campaign at TA-33 have been received, data assessment has been started, and preliminary decisions have been made for 17 PRSs. A preliminary review of most of the data from the 1994 field campaign at TA-46 indicates contamination is present; data assessment will commence in FY96. Four VCAs were completed, three at TA-16 and one at TA-33.

2.4 Field Unit 4 — Technical Areas 2, 4, 5, 35, 41, 42, 48, 52, 55, 63, and 66 and Canyons (Field Project Leader: Allyn Pratt)

2.4.1 General Information for Field Unit 4

Chapter 7 of the addendum to the work plan for former Operable Unit 1129 (LANL 1992, 0785) was revised according to the responses submitted to resolve the EPA notice of deficiency.

Phase I sampling was completed at TAs 4 and 5.

VCA plans are being developed for PRSs 35-018(a), 48-003, and 55-010.

2.4.2 Technical Area Activities

2.4.2.1 Canyons

A real-time radiological survey was performed on sections of Los Alamos Canyon and Pueblo Canyon. Work continued on the canyons work plan; the site map was completed for the canyon rim exposure unit (the north end of TA-48).

2.4.2.2 TA-5

Phase I sampling was concluded at Aggregate R, where 22 soil samples and 1 water sample were collected.

2.4.2.3 TA-35

Work began on the TA-35 RFI report, including the evaluation of data quality for Aggregate D. Laboratory personnel reviewed all current analytical data for TA-35 to identify sites that are potential candidates for EC or VCA.

2.4.2.4 TA-41

Personnel performed a geophysical survey at PRS 41-001 to locate an abandoned septic tank. Waste management efforts included transporting one drum of trichloroethylene-contaminated soil from the satellite accumulation area at TA-41 to TA-54 for storage and disposal. Waste Profile Forms and Chemical Waste Disposal Requests have been approved for the disposal of 105 drums currently stored at the TA-41 waste storage area.

2.4.2.5 TA-42

Work continued on the TA-42 RFI report. Comments from the formal review were incorporated as appropriate, and the document was submitted to the ER Project Office for final approval.

2.4.2.6 TA-48

The final response to the notice of deficiency on the EC plan for PRSs 48-002(a and b) was completed and submitted to the ER Project Office. The ECs for PRSs 48-002(a and b) were completed. Sampling for the EC included collecting 29 soil samples during the cleanup and collecting 3 soil samples and 1 water sample for verification following cleanup. The EC completion report was submitted to the ER Project Office.

Work continued on the TA-48 RFI report. The comments from the internal review were incorporated as appropriate, and the document was submitted for formal review.

2.5 Field Unit 5 — Technical Areas 6, 7, 8, 9, 22, 23, 40, 49, 54, 57, 58, 62, and 69 (Field Project Leader: Cheryl Rofer)

2.5.1 General Information for Field Unit 5

Analytical results have been received for soil samples collected during the summer of 1994 at various PRSs at TAs 6, 8, 9, 22, and 40 ; the results are being reviewed. RFI reports are being prepared for PRSs sampled during the summer of 1994 at TAs 6, 8, 9, 22, 50, and 54. The RFI report for TA-40 was completed.

2.5.2 Technical Area Activities

2.5.2.1 TA-6

Soil sampling was completed for the sites of several buildings that were destroyed by burning in the 1960s. A VCA was completed at PRS 6-007(f), a surface disposal site with associated soil contamination. Pilot studies continue regarding engineered covers for landfills.

2.5.2.2 TA-8

PRS 8-003(a), the site of an abandoned septic tank, was remediated as an EC. The tank, which was used in the 1940s and early 1950s, contained significant amounts of chlorinated hydrocarbons. The contents were removed for disposal. Sampling around the tank showed that no leakage had occurred. The tank was pressure-cleaned with water and filled with sand. Personnel disposed of all wastes by approved means.

A VCA report was prepared for PRS 8-005, which was cleaned up in September 1994. The cleanup involved the removal and disposal of a vessel containing naphthalene.

An RFI report is in preparation for PRSs in TA-8 that can be recommended for no further action.

2.5.2.3 TA-9

Three VCAs were completed at TA-9. Two solvent sheds, PRSs 9-010(a and b), were removed; no soil contamination was found associated with these two sites. The third remediation site, PRS C-9-001, was a small area of oil-stained soil.

2.5.2.4 TA-22

PRS 22-015(c), the site of the plating bath outfall, was remediated as an EC. Soil contaminated with metals was removed for disposal in an industrial landfill. The excavated site was backfilled with clean soil and revegetated.

2.5.2.5 TA-40

The field team completed the RFI Phase I investigation for PRS 40-006(a), the location of an active firing site. Sampling activities included geophysical surveying to locate shrapnel, borehole drilling, and surface-soil sampling.

2.5.2.6 TA-49

Soil sampling at PRSs with possible surface contamination was completed. Boreholes were monitored on a regular basis.

2.5.2.7 TA-50

All samples from shallow boring in the areas of decommissioned liquid radioactive waste lines have been analyzed and are being reviewed.

Geophysical investigation at MDA C indicated that the locations of the trenches and shafts were different than shown on existing drawings. Eleven exploratory boreholes were drilled, most of which were angled to sample areas beneath the trenches and shafts. Field analyses of core samples indicated one area of tritium contamination and a possible area of volatile organic compound contamination. Pore gases will be sampled after the borehole atmospheres recover from the air drilling. Core was obtained for analysis of fractures in the tuff.

The RFI report for TA-50 soil sampling is ready for submission to the EPA in October 1995. The report contains recommendations for no further action, for some Phase II characterization, and for a small interim action.

Pilot studies continue regarding engineered covers for landfills.

2.5.2.8 TA-54

Drilling was completed at MDAs H and J.

Pilot studies continued for organic vapor extraction at MDA L; an extraction well and a monitoring well for the pilot extraction study were completed, and extraction was started in late September. Pore-gas monitoring continued for the MDA L plume.

Existing surveillance data are being analyzed to determine whether these data can be used instead of performing further soil-gas monitoring for tritium at the MDAs in TA-54. A large amount of the data obtained appears to be suitable to substitute for further sampling. The EPA and NMED concur with this approach.

RFI report work is in progress. The first draft of the RFI report for channel sediment sampling at TA-54 is nearly complete. The RFI report on passive venting of soil gases at the MDAs in TA-54 is under way.

Pilot studies continue regarding engineered covers for landfills.

2.5.2.9 TA-57

All analyses from soil samples have been received. A VCA that involved removing a chemical waste vessel was completed for PRS 57-006.

2.5.2.10 TA-69

A VCA was partially completed at a pond area that received ash from an administrative incinerator (PRS 69-001). Soil was removed from the pond area, and the area was filled with clean soil and recontoured. Areas outside the pond were found to have significant quantities of ash, and metals

were found in some samples. Additional sampling is needed to determine the extent of contamination.

3.0 CLOSURES AND REGULATORY COMPLIANCE — (Project Leader: David McInroy)

3.1 TA-40 Scrap Detonation Site

Remediation of the TA-40 Scrap Detonation Site was completed according to a closure plan approved by the NMED, as reported in the "ER Quarterly Technical Report, January–March 1995" (LA-UR-95-1651). The closure report was submitted to the NMED in March 1995. The NMED approved the closure for the TA-40 Scrap Detonation Site on August 23, 1995.

4.0 REFERENCE

LANL (Los Alamos National Laboratory), May 1992. "RFI Work Plan for Operable Unit 1129," Los Alamos National Laboratory Report LA-UR-92-800, Los Alamos, New Mexico. (LANL 1992, 0785)