Los Alamos National Laboratory

ENVIRONMENTAL RESTORATION

University of California
Environmental Restoration, MS M992
Los Alamos, New Mexico 87545
505-665-4557
FAX 505-665-4747

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

Ron K
Barbara
Teri
Susan
Lee

Date: MAY 1 2 1995
Refer to: EM/ER:95-169

Mr. William Honker
RCRA Permits Branch
Hazardous Waste Management Division
U.S. Environmental Protection Agency
1445 Ross Ave., Suite 1200
Dallas, TX 75202-2733

file LANL HSWA

SUBJECT: QUARTERLY TECHNICAL REPORT

Dear Mr. Honker:

Enclosed are two copies of the Environmental Restoration Project's Quarterly Technical Report, January–March 1995. The Quarterly Technical Reports continue to present no analytical data, according to the Environmental Protection Agency guidance received last quarter. 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 Court Fesmire at 505-665-4718 of our staffs.

Sincerely,

Brad Martin

FOR Jorg Jansen, Project Manager
Environmental Restoration

Sincerely,

Theodore J. Taylor, Program Manager
Los Alamos Area Office

JJ/TT/bp

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

Environmental Restoration

8097

An Equal Opportunity Employer/Operated by the University of California

Cy: T. Baca, EM, MS J591
J. Brown, FSS-16, MS F674
S. Yanicak, NMED-AIP, MS J993
C. Fesmire, LAAO, MS A316
B. Garcia, NMED
T. Glatzmaier, EES-DO/ER, MS M992
D. Griswold, ERD, MS A906
D. McInroy, EM/ER, MS M992
E. Merrill, EM-452, HQ
T. Norris, EM/ER, MS M992
J. Rochelle, LC-GL, MS A187, w/o enc.
W. Spurgeon, EM-452, HQ, w/o enc.
T. Taylor, LAAO, MS A316 (2 copies)
J. White, ESH-19, MS K498
LAAO File, MS A316
EM/ER File, MS M992
RPF, MS M707

MAY 1 5 1995

CERTIFICATION

I certify that this document was 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.

Document Title:

Quarterly Technical Report, January–March 1995

Name: Brad Martin Date: 5/9/95

For Jorg Jansen
Project Manager
Environmental Restoration Project
Los Alamos National Laboratory

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, January–March 1995

Name: _____ Date: 5/9/95

Tom Baca, Program Director
Environmental Management
Los Alamos National Laboratory

or

Jorg Jansen, Project Manager
Environmental Restoration Project
Los Alamos National Laboratory

Name: _____ Date: 5/12/95

Joseph Vozella,
Acting Assistant Area Manager of
Environment Projects
Environment, Safety, and Health Branch
DOE-Los Alamos Area Office

or

Theodore J. Taylor
Program Manager
Environment Restoration Program
DOE-Los Alamos Area Office

LA-UR-95-1651

Los Alamos National Laboratory

Environmental Restoration

A Department of Energy environmental cleanup program

LIBRARY COPY

QUARTERLY TECHNICAL REPORT

JANUARY–MARCH 1995

May 10, 1995

CONTENTS

CONTENTS i

LIST OF FIGURES ii

LIST OF TABLES ii

ACRONYMS AND ABBREVIATIONS ii

1.0 INTRODUCTION 1

2.0 FIELD UNITS 1
- 2.1 Field Unit 1 1
- 2.2 Field Unit 2 6
- 2.3 Field Unit 3 8
- 2.4 Field Unit 4 8
- 2.5 Field Unit 5 9

3.0 CLOSURES AND REGULATORY COMPLIANCE 11
- 3.1 TA-40 Scrap Detonation Site 11

REFERENCES 13

LIST OF FIGURES

Figure 2-1 Location of C-0-041 and sample locations, TA-0 4
Figure 2-2 TA-40 Scrap Detonation Site 12

LIST OF TABLES

Table 2-1 PRSs in Field Unit 1 Recommended for Voluntary Corrective Action in FY95 2

LIST OF ACRONYMS AND ABBREVIATIONS

AOC	Area of concern
DOE	US Department of Energy
EPA	US Environmental Protection Agency
ER	Environmental restoration
ESH	Environment, Safety, and Health (Division)
ESH-18	Water Quality and Hydrology Group
FY	Fiscal year
HSWA	Hazardous and Solid Waste Amendments
LANL	Los Alamos National Laboratory
MDA	Material disposal area
NMED	New Mexico Environment Department
OU	Operable unit
PAR	Photoacoustic radiometer
PCB	Polychlorinated biphenyl
PRS	Potential release site
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
SAL	Screening action level
TA	Technical area
TDGCMS	Thermal desorption gas chromatography with mass spectrometry
VCA	Voluntary corrective action
VOC	Volatile organic compound

QUARTERLY TECHNICAL REPORT
JANUARY–MARCH 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 2,000

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 many of the activities completed 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 primary emphases for this past quarter have been preparing Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) reports, voluntary corrective action (VCA) plans, and the final draft of the RFI work plan for OU 1114; overseeing ongoing field activities; and preparing for the FY95 field season.

Field summary reports documenting FY94 sampling activities have been prepared for all of the technical areas in Field Unit 1. Summary reports for town site activities have also been prepared to inform affected property owners.

Analytical results from FY94 sampling continue to arrive allowing us to assess sites for potential dispensation through the RFI report process. One of the following scenarios will be proposed in the RFI report: no further action, VCA, expedited cleanup, or further investigation (i.e., corrective measures investigation/study).

Twenty-six VCA plans were submitted to the ER Project Office this quarter for field work to be completed this fiscal year. The potential release sites (PRSs) submitted are listed in Table 2-1. Some of the PRSs proposed for VCA have work in progress and are discussed in Subsection 2.1.2 of this report. The Environment, Safety, and Health Project Summary Sheet is being

prepared for the US Department of Energy (DOE) environmental checklist to determine what documentation is required by the National Environmental Policy Act to perform VCAs at these 26 sites.

TABLE 2-1

PRSs IN FIELD UNIT 1 RECOMMENDED FOR VOLUNTARY CORRECTIVE ACTION IN FY95

PRS	PRS Description
AOC* C-0-036(a)	Bandelier Borrow Pits
AOC C-0-036(b)	Bandelier Borrow Pits
AOC C-0-036(c)	Bandelier Borrow Pits
AOC C-0-036(d)	Bandelier Borrow Pits
AOC C-0-041	Tar Disposal Site
AOC C-3-016	Waste Oil Storage Bin
0-016	Former Firing Range (Guaje Pines Soil Washing)
1-001(d)	Hillside 138 Outfall
3-001(i)	Former Equipment Storage Area
3-003(n)	Former Transformer Storage Area
3-003(p)	Former Equipment Storage Area
3-021	Former Outfall
3-036(b)	Aboveground Diesel Fuel Tanks and Catch Bin
3-047(d)	Former Product Storage Area
3-051(c)	Vacuum Pump Exhaust Stains
3-056(c)	Former PCB** Storage Area
3-056(l)	Vacuum Pump Exhaust Stains
21-002)b)	Container Storage
21-013(a)	Surface Disposal Area
21-013(c)	Surface Disposal Area
21-013(e)	Surface Disposal Area
21-013(f)	Surface Disposal Area
21-024(b)	Septic System and Outfall
21-024(d)	Septic System and Outfall
21-024(h)	Septic System and Outfall
31-001	Former Sanitary Septic System

*area of concern
**polychlorinated biphenyl

Comments from the US Environmental Protection Agency (EPA) were received concerning the response to the notice of deficiency for the RFI work plan for Operable Unit (OU) 1114.

Work continued on the preparation of Addendum 1 to the RFI work plan for OU 1114, which addresses the remaining 186 PRSs associated with TAs 3, 30, 59, 60, 61, and 64. Informal comments were incorporated, as necessary, and the document was submitted for formal review by the Laboratory and the DOE on March 20, 1995.

Preparation for the FY95 field season continues, including work on several health and safety plans, waste management plans, spill prevention and control plans, and Phase II sampling plans as well as preparing for readiness reviews to be conducted in April. A subcontract for RFI support is being prepared.

2.1.2 Activities at Technical Areas

2.1.2.1 TA-0

Draft field summary reports were developed for PRSs 0-030(c) and 0-030(q). The summary reports discuss the activities conducted during the 1994 field season. During the quarter, the following documents were prepared for PRS Group 0-4:

- a summary report for the landowner addressing sampling activities associated with PRS 0-032;
- an RFI report for PRS 0-032 for EPA (the tables are being revised prior to submittal to include individual constituent concentrations instead of ranges);
- a response to the Western Technologies, Inc., letter requesting information for the environmental audit of PRS 0-032, which was required for property purchase by Los Alamos National Bank;
- a draft of the 45-day addendum report for PRS 0-031(b) as required by the New Mexico Environment Department (NMED) Underground Storage Tank Bureau; and
- a technical memorandum for PRS 0-031(b) to update EPA on site activities.

Modeling for risk assessment continued for PRS 0-031(b).

Pre-characterization sampling of the tar materials, soil, and surface water in the drainage channel was conducted at Area of Concern C-0-041, the Tar Site. Samples collected included two soil samples, two water samples, and one tar sample, as shown on Figure 2-1. Samples were taken to support remediation activities planned for May 1995.

2.1.2.2 TA-1

Several RFI reports for TA-1 Aggregates A–J have been prepared and have been submitted for internal review. Some deficiencies in the data management at TA-1 were discovered, and remedial actions were undertaken. Risk assessments for the TA-1 Hillside PRSs 1-001(c, d, and f) are in progress.

A field summary report and photographic log of activities for the Western Sanitary Waste Line at Location 13 [PRS 1-001(s)] were completed. A summary report on the status of the waste line investigation and preliminary analytical chemistry results was written to inform affected property owners. In addition, sample data have been tracked to provide waste management information for the waste line.

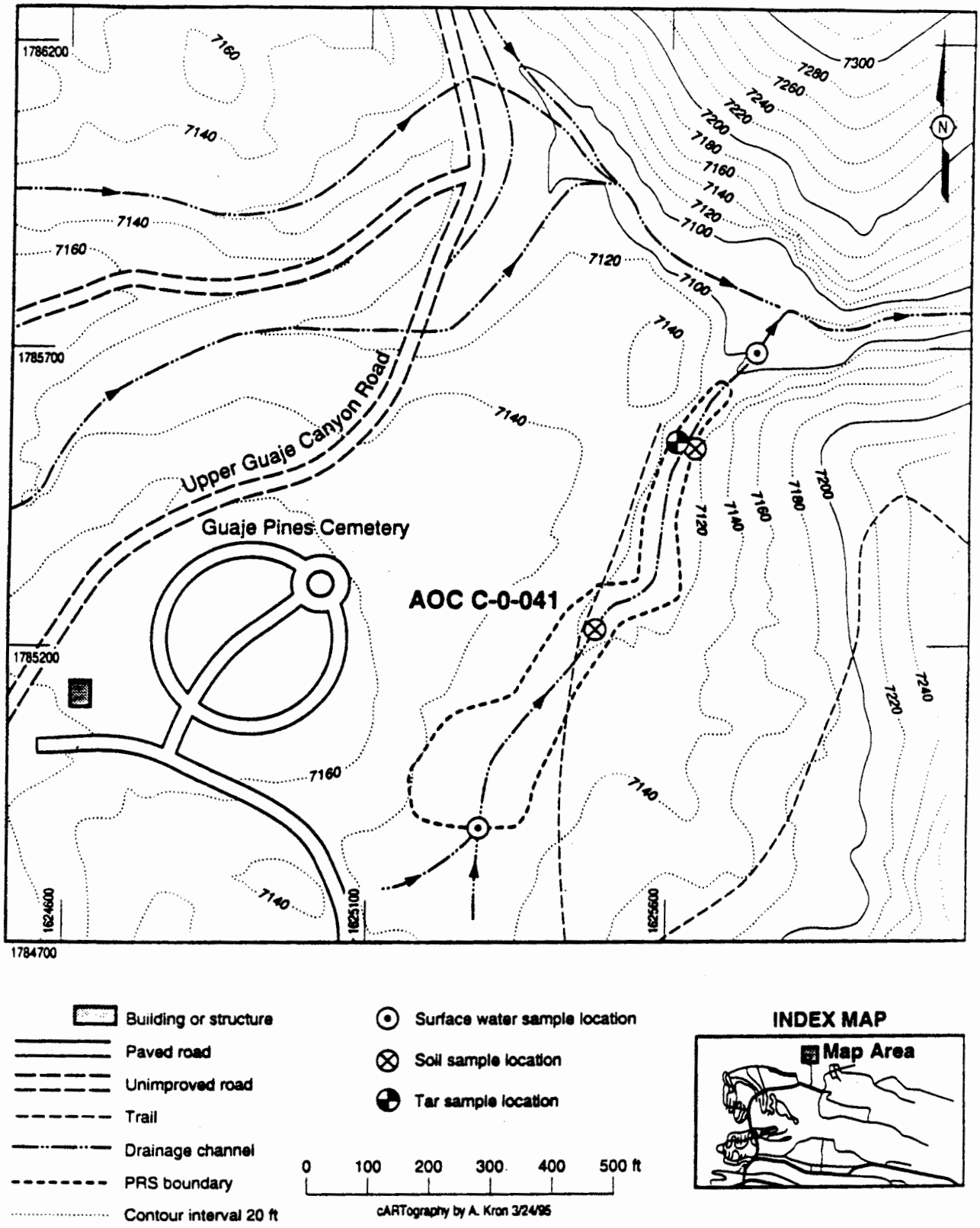

Figure 2-1. Location of C-0-041 and sample locations, TA-0.

A draft field summary report and photographic log of activities were completed for Loma Vista Drive Property, PRSs 1-002, and 1-007(d and e) of Aggregate A this quarter. A summary report on the RFI was also prepared for the property owners.

A Waste Minimization Plan was written, and application was made for a national emission standards for hazardous air pollutants permit for the hillsides expedited cleanup action, PRSs 1-001(c, d, and f). Also, a DOE environmental checklist was reviewed, resulting in approval for a categorical exclusion from additional National Environmental Policy Act documentation at the site. The Risk Assessment Team reviewed the statistical data for the chemicals of concern on the three hillsides proposed for expedited cleanup. Based on risk to human health alone, for a recreational scenario, there appears to be no need for an expedited cleanup. Hillside 138 is still being reviewed for the potential migration of mercury into the stream in the bottom of the canyon. A voluntary corrective action is being considered which would remove both mercury and plutonium contamination. The cleanup should not be at risk for generating mixed waste soils because the mercury does not fail toxicity characteristic leaching procedure analyses.

2.1.2.3 TA-3

Members of Field Unit 1 and DOE met with the NMED Agreement in Principle personnel to discuss the water discovered in three boreholes during Phase II sampling activities at PRS 3-010(a). The water anomaly will be discussed in the RFI report currently being written for PRS 3-010(a), due to EPA on April 28, 1995.

2.1.2.4 TA-10

The initial phases of the surface shrapnel removal operation have been completed in Bayo Canyon, former TA-10. During the process of surface shrapnel collection, personnel identified what appears to be a previously unidentified firing site and a potential surface disposal area. These locations are undergoing further investigation. Once the surface disposal area is fenced, the Bayo Canyon access corridor will be opened to the public once again. Shrapnel density distribution studies have been completed to support the development of potential remediation approaches for shrapnel removal.

Specific provisions were implemented by the Field Unit 1 health and safety personnel to allow a private fencing contractor, without Hazardous Waste Operations and Emergency Response training, to address the fencing requirements of the newly discovered surface disposal area in Bayo Canyon. This extra effort reduced the fence installation cost by a factor of 4.5 compared with the corresponding estimate from Johnson Controls World Services, Inc.

Waste management and borehole backfilling operations at TA-10 continue as analytical data arrive to support these actions.

2.1.2.5 TA-21

The final draft of the RFI Report for TA-21, Addendum 1B and 1C was submitted to the EPA for review on January 31, 1995, as negotiated by the Laboratory and the EPA last quarter. The field project leader received the notice of deficiency on the addendum from the EPA on March 8, 1995; the response is scheduled to be delivered to the EPA no later than April 13, 1995. Work has begun on the tasks resulting from the notice.

Preparations for the FY95 field season began in February and include a readiness review in mid-April for vadose zone characterization of Material Disposal Area (MDA) T, sampling activities at MDA V, and preparation of a Phase 1A sampling and analysis plan for drilling additional boreholes and collecting subsurface samples at DP Tank Farm (TA-21-029).

Plans for extending the hydrogeologic borehole at TA-21 MDA V were initiated. The initial phase of the borehole was completed to 300 ft using a rotary auger rig during the FY94 field season. The final phase will be completed to a total of approximately 600 ft using an air rotary rig.

Pilot studies have been initiated to investigate plutonium soil washing at PRS 21-027(a) and the immobilization and containment of the cesium plume at PRS 21-011(k). Interim action fencing was installed at PRS 21-024(i).

2.1.2.6 TA-31

The technical team is reviewing the draft RFI report for PRS 31-001; the tables in that report are being revised to include individual constituent concentrations instead of ranges.

2.1.2.7 TA-32

The RFI report is being rewritten for PRSs 32-001 and 32-002(a and b) because new information has been obtained about the location of the septic tanks and lines; the tables are being revised to include more detail about individual constituent concentrations.

2.1.2.8 TA-45

The RFI report is being rewritten for TA-45. The radionuclide investigation information is now being written as an addendum to the RFI report. In addition, the tables are being revised to include more detail about individual constituent concentrations.

2.1.2.9 TA-73

A field summary report was prepared for field work at PRS 73-001(a).

Personnel completed the installation of instrumentation and initial monitoring of boreholes at the Los Alamos Airport Landfill, PRS 73-001. Thirty gas ports and four lysimeters were sampled in February and March. Thirty-five soil gas samples were collected during each of the two months, including three quality control duplicates and two performance standards. Gas port samples were collected in 6-liter SUMMA canisters and shipped to a fixed analytical laboratory for the analysis of volatile organic compounds (VOCs) and fixed gases, including methane, carbon dioxide, oxygen, hydrogen, and nitrogen. The gas performance standard samples contained known concentrations of fixed gases and VOCs. Four water samples were collected each month from suction lysimeters and were submitted to a fixed analytical laboratory for the analysis of VOCs, target analyte list metals, and bromide (tracer).

In addition, mapping of tuff fracture frequency and density distribution in the south-facing canyon walls adjacent to the Los Alamos Airport Landfill continues in support of the hydrogeologic modeling effort for the landfill.

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 General Information for Field Unit 2

Work during this quarter consisted primarily of the review and assessment of data collected during the fall of 1993 and the summer of 1994. An RFI report was submitted to EPA at the end of January. The report addressed the inactive sewage lagoons and an associated sanitary sewer line east of TA-18, a sump and the suspected burial site of an armored vehicle at TA-18, and areas in TA-27 that were used for bazooka firing and for the possible burial of naval guns used in experiments in the 1940s.

The Field Implementation Plan; the Spill Prevention, Control, and Countermeasures Implementation Plan; the Site-Specific Health and Safety Plan; and the Waste Management Plan are being written for TAs 12, 14, and 15. Six expedited cleanup plans are being written for TAs 18, 36, and 39.

Review of sampling data pertaining to septic systems, former firing sites, and storm drain outfalls continued during the quarter. Very few values above background have been observed at any of the sites. Exceptions include the presence of mixed waste in four septic tanks, concentrations of hazardous constituents well below screening action levels (SALs) in some drain fields, and levels of uranium above background, but well below SALs, at some former firing sites. Detailed evaluation and discussion of these data will be presented in an RFI report scheduled for completion in October 1995.

2.2.2 Activities at Technical Areas

2.2.2.1 TA-15

Work began on the TA-15 RFI report for 1994. The team is gathering information regarding past activities at R-44 and R-45 for the sampling plan due to EPA on June 1, 1995.

2.2.2.2 TA-18

Review of data from PRSs 18-001(a and b), the sewage lagoons and sanitary line, indicated the presence of some contaminants near the SALs. Assessment of the data concluded that an expedited cleanup was appropriate. The proposed cleanup will involve in-place decommissioning of this PRS and some limited groundwater sampling. The data from sampling the sump located in Building TA-18-30 [PRS 18-001(c)] indicated that no potential contaminants were present at unacceptable levels. No further action will be proposed for that PRS.

Geophysical methods were used, without success, for locating PRS 18-007, the rumored site of a buried armored vehicle. Nothing was found at the reported location, indicating that the vehicle may never have been buried. No further action will be proposed for this PRS.

Expedited cleanup plans are being prepared for the sewage lagoons and manholes associated with the sanitary line and for an inactive septic tank at TA-18. These plans are being submitted as part of a Class III modification to the HSWA Module of the Laboratory's operating permit and are presently being scheduled for implementation during the summer of 1995.

2.2.2.3 TA-27

Unexploded ordnance was removed from PRS 27-003, the bazooka site, during the fall of 1993. Data from samples collected in the summer of 1994 indicated that no residual chemical contamination is present at the site. It will be proposed for no further action.

Geophysical methods were used, without success, for locating the suspected buried naval guns that were used in experiments in the 1940s. These materials are not present at the reported locations and may never have been buried. No further action will be proposed for this PRS.

2.2.2.4 TA-36

Documentation of FY94 field activities continues. Plans to survey the 1994 sample locations are in progress. The field team is addressing waste issues and has written the addendum to the Waste Management Plan.

Preparations have begun for the FY95 field activities. The response to the notice of deficiency for the RFI work plan for OU 1130 was submitted to the EPA on January 25, 1995. The response addressed the strategy for sampling Skunk Works and Eenie Surface Disposal Area. The team is preparing the FY95 Sampling and Analysis Plan, the Field Implementation Plan, and the Site-Specific Health and Safety Plan for TA-36. The Expedited Cleanup Plan has been completed for PRSs 36-003(a and b), two septic tanks. Equipment and supply needs for the upcoming field season are being compiled, and the required training is in progress.

2.2.2.5 TA-39

Preparation for the FY95 field season is continuing. Waste management plans, arrangements to handle waste, and sampling plans are almost complete. Assessment of the FY94 field data is continuing. Work on the RFI report for the FY93 field season, which is due in April, is nearing completion.

2.2.2.6 TA-53

A meeting with NMED was held to discuss technical issues related to the ancillary facilities associated with the TA-53 surface impoundments, as they relate to the Closure Plan and the RFI work plan for OU 1100 (LANL 1994, 1157). The TA-53 Closure Plan was revised based on comments provided by NMED.

Preliminary radiation sampling results from the 1994 field season are being reviewed for personal protective equipment requirements.

The Field Implementation, Waste Management, Sampling, and Health and Safety Plans for the RFI field work are 90% complete.

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

Activities are continuing for Field Unit 3 in the areas discussed in the last quarterly technical report.

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

The response was completed for the notice of deficiency concerning the June 1994 addendum to the RFI work plan for OU 1129 (LANL 1002, 0785).

2.4.2 Activities at Technical Areas

2.4.2.1 Canyons

Personnel provided technical support in developing the RFI work plan for Los Alamos Canyon and Pueblo Canyon. Work continued on the core work plan document, which addresses the rest of the canyons. A sampling and analysis plan was submitted to the EPA for the Mortandad Canyon sediment traps. This submission included a plan by the Water Quality and Hydrology Group (ESH-18) to sample the perched zone monitoring wells in Mortandad Canyon.

2.4.2.2 TA-2

A voluntary corrective action plan was prepared for an underground storage tank at TA-2. However, implementation of this plan has been postponed to permit integration with the decommissioning work that is scheduled for TA-2.

2.4.2.3 TA-5

Archival searches and engineering surveys performed in support of an expedited cleanup of PRS 5-003, a potential lead brick disposal site, may result in a recommendation for no further action. Environmental surveys were performed at PRS Aggregates B, C, and R.

2.5.2.3 TA-50

Scheduling of drill rigs and preparation of sampling and analysis plans are almost complete for the MDA C drilling scheduled for this June.

2.5.2.4 TA-54

Preparations are under way for the Pilot Extraction Study Plan activity for the subsurface vapor plume near MDA L. A small (100–120 standard cubic feet per minute) pilot vapor extraction system was designed, the well location selected, and the system performance modeled by contracted support. Preparation has begun for well drilling, which is scheduled for early next quarter. Well locations were staked, and instrumentation for the test is being moved into place. Pore-gas sampling and analyses have been completed in the network of nearby monitoring wells to establish a reliable baseline for comparison with the active extraction test. The test is scheduled to begin in June.

A pore gas sampling report for 1994 was written, based on contaminant concentrations measured by thermal desorption gas chromatography with mass spectrometry (TDGCMS) and by photoacoustic radiometry (PAR). The PAR data are qualitatively consistent with the TDGCMS data, always indicating about twice as much of a given analyte. The TDGCMS data indicate that, in addition to the VOCs that have been regularly monitored, trichlorofluoromethane and trichlorotrifluoroethane are present in measurable concentrations (nominally 100 parts per million) at some locations. As a result, the PAR filters were changed to measure these analytes in the future.

The 1994 pore gas contaminant data were analyzed for spatial distribution (horizontal and vertical contours) and temporal variations. The spatial contour plots indicate a very steep gradient leading away from the source, indicating either slow migration from the source or other mechanisms limiting the spread of contamination. The temporal data are, as yet, insufficient to draw defensible conclusions.

Two vapor monitoring wells, angled 60° from horizontal, were drilled from the floor of Cañada del Buey to locations underneath the source areas of the plume at MDA L. Each well has seven ports for vapor monitoring, and three ports in each well have bladder pumps for sampling any water that might accumulate at the locations. Locations of moist or wet core were chosen for the positions of the water sampling ports. The first test of these monitoring wells is scheduled for April. Significant air flow from the basalt layers was measured after drilling was completed. Both boreholes terminate about 340 ft above the elevation of the main aquifer deep beneath MDA L.

Volumetric air flow into and out of an open well adjacent to MDA L, as driven by variations in barometric pressure, was measured continuously for an extended period of time. In Well 54-1001, both air flow velocity calibrations and air flow profiles were completed. A mass flow meter that measures 0–50 standard cubic feet per minute and two air velocity meters were configured at the well with 6-in. and 8-in. polyvinyl chloride fittings for monitoring air volume vs. velocity and to measure air flow profiles into and out of the well. Data collection and calibration were completed March 10, and the impact of the data on potential remediation or containment schemes for the subsurface plume is being assessed. This natural air flow ("bellows") may be utilized in the remediation of the organic vapors present in the subsurface.

The RFI report was started for channel sediment sampling that was performed last summer at TA-54. In addition, a technical memorandum is being prepared on the passive soil gas surveys run in 1993–1994 to investigate vapor emissions from all the MDAs within this area.

2.4.2.4 TA-35

Phase I site characterization sampling was concluded at Aggregate T, where 47 samples were collected, and at Aggregate U, where 125 samples were collected. Twenty-two samples were collected at Aggregate V, and the remainder to complete Phase I sampling will be collected next quarter.

2.4.2.5 TA-48

The work to remediate PRS 48-002(a and b), sites contaminated with mercury, included the development of remediation levels for mercury, thorium, and benzo(a)pyrene and the preparation of an expedited cleanup plan. Engineering surveys were performed in support of Phase II site characterization activities at TA-48.

2.4.2.6 TA-63

Environmental and engineering surveys were performed to support Phase I site characterization activities for Aggregate P.

2.5 Field Unit 5 — Technical Areas 6, 7, 8, 9, 22, 23, 40, 49, 50, 51, 54, 57, 58, 62, and 69 (Field Project Leader: Cheryl Rofer)

2.5.1 General Information for Field Unit 5

Expedited cleanup plans were prepared and submitted to DOE for several candidate sites across Field Unit 5. Contracts are being prepared to accomplish the work this summer at several septic tanks and one small landfill site. Planning and preparations are on schedule for the coming field season's site characterization activities.

2.5.2 Activities at Technical Areas

2.5.2.1 TA-22

RFI report preparation has begun for PRS 22-015(c), the plating facility stained area; part of that area may be proposed for an expedited cleanup.

2.5.2.2 TA-49

Assessment of the radiological survey performed at Areas 1 and 11 was completed. Based on screening of the data against background mean values, only 5 of 49 stations measured in Area 1 warrant further investigation, which can be performed this spring or summer. The Violinist instrument survey is calibrated to sense radiation from Pu, Am, and Cs.

Data from the Area 2 borehole (#49-2-10-4) drilled last year under the asphalt pad indicated that only one sample contained elevated levels of Am-241 and Pu-239. This quarter, the re-analysis of this sample confirmed the elevated concentrations, which are ~1.3 times higher than the SAL for Am-241 and 5.7 times higher than the SAL for Pu-239 and 240.

A report was received containing hydrogeological and geochemical core sample analytical data from Areas 2 and 12. The data included initial moisture content, particle density, moisture characteristics of the initial drainage curve, air permeability as a function of water content, and saturated hydraulic conductivity. These data form a part of the RFI Report for Areas 2 and 12 and will help compare the volcanic tuff matrix in this area of the plateau with the growing data base from TA-54 and surrounding areas. The data will aid in the overall understanding of the influences on contaminant migration within the tuffs.

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 is in progress under a closure plan approved by the NMED. The burn cage area and part of the east burn area (see Figure 2-2) were excavated using hand tools. The materials from these excavations were placed in drums. Samples from the drums were analyzed with a portable x-ray fluorescence spectrometer. A verification sample confirmed that the burn cage area was clean. The 35 barrels were segregated into a high-lead group of 7 barrels from the east burn area and a low-lead group from both areas, based on the existing x-ray fluorescence data. Additional samples from the two groups of barrels were taken for waste management purposes.

Powered equipment was used to excavate the remainder of the east burn area and some of the adjacent burn pit. This material was placed in six roll-off bins. The results of sampling indicated that the east burn area was clean and that the burn pit material did contain high levels of lead.

The burn pit was determined not to have been used since the mid- to late 1970s; therefore it is not subject to RCRA closure requirements. The burn pit is subject to HSWA requirements and will be addressed under Field Unit 5 activities in the Laboratory's ER Project

The burn cage area, burn pit, and east burn area were backfilled with clean fill. A closure report was written, including an independent engineer's certification, and the report was submitted to NMED on March 27, 1995.

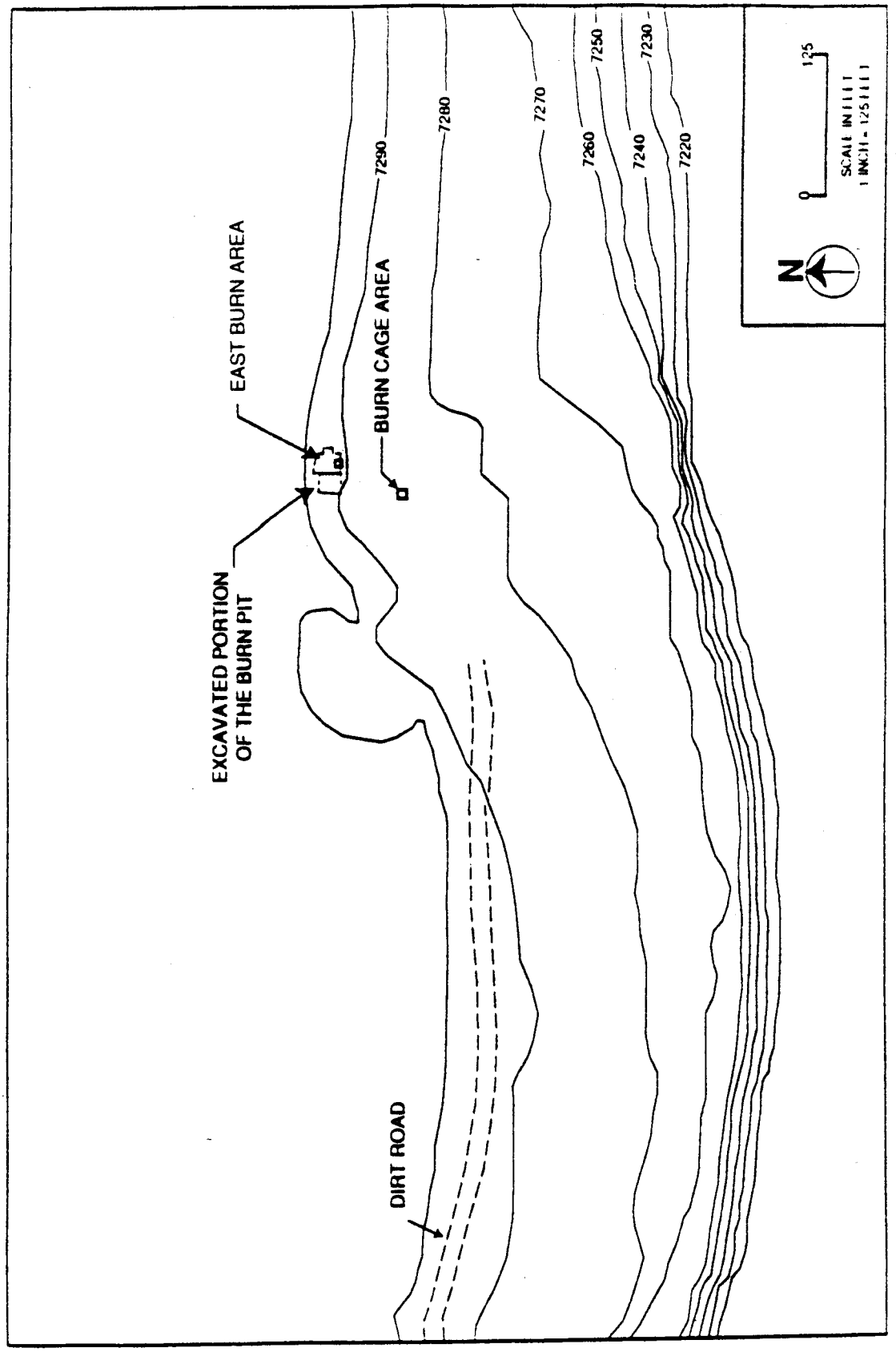

Figure 2-2. TA-40 Scrap Detonation Site.

REFERENCES

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)

LANL (Los Alamos National Laboratory), May 1994. "RFI Work Plan for Operable Unit 1100," Los Alamos National Laboratory Report LA-UR-94-1097, Los Alamos, New Mexico. (LANL 1994, 1157)