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

Dear Mr. Honker:

SUBJECT: QUARTERLY TECHNICAL REPORT

Enclosed are two copies of the Environmental Restoration Project's Quarterly Technical Report, October–December 1994. As discussed with Barbara Driscoll of your staff on March 8, 1995, the Quarterly Technical Reports will no longer present analytical data. 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,

Jorg Jansen  
Project Manager  
Environmental Restoration  

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

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File # 1.4.2.6.1.7.1.2, LAAO, MS A316
EM/ER File, MS M992
RPF, MS M707
1.0 INTRODUCTION..................................................................................................... 1

2.0 FIELD UNITS......................................................................................................... 1
   2.1 Field Unit 1........................................................................................................... 1
      2.1.1 ADS 1071—TAs-0, -19, -26, -73, -74......................................................... 1
      2.1.2 ADS 1078—TA-1.......................................................................................... 9
      2.1.3 ADS 1079—TAs-10, -31, -32, -45................................................................. 9
      2.1.4 ADS 1108—TA-21......................................................................................... 10
      2.1.5 ADS 1114—TAs-3, -30, -59, -60, -61, -64................................................. 10
      2.1.6 ADS 1136—TA-43......................................................................................... 12
   2.2 Field Unit 2........................................................................................................... 12
      2.2.1 ADS 1085—TAs-12, -14, -67..................................................................... 12
      2.2.2 ADS 1086—TA-15......................................................................................... 12
      2.2.3 ADS 1093—TAs-18, -27, -65..................................................................... 12
      2.2.4 ADS 1100—TAs-20, -53, -72..................................................................... 13
      2.2.5 ADS 1130—TAs-36, -68, -71..................................................................... 13
      2.2.6 ADS 1132—TA-39......................................................................................... 13
   2.3 Field Unit 3........................................................................................................... 14
      2.3.1 ADS 1082—TAs-11, -13, -16, -24, -25, -28, -37........................................ 14
      2.3.2 ADS 1122—TAs-33, -70................................................................................ 14
      2.3.3 ADS 1140—TA-46......................................................................................... 14
   2.4 Field Unit 4........................................................................................................... 14
      2.4.1 ADS 1049—Canyons..................................................................................... 14
      2.4.2 ADS 1129—TAs-4, -5, -35, -42, -48, -52, -55, -63, -66............................. 14
   2.5 Field Unit 5........................................................................................................... 15
      2.5.1 ADS 1144—TA-49......................................................................................... 15
      2.5.2 ADS 1148—TAs-51, -54............................................................................... 18

3.0 REFERENCE.............................................................................................................. 20
LIST OF FIGURES

Figure 2-1 Locations of boreholes/monitoring wells and trenches at the Los Alamos Airport landfill, ADS 1071 ...................................................... 2
Figure 2-2 Locations of septic tanks in PRS Group 0-3, ADS 1071 ................. 4
Figure 2-3 Plot plan and sampling locations for PRS 0-030(e), ADS 1071 ...... 5
Figure 2-4 Sampling locations for PRS 0-030(f), ADS 1071 ...................................... 6
Figure 2-5 Former Zia Motorpool, PRS Group 0-4, ADS 1071 ..................... 7
Figure 2-6 Sampling locations at Former Zia Motorpool, PRS Group 0-4, ADS 1071 .... 8
Figure 2-7 Former and current topography of the SM-30 area, ADS 1114 ................. 11
Figure 2-8 Core sampling locations for Areas 2 and 12 at TA-49, ADS 1144 .......... 16
Figure 2-9 Radiological survey locations for Areas 7 and 11 at TA-49, ADS 1144 ........ 17
Figure 2-10 ADS 1148 pore gas 1994 quarterly sample results .................. 19

LIST OF ACRONYMS AND ABBREVIATIONS

ADS Activity data sheet
CST Chemical Science and Technology (Division)
CST-12 Separations and Radiochemistry Group
DOE US Department of Energy
EPA US Environmental Protection Agency
ER Environmental restoration
FIDLER Field instrument for detection of low-energy radiation
FIMAD Facility for Information Management, Analysis, and Display
FY Fiscal year
HSWA Hazardous and Solid Waste Amendments
LANL Los Alamos National Laboratory
LOD Limit of detection
LP Landfill perimeter
LPS Landfill perimeter slant
MDA Material disposal area
NMED New Mexico Environment Department
OU Operable unit
PRS Potential release site
RCRA Resource Conservation and Recovery Act
RRI RCRA facility investigation
SAL Screening action level
TA Technical area
TPH Total petroleum hydrocarbons
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 an activity data sheet (ADS) number and 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 in response to the permit's requirement, summarizes much of the work associated with field activities that was performed this quarter in the ER Project.

2.0 FIELD UNITS

2.1 Field Unit 1 (Field Project Leader: Garry Allen)

2.1.1 ADS 1071—TAs-0, -19, -26, -73, -74

PRS Aggregate 73-A. Drilling, sampling, and monitoring well construction activities were conducted at the Los Alamos Airport landfill between October 13 and November 16, 1994. Eleven boreholes were drilled around the perimeter of the main landfill, and 73 core samples were collected from the boreholes for laboratory analysis (see Figure 2-1). All boreholes were converted to monitoring wells equipped with various combinations of the following instruments: single or multiple gas ports, suction lysimeters, neutron moisture meter access tubes, thermocouples, and heat dissipation sensors.

The eleven landfill perimeter boreholes included two angle borings, five boreholes ranging in depth from 42.5 ft to 45 ft, and four boreholes ranging in depth from 102.5 ft to 113 ft. Six of these boreholes, Landfill Perimeter No. 1 (LP-1) through LP-5 and Landfill Perimeter Slant No. 2 (LPS-2) are located along the southern edge of the landfill, four (LP-6 through LP-9 and LPS-1) at the northern edge, and one (LP-9) at the location of the western trench observed on historical 1946 aerial photographs (see Figure 2-1). Borehole locations were selected based on previously conducted site surveys, geophysical survey results, soil gas survey data, and locations of buried trenches.

Field screening conducted on core samples indicated the presence of methane and other organic vapors in some boreholes. No radioactivity above background levels was detected with hand-held screening instruments or by the mobile radiological screening laboratory. Laboratory analytical results for core samples are pending.
Figure 2-1. Locations of boreholes/monitoring wells and trenches at the Los Alamos Airport landfill, ADS 1071.
The following list provides the actual vertical depths of the eleven boreholes.

<table>
<thead>
<tr>
<th>Borehole</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>LP-1</td>
<td>45 ft</td>
</tr>
<tr>
<td>LP-2</td>
<td>42.5 ft</td>
</tr>
<tr>
<td>LP-3</td>
<td>110 ft</td>
</tr>
<tr>
<td>LP-4</td>
<td>112 ft</td>
</tr>
<tr>
<td>LP-5</td>
<td>40 ft</td>
</tr>
<tr>
<td>LP-6</td>
<td>40 ft</td>
</tr>
<tr>
<td>LP-7</td>
<td>113 ft</td>
</tr>
<tr>
<td>LP-8</td>
<td>102.5 ft</td>
</tr>
<tr>
<td>LP-9</td>
<td>45 ft</td>
</tr>
<tr>
<td>LPS-1</td>
<td>153 ft</td>
</tr>
<tr>
<td>LPS-2</td>
<td>186 ft</td>
</tr>
</tbody>
</table>

**PRS Group 0-3.** Further investigation was conducted at PRS 0-030(e)-North using a hand auger to confirm that the previous six boreholes (Nos. 1 through 6) were located within the interior of the two septic tanks at this location (see Figures 2-2 and 2-3). Each of the six boreholes encountered concrete at a depth of 3 to 4 ft below ground surface. Hand-augering No. 7 was completed between the two tanks to the top of the tuff bedrock (see Figure 2-3). Tuff was encountered at a depth of 3 to 4 ft below ground surface. This indicated that the six initial boreholes had encountered the inside of the tank floor. The tank cover and walls have apparently been removed. Field screening, mobile radiological screening laboratory, and preliminary analytical results of the sample collected from Borehole No. 7 showed no indication of chemical or radiological contamination above normal background concentrations and/or SALs. Analytical results from the previous six boreholes were also below normal background concentrations and/or SALs.

Septic tank site 0-030(f) is located partly beneath the United Church School playground and school building (see Figure 2-4). In support of obtaining a ruling for no further action on this site, an additional two samples were obtained from beneath the two tanks using a hand auger. The first sample was obtained from a location between the two tanks, at a depth below the bottom of the larger tank (a sample interval of 14 to 14.5 ft). The second sample came from below the location of the common outlet pipe for the two tanks. Field screening, mobile radiological screening laboratory, and preliminary analytical results on these samples were all below the SALs, and/or below normal background levels for this area.

**PRS Group 0-4.** Field activities continued through the middle of December at the former Zia Motorpool (see Figure 2-5). During mid-October, four of the eight planned flux chamber vapor samples were collected. However, because of wet weather conditions, the remaining flux chamber samples could not be collected. The vapor samples were collected in order to gather representative data for the risk assessment.

During mid-October, an additional soil sample was collected at the base of the soil/tuff interface and analyzed for total petroleum hydrocarbons (TPH), in order to assess the vertical extent of contamination at the southeast corner of Building 3, Former Service Station, where previous analytical results for soil indicated a TPH concentration of 1,800 ppm. Analytical results for this sample indicated a TPH concentration below the detection limit. Sample locations from the 1994 field investigation are shown in Figure 2-6.

Analytical results for the excavation area at Borehole SS-1 and the east auxiliary pipe area at PRS 0-031(b) indicated that the side walls and bottoms of both excavations were below SALs. Both excavations were backfilled during mid- to late October.

All waste generated during the 1994 field investigation has been properly disposed. Decommissioning activities at the site began in mid-November with the installation of three vent points below grade in subsurface vaults. The fenced area adjacent to Building 3 was reduced so the road between the Los Alamos Credit Union and Central Avenue could be reopened. The
Figure 2-2. Locations of septic tanks in PRS Group 0-3, ADS 1071.
Figure 2-3. Plot plan and sampling locations for PRS 0-030(e), AOS 1071. (Two septic tanks are located north of Canyon Road and one septic tank was located south of Canyon Road.)
Figure 2-4. Sampling locations for PRS 0-030(1), ADS 1071.
Figure 2-5. Former Zia Motorpool, PRS Group 0-4, ADS 1071.
Figure 2-6. Sampling locations at Former Zia Motorpool, PRS Group 0-4, ADS 1071.
remaining field equipment and temporary fencing were demobilized from the site during mid-December.


PRS 0-016. Soil-washing activities continued at the Inactive Firing Range, with about 750 yds$^3$ of lead-contaminated soil processed during the first two weeks in October 1994. Because of winter weather conditions, soil-washing activities were discontinued. Approximately 6,250 yds$^3$ of lead-contaminated soil have been processed to date, with the remaining 4,000 yds$^3$ scheduled for processing in April 1995.

2.1.2 ADS 1078—TA-1

The primary focus for ADS 1078 for this past quarter was to complete Phase 1 field work for Aggregates K through P. In addition to this primary focus, Location 13 of the Western Sanitary Waste Line was investigated.

The Phase I RFI field work for this ADS is complete for Aggregates A through J. The sampling plans for those aggregates were provided in the RFI work plan for OU 1078 (LANL 1992, 0782). A modified sampling plan for the Loma Vista Property (Aggregate A) was approved; the sample locations were provided in Figure 2-11 of the ER "Quarterly Technical Report for July through September 1994" (LA-UR-94-4147). An RFI Report is in preparation for the Phase I investigation.

The Phase I RFI field work for Aggregates K through P was performed, following approved sampling plans that were submitted as addenda to the 1992 RFI work plan. Location 13 of the Western Sanitary Waste Line (Aggregate N) was investigated by excavating the portion of the line that would be further buried by the construction of an office building at the site.

The Hillsides voluntary corrective action mentioned in the last quarterly report was to remove radiological contaminants and compounds of mercury in soils. The contaminants of concern are being evaluated against criteria for an expedited cleanup, including obvious cleanup goals; it seems likely that the human health-based risk assessment will indicate risks that are acceptable (i.e., no further action required).

Western Sanitary Waste Line, PRS 1-001(a). An implementation plan was prepared and executed for Location 13, the site for the construction of an office building. Based on some of the measurements of radioactive emissions received from field screening, the excavation of Location 13 was more extensive than planned.

Loma Vista Drive Property, PRSs 1-002 and 1-007(d). A screening assessment is being performed with borehole samples from the 17 auger holes. The data indicate that a recommendation for no further action will be justified. The low-energy gamma radiation survey, using a field instrument for detection of low-energy radiation (FIDLER) at the nodes of the surveyor-generated grid, found very low gradient fluctuations in gamma radiation, which was interpreted as low or background levels of plutonium, americium, and cesium isotopes. No additional samples were collected based on the FIDLER survey because decision criteria were not met or exceeded.

2.1.3 ADS 1079—TAs-10, -31, -32, -45

The primary focus for ADS 1079 this past quarter has been to continue the TA-10 Bayo Canyon field operations, and to prepare the RFI Reports for TA-32 and TA-45.

TA-10. The drilling in Bayo Canyon has been completed on schedule. There was a total of 93 boreholes completed and sampled. This represents a total drilling depth of 4,809 ft.
Shrapnel removal continued. Team members continue to define the nature and extent of the shrapnel deposition within the fenced area of Bayo Canyon and to determine the best technique for future shrapnel removal. The areas have been temporarily closed to the public while the surface shrapnel is being removed outside of the fence in Bayo Canyon, including the mesa top at Kwage Mesa.

**TA-32.** TA-32 comprises two different areas, the mesa top and the outfall, based on past land use and topography. The mesa top is currently paved, with the County of Los Alamos shops and warehouses situated on it. The only PRS in this area is the former incinerator location, PRS 32-001. The outfall area, which belongs to the US Department of Energy (DOE), is rugged, undeveloped territory with steep cliffs. The former septic tanks, PRSs 32-002(a-b) are located on the edge of the mesa, and the associated outfalls are located on the side of the hill slope adjacent to Los Alamos Canyon.

Analytical results from the 32 soil samples taken during the 1993 surface sampling activities at TA-32 have undergone preliminary data analysis. The results indicate that aluminum, barium, calcium, magnesium, manganese, potassium, selenium, vanadium, and zinc concentrations are within background ranges. Arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, lead, mercury, nickel, silver, sodium, and thallium concentrations are above background ranges.

### 2.1.4 ADS 1106—TA-21

The primary focus for ADS 1106 has been to prepare the addendum to the Phase 1B and 1C RFI reports, revise the baseline, and complete the summer field season.

The EPA approved a one-month extension for the addendum to the Phase 1B and 1C RFI reports; the new deadline is January 31, 1995. The addendum will include data from sampling the grid nodes for background studies of the TA-21 mesa top and data from drilling in the outfalls.

Field work continued this quarter. Surface samples were collected at Surface Disposal Area A, the aboveground tanks, and the polychlorinated biphenyl area (Building TA-21-61).

A decision was made this quarter to extend the Material Disposal Area (MDA)-V vadose zone borehole to a depth of approximately 650 ft to further define the geologic and hydrogeologic properties of DP Mesa.

Analytical results from the soil samples taken during the 1993 surface sampling activities at TA-21 have undergone preliminary data analysis.

### 2.1.5 ADS 1114—TAs-3, -30, -59, -60, -61, -64

The primary focus for ADS 1114 has been to review sampling plans and to write recommendations for no further action in support of Addendum 1 of the RFI work plan for OU 1114. In addition to this primary focus, the Phase II sampling for PRS 3-010(a) was implemented.

The Phase II sampling field work continued through the first week of November for PRS 3-010(a), the mercury spill at SM-30. The Separations and Radiochemistry Group (CST-12) analytical chemistry van was on-site to analyze soil and vapor samples from six boreholes. Analyses for volatile organics, TPH, and tritium from the water in Boreholes 1 and 4 and from the intermittent stream indicate that trace quantities of the above-listed contaminants are present. The source of the water is unknown at this time; two potential sources are the percolation of rainwater from the large asphalted areas surrounding SM-30 or the interflow within the shallow alluvium and colluvium at the site. Past and current topography maps reveal that before adding fill for construction activities at SM-30, a natural drainage valley existed along the north and northwest sides of the building, explaining why water might be found in Boreholes 1, 4, and 6 and not in the remaining boreholes. See Figure 2-7 for the former and current topography of the SM-30 area and the borehole locations on the west side of the building.
Figure 2-7. Former and current topography of the SM-30 area, ADS 1114.
The remaining data collected at the site from the CST-12 analytical chemistry van are currently in the quality control process.

On December 7th, a second sample collection campaign took place at the FRP Dome at TA-54, Area G, to supplement the data needed by Envirocare (an off-site mixed waste disposal facility) to fulfill the waste profile requirements as part of their waste acceptance criteria. Of the nine containers sampled (five drums and four B-25 boxes), one sample from one of the boxes contained 1,1,1-trichloroethane at a concentration of 9.2 mg/kg, higher than the land disposal restrictions limit of 5.6 mg/kg. Field Unit 1 and Waste Management personnel are presently discussing the issue of resampling the box with the high hit, and potentially all other containers that did not have samples analyzed for total volatile organic compounds by a Utah certified laboratory.

The data from all PRS sites sampled this summer are still outstanding. Data packages for a few of the PRSs are expected to be complete by the end of next quarter.

2.1.6 ADS 1136—TA-43

Field work for ADS 1136 is planned for 1997 in concert with adjacent PRS investigation and remediation for ADS 1071.

2.2 Field Unit 2 (Field Project Leader: Gene Gould)

2.2.1 ADS 1085—TAs-12, -14, -67

No significant field activities took place this quarter for ADS 1085.

2.2.2 ADS 1086—TA-15

Modifications to the RFI work plan for OU 1086 were received from the EPA in October 1994. In addition to some clarification and delivery dates requested, the EPA suggested that PRSs 15-0099(b), 15-009(c), and 15-009(h) be proposed for no further action; this proposal was made in the November response.

All of the sampling proposed for the FY94 sampling season was completed. The additional sampling requested by the EPA, including the remote drilling of eight boreholes in the mounds at E-F Site, was also completed. Because of the soil compaction and the small size of the drill rig, the maximum depth achieved was 17–19 ft from the tops of the mounds, slightly less than the depth to the soil-tuff interface (20–22 ft expected).

2.2.3 ADS 1093—TAs-18, -27, -65

Water samples were collected from nine shallow monitoring wells in Pajarito Canyon that have been sampled quarterly throughout 1994. Two of the wells, located near a former underground storage tank, provide data on the presence or absence of petroleum contaminants in groundwater. The other wells provide general water quality data, as well as information on seasonal variability of potential contaminants. Data from the wells indicate that the concentrations of all potential contaminants are substantially below levels of concern.

The primary work during this period was the preparation of an RFI report that addressed field work performed during 1993. Data collected during those investigations were summarized in the ER "Quarterly Technical Report, July–September 1994" (LA-UR-94-4147). The RFI report addresses the inactive sewer line and lagoons [PRS 18-001(a,b)], a sump [PRS 18-001 (c)], a buried military tank (PRS 18-007), buried naval guns (PRS 27-001), and a bazooka impact area (PRS 27-003). No-further-action status is proposed for all of these PRSs except for the sewer line and lagoons, for which an expedited cleanup is proposed. The completed RFI report is scheduled for delivery to EPA on January 30, 1995.
Information and data management comprised the remainder of activities during this quarter. Data bases developed during the field season were updated and used for tracking analytical data. Additional applications were developed to facilitate tracking and data analysis. Records produced during the field season were organized into records packages for submittal to the Records Processing Facility.

2.2.4 ADS 1100—TAs-20, -53, -72

The emphasis for this quarter was to develop and submit responses to comments made by the EPA on the RFI work plan for OU 1100 and to comments by the New Mexico Environment Department (NMED) on the closure plan for two lagoons at TA-53. Comments on the work plan primarily addressed justifications for the number and location of proposed samples. The NMED comments on the closure plan mainly addressed the proposed approach to risk assessment. The primary strategy for the lagoons is to obtain a certification for clean closure from the NMED based on a risk assessment demonstrating that concentrations of regulated constituents are at or below acceptable levels. Discussions were held with NMED personnel to clarify issues.

The remaining work involved preparation for the 1995 sampling season. Sampling is scheduled for all PRSs for this ADS, including the lagoons, firing points, outfalls, disposal areas, and firing ranges. Progress was made in developing an implementation plan, waste management plan, and health and safety plan.

2.2.5 ADS 1130—TAs-36, -68, -71

The following activities were completed at TA-36.

- Drilling samples were taken at PRS 36-001. The samples showed signs of discoloration, staining, nails, ash, and debris, but no elevated radiation or organic vapor readings were measured; field spot tests for explosives were negative.
- Twenty-seven boreholes were drilled in the PRS 36-003(a) leach field.
- A radiation summary report of TA-36 was completed.
- Sampling plans for PRSs 36-004(d) and 36-006 were submitted to the EPA.

2.2.6 ADS 1132—TA-39

The following activities occurred at TA-39.

- Site cleanup and waste management from drilling was completed.
- Drilling core samples were transferred to the Sample Management Facility for archival storage.
- Field sampling documentation was completed.
- The MDA borehole geophysical logging program was completed.
- A voluntary corrective action plan was prepared for PRS 30-006(a), a chemical seepage pit and inactive septic system.
2.3 Field Unit 3 (Field Project Leader: Brad Martin)

2.3.1 ADS 1082—TAs-11, -13, -16, -24, -25, -28, -37

Work continues on Volume III of the RFI work plan for OU 1082, scheduled to be delivered to the EPA in July of 1995. Activities in support of the MDA P closure, including writing a new clean closure plan, proceeded on schedule.

2.3.2 ADS 1122—TAs-33, -70

The revised draft RFI report for ADS 1122 was completed following EPA guidance; informal review comments from the Laboratory and the DOE are being incorporated. Phase I and II sampling plans are in preparation for the March 1995 RFI report and the FY95 field campaign. Post-field operations reports are being prepared, including a quality assurance evaluation of the field work data base.

2.3.3 ADS 1140—TA-46

The RFI work plan for OU 1140 was approved by the EPA with modifications. Consistent with the modifications, a response to the EPA was submitted on November 21, 1995.

Field work was completed at TA-46; all field assets have been moved to TA-33 for winter storage. During the FY94 campaign, 227 samples were taken from 156 locations at 33 PRSs. Post-field operations reports are being prepared, including a quality assurance evaluation of the field work data base. Planning is under way for the FY95 field campaign.

A new design for the support zone equipment has been completed, and procurement has been initiated. The new concept replicates the cart and trailer feature, which was so successful at TA-46 during the FY94 campaign; the design incorporates the decontamination zone into the support trailer. A dedicated-storage trailer will replace the rental truck and off-season storage areas.

2.4 Field Unit 4 (Field Project Leader: Allyn Pratt)

2.4.1 ADS 1049—Canyons

Document production personnel worked on the work plan for Los Alamos Canyon and Pueblo Canyon. Personnel are developing conceptual transport models for the work plans for all the canyon systems. These models include sediment, surface water, perched water, and deep aquifer interactions coupled with the transport of potential contaminants.

2.4.2 ADS 1129—TAs-4, -5, -35, -42, -48, -52, -55, -63, -66

The OU 1129 field team completed the following activities.

- Phase I site characterization sampling took place at Aggregate S, PRS Nos. 35-016 (m, o, and p). Twenty samples were collected from ten sites and were analyzed for gross-alpha, -beta, and -gamma activities; gamma spectroscopy; alpha spectrometry; metals; semivolatile organic compounds; polychlorinated biphenyls; and mercury.

- Preliminary health and safety and engineering surveys were conducted at Aggregates A and Q in former TA-4 (now TA-52) and Aggregates B, C, and R in TA-5. The locations of former buildings and firing sites were identified using engineering drawings and aerial photographs; field sites as well as structures and objects related to PRSs were located.
Preliminary geophysical surveys were conducted using electromagnetic and gravity detectors at Aggregate B, PRS Nos. 5-001(a and b), which are the former Firing Pit No. 1 and Firing Pit No. 2. Personnel obtained geophysical and radiological data at five grid locations.

An environmental radiation grid survey was conducted at Aggregate D, PRS No. 35-003(r), which is the waste-receiving canyon. The survey indicated an area of possible surface contamination extending from the head of the canyon for a distance down the hydraulic gradient.

A 299-ft borehole was drilled at Aggregate D, PRS No. 35-003(r). Core was retrieved from the full depth and was sent to the Sample Management Facility for archiving. Thirty-one samples were collected from the borehole and analyzed for gross-alpha, -beta, and -gamma activities; gamma spectroscopy; alpha spectrometry; metals; semivolatile organic compounds; polychlorinated biphenyls; tritium; and moisture content.

Data management activities included:

- demonstrating the ADS 1129 data base to ADS 1098 personnel;
- upgrading the data base to accommodate the ADS 1098 sampling suites;
- updating the ADS 1129 data bases with reported analytical and survey information (90% complete for TA-48, 30% complete for TA-35); and
- assessing and analyzing TA-48 data with input from the field unit statistician.

2.5 Field Unit 5 (Field Project Leader: Cheryl Rofer)

2.5.1 ADS 1144—TA-49

The analytical RCRA metal data for the two 150-ft and four 10-ft boreholes in Area 2 and for the 700-ft "cold" hole at Area 12, which were drilled in early 1994, have been reported. Core sampling locations are shown in Figure 2-8. The two major metal contaminants being investigated at TA-49, beryllium and lead, were at such low levels there is no concern at this time of lateral migration and contamination of surrounding areas.

Ground-penetrating radar surveys of Areas 2A and 2B were completed, but no results have been received; however, the geophysical survey field team leader indicated that nothing unusual had been detected.

The Health and Safety Plan and Readiness Review were completed for the radiological survey at TA-49. To begin the survey, background readings were taken, using three different Violinist III instruments at Area 6, southwest of the Open-Burning/Landfill location. For Area 1, 23% of the readings for americium and cesium were above the baseline value; in Area 11, only 7% of the readings were above the baseline value. As indicated on the radiological survey location map, the highest americium and cesium readings were along the perimeter of Area 11 and the perimeter of the leach field located on the eastern half of Area 11 (see Figure 2-9). The Violinist III instruments detected no plutonium in the background area at Area 6 or at the two potentially contaminated locations at Areas 1 and 11. Survey results indicate there are no high levels of soil contamination. The results compare well with the long-range alpha detector results from the survey that was completed in the same two areas in May 1994.

The site-wide land survey began at TA-49 in November 1994. Reference and traverse points were set, and radiological survey points were established on the asphalt pad at Area 2. The 1993
Figure 2.8: Core sampling locations for Areas 2 and 12 at TA-49, ADS 1144.
Figure 2.9: Radiological survey locations for Areas 1 and 11 at TA-49.

Legend:
- Contours, 100 feet
- Contours, 20 feet
- Reader
- Radiological Survey Points and Location IDs

(Bold Type = Instrument V-129 Readings)
(Italics = Instrument V-133 Readings)

University of California
Los Alamos National Laboratory
Earth and Environmental Sciences
FIMAD

Map Coordinates in New Mexico State Plane Feet
Cold Inverse, in feet 100
Feet per inch on map = 133 333233333

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surface soil sampling locations at Areas 2 and 2B were resurveyed in preparation for a Violinist III radiological survey. Radiological and/or surface sampling grid points were set up at Area 6 around the Microwave Test Facility and at the Open-Burning/Landfill area. Locations were staked at Areas 1, 6, and 11 for the surface soil sampling and/or radiological survey scheduled for the summer of 1995.

Other activities included locating the two small landfills at Areas 5 and 10, inspecting bi-weekly the Area 2 and Area 12 storage areas where the drums containing drilling cuttings are stored, and posting warning signs at the contaminated area near the "Bottle House" in Area 12.

2.5.2 ADS 1148—TAs-51, -54

Field activities for TA-54 continued this quarter. According to an agreement with the EPA, the first of two deep vapor monitoring holes beneath MDA L was drilled, and monitoring hardware was installed. The hole (54-1015) is located in the canyon immediately north of MDA L and is angled at 60° from horizontal to the zone beneath MDA L. The monitoring hardware extends to beneath the western disposal shaft cluster and is composed of seven monitoring ports, two of which can be utilized for both water and vapor. The ports are located at slant depths of 525 ft, 485 ft, 430 ft, 379 ft, 350 ft, 188 ft, and 40 ft. The two water sampling ports are located in intervals where moisture was encountered in either core or cuttings (525 ft and 350 ft). Several attempts to take water samples during the drilling phase were unsuccessful in this relatively dry hole. Hole 54-1015 is in the process of being backfilled with proper stemming materials. These materials are a porous Overton sand surrounding the sampling ports and a mixture of 60% 80-mesh Overton sand, 25% bentonite pellets, and 15% 600-mesh silica powder between the ports.

Figure 2-10 provides a compilation of the quarterly sampling results for 1994. The quarterly sampling task utilized existing subsurface vapor monitoring wells located within and beyond the known extent of the chlorinated hydrocarbon vapor plume, the origin of which is the inactive disposal pits and shafts at MDA L. Vapors from every sampled port were analyzed with a Bruel and Kjaer photoacoustic radiometer for real-time analysis of five specific compounds. The map shows the highest concentration of 1,1,1-trichloroethane for each quarter at whatever depth it occurred in the referenced well. Zeros reported for a quarter indicate that the well was not sampled during that quarter. The five historically prevalent compounds within the plume were tracked so plume movement, if any, can be documented. These compounds were 1,1,1-trichloroethane, trichloroethene, tetrachloroethene, and two others, typically carbon dioxide and vinyl chloride. In addition, a pore-gas sample was absorbed onto charcoal resin from the highest reading port in each well. These samples were then analyzed by thermal desorption gas-chromatography/mass spectrometry. This analysis is sensitive to more than 50 analytes, and it monitors the appearance of compounds not previously detected in the plume. Typically, 16 compounds are detected in the MDA L plume by this method. Eight compounds account for over 80% of the volume as sampled this quarter. The abundance of chlorofluorocarbons, especially trichlorotrifluoroethane and trichlorofluoromethane, appears to rival or exceed that of 1,1,1-trichloroethane; therefore, the photoacoustic radiometer is being adapted to analyze specifically for these chlorofluorocarbons during quarterly sampling events beginning in March 1995.

This quarter's analytical results will indicate that for drill core samples from beneath inactive disposal pits at MDA L and from surface sediment samples from drainages from Mesita del Buey, the only compound that exceeded its SAL is pentachlorophenol; this compound is typically used for wood preservation and algae control. Methoxychlor, a pesticide, was detected in approximately one-fifth of the samples for which it was analyzed, but its highest concentration was less than 0.25% of the SAL. All of the samples in which methoxychlor was detected were drainage sediment samples.
OU 1148 Pore Gas 1964 Quarterly Sample Results.
Maximum TCA concentrations in parts per million.
At each location the text refers to the following:
54.2022 Location ID
58 60(80) 1st TCA conc(depth ft)
88 00(80) 2nd TCA conc(depth ft)
94 40(100) 3rd TCA conc(depth ft)
88 00(80) 4th TCA conc(depth ft)

- Buildings
- Material Disposal Areas
- Contours, 100 foot

North American Datum
Projection and Grid Data:
New Mexico State Plane Coordinate System
Central Zone (Transverse Mercator)
Grid Interval: 2000 feet

Notice: Information on this map is preliminary and has not been checked for accuracy.

(1148101476 1148101514)
3.0 REFERENCE

Modifications to Hazardous Waste Facility Permit

BACKGROUND

A Hazardous Waste Facility Permit was issued to the Department of Energy and the University of California for the Los Alamos National Laboratory by the New Mexico Environment Department on November 8, 1989. The Permit allows the Laboratory to operate certain hazardous waste management units. The permit includes requirements for personnel training, inspections, waste analysis, record-keeping, monitoring, accident prevention and emergency response. The hazardous waste management programs at Los Alamos National Laboratory are dynamic, therefore the permit requires periodic modification to remain current with Laboratory conditions and changes in regulatory requirements.

EFFECT OF MODIFICATIONS

By making modifications to the permit, Los Alamos National Laboratory can continue to operate in a manner that protects human health and the environment. Summarized below are the changes that can be found in this set of permit modifications:

• The addition of newly regulated waste codes to the waste analysis plan contained in the Laboratory's permit

• Changes to the waste analysis plan to update and clarify waste segregation procedures

• Changes to the waste analysis plan to correct typographical errors and update organizational and regulatory references

• Changes to language in the permit to clarify performance verification requirements for the Controlled Air Incinerator

• The deletion of the closure plan for the Technical Area (TA) 50 Batch Waste Treatment Unit following completion of the closure of this project

• Copies of the full text of the permit modification can be reviewed at the following locations:

LANL Community Reading Room
1450 Central Avenue, Suite 101
Los Alamos, New Mexico

Santa Fe Public Library
145 Washington Avenue
Santa Fe, New Mexico

Mesa Public Library
1741 Central Avenue
Los Alamos, New Mexico

Española Public Library
314A Oñate Street
Española, New Mexico
Modifications to Hazardous Waste Facility Permit

The U.S. Department of Energy (DOE) Los Alamos Area Office and the University of California have requested that the New Mexico Environment Department (NMED) review and approve a set of modifications pertaining to the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit.

The New Mexico Administrative Code (20 NMAC 4.1, Subpart IX, 270.42) established procedures governing permit modifications requested by the permittee. The modifications being made are considered Class 1 modifications. These modifications involve updating sections of the permit affected by newly regulated wastes, administrative and informational changes, corrections of typographical errors, clarification of performance verification requirements and adjustment of closure plans contained in the permit.

For more information, contact Jon Mack (DOE) at 505-665-5026, Jack Ellvinger (LANL) at 505-667-0638, or Barbara Hoditschek (NMED) at 505-827-4308.