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*San*

Date: August 14, 1997  
 Refer to: EM/ER:97-312

HSWA LAND G/N/R/97

Mr. Benito Garcia  
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 Santa Fe, NM 87502

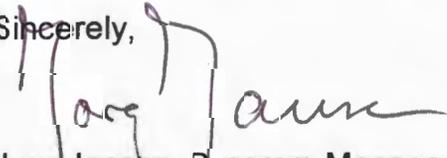


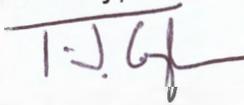
**SUBJECT: QUARTERLY TECHNICAL REPORT**

Dear Mr. Garcia:

Enclosed are two copies of the Environmental Restoration Project's Quarterly Technical Report, April-June 1997. The Quarterly Technical Report presents information from each field unit on the quarter's activities, including sampling, cleanups, and report writing. 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 contact Dave McInroy at (505) 667-0819 or Joe Mose at (505) 667-5808.

Sincerely,  
  
 Jorg Jansen, Program Manager  
 LANL/ER Project

Sincerely,  
  
 Theodore J. Taylor, Program Manager  
 DOE/LAAO

JJ/TT/ss

- Enclosures: (1) Quarterly Technical Report, April-June 1997  
 (2) Certification

*21*



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## CERTIFICATION

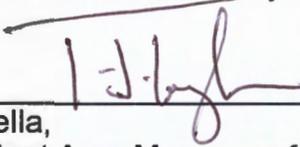
I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage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

Document Title: Quarterly Technical Report, April-June 1997

Name:  Date: 8-14-97  
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Environmental Restoration Project  
Los Alamos National Laboratory

or

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Los Alamos National Laboratory  
**Environmental Restoration**

A Department of Energy Environmental Cleanup Program

**QUARTERLY TECHNICAL REPORT**

**APRIL-JUNE 1997**

August 14, 1997

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## LIST OF ACRONYMS AND ABBREVIATIONS

D&D	Decontamination and decommissioning
DOE	US Department of Energy
DX	Dynamic Experimentation (Division)
DX-3	Hydrodynamic Applications
EPA	US Environmental Protection Agency
ER	Environmental restoration
ESH	Environment, Safety, and Health (Division)
ESH-18	Water Quality and Hydrology Group
FIMAD	Facility for Information Management, Analysis, and Display
FY	Fiscal year
HE	High explosives
HSWA	Hazardous and Solid Waste Amendments
LANL	Los Alamos National Laboratory
MDA	Material disposal area
NFA	No further action
NMED	New Mexico Environment Department
NOD	Notice of deficiency
NPDES	National pollutant discharge elimination system
OU	Operable unit
PCB	polychlorinated biphenyl
PRS	Potential release site
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
SAP	Sampling and analysis plan
SSHASP	Site-Specific Health and Safety Plan
SWEIS	Site-Wide Environmental Impact Statement
TA	Technical area
TSCA	Toxic Substances Control Act
VCA	Voluntary corrective action
VCM	Voluntary corrective measure
WWTP	Waste Water Treatment Plant

**QUARTERLY TECHNICAL REPORT  
APRIL-JUNE 1997  
LOS ALAMOS NATIONAL LABORATORY  
ENVIRONMENTAL RESTORATION PROJECT**

**ALBUQUERQUE OPERATIONS OFFICE**

**CONTRACTOR: University of California**

**PROJECT MANAGER: Jorg Jansen**

**NUMBER OF POTENTIAL RELEASE SITES: Approximately 2,000**

**POTENTIAL WASTE: Radionuclides, High Explosives, Metals, 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 and then by the technical area (TA) where the specific activity is located. The Hazardous and Solid Waste Amendments (HSWA) portion of the Laboratory's Hazardous Waste Facility 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 field work 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**

In the third quarter of 1997, Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) planning, notice of deficiency (NOD) response preparation, drilling activities, and sampling continued at TAs-0, -1, -10, -19, -21, and -73. In addition, slope stabilization design for Potential Release Site (PRS) 3-056(c) was completed.

RFI reports and consolidated RFI/voluntary corrective action (VCA) reports in preparation this quarter include

- the RFI report for TA-0, Pueblo Waste Water Treatment Plant, [PRS 0-018(a)];
- the RFI report for TA-0, Bayo Canyon Waste Water Treatment Plant, [PRS 0-018(b)];
- the RFI report for TA-0, Central Waste Water Treatment Plant, (PRS 0-019);
- the RFI report for TA-0, PRSs 0-034(a,b);
- the RFI report for TA-1, Aggregates N and P [PRSs 1-001(s,u) and 1-007(l)];

- the RFI report for TA-10, Bayo Canyon Renegade Firing Site, (PRS 10-008);
- the RFI report for TA-3, national pollutant discharge elimination system (NPDES) permitted outfall in Mortandad Canyon, [PRS 3-054(e) and C-3-006];
- the RFI report for TA-21, Material Disposal Area (MDA) T [PRSs 21-016(a-c), 21-028(a), 21-011(c), C-21-009, C-21-012]; and
- the RFI/VCA report for TA-0, Septic Tanks [PRSs 0-030(d,k)], Manhole (PRS C-0-043).

VCA report in preparation this quarter:

- the VCA report for the Inactive Firing Range, (PRS 0-016).

Interim action report completed this quarter:

- the interim action report for the Central Area in Bayo Canyon.

NOD responses completed and submitted this quarter include

- the response to the second NOD for the RFI report for Aggregate F [PRSs 1-001(d) and 1-006(h)] and
- the response to the disapproval of the RFI Work Plan for Operable Unit (OU) 1114, Addendum 1.

NOD responses in preparation this quarter include

- the response to the Notice of Determination for 33 TA-3 PRSs;
- the response to the NOD for the TA-21 RFI phase reports 1B and 1C, and the related addendum; and
- the response to the NOD for the RFI report for DP Tank Farm (PRS 21-029).

Work plans, sampling and analysis plans (SAPs), and VCA plans in preparation this quarter include

- the work plan for the DP Canyon Investigation;
- the work plan for the Upper Sandia Canyon Investigation;
- the SAP for 21-010(a-h) Phase II;
- the SAP for 21-011(a,b,d-j), 21-001, C-21-005, C-21-007, C-21-033 Phase I;
- the SAP for TA-21 D&D-related PRSs Phase I;
- the SAP for PRS 73-002 Phase II;
- the VCA plan for PRS 10-009; and
- the VCA plan for PRS 21-024(i).

Other reports in preparation this quarter include

- the MDA A surface sampling report (PRS 21-014), delayed;
- the MDA U surface sampling report [PRSs 21-017(a-c)], delayed; and
- the cliff stabilization study for PRS 21-015.

## **2.1.2 Technical Area Activities**

### **2.1.2.1 TA-0**

PRSs 0-012 Additional archival research for the filtration tank (PRS 0-012) is required before field work can be completed.

PRS 0-016 All field activities at the inactive firing range (PRS 0-016) were completed in late April 1997. Field Unit 1, the US Department of Energy (DOE), and US Forest Service personnel conducted the completion inspection for the inactive firing range (PRS 0-016). Preparation of the VCA report has begun.

PRSs 0-018(a,b) and 0-019 The screening assessment for the Pueblo Canyon Waste Water Treatment Plant (WWTP) [PRS 0-018(a)], Central WWTP (PRS 0-019), and Bayo Canyon WWTP [PRS 0-018(b)] revealed elevated metals in the sludge beds. The technical team is conducting a decision analysis for these PRSs, comparing metals concentrations with those found in sludge at other treatment plants around the country to determine if the sludge could be recycled as compost.

PRSs 0-030(d,k) and C-0-043 The draft report outlining the RFI/VCA activities for septic tanks 0-030(d,k) and manhole C-0-043 is undergoing a final edit.

PRS 0-027 Though planning continues for the DP Road Investigation (PRS 0-027), work on the RFI report has been suspended while remediation alternatives are explored. VCA and voluntary corrective measure (VCM) options are also being explored.

PRS 0-030(j) The property holder has not granted access to the land encompassing PRS 0-030(j), the Sombrillo Nursing Facility septic tank; therefore, field work is still pending.

PRSs 0-034(a,b) The 1946 aerial photos of PRSs 0-034(a,b) were interpreted incorrectly as disposal sites in the RFI work plan for OU 1071 (LANL 1992, 0781). Instead, they were sites used by construction contractors. Field Unit 1 personnel are preparing an RFI report for PRSs 0-034(a,b), which will contain a proposal for NFA for both sites.

### **2.1.2.2 TA-1**

PRS 1-001(d) All areas disturbed by cleanup activities at Hillside 138 [PRS 1-001(d)], including the remediated area, the constructed berm, and the access road, were reseeded and covered with erosion control matting. In addition, the Water Quality and Hydrology Group (ESH-18) collected several storm water samples at the sampling station established near the Los Alamos Canyon stream. Analytical results for the storm water samples collected by ESH-18 at Hillside 138 indicated no detectable mercury at the detection limit of 0.0002 mg/L.

PRs 1-001(s,u) and 1-007(l) The technical team for the TA-1 Aggregates N and P RFI report developed future exposure scenarios and completed risk assessments for the portions of the abandoned Western Sanitary Waste Line [PRs 1-001(s)] that are not presently accessible but could be excavated by future construction activities. Most of the remaining abandoned pipe is within Los Alamos County property boundaries; the rest is on privately owned property. In addition, the technical team completed a preliminary review draft of the TA-1 Aggregates N and P RFI report and submitted it for DOE review.

#### 2.1.2.3 TA-3

The Laboratory received a Notice of Determination regarding the Request for Permit Modification for Units Proposed for No Further Action, September 1996. The Request for Permit Modification contained 42 PRs proposed for no further action (NFA). Of these, 33 PRs are within TA-3, and the New Mexico Environment Department (NMED) requested further information for 32 of the 33 PRs. The additional information was prepared for 13 of the 32 PRs within TA-3, and 19 others are in preparation.

The Laboratory awaits clarification from NMED concerning a disapproval notice for the RFI work plan for OU 1114, Addendum 1 (LANL 1995, 1291). As a result, preparation of sampling and analysis plans as called out in the baseline has not commenced.

Upper Sandia Canyon The technical team for the Upper Sandia Canyon RFI met with NMED personnel from the Hazardous and Radioactive Materials Bureau and the Surface Water Quality Bureau to brief them on the work plan outline. The NMED representatives agreed with the overall outline. However, NMED was asked to indicate whether polychlorinated biphenyl (PCB) cleanup levels for the wetland are prescribed numbers or are determined by risk. This information will be a major factor in the design of the SAP.

PRs 3-004(c,d), 3-007, 3-014(k-o), 3-021, 3-049(a,b), 3-052(b), 3-056(k), 61-002, and C-3-014 Due to a re-evaluation of performance measures, 15 PRs within TA-3 and TA-61 are being moved into FY97 for sampling. Preparation for field activities began the last week of June; activities included initiating the environment, safety, and health identification process, excavation permit, site-specific health and safety plan (SSHASP), National Environmental Policy Act categorical exclusion, etc. Field work is scheduled to begin July 14, 1997.

PRs 3-054(e) and C-3-006 The RFI report is in preparation for PRs 3-054(e) and C-3-006, an NPDES-permitted Mortandad Canyon outfall from a storm drain southeast of the Chemistry and Metallurgy Research Building. The outfall received a spill from a manhole.

PRs 3-056(c) The Laboratory received a PCB cleanup level determination for PRs 3-056(c) from the US Environmental Protection Agency (EPA) Toxic Substances Control Act (TSCA) Branch; the cleanup level given was 1 ppm PCBs. The cost to perform this action will be an additional one million dollars to go from a 10 ppm cleanup level to 1 ppm. The 1 ppm level was imposed because PRs 3-056(c) is located adjacent to a tributary that leads to Sandia Canyon. This direction from EPA has large cost implications for the ER Project. The slope stabilization design for PRs 3-056(c) is complete.

#### 2.1.2.4 TA-10

PRs 10-002(a,b), 10-003(a-o), 10-004(a,b), 10-005, and 10-007 The Interim Action Report for the TA-10 Central Area is complete and has been distributed. The results of soil and plant sampling, which were incorporated into the report, indicate that there is no current health risk to recreational users of the canyon. As a best management practice, the snow fencing surrounding

the contaminated plants and soil was expanded, additional signs were posted, and surface water runoff controls were installed around the fenced area.

PRS 10-008 The TA-10 technical team is preparing the decision analysis for the RFI report for PRS 10-008, the renegade firing site in Bayo Canyon. This report will be written using data from the nearby TA-10 firing sites [PRSs 10-001(a-d)].

PRS 10-009 The RFI and VCA will be conducted for PRS 10-009, the Bayo Canyon landfill, using an accelerated approach. The VCA plan for the Bayo Canyon landfill is in draft stages. The initial phase of the VCA will include trenching and sample analyses for waste identification, and the area will be remediated following soil characterization.

#### 2.1.2.5 TA-19

PRSs 19-001, 19-003, and C-19-001 To support the change in FY97 performance measures, the field team collected surface samples for PRSs 19-003 and C-19-001 at East Gate Lab. The team determined that the septic tank, PRS 19-001, is still in place and is accessible through a manhole with a welded lid. The tank will be removed and confirmation samples collected.

#### 2.1.2.6 TA-21

The Laboratory awaits clarification from NMED concerning the NOD on the TA-21 RFI phase reports 1B and 1C, and the related addendum.

New PRS designation forms are being prepared for sites associated with D&D activities at TA-21. These are sites resulting from potential leaks from the utility tunnels, troughs, and acid pits under Buildings 2, 3, 4, and 5 as noted in Chapter 18.6 of the TA-21 RFI Work Plan (LANL 1991, 0689). With specific PRSs identified, the technical team can plan characterization and/or verification sampling required to adequately address the historical activities that occurred in the buildings.

The SAP for the post-D&D investigation at TA-21, Buildings TA-21-3 and -4, was submitted to NMED.

DP Canyon The DP Canyon RFI and Bench Pilot Study are in progress. These studies include looking at the long-term desorption of cesium from the clays at PRS 21-011(k) (ongoing process) and locating and placing test areas of erosion barriers. The DP Canyon Site Work/Sampling Plan was reviewed by the technical team and comments were incorporated.

PRSs 21-001, 21-011(a,b,d-j), C-21-005, C-21-007, and C-21-033 Work continues on the SAP for TA-21, Building 257 (the current industrial waste water treatment plant).

PRSs 21-010(a-h) and C-21-034-037 Work continues on the integration of plans for TA-21, Building 35 (decommissioned industrial waste water treatment plant) and MDA T.

PRSs 21-011(c), 21-016(a-c), 21-028(a), C-21-009, and C-21-012 The MDA T technical team began the decision analysis for the RFI report. All waste from the RFI at MDA T [PRSs 21-016(a-c), 21-011(c), 21-028(a), C-21-009, and C-21-012] has been profiled. The field team performs weekly waste storage and site waste pollution prevention plan inspections. The ER Administrative Procedure 4.5 form is complete, and ESH-18 will evaluate for the need for storm water controls. The waste profiles were used to consolidate the waste, reducing the number of drums for disposal.

PRSs 21-014 and 21-017(a-c) Preparation of the MDA U internal surface sampling report [PRSs 21-017(a-c)] and the MDA A surface sampling report (PRS 21-014) has been put on hold until FY98 because of changes in performance measures.

PRS 21-015 The cliff stabilization study conducted at TA-21 continues.

PRS 21-024(i) The radiological field screening is now complete at septic tank PRS 21-024(i). The field team collected some additional samples from the tank for further waste characterization in May 1997. VCA activities were to begin in late May or early June but have been delayed until FY98 because of the change in performance measures. Prior to the beginning of field activities, the field unit will give a presentation to NMED regarding PRS 21-024(i) and request a determination of whether this work will be performed as a VCA or a VCM.

PRS 21-029 The response to the NOD on the RFI report for the DP Tank Farm (PRS 21-029) is in preparation.

#### **2.1.2.7 TA-32**

PRS 32-002(a,b) The field team continued the inspection and maintenance of the storm water controls at the PRS 32-002 septic tanks and outfalls.

#### **2.1.2.8 TA-73**

PRS 73-001(a) The TA-73 technical team conducted a hazard assessment to address safety concerns about drilling into the landfill at TA-73. A review of that assessment resulted in the question of whether there is potentially explosive HE buried in the landfill. The technical team gathered facts regarding buried HE, and the field team completed the SSHASP according to the final assessment. Four of the planned boreholes for the main landfill were drilled and instrumented in June. Thunderstorms and methane emissions above health and safety action levels prompted several stand-down periods during the drilling.

PRSs 73-001(c,d) The investigation of the bunker debris pits [PRS 73-001(c)] at the east end of the airport was extended beyond the scope of the work plan to determine the extent of the landfill materials buried in the area. That information was used to modify the work plan for the debris disposal area [PRS 73-001(d)], which encroached into the area of the bunkers. Instead of two boreholes, four were drilled to sample the larger than expected debris disposal area.

PRS 73-002 A draft of the Phase II SAP for PRS 73-002, the incinerator surface disposal area, was distributed for Laboratory review; comments were incorporated and the sampling and analysis plan was submitted to DOE. Field work will be postponed until FY98 because of changes in performance measures.

## 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 TA-12, TA-14, and TA-15

Field unit personnel completed the following activities this quarter:

- Gave a presentation to NMED on June 10 on VCAs for PRSs 15-009(j) and 14-010.
- Prepared a response to NMED's NOD on the May 1996 RFI Report for TA-15.
- Wrote, reviewed, and submitted to DOE interim action plans for PRSs 12-001(b), 14-002(a), 14-010, 15-009(e), and 15-009(j).
- Wrote, reviewed, and submitted to NMED VCA plans for PRSs 15-004(g) and 15-008(c).
- Located PRS 15-004(i), the Gulch, with the help of personnel from the Hydrodynamic Applications Group (DX-3).
- Began field work at PRS 14-003. The field team used laser-induced breakdown spectroscopy (LIBS) for screening to define the extent of contamination within the burn area, which significantly reduced soil removal. Four B-25 containers were filled with soil. One of the containers was filled with HE-contaminated soil, and one with Pb-contaminated soil.
- Began field work at PRSs 14-002(a) and 14-010. All of the contaminated soil at PRS 14-002(a) was removed by the end of June. The asphalt that contained embedded depleted uranium was vacuumed with the ER Project Soil Vac. Four B-25 containers were filled with waste soil. Two of the containers tested positive for HE. The samples were submitted to DX Division to determine the percentage of HE in the samples.

#### 2.2.1.2 TA-18, TA-27, and TA-65

The field team collected additional groundwater samples from five monitoring wells near PRS 18-003(d), which were constructed because of the presence of the volatile organic compound 1,2 dichloroethane. The team used the analytical data from the first two sampling events at the monitoring wells to prepare an RFI report for PRS 18-003(d). The sampling activity revealed no contaminants other than manganese in groundwater at concentrations above the New Mexico groundwater quality standards. Manganese is normally present at concentrations above the standards in the alluvial aquifer in Pajarito Canyon. A recommendation is made in the RFI report to limit future sampling to volatile organic compounds only.

Plans continued for the removal of the uranium solution pipe (PRS 18-006). Residual liquid in the pipe was sampled to provide data for the site-specific health and safety plan. Analytical results indicate low concentrations of uranium (<100 pCi/L) and no metals at concentrations above RCRA toxic waste criteria.

The New Mexico Hazardous and Radioactive Materials Bureau submitted an extensive NOD on the October 1995 RFI report for former OU 1093 (TA-18). The Laboratory drafted an initial response to the NOD and delivered it to the state in May; additional information requested in the NOD will be submitted in July.

### 2.2.1.3 TA-20, TA-53, and TA-72

A response to an NOD from NMED on the March 1996 RFI report was submitted this quarter.

The field team identified a new method of performing leak testing (the tracer tight leak test method) of the radioactive liquids in underground storage tanks at TA-53. They modified the statement of work for the leak testing in order to incorporate this new method.

The field team also prepared a best management practice plan for nondestructive leak testing of the underground storage tanks at TA-53. A statement of work was issued in order to obtain a subcontractor to perform the work.

PRs 53-001(a) and 53-008 were identified as potential VCAs for this fiscal year.

### 2.2.1.4 TA-36

The field team sampled PRS 36-005, the Boneyard, to determine the nature and extent of trichloroethylene, which was detected in soil samples during the RFI. No additional detections of trichloroethylene were reported from the sampling. An RFI report is being written **proposing NFA based on human health concerns** for this PRS.

The field team wrote the waste management plan and SSHASP for sampling at PRS C-36-003, the photo outfall. The 1994 RFI sampling data indicated PCBs as tentatively identified compounds. *Additional sampling is required to determine the presence or absence of the PCBs at the site.*

The team wrote an interim action plan for the HJ Firing Site [PRs 36-004(e), 15-008(f), and C-36-006(e)]. The plan specifies the removal of visible depleted uranium from the surface to reduce impacts on surface water runoff.

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

### 2.3.1 Technical Area Activities

#### 2.3.1.1 TA-16

The TA-16 field team began drilling during June at PRs 16-021(c) and 16-003(k), the 260 outfall and the sump that discharges to the outfall. The presence of a threatened and endangered species in Cañon de Valle near these PRs delayed the start of field work. The first borehole drilled contained low levels (< 10 ppm) of the high explosive RDX in a surge bed located at a depth of greater than 40 ft and in underlying welded tuff within a depth interval extending to 100 ft. Geophysical investigations showed the presence of anomalous zones in the subsurface extending from the area of PRS 16-021(c) east toward Martin Spring. The Field Unit 3 team will use these anomalous zones to guide the siting of future boreholes.

A KBr tracer was deployed at PRS 16-021(c) during April. Breakthrough of bromide has not yet been detected during daily monitoring of springs downgradient from that PRS.

The TA-16 field team began field work for the VCM activities at V-Site and TA-16-27. They completed sampling at six PRs. Two of these PRs will require soil removal because RDX levels exceeded proposed cleanup levels. Field Unit 3 received an NOD on the VCM plan and completed the NOD response.

### **2.3.1.2 TA-33**

Field Unit 3 personnel submitted a draft RFI report for the fall 1996 field campaign at TA-33 for Laboratory internal review. The team submitted an Interim Action Report for Chaquehui Canyon to DOE/LAO and the regulators.

## **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**

Waste management activities continued this quarter. The field team submitted to NMED a Notice of Intent to Discharge for the purge and development water associated with the drilling of four alluvial monitoring wells in Los Alamos Canyon and Pueblo Canyon. The field team also profiled the waste generated during TA-48 supplemental sampling activities and during sampling activities at PRS 55-009 and at Los Alamos Canyon and Pueblo Canyon wells; the waste from these activities was disposed at the Los Alamos County landfill in accordance with appropriate regulations. Field Unit 4 received first place for the Laboratory's 1997 Pollution Prevention Awards for minimizing wastes associated with the installation of monitoring wells.

The Portland Area Indian Health Board, representing tribes from areas near the Hanford site, visited the Los Alamos area May 1 and 2, 1997. Canyons project investigators presented an overview of ongoing canyons investigations and Field Unit 4 interactions with local Pueblos.

Field Unit 4 personnel prepared a proposal for the expedited site characterization technology deployment initiative. To compile the necessary information, they coordinated with personnel from the Savannah River Site and Iowa State University.

The field unit gave a presentation to DOE Headquarters personnel on the approach to the canyons investigation.

### **2.4.2 Technical Area Activities**

#### **2.4.2.1 Canyons**

Production continued this quarter on the following documents for the Canyons investigation:

- Canyons Core Document — Completed the final document, and submitted it to NMED on April 1, 1997.
- Mortandad Canyon Work Plan — Prepared drafts of chapters 1, 2, 3, 4, and 7 and plates, charts, and figures for the Mortandad Canyon work plan. The document was distributed for internal technical review on July 1, 1997.
- Work Plan for Sediments in DP Canyon — Provided technical support to Field Unit 1 investigators engaged in preparing a work plan for sediments in DP Canyon. The cooperative interactions will ensure that the characterization activities in DP Canyon are consistent with and support the investigation goals of the Los Alamos Canyon and Pueblo Canyon work plan.
- Response to NOD on Los Alamos Canyon and Pueblo Canyon work plan — Prepared and submitted a response to the NOD from NMED on the Los Alamos Canyon and

Pueblo Canyon work plan. The document production staff began correcting pages of the work plan for reissue to NMED.

Canyons project investigators prepared maps for three canyon reaches this quarter. They completed a preliminary geomorphic map of reach LA-3 based on limited (nonintrusive) field visits and a gross-gamma walkover survey completed last fiscal year. For this map, they conducted additional geomorphic work and collected fixed-point gamma measurements both at the surface and in the banks. Preliminary geomorphic maps were started for reach LA-4, based on interpretation of aerial photographs, and for reach P-3, which extends from the west end of P-4 to just upstream of the sewage treatment plant outfall.

The field team initiated actions to remediate the LADP-3 site erosion concerns identified by the NMED Oversight Bureau.

Field Unit 4 received DOE approval of the San Ildefonso Pueblo and Los Alamos County access agreements for Canyon sampling activities.

The following field activities occurred this quarter for the Canyons investigation:

- Completed limited suite sampling and some additional field work in reach LA-2; data analysis has begun.
- Completed limited suite sampling in reach LA-5 in May to better define horizontal and vertical variations in plutonium concentrations; analytical results are pending.
- Completed limited suite sampling in reach P-4 in May. The field team collected samples for additional plutonium analyses; analytical results are pending. The NMED Oversight Bureau collected two split samples.
- Completed limited suite sampling in reach P-1 in June. The field team collected samples for additional plutonium analyses; analytical results are pending.
- Determined the location of the new alluvial well, LLAO-3, and staked it in preparation for drilling.
- Completed the second round of sampling at the monitoring wells that were installed during FY96 (LLAO-2, -4, -5, PO-4, LAO-1.6, and POI-4), as planned in the RFI work plan for OU 1049 (LANL 1995, 1403). Some of the analytical results are pending and others are undergoing validation and upload to the Facility for Information Management, Analysis, and Display (FIMAD).
- Completed monthly water level measurements on the wells in Los Alamos Canyon and Pueblo Canyon.
- Began planning for the drilling of regional well R-9, which includes the development of a field implementation plan (drilling plan, SAP, site preparation, waste management, and site restoration). The Canyons project investigators and the field team initiated Notice of Intent to Discharge plans with ESH-18 and submitted for review the excavation permit for the first four regional wells to be drilled by Field Unit 4 personnel.

#### **2.4.2.2 TA-4 and TA-5**

The data assessment team began assembling data sets for use in determining the need for additional sampling in preparation for the RFI report. However, work on this activity was stopped, and the report was rescheduled because of budget issues.

#### **2.4.2.3 TA-35**

The data assessment team and document production team completed the following work on TA-35 documents this quarter.

- TA-35 SAP for PRSs 35-008, 35-010(a through e), 35-014(e<sub>1</sub> and g<sub>2</sub>), 35-015(a), and 35-016(k, l, and o) — Incorporated review comments and submitted the final SAP to DOE.
- Response to the NMED's NOD on the TA-35 May RFI Report — Distributed the NOD response for formal Laboratory review on April 11, 1997; incorporated the comments; and submitted the final document to NMED.
- Radiological addendum SAP for PRSs 35-003(j, h, and k), 35-004(m), 35-009(a through d), 35-014(a, b, d, g<sub>1</sub>, and g<sub>2</sub>), 35-015(b), and 35-016(b, j, n, p, and q) — Prepared the draft document, completed the review process, and submitted the final SAP to DOE on June 16, 1997. The SAP includes sampling activities to satisfy the NMED NOD on the May 1996 TA-35 RFI report.
- TA-35 RFI report for PRSs 35-004(a, b, g, and h), 35-009(e), 35-014(e<sub>2</sub>), and 35-016(e, f, and l) — Began assembling data sets for the report.

The field team completed all drilling and hand-augering activities associated with the SAP in the June 1996 TA-35 RFI report; analytical results from this activity are pending. The team completed initial sampling of PRS 35-004(m) at TA-35. Additional sampling of this PRS, which is included in the June radiological addendum SAP, will be conducted later this fiscal year. The team also initiated field activities associated with the TA-35 supplemental SAP. The field team conducted a tour of interim action site 35-003(d, l, and q) for NMED personnel.

#### **2.4.2.4 TA-48**

Work began on the TA-48 RFI Report. Maps and geologic logs have been gathered, and a human health screening assessment is almost complete.

Two additional samples were collected at PRS 48-007(c). Preliminary analytical results from these two samples indicate that the <sup>40</sup>K anomalous result was caused by a sample insufficiency problem and was not an elevated reading. Samples were also collected for PRSs 48-007(a and d); analytical results are pending.

#### **2.4.2.5 TA-55**

The data assessment process began for the TA-55 RFI report. The preliminary evaluation indicates there are no human health concerns; therefore, the PRS will likely be recommended for NFA after the screening assessment has been completed.

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

#### **2.5.1 General Information for Field Unit 5**

Field unit personnel continued analytical data management, validation, and writing for all FY97 reports. The field unit continues to provide information to the Site-Wide Environmental Impact Statement (SWEIS) office regarding the TA-54 MDA G expansion issue. The June 20 draft of the SWEIS Connected Action Statement on MDA G development is being reviewed.

Field and Report Team Leaders completed the Laboratory's response to an NOD from NMED regarding PRS C-8-010, described in the March 15, 1996, RFI report for TA-8 and TA-9.

Work continued on two of the RFI reports for PRSs that will be recommended for NFA this fiscal year. PRSs addressed in the field unit's explosives area report (in TAs-6, -7, -8, -22, and -40) include PRSs 6-001(a,b), 6-003(a,c,f,g), 6-007(g), 6-008, C-6-019, 7-001(a,b,c,d), 8-002, 22-010(a,b), 22-014(a,b), 22-016, and 40-005. Data have been received from the resampling required for PRSs 6-003(a,g) and 12-010(a); the results are pending. PRSs addressed in the TA-49 surface soils report include PRSs 49-002, 49-003, 49-004, 49-005(a,b), 49-006, and 49-008(a,b,c). These reports will be completed by the end of FY97.

## **2.5.2 Technical Area Activities**

### **2.5.2.1 TA-22**

PRSs 22-012 and 22-015(a,b,d,e) The explosives sumps and seepage pits [PRSs 22-012 and 22-015(a,b,d,e)] were resampled this quarter to confirm the need for VCA. Data from the Phase 1 investigation were inadequate because one suite of HE analytes did not include PETN, which was a constituent of potential concern at one or more PRSs, and holding times for HE had been exceeded in several cases. Preliminary data results from the resampling indicate that PRSs 22-012 and 22-015(a,b,d,e) can be recommended for NFA, at an estimated savings of approximately \$180K. The RFI report on these PRSs will be completed during the fourth quarter of FY97.

### **2.5.2.2 TA-49**

PRS 49-008(d) The VCA was completed this quarter for PRS 49-008(d), the Bottle House. Field Unit 5 and NMED collected verification samples in late June; the results are pending.

Field Unit 5 completed a draft RFI report for TA-49 surface soils, which recommends NFA for the nine PRSs included. The report is now in internal review and will be submitted to DOE and NMED during the fourth quarter of FY97.

### **2.5.2.3 TA-50**

PRSs 50-006(a) The field unit completed a report for the interim action at Ten-Site Canyon [PRS 50-006(a)] and expects to transfer RFI responsibility for the remainder of Ten-Site Canyon to the Field Unit 4 Canyons Study. Official documentation for this transfer will be submitted during the fourth quarter of FY97.

PRS 50-009 (MDA C) Personnel have completed the drafts of all chapters of the Phase 1, Stage 1 report for PRS 50-009, MDA C. The report, which is now in internal review, proposes that no further investigation should be done and recommends that the next step be a CMS.

### **2.5.2.4 TA-54**

The draft of the MDA L RFI report on subsurface investigations has been completed and reviewed. The report team is making moderate revisions based on comments.

Equipment problems caused minor delay of work on the MDA L Pilot Study. Last quarter a collapsed hole had to be cleared, and this quarter lightning struck surface instrumentation that measures the passive extraction air volumes from the test borehole. Nonetheless, more than two weeks of data have been acquired thus far. Additionally, an instrument strap with two different types of attached psychrometers has been inserted into a borehole at MDA L. The goal of this work is to measure moisture potentials in the vertical stratigraphic column beneath the inactive volatile organic liquid disposal sites. The gypsum block psychrometers have (characteristically) not yet equilibrated with the geologic formation; the thermocouple psychrometers are obtaining

equilibrated data. Next quarter's plans include moving the strap to a TA-49 borehole to collect similar information for MDA AB.

The field team completed third-quarter sampling at the MDA L vapor plume during the month of June; data are pending. Data from earlier samples indicate that the edge of the organic plume has not moved and that there were no unexpected concentrations or new contaminants.

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

#### **3.1 TA-16 — MDA P Landfill**

The closure contract evaluation team selected a contractor to perform the closure at MDA P; however, the contract has not yet been awarded.

#### **3.2 TA-35 — TSL 85 Surface Impoundment**

No response has been received from the NMED on the closure report submitted at the end of September 1996.

#### **3.3 TA-53 — Surface Impoundments**

Negotiations continued between the Laboratory and NMED concerning whether the two northern surface impoundments [PRS 53-002(a)] and the southern surface impoundment [PRS 53-002(b)] should be regulated under RCRA. In an April 1997 meeting between the Laboratory and NMED, a decision was made to remove all three surface impoundments from RCRA treatment, storage, and disposal status and change them to corrective action status. The Laboratory requested that NMED provide a written verification of this decision.

### **4.0 REFERENCES**

LANL (Los Alamos National Laboratory), May 1991. "TA-21 Operable Unit RFI Work Plan for Environmental Restoration," Volumes I-III, Los Alamos National Laboratory Report LA-UR-91-962, Los Alamos, New Mexico. (LANL 1991, 0689)

LANL (Los Alamos National Laboratory), May 1992. "RFI Work Plan for Operable Unit 1071," Los Alamos National Laboratory Report LA-UR-92-810, Los Alamos, New Mexico. (LANL 1992, 0781)

LANL (Los Alamos National Laboratory), July 1995. "RFI Work Plan for Operable Unit 1114, Addendum 1," Los Alamos National Laboratory Report LA-UR-95-731, Los Alamos, New Mexico. (LANL 1995, 1291)

LANL (Los Alamos National Laboratory), November 1995. "Task/Site Work Plan for Operable Unit 1049, Los Alamos Canyon and Pueblo Canyon," Los Alamos National Laboratory Report LA-UR-95-2053, Los Alamos, New Mexico. (LANL 1995, 1403)