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

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

6/19/00

HSWA LANL

Date: August 15, 2000
Refer to: ER2000-0426

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

SUBJECT: QUARTERLY TECHNICAL REPORT FOR ARPIL THROUGH JUNE 2000

Dear Mr. Kieling:

Enclosed are two copies of the Environmental Restoration Project's Quarterly Technical Report, April Through June 2000. The Quarterly Technical Report presents information from each focus area on the quarter's activities, including regulatory meetings, sampling, cleanups, report writing, and fire recovery activities. 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,

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

Sincerely,

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

JC/TT/MB/vn

Enclosures: (1) Quarterly Technical Report, April Through June 2000
(2) Certification

8187

Cy (w/encs.):
M. Boettner, E/ER, MS M992 (2 copies)
J. Brown, S-7, MS F674
M. Buksa, E/ET, MS M992
D. Daymon, EES-13, MS M992
A. Dorries, EES-13, MS M992
T. George, E/ER, MS M992
J. Mose, LAAO, MS A316
W. Neff, E/ET, MS M992
D. Neleigh, EPA, R.6, 6PD–N
J. Plum, LAAO, MS A316
A. Pratt, EES-13, MS M992
G. Rael, AL-ERD, MS A906
T. Taylor, LAAO, MS A316
T. Trujillo, AL-ERD, MS A906
M. Leavitt, NMED–GWQB
J. Parker, NMED–HRMB
G. Saums, NMED–SWQB
S. Yanicak, NMED–AIP, MS J993
RPF, (ER Catalog ER2000-0343), MS M707

Cy (w/o encs.):
M. Baker, E/DO, MS J591
R. Hutton, SAIC, MS J521
M. Kirsch, E/ER, MS M992
B. Martin, E/ER, MS M992
D. McInroy, E/ER, MS M992
J. Vozella, LAAO, MS A316
J. Bearzi, NMED–HRMB
E/ER File, MS M992

Bcy (w/encs.):
A. Jordan, Washington, DC
T. Longo, DOE–HQ, EM-453
S. Rae, ESH–18, MS K497
C. Rodriguez, E/ER, MS M992 (5 copies)
R. Weaver, Los Alamos, NM
J. White, ESH–19, MS K490

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 Through June 2000

Name: Julie A. Canepa Date: 8/15/00
Julie A. Canepa, Program Manager
Los Alamos National Laboratory
Environmental Restoration Project

Michael P. Baker, Acting Program Director
Los Alamos National Laboratory
Environmental Science & Waste Technology

Name: Mat Johansen for Joe Vozella Date: 8-17-00
Theodore J. Taylor, Program Manager
Department of Energy – Los Alamos Area Office
Environmental Restoration Program

or

Joseph Vozella,
Acting Assistant Area Manager of
Department of Energy – Los Alamos Area Office
Environmental Projects
Environment, Safety, and Health Branch

environmental restoration project

A Department of Energy
Environmental Cleanup Program

LA-UR-00-3238
August 15, 2000
ER2000-0343

Quarterly Technical Report April Through June 2000

Los Alamos
NATIONAL LABORATORY
Los Alamos, NM 87545

Produced by the Regulatory Compliance Focus Area

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LIST OF ACRONYMS AND ABBREVIATIONS

BAER	Burn Area Emergency Rehabilitation (Team)
BMP	best management practice
CAB	Citizens Advisory Board
CMS	corrective measures study
D&D	decontamination and decommissioning
DOE	US Department of Energy
DOE-AL	US Department of Energy-Albuquerque Operations Office
DOE-HQ	US Department of Energy-Headquarters
DOE-LAAO	US Department of Energy-Los Alamos Area Office
EPA	US Environmental Protection Agency
ER	environmental restoration
ESH	Environment, Safety, and Health (Division)
ESH-18	Water Quality and Hydrology Group
ESH-19	Hazardous and Solid Waste Group
ESH-20	Ecology Group
FIMAD	Facility for Information Management, Analysis, and Display
FY	fiscal year
HE	high explosives
HRMB	Hazardous and Radioactive Materials Bureau
HSWA	Hazardous and Solid Waste Amendments
IM	interim measure
LANL	Los Alamos National Laboratory
MDA	material disposal area
NRA	no further action
NMED	New Mexico Environment Department
NRDA	Natural Resource Damage Assessment
NTISV	nontraditional in situ vitrification
PCB	polychlorinated biphenyl
PRS	potential release site
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
RSI	request for supplemental information
SAP	sampling and analysis plan
SOP	standard operation procedure
SWMU	solid waste management unit
TA	technical area
TSCA	Toxic Substances Control Act
VCA	voluntary corrective action
VCM	voluntary corrective measure
WWTP	Wastewater Treatment Plant

QUARTERLY TECHNICAL REPORT

APRIL–JUNE 2000

LOS ALAMOS NATIONAL LABORATORY

ENVIRONMENTAL RESTORATION PROJECT

ALBUQUERQUE OPERATIONS OFFICE

CONTRACTOR: University of California

PROJECT MANAGER: Julie Canepa

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 the current focus area structure and then, when applicable, 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 fieldwork, report-writing, and Cerro Grande fire recovery activities performed this quarter in the ER Project.

Much effort this quarter was directed toward the recovery work associated with the Cerro Grande fire. The ER Project, working with the Laboratory Emergency Recovery Team, assessed 314 potential release sites (PRSs) burned by the fire, identifying the need for stabilization to protect against contaminant migration. Working with members of the New Mexico Environment Department (NMED) Oversight Bureau, the Laboratory ER Project determined that 91 of those 314 sites required the installation of best management practices (BMPs). All BMP installations are complete. Other activities associated with the fire include the evaluation of 77 PRSs that reside within an area predicted to flood as a result of the fire, which left much of the soils around Los Alamos in a hydrophobic condition. ER Project personnel are working with the NMED Hazardous and Radioactive Materials Bureau (NMED-HRMB) to identify which of the 77 sites require some type of accelerated action (stabilization, characterization, or remediation) performed prior to flooding. This work is ongoing. Fire suppression, stabilization activities, waste disposal, routine maintenance, and good stewardship actions are also occurring at PRSs such as Material Disposal Area (MDA) R, firing site R-44, and the Mortandad sediment traps. Attached to this report as Appendix A are two tables listing the 314 PRSs burned by the fire and the BMP recommendations associated with those PRSs (Table A-1) and the 77 PRSs within the area subject to flooding (Table A-2).

2.0 FOCUS AREAS

2.1 Canyon Investigations — Focus Area Leader: Allyn Pratt

2.1.1 Ongoing Reach Investigations

2.1.1.1 Acid Canyon (within the Pueblo Canyon watershed)

An interim report on sediment contamination in the South Fork of Acid Canyon was completed on April 27, 2000. This report focused on radionuclide contamination to address specific concerns raised by stakeholders in the fall of 1999 and presented results of sediment characterization and a preliminary human health radiation dose assessment. The assessment approach was consistent with requirements and guidance in US Department of Energy (DOE) orders and companion materials (e.g., RESRAD software) and incorporated relevant US Environmental Protection Agency (EPA) risk assessment guidance. This approach also incorporated specific input from the DOE Los Alamos Area Office (DOE-LAAO), the DOE Albuquerque Operations Office (DOE-AL) NMED, and EPA Region 6. Briefings to Los Alamos County, NMED, and other stakeholders regarding this work, along with Phase II investigations in Acid Canyon were delayed because of the Cerro Grande fire.

Assessment of analytical data in Acid Canyon indicated that the South Fork of the canyon is the main source of low concentrations of various organic and inorganic contaminants in the watershed, including mercury and polychlorinated biphenyls (PCBs). Other contaminants, including zinc, DDT, and several polycyclic aromatic hydrocarbons, are highest in the main part of Acid Canyon and indicate sources in townsite runoff. These data will be used to help guide Phase II sampling in Acid Canyon.

2.1.1.2 Pueblo Canyon

Analytical data for 18 Phase I sediment samples from Pueblo Canyon reach P-1 were assessed. Samples were collected upstream and downstream of the former Pueblo Wastewater Treatment Plant (WWTP) to determine the relative contributions of inorganic and organic contaminants from the WWTP, Acid Canyon, and the townsite. A variety of inorganic and organic analytes were above background level upstream from the WWTP and therefore document contaminants derived from the townsite. Several analytes increase in concentration downstream from the WWTP and indicate contributions from the treatment plant. Higher concentrations of contaminants were typically found in Acid Canyon than in reach P-1, suggesting that Acid Canyon is the most important source of inorganic and organic contaminants in the watershed. These data will be used to determine if there is a need for additional samples from this area.

2.1.1.3 Cañada del Buey (White Rock Land Transfer Parcel)

Draft chapters have been prepared for a report on possible sediment contamination in Cañada del Buey reach CDB-4, within the proposed White Rock land transfer parcel. Initial data assessment indicates that all analytes may be within the range of local background levels.

2.1.1.4 Surface Water and Alluvial Groundwater Activities

The investigation of surface water and alluvial groundwater, in the planning stages prior to the Cerro Grande fire, is being modified to address the affects of potential large floods during the summer monsoon season. Section 2.1.1.5 provides details on post-fire characterization work.

2.1.1.5 Post-Cerro Grande Fire-Related Characterization

The Cerro Grande fire impacted a large area in the eastern Jemez Mountains, in the Los Alamos townsite, and on Laboratory land. A characterization program is being implemented to address potential contaminant transport related to increased flood potential resulting from the fire. The purpose of the sampling is to obtain data necessary to evaluate the impacts of floods on sediments, surface water, and alluvial groundwater and to support the assessment of human health and ecological risk for areas that are affected by the floods. Characterization to date has emphasized those areas where additional information was needed to understand the nature of contamination prior to flooding (i.e., baseline conditions). The watersheds affected by the fire are prioritized for this work based on known or suspected concentrations and inventory of contaminants. The three highest priority watersheds are Pueblo, Los Alamos, and Pajarito, although other watersheds are affected and are being addressed.

An aggressive sampling plan will be implemented to characterize contamination and assess the health risk resulting from flooding. Emphasis is on off-site locations, although surface water and alluvial groundwater within Laboratory boundaries will also be characterized because of potential impacts to deeper groundwater zones. The sampling approach is driven by the conceptual model for significant changes in contaminant conditions relative to pre-fire conditions.

2.2 Material Disposal Areas — Focus Area Leader: John Hopkins

2.2.1 General Information for Material Disposal Areas Focus Area

A core team that was formed to collaboratively write the MDA Focus Area implementation plan met and agreed upon the approach for developing the plan. The team consisted of representatives from DOE-AL, the Laboratory, and the NMED-HRMB, The implementation plan will incorporate the DOE "plug-in" approach for streamlining the corrective action process at the Laboratory's largest MDAs. The schedule for finalizing the draft implementation plan was delayed by the Cerro Grande fire. The team's first post-fire meeting is scheduled for July 17, 2000. The implementation plan will replace the draft MDA core document and tier to the ER Project installation work plan.

2.2.2 Technical Area Activities

2.2.2.1 TA-21

PRS 21-027(d)-99, NTISV Cold Demonstration VCM. Preparation of the voluntary corrective measure (VCM) report proposing no further action (NFA) for PRS 21-027(d)-99, the nontraditional in situ vitrification (NTISV) cold demonstration, continues. There was approximately a one-month delay caused by the work shutdown for the Cerro Grande fire. A meeting was held with NMED on June 6, 2000, to discuss the risk approach for total petroleum hydrocarbon contamination at this PRS. It was determined that the NMED underground storage tank regulations risk approach will be followed to address the contamination.

PRS 21-018(a)-99, NTISV Hot Demonstration at MDA V. NMED provided written approval of the interim measure (IM) plan on April 11, 2000. Site preparation activities for implementation of the NTISV technology were completed in early April. The system was powered up on April 4, 2000, for initiating the melting process for the hot demonstration of the NTISV technology. There was a delay of approximately 10 days during the melt while equipment attachments were built to break up bridged soil over the melt area. The field phase of the melt was completed on April 28, 2000. To determine the success of the demonstration, glass samples will be collected from the vitrified product and analyzed in October or

November 2000. In order to protect the Mexican spotted owl (a threatened and endangered species nesting in the area), sound barriers were constructed at the site, as required by the Laboratory's Ecology Group (ESH-20), thus allowing drilling activities to occur. After the power was disconnected during the first week of May, post-melt tomography, drilling, and sampling were completed.

Demobilization activities, delayed three weeks because of the Cerro Grande fire, were initiated in late May. Waste characterization samples were collected in June to characterize decontamination fluids generated during decontamination of the hood and the off-gas treatment system. Preliminary waste analytical results from the high-efficiency particulate air filters and the flush waters indicate these waste streams will be managed as low-level radioactive waste.

PRS 21-005. On April 5, 2000, NMED provided written approval of the Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) report for PRS 21-005, a disposal pit.

PRS 21-024(i). A path forward has been determined for waste disposal, based on the detailed operational history and the review of all previous analytical data. To date, approval for disposal was received from one permitted off-site waste treatment, storage, and disposal facility where the waste will be managed as low-level mixed hazardous waste. Septic tank removal activities are scheduled to begin in FY 2001.

PRS 21-029, DP Tank Farm. Monthly site inspections of the hydrocarbon sheen area in DP Canyon were conducted in April, May, and June. Copies of these inspection reports are attached as Appendixes B, C, and D. A second hydrocarbon sheen was discovered in late March. NMED conducted a site visit in April to view the new hydrocarbon sheen and to discuss additional sampling activities related to this new location. It was decided that a sample will be collected for hydrocarbon fingerprinting analyses first. In addition, the sediment sample locations within the stream channel will be modified to include sample locations both upstream and downstream from this new sheen location.

Readiness review activities were completed in mid-June in preparation for fieldwork. Fieldwork was delayed approximately six weeks because of the Cerro Grande fire. Fieldwork was initiated on June 19, 2000, with sediment sampling and shallow hand-augering activities in the bottom of DP Canyon.

2.2.2.2 TA-49

PRSs 49-001(b,c,d,g), MDA AB, Areas 2, 2A, and 2B. Monthly moisture monitoring was conducted; the results are summarized in Appendix E. Erosion control BMPs that were destroyed at PRS 49-001(g) by the Cerro Grande fire were replaced.

2.2.2.3 TA-50

Existing borehole 50-9100 was reamed out and pore gas monitoring equipment was installed in order to monitor the vertical extent of a potential volatile organic compound plume at MDA C. Quarterly poregas monitoring is scheduled to commence in July 2000.

2.2.2.4 TA-54

A team with representatives from DOE-AL, NMED-HRMB, and the Laboratory began reviewing the TA-54 RFI report. This report is a pilot implementation of DOE's "plug-in" approach for expediting corrective actions as adopted by the focus area and described in the MDA Focus Area implementation plan. Meetings, interrupted by the Cerro Grande fire, will restart on July 10, 2000.

The quarterly pore gas monitoring at MDAs G and L was completed as required by Module VIII of the Laboratory's Hazardous Waste Facility Permit. The summary results are provided in Appendix F of this report. Field screening results for this pore gas monitoring effort are not included in this document because of space constraints but are available through the MDA data steward, Bill Hardesty of the ER Project (505-667-0808).

2.3 RCRA Corrective Actions — Focus Area Leader: Warren Neff

2.3.1 High Explosives Production Sites Team

The High Explosives Production Sites Team spent most of the last quarter in stand-down mode as a result of the Cerro Grande fire or completing fire recovery activities. The Cerro Grande fire burned intensely across many of the team's sites (TAs-6, -9, -11, -16, -22 and -40). BMPs were installed at numerous sites at TAs-6, -9, -22 and -40 following the fire. MDA R, PRS 16-019, was severely burned. The team supported institutional fire suppression activities at MDA R.

Moderate progress was made on fieldwork, IM cleanup work, and report-writing activities in support of the PRS 16-021(c) (the 260 outfall) corrective measures study (CMS). The team continued the work outlined in the IM plan for the 260 outfall and the deep drilling at well CdV-R-15-3. Hydrogeology studies, including stream profiles and quarterly sampling, were completed. High-performing team activities continued.

Many BMPs at TA-11 and TA-16 were destroyed in the Cerro Grande fire. These were reinstalled, and additional BMPs were installed at numerous burned sites.

2.3.1.1 TA-16

Hydrogeology. The field team continued to monitor water levels in the Cañon de Valle alluvial wells and in the intermediate-depth wells. Four of the five alluvial wells in Cañon de Valle contained water; none of the intermediate-depth boreholes contained water during this quarter. One alluvial well in Martin spring canyon contained water.

In June, quarterly samples were collected from Cañon de Valle springs and surface water. Stable isotope samples were collected at precipitation events and during quarterly sampling. Every-other-day water samples (bromide tracer) collected from the TA-16 springs showed no bromide tracer breakthrough. Flow-integrated samples were collected in SWSC, Burning Ground, and Martin Springs. Fire damage to autosamplers at SWSC and Martin springs impeded collection of tracer samples and flow-integrated spring samples. All third-quarter results are pending.

Drilling activities were completed at deep groundwater well CdV-R-15-3. The total depth of the well was approximately 1680 ft. All drilling was completed "open hole" using tricone bits. Perched zones were detected at approximately 600 ft and 900 ft. Both perched zones appear to be ephemeral, and screening data showed little or no high explosives (HE). A Schlumberger Oilfield Services geophysical log to total depth was completed in the borehole. Based on geophysical anomalies and observations of water during drilling, six screened intervals were sited at the following locations: 618–625 ft, 801–808 ft, 965–991 ft, 1235–1279 ft (across the top of the regional aquifer at 1245 ft), 1348-1355 ft, and 1638–1645 ft.

Joint meetings of the TA-16-260 and ecological risk high-performing teams were held. As a result of those meetings biota sampling was proposed; however, this sampling was put on hold because of the effects of the Cerro Grande fire.

PRS 16-021(c) CMS. HE composting tests using clean soil were initiated as a backup to the partially successful zero-valent iron tests. Good temperature increases were seen with compost mixtures containing horse manure, cow manure, and yard waste. A new engineering design for the stormwater management passive barrier system was completed.

PRS 16-021(c) IM. Excavation at the IM project was continued. Excavation of the upper drainage was completed. Excavation of material that was potentially RCRA hazardous waste was not initiated until NMED approved an area of contamination for the project. Excavation of the lower drainage using a vacuum truck was begun. Approximately 800 yd^3 were excavated and staged.

The IM work site was burned in the Cerro Grande fire. Straw bale BMPs and hoses for the trash pump and soil vacuum were burned. Work could not start at the IM until the smoldering debris at MDA R was extinguished. BMPs and other burned equipment were replaced.

V-Site. A request for supplemental information (RSI) on the July 1999 VCM report was received. The response was submitted in June 2000. Several historic buildings at V-Site, including TA-16-515, TA-16-518, TA-16-519, and TA-16-520, were burned in the Cerro Grande fire. The V-Site PRSs, including 16-029(x) (the drainline and outfall from TA-16-515), were also burned.

MDA R. MDA R (PRS 16-019) was severely burned in the Cerro Grande fire. In order to extinguish the fire, approximately 1500 yd^3 of soil were removed. The soils were contaminated with barium and HE, which will be disposed using the waste protocols developed for MDA P.

Surface Water. BMPs were inspected and maintained. Those destroyed in the fire were reinstalled, and additional BMPs were installed at numerous burned sites.

2.3.2 Firing Sites Team

The team submitted the RSI for the Voluntary Corrective Action (VCA) Plan for PRSs 33-007(b), 33-010(c), and C-33-003 on April 18, 2000. Per negotiations with NMED, attached to this response was a status report documenting the segmented gate system VCA activities at these sites.

Upon authorization of work following the Cerro Grande fire, team members assessed firing site PRSs within the burn areas and initiated BMP soil erosion prevention measures. PRSs impacted by the fire are located in TAs -14, -15 and -36. Following initial assessments, team members began procurement activities and safety planning to install the BMPs.

2.3.3 Industrial Sites Team

Industrial Sites Team personnel provided support during the facility recovery and the emergency rehabilitation efforts after the Cerro Grande fire. Industrial Site PRSs potentially impacted by the fire have been visited and evaluated for fire-related effects and the potential need for immediate and/or additional work to stabilize the sites. Readiness review documentation for rehabilitation activities was prepared, and fire recovery activities were performed at PRSs within TAs-4, -5, -42, -46, and -48.

2.3.3.1 TA-3

PRS 03-010(a). PRS 03-010(a), the systematic release from a vacuum pump repair shop, was sampled during the first and second quarter of this fiscal year to address NMED concerns regarding residual groundwater, soil, and sediment contamination. Analytical results were received this quarter. Focused

validation was completed for sediment, surface water, and groundwater analytical data. Evaluation of the data was delayed during the fire and subsequent rehabilitation efforts, but will begin again during the fourth quarter of this fiscal year.

PRS 03-056(c). The VCA plan for PRS 03-056(c), a transformer storage area, is currently undergoing review by the state. A meeting was held this quarter between ER Project personnel and representatives from several branches of NMED to discuss issues associated with the VCA at 03-056(c). Based on informal discussions with NMED, the ER Project is expecting to receive an RSI on the VCA plan.

A notice of self-implementing on-site cleanup and disposal of PCB remediation waste at PRS 03-056(c) was prepared and will be submitted in July to the PCB Program office of EPA Region 6, to NMED-HRMB, and to the County of Los Alamos. The notice includes a history of the site, a discussion of the nature of the contamination, a summary of the procedures used for site characterization, tables and a map showing the distribution of contaminants at the site, the VCA plan for the site, and a written certification signed by DOE and Laboratory management. The notice is to be submitted as required by 40 CFR 761.61(a)(3)(i), "PCB Remediation Waste." The notice states that waste generated from the VCA will be managed following the self-implementing cleanup and disposal of PCB remediation waste outlined at 40 CFR 761.61(a), as applicable.

Preparation and mobilization efforts for the PRS 03-056(c) VCA were stopped during the Cerro Grande fire and subsequent rehabilitation efforts. This has caused a minor delay in the activities, but the VCA cleanup is currently scheduled to begin August 7, 2000.

2.3.3.2 TA-35

The TA-35 high-performing team, which includes NMED, DOE and ER Project personnel, continued developing the integrated sampling and analysis plan (SAP) through the first week of May. In April the decision peer review was held; the members of the ER Project Management Team were the reviewers for the presentation of the approach and discussions about the content and format of the document.

Progress on the TA-35 integrated SAP preparation includes completion of the data evaluation and pull-down and completion of data summary tables. Drafts have been completed for Chapter 1 (introduction, objectives and purpose, regulatory history, and previous investigations); Chapter 2, (description of Middle Mortandad/Ten-Site Aggregate and TA-35 [which includes a summary of all existing data]); portions of Chapter 3 (investigation approach); Chapter 4 (data collection and sampling procedures), and Chapter 5 (project management). Ten-Site Slope, Pratt Canyon, Mortandad Slope, mesa-top, and Ten-Site Canyon data have been summarized, and above-background and frequency-of-detected-chemicals tables have been created. Box plots and spoke plots have been created for all five subaggregates. Data from the Mortandad/Ten-Site Canyon reaches have been compiled and summarized. Frequency-of-detected-chemicals tables were created for all sub-areas. The sampling design, numbers of samples needed, and map was completed for the Ten-Site Slope subaggregate.

Preparation of the TA-35 integrated SAP was stopped during the Cerro Grande fire and subsequent rehabilitation efforts. It is not known whether resources will be available to continue this project this fiscal year or if it will be postponed to next year.

2.3.3.3 TA-53

PRS 53-002(a)-99, Northern and Southern Surface Impoundments. Final results for sludge samples collected in the southern lagoon [PRS 53-002(b)] were received. Focused validation of the analytical data

was completed. A waste determination for the sludge in the south lagoon also was completed, classifying the potential waste as low-level radioactive waste. Preparation activities for the source removal started this quarter, including modifications to the contract, readiness review documentation, and the preparation of a letter to NMED describing the action. These activities are considered a deviation to the work plan. Preparation and mobilization efforts for the sludge removal were stopped during the Cerro Grande fire and subsequent rehabilitation efforts. This has caused a delay in the activities, but source removal is scheduled to begin in July.

2.3.4 Townsites Team

Numerous land transfer and private property-related issues were addressed this quarter.

All Townsite PRSs potentially impacted by the Cerro Grande fire have been visited and evaluated for fire-related effects and the potential need for immediate and/or additional work to stabilize the sites.

2.3.4.1 TA-0

PRS 00-003-99 [00-003, 00-012, and 00-030(i)]. The team is preparing for fieldwork for the VCA at this PRS, the DOE-LAAO land transfer parcel. The VCA plan submitted in January for administrative authority review received verbal approval, with formal approval pending.

PRS 00-017. An RSI response for the RFI report for PRS 00-017, waste lines 107, 170, and 171, was submitted to NMED this quarter.

PRS 00-019. Approval was received from the NMED for the VCA plan and the plan addendum for PRS 00-019, the Central Wastewater Treatment Plant.

Data received last quarter for the 17 samples collected from the two outfall areas in Graduation Canyon are currently being edited and validated. Analytical results for the mesa top sampling completed last quarter have been received and are undergoing evaluation.

Work continues on the VCA completion report.

PRS 00-030(g). Work on the RFI report for PRS 00-030(g), the old Catholic Church septic tank, has been suspended pending the completion of recovery efforts associated with the Cerro Grande fire.

2.3.4.2 TA-1

PRS 01-001(s). Location 1A of the Western Sanitary Waste Line lies under a proposed construction project on private property and is delaying development by the property owner. This PRS was investigated initially in 1994. In 1996, the waste line was removed and the site was further investigated. Supplemental extent sampling needs have been identified and agreed to by the NMED. The samples will be collected and analyzed in preparation for a proposal for no further action in order to allow the property owner to develop the site as planned.

2.3.4.3 TA-73

PRSs 73-001(a,b)-99 [73-001(a–d) and 73-004(d)]. The TA-73 high-performing team, established to develop a final remedy for the airport landfill [PRSs 73-001(a–d) and 73-004(d)], has refined the proposed

approach. A clear path forward has been identified and agreed to by the stakeholder members of team. Subsequent steps have been delayed pending the completion of recovery efforts associated with the fire.

PRS 73-005-99 [73-005, 73-007, C-73-005(a-f)]. The RFI report for PRS 73-005-99, Contractor's Row, has been completed and has undergone internal and DOE reviews; final comments are currently being incorporated in preparation for submittal to NMED.

2.3.5 MDA P Closure

The MDA P closure project is currently in Phase I (excavation and disposal). Excavation of soil and debris from the East Lobe of MDA P, using the remote excavator, was completed this quarter. The Cerro Grande fire significantly disrupted closure implementation operations this quarter, but caused no damage to support structures or equipment. BMPs destroyed by the fire have been replaced. Waste sorting was further delayed while the remote excavator was diverted to MDA R for fire suppression.

Approximately 2325 yd^3 of soil and debris were excavated from the East Lobe this quarter. Disposal of soil and debris included the following volumes this quarter:

- contaminated soil (hazardous waste) 2,300 yd^3
- scrap metal (steel) 100 yd^3
- small containers requiring characterization 792 yd^3

To date, 2605 lb of asbestos and asbestos-containing material has also been disposed. Other disposal includes 246 lb of detonable HE and 4700 lb of barium nitrate.

2.4 Groundwater Investigations — Focus Area Leader: Deba Daymon

2.4.1 General Information for Groundwater Investigations Focus Area

Three active drill sites had the potential of being affected by the Cerro Grande fire. Those sites included regional wells R-9 and R-25, funded by DOE Defense Programs, and CdV-R-15-3, funded by the Laboratory's ER Project.

Regional well R-19 received no fire-related damage. Insertion of annular fill was completed before the fire and the well was awaiting testing and development. The equipment left on-site included the field support trailer, a diesel generator, four frac tanks, two polyethylene tanks, a portable toilet, and several waste management drums. The fire did not extend to this area.

At CdV-R-15-3, insertion of annular fill had progressed to a depth of 1065 ft before the fire. Equipment on-site during the fire included the Barber drill rig, field support trailers, water storage tanks, drill casing, and other drilling equipment. The site was not burned; the closest approach of the Cerro Grande fire was approximately 20 yd from the southeast fence corner. There was a light dusting of ash in the trailers, and the phone line from fire-damaged areas to the drill site needs to be repaired.

Regional well R-25 was being developed prior to installation of a Westbay sampling system. A drill rig, generator, water storage tanks, a sprinkler system, and a field support trailer were on site. The area was moderately burned, but damage was limited to the following components.

- The hose to the sprinkler system was burned.
- Plastic plugs in the sprinkler system were damaged.

- Filters on a compressor system contain some ash and may need to be replaced.
- An electrical line from the crew trailer to the power drop and the ground wire for the crew trailer were burned and need to be replaced.
- Straw bales used for erosion control on the canyon edge were burned.

In all, the impacts on equipment at all three sites were minimal.

2.4.2 Regional Well Activities

2.4.2.1 Regional Well R-7

Drill rig access to Los Alamos Canyon, where regional well R-7 is located, has been denied for the remainder of FY 2000 because of the potential for floods resulting from the Cerro Grande fire. Because of this new site condition, the decision was made to plug and abandon the R-7 surface casing in early July. When canyon access is reestablished, drilling will begin.

2.4.2.2 Regional Well R-9

The following activities occurred this quarter at regional well R-9, located in Los Alamos Canyon:

- removed all waste from the site and sent it to an appropriate off-site disposal facility;
- designed well-head protection, scheduled for installation during July; and
- finished the well completion report, to be transmitted to DOE in early July

2.4.2.3 Regional Well R-12

Work on the well completion report for regional well R-12, located in Sandia Canyon, is under way. The report will be submitted to DOE in July.

2.4.2.4 Regional Well R-15

Work on the well completion report for regional well R-15, located in Mortandad Canyon, is under way. The report will be submitted to DOE in July.

2.4.2.5 Regional Well R-19

The following activities occurred this quarter at regional well R-19, located in Pajarito Canyon:

- completed well construction (7 screens) on April 28, 2000;
- resumed work on-site on June 2, 2000, following the fire shutdown; and
- began well development on June 6, 2000.

2.4.2.6 Regional Well R-22

The authorization to begin drilling regional well R-22, located on the mesa top at TA-54, was received this quarter. The following initial planning activities began:

- locating the site,
- preparing the ESH-ID paperwork, and
- defining data quality objectives for the well.

2.5 Information Management — Focus Area Leader: Steve Bolivar

The Information Management Focus Area was formed during this quarter as a result of a new ER structure. The goal of this focus area is to bring all ER Project databases, software and hardware functions, and data management activities under one management arena.

2.5.1 Team Activities

2.5.1.1 Information Management

Work continued on the ER PRS database this quarter. Work included the modification of the Web application to reflect the PRS consolidation effort. Modifications were also made to enable the end user to perform custom queries. As a result of fire recovery efforts, new fields will be added to the PRS database. These fields will include PRSs affected by the fire and PRSs in potential flood plains.

Centralized data management personnel prepared 365 sample-collection logs for sampling events and issued corresponding sets of chain of custody and electronic followers. Personnel edited and standardized 244 data packages. Computer support personnel received 405 computer service requests this quarter. Thirty-three are still being worked.

2.5.1.2 ER Database

The ER database is currently being reengineered. The new version consists of several modules that are being designed and reviewed in a prioritized sequence. Personnel are working with users to ensure the necessary fields (i.e., information) are captured within each module. This effort is being completed in concert with the Laboratory's Water Quality and Hydrology Group (ESH-18) to ensure that data from the hydrogeologic work plan (LANL 1998, 59599) are captured and accessible to the ER Project as well as ESH-18. Most design issues have been resolved, and teams are starting the implementation phase. A new data server at Pueblo Complex will form the core of the new data process. The server is up and working and software is now being loaded.

2.5.1.3 Sample Management Office

Personnel from the Sample Management Office continued to accept field samples, create the necessary paperwork, contact the appropriate analytical laboratories, and ensure the requested information is received. Workload greatly increased as the result of fire recovery efforts. Most of the ER Project samples are sent to four main laboratories, although 20 other specialty laboratories are used. Analytical laboratory capacity is sufficient for current demand. The Sample Management Office issued 109 field data groups

(number of samples), and had 405 customers this quarter. Personnel handled 2017 containers of samples.

2.5.1.4 Facility for Information Management, Analysis, and Display (FIMAD)

Personnel from FIMAD continued to maintain the present ER database, as well as the spatial data (such as elevation, ortho-photographs, etc.). The Cartographic Laboratory completed 235 requests from the ER Project this quarter. Personnel produced 350 new maps and 1233 copies of existing maps.

For the last several weeks of the quarter, personnel were primarily involved with fire recovery activities. The Geographic Information System team set up a temporary base in Santa Fe during the first week of the Cerro Grande fire and was able to produce real-time fire intensity maps. The initial iteration contained 16 sheets. Since then, 6- and 4-sheet iterations (with several versions each) have been generated. The team was recently declared the official source for Laboratory fire recovery maps, and they continue to produce maps for the Laboratory's Emergency Rehabilitation Team, the Army Corps of Engineers, and other Laboratory agencies. Some of the maps are viewable on the ER Project Web site. One of the maps is an integrated fire severity and history map, produced from data provided by the Burn Area Emergency Rehabilitation (BAER) Team, an inter-agency team that was called in the weeks following the fire.

As a result of the Cerro Grande fire, Laboratory management requested an immediate fly-over of Laboratory property. Both ortho-photography and LIDAR (laser altimetry) were used. The Geographic Information System Team planned and procured these services. The fly-overs have started, and the ortho-photography and low-resolution LIDAR are complete. The high-resolution LIDAR will be finished in July. These fly-overs will provide scientists information on sediment load, vegetation, and burn extent for before and after rain events.

2.6 Analysis and Assessment — Focus Area Leader: Alison Dorries

2.6.1 General Information for Analysis and Assessment Focus Area

The Analysis and Assessment Focus Area supported institutional recovery activities and planning in the wake of the Cerro Grande fire, which occurred one month into the third quarter. The fire provided opportunities to test several procedures and tools under development and use by the focus area, and to accelerate progress on others planned for completion later in the year.

2.6.2 Team Activities

2.6.2.1 Data Analysis and Assessment Team

Data Quality. Two key standard operating procedures (SOPs), LANL-ER-SOP-15.06, "Routine Validation of Gamma Spectroscopy Data" and LANL-ER-SOP-15.07, "Routine Validation of Alpha Spectrometry, Gas Proportional Counting, and Liquid Scintillation Data," underwent peer review and are in final preparation for publication. Seven new data validation SOPs (LANL-ER-SOPs-15.01through 15.05, and LANL-ER-SOPs-15.12 and -15.13) were published this quarter. Work also continues on eight new technical papers.

Data Stewardship. The Cerro Grande fire caused work under this task to be refocused and reprioritized. Work on completing the database design model for the sample, field measurement, and chemistry modules was accelerated with ESH-18. These modules are required for adding the fire recovery data to the database. A plan for moving data into the location module was completed, and cleanup of legacy data

intended for inclusion in the location module was accomplished. The process for legacy data cleanup has also been accelerated. Cleanup of legacy data associated with fire-affected and floodplain PRSs has been prioritized. Data for floodplain PRSs are being evaluated. Data stewards are also assisting with the collection and assessment of baseline pre-flood data for impacted canyons.

Integrated Data Sets. Receipt and assessment of data for the additional background groundwater samples collected in March and April were delayed by the fire. Work is progressing on a technical report summarizing the results of the Pajarito Plateau groundwater sampling effort.

2.6.2.3 Risk Assessment and Review Team

Risk Assessment Team. Team members completed and delivered to the NMED an updated version of the EcoRisk database for screening assessments. The updated version included corrections to the database and the ability to create reports that NMED specifically requested. Further updates continued to be made to the Ecological Screening Level database during the quarter.

Because of the Cerro Grande fire in May, plans to carry out ecological field studies in Cañon de Valle have been postponed. The burn in the canyon has altered the structural makeup of the habitat such that comparisons to reference sites would not be valid. NMED plans to repeat community structure measurements in the stream have also been postponed.

Team members continued analysis of field data on western bluebird and ash-throated flycatcher nesting to determine if differences in fecundity, fledging success, biochemical markers could be attributed to differences in ambient distribution patterns of chemicals of potential concern.

The Risk Assessment Team has been supporting the institutional effort to respond to the Cerro Grande fire. The team has also been working with the institutional PRS and water teams to evaluate the potential impacts that residuals from combusted materials and Laboratory releases might have on downstream ecological and human systems. This includes defining post-fire baseline conditions and changes after flooding has redistributed ash, soil, and sediment.

The Risk Assessment and Communications and Outreach Teams have been working together with members of the local Pueblo environmental departments to develop a risk-based decision approach relevant to Native American uses of Laboratory lands and environs. The team's goals are to allow Pueblo members to become familiar with risk assessment and management techniques, to frame risk-based decisions in ways relevant to Native American land uses, and to proceed with decision-making that protects culturally relevant resource uses while protecting the cultural privacy of Native American users. During this quarter, team members met with members of the San Ildefonso Environment Department. This meeting set the stage for cooperative teaming for sampling in the wake of the Cerro Grande fire, including evaluation of possible effects from post-fire flooding.

Members of the Risk Assessment Team met again with the East Jemez Natural Resources Council to discuss appropriate ecological receptors for natural resources management and ecological risk assessment. Team members also worked with the TA-35 high-performing team to develop conceptual models for exposure, to analyze data and identify important contaminants of potential concern, and to determine data gaps.

Peer Review Team. Twenty-seven peer reviews were conducted in this quarter, including seven read reviews, ten panel reviews, seven statement of work reviews, and three decision reviews.

2.6.2.4 Strategic Decision Analysis Team

The Cerro Grande fire provided an opportunity to evaluate many of the modeling tools being developed by the Strategic Decision Analysis Team. These tools proved very useful in support of fire recovery efforts undertaken by the Laboratory. Before the Cerro Grande fire, most of the calibration work had been completed on process-level models for surface water flow, sediment transport, and groundwater flow, and actual calculations were being readied. As a result of the fire, the surface-water model (SPLASH) being developed by the Strategic Decision Analysis Team was used to evaluate post-fire flood potentials in heavily damaged watersheds, and plans are under way to use the groundwater model (FEHM) to evaluate the potential impacts of flood pools on subsurface flow.

The data models being developed by the Strategic Decision Analysis Team before the Cerro Grande fire were also extensively used to support post-fire investigations. In addition, new data management tools have been proposed by the team as a result of the extensive data set (aerial photogrammetry, laser altimetry, multi-spectral scanning) being collected and compiled to assess the direct (incineration) and indirect (flooding) impacts of the fire.

In addition to the fire-recovery work undertaken by the Strategic Decision Analysis Team, planned work scope remains intact and on schedule.

2.7 Regulatory Compliance — Focus Area Leader: Dave McInroy

2.7.1 General Information for Regulatory Compliance Focus Area

Monthly meetings with NMED continued this quarter, as well as meetings regarding special topics such as permit modification, IMs, VCAs/VCMs, and RSI responses.

During, and in the aftermath of, the Cerro Grande fire, team members worked with facility managers, the Emergency Operations Center, Emergency Rehabilitation Team, Facility Recovery Center, office of Deputy Director for Laboratory Operations, and ESH Division to identify PRSs affected by the fire, assess fire damage to specific sites, and determine required BMPs, or the need for any accelerated actions. High-performing teams were established to address PRSs within the flood plains and risk issues pertaining to post-fire and flood conditions.

Team members performed the following miscellaneous tasks:

- participated as members of high-performing teams for the TA-35 integrated SAP, TA-54 RFI/MDA Implementation, Permit Modification/Annual Unit Audit, ecological risk assessment, and the 260 outfall;
- negotiated and finalized consolidation worksheets and provided descriptors for consolidated units;
- provided regulatory support of cleanup initiatives at TA-53; and
- conducted operations and waste management audits of ER field operations.

2.7.2 Team Activities

2.7.2.1 Communication and Outreach Team

A representative from the Communications and Outreach Team staffed the Joint Information Center during the Cerro Grande Fire. The representative provided information to national reporters about Environmental Restoration Project issues and worked with a local computer organization to put information on the web on a daily basis. Additionally, an information sheet was developed to share with the local and national media about the potential release sites located in the fire area.

The team assisted with tours of ER sites for local, state, and national media personnel, Native American pueblos, and citizens groups. Team members also assisted with filling data and media requests for the Laboratory's Emergency Operations Center.

Outreach Activities. The Communications and Outreach Team participated in the following meetings this quarter:

- ER Project quarterly public meetings. The team hosted the April 12, 2000, meeting and helped prepare presentations for that meeting regarding various townsite and canyon projects.
- Solid Waste Management Unit (SWMU) Working Group meeting. The team participated in presentations regarding land transfer, townsite activities, the status of Acid Canyon activities, and PRSs affected by the Cerro Grande fire.
- ER Project monthly public availability session.
- Meeting with DOE/LAAO regarding their initiative to develop a comprehensive communications plan for the ER Project.
- Monthly meetings of LANL Outreach Coordinating Council.
- Monthly ESH outreach meetings.
- The Laboratory's Asian Pacific Heritage Month presentation.
- Monthly meeting of Rio Arriba Environmental Health Project.
- IMAGE student conference in Pojoaque, New Mexico.

Team members were involved in document preparation activities this quarter. The team distributed notices to community members who live near the TA-21 DP Tank Farm of the change in schedule (because of the fire) for fieldwork planned for that area. The team also notified Los Alamos community members living near the DOE/LAAO site and Site 22 of the dates for field activities in those areas and descriptions of those activities. The team helped prepare maps and viewgraphs for various ER Project presentations, published the biweekly newsletter for the ER Project, and continued work on ER information sheets and the Laboratory's environmental surveillance report.

The Communications and Outreach Team compiled and submitted to the Laboratory's Environmental Science and Waste Technology Division the "LANL ES&H Critical Few Performance Measures Quarterly Report." This report is a self-assessment of our ES&H performance measures.

Other documentation efforts included preparing and sending information to the LANL Facility Mailing List about the public meeting regarding a request for permit modification. Team members also revised Quality Procedure 4.5, "Access Agreements," and continued work on the ER Project's virtual library. Several documents related to the Cerro Grande fire, such as the canyon reach reports, are now on the ER external Web site.

Team members assisted with the Pajarito Plateau Watershed Partnership tour of the BMPs in Pueblo Canyon and the tour of the NTISV hot demonstration.

Northern New Mexico Citizens Advisory Board (CAB) Activities. The Communications and Outreach Team gave presentations at the CAB's monthly public meetings in April and June. Staff members continue to participate in the CAB monthly ER Committee meetings.

Land Transfer Activities. The team participated in two reviews of the Land Transfer Project this quarter: the DOE Inspector General review of the Land Transfer Project on April 11, 2000,and a Corps of Engineers review of the Land Transfer Project costs.

The team participated in numerous meetings with DOE related to costs and schedules for the Land Transfer Project and provided input to support DOE-Headquarters (DOE-HQ) in preparing responses to queries from a congressional committee. Many of the reviews focused on the ER Project's submittal on March 26, 2000, of its analysis of incremental costs and efforts that would be required in order to support Los Alamos County's initiative for accelerated transfer of some 100 acres.

Staff supported DOE-AL and DOE-HQ in the development of the Conveyance and Transfer Plan to be submitted to Congress.

Team representatives participated in various meetings with DOE/LAAO and DOE/AL regarding land transfer concerns related to the Cerro Grande fire.

Native American Initiatives. Members of the team met with personnel from Cochiti and Jemez Pueblos to discuss the risk initiative and received support for the project from both pueblos. Staff briefed the Cochiti Pueblo governor and staff on the Native American Risk Initiative on April 17, 2000, and discussed it with the Jemez Pueblo Environmental Programs Director and staff on April 25, 2000. The ER Project has received approval to proceed from the San Ildefonso and Jemez pueblo governments and expects formal approval from Cochiti and Santa Clara pueblos soon.

2.7.2.2 Closeout, Tracking, and Contracts Team

PRS and Future Deliverables Tracking. In support of the PRS tracking effort, team members worked on data calls to assist in determining which PRSs burned in the Cerro Grande fire. The team also began working to integrate the PRS database with the Laboratory's Water Quality and Hydrology Group (ESH-18) erosion database. In support of future deliverables tracking, team members determined what deliverables were delayed because of the Cerro Grande fire and notified NMED-HRMB of schedule changes due to the fire.

Closeout for PRSs. Team members continued progress on quality review for existing PRS closeout files, developed new PRS closeout files, and coordinated with the RPF on closeout issues and submission of closeout information.

2.7.2.4 Special Projects and Deployed Generalist Team

Beginning May 13, 2000, the team began determining which PRSs were affected by the Cerro Grande fire, providing information regarding burned PRSs to a variety of Laboratory groups and divisions. The information included PRS descriptions and contaminants of potential concerns, burn intensity, erosion matrix scores, required BMPs, regulatory status, and the location of PRSs with regard to flood plains. Team members also coordinated the preparation of maps plotting fire boundaries and PRS locations.

High-performing teams continue to show progress. Members of the permit modification/annual unit audit team continued information gathering, meetings, and site visits to address NFA proposals. Specifically, information supporting 30 NFA proposals from previous permit modification requests was assembled and submitted to NMED. The NFA proposals will be submitted for public comment prior to removal of the sites from Module VIII of the Laboratory's Hazardous Waste Facility Permit. In June 2000, the team also prepared and submitted a new Class III permit modification request for nine new NFA proposals to NMED and initiated review and information gathering for approximately 40 PRSs to be included in a second Class III permit modification request later this fiscal year.

Team members reviewed and prioritized 16 PRSs proposed for NFA in previous permit modification requests, where NMED is requiring one additional sample before approving the NFA proposals for public comment and subsequent removal from Module VIII.

Approximately 40 PRSs requiring between two and five confirmatory samples to confirm NFA have been located, prioritized, and sample locations identified.

Team personnel negotiated final consolidation of PRSs and supporting work sheets with NMED as part of the FY 2000 annual unit audit.

Natural Resource Management Activities. A representative of the Special Projects and Deployed Generalist Team is examining NRDA issues. This quarter, the East Jemez Resource Council coordinated an NRDA Steering Committee meeting, which included DOE reports on natural resource trustee activities at DOE facility sites. Discussion also covered wildfire implications for environmental protection and resource management.

The team representative also attended meetings of the Pajarito Plateau Watershed Partnership to discuss a number of issues, including the Cerro Grande fire, BAER Team activities, future projects to promote revegetation of burned forest lands, the process to formalize a partnership, application for 501(c)(3) status with the Internal Revenue Service, the possibility of EPA's Section 319 grant applications for funding, and various habitat restoration activities. The representative provided input to ESH-20 regarding ER needs for a revised Biological Resource Management Plan land-cover map for the Laboratory vicinity, to be made using new fly-over coverage. The focus of the Biological Resources Management Plan is to identify categories and levels of classification the ER Project may need for cleanup activity and ecorisk efforts. The team member continues to be ER Project point of contact for the Interagency Wildfire Management Team working to mitigate wildfire on Laboratory property.

Support to Focus Areas. Personnel from the Special Projects and Deployed Generalist Team are deployed to the operational focus areas to provide support regarding regulatory issues. In addition to providing general regulatory compliance assistance this quarter, such as reviewing documents, attending operational focus area meetings, and participating in peer reviews for operational focus area documents, the deployed members of the team assisted with the following tasks in the operational focus areas.

Canyons Investigations Activities. The deployed regulatory generalist assigned to the Canyons Investigations Focus Area provided support for requesting discharge of purge water from alluvial wells being sampled after the Cerro Grande fire.

The generalist also reviewed and approved for the ER Project several Laboratory emergency projects being performed in the canyons in response to flood concerns following the fire. The deployed generalist also provided support for planning sampling activities at TA-2 during D&D activities following the Cerro Grande fire.

Groundwater Investigations Activities. The deployed regulatory generalist assigned to the Groundwater Investigations Focus Area provided support for notice-of-intent discharges from regional wells R-9i, R-19, R-31, and CdV-R-15-3 and for drilling activities at regional wells R-7, R-31, and R-9i. The generalist also provided support for the shipment for disposal of three drums containing petroleum contaminated soil and two drums containing petroleum contaminated adsorbents from R-19.

MDA Activities. The deployed regulatory generalist assigned to the MDA Focus Area participated in numerous meetings and site tours with NMED, DOE and MDA Focus Area staff regarding the following:

- Providing support for waste management and regulatory compliance issues regarding the NTISV hot demonstration at MDA V, completed during April and May 2000.
- Finalizing and implementing the investigation approach for the DP Tank Farm (PRS 21-029). The team is working closely with NMED staff to ensure timely approval of investigation results.
- Finalizing use of the NMED underground storage tank risk assessment approach for the completion of the VCM report for PRS 21-027(d)-99.
- Addressing CETROM comments on the TA-21 Project Plan.
- Reviewing waste characterization strategy forms and potential 404 dredge and fill permit requirements for the upcoming removal of contaminated soil from PRS 21-011(k).
- Providing waste management and regulatory compliance support for the moisture monitoring at TA-49, MDA AB. The team is working closely with NMED staff to ensure moisture-monitoring results meet current and future data needs for managing MDAs.
- Identification and assessment of burned PRSs at TA-49.

Other activities included assisting with preparation, peer review, and comment resolution of several documents, including the draft VCM report for PRS 21-027(d)-99, the field implementation plan for DP Tank Farm, and revision of several sections and tables of the TA-54 RFI report.

In support of field activities, the team member completed waste management and stormwater inspections at TA-21, TA-49, and TA-50 and supervised the BMP repair and maintenance activities to repair fire damage to BMPs at TA-49 in the vicinity of MDA AB. The team member helped oversee the installation of a new moisture monitoring system and monitoring approach for MDA AB at TA-49 and the subsequent monitoring and waste management activities at the site. The team member reviewed and provided comments on waste characterization strategy forms and waste profile forms for the NTISV hot demonstration, DP Tank Farm, and MDA C and conducted waste storage area inspections at the NTISV hot demonstration and MDA C.

The deployed generalist provided additional support to the focus area by preparing various sampling notifications this quarter for pore gas monitoring at MDA C, moisture monitoring at TA-49, MDA AB, and DP Tank Farm (PRS 21-029). Based on detailed operational history for PRS 21-024(i) (a septic tank), team members identified a path forward for waste disposal. To date, approval for disposal was received from one permitted off-site waste treatment, storage, and disposal facility. Septic tank pumping and removal is scheduled to begin in FY 2001.

The deployed team member continues to participate in the MDA/TA-54 High-Performing Team meetings and has revised several sections and tables of the TA-54 RFI report pursuant to comments received from NMED.

RCRA Corrective Actions Activities. The deployed regulatory generalist assigned to the RCRA Corrective Actions Focus Area attended various meetings, assisted with preparation, review, and/or comment resolution of several documents, and participated in a variety of fire recovery activities. The team member attended meetings with NMED to discuss the following sites: the TA-73 Airport Landfill, V-Site, PRS 03-056(c), septic tank 275 [PRS 01-001(m)], and Location 1A of the Western Sanitary Waste Line [part of PRS 01-001(s)]. Meeting discussions and/or topics and results include the following:

- The approach, data and monitoring needs, and drainage cleanup associated with the TA-73 Airport Landfill were discussed at several high-performing team meetings. NMED and the ER Project agreed that the planning and reporting mechanisms for the work is a phased VCM process where the drainage cleanup and additional sample data collection are part of the first phase and the cover design and implementation are part of the second phase.

- The draft comments and responses associated with the V-Site RSI were discussed with NMED. All comments and responses were clarified so that the document could be finalized and submitted. At this meeting, NMED stated that on advice from their legal counsel, no NFAs would be approved for sites that did not pass residential risk assessment scenarios because no mechanism was in place to reevaluate sites when future land use changes from industrial to residential use. The ER Project is anticipating further discussions with NMED on this topic.

- The integration of RCRA corrective action activities and TSCA waste management activities at PRS 03-056(c) was discussed with NMED. ER Project personnel explained that VCA activities would continue to be conducted as part of RCRA corrective action (because PRS 03-056(c) is listed on Table A of Module VIII) and waste management would follow the self-implementing cleanup and disposal of PCB remediation waste under TSCA (because PCB-contaminated waste will require disposal).

- Private development on two townsite properties that are associated with PRS 01-001(m), septic tank 275 and PRS 01-001(s), Location 1A of the Western Sanitary Waste Line, were discussed with NMED. NMED and the ER Project agreed that additional historical information can resolve any remaining issues at PRS 01-001(m), while additional sampling was outlined for PRS 01-001(s). Sampling activities at PRS 01-001(s) will be coordinated with VCA activities at PRSs 00-003, 00-012, and 00-030(i). Upon receipt of preliminary data at PRS 01-001(s), NMED will write a letter to the property owner to address queries by the financial institution and developer.

The deployed generalist provided additional support to the focus area by preparing, reviewing, and/or resolving comments on various sampling notifications, RSI responses, and other documents. Sampling notifications were prepared for VCA activities at PRSs 00-003, 00-012, and 00-030(i), tank sampling at PRSs 53-006(d and e), IM activities at the 260 Outfall [PRS 16-021(c)-99], and additional sampling

activities at Location 1A of the Western Sanitary Waste Line [PRS 01-001(s)]. Specific responses were prepared and overall review was conducted for RSIs associated with the PRS 00-017 RFI report and the TA-16 V-Site VCM report. The team member also prepared a draft status report for TA-33 VCA activities, to be submitted with the associated RSI response and compiled information, and drafted the EPA notice for self-implementing cleanup and disposal of PCB remediation waste at PRS 03-056(c).

In other activities, the deployed generalist met with NMED to discuss comments on the Closure Plan for the TA-16-394 Burn Tray and toured the site. Since comments/questions were minimal, NMED agreed that the comments could be addressed within a letter or e-mail message. The generalist also established a database of PRSs and associated fire-related information, providing daily updates of information, and conducted site visits.

3.0 REFERENCE

LANL (Los Alamos National Laboratory), 1998. "Hydrogeologic Workplan," Los Alamos National Laboratory report, Los Alamos, New Mexico. (LANL 1998, 59599)

Appendix A

Status of Potential Release Sites
Following the Cerro Grande Fire

Table A-1
PRSs Burned by Fire and BMPs Recommended

No.	PRS Number	PRS Name	HSWA	BMPs Recommended
1	00-001	Sediment traps in Mortandad	Yes	No
2	00-011(c)	Mortar impact area	Yes	No
3	00-015	Firing range, Rendija Canyon (active)	No	No
4	03-049(a)	Outfall	Yes	No
5	04-001	Firing Site	Yes	Yes
6	04-002	Surface disposal	Yes	Yes
7	04-003(a)	Outfall	Yes	No
8	04-003(b)	Outfall	Yes	Yes
9	05-001(a)	Former firing site	Yes	Yes
10	05-001(b)	Former firing site	Yes	Yes
11	05-002	Canyonside disposal	Yes	No
12	05-003	Former calibration chamber	Yes	Yes
13	05-004	Former septic system	Yes	Yes
14	05-005(a)	Former French drain	Yes	Yes
15	05-005(b)	Outfall	Yes	Yes
16	05-006(b)	Soil contamination beneath former bldgs.	Yes	Yes
17	05-006(c)	Soil contamination beneath former bldgs.	Yes	Yes
18	05-006(e)	Soil contamination beneath former bldgs.	Yes	Yes
19	05-006(h)	Soil contamination beneath former bldgs.	Yes	Yes
20	06-003(a)	Firing site (inactive)	Yes	No
21	06-003(f)	Firing site (inactive)	Yes	No
22	06-003(h)	Firing site (inactive)	Yes	No
23	06-005	Firing site (pit) (inactive)	Yes	No
24	06-007(a)	Material disposal area (MDA F)	Yes	No
25	06-007(b)	Landfill	Yes	No
26	06-007(c)	Landfill	Yes	No
27	06-007(d)	Landfill	Yes	No
28	06-007(e)	Landfill	Yes	No
29	06-007(f)	Surface disposal	Yes	No
30	06-007(g)	Building & surface disposal	Yes	Yes
31	06-008	Underground tank	No	No
32	07-001(a)	Firing site (inactive)	Yes	No
33	07-001(b)	Firing site (inactive)	Yes	No
34	07-001(c)	Firing site (inactive)	Yes	No
35	07-001(d)	Firing site (inactive)	Yes	No
36	09-001(a)	Firing sites (inactive)	Yes	No
37	09-001(b)	Firing sites (inactive)	Yes	No
38	09-001(c)	Firing sites (inactive)	Yes	No
39	09-001(d)	Firing sites (inactive)	Yes	No

Table A-1 (continued)

No.	PRS Number	PRS Name	HSWA	BMPs Recommended
40	09-002	Burn pit	Yes	No
41	09-003(a)	Settling tank	Yes	No
42	09-003(b)	Settling tank	Yes	No
43	09-003(d)	Settling tank	Yes	No
44	09-003(e)	Settling tank	Yes	No
45	09-003(g)	Settling tank	Yes	No
46	09-003(i)	Settling tank	Yes	No
47	09-004(a)	Settling tank	Yes	Yes
48	09-004(n)	Settling tank	Yes	Yes
49	09-004(o)	Settling tank	Yes	Yes
50	09-005(a)	Septic system	Yes	No
51	09-005(d)	Septic system	Yes	No
52	09-006	Septic system	Yes	No
53	09-008(b)	Surface impoundment	Yes	No
54	09-009	Surface impoundment	Yes	Yes
55	09-013	Material disposal area (MDA M)	Yes	Yes
56	11-001(c)	Air gun	Yes	No
57	11-002	Burn site	Yes	No
58	11-003(b)	Air gun	No	No
59	11-004(a)	Drop tower - Firing site (active)	Yes	Yes
60	11-004(b)	Drop tower - Firing site (active)	Yes	Yes
61	11-004(c)	Drop tower - Firing site (active)	Yes	Yes
62	11-004(d)	Drop tower - Firing site (active)	Yes	Yes
63	11-004(e)	Drop tower - Firing site (active)	Yes	Yes
64	11-004(f)	Drop tower - Firing site (active)	No	Yes
65	11-005(a)	Septic system	Yes	No
66	11-005(b)	Septic system	Yes	No
67	11-005(c)	Ind. or san. wastewater treatment	Yes	No
68	11-006(a)	Sump	Yes	Yes
69	11-006(b)	Tank and/or assoc. equipment	Yes	Yes
70	11-006(c)	Tank and/or assoc. equipment	Yes	Yes
71	11-006(d)	Tank and/or assoc. equipment	Yes	Yes
72	11-009	Material disposal area (MDA S)	Yes	No
73	11-011(a)	Ind. or san. wastewater treatment	Yes	No
74	11-011(b)	Ind. or san. wastewater treatment	Yes	No
75	11-011(d)	Ind. or san. wastewater treatment	Yes	No
76	11-012(b)	Building	No	No
77	11-012(c)	Building	No	No
78	11-012(d)	Building	No	No

Table A-1 (continued)

No.	PRS Number	PRS Name	HSWA	BMPs Recommended
79	12-001(a)	Firing site - steel lined chamber (inactive)	Yes	No
80	12-001(b)	Former firing site (inactive)	Yes	No
81	12-002	Open burning ground	Yes	No
82	13-001	Firing site (inactive) at P-Site	Yes	No
83	13-002	Landfill at P-Site	Yes	No
84	13-003(b)	Septic system	No	No
85	14-001(f)	Firing site-bullet test facility - active	No	No
86	14-002(a)	Firing site (inactive)	Yes	Yes
87	14-002(b)	Firing site (inactive)	Yes	No
88	14-002(c)	Building	Yes	Yes
89	14-002(d)	Firing site (inactive)	Yes	Yes
90	14-002(e)	Firing site (inactive)	Yes	Yes
91	14-006	Tank and/or assoc. equipment	Yes	Yes
92	14-007	Septic system	Yes	No
93	14-009	Surface disposal site	Yes	Yes
94	14-010	Sump	Yes	Yes
95	15-006(c)	Firing site R-44 (inactive)	Yes	Yes
96	15-006(d)	Firing site R-45 (inactive)	Yes	No
97	15-007(b)	Material disposal area (MDA Z) Landfill	Yes	Yes
98	15-007(c)	Shaft	Yes	No
99	15-007(d)	Shaft	Yes	No
100	15-008(b)	Surface disposal	Yes	Yes
101	15-008(d)	Surface disposal (still active)	Yes	No
102	15-008(g)	Surface disposal	No	No
103	15-009(a)	Septic system	Yes	No
104	15-010(b)	Septic system	Yes	No
105	15-011(a)	Sump	Yes	Yes
106	15-011(b)	Dry well	Yes	Yes
107	15-011(c)	Sump	Yes	Yes
108	15-014(g)	Ind. or san. wastewater treatment	No	No
109	15-014(h)	Outfall	No	No
110	15-014(i)	Outfall	Yes	Yes
111	15-014(j)	Outfall	Yes	Yes
112	15-014(k)	Outfall	Yes	Yes
113	16-003(a)	Sump	Yes	Yes
114	16-003(f)	Sump	Yes	Yes
115	16-003(n)	Sump	Yes	Yes
116	16-003(o)	Sump	Yes	Yes
117	16-004(a)	Wastewater treatment facility	Yes	No

Table A-1 (continued)

No.	PRS Number	PRS Name	HSWA	BMPs Recommended
118	16-004(b)	Wastewater treatment facility	Yes	No
119	16-004(c)	Wastewater treatment facility	Yes	No
120	16-004(d)	Wastewater treatment facility	Yes	No
121	16-004(e)	Wastewater treatment facility	Yes	No
122	16-004(f)	Wastewater treatment facility	Yes	Yes
123	16-005(k)	Septic tank	Yes	No
124	16-005(l)	Grease trap	Yes	No
125	16-006(c)	Septic system	Yes	No
126	16-008(a)	Surface impoundment (90s Line pond)	Yes	No
127	16-010(f)	Burn site - RCRA Unit	Yes	No
128	16-010(h)	Burn site	Yes	No
129	16-010(i)	Burn site	Yes	No
130	16-010(k)	Trough	Yes	No
131	16-010(l)	Trough	Yes	No
132	16-010(m)	Trough	Yes	No
133	16-010(n)	Trough	Yes	No
134	16-013	Container storage - V-Site	Yes	No
135	16-015(a)	Operational facility TA-16-16	Yes	No
136	16-015(d)	Operational facility TA-16-51	No	No
137	16-016(a)	Landfill - buried metal site	Yes	No
138	16-016(c)	Landfill	Yes	Yes
139	16-016(f)	Landfill	No	No
140	16-016(g)	Surface disposal site	Yes	No
141	16-017(l)-99	Former structure - storage magazine		No
142	16-017(n)-99	Former structure - storage magazine		No
143	16-017(o)-99	Former structure - storage magazine		No
144	16-017(p)-99	Former structure - storage magazine		No
145	16-017(q)-99	Former storage magazine located at V-Site		No
146	16-017(r)-99	Former nuclear assembly site/storage building		No
147	16-017(s)-99	Former nuclear assembly site/storage building		No
148	16-017(t)-99	Building TA-16-516, former laboratory/equipment storage building		No
149	16-017(u)-99	Former HE processing building		No
150	16-017(v)-99	Former HE processing building, TA-16-515		No
151	16-017(w)-99	Former structure - storage magazine		No
152	16-018	Material disposal area MDA P RCRA (closure)	Yes	Yes
153	16-019	Material disposal area (MDA R)	Yes	Yes
154	16-020	Silver recovery unit	Yes	Yes
155	16-021(c)	Ind. or san. wastewater treatment at 16-260	Yes	Yes

Table A-1 (continued)

No.	PRS Number	PRS Name	HSWA	BMPs Recommended
156	16-024(a)	Magazine	No	No
157	16-024(k)	Magazine	No	No
158	16-024(l)	Magazine	No	No
159	16-024(m)	Magazine	No	No
160	16-024(n)	Magazine	No	No
161	16-024(o)	Magazine	No	No
162	16-024(q)	Magazine	No	No
163	16-024(s)	Magazine	No	No
164	16-024(u)	Magazine TA-16-481	No	No
165	16-025(a2)	Abandoned building & appurtenances TA-16-50	Yes	No
166	16-025(b2)	Abandoned building & appurtenances	Yes	No
167	16-025(c2)	Abandoned building & appurtenances TA--16-56	Yes	No
168	16-025(d2)	Abandoned building & appurtenances TA-16-480	Yes	No
169	16-025(s)	Abandoned building & appurtenances TA-16-48	Yes	No
170	16-025(t)	Abandoned building & appurtenances TA-16-38	Yes	No
171	16-025(w)	Abandoned building & appurtenances TA-16-81	Yes	No
172	16-025(x)	Abandoned building & appurtenances	Yes	No
173	16-025(y)	Abandoned building & appurtenances	Yes	No
174	16-025(z)	Abandoned building & appurtenances	Yes	No
175	16-026(b)	Outfall from building 16-307	Yes	No
176	16-026(c)	Outfall from building 16-305	Yes	No
177	16-026(d)	Outfall from building 16-303	Yes	No
178	16-026(e)	Outfall from building 16-301	Yes	No
179	16-026(h2)	Outfall TA-16-360	Yes	Yes
180	16-026(i)	Outfall TA-16-224	Yes	No
181	16-026(j)	Outfall TA-16-226	Yes	No
182	16-026(j2)	Outfall	Yes	No
183	16-026(v)	Outfall	Yes	No
184	16-028(a)	South drainage	Yes	Yes
185	16-028(b)	Ind. or san. wastewater treatment TA-16-370	Yes	Yes
186	16-029(a2)	Sump TA-16-55	Yes	No
187	16-029(b2)	Sump TA-16-53	Yes	No
188	16-029(c2)	Sump	Yes	No
189	16-029(e2)	Sump TA-16-52	Yes	No
190	16-029(g)	Sump TA-16-450	Yes	Yes
191	16-029(v)	Sump TA-16-49	Yes	No
192	16-029(w)	Sump	Yes	No
193	16-029(x)	Sump	Yes	No
194	16-029(z)	Sump TA-16-42	Yes	No

Table A-1 (continued)

No.	PRS Number	PRS Name	HSWA	BMPs Recommended
195	16-030(a)	Ind. or san. wastewater treatment	Yes	No
196	16-030(g)	Outfall	No	No
197	16-030(h)	Outfall TA-16-430	Yes	Yes
198	16-031(a)	Ind. or san. wastewater treatment TA-16-372	Yes	No
199	16-031(c)	Ind. or san. wastewater treatment TA-16-515	Yes	No
200	16-034(m)	Soil contamination area	Yes	No
201	16-035	Soil contamination area at P-Site	Yes	No
202	20-002(a)	Firing site	Yes	No
203	20-002(c)	Firing site	Yes	No
204	20-002(d)	Firing site	Yes	No
205	20-005	Septic tank	Yes	No
206	22-010(a)	Septic system	Yes	No
207	22-010(b)	Septic system	yes	No
208	22-011	Disposal pit	Yes	No
209	22-014(a)	Ind. or san. wastewater treatment	Yes	No
210	22-014(b)	Sump	Yes	No
211	22-015(a)	Drainlines and dry wells	Yes	No
212	22-015(b)	Sump and outfall	Yes	No
213	22-015(c)	Outfall	Yes	Yes
214	22-015(d)	Drainline and outfall	Yes	No
215	22-016	Septic system	Yes	No
216	35-010(d)	Sand filters	Yes	No
217	35-010(e)	Discharge headwall from sand filter	No	No
218	35-016(a)	Drains and outfalls	Yes	No
219	35-016(c)	Outfall	Yes	No
220	35-016(d)	Outfall	Yes	No
221	35-016(g)	Outfall	No	No
222	35-016(h)	Storm drain	No	No
223	35-016(q)	Drains and outfalls	Yes	No
224	36-003(a)	Septic system	Yes	No
225	40-001(b)	Septic system	Yes	No
226	40-001(c)	Septic system	Yes	No
227	40-004	Oper. release	Yes	No
228	40-005	Sump	Yes	No
229	40-006(a)	Firing site (active)	Yes	No
230	40-006(b)	Firing site (active)	Yes	Yes
231	40-006(c)	Firing site (active)	Yes	Yes
232	40-009	Landfill	Yes	Yes
233	40-010	Surface disposal site	Yes	Yes

Table A-1 (continued)

No.	PRS Number	PRS Name	HSWA	BMPs Recommended
234	42-002(b)	Decontam. facility driveway (former location)	Yes	No
235	42-003	Septic system (former location)	Yes	No
236	42-004	Canyon disposal	No	Yes
237	46-002	Surface impoundment	Yes	No
238	46-003(a)	Septic system	Yes	No
239	46-003(c)	Septic system	Yes	No
240	46-003(d)	Septic system	Yes	No
241	46-003(e)	Septic system	Yes	No
242	46-003(f)	Septic system	Yes	No
243	46-004(a)	Waste line	Yes	No
244	46-004(a2)	Outfall	Yes	Yes
245	46-004(b2)	Operational release	Yes	Yes
246	46-004(c)	Sump	Yes	No
247	46-004(c2)	Outfall	Yes	Yes
248	46-004(d)	Sump	Yes	No
249	46-004(e)	Sump	Yes	No
250	46-004(e2)	Outfall from building TA-46-42	No	No
251	46-004(f)	Outfall	Yes	Yes
252	46-004(f2)	Outfall from building TA-46-31	No	No
253	46-004(g)	Outfall/Stack emissions	Yes	Yes
254	46-004(h)	Outfall/Stack emissions	Yes	Yes
255	46-004(m)	Outfall	Yes	Yes
256	46-004(q)	Outfall	Yes	Yes
257	46-004(r)	Outfall	Yes	Yes
258	46-004(s)	Outfall	Yes	Yes
259	46-004(t)	Outfall	Yes	Yes
260	46-004(u)	Outfall	Yes	Yes
261	46-004(v)	Outfall	Yes	Yes
262	46-004(w)	Outfall	Yes	Yes
263	46-004(x)	Outfall	Yes	Yes
264	46-004(y)	Outfall	Yes	Yes
265	46-004(z)	Outfall	Yes	Yes
266	46-005	Surface impoundment	Yes	No
267	46-007	Operational release	Yes	No
268	48-001	Air exhaust system	No	No
269	48-003	Septic system	Yes	Yes
270	48-007(a)	Drains and outfalls	Yes	No
271	48-007(b)	Drains and outfalls	Yes	Yes
272	48-007(c)	Drains and outfalls	Yes	Yes

Table A-1 (continued)

No.	PRS Number	PRS Name	HSWA	BMPs Recommended
311	C-16-074	Storage	No	No
312	C-35-007	Soil contamination	No	No
313	C-36-003	Storm drainages	Yes	Yes
314	C-46-001	One-time spill	No	No

* n/a = not applicable.

Table A-2
PRSs Located Within Potential Flood Area

No.	PRS Number	PRS Name	HSWA	Floodplain
1	02-003(a)	Reactor facility	No	Los Alamos
2	02-003(b)	Reactor facility	No	Los Alamos
3	02-003(c)	Reactor facility	No	Los Alamos
4	02-003(d)	Reactor facility	No	Los Alamos
5	02-003(e)	Holding tank (near reactor water boiler)	No	Los Alamos
6	02-004(a)	Reactor facility	No	Los Alamos
7	02-004(b)	Reactor facility effluent storage tank TA 2-54	No	Los Alamos
8	02-004(c)	Reactor facility effluent storage tank TA 2-55	No	Los Alamos
9	02-004(d)	Reactor facility effluent storage tank TA 2-56	No	Los Alamos
10	02-004(e)	Reactor facility acid pit TA 2-53	No	Los Alamos
11	02-004(f)	Reactor facility equipment building	No	Los Alamos
12	02-004(g)	Aboveground tank	No	Los Alamos
13	02-005	Systematic leak - cooling tower blowdown, Cr	Yes	Los Alamos
14	02-006(a)	Ind. or san. wastewater treatment	Yes	Los Alamos
15	02-006(b)	Ind. or san. wastewater treatment	Yes	Los Alamos
16	02-006(c)	Waste line	No	Los Alamos
17	02-006(d)	Waste line	No	Los Alamos
18	02-006(e)	Waste line	No	Los Alamos
19	02-007	Septic system	Yes	Los Alamos
20	02-008(a)	Outfall	Yes	Los Alamos
21	02-008(c)	Outfall	No	Los Alamos
22	02-009(a)	Non-intentional release	Yes	Los Alamos
23	02-009(b)	Non-intentional release	Yes	Los Alamos
24	02-009(c)	Non-intentional release	Yes	Los Alamos
25	02-009(d)	Non-intentional release	No	Los Alamos
26	02-009(e)	Reactor facility	No	Los Alamos
27	02-010	Building	No	Los Alamos
28	02-011(a)	Storm drain and outfall	No	Los Alamos
29	02-011(b)	Storm drain and outfall	No	Los Alamos

Table A-2 (continued)

No.	PRS Number	PRS Name	HSWA	Floodplain
30	02-011(c)	Storm drain and outfall	No	Los Alamos
31	02-011(d)	Storm drain and outfall	No	Los Alamos
32	02-011(e)	Storm drain and outfall	No	Los Alamos
33	02-012	Former underground tanks TA-2-29 and -67	No	Los Alamos
34	41-001	Septic system	Yes	Los Alamos
35	41-002(a)	Wastewater treatment facility	Yes	Los Alamos
36	41-002(b)	Wastewater treatment facility	Yes	Los Alamos
37	41-002(c)	Wastewater treatment facility	Yes	Los Alamos
38	41-003	Sump	No	Los Alamos
39	C-00-006	Los Alamos Canyon	No	Los Alamos
40	C-02-001	Metal nugget pile - new PRS	No	Los Alamos
41	C-41-004	Storm drains	No	Los Alamos
42	18-001(a)	Lagoon	Yes	Pajarito
43	18-001(b)	Sewer lines	Yes	Pajarito
44	18-001(c)	Sump	Yes	Pajarito
45	18-002(a)	Firing site (abandoned)	Yes	Pajarito
46	18-002(b)	Firing site (abandoned)	Yes	Pajarito
47	18-002(c)	Drop tower	No	Pajarito
48	18-003(a)	Settling pit	Yes	Pajarito
49	18-003(b)	Septic system	Yes	Pajarito
50	18-003(c)	Septic system	Yes	Pajarito
51	18-003(d)	Septic system	Yes	Pajarito
52	18-003(e)	Septic system	Yes	Pajarito
53	18-003(f)	Septic system	Yes	Pajarito
54	18-003(g)	Septic system	Yes	Pajarito
55	18-003(h)	Septic system	Yes	Pajarito
56	18-004(a)	Waste lines containment	Yes	Pajarito
57	18-004(b)	Pit	Yes	Pajarito
58	18-005(a)	Storage area	Yes	Pajarito
59	18-009(a)	Transformer	No	Pajarito
60	18-010(b)	Outfall	No	Pajarito
61	18-010(c)	Outfall	No	Pajarito
62	18-010(d)	Outfall	No	Pajarito
63	18-010(e)	Outfall	No	Pajarito
64	18-010(f)	Outfall	No	Pajarito
65	18-011	Soil containment	No	Pajarito
66	18-012(a)	Outfall	Yes	Pajarito
67	18-012(b)	Outfall	Yes	Pajarito
68	18-012(c)	Sump and drainlines	No	Pajarito

Table A-2 (continued)

No.	PRS Number	PRS Name	HSWA	Floodplain
69	18-013	Waste Tank	No	Pajarito
70	27-002	Firing sites (abandoned)	Yes	Pajarito
71	C-00-011	Pajarito Canyon	No	Pajarito
72	C-18-003	Storage area	No	Pajarito
73	C-00-005	Pueblo Canyon	No	Pueblo
74	C-00-014	Cañon de Valle	No	Valle
75	C-00-016	Water Canyon	No	Water
76	C-00-008	Mortandad Canyon	No	Mortandad
77	00-001	Sediment Traps in Mortandad Canyon	Yes	Mortandad

Appendix B

DP Tank Farm Site Inspections,
March 24, 2000; March 28, 2000; and April 5, 2000

APPENDIX B
DP Tank Farm "Localized Hydrocarbon Sheen Area" Site Inspection

1. Date and time of visit:

The site was visited on **Friday, March 24, 2000,** at 4:00 p.m. by Rick Kelley. Conditions were partly cloudy, warm (55°), and calm. A three-day period of rain and snow ended two days ago. All snow, as well as almost all ice, is now melted.

2. Presence of standing or running water:

A large amount of standing water was present, and a slight water flow was observed; however, no water was currently flowing from the culverts at the head of the canyon. Approximately 1.02 in. of precipitation have fallen since last month's visit.

3. Location and intensity of odors, staining, or sheens:

Faint hydrocarbon odors were detected in the air at the location of the hydrocarbon sheen. Stronger odors were noted after disturbing gravels in the stream channel. Soil staining was observed in the disturbed gravels. A hydrocarbon sheen was observed on the water in the area of disturbed gravels. A more significant hydrocarbon sheen was observed just downstream at the area of previous sampling activities.

4. Medium in which stains or sheens are observed:

Stains were observed in loose soil and gravel in the stream channel and sheens were observed on water after the soil was disturbed and at the area of previous sampling.

5. How odors were identified:

A faint hydrocarbon odor was detected in the ambient air near the stream channel. Stronger petroleum hydrocarbon odors were identified in loose sediment held to the nose.

6. Photographs:

The following photographs were taken during the site visit; and during follow-up visits on March 28, 2000, and April 5, 2000.

Photo 1. Culverts at the head of DP Canyon, showing no water flow.

Photo 2. Small pool of water with submerged clay-filled fracture in stream channel.

Photo 3. Stream channel in the area of soil staining, looking upstream, showing standing water from recent rains and snows.

Photo 4. Close-up of soils staining area, showing sheen on water and gravel.

Photo 5. Area of previous sample locations, looking downstream, showing slight water flow.

Photo 6. Close-up of the area of hydrocarbon sheens near the area of previous sampling.

Photo 7. Stream channel in the area of previous sample locations, looking upstream, showing slight water flow with hydrocarbon sheen.

Addendum 1. Discovery of additional hydrocarbon seep, March 28, 2000.

Field reconnaissance of DP Canyon by Steve Reneau and Danny Katzman resulted in the discovery of an additional small hydrocarbon seep area approximately 600 ft downstream from the previously identified seep area. The site was visited on Tuesday, March 28, 2000, at 1:00 p.m. by Rick Kelley and Jayne Jones. The area consists of two pools in the stream channel, about 25 ft apart. During the site visit, the upper pool (Photo 8) was water-filled and the lower pool (Photo 9) was dry. The upper pool was reported to have a sheen by Reneau and Katzman; however, no sheen was observed during the site visit. Weak hydrocarbon odors were noted in the ambient air near the lower pool. Stronger odors and some staining were noted in the weathered tuff shown in the center of Photo 9.

Photo 8. Lower seep area, upper pool, showing standing water with no evidence of hydrocarbon sheen.

Photo 9. Lower seep area, lower pool, showing weathered tuff where hydrocarbon odors were noted.

Appendix C

DP Tank Farm Site Inspection, May 1, 2000

APPENDIX C
DP Tank Farm "Localized Hydrocarbon Sheen Area" Site Inspection

1. Date and time of visit:

The site was visited on **Monday, May 1, 2000,** at 3:15 p.m. by Rick Kelley and Robert Trujillo. Conditions were partly sunny, humid, mild (60°), and calm. Light rain has fallen for the past two days.

2. Presence of standing or running water:

A large amount of standing water was present at both the original location and at the downstream location, and a slight water flow was observed in the canyon and from the culverts at the head of the canyon. Approximately 0.55 in. of precipitation have fallen since last month's visit.

3. Location and intensity of odors, staining, or sheens:

Original Location: No hydrocarbon odors were detected in the air at the location of the hydrocarbon sheen. Faint odors were noted after disturbing gravels in the stream channel. A significant sheen (Photo 3) was observed on the water in the area of disturbed gravels. However, little or no odors were associated with the sheen, and what odor was present more closely resembled motor oil rather than weathered diesel.

Downstream Location: A moderate odor was detected in the ambient air. No odors or sheens were located in the surrounding rocks or soil. No sheens were noted.

4. Medium in which stains or sheens are observed:

Stains were observed in loose soil and gravel in the stream channel and sheens were observed on water after the soil was disturbed and at the area of previous sampling.

5. How odors were identified:

A faint hydrocarbon odor was detected in the ambient air near the stream channel. Stronger petroleum hydrocarbon odors were identified in loose sediment held to the nose.

6. Photographs:

The following photographs were taken during the site visit.

Photo 1. Culverts at the head of DP Canyon, showing slight water flow.

Photo 2. Small pool of water with submerged clay-filled fracture in stream channel.

Photo 3. Close-up of stream channel in the area of soil staining, showing standing water and oil sheen.

Photo 4. Area of previous sample locations, looking upstream, showing slight water flow.

Photo 5. Stream channel in the area of sample locations, looking downstream.

Photo 6. Stream channel in the area of downstream location.

Photo 7. Stream channel in the area of downstream location, showing standing water.

Photo 8. Stream channel in the area of downstream location, showing standing water.

Appendix D

DP Tank Farm Site Inspection, June 7, 2000

APPENDIX D
DP Tank Farm "Localized Hydrocarbon Sheen Area" Site Inspection

1. Date and time of visit:

The site was visited on **Wednesday, June 7, 2000,** at 2:45 p.m. by Rick Kelley and Robert Trujillo. Conditions were partly sunny, and warm (70°).

2. Presence of standing or running water:

A large amount of standing water was present at both the original location and at the downstream location, and a slight water flow was observed in the canyon and from the culverts at the head of the canyon. Approximately 0.71 in. of precipitation have fallen since last month's visit.

3. Location and intensity of odors, staining, or sheens:

Original Location: No hydrocarbon odors were detected in the air at the location of the hydrocarbon sheen. Faint odors were noted after disturbing gravels in the stream channel. Significant sheens were observed on the water in the area of disturbed gravels and on rocks and water pools in the area of previous sampling. Little or no odor was associated with the upstream sheens, and what odor was present more closely resembled motor oil rather than weathered diesel.

Downstream Location: A moderate odor was detected in the ambient air. No odors or sheens were located in the surrounding rocks or soil.

4. Medium in which stains or sheens are observed:

Stains were observed in loose soil and gravel in the stream channel, and sheens were observed on water after the soil was disturbed and at the area of previous sampling. Sheens were also observed on rock surfaces in the stream channel.

5. How odors were identified:

A faint hydrocarbon odor was detected in the ambient air near the stream channel. Stronger petroleum hydrocarbon odors were identified in loose sediment held to the nose.

6. Photographs:

The following photographs were taken during the site visit.

Photo 1. Culverts at the head of DP Canyon, showing slight water flow.

Photo 2. Small pool of water with submerged clay-filled fracture in stream channel.

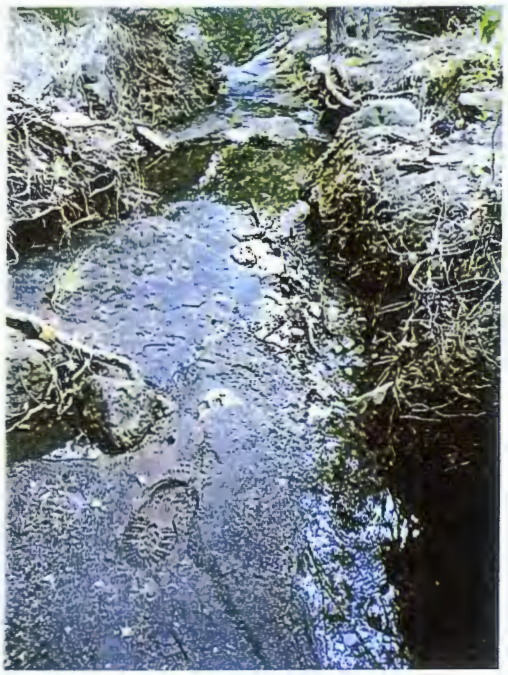

Photo 3. Close-up of stream channel in the area of soil staining, showing standing water and oil sheen.

Photo 5. Stream channel in the area of previous sample locations, looking upstream, showing visible sheen.

Photo 4. Area of previous sample locations, looking upstream, showing slight water flow.

Photo 6. Close-up of stream channel shown in Photo 5, showing visible sheen.

Photo 7. Water pool just downstream from area shown in Photo 5, showing sheen.

Photo 8. Stream channel in the area downstream location, showing standing water.

Photo 9. Stream channel in the area downstream location, showing standing water.

Appendix E

Quarterly Moisture Monitoring Report: TA-49, MDA AB

QUARTERLY MOISTURE MONITORING REPORT

TA-49, MDA AB

MDA Focus Area
Environmental Restoration Project
Los Alamos National Laboratory

June 28, 2000

1. INTRODUCTION

During February and March of 2000 and in accordance with the fact sheet dated January 28, 2000 (Canepa and Taylor 2000), three new shallow neutron access holes and two time domain reflectometry (TDR) arrays were installed within the cover materials at MDA AB, TA-49. The three access holes, FIMAD location IDs 49-10046, -10047, and -10048, have a 2-in. aluminum casing that extends to the bottom of the access hole (see Table 1 for description of the new access holes). Adjacent to access holes 49-10046 and -10048 are two TDR arrays consisting of a shallow horizontal TDR probe positioned horizontally just beneath the surface soil (~6 in.) and a TDR probe positioned vertically within the bottom of the cover materials (~10 ft) (Table 2). A rain gauge was located at the surface of the cover near access hole 49-10046 to monitor levels of precipitation at the site. See Figure 1 for the location of access holes, TDR probes, the rain gauge, the cover, and the silt fence.

In February, April, May, and June of 2000, neutron moisture measurements were performed at access holes TH-1, TH-2, TH-3, TH-4, TH-5, 2A-O, 2A-Y, 2B-Y, and at the three new access holes 49-10046, -10047, and -10048. In March, a new CPN 503 DR hydroprobe moisture gauge (neutron probe) with serial number H300205495 was acquired for this project. All neutron moisture measurements performed in April, May, and June utilized the new probe. Beginning April 16, TDR measurements and precipitation quantities were recorded twice a day to a Campbell Scientific data logger.

Table 1. New access hole descriptions.

Access Hole Number	Casing Type	Access Hole Diameter (in.)	Access Hole Depth (ft)
10046	Aluminum	2	15
10047	Aluminum	2	14
10048	Aluminum	2	15

Table 2. TDR array descriptions.

TDR Number	Array Type	Depth (ft)
TDR-1	Vertical, deep	6
TDR-2	Horizontal, shallow	0.5
TDR-3	Vertical, deep	10
TDR-4	Horizontal, shallow	0.5

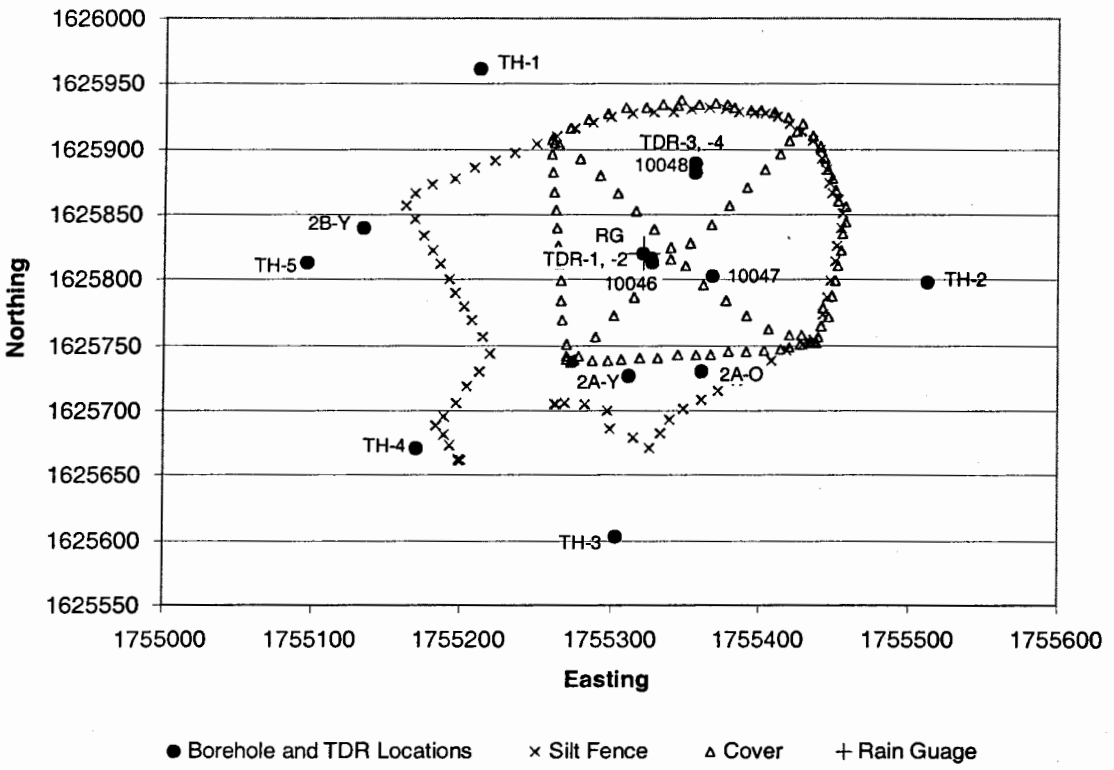

Figure 1. Location of instrumentation and access holes on XY plane at TA-49.

2. MONITORING RESULTS

2.1 Neutron logging

Because three new access holes were drilled and logged during the second quarter of FY00, a new calibration equation was required to convert raw counts from the 2-in. aluminum access holes to volumetric moisture contents. At TA-49, soil composition of the cover and of the stratigraphy varies widely depending on location. This impacted the calibration of the new access holes by preventing a successful calibration using gravimetric moisture content of core samples without a bulk density value for core samples. Until the bulk density values can be obtained from Daniel B. Stephens & Associates, the standard factory calibration for a 2-in. aluminum access hole will be used for access holes 49-10046, -10047, and -10048. The factory calibration for a 2-in. aluminum pipe is ([count/stdcount]*17.4556-1.2378).

Neutron counts were recorded into a spreadsheet, and a corresponding volumetric moisture content was calculated for each. The shift in moisture content between the months of February and April of 2000 correlates directly to the changeover from the old neutron probe to the newly acquired probe. In all cases, the depth vs. moisture content curves for data sets using both probes have the same relationship but with only a 20% difference in moisture content (i.e., at 5% volumetric equates to a 1% volumetric

difference). All future moisture measurements will be performed with the new neutron probe, and only these data will be used for trend analysis of moisture contents to assess cover performance. A trend analysis will be included in the annual report when there are more than two data sets to analyze. Figures 2 through 7 show moisture measurements for the boreholes.

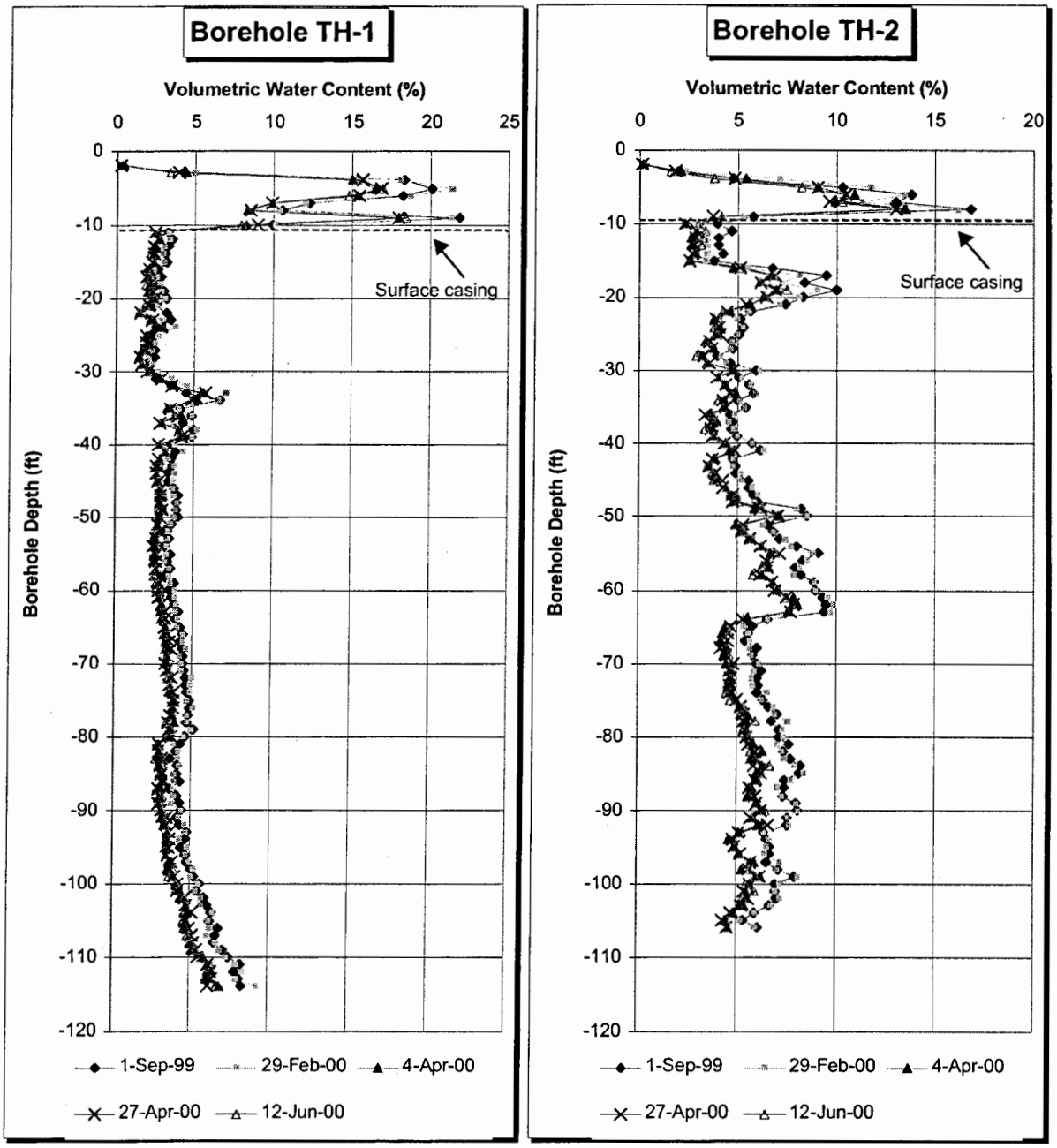

Figure 2. Neutron probe moisture measurements for access holes TH-1 and TH-2.

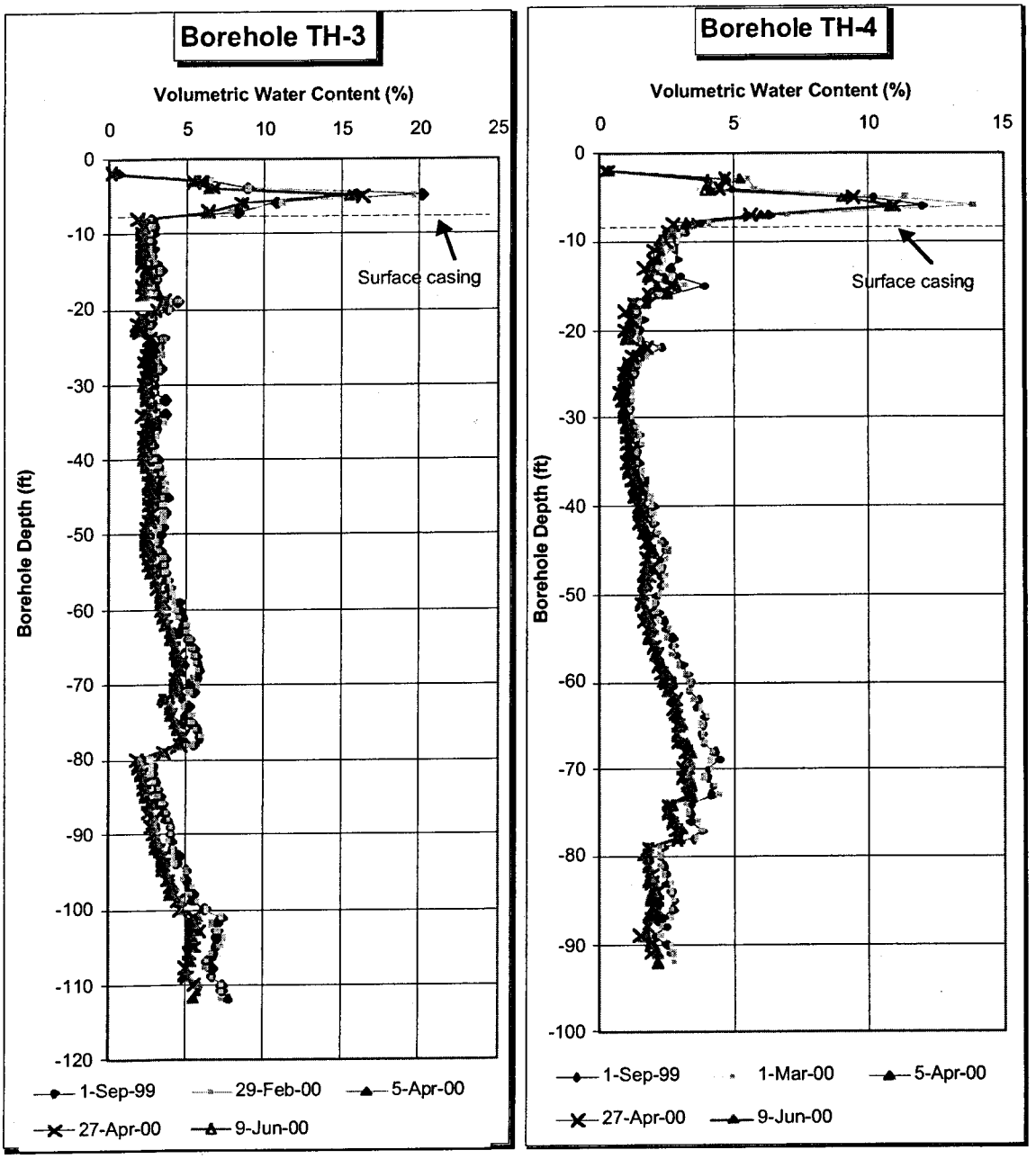

Figure 3. Neutron probe moisture measurements for access holes TH-3 and TH-4.

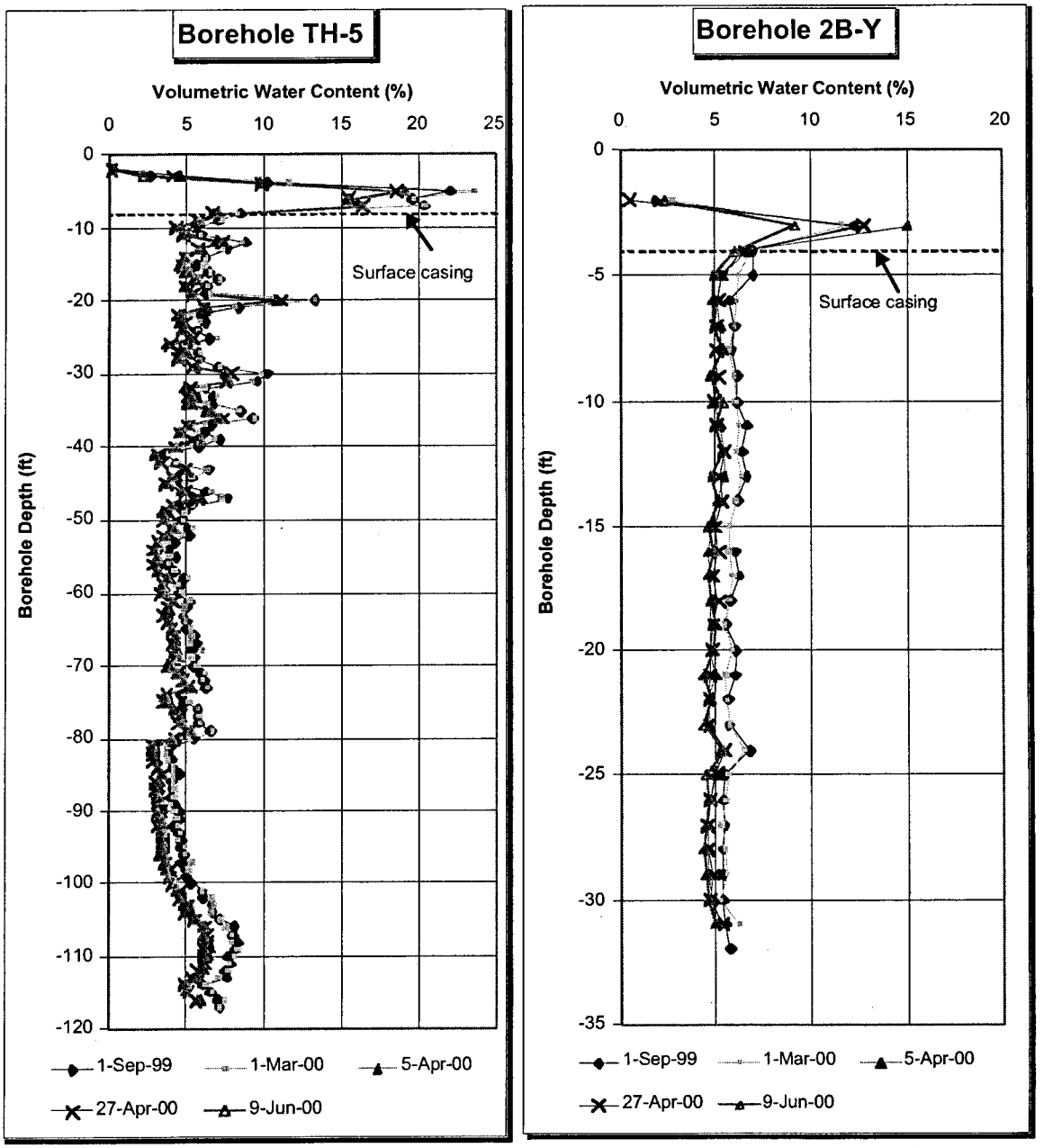

Figure 4. Neutron probe moisture measurements for access holes TH-5 and 2B-Y.

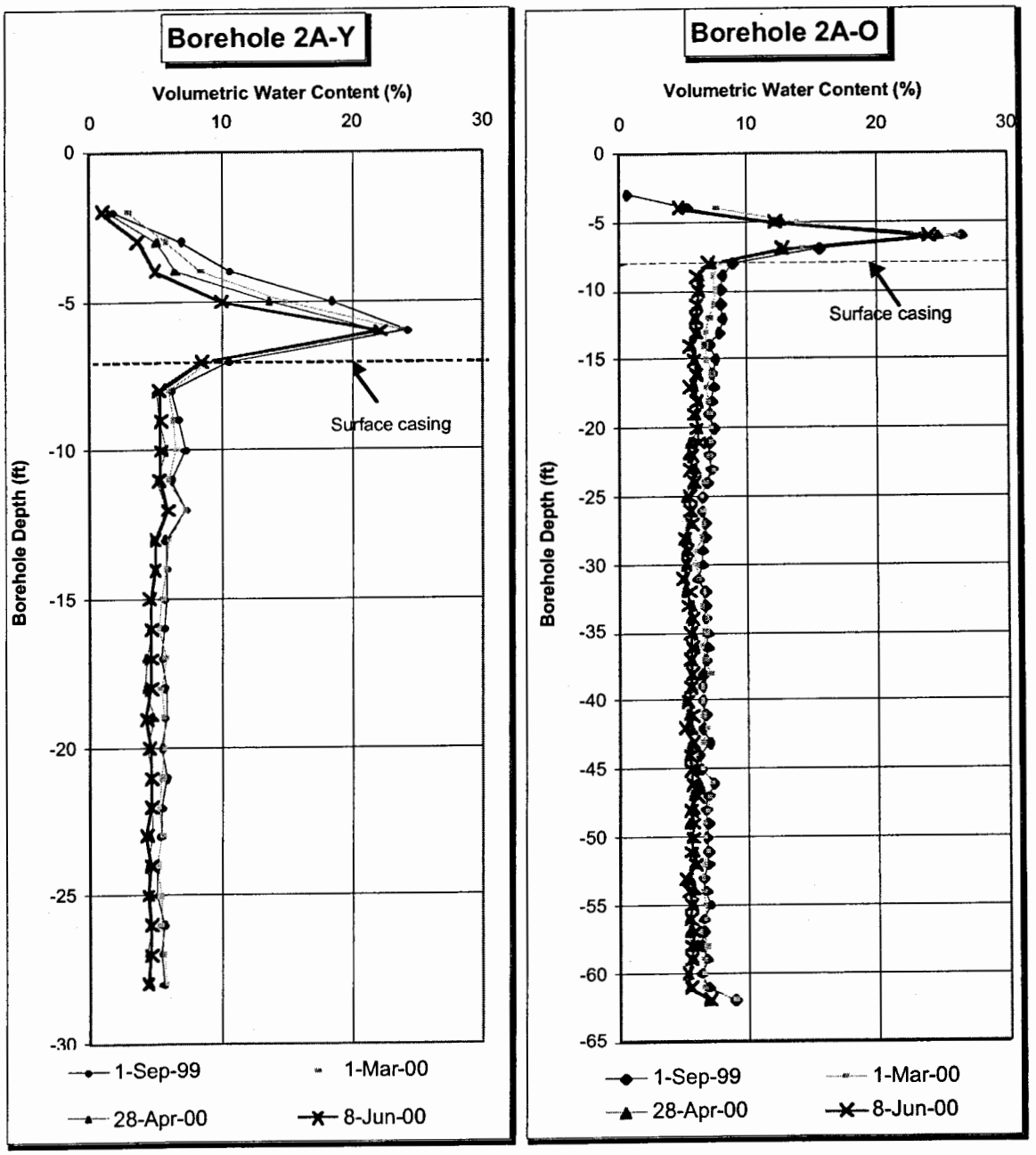

Figure 5. Neutron probe moisture measurements for access holes 2A-Y and 2A-O.

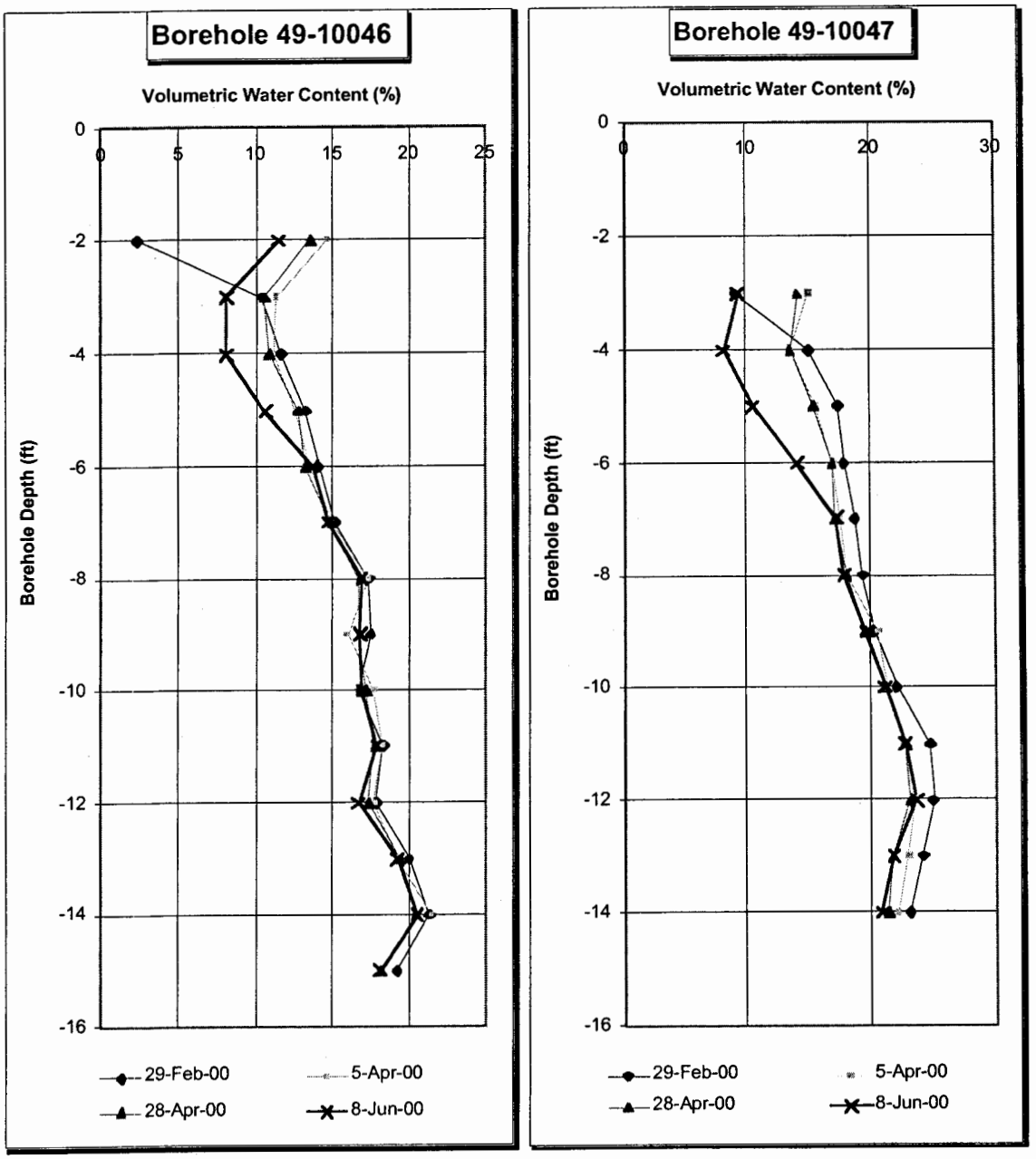

Figure 6. Neutron probe moisture measurements for access holes 10046 and 10047.

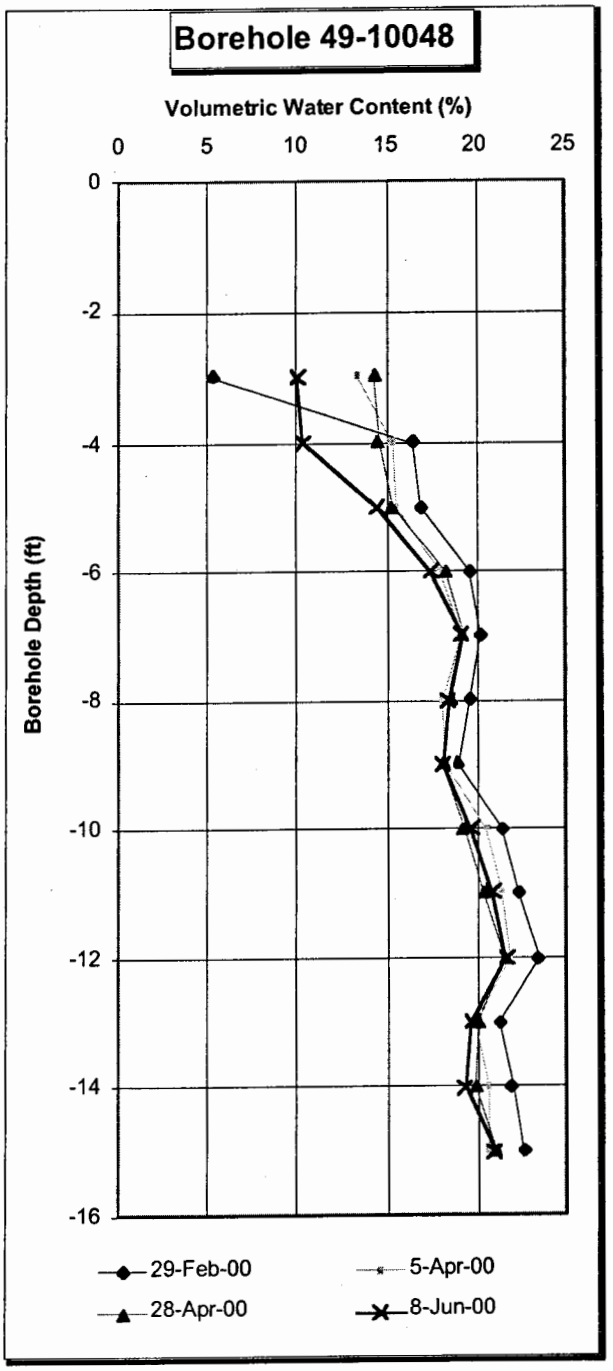

Figure 7. Neutron probe moisture measurements for access hole 10048.

2.2 TDR and precipitation measurements

The Campbell Scientific data logger was programmed to record a timestamp, temperature, TDR raw frequencies, and precipitation (in.). The program converts raw frequency to volumetric moisture content and then records the data (both raw and converted) to a .dat file. See Figure 8 for a plot of moisture content and precipitation from April 15, 2000, through June 22, 2000.

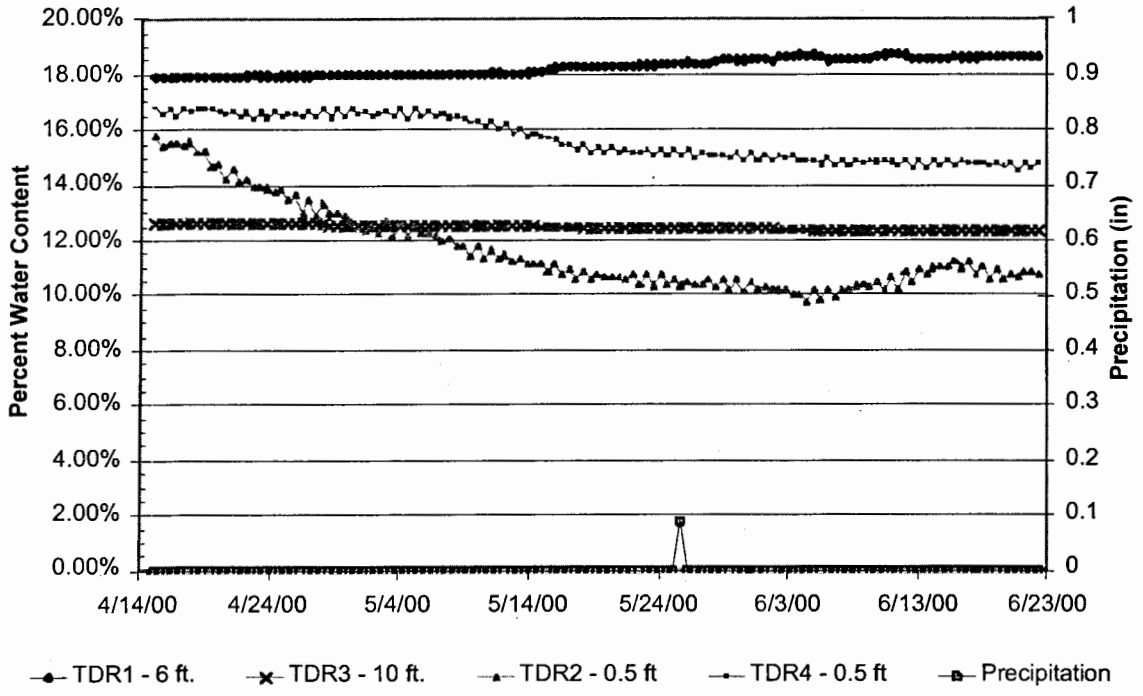

Figure 8. TDR water content and precipitation measurements.

3. DATA MANAGEMENT

An Access database was designed and implemented to store all data collected during the TA-49 Moisture Monitoring Program. The database contains four tables: Access Hole_Coordinates, Landmark_Locations, Neutron_Data, and TDR_Data. Queries were performed on these tables to retrieve data in a format desirable for visualization and trending analysis. The database is not included with this report because of space limitations but is available from the MDA data steward, Bill Hardesty, upon request.

4. DATA ANALYSIS AND REVIEW

The weather in and around Los Alamos was relatively dry from February to June with limited rainfall and no snow melt. The neutron log data indicate that moisture levels have remained stable over the period of performance with consistent trends with depth from month to month. The shallow TDR array (TDR-2 and TDR-4) showed a 1% to 5% drop

in moisture content from April to May. The deep array showed little to no moisture change over the three-month period. The rain gauge indicated only one precipitation event on May 25 with an accumulation of 0.09 in. of water. The TDR arrays did not show an increase in moisture because of this precipitation event. At this time, insufficient data events are available to perform a statistically significant trend analysis. The moisture monitoring system is performing as expected with consistent results between TDR arrays and neutron logging.

5. REFERENCE

Canepa, J., and T. Taylor, January 28, 2000. "Material Disposal Area (MDA) AB Moisture Monitoring," Los Alamos National Laboratory memorandum to J. Kieling, Los Alamos, New Mexico.

Appendix F

Quarterly Pore Gas Sampling at
TA-54 MDA L and MDA G, Second Quarter FY2000

QUARTERLY PORE GAS SAMPLING AT TA-54 MDA L AND MDA G SECOND QUARTER FY2000

MDA Focus Area
Environmental Restoration Project
Los Alamos National Laboratory

July 2000

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1. INTRODUCTION

This report documents the results from quarterly subsurface pore gas sampling at Los Alamos National Laboratory (the Laboratory), Technical Area 54 (TA-54), as required by Module VIII of the Laboratory's Hazardous Waste Facility Permit in Section C.5, "Unsaturated Zone Monitoring" (EPA 1990). The approved plan (EPA 1993b) for pore gas sampling is described in the Laboratory's response (LANL 1993a) to an EPA notice of deficiency (EPA 1993a) addressing the Laboratory's RFI work plan for TA-54 (LANL 1992).

1.1 SAMPLING PLAN

A total of 27 ER Project wells are available for pore gas sampling at TA-54. The sampling and analysis plan requires the collection of samples from 12 wells each quarter. These 12 samples are collected in SUMMA canisters for analyses of volatile organic compounds by EPA Method TO-14. Currently, Severn Trent Laboratories in Knoxville, Tennessee, performs the TO-14 analyses. Of these 12 samples, seven are to be selected from a list of 10 wells located at Material Disposal Area L (MDA L), and two are to be selected from a list of four wells located at MDA G. Thus, nine of the 12 samples collected each quarter are constrained to a defined set of 14 wells. This leaves three samples per quarter that may be distributed among the remaining 14 available ER Project pore gas sampling wells or the Performance Assessment Management Group (PAMG) wells. In addition to the required sampling, all available wells (ER Project wells and PAMG wells) are screened with the Brüel and Kjaer (B&K) multigas monitor, Type 1302, for 1,1,1-trichloroethane (TCA), trichloroethene (TCE), Freon-11, and Freon-113. However, for this quarter's sampling efforts three of the four PAMG wells were not screened with the B&K. These three PAMG wells are primarily used for periodic moisture monitoring that requires deflation of the sampling membranes making them unavailable for pore gas monitoring. During the second quarter, only one of the four PAMG wells was available for pore gas monitoring because of moisture monitoring activities.

Two methods for sampling and analysis were identified in the work plan and the response to the notice of deficiency (LANL 1992, LANL 1993a). The SUMMA canister method with analysis by gas chromatography/mass spectrometry by EPA TO-14 (EPA 1988, LANL 1997) is currently being used.

SUMMA canister samples are drawn from one of the several sampling ports available at each well. The port sampled for TO-14 analyses is the one showing the highest contaminant concentrations as determined by field screening of every port using the B&K multigas monitor. Each port is purged and monitored with field instruments until CO_2 levels have stabilized at values representative of subsurface pore gas conditions and is then screened for four volatile organic compounds (TCA, TCE, Freon-11, and Freon-113).

Three types of field quality assurance samples are collected and analyzed. These three samples include a duplicate sample, an equipment blank of zero grade air (zero grade air is a common term for air that is certified to be free from volatile organic chemical contamination) or nitrogen drawn through the sampling apparatus in the working area, and a performance evaluation sample taken from a tank of a certified gas mixture. Laboratory quality assurance for EPA Method TO-14 (gas chromatography/mass spectrometry) includes internal standards,

surrogates, replicates, blanks, laboratory control samples, and reference standards.

1.2 SAMPLING STRATEGY

The defined set of wells on which the quarterly sampling focuses is biased toward

1) identifying changes in contaminant concentrations at the perimeter of the relatively well-characterized plume at MDA L as an indicator of outward plume expansion and

2) monitoring for changes in contaminant concentrations within the plume at MDA G as an indicator of changes warranting further attention.

2. QUARTERLY SAMPLING FOR SECOND QUARTER FY2000

The sampling for the second quarter of FY2000 (January through March 2000) was conducted during the period from January 21, 2000, to February 2, 2000.

2.1 SAMPLING EVENT

Table 2-1 identifies the wells sampled (from the list of all wells available) and indicates how the selection of wells for this quarter matched against the expectations for the pore gas sampling program, and lists the port at each well from which the SUMMA canister sample was drawn. The list of wells has been updated to remove some wells that have been taken out of service because of failure of SEAMIST membranes or irreparable blocked ports.

Twelve wells were sampled as planned in accordance with the approved sampling plan. Nine wells identified for MDA L were sampled, including 7 wells from the defined list in the sampling plan. Two of the four identified MDA G wells were sampled, meeting sampling plan expectations. The nitrogen purge "field blank" and the calibration gas "known" QA samples were collected as planned. One sample was taken from the Performance Assessment Management Group (PAMG).

A total of 15 samples were collected for laboratory analysis:

- 9 samples from within and around MDA L,
- 2 samples from within and around MDA G,
- 1 sample from the Performance Assessment Management Group (PAMG),
- 1 field duplicate sample,
- 1 equipment blank sample, and
- 1 performance evaluation (calibration gas) sample.

Monitoring of the pore gas sampling ports with field instruments to identify the port having the highest contaminant concentrations for each well was conducted as planned. Field screening includes all available wells, including 4 wells maintained by the Performance Assessment Management Group (PAMG). This change was made at the request of the ER Project MDA Focus Area TA-54 team leader. The field screening results are discussed in Attachment 1.

Table 2-1 Summary of Sampling Event

Well ID	Site	On Defined Sampling List	Number of Pore Gas Ports Monitored with B&K	(port depths, ft)	Depth of Port Sampled for EPA Method TO-14 (ft) – Sample ID
54-1015	MDA L		7	(45, 187, 350, 385, 435, 485, 525)	350 - MD54-00-0011
54-1016	MDA L		7	(36, 188, 318, 390, 481, 533, 601)	188 - MD54-00-0008
54-1018	MDA L			Well needs repair	
54-1107	PAMG			Well needs repair	
54-1111	PAMG		7	(20, 40, 50, 70, 78, 100, 139)	
54-1117	PAMG		6	(20, 32, 55, 73, 82, 85)	
54-1121	PAMG		7	(20, 26, 62, 70, 76, 98, 121)	121 - MD54-00-0015
54-2001	MDA L			Well needs repair	
54-2002	MDA L	X	10	(20, 40, 60, 80, 100, 120, 140, 157, 180, 200)	180 - MD54-00-0010
54-2009	MDA G	X	4	(37, 62, 79, 92)	62 - MD54-00-0004
54-2010	MDA G	X	3	(30, 53, 95)	53 - MD54-00-0001
54-2012	MDA L	X	3	(8, 28, 42)	
54-2013	MDA L			(20, 43, 63)	
54-2014	MDA L		4	(13, 31, 46, 86)	
54-2016	MDA L		3	(18, 31, 82)	
54-2020	MDA L		10	(20, 40, 60, 80, 95, 120, 140, 160, 180, 200)	
54-2021	MDA L	X	10	(20, 40, 60, 80, 100, 120, 140, 160, 180, 200)	100 - MD54-00-0006
54-2022	MDA L	X	10	(20, 40, 60, 80, 100, 120, 140, 160, 180, 200)	60 - MD54-00-0007
54-2023	MDA L	X	9	(20, 40, 60, 80, 100, 120, 140, 159, 180, 200)	180 - MD54-00-0005
54-2024	MDA L		10	(20, 40, 60, 80, 100, 120, 140, 160, 180, 200)	
54-2025	MDA L		5	(20, 60, 100, 160, 180)	
54-2026	MDA L	X	6	(20, 60, 100, 160, 200, 215)	100 - MD54-00-0002
54-2027	MDA L		6	(20, 60, 100, 160, 200, 220)	
54-2028	MDA L		7	(20, 60, 100, 160, 200, 220, 250)	
54-2029	MDA L	X	8	(20, 60, 100, 160, 200, 220, 260, 288)	
54-2030	MDA L	X	7	(20, 60, 100, 160, 200, 220, 243)	
54-2031	MDA L	X	7	(20, 60, 100, 160, 200, 220, 260)	100 - MD54-00-0009
54-2032	MDA G	X	5	(20, 60, 100, 130, 156)	
54-2033	MDA G	X	8	(20, 60, 100, 160, 200, 220, 260, 277)	
54-2034	MDA L	X	7	(20, 40, 60, 80, 100, 160, 200, 220, 260)	100 - MD54-00-0003
54-2087	MDA L		4	(13, 31, 46, 86)	
54-2088	MDA L		4	(13, 31, 46, 86)	
54-2089	MDA L		4	(13, 31, 46, 86)	

Total wells sampled	12
MDA L defined list wells sampled (7 expected)	9
MDA G defined list wells sampled (2 expected)	2
PAMG wells sampled	1
QA samples taken	1 Field duplicate
	1 Performance evaluation
	1 Equipment blank

2.2 OVERVIEW OF RESULTS

Results were received for 15 SUMMA canister samples submitted for analysis. Appendix A contains the analyte list and detection limits for EPA Method TO-14 as analyzed by Severn Trent Laboratories in Knoxville, Tennessee. Appendix B provides tables with detected organic chemicals for each well analyzed by EPA Method TO-14. Tables 2-2 and 2-3 summarize this quarter's results, along with previous results for each well. Table 2-2 presents the TCA results analyzed by EPA Method TO-14. Table 2-3 shows the TCA results from the field screening analyzed by the B&K multigas monitor. All sample results were within the historical concentration ranges.

2.3 EVALUATION OF QUALITY ASSURANCE SAMPLES

A field duplicate sample was submitted for analysis. The duplicate sample is drawn from the same port on a well immediately after the original sample. The field duplicate was collected on well 54-1015 at the 350-ft sampling port. Table 2-4 presents the relative percent differences (RPDs) between the parent sample and the field duplicate.

A field equipment blank was collected to document the effectiveness of equipment purges between samples. The sample was collected by drawing zero grade air through the sample train after the normal purge performed before each sample. The blank was drawn at Well 54-1015 on February 2, 2000. Twenty-one compounds were detected at low levels (<0.2 ppmv). TCA and TCE were not detected in the equipment blank. A new tank of 99.9% ultrapure nitrogen will be purchased and used for the fourth quarter round of sampling.

A calibration gas sample (performance evaluation sample) was drawn into a SUMMA canister and submitted to the laboratory for analysis. The calibration gas contained 500 ppmv of TCA and 100 ppmv of TCE. The results of the analysis (MD54-00-0014) were 1100 ppmv for TCA and 230 ppmv for TCE. This is the third consecutive quarter where the calibration gas sample has shown a high bias. These results may indicate a high bias for the TO-14 analysis performed at Severn Trent Laboratories, or it may mean that the calibration gas standard needs to be replaced. A new calibration gas standard will be purchased and used for the fourth quarter of sampling.

2.4 DATA QUALITY EVALUATION

In this quarter's analytical results two problems were noted:

1. The laboratory is not properly reporting the results detected below the practical quantitation limit (PQL) but above the method detection limit (MDL) as estimated (J). Severn Trent Laboratories has been contacted to correct this problem. The results for this quarter detected between the PQL and the MDL have been manually qualified as estimated (J).

2. Some target analytes were falsely identified as detected. The laboratory did not properly review the mass spectral data. Again, Severn Trent has been contacted about this error and has put corrective actions in place. The target analytes that were wrongly identified as detected in this quarter's data have been manually qualified as not detected (U).

Table 2-2 Summary of EPA Method TO-14 Results for TCA (ppmv*)

Well ID	FY97 1Q	2Q	3Q	4Q	FY98 1Q	2Q	3Q	4Q	FY99 1Q	2Q	3Q	4Q	FY2000 1Q	2Q	3Q	4Q	Average	Std Dev
54-1015					0.860			0.090			0.046	0.160		0.056			0.242 +/-	0.348
54-1016								19.200	14.000			1.100		**42/3.9**			14.075 +/-	9.263
														22.000				
54-1018		37.500							Out of service				Out of service				37.500	
54-2001									Well needs repair				Well needs repair					
54-2002				358.000	398.000	291.000	424.000				370.000	520.000		400.000	**780.000**		442.625 +/-	150.897
54-2009			104.000	69.200		46.500			110.000			120.000		140.000	**140.000**		104.243 +/-	35.121
54-2010			18.800		14.500		167.000	19.000		22.000					**20.000**		43.550 +/-	60.528
54-2012					100.000	2830.000			2500.000	3500.000			3500.000				2486.000 +/-	1402.491
54-2013																		
54-2014	1000.000	837.000							1400.000								1079.000 +/-	289.695
54-2016								1300.000		670.000							985.000	445.477
54-2020	38.300			95.600			70.100		73.000								69.250 +/-	23.573
54-2021			125.000			29.500		50.000		54.000	64.000				**71.000**		65.583 +/-	32.377
54-2022				98.400	76.300	56.600	819.000		110.000		120.000		140.000		**140.000**		195.038 +/-	253.786
54-2023	12.000		20.000	27.700			216.000	22.000	22.000		20.000		25.000		**27.000**		43.522 +/-	64.848
54-2024		59.200					492.000	45.000									198.733 +/-	254.076
54-2025	216.000	163.000		136.000			159.000										168.500 +/-	33.828
54-2026	2.690	1.470	2.800		2.690			4.200		3.400			5.100	**5.700**			3.506 +/-	1.405
54-2027	14.200	24.500			514.000			23.000									143.925 +/-	246.758
54-2028	3.860		3.000					4.900									3.920 +/-	0.951
54-2029			0.790		0.380	16.900	15.800	1.000	1.100	1.000			0.570				4.693 +/-	7.205
54-2030	1.820		2.100	1.290		15.900	37.200	1.400		2.300	2.600		5.300				7.768 +/-	11.964
54-2031				24.900	345.000		240.000	20.000	27.000		29.000				**36.000**		103.129 +/-	132.955
54-2032			29.700	15.400		10.900		13.000		14.000							16.600 +/-	7.504
54-2033			0.190		0.070		0.020		0.020		0.000		7.500				1.300 +/-	3.038
54-2034			3.620	2.700		7.530	41.500		4.900	0.190	7.300		9.400	**7.600**			9.416 +/-	12.374
54-2087	2540.000	3110.000		3610.000													3086.667 +/-	535.381
54-2088	1410.000	6970.000								2400.000			2700.000				3370.000 +/-	2462.478
54-2089	1760.000	1910.000	5540.000														3070.000 +/-	2140.397

* ppmv = parts per million by volume

Table 2-3 Summary of Associated B&K Screening Results TCA (ppmv*)

Well ID	FY97 1Q	FY97 2Q	FY97 3Q	FY97 4Q	FY98 1Q	FY98 2Q	FY98 3Q	FY98 4Q	FY99 1Q	FY99 2Q	FY99 3Q	FY99 4Q	FY2000 1Q	FY2000 2Q	FY2000 3Q	FY2000 4Q	Average	Std Dev
54-1015					0.000						0.600	4.500		0.000			4.100 +/-	6.590
54-1016					0.000	17.600			12.500			5.200	15.400	8.030			8.666 +/-	6.746
54-1018									Out of service				Out of service				#DIV/0! +/-	n/a
54-2001									Well needs repair				Well needs repair				n/a +/-	n/a
54-2002				402.000	380.000	505.000	490.000				338.000	321.000	304.000	296.000			379.500 +/-	81.314
54-2009			90.900	95.300		113.000			85.100			78.300	56.800	56.000			82.200 +/-	20.620
54-2010			49.300		3.900		24.400	40.800			0.000			0.000			19.733 +/-	21.768
54-2012						3760.000	3570.000		2360.000	2140.000			1650.000				2696.000 +/-	923.596
54-2013																	n/a +/-	n/a
54-2014	488.000	297.000							1250.000								678.333 +/-	504.205
54-2016						1050.000		986.000		590.000							875.333 +/-	249.169
54-2020	22.600			154.000			107.000		64.700								87.075 +/-	56.373
54-2021			81.700	38.900		45.500		53.400			33.700	31.000		38.000			46.029 +/-	17.417
54-2022				72.400	81.600	88.600	96.600		87.600			73.400	79.500	78.000			82.213 +/-	8.248
54-2023	7.700		11.500	25.100			28.700	36.000	8.600			13.900	14.500	10.300			17.367 +/-	10.084
54-2024		34.200					62.700	51.600									49.500 +/-	14.366
54-2025	92.300	146.000		70.400			203.000										127.925 +/-	59.277
54-2026	4.000	4.100	7.500		0.000			2.700			2.600			0.000			2.613 +/-	2.632
54-2027	12.400	18.100			109.000			25.600									41.275 +/-	45.472
54-2028	3.700		5.500					6.100									5.100 +/-	1.249
54-2029	5.300		5.100		0.000	72.300	0.000	0.000	0.000	0.000			0.000				9.189 +/-	23.774
54-2030	4.100		5.100	2.800		4.900	4.700	0.000		1.100	6.250		0.000				3.217 +/-	2.343
54-2031				27.500	28.200		32.800	25.900	13.500		19.000			18.900			23.686 +/-	6.727
54-2032			17.300	10.400		8.800		19.200		5.000							12.140 +/-	5.950
54-2033			2.600		0.000		0.000		0.000		0.000		0.000				0.433 +/-	1.061
54-2034			8.900	3.800		0.000	10.500		0.000	0.000	6.700		0.000	0.000			3.322 +/-	4.322
54-2087	1270.000	871.000		2330.000													1490.333 +/-	754.043
54-2088	2680.000	2450.000								1650.000			854.000				1908.500 +/-	830.106
54-2089	989.000	826.000	1850.000														1221.667 +/-	550.222

* ppmv = parts per million by volume

Table 2-4 Field Duplicate Sample Results Comparison: Well 54-1015 (350 ft)

CAS No.	Compound	Sample MD54-00-0011 (Detection Limit 0.00047 ppmv) ppmv[a]	Sample MD54-00-0012 (Detection Limit 0.00048 ppmv) ppmv[a]	RPD[b]
75-71-8	Dichlorodifluoromethane	2.9	3.5	18.8%
106-97-8	n-Butane	0.95	0.71	28.9%
75-69-4	Trichlorofluoromethane	4.5	3.6	22.2%
109-66-0	Pentane	0.73	ND[c]	-
75-35-4	Dichloroethene[1,1-]	11	5.1	73.3%
76-13-1	1,1,2-Trichloro-1,2,2-trifluoromethane	16	4.2	111%
110-54-3	n-Hexane	1.8	ND	-
75-34-3	Dichloroethane [1,1-]	0.81	0.29	94.5%
67-66-3	Chloroform	0.31	ND	-
71-55-6	Trichloroethane[1,1,1-]	42	3.9	166%
110-82-7	Cyclohexane	0.44	ND	-
56-23-5	Carbon tetrachloride	0.62	ND	-
71-43-2	Benzene	0.26	ND	-
79-01-6	Trichloroethene	14	ND	-
108-88-3	Toluene	0.47	ND	-
127-18-4	Tetrachloroethene	3.1	ND	-

a ppmv = parts per million by volume.
b RPD = relative percent difference.
c ND = not detected.

3. REFERENCES

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EPA 1993a "Notice of Deficiency, RFI Work Plan for OU-1148," US Environmental Protection Agency, Region 6, 1993.

EPA 1993b "RFI Work Plan for OU 1148," US Environmental Protection Agency, Region 6, Approval letter from A. Davis to J. Vozella, December 14, 1993.

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LANL 1993b "Pilot Extraction Study Plan for the Organic Vapor Plume at MDA L," Los Alamos National Laboratory, July 1993.

LANL 1997 "Sampling of Vapor Port Equipped Monitoring Wells." LANL ER SOP-06.3, Draft in review, May, 1999.

APPENDIX A

ANALYTE LIST AND DETECTION LIMITS FOR EPA METHOD TO-14 AS PERFORMED BY SEVERN TRENT LABORATORIES, KNOXVILLE, TENNESSEE

Detection limits vary from sample to sample depending on the compounds present, their concentrations, and the dilutions that are made by the laboratory. The lowest detection limits that have been obtained are presented below.

CAS No.	Compound	Concentration (ppmv)[1]
67-64-1	Acetone	0.0050
75-05-8	Acetonitrile	0.0010
107-02-8	Acrolein	0.00050
107-13-1	Acrylonitrile	0.00050
71-43-2	Benzene	0.00020
100-44-7	Benzyl chloride	0.00020
75-27-4	Bromodichloromethane	0.00020
75-25-2	Bromoform	0.00020
74-83-9	Bromomethane	0.00020
106-99-0	Butadiene[1,3-]	0.00020
106-97-8	Butane[n-]	0.00020
71-36-3	Butanol[1-]	0.00050
78-93-3	Butanone[2-]	0.00050
75-15-0	Carbon disulfide	0.00020
56-23-5	Carbon tetrachloride	0.00020
107-05-1	Chloro-1-propene[3-]	0.00020
108-90-7	Chlorobenzene	0.00020
124-48-1	Chlorodibromomethane	0.00020
75-45-6	Chlorodifluoromethane	0.00020
75-00-3	Chloroethane	0.00020
67-66-3	Chloroform	0.00020
74-87-3	Chloromethane	0.00050
110-82-7	Cyclohexane	0.00050
124-18-5	Decane[n-]	0.00020
106-93-4	Dibromoethane[1,2-]	0.00020
74-95-3	Dibromomethane	0.00020
76-14-2	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.00020
95-50-1	Dichlorobenzene[1,2-]	0.00020
541-73-1	Dichlorobenzene[1,3-]	0.00020
106-46-7	Dichlorobenzene[1,4-]	0.00020
75-71-8	Dichlorodifluoromethane	0.00020
75-34-3	Dichloroethane[1,1-]	0.00020
107-06-2	Dichloroethane[1,2-]	0.00020
75-35-4	Dichloroethene[1,1-]	0.00020
156-59-2	Dichloroethene[cis-1,2-]	0.00020
156-60-5	Dichloroethene[trans-1,2-]	0.00020
78-87-5	Dichloropropane[1,2-]	0.00020
10061-01-5	Dichloropropene[cis-1,3-]	0.00020
10061-02-6	Dichloropropene[trans-1,3-]	0.00020
60-29-7	Diethyl ether	0.00050
112-40-3	Dodecane[n-]	0.00020
100-41-4	Ethylbenzene	0.00020
142-82-5	Heptane	0.00020
87-68-3	Hexachlorobutadiene	0.00020
110-54-3	Hexane	0.00020
591-78-6	Hexanone[2-]	0.00050
98-82-8	Isopropylbenzene	0.00020
67-56-1	Methanol	0.01000
1634-04-4	Methyl tert-Butyl Ether	0.00050
108-10-1	Methyl-2-pentanone[4-]	0.00050
75-09-2	Methylene chloride	0.00020
98-83-9	Methylstyrene[alpha-]	0.00020
91-20-3	Naphthalene	0.00020

111-84-2	Nonane[1-]	0.00020
111-65-9	Octane[n-]	0.00020
109-66-0	Pentane	0.00050
103-65-1	Propylbenzene[1-]	0.00020
100-42-5	Styrene	0.00020
79-34-5	Tetrachloroethane[1,1,2,2-]	0.00020
127-18-4	Tetrachloroethene	0.00020
108-88-3	Toluene	0.00020
76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2-]	0.00020
120-82-1	Trichlorobenzene[1,2,4-]	0.00020
71-55-6	Trichloroethane[1,1,1-]	0.00020
79-00-5	Trichloroethane[1,1,2-]	0.00020
79-01-6	Trichloroethene	0.00020
75-69-4	Trichlorofluoromethane	0.00020
95-63-6	Trimethylbenzene[1,2,4-]	0.00020
108-67-8	Trimethylbenzene[1,3,5-]	0.00020
1120-21-4	Undecane[n-]	0.00020
108-05-4	Vinyl acetate	0.00050
75-01-4	Vinyl chloride	0.00020
1330-20-7	Xylene (total)	0.00020
95-47-6	Xylene[1,2-]	0.00020

[1] ppmv = parts per million by volume.

APPENDIX B

VOLATILE ORGANIC CHEMICAL RESULTS FOR EPA METHOD TO-14 ANALYSES

Well:	**54-2010**	**FY2000 2nd Quarter**
Depth:	**53 FT**	**MDA G**
Date:	**1/24/00**	
Sample ID:	**MD54-00-0001**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-71-8	Dichlorodifluoromethane	0.34	0.31	*
75-69-4	Trichlorofluoromethane	0.89	0.31	*
75-35-4	Dichloroethene[1,1-]	0.47	0.31	*
76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2	1.9	0.31	
75-34-3	Dichloroethane[1,1-]	0.73	0.31	*
71-55-6	Trichloroethane[1,1,1-]	20	0.31	
79-01-6	Trichloroethene	0.54	0.31	*
78-87-5	Dichloropropane[1,2-]	0.25	0.31	U
127-18-4	Tetrachloroethene	0.34	0.31	*

Well:	**54-2026**	**FY2000 2nd Quarter**
Depth:	**100 FT**	**MDA L**
Date:	**1/24/00**	
Sample ID:	**MD54-00-0002**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-71-8	Dichlorodifluoromethane	0.06	0.1	J
75-69-4	Trichlorofluoromethane	0.21	0.1	*
75-35-4	Dichloroethene[1,1-]	0.23	0.1	*
76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2	1.6	0.1	
75-09-2	Methylene Chloride	0.057	0.1	J,B
75-34-3	Dichloroethane[1,1-]	0.048	0.1	J
67-66-3	Chloroform	0.2	0.1	U
71-55-6	Trichloroethane[1,1,1-]	5.7	0.1	
79-01-6	Trichloroethene	1.5	0.1	
127-18-4	Tetrachloroethene	0.14	0.1	*

Well:	**54-2034**	**FY2000 2nd Quarter**
Depth:	**100 FT**	**MDA L**
Date:	**1/25/00**	
Sample ID:	**MD54-00-0003**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-71-8	Dichlorodifluoromethane	0.064	0.094	J
75-69-4	Trichlorofluoromethane	0.09	0.094	J
75-35-4	Dichloroethene[1,1-]	0.15	0.094	*
76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2	0.14	0.094	*
75-09-2	Methylene Chloride	0.13	0.094	B*
75-34-3	Dichloroethane[1,1-]	0.13	0.094	*
67-66-3	Chloroform	0.042	0.094	U
71-55-6	Trichloroethane[1,1,1-]	7.6	0.094	
79-01-6	Trichloroethene	1.4	0.094	

Well:	**54-2009**	**FY2000 2nd Quarter**
Depth:	**62 FT**	**MDA G**
Date:	**1/21/00**	
Sample ID:	**MD54-00-0004**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-35-4	Dichloroethene[1,1-]	5.9	1.8	*
75-34-3	Dichloroethane[1,1-]	5	1.8	*
71-55-6	Trichloroethane[1,1,1-]	140	1.8	
127-18-4	Tetrachloroethene	1.1	1.8	J

Well:	**54-2023**	**FY2000 2nd Quarter**
Depth:	**180 FT**	**MDA L**
Date:	**1/26/00**	
Sample ID:	**MD54-00-0005**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-71-8	Dichlorodifluoromethane	0.33	0.4	J
75-69-4	Trichlorofluoromethane	0.97	0.4	*
75-35-4	Dichloroethene[1,1-]	1.8	0.4	*
76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2	7.7	0.4	
75-34-3	Dichloroethane[1,1-]	0.21	0.4	J
67-66-3	Chloroform	0.69	0.4	U
71-55-6	Trichloroethane[1,1,1-]	27	0.4	
56-23-5	Carbon Tetrachloride	0.22	0.4	J
79-01-6	Trichloroethene	7.5	0.4	
127-18-4	Tetrachloroethene	0.43	0.4	*

Well:	**54-2021**	**FY2000 2nd Quarter**
Depth:	**100 FT**	**MDA L**
Date:	**1/27/00**	
Sample ID:	**MD54-00-0006**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-71-8	Dichlorodifluoromethane	0.59	0.94	J
75-35-4	Dichloroethene[1,1-]	1.1	0.94	*
76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2	1.6	0.94	*
75-09-2	Methylene Chloride	2.4	0.94	B*
75-34-3	Dichloroethane[1,1-]	1.9	0.94	*
67-66-3	Chloroform	0.41	0.94	U
71-55-6	Trichloroethane[1,1,1-]	71	0.94	
79-01-6	Trichloroethene	20	0.94	
127-18-4	Tetrachloroethene	0.95	0.94	*

Well:	**54-2022**	**FY2000 2nd Quarter**
Depth:	**60 FT**	**MDA L**
Date:	**1/27/00**	
Sample ID:	**MD54-00-0007**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-71-8	Dichlorodifluoromethane	0.83	1.8	J
75-35-4	Dichloroethene[1,1-]	1.3	1.8	J
76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2	1.8	1.8	*
75-09-2	Methylene Chloride	2.8	1.8	B*
75-34-3	Dichloroethane[1,1-]	3.8	1.8	*
71-55-6	Trichloroethane[1,1,1-]	140	1.8	
79-01-6	Trichloroethene	40	1.8	
127-18-4	Tetrachloroethene	1.9	1.8	*

Well:	**54-1016**	**FY2000 2nd Quarter**
Depth:	**188 FT**	**MDA L**
Date:	**2/2/00**	
Sample ID:	**MD54-00-0008**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-71-8	Dichlorodifluoromethane	0.36	0.46	J
75-69-4	Trichlorofluoromethane	0.69	0.46	*
75-35-4	Dichloroethene[1,1-]	3.5	0.46	
76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2	7.4	0.46	
75-09-2	Methylene Chloride	0.63	0.46	B*
67-66-3	Chloroform	0.2	0.46	U
71-55-6	Trichloroethane[1,1,1-]	22	0.46	
56-23-5	Carbon Tetrachloride	0.29	0.46	J
79-01-6	Trichloroethene	12	0.46	
127-18-4	Tetrachloroethene	0.88	0.46	*

Well:	**54-2031**	**FY2000 2nd Quarter**
Depth:	**100 FT**	**MDA L**
Date:	**1/27/00**	
Sample ID:	**MD54-00-0009**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-69-4	Trichlorofluoromethane	0.45	0.61	J
75-35-4	Dichloroethene[1,1-]	1	0.61	*
76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2	2.9	0.61	*
75-09-2	Methylene Chloride	1.2	0.61	B*
75-34-3	Dichloroethane[1,1-]	0.65	0.61	*
67-66-3	Chloroform	0.41	0.61	U
71-55-6	Trichloroethane[1,1,1-]	36	0.61	
79-01-6	Trichloroethene	10	0.61	
127-18-4	Tetrachloroethene	1.1	0.61	*

Well:	**54-2002**	**FY2000 2nd Quarter**
Depth:	**180 FT**	**MDA L**
Date:	**1/27/00**	
Sample ID:	**MD54-00-0010**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-69-4	Trichlorofluoromethane	67	14	*
75-35-4	Dichloroethene[1,1-]	21	14	*
76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2	140	14	
75-09-2	Methylene Chloride	94	14	
75-34-3	Dichloroethane[1,1-]	14	14	*
67-66-3	Chloroform	24	14	U
71-55-6	Trichloroethane[1,1,1-]	780	14	
79-01-6	Trichloroethene	220	14	
78-87-5	Dichloropropane[1,2-]	34	14	U
108-88-3	Toluene	17	14	*
127-18-4	Tetrachloroethene	18	14	*

Well:	**54-1015**	**FY2000 2nd Quarter**
Depth:	**350 FT**	**MDA L**
Date:	**2/2/00**	
Sample ID:	**MD54-00-0011**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-71-8	Dichlorodifluoromethane	0.0029	0.00047	
106-97-8	n-Butane	0.00095	0.00047	*
75-69-4	Trichlorofluoromethane	0.0045	0.00047	
109-66-0	Pentane	0.00073	0.0012	J
75-35-4	Dichloroethene[1,1-]	0.011	0.00047	
76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2	0.016	0.00047	
75-09-2	Methylene Chloride	0.0068	0.00047	B
110-54-3	n-Hexane	0.0018	0.00047	
75-34-3	Dichloroethane[1,1-]	0.00081	0.00047	*
67-66-3	Chloroform	0.00031	0.00047	U
71-55-6	Trichloroethane[1,1,1-]	0.042	0.00047	
110-82-7	Cyclohexane	0.00044	0.0012	U
56-23-5	Carbon Tetrachloride	0.00062	0.00047	*
71-43-2	Benzene	0.00026	0.00047	J
79-01-6	Trichloroethene	0.014	0.00047	
108-88-3	Toluene	0.00047	0.00047	*
127-18-4	Tetrachloroethene	0.0031	0.00047	

Well:	**54-1015**	**FY2000 2nd Quarter**
Depth:	**350 FT**	**MDA L**
Date:	**2/2/00**	
Sample ID:	**MD54-00-0012 Field Dup.**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-71-8	Dichlorodifluoromethane	0.0035	0.00048	
106-97-8	n-Butane	0.00071	0.00048	*
75-69-4	Trichlorofluoromethane	0.0036	0.00048	
75-35-4	Dichloroethene[1,1-]	0.0051	0.00048	
76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2	0.0042	0.00048	
75-09-2	Methylene Chloride	0.00028	0.00048	J,B
75-34-3	Dichloroethane[1,1-]	0.00029	0.00048	J
71-55-6	Trichloroethane[1,1,1-]	0.0039	0.00048	

Well:	**N/A Equipment Blank**	**FY2000 2nd Quarter**
Depth:	**N/A**	**MDA L**
Date:	**2/2/00**	
Sample ID:	**MD54-00-0013**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-71-8	Dichlorodifluoromethane	0.00068	0.00078	J
74-87-3	Cloromethane	0.00098	0.0019	J/U
106-97-8	n-Butane	0.055	0.00078	
75-69-4	Trichlorofluoromethane	0.00044	0.00078	J
109-66-0	Pentane	0.031	0.0019	
75-09-2	Methylene Chloride	0.0046	0.00078	B
110-54-3	n-Hexane	0.082	0.00078	
110-82-7	Cyclohexane	0.0026	0.0019	*
71-43-2	Benzene	0.0046	0.00078	
142-82-5	n-Heptane	0.0012	0.00078	*
108-88-3	Toluene	0.038	0.00078	
100-41-4	Ethylbenzene	0.00098	0.00078	*
Xylene1314	m-Xylene & p-Xylene	0.0032	0.00078	*
95-47-6	o-Xylene	0.0011	0.00078	*
124-18-5	n-Decane	0.00062	0.00078	J
95-63-6	Trimethylbenzene[1,2,4-]	0.00066	0.00078	J
1120-21-4	n-Undecane	0.00075	0.00078	J
67-56-1	Methanol	0.049	0.039	
67-64-1	Acetone	0.014	0.019	U
108-05-4	Vinyl Acetate	0.0045	0.0019	U

Well:	**N/A Cal. Gas**	**FY2000 2nd Quarter**
Depth:	**N/A**	**MDA L**
Date:	**2/2/00**	
Sample ID:	**MD54-00-0014**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
71-55-6	Trichloroethane[1,1,1-]	1100	12	
79-01-6	Trichloroethene	230	12	

Well:	**54-1121**	**FY2000 2nd Quarter**
Depth:	**121 FT**	**PAMG**
Date:	**1/21/00**	
Sample ID:	**MD54-00-0015**	

CAS Analyte Code	Compound Analyte Code Desc	Result [ppmv]	Reporting Limit [ppmv]	Qualifier
75-71-8	Dichlorodifluoromethane	0.29	0.49	J
75-35-4	Dichloroethene[1,1-]	14	0.49	
76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2	0.38	0.49	J
75-34-3	Dichloroethane[1,1-]	6.1	0.49	
71-55-6	Trichloroethane[1,1,1-]	73	0.49	
79-01-6	Trichloroethene	3.6	0.49	
127-18-4	Tetrachloroethene	0.97	0.49	*

* = Should have been reported as estimated.
U = Should have been reported as not detected.
J = The result for this analyte should be regarded as estimated.
B = This analyte was detected in the method blank.

ATTACHMENT 1

FIELD SUMMARY

SUMMA canister sampling was conducted on the following twelve wells:

LANL Sample ID	Well ID
MD54-00-0001	54-2010 Area G*
MD54-00-0002	54-2026 Area L*
MD54-00-0003	54-2034 Area L*
MD54-00-0004	54-2009 Area G*
MD54-00-0005	54-2023 Area L*
MD54-00-0006	54-2021 Area L*
MD54-00-0007	54-2022 Area L*
MD54-00-0008	54-1016 Area L
MD54-00-0009	54-2031 Area L*
MD54-00-0010	54-2002 Area L*
MD54-00-0011	54-1015 Area L
MD54-00-0012	54-1015 Area L (Duplicate of MD54-00-0011)
MD54-00-0013	54-2088 Area L (Equipment Blank)
MD54-00-0014	Calibration Gas
MD54-00-0015	54-1121 PAMG

* = wells on the defined sampling llst.

Seven Area L wells from the defined sampling list were sampled. The two required Area G wells were sampled. Two discretionary wells were sampled at MDA L. The nitrogen purge equipment blank, field duplicate, and calibration gas sample were all collected. To summarize

- The 12 planned wells were all sampled.
- Seven of the ten wells for MDA L were on the defined sampling list as planned. The two discretionary wells at MDA L were sampled as planned.
- Two of the four MDA G wells were sampled, as planned.
- All quality control samples were collected as planned.
- PAMG well 54-1121 was sampled this quarter for EPA TO-14 method and field screened using the B&K. The rest of the PAMG wells were not sampled with the B&K this quarter because the wells were set up for moisture monitoring.