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Date: November 13, 1998
Refer to: EM/ER:98-441

HSWA LANL 6/11/98

Mr. Benito Garcia
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502

SUBJECT: QUARTERLY TECHNICAL REPORT FOR JULY-SEPTEMBER 1998

Dear Mr. Garcia:

Enclosed are two copies of the Environmental Restoration Project's Quarterly Technical Report, July-September 1998. The Quarterly Technical Report presents information from each focus area on the quarter's activities, including sampling, cleanups, and report writing. Also enclosed is a certification statement signed by the designee owner and operator for the Los Alamos National Laboratory.

If you have questions regarding this report, please contact Dave McInroy at (505) 667-0819 or Joe Mose at (505) 667-5808.

Sincerely,

Julie A. Canepa, Program Manager
LANL/ER Project

Sincerely,

Theodore J. Taylor, Program Manager
DOE/LAAO

JC/TT/MB/dm

Enclosures: (1) Quarterly Technical Report, July-September 1998
(2) Certification

8168

TK

Cy (w/ encs.):
M. Boettner, EM/ER, MS M992 (2 copies)
J. Brown, FSS-16, MS F674
D. Daymon, EES-13, MS M992
A. Dorries, TSA-11, MS M992
T. George, EM/ER, MS M992
L. Maassen, EM/ER, MS M992
J. Mose, LAAO, MS A316
W. Neff, CST-7, 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
L. Soholt, EM/ER, MS M992
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T. Trujillo, AL-ERD, MS A906
S. Dinwiddie, NMED-HRMB
M. Leavitt, NMED-GWQB
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R. Hutton, SAIC, MS J521
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J. Vozella, LAAO, MS A316
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CERTIFICATION

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

Document Title: Quarterly Technical Report, July-September 1998

Name: _____ Date: 11/13/98

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

or

Tom Baca, Division Director
Environmental Management
Los Alamos National Laboratory

Name: _____ Date: 11/13/98

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

or

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

LA-UR-98-5066

Los Alamos National Laboratory

Environmental Restoration

A Department of Energy Environmental Cleanup Program

QUARTERLY TECHNICAL REPORT

JULY–SEPTEMBER 1998

November 13, 1998

CONTENTS

LIST OF ACRONYMS AND ABBREVIATIONS

BMP	best management practice
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMS	corrective measures study
DOE	US Department of Energy
DOE/AL	US Department of Energy/Albuquerque Operations Office
EM	Environmental Management Program 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	Environmental Assessments and Resource Evaluations 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
IWP	installation work plan
LANL	Los Alamos National Laboratory
LAAO	Los Alamos Area Office
MDA	material disposal area
MARSSIM	multiagency radiation survey and site investigation manual
NMED	New Mexico Environment Department
NRDA	Natural Resource Damage Assessment
PCB	polychlorinated biphenyl
PMC	Physical Modeling and Characterization
PRS	potential release site
QP	quality procedure
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
RSI	request for supplemental information
SAL	screening action level
SAP	sampling and analysis plan
SNL	Sandia National Laboratories
SOP	standard operating procedure
TA	technical area
VCA	voluntary corrective action
VCM	voluntary corrective measures

QUARTERLY TECHNICAL REPORT
JULY–SEPTEMBER 1998
LOS ALAMOS NATIONAL LABORATORY
ENVIRONMENTAL RESTORATION PROJECT

ALBUQUERQUE OPERATIONS OFFICE

CONTRACTOR: University of California

PROJECT MANAGER: Julie Canepa

NUMBER OF POTENTIAL RELEASE SITES: Approximately 2000

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 field work performed this quarter in the ER Project.

2.0 FOCUS AREAS

2.1 Canyons—Focus Area Leader: Allyn Pratt

2.1.1 General Information for Canyons Focus Area

During the fourth quarter, Canyons personnel were active in completing tasks that were tied to performance measures and other requirements. The Work Plan for Pajarito Canyon was submitted to the US Department of Energy (DOE) on July 17, 1998. After incorporating comments from DOE, the work plan was then submitted to the New Mexico Environment Department (NMED) by September 30, 1998, along with the reference set, which includes the documents cited within the text of the work plan.

The Canyons Team completed the following five draft documents and delivered them to DOE for internal review on September 16, 1998. These documents included

- Evaluation of Sediment Contamination in Pueblo Canyon: Reaches P-1, P-2, P-3, and P-4;
- Evaluation of Sediment Contamination in Upper Los Alamos Canyon: Reaches LA-1, LA-2, and LA-3;
- Evaluation of Sediment Contamination in Lower Los Alamos Canyon: Reaches LA-4 and LA-5;
- Interim Completion Report for Characterization Well R-9; and

- Interim Completion Report for Characterization Well R-12.

2.1.2 Canyon Activities

2.1.2.1 Los Alamos Canyon

The interim completion report for R-9 was submitted to the DOE on September 16, 1998. It summarizes drilling, testing, and temporary well completion activities for R-9.

Field work consisted of surveying cross sections across sample sites, measuring bank heights, and performing dendrochronology.

2.1.2.2 Mortandad Canyon

The first phase of investigation of sediments in three Mortandad Canyon reaches was completed in September 1998 with the collection of the first round of samples. Sites from which samples will be submitted for full-suite analyses were selected based on geomorphic mapping and radiological field measurements in Reaches E-1, M-1, and M-2.

Deep well R-15 (replacing R-7) has been started in Mortandad Canyon. A letter to the DOE announcing the start of the R-15 drilling was sent September 16, 1998. Phase I drilling with the failing F-10 auger drill is complete. An 8-inch borehole was drilled to a depth of 420 ft and bottomed in the Otowi Member of the Bandelier Tuff. The borehole was reamed to 20 inches in diameter, and surface casing was set to a 125-ft depth and cemented in place. Drilling of R-15 will resume when operations at R-25 are such that the Barber drill rig becomes available.

2.1.2.3 Pajarito Canyon

The Work Plan for Pajarito Canyon, which describes the investigations that will determine the nature and extent of Laboratory-derived contaminants in Pajarito, Twomile, and Threemile Canyons, has been completed and was submitted to DOE on July 17, 1998, and to NMED on September 30, 1998.

2.1.2.4 Pueblo Canyon

Field work consisted of surveying cross sections across sample sites, measuring bank heights, and performing dendrochronology.

2.1.2.5 Sandia Canyon

Canyons Focus Area personnel contributed to geomorphic mapping and sediment sampling in two reaches (S-1 and S-2) in upper Sandia Canyon as part of investigations by the Remedial Actions Focus Area. Investigations were performed according to the upper Sandia Canyon sampling and analysis plan (SAP).

The R-12 interim completion report, which summarizes drilling, testing, and temporary well completion activities for R-12, was completed and submitted to the DOE on September 16, 1998.

2.1.3 TA-18 Activities

TA-18 personnel conducted eighth (final) quarter sampling at Potential Release Site (PRS) 18-003(d) under the Corrective Action Program and completed the voluntary corrective action

(VCA) report for PRS 18-006, uranium solution pipe. Work began on preparation of a VCA plan for PRSs 18-003(b,c,d,g), septic systems.

2.2 Material Disposal Areas—Focus Area Leader: Deba Daymon

2.2.1 General Information for Material Disposal Areas Focus Area

A draft material disposal area (MDA) core document, which presents the approach for streamlining Resource Conservation and Recovery Act (RCRA) corrective action at MDAs, was completed during the quarter. The approach incorporates concepts presented in the US Environmental Protection Agency (EPA) proposed Subpart S to RCRA. These concepts include

- evaluating corrective action decisions on the basis of risk,
- defining a presumptive remedy (capping in place),
- using monitored natural attenuation as part of a final (presumptive) remedy,
- tailoring site investigations to the presumptive remedy, and
- demonstrating technical impracticability of excavating large MDAs on the basis of worker risk, habitat destruction, lack of off-site disposal capacity, and/or cost.

2.2.2 TA Activities

2.2.2.1 TA-21

The following documents for TA-21 sites were completed during the quarter to fulfill the FY98 work schedule commitment.

- The SAP for PRS 21-015, MDA B, was submitted to NMED on September 10, 1998.
- The SAP for PRSs 21-017 (a,b,c), MDA U, was submitted to NMED on September 28, 1998.
- The SAP for PRSs 21-003, 21-024(c), and 21-013(f) was submitted to NMED on September 30, 1998.

Other document preparation activities occurred this quarter. The focus area submitted the Laboratory's response to NMED's request for supplemental information (RSI) on the VCA report for TA-21 and TA-31, PRSs 21-013(c,d,e) and 31-001 on July 17, 1998. The focus area also submitted the Laboratory's response to NMED's RSI for the interim action plan for PRS 21-024(i) on July 31, 1998. The response was written in conjunction with the Laboratory's Water Quality and Hydrology Group (ESH-18). Work progressed on Volume II of the RCRA facility investigation (RFI) work plan for the DP Tank Farm, and the document is scheduled to be submitted to NMED on October 7, 1998. This work is being done to respond to comments provided in Compliance Order HRM-98-01 from NMED.

PRS 21-011(k) Best management practices (BMPs) at the former outfall location were upgraded in September 1998.

PRS 21-015, MDA B Focus area personnel initiated geophysical surveys, radiological surveys, drilling, surface sampling, and geodetic surveys in early August; these activities are projected to be completed by mid-October 1998. Drilling is being completed along the perimeter of the identified trenches. Surface sampling was completed along the western and northeast corners (outside of the fence). Data for all sampling activities are pending.

PRSs 21-017(a,b,c), MDA U Radiological surveys, drilling, surface sampling, and geodetic surveys were initiated in September and are projected to be completed by the end of October 1998. Drilling is being completed within the absorption beds and outside the perimeter of the beds. Surface sampling is being completed along the downgradient slope north-northeast of the beds. Data for all sampling activities are pending.

PRS 21-024(i) Field work at the former septic tank and outfall consisted of removal of contaminated soil at the outfall in late September 1998. Focus area personnel removed approximately 60 cubic yards of low-level/PCB waste soil and placed it into roll-off bins. The bins will be taken to TA-54, Area G, for burial upon finalization of the transportation manifests. New BMPs have been put in place.

PRS 21-018(a), MDA V Team members began preparations for the testing of a nontraditional in situ vitrification process. Preparations include reviewing site conditions to determine their impact on the test. In addition, institutional concerns regarding permitting, health and safety, and other implementation issues are being reviewed and assessed.

2.2.2.2 TA-49

PRSs 49-001(b,c,d,g) The Stabilization Plan for Installing Best Management Practices at Potential Release Sites 49-001 (b,c,d,g) (LA-UR-98-1534) was updated based on comments and a request from NMED that the plan be an interim measure. The resulting document, Stabilization Plan for Implementing Interim Measures and Best Management Practices at Potential Release Sites 49-001(b,c,d,g), was submitted to NMED on July 14, 1998. The focus area received an RSI from NMED on August 13, 1998. The Laboratory's response to the RSI was submitted to the NMED on September 11, 1998. No comments on the response had been received as of the end of FY98.

Other document preparation activities accomplished this quarter are as follows. The team

- submitted the Best Management Practices Report for Installation of Stabilization Measures at Potential Release Sites 49-001(b,c,d,g) (an as-built report) to DOE for review on September 8, 1998.
- submitted the Documentation of Meetings with NMED to Streamline the CMS/CMI Process for MDAs to Fulfill PM for Functional Area B.1.a (a progress report) to DOE on September 29, 1998.
- continued work on the TA-49 Area 2 status report, which will be submitted to DOE in October.

Focus area personnel performed the following activities during the fourth quarter.

- Field work on Phase II of the stabilization plan (removal and disposal of the asphalt pad, the addition of cover material, and regrading the site) began at MDA AB on September 8, 1998. The asphalt has been designated as low-level radioactive waste because it has low concentrations of tritium. Disposal is taking place at TA-54, Area G. Because of the disposal schedule at TA-54, field work is projected to be completed by mid-November 1998.
- Core hole 2 at Area 2 and borehole DT-5A at Area 5 were abandoned and plugged between August 17 and August 28, 1998. Both holes were abandoned in accordance with State of New Mexico Environment Department Ground Water Section Monitor Well

Construction and Abandonment Guidelines and LANL-ER-SOP 5.03, R0, Monitor Well and RFI Borehole Abandonment.

- Additional BMPs, including bank stabilization of the diversion channel and runoff controls downgradient of PRS 49-003, were installed.

2.2.2.3 TA-54

Previous years' RFI activities at the four MDAs at TA-54 (MDAs G, H, J, and L) have focused on characterization of environmental media (air, soil, surface water, sediment, and geologic cores). In FY98, efforts focused on planning future work in anticipation of the MDA core document, which describes the streamlined corrective action process for MDAs. To this end, work performed at individual MDAs was collated during the fourth quarter of FY98 to support development of a conceptual model describing contaminant fate and transport at all MDAs at TA-54.

While no new field work was executed at TA-54, two ongoing field activities continued through FY98: quarterly pore-gas sampling at MDA G and MDA L and the vapor extraction pilot study at MDA L. In addition, a pilot study related to ecological succession was supported. Final reports for these activities were completed and submitted to the TA-54 team leader during the quarter.

MDA G Quarterly pore-gas sampling, a requirement of Module VIII of the Laboratory's Hazardous Waste Facility Permit, was completed at MDA G; PRSs associated with the sampling are pits and shafts used for disposal of chemical and radioactive waste. Samples were analyzed, and a report was completed and submitted to the TA-54 team leader. The focus area also completed outstanding reports from pore-gas sampling from the previous four quarters. Sampling results showed that the volatile organic compound plume is stationary.

Work continued on the MDA G ecological succession pilot study, which monitors surface-water runoff, erosion, seepage, and plant uptake of water in the piñon-juniper ecotone. The data are necessary to understand how these parameters change in time, to conceptualize potential future vulnerabilities related to site stability, and to parameterize models to predict contaminant fate and transport.

MDA L The scope of the MDA L extraction pilot study was modified from active/passive extraction to only passive extraction because of the efficacy of the natural system. This reduction in scope will result in demonstrated cost savings for an effective passive soil remediation technique. A report summarizing the overall results of the active/passive pilot and of the simple passive methodology was produced this quarter and submitted to the TA-54 team leader.

Quarterly pore-gas sampling was completed at MDA L; PRSs associated with the sampling are pits and shafts formerly used for disposal of chemical and radioactive waste. The samples were analyzed, and a report was completed and submitted to the TA-54 team leader.

Focus area personnel worked on the following draft summary reports. These reports will be compiled and submitted during the next fiscal year.

- MDA G Drilling Report. This report summarizes the geology of MDA G, in particular, and TA-54, in general, based on core logs from 20 angled and vertical boreholes at MDA G. These boreholes were completed as part of the Phase I RFI activities for MDA G. PRSs associated with this report include radioactive waste treatment, storage, and disposal locations 54-012(a), -013(b), -014(b,c,d), -017, -018, -019, and -020.
- MDA G Air Sampling Report. This report summarizes air data gathered during environmental surveillance activities over several years. Associated PRSs include

radioactive waste treatment, storage, and disposal sites 54-001(f), -007(a,b), -010, -012(a), -013(b), -014(b–d), -015(a–f,j,k), -016(b), -017, -018, -019, -020, and -021.

- MDA G Surface Water Sampling Report. This report summarizes surface-water data gathered during environmental surveillance activities over several years. Associated PRSs include radioactive waste treatment, storage, and disposal sites 54-001, -007(a,b), -010, -012(a), -013(b), -014(b–d), -015(a–e,k), -016(b), -017, -018, -019, -020, and -021.
- MDA H Tritium Air Sampling Report. This report summarizes data characterizing releases of tritium (tritiated water vapor) from disposal units at MDA H (PRS 54-004).
- MDA H and J Drilling Report. This report summarizes results of coring and sampling of eight vertical and angled boreholes around MDA H (PRS 54-004) and MDA J (PRS 54-005). These holes were completed as part of Phase I and Phase II RFI activities at those MDAs.
- MDA L Drilling Report. This report summarizes the drilling and sampling of 18 boreholes at MDA L (PRS 54-006). The boreholes were completed to address the presence of contaminants in core beneath and adjacent to MDA L.

2.3 Remedial Actions Focus Area—Focus Area Leader: Roy Michelotti

2.3.1 High Explosives Production Sites Team

The High Explosives Production Sites Team spent most of the last quarter in production of deliverables; four reports were submitted during that time. The field team produced a field implementation plan for Surface Water Assessment Team activities on PRSs that have an erosion matrix score greater than 60. Additional sampling was required after surface water assessments; this sampling began in September, and BMPs were installed at these sites.

The Phase II 260 RFI report for 16-021(c) was submitted to NMED and DOE on September 30.

The corrective measures study (CMS) process logic was submitted to DOE on July 31, 1998. The CMS plan was submitted on September 30, 1998, to DOE and NMED.

2.3.1.1 TA-6

The MDA F surface cover pilot study was completed. The RFI report for the eastern and western aggregates of TA-6 buildings was submitted to NMED and DOE on September 30, 1998.

2.3.1.2 TA-8 and TA-9

The RFI report for PRSs 9-002 and 9-011(b) was submitted to NMED and DOE on September 30, 1998.

2.3.1.3 TA-16

Hydrogeology The field team continued to monitor water levels in the Cañon de Valle alluvial wells. Flow measurements were collected in the wells. Tuff samples from R-25 were screened for high explosives (HE) at a depth of 670 ft. Results were negative. Water was found in R-25 at a depth of 750 ft. In September, quarterly samples were collected from Cañon de Valle springs and surface water. In addition, daily water samples (bromide tracer) were collected from the TA-16 springs. All results are pending.

TA-16-260 RFI and CMS Both the Phase II report and the CMS plan for PRS 16-021(c) were submitted on time to NMED and DOE. CMS investigations were begun; they included flow measurement and sampling in Cañon de Valle and submission of water samples to stormwater management for Laboratory-scale treatability studies.

V-Site The addendum to the voluntary corrective measures (VCM) plan was submitted to NMED on July 7, 1998. The field team finished cleanup at several PRSs and continued drilling, screening, and sampling activities at other V-Site PRSs. The field team continued to collect samples at V-Site and in late September completed all activities outlined in the VCM plan.

PRS 16-017 All sampling (for decommissioned and decontaminated buildings) at the building footprints is complete.

2.3.1.4 TA-22

The Hazardous and Radioactive Materials Bureau (HRMB) notified the ER Project of the due date (March 31, 1999) for the response to its rejection of the RFI report for PRSs 22-012 and 22-015.

2.3.2 Firing Sites Team

The team leader continues to work with the ER Project Office and management of active firing sites to develop approaches that will not interrupt operations. Members of the Water Quality and Hydrology Group (ESH-18), the Regulatory Compliance Focus Area, and the team leader are working toward transferring the monitoring activities of the active firing sites to the facility management units. These efforts will be documented in a strategy document for firing sites, which is to be prepared in the first quarter of FY99.

2.3.2.1 TA-15

PRS 15-009(c) The team continued working on the interim action for this septic tank. Sampling of the drainage below the tank was conducted as well as the installation of BMPs. An interim action report is currently being developed.

PRS 15-012(b), Washout Area, and PRS 15-009(j), Septic Tank The VCA completion reports for these two PRSs were completed, peer reviewed, finalized, and submitted to DOE and NMED on September 30, 1998.

2.3.2.2 TA-33

The team continued working on the SAP for the septic tank and drain field associated with an inactive tritium-processing facility, TA-33-86. This facility is scheduled for decontamination and decommissioning in FY99.

All ER wastes at TA-33 were removed for appropriate disposition. All equipment was demobilized, and all materials were picked up.

PRS 33-004(a) Work continued on the low-level radioactive waste, mixed waste, and radioactive de minimis waste that has been staged at TA-54 for disposal; options for treatment, storage, and disposal facilities are being investigated.

2.3.2.3 TA-36

Inaccuracies that were noted in the data set supporting the RFI report for PRSs 36-001, 36-004(d), and 36-006 (submitted in June 1996) were corrected. The final data set has been compiled and is ready for use by the Firing Sites Team in preparing the planning and the SAP required to finalize this RFI report.

2.3.2.4 TA-39

The focus area received an RSI on the TA-39 RFI report, which addresses six active firing sites. Personnel are collecting the information needed to respond to this request.

2.3.3 Industrial Sites Team

Industrial Sites Team personnel attended and participated in Surface Water Assessment Team meetings. They also provided NMED-requested information about various sites. The information included maps, data, and historical documentation.

2.3.3.1 TA-3

Upper Sandia Canyon The team worked with the Canyons Focus Area on the investigations for upper Sandia Canyon. During the previous quarter, automated water samplers had been installed at the head of Sandia Canyon tributaries. This was done at three locations in preparation for stormwater sample collection; the automated water samples were not triggered during this quarter, so samples have not been collected yet. The first round of sediment sampling was completed, as was the first round of base flow water sampling.

PRS 03-056(c) To prepare for the continuation of the VCA, the team wrote a statement of work that put the contract out for bid. The statement of work included background information about the site and backup maps and documentation about the status of the site.

2.3.3.2 TA-4/5

The team continued preparing the TA-4/5 RFI report. This report was not finalized because the analytical data were not received in time to complete the assessments necessary for preparation of the report. A package of the completed portions of the TA-4 and TA-5 report was compiled.

2.3.3.3 TA-35

The team completed the final draft of the RFI report for TA-35, which covered PRSs 35-003(a,b,c,n). The report was peer reviewed, and comment resolution was completed. The report was submitted to DOE/Los Alamos Area Office (LAAO) for review on September 11, 1998. Comments were received from DOE on September 25; comment resolution was conducted with DOE/Albuquerque (AL) Operations Office personnel. The final version of the report was submitted to NMED on September 30, 1998.

The report for PRSs 35-014(g1), 35-016(n), and C-35-007 was not finalized because the analytical data were not received in time to complete the assessments for these PRSs. A package was compiled of the completed portions of the report for those PRSs.

A modification to the contract for TA-35 work was completed. This modification spelled out the recommended BMPs for those sites at TA-35, as identified during Surface Water Assessment Team meetings, that scored greater than 50 for erosion potential. BMP planning was started

during this quarter, visits to the sites were conducted, and coordination with the facility and ESH-18 has begun.

2.3.3.4 TA-46

During this quarter, stormwater sampling was completed at TA-46 for the committed four quarters of sampling. Samples were submitted for analysis. Results are pending.

2.3.3.5 TA-53

PRSs 53-006(b,c,d,e) Personnel from the ER Project and from TA-53 Los Alamos Neutron Science Center facility management began to work together to draft a SAP for PRSs 53-006(b,c,d,e) in order to coordinate ER sampling efforts with future excavation work for upgrading the radioactive liquid waste treatment system at TA-53. This SAP will be an addendum to the TA-53 lagoon work plan. NMED granted an extension to submit this SAP by November 1, 1998.

2.3.4 Town Sites Team

2.3.4.1 TA-0

PRS 0-017 Field efforts (excavation and drilling) began on segments of abandoned acid waste lines underneath the Los Alamos Medical Center. This effort was initiated earlier than anticipated to allow for sampling before construction of a new wing.

PRS 0-030(g) This PRS was revisited to take additional confirmatory samples at the location of the removed septic tank, inlet pipe, and outfall line. This was done to verify extent was defined at the tank and to address contaminant extent beyond the original PRS boundary.

2.3.4.2 TA-1

A response to the RSI for the N & P aggregate RFI report was prepared and submitted to NMED on August 6, 1998.

2.3.4.3 TA-45

One empty tank, which was located on the western hillslope, was removed and turned in to the Los Alamos County Landfill to be recycled. No decontamination was necessary before recycling.

2.3.4.4 TA-73

Aggregate 73-2 The SAP for Aggregate 73-2 (the PRSs west and south of the Los Alamos County Airport terminal) was completed in September and will be submitted to NMED in November 1998.

PRSs 73-001(a–d) and 73-004(d), Airport Landfill The team continued work on the RFI report for the airport landfill; the report was submitted to DOE on September 24, 1998. The technical team is awaiting comments from DOE, ESH-19, and Laboratory Legal Group so that the report can be finalized and submitted to NMED by December 1, 1998.

2.3.5 MDA P Closure

Discovery of detonable high HE at MDA P required revisions of safety and waste management operational procedures. A trackhoe has been modified for remote operation, and explosives ordinance disposal technicians have been recruited to perform HE separation. Construction of the replacement burn pad was completed, and construction began on the segregation pad. Other mobilization activity was completed this quarter, and a readiness review was conducted.

2.4 Analysis and Assessments—Focus Area Leader: Alison Dorries

2.4.1 General Information for Analysis and Assessments Focus Area

During the final quarter, the four Analysis and Assessment Focus Area teams revised their FY99 performance measures and completed work toward FY98 performance measures. The following documents were completed: Performing Background Value Comparisons for Inorganic Chemicals, Performing Background Value Comparisons for Radionuclides, Statistical Methods for Background Comparisons, draft quality procedure (QP) for calculating human-health risk screening levels, draft of the MDAs core document, and six standard operating procedures (SOPs) for routine data validation. The document, Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory, was submitted on September 25, 1998, to NMED for final review and approval.

The team worked with administrative authorities and state and federal wildlife agency representatives to develop general assessment endpoints and representative receptor species for consideration in ecological risk assessment. Focus area personnel continue to work with Laboratory ER operational groups to ensure coordination of ecological risk assessment activities (especially monitoring endpoint definitions) with Watershed Management Plan activities (especially monitoring locations and samples). Team members also supported the ecological screening assessments for all RFI reports due at the end of FY98.

Forty-eight SOPs were reviewed and revised. Nine peer reviews were completed in September by Analysis and Assessment Focus Area personnel.

2.4.2 Team Activities

2.4.2.1 Data Analysis and Assessment Team

Quality Control Oversight Task Data analysis and assessment personnel developed the final draft of the Quality Control Oversight Core document. The team also developed an experimental plan for a method detection limit study for metals in Laboratory soils. The following documents were compiled, reviewed, and delivered: Quality Control Oversight Core Document, Technical Framework for Quality Control Oversight, and Evaluation of Analysis of Uranium by KPA Data Set. Work continued on technical reports on surrogate recovery data and Laboratory site-specific performance evaluation material (PEM) 1.

Data Quality and Adequacy Task Data Quality and Adequacy subteam efforts included review of the upper tolerance level/upper confidence level technical paper and statistical QPs, review of final draft statistical process flows and completion of annotation to the flows and preparation of desk top instructions, and preparation of three documents. The three documents were Background Value Comparisons for Inorganics, Background Value Comparisons for Radionuclides, and Statistical Methods for Background Comparisons.

The team compiled an electronic file of all background values, analytical techniques, sample preparation methods, background value calculation information, and other related information to build the Facility for Information Management, Analysis, and Display (FIMAD) background value table. All background data sets and other analytical information to develop the FIMAD background data sets table were compiled. Definitions of the new fields for the data dictionary were written.

A final internal review was made of the document, Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory. The document has been submitted on September 25, 1998, to NMED for final review and approval.

Data Management Support Task Field measurement SOPs were reviewed for sufficient structure to match the needs of field data capture. The team assisted with definitions of the limited list to correspond with certain new FIMAD database codes and researched standard physical sample manipulation methods for use as definitions for limited list items.

The Data Analysis and Assessment Team produced six data validation SOPs this quarter for volatile organic compounds, semivolatile organic compounds, organochlorine pesticides, polychlorinated biphenyls, HE, inorganics, and radionuclides.

Other activities included

- continued support of the land transfer (compile and review data sets),
- writing an SOP for chain-of-custody,
- working on background ground water data quality evaluation,
- internal review of the ER data validation SOPs,
- preparing the prototype TA-16 260 outfall water data set deliverable to NMED,
- continued definition of Laboratory/ER electronic data deliverable specifications, and
- revised the draft analytical services statement of work.

Quality Management Support Task Under the Quality Management Support subteam, a total of 48 SOPs were reviewed, revised, and submitted to the Quality Program project leader by the end of the fiscal year. Team members assisted in the review cycle of data validation and immunoassay HE spot test ER SOPs. They also assisted in revising Chapter 3 of the installation work plan (IWP).

The multiagency radiation survey and site investigation manual (MARSSIM) was reviewed, and written comments were given on the applicability of the MARSSIM approach to ER and decontamination and decommissioning sites. The team prepared a technical paper addressing data quality evaluation for radiological data.

Water Issues Data Analysis and Asessment Team members also worked on data requirements for the watershed management SAP, annotation of the surface water decision logic, and compilation of surface water analytical requirements.

2.4.2.2 Deliverables Tracking and Consistency Team

Nine peer reviews were conducted in September (Los Alamos Canyon reach reports, TA-6 RFI report, PRS 15-012 report, TA-73 SAP, the airport landfill report, the administrative procedure for writing VCA reports, TA-35 report, DP Tank Farm work plan, and the draft SAP for PRS 21-003) as well as two document reviews (TA-3 and TA-32). In August, twelve peer reviews were undertaken. The team participated in the preparation of the land transfer report to DOE.

2.4.2.3 Physical Modeling and Characterization Team

The Physical Modeling and Characterization (PMC) Team continued to support programmatic tasks identified by the Project Management Team and the Operational Focus Area Managers for meeting FY98 performance measures. Significant progress was made on PMC special studies this quarter. PMC special studies are designed to address multiple focus area needs, large-scale hydrogeologic characterization, and development of modeling tools. The studies are briefly profiled below.

- Chloride and Isotope Profiles. Samples were submitted from R-25 and R-15 for stable isotope analyses. Analysis of chloride profiles for R-12 and the TA-16 holes is nearly complete.
- Modeling Ponded Conditions on Mesas. Modeling of the TA-49 ponded conditions is nearly complete.
- Geochemistry of the Regional Aquifer. Thin section analyses are underway.
- Canyons Modeling. Development of an initial flow model for Los Alamos Canyon is progressing.
- Runoff Modeling. Plateau-scale SPLASH runs have been completed. A progress report was submitted to the PMC leader on September 30, 1998.
- Modeling Dry Barriers. Models have been completed to see if deep evaporation can account for observed chloride and stable isotope profiles. Evaporation can account for the observed behavior.
- Groundwater Integration Team and Watershed Management Plan Activities. Several of the PMC team members participated in R-15 and R-25 activities.

2.4.2.4 Risk Assessment Team

Ecological Risk Team The team supported the ecological screening assessments for all RFI reports due at the end of FY98. Team members completed ecological scoping for TA-32 [PRSs 32-001, 32-002(a,b), 32-003, 32-004, and 3-010(a)] and initiated problem formulation, uncertainty analysis, and data interpretation for PRS 3-010(a).

The team assisted in preparing a document that describes the general assessment endpoints the Laboratory developed in cooperation with NMED and the Fish and Wildlife Service. The 260 outfall area will be used as an initial study site for this process. Team members are preparing to have a second meeting with NMED to develop site-specific assessment and measurement endpoints for the 260 outfall ecological risk assessment. Members of the team attended meetings and participated in discussions relating to exposure modeling for terrestrial wildlife.

The team continued development of an electronic database containing ecotoxicology screening levels, toxicity information, and transfer factors for local plant species and developed a user interface for the database.

Team members attended the Eco-SSL (soil screening levels) Workshop sponsored by EPA Superfund in Washington, DC.

Human Health Risk Team This quarter the team provided administrative authorities with an electronic database of parameters used by the ER Project in ecological and human-health risk assessments. A draft QP was completed on screening action level (SAL) methodology, to be used in screening evaluations for human-health risk assessments. The team also submitted a draft QP on SALs to HRMB for review.

Cumulative Risk Assessment Team Team members investigated alternative futures analysis, adaptive management, and semiquantitative uncertainty analysis.

Native American Scenario Team Team members met with Elders from local Native American pueblos to discuss their perspective of risk, risk assessment, risk management, and risk communication in the context of the use of potentially contaminated lands and natural resources. A student from a local pueblo was hired to assist in establishing an effective communication link between the pueblos and the ER Project. Team members attended meetings in Pasco, Washington, to learn about effective integration of stakeholders, especially indigenous peoples, into the corrective action process. The team worked with the Laboratory Community Involvement Office on responding to stakeholder concerns regarding potential toxicological and radiological risks in the event of wildfire on ER sites.

MDA Consistency Team The team completed a draft of the MDA core document for internal review; the document presents the approach for streamlining the RCRA corrective-action process at the Laboratory's MDAs. The approach incorporates concepts presented in the EPA proposed rule Subpart S to RCRA. These concepts include evaluating corrective action decisions on the basis of risk, defining a presumptive remedy (capping in place), using monitored natural attenuation as part of a final (presumptive) remedy, tailoring site investigations to the presumptive remedy, and demonstrating technical impracticability of excavating large MDAs on the basis of worker risk, habitat destruction, lack of off-site disposal capacity, and/or cost.

Team members briefed representatives from DOE EM-50 on science and technology needs identified in the MDA core document and also briefed representatives from DOE EM-40 and DP regarding the use of numerical modeling in the Laboratory's ER Project.

2.5 Regulatory Compliance—Focus Area Leader: Tori George

2.5.1 Team Activities

2.5.1.1 Communications and Outreach Team

This quarter the Communications and Outreach Team completed the following land transfer activities:

- addressed land transfer issues with Los Alamos County representatives, DOE officials, Laboratory Facility Engineering staff and private parties;
- began coordination efforts with the Environmental Impact Statement Land Transfer Team to ensure consistency in the ER Project;
- participated in weekly Laboratory transfer working group meetings;
- completed and delivered the ER Project Task One Land Transfer report to DOE/LAAO; and
- met with the Natural Resource Trustee Council at Hanford, the Hanford Citizens Advisory Board, and members of the Yakama and Umatilla American Indian Tribes to get information on land transfer issues, Native American risk scenarios, and other related issues.

Sustainability issues were addressed this quarter. The team participated in the Environmental Sustainability Careers and Education Workshop at the Luna Vocational/Technical Institute in Las Vegas, NM, and in the quarterly Environmental Management (EM) Division sustainability public forum on public utilities deregulation. The team also attended EM Division workshops and

presentations and implemented the ER Project Regional Sustainability Plan. Work continues on the database to track sustainability performance metrics for EM Division.

The team completed the following cultural awareness activities:

- attended monthly Canyons Focus Area meeting with San Ildefonso Pueblo and Cochiti Pueblo staff to discuss canyon-related issues;
- attended a DOE/AL cultural awareness workshop at Cochiti Pueblo;
- gave an ER Project presentation to the senior citizens group of Nambe Pueblo;
- coordinated and delivered an ER Project exhibit for the eight Northern Indian All Pueblo Council and their governors; and
- prepared a Cultural Awareness Training with the Honorable Governor Joseph Suina of Cochiti Pueblo as the keynote speaker; other speakers included Gil Suazo, team leader for tribal relations, and representatives from the Laboratory's Community Involvement Office and Legal Counsel.

The team prepared for the following activities and public meetings: EM Division Green Day activities; the public meeting entitled Wildland Fires: Are We Ready?; Secretary of Energy Bill Richardson's visit; and two meetings and tours for DOE/AL, other DOE officials, and Laboratory officials to discuss ER issues. The team prepared exhibits and materials for these activities.

The team also prepared for a meeting and field tour of Los Alamos Canyon for members of the Northern New Mexico Citizens Advisory Board and delivered requested ER Project-related documents to the board.

Document preparation activities continued this quarter. The team submitted the final Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 120(h) reports for the water supply system and for the Laboratory Research Park to DOE in preparation for land transfer and worked on the ER Project Public Involvement Plan, the ER Institutional Work Plan, and the ER Business Plan and prepared and obtained approvals for access agreements for the Los Alamos Medical Center, the Los Alamos County, and the San Ildefonso Pueblo.

Photodocumentation efforts also continued this quarter. Personnel provided archived photographs for several end-of-year regulatory deliverables and photographed BMPs in Los Alamos Canyon.

2.5.1.2 Deliverables Tracking and Consistency Team

PRS Database and Future Deliverable Tracking The team continued to provide data, as requested for work-off sites, septic systems, and land transfer issues, and the supporting documentation for deliverables. Team personnel continued data entry of regulatory deliverables and other information into the PRS database. The Deliverables Database was taken off-line, and personnel began the effort of placing electronic copies of all notices of deficiency and RSIs on the ER server.

Members of the team worked with Harding Lawson Associates to investigate current information tracking systems in use at the ER Project and to assess and define needs for future information tracking. The goal is to create a system that allows ER Project personnel, DOE, regulatory agencies, and the public to easily access information regarding the status of work at Laboratory PRSs and to determine the status and completion dates of regulatory and performance measure deliverables. It is hoped to have the system accessible on the Web by FY 2000. In the meantime,

the staff worked with ER operational focus areas to determine the status of and to track FY98 deliverables; such deliverables include responses to RSIs.

Members coordinated Environment, Safety, and Health (ESH) Division and Legal Counsel reviews to ensure all NMED deliverables had legal and ESH reviews before transmission to DOE and NMED.

Contracting Team members worked to plan and implement a contracting tool kit for managers within the ER Project. The goal is to provide a Web site by December 1998 that gives to managers within the ER Project the needed information for requesting contractor work. Team members met on a weekly basis to discuss the best way in which to present the contracting issues and answers for use through the Web. Team members worked on portions to go on the Web site, including sole source procurement and conflicts of interest. Team members developed a statement of work and procurement package to obtain additional services from Harding Lawson Associates to facilitate the Web-based tracking system. Additionally, team members provided support to technical representatives and contract administrators in working through a variety of contracting problems.

Consistency Team members attended peer reviews during the quarter and participated in the creation of a number of documents, including quality procedures for improving the document and peer review process in the ER Project.

2.5.1.3 ER Policy and Guidance Team

Work continued on the response to Compliance Order 98-01. The team compiled support documents for the response and submitted them to the NMED. Team personnel reviewed the final draft of the DP Tank Farm work plan required by the compliance order in preparation for submittal to NMED during the first quarter of FY99.

The team provided regulatory guidance to project initiatives and conducted regulatory review of numerous documents resulting from those efforts, including RFI and VCA plans and reports, the MDAs core document, and the final version of the 16-260 outfall CMS plan. Team members completed an updated regulatory analysis of the proposed in situ vitrification project for MDA V and presented the analysis to the manager and staff of the DOE Western Environmental Technology Office. Team members reviewed proposed FY99 performance measures and drafted new performance measures; participated in training designed to increase awareness of Native American concerns and issues; worked on several draft policies, including one on how to establish reference sets for documents being transmitted to NMED; and served as point-of-contact for NMED's 1998 RCRA compliance inspection.

2.5.1.4 Regulatory Integration and Operations Team

Major accomplishments for the quarter are as follows:

- re-evaluated 264 previously requested no further actions for ecological risk and surface water concerns to satisfy A.2 performance measures,
- worked closely with NMED to supply information and resources necessary to provide public notice for 99 sites proposed to be removed from the HSWA module,
- completed MDA P storm water prevention plan,
- completed MDA AB BMP implementation plan, and
- assisted in the resubmittal of existing surface water and groundwater data generated by the ER Project over the past three years.

Personnel met weekly with the Watershed Management Team in an effort to integrate with ESH-20 regarding threatened and endangered species issues and monthly with the Surface Water Assessment Team to review erosion matrix scores and to recommend appropriate BMPs where necessary.

Members of the team completed annual compliance evaluations for site-specific storm water pollution prevention plans at MDA AB (TA-49), MDA P (TA-16), and the 16-260 outfall, as required by the Laboratory's General Storm Water Permit. Personnel also ensured that appropriate erosion/sediment controls, retention structures, and run-on diversion controls are being implemented at the MDA P Clean Closure Project.

Team members provided input to DOE/AL for the National Governors Association Site Road Maps Updates, met with EM/SWO on waste projections and coordination, and participated in the land transfer waste-estimating sessions and a waste-minimization information exchange with Sandia National Laboratories (SNL). Personnel reviewed five Waste Characterization Strategy forms, shipped four waste streams for disposal, and sampled two waste streams.

Team members attended the mandatory Regulatory Compliance Safety Meeting and the Native American Awareness Training.

Team members gave a presentation to the NM Federal Facilities Pollution Prevention Partnership on the ER Project's accomplishments and presented the Surface Water Decision Logic proposal to the ER Project Management Team.

A site tour of MDA P was provided for the NMED DOE Oversight Bureau, and two tours of the BMPs at Hillsides 137, 140, and PRS 1-003(e), surface disposal site, to address storm and surface water issues were provided to NMED personnel, as well as an NMED site tour of the Small Arms Range, PRS 0-016.

Team members provided assistance to the Watershed Management Team regarding the data quality objective process for Mortandad Canyon; by continuing to gather data and responses for the DP Tank Farm compliance order; by providing NMED DOE Oversight Bureau a draft of the Land Disposal Restrictions, Phase IV Final Rule; and by addressing corrective action issues regarding USTs at TAs 2,16, 21, 35, and 73.

Team members worked on SAPs, closure and waste analysis plans, and BMP placements at various MDAs, including AB, B, P, and U. RSI responses were provided for RFI reports for TAs 1, 3, and 22 and a VCA report for TA-6, and requests for extensions were requested for RFI reports for TAs 15, 36, and 39. The team updated the spreadsheet regarding status of the NMED top 13 PRSs and the ER PRS spreadsheet regarding status of sites. Team members also participated in LAAO quarterly and DOE Project status reviews, and assisted with the Laboratory Audits and Assessments review of the core hole 2 abandonment.

Other activities included peer and document reviews for VCA and RFI reports, work plans, SAPs and statements of work, and waste characterization strategy forms for PRSs in TAs 0, 3, 9, 15, 21, 35, 53, and 73.

Team members participated in meetings with the following external organizations:

- EPA regarding stormwater and watershed management issues;
- NMED on topics ranging from legal compliance orders, criteria for site aggregation, CMS process and report outlines, RSI information exchange, ecological risk, flow sampling and

purging methodology, regular monthly business, and site-specific discussions of ecorisk general assessment endpoints, and other site-specific cleanup issues;

- Natural Resource Damage Assessment (NRDA)Trustee Council on finalizing a memorandum of agreement, funding mechanisms, and review of the ER/NRDA integration document; and
- SNL on waste minimization and pollution prevention information and exchange.

Team members participated in internal meetings regarding the following topics:

- MDA core document,
- MDA P Phase II sampling approach and ESH-19 deployed personnel,
- ongoing ecological risk issues,
- development of the IWP,
- compliance order strategy,
- PRS Database Advisory Committee,
- Tribal Relations Working Group,
- MDA planning and closure, and
- erosion assessments (with the Surface Water Assessment Team).

Members of the team also reviewed the following documents:

- LANL-ER- QP 3.1, Preparing, Reviewing, Approving, and Submitting ER Documents;
- LANL-ER-QP 3.5, Peer Review Process;
- LANL-ER-QP 5.3, ER Project Readiness Review; and
- LANL-ER-QP 5.7a, Notebook Documentation for ER Investigations;
- LANL-ER SOP -4.01, Drilling Methods and Site Management;
- Storm Water Pollution Prevention Plan;
- Moisture Contingency Plan;
- ecological risk methodology documents;
- general assessment endpoint and ecological attribute documents; and
- NRDA memorandum of agreement and ER integration documents.