

University of California
 Environmental Restoration Project, 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

HISWA LANL 2/1100/53



Date: October 30, 1998
 Refer to: EM/ER:98-430


Dr. Robert S. Dinwiddie
 NMED-HRMB
 P.O. Box 26110
 Santa Fe, NM 87502

SUBJECT: TA-53 SAP ADDENDUM FOR PRSs 53-006(a-e)

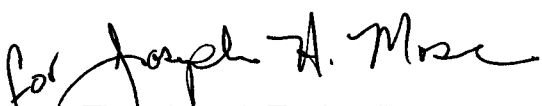
Dear Dr. Dinwiddie:

In June 1998, Los Alamos National Laboratory submitted a copy of the Resource Conservation and Recovery Act Facility Investigation (RFI) Work Plan/Sampling and Analysis Plan (WP/SAP) for Technical Area (TA) 53 (reference EM/ER:98-203). Enclosed is the SAP Addendum addressing Potential Release Sites (PRS) 53-006(a-e). PRSs 53-006 (b,c,d,e) are on the Fiscal Year 1998/1999 Work Schedule. If you have any questions, please call 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/VR/el

Enclosure: TA-53 SAP Addendum for PRSs 53-006(a-e)



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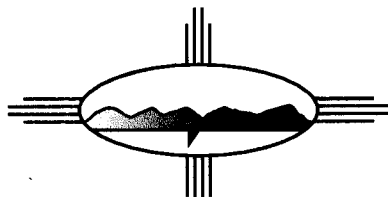
Cy (w/enc.):

R. Michelotti, CST-7, MS M992
D. Neleigh, EPA, R.6, 6PD-N
J. Newlin, CST-7, MS M992
C. Rodriguez, CIO/ER, MS M992
T. Taylor, LAAO, MS A316
T. Trujillo, DOE-AL, MS A906
J. White, ESH-19, MS K490
B. Garcia, NMED-HRMB
M. Leavitt, NMED-GWQB
J. Parker, NMED-AIP
S. Yanicak, NMED-AIP, MS J993
EM/ER File (CT # C584), MS M992
RPF, MS M707

Information Only (w/o enc.):

T. Baca, EM, MS J591
D. Boak, TSA-10, MS M992
T. George, EM/ER, MS M992
T. Longo, DOE-HQ, EM-453
M. Kirsch, EM/ER, MS M992
D. McInroy, EM/ER, M992
J. Mose, LAAO, MS A316
H. Orr, EM/ER, MS M992
S. Rae, ESH-18, MS K497
G. Rael, AL-ERD, MS A906
V. Rhodes, Aurora, MS M992
J. Vozella, LAAO, MS A316
EM/ER File, MS M992

October 1998



Addendum to

RFI Work Plan and SAP

for Potential Release Sites

53-002(a)
53-002(b)
and associated piping and drainages
at TA-53

Including SAP for PRSs
53-006 (a–e)

Environmental Restoration Project
A Department of Energy Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

Los Alamos, NM 87545

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1.0 INTRODUCTION

This technical area 53 (TA-53) Work Plan and Sampling and Analysis Plan (WP and SAP) Addendum describes a Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) for potential release sites (PRSs) 53-006(a–e), which is a below-ground storage tank system at TA-53 within Los Alamos National Laboratory (LANL). This addendum supplements the information presented in the *RFI Work Plan and SAP for Potential Release Sites 53-002(a) and 53-002(b)* (LANL 1998, 58841), submitted to the New Mexico Environment Department (NMED) on June 19, 1998 (refer to EM/ER:98-203), with Environmental Restoration (ER) Project RFI activities at five additional PRSs located at TA-53. These sites are identified as PRSs 53-006(a–e). PRSs 53-006(b–e) are listed on the Hazardous & Solid Waste Amendments (HSWA) Module of LANL's operating permit; however, PRS 53-006(a) is not listed on the HSWA Module.

PRSs 53-006(a–e) are part of the radioactive liquid waste (RLW) system that historically discharged to surface impoundment PRS 53-002(a) and currently discharges to surface impoundment PRS 53-002(b). RLW is generated by the particle accelerator operations and associated experimental activities from the Los Alamos Neutron Science Center (LANSCE) and the Weapons Neutron Research (WNR) facility at TA-53. The RLW system holds short-lived radioactive isotopes in the tanks for decay, settles longer-lived radioactive isotopes in the impoundment sludge, and evaporates tritiated water. Table 1.0-1 provides a summary of the PRSs discussed herein.

**Table 1.0-1
PRS Descriptions**

PRS	PRS Type	Structure	Description	HSWA Permit	SWMU/ AOC	Section
53-006(a)	Underground storage tank (UST)	TA-53-59	Inactive UST used to settle resin from LANSCE accelerator	NO	SWMU	2.0
53-006(b)	UST	TA-53-68	Active steel UST used to collect RLW from LANSCE accelerator	YES	SWMU	2.0
53-006(c)	UST	TA-53-69	Active steel UST used to collect RLW from LANSCE accelerator	YES	SWMU	2.0
53-006(d)	UST	TA-53-144	One compartment of an active concrete UST used to collect RLW from WNR	YES	SWMU	2.0
53-006(e)	UST	TA-53-145	One compartment of an active concrete UST used to collect RLW from WNR	YES	SWMU	2.0

Within the Operable Unit (OU) 1100 RFI work plan (LANL 1994, 34756), intrusive activities were proposed for deferred action and non-intrusive, nondestructive integrity tank-testing methods were proposed for each of the UST PRSs while the RLW system remained active. Table 1.0-2 provides a

chronology of correspondence between the administrative authorities (AAs) and LANL regarding PRSs 53-006(a-e).

**Table 1.0-2
Chronology of Correspondence Between LANL and AAs
Regarding PRSs 53-006(a-e)**

Date	Correspondence	Synopsis of Correspondence
May 1994	From LANL to EPA	Work plan—LANL submits OU 1100 work plan proposing deferral of intrusive tank investigations until RLW system is decontaminated and decommissioned and proposing development of integrity testing via non-intrusive, nondestructive methods.
November 1994	From EPA to LANL	Work plan notice of deficiency (NOD)—EPA requires additional information (prior to making a deferral decision) regarding the release of any hazardous constituents to PRSs 53-006(b,c) and the integrity of PRSs 53-006(a-e).
December 1994	From LANL to EPA	NOD response—LANL submits a response to the work plan NOD indicating that there is no evidence that the tanks [PRSs 53-006(b) and (c)] ever received any hazardous water and proposing development of non-intrusive, nondestructive tank testing to provide integrity information.
December 1994	From EPA to LANL	Work plan approval—EPA approves work plan and associated NOD response
March 1996	From LANL to NMED	RFI report for TA-20, TA-53, and TA-72—LANL proposes deferral of non-intrusive tank testing until 1997 (due to budget constraints).
March 1997	From NMED to LANL	RFI report NOD—NMED makes no review comments associated with PRSs 53-006(a-e).
April 1997	From LANL to NMED	NOD response—LANL submits a response to RFI report NOD. To date, no reply from NMED concerning NOD response.

The LANSCE division is currently redesigning and upgrading the RLW systems to exclude the need for PRSs 53-006(a-e), as well as 53-002(b). Redesign and upgrade activities are scheduled for the first two quarters of fiscal year (FY) 99. Removing the tanks from service effectively eliminates the need to conduct integrity testing. As a result, this addendum presents the intrusive investigation planned for the five UST PRSs associated with the TA-53 RLW system. Sampling activities for PRSs 53-006(a-e) are being consolidated with PRSs 53-002(a,b) through this addendum because

- all the PRSs are RLW system components being removed from service (or already removed from service), and
- the majority of information presented in the TA-53 WP and SAP (LANL 1998, 58841) for PRSs 53-002(a) and 53-002(b) is relevant to the TA-53 UST PRSs.

This SAP addendum follows the March 1998 SAP outline developed by NMED and includes descriptions of the five tanks and associated drainlines, a conceptual model, and proposed sampling activities. Sections 1.0 and 2.0 of this addendum provide information specific to the investigation of PRSs 53-006(a-e) and are intended to supplement the corresponding sections of the TA-53 WP and SAP (LANL 1998, 58841) previously completed and submitted for AA review. Sections 3 and 4 of the TA-53 WP and

SAP do not require modification. The sampling activities proposed are designed to determine whether contaminants have leaked from any of the UST PRSs into the subsurface environment. Under this investigation, the nature of contamination will be determined below and adjacent to each PRS and its associated drainlines. Contaminants identified during this part of the investigation will be the chemicals of potential concern (COPCs) used to help support human health risk assessment decisions and/or design the next phase of investigation, if further information is required.

1.1 Objective and Scope

The objective of this investigation is to determine whether contaminants have leaked from PRSs 53-006(a–e) and the associated drainlines into the subsurface environment. This SAP addendum is designed to define the nature of contamination below and adjacent to the five UST PRSs and the associated drainlines, and will help answer the following questions:

- Did RLW leak from the tanks and associated drainlines into the surrounding subsurface environment?
- Do the contaminant concentrations pose a human health or ecological risk?

Potential decisions that may result from this investigation include

- Proposal of no further action (NFA) for PRSs 53-006(a,b,c,d, and/or e)
- Evaluation of removal alternatives for PRS 53-006(a,b,c,d, and/or e).
- Conducting of an additional investigation to determine extent of contamination, if not determined during this investigation.

1.2 Approach and Implementation

The ER Project and the LANSCE division have worked together to develop a consistent sampling strategy for the UST PRSs and associated drainlines. The RFI strategy involves a three-stage approach based on RLW system upgrade and requires significant coordination between the ER Project and the LANSCE division. In order to upgrade the RLW system, the tanks [and PRS 53-002(b)] will be removed from service and replaced with a newly designed system to transport and process RLW. The RLW system upgrade design effectively isolates the PRSs and portions of the drainlines by cutting and capping the RLW drainlines adjacent to buildings (on the inlet side) and within 20 ft of each set of tanks (on the outlet side). With respect to the specific PRSs, the inlet and outlet lines will be cut, capped, and tied back into the existing RLW lines at the following approximate locations summarized in Table 1.2-1 below:

**Table 1.2-1
Summary of RLW System Upgrade Tie-ins**

PRS Areas	Inlet	Outlet
53-006(a–c)	Adjacent to west side of Building 53-3M	20 ft south-southeast of PRSs 53-006(a–c)
53-006(d,e)	Adjacent to east side of Building 53-30	10–15 ft south of PRSs 53-006 (d,e)

RFI activities are planned to take place before, during, and after RLW system upgrade project activities. The three-staged RFI approach is summarized in Table 1.2-2 below:

**Table 1.2-2
Summary of Proposed RFI Activities**

Stage	Activities	Responsible Party
Pre-upgrade	Rinse and pump PRSs 53-006(b-e) as dry as possible	LANSCE Division
During upgrade	Cut and cap drainlines Collect samples from beneath drainlines (and within drainlines, if possible) when exposed during upgrade tie-in	LANSCE Division ER Project
Post-upgrade	Collect samples from boreholes drilled around isolated PRSs Collect samples from boreholes drilled along isolated drainlines	ER Project ER Project

Overview of Sample Collection for PRSs 53-006(a-e)

The subsurface associated with PRSs 53-006(a-e) and the isolated inlet and outlet drainlines will be sampled, submitted to a fixed laboratory, and analyzed for the full suite of chemicals of potential concern (COPCs) presented in the TA-53 WP and SAP. Boreholes will be drilled near each of the PRSs and grab samples will be collected from tuff adjacent to and beneath the tanks. Grab samples of subsurface and pipe contents will be collected from the isolated inlet and outlet drainlines at the tie-in locations and at locations along the remaining drainlines.

1.3 Background Issues

1.3.1 Regulatory Requirements

As outlined in Section 1.3.1 of the TA-53 WP and SAP, this investigation, including sampling and analysis, is conducted under the requirements of RCRA. For PRSs 53-006 (b-e) the investigation is in accordance with the 1989 HSWA and follows the requirements in Module VIII of LANL's Hazardous Waste Facility Permit (EPA 1990, 01585). Module VIII was issued to LANL by the US Environmental Protection Agency (EPA) on May 23, 1990, and modified on May 19, 1994.

1.3.2 Other Issues

Any PCB requirements associated with investigation of these PRSs are consistent with those presented in Section 1.3.2 of the TA-53 WP and SAP.

Above- and below-ground structural and physical constraints also influence the intrusive investigation activities at these PRSs, especially for PRSs 53-006(a-c). Above-ground constraints include the presence of the facility structural supports and large concrete shielding blocks. Appendix A contains photographs of the areas surrounding the PRSs. Below-ground constraints, resulting in significant health and safety issues, may include utilities that are not clearly defined on the as-built drawings.

1.4 Data Quality Objectives Process

A preliminary conceptual site model was developed to demonstrate potential release and transport mechanisms, address contaminant concentration and collocation possibilities, identify viable exposure pathways, and define the boundaries of the PRSs. The model describes the media receiving contaminants, the fate and transport of releases to environmental media, and the exposure pathways to be used in the human health risk assessment. The results of this investigation will provide data to confirm or refine the model (if necessary) and will use the pathways presented in these models to estimate the potential risk associated with the sites and the potential for future transport of contaminants. In order to support the preliminary conceptual model, information about whether the PRSs (and associated drainlines) have leaked contaminants into the environment (resulting in COPCs that need to be evaluated using human health risk assessment) needs to be collected and evaluated.

2.0 PRSs 53-006(b,c), (a), AND (d,e)

2.1 Characterization and Setting

2.1.1 Site Description

The TA-53 site description is presented in Section 2.1.1 of the TA-53 WP and SAP. Figure 2.1-1 shows the location of PRSs 53-006(a–e) with respect to the location of PRSs 53-002(a,b). PRSs 53-006(a–e) and PRSs 53-002(a,b) are components of the TA-53 RLW system. RLW generated by the particle accelerator operations and associated experimental activities from the LANSCE and the WNR facilities collects in PRSs 53-006(a–e) and discharges to PRS 53-002(b). This RLW system historically discharged to PRS 53-002(a).

PRSs 53-006(b,c)

PRSs 53-006(b,c) are two active tanks located directly south of area TA-53-3S. They are used to store RLW from the LANSCE operations (Figure 2.1-2). They are also known as structures TA-53-68 and -69. Both tanks are steel, approximately 12 ft long and 6 ft in diameter, each with an approximate 2500-gal. capacity. The tanks are situated east/west and buried approximately 18 ft below ground surface (BGS). Several vent pipes and pump lines extend from the top of the tanks to the surface. The two tanks are interconnected by a 6-in. overflow pipe. The inlet pipe from Building 53-3 has a three-way valve that directs water either into one or both tanks. Dimensions of PRSs 53-006(b,c) are shown on Figure 2.1-3.