

**Voluntary Corrective Action Fact Sheet for PRS 21-024(i)
Confirmation Sampling and Potential Outfall Remediation
SRS: 21-024(i) =53**

Erosion Matrix Score: 21-024(i) = 59



Operational History

Potential Release Site (PRS) 21-024(i) is an inactive septic system that operated between 1945 and 1965 and is listed in Module VIII of the Laboratory's Hazardous Waste Facility Permit. The septic system served buildings TA-21-152, -166 and -167. This PRS is comprised of structure TA-21-181, a concrete septic tank, 6-inch VCP inlet and outlet drain lines, and associated outfall (**Fig 1-1**).

The system routed sewage southeast from TA-21-152, beneath building TA-21-209, through the septic tank to an outfall area southeast of TA-21-209. Building TA-21-152 housed a research laboratory with activities related to the space nuclear program, plutonium heat sources, and other weapons and non-weapons programs. Engineering drawings confirm that building TA-21-152 had no floor drains. A sanitary sewer line directly to septic tank TA-21-181 connected lavatories in the building. The building's laboratory sinks were on a separate drain system that connected to a sewer main in the utility tunnel beneath the building foundation. This drain line discharged wastewater directly into what is now MDA U. PRS 21-024(i) has been divided into three main areas: 1) the septic tank with influent and effluent lines (Area 1); 2) the outfall area on the mesa top between the septic tank outlet line and the mesa edge (Area 2); and 3) the bench area beneath the mesa top and above Los Alamos Canyon (Area 3).

The first floor of buildings TA-21-166 and -167 housed air conditioning equipment for certain laboratories in TA-21-152, and related heating and cooling apparatus. Blowdown from air conditioning equipment located in both buildings (typically referred to as "cooling towers" throughout the Laboratory) was also routed to septic tank TA-21-181 through floor drains connected by a 6-inch VCP. The second floors of buildings TA-21-166 and -167 were designed to be used as plenums for heating and ventilation systems for building TA-21-152. These systems included filters, steam heating coils and blowers. In 1949, the building systems were remodeled and new steam preheat and reheat coils and a wet cell air washer were installed.

Effluent from the septic tank discharged through another 6-inch VCP outfall pipe onto a broad gentle slope approximately 60 feet from the south edge of DP Mesa. The system was abandoned in place in 1965.

Previous Investigations and Contaminants of Potential Concern

Previous investigations of PRS 21-024(i) include initial reconnaissance sampling conducted in 1988 and a Phase I RFI Investigation carried out in 1992 and 1993. Results of these investigations were reported in the 1995 Final Draft for the OU 1106 Addendum to Phase 1B, 1C Report (LANL 1995, 52350). A Phase II RFI was conducted in 1997. During the 1997 investigation it was determined that the contents of the septic tank had not been removed when the tank was abandoned in 1965. Results of the Phase I and Phase II RFIs identified the primary COPCs in the waste remaining in the tank and associated drain lines and outfall to include metals, radionuclides, PCBs and volatile organic compounds (VOCs).

Based on the Phase II RFI results it was decided that removal of a portion of the source term through a voluntary correction action (VCA) was appropriate based on as low as reasonably achievable (ALARA) guidelines. The source term removal would accomplish a reduction of potential dose to human health and the environment due to the potential transport of radionuclides, as well as removing a significant portion of the non-radioactive source term. During the initial preparation of the VCA plan, it became obvious that a VCA was not appropriate at that time because the VCA definition requires a final remedy. An interim action (IA) was determined to be the best option for the site given the uncertainty surrounding other regulatory issues that needed to be addressed to implement a final remedy at this site. An Interim Action Plan (LA-UR-98-1896) was prepared and submitted to NMED followed by a response to the subsequent Request for Supplemental Information (RSI) from NMED dated June 25, 1998. The RSI called for removal of the septic tank and its contents, inlet and outlet lines and contaminated soil from the outfall area (Area 2). After discussions with NMED staff regarding the RSI response, the IA was implemented in September and



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October 1998 to remove the majority of the source term from the hillside. Excavated soil was disposed at TA-54 and the outlet line from the septic tank was plugged. In addition, storm water controls were installed during site restoration. The controls are routinely inspected and maintained by LANL ER Project and ESH-18 representatives.

The removal of the septic tank, its contents and the inlet and outlet lines was not completed during the IA because a waste disposal alternative was not available at the time.

VCA Rationale

The septic system identified as PRS 21-024(i) is located on a mesa top near the canyon edge and waste remains in the tank. The septic system is located on DOE property that has historically been used for industrial purposes. It is an ER Project Best Management Practice (BMP) to properly manage inactive septic systems in accordance with applicable regulatory requirements and thereby mitigate potential environmental issues that may remain if the systems are not addressed, regardless of RFI results.

A source for disposal of the septic tank sludge has been identified. LANL is therefore proposing to remove the septic tank, its contents and the inlet and outlet lines under the existing Interim Action Plan. A VCA Plan will subsequently be prepared that reviews and incorporates all existing data and describes any additional cleanup required at PRS 21-024(i) to ensure contaminant levels protective of the pathways for exposure to humans or the ecosystem based on anticipated future land use.

VCA Implementation

The corrective action at this site will involve the removal of the septic tank, its contents, the inlet and outlet lines and contaminated soils followed by confirmation sampling in Area 1. The VCA will also involve additional characterization and confirmation sampling of outfall Areas 2 and 3, in addition to possible excavation of soils from both areas to meet the requirements of a final site remedy. The estimated amount of material to be removed and/or excavated from Areas 2 and 3 is approximately 25 cubic yards. Details of the excavation of soils from the two outfall areas have not been finalized, but it is currently planned that these activities will be completed using the combined efforts of manual soil removal and possibly a vacuum truck. Human health and ecological screening risk assessments will be conducted on confirmation sampling data to determine if additional excavation of soil is required prior to completion of the VCA. The VCA Completion Report will document all activities and results of the VCA of PRS 21-024(i).

Site restoration will be extensive and require recontouring of the excavated area to match the existing terrain, recontouring of the stream bank affected by excavation, reseeding with native vegetation, placement of rip-rap on the stream bank to prevent erosion of the recontoured area, placement of BMPs on the hillside (Areas 2 and 3) until vegetation is reestablished, and final site restoration.

Anticipated Waste Types and Volumes

Five separate waste streams are anticipated from completion of the IA and implementation of the VCA and are presented in the following table. Sludge and wastewater generated from steam cleaning the tank and the inlet and outlet drain lines will be managed as mixed LLW. The sludge remaining in the septic tank does not meet the definition of PCB remediation waste because the concentration of PCBs is below 50 ppm and no known or confirmed source of PCBs was identified after a thorough review of extensive archival information regarding the septic system. Additionally, no PCBs were detected in soils around or beneath the tank and levels observed in the outfall prior to implementation of the IA were below 2 ppm PCBs. Since the sludge contains VOCs above RCRA Land Disposal Restrictions, in addition to metals and radionuclides at levels requiring management and disposal as a mixed waste, the sludge/wastewater will be thermally treated and stabilized prior to disposal, thereby also meeting PCB waste treatment requirements.

Waste generated from the removal of the drain lines, septic tank, and any excavated soils will be managed as LLW. Analytical and waste characterization results to date indicate that neither metals nor VOCs fail TCLP in any of these waste streams. A detailed discussion of waste determination and management activities will be presented in the VCA Plan.

WASTE STREAM	WASTE TYPE	ANTICIPATED VOLUME
Septic tank sludge and wastewater from steam cleaning of tank	Solid - mixed - LLW (Thermal Treatment)	10 yd ³
Septic tank and drain lines	Solid - LLW	5 yd ³
Contaminated soil	Solid - LLW	25 yd ³
Decontamination water	Liquid - LLW	25 gal.
PPE*, plastic sheeting, and disposable sampling equipment, and soil samples	Solid - LLW	2 yd ³

PPE – personal protective equipment

Estimated Cost

Based on current resource estimates, the completion of this VCA including anticipated subcontractor costs and analytical costs, the total estimated cost is approximately \$1.2 million. This cost estimate assumes that only the contents of the septic tank and wastewater from steam cleaning will be managed as mixed LLW waste (due to the presence of VOCs and radionuclides) for offsite disposal, while the remaining waste generated will be managed as LLW at TA-54, Area G. Final disposal options will be re-evaluated during the VCA implementation planning process.

Schedule

The field work portion of this VCA is expected to begin in early FY01 and take approximately two months to complete. The fieldwork includes sludge removal, the subsequent steam cleaning and removal of the septic tank, cutting and removing drain lines, confirmatory sample collection and analysis, soil excavation from the outfall with subsequent installation of BMPs, waste management, and site restoration.

Reference List of Past Plans, Reports, etc.

- LANL (Los Alamos National Laboratory), May 1991. "RFI Work Plan for Operable Unit 1106." Los Alamos National Laboratory Report LA-UR-91-962, Los Alamos, New Mexico (LANL 1991, ER 0689)
- LANL (Los Alamos National Laboratory), January 1995, "Final Draft for the OU 1106 Addendum to Phase 1B, 1C Report, TA-21," Los Alamos National Laboratory Report LA-UR-94-4360, Los Alamos, New Mexico. (LANL 1995, 52350)
- LANL, 1896, "Interim Action Plan for PRS 21-024(i)," Los Alamos National Laboratory Report LA-UR-98-1609, Los Alamos, New Mexico.
- LANL, 1998, "Response to Request for Supplemental Information on the IA Plan for TA-21, PRS 21-024(i)," Los Alamos National Laboratory Report, Los Alamos, New Mexico. (LANL 1998, EM/ER: 98-254)
- Drawing Number ENG-R1196, Utility Location Plan, TSA-21, DP Site, Sewer Plan, 1958, Sheet 8 of 8, ER ID 24835
- Drawing Number ENG -C2249, Electrical Layout, Lighting, Building 152, DP Site Construction, 1945, Sheet E1
- Drawing Number ENG4-C349, Air Conditioning Systems, Bldgs. DPE 166 and 167, 1949

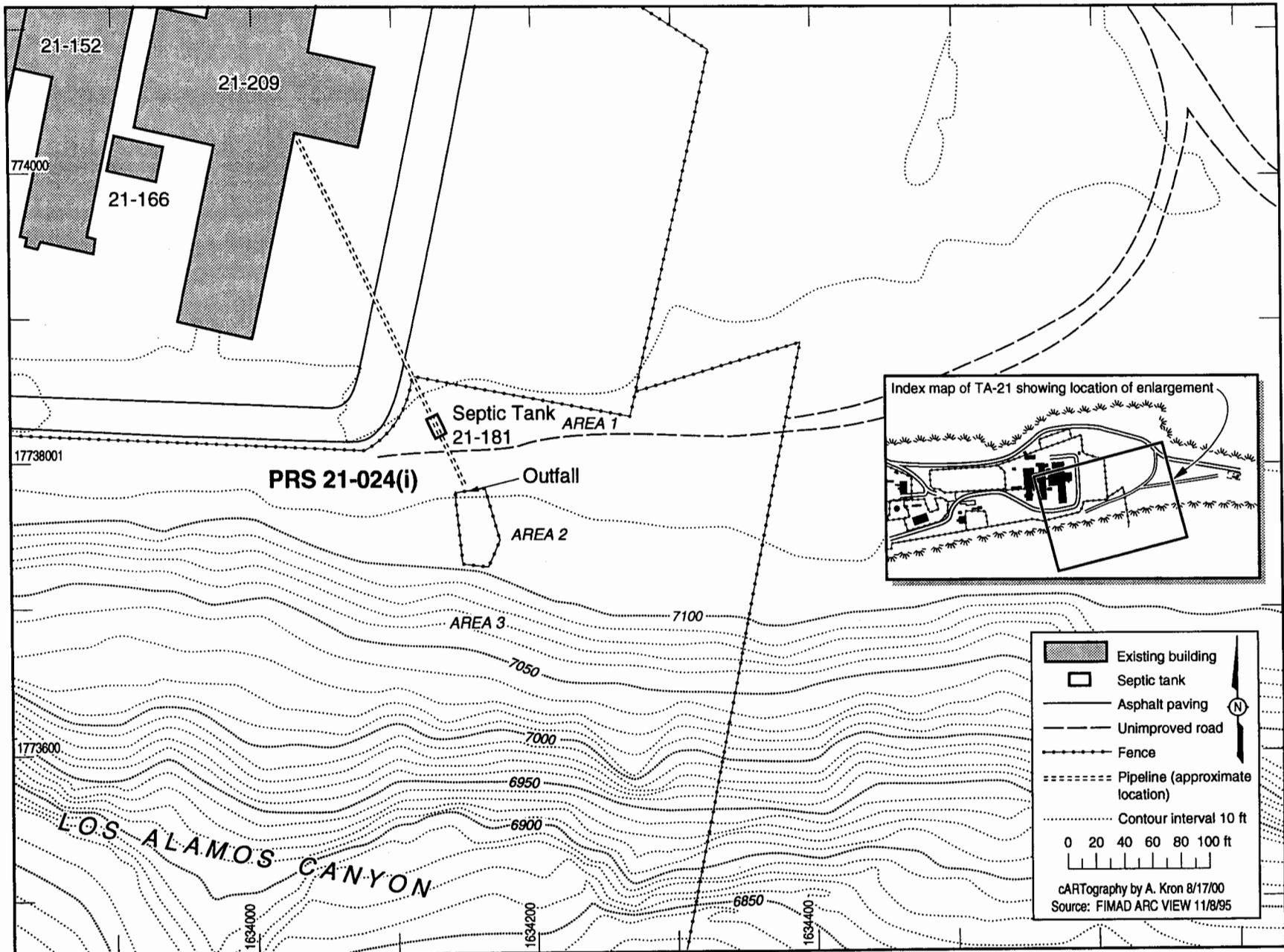


Figure 1-1 PRS 21-024(i) site map

Accelerated Corrective Action (ACA) Checklist and Field Work Authorization Form

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PRS Number: 21-02461 HSWA Non-HSWA

Yes	No	
<input checked="" type="checkbox"/>		Fact sheet describing planned activities is complete and attached to checklist.
<input checked="" type="checkbox"/>		COPC(s) for human health risk (HH), ecological risk (ECO), or other requirements are known or will be determined during accelerated site characterization.
<input checked="" type="checkbox"/>		Nature and extent of contamination is defined or accelerated site characterization is planned as part of this action to define nature and extent and to guide cleanup.
<input checked="" type="checkbox"/>		Cleanup levels/preliminary remediation goals (PRGs) are appropriate.
<input checked="" type="checkbox"/>		Remedy is obvious.
<input checked="" type="checkbox"/>		Time for removal is less than six months.
<input checked="" type="checkbox"/>		Remedy is final.
<input checked="" type="checkbox"/>		Land use assumptions are straightforward.
<input checked="" type="checkbox"/>		Treatment, Storage, and Disposal (TSD) Facilities are available for waste type and volume.
<input checked="" type="checkbox"/>		Cleanup cost is reasonable for the planned action and meets accelerated decision logic criterion for decision to proceed with ACA.
<input checked="" type="checkbox"/>		Briefing for NMED is required.

Explain criteria not checked above:

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Accelerated Corrective Action (ACA) Checklist and Field Work Authorization Form

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PRS Number: 21-024(i) HSWA Non-HSWA

Upon reviewing the Accelerated Corrective Action Fact Sheet and the criteria checklist above, the appropriate Accelerated Corrective Action approach for the PRS(s) is (check one): VCA VCM

Signatures of the Representative for UC-Laboratory, DOE-LAAO, and NMED-HRMB:

UC: _____ (Date) _____
(Print Name and Title, then Sign)

DOE: _____ (Date) _____
(Print Name and Title, then Sign)

NMED: _____ (Date) _____
(Print Name and Title, then Sign)

The undersigned have reviewed the final plan and believe that it fully satisfies the appropriate Accelerated Corrective Action Approach.

Signatures of the Representative for UC-LANL and DOE-LAAO

UC: _____ (Date) _____
(Print Name and Title, then Sign)

DOE: _____ (Date) _____
(Print Name and Title, then Sign)

Action	Date	Correspondence ID
VCA or VCM plan submitted to NMED		
NOD or RSI received from NMED		
Laboratory response to NOD or RSI		
NMED approval of VCA or VCM plan		

After reviewing the VCA or VCM plan for the site(s) listed above and believing that the ACA process and VCA or VCM criteria have been met, I authorize the fieldwork to proceed.

DOE ER Program Manager _____ (Date) _____
(Signature)

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