

**Voluntary Corrective Action Fact Sheet for PRS 21-011(k)
Confirmation Sampling and Removal of Residual Contamination
SRS: 21-011(k) = 67**



Erosion Matrix Score: 21-011(k) = 72

Operational History

Potential Release Site (PRS) 21-011(k) was the NPDES-permitted outfall (NPDES outfall no. EPA050050) for treated industrial wastewater from Buildings TA-21-35 and -257, the former industrial wastewater treatment plants (WWTP) at TA-21, and is listed in Module VIII of the Laboratory's Hazardous Waste Facility Permit. The PRS consists of a drain line from two wastewater treatment tanks that discharged to an outfall ditch, which channeled wastewater to the canyon rim, and down the hillside toward DP Canyon. The ditch is no longer visible; however, a 4-inch cast iron drain line is located approximately 55 feet north of the TA-21 perimeter road in the area where the outfall ditch would have ended. A gently sloping, rocky surface extends from the outfall pipe approximately 30 feet to the canyon rim.

TA-21 is the former plutonium processing facility at LANL. TA-21 began plutonium operations in 1945 and ceased operations in 1978. The first WWTP, TA-21-35 was activated in 1952 and operated until 1967 when the new WWTP, TA-21-257 came on line. Both facilities treated wastes from DP West and DP East consisting of liquids remaining after plutonium extraction and processing of radioactive materials for nuclear weapons and space rocket research projects. The treatment process mixed the raw waste with lime, ferric sulfate, and coagulant aids. The waste was then pumped to a flocculator and on to a settling tank. Settled effluent was pumped through a pressure filter and sampled, to verify treatment. If the effluent was determined to be adequately treated, it was pumped to two final effluent holding tanks (tanks TA-21-112 and TA-21-113). From tanks TA-21-112 and TA-21-113, the wastewater was piped northeast toward DP Canyon and discharged on the north side of DP Mesa (**Fig. 1-1**). This wastewater contained a variety of radioactive and chemical constituents. Discharges of treated wastewater to the outfall were discontinued in the early 1990's; however, Building TA-21-257 is still used for pretreatment of wastewater prior to discharge to the TA-50 waste line.

Previous Investigations and Contaminants of Potential Concern

PRS 21-011(k) was investigated in 1988 by DOE and by the ER Project in 1992 and 1993 and reported on in 1995 in the Final Draft for the OU 1106 Addendum to Phase 1B, 1C Report (LANL 1995, 52350). The initial radiation survey and soil sampling performed at PRS 21-011(k) in FY92 indicated the presence of radionuclide contamination. Additional soil sampling and a radiation survey were performed during the FY93 field season to further define the extent of contamination found in FY92.

An interim action (IA) plan was prepared in 1996 (LANL 1996, 01-0042). The IA was implemented during 1996 and 1997 and described in the *Interim Action Report for TA-21, Potential Release Site 21-011(k)*, submitted to NMED on April 10, 1997 (LANL 1997, 55648). The objectives of the IA were to remove a portion of the radionuclide source term from the outfall area of the PRS and install storm water control measures as a best management practice (BMP). Soil excavated from PRS 21-011(k) during the 1996 IA (390 cubic yards) was characterized in the field and transported to TA-54, MDA G for disposal. Storm water controls were installed in 1997 and upgraded in August 1999. The controls are routinely inspected and maintained by LANL ESH-18 representatives.



MSWA LANL 1/1106/21

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The COPCs for this PRS include americium-241, cesium-137, plutonium-238 and -239, and strontium-90. Although analytical results from the 1988, 1992 and 1993 investigations did not identify non-radioactive, RCRA-regulated organic and inorganic chemicals as COPCs, waste characterization samples and a percentage of confirmation samples will be submitted for analysis of metals, SVOCs, and radionuclides. VOCs are not anticipated to be present at the surface because they were not detected when 390 cubic yards of soil were excavated during the IA in 1996. However, VOCs will be included in the analytical suite for a percentage of post excavation confirmation samples and waste characterization samples.

VCA Rationale

The PRS is located on a hillside that leads to DP Canyon. The site is considered to be in a watercourse, although only the most northern extent of the slope's toe is actually within the high water table of the DP Canyon streambed. Because of the site's high erosion matrix score and residual levels of radionuclides in surface soils and tuff, the site is considered a priority for both LANL and NMED (**Fig. 1-2**). Therefore, the objective of this corrective action is to remove soil and tuff in the area of PRS 21-011(k) with radionuclide concentrations that exceed acceptable human health and ecological risk levels based on anticipated future land use. The hillside and canyon bottom areas identified, as PRS 21-011(k) are located on DOE property that has historically been used for industrial purposes.

VCA Implementation

The corrective action at this site will involve the removal of radioactive contaminated soil and tuff, and possibly channel sediment deposits and is intended to be a final remedy. The estimated amount of material to be excavated is approximately 2,000 cubic yards. Details of the excavation have not been finalized, but it is currently planned that these activities will be completed using heavy equipment. Disturbance to the surrounding environment is inevitable during the excavation of tuff and sediments, and will require removal of some trees. Human health and ecological screening risk assessments will be conducted to determine if additional excavation of soil is required prior to completion of this VCA.

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 until vegetation is reestablished, and final site restoration.

Anticipated Waste Types and Volumes

Three separate waste streams are anticipated from this VCA as presented in the following table.

WASTE STREAM	WASTE TYPE	ANTICIPATED VOLUME
Radionuclide-contaminated soil and tuff	Solid - LLW	2,000 yd ³
Radionuclide-contaminated decon water from heavy equipment	Liquid - LLW	250 gallons
PPE, plastic sheeting, disposable sampling equipment, and soil samples	Solid - LLW	10 yd ³

Estimated Cost

Based on current resource estimates, all waste generated during this VCA is expected to be disposed of at TA-54 as LLW at a cost of approximately \$1.2 million for waste disposal only. However, final disposal options will be re-evaluated during the VCA implementation planning process. With anticipated subcontractor costs and analytical costs the total estimated cost of this VCA is approximately \$2.2 million.

Schedule

The field work portion of this VCA is expected to begin in mid-FY01 and take approximately three months to complete. The fieldwork includes soil and tuff removal, confirmatory sample collection and analysis, 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 7529, Section 15.4)
- 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, 1996, "Interim Action Plan for TA-21: PRS 21-011(k)," Los Alamos National Laboratory Report LA-UR-96-1609, Los Alamos, New Mexico. (LANL 1996, EM/ER: 96-482)
- LANL, 1997, "Interim Action Report for Potential Release Site 21-011(k) Discharge System," Los Alamos National Laboratory Report, Los Alamos, New Mexico. (LANL 1997, EM/ER: 97-103)

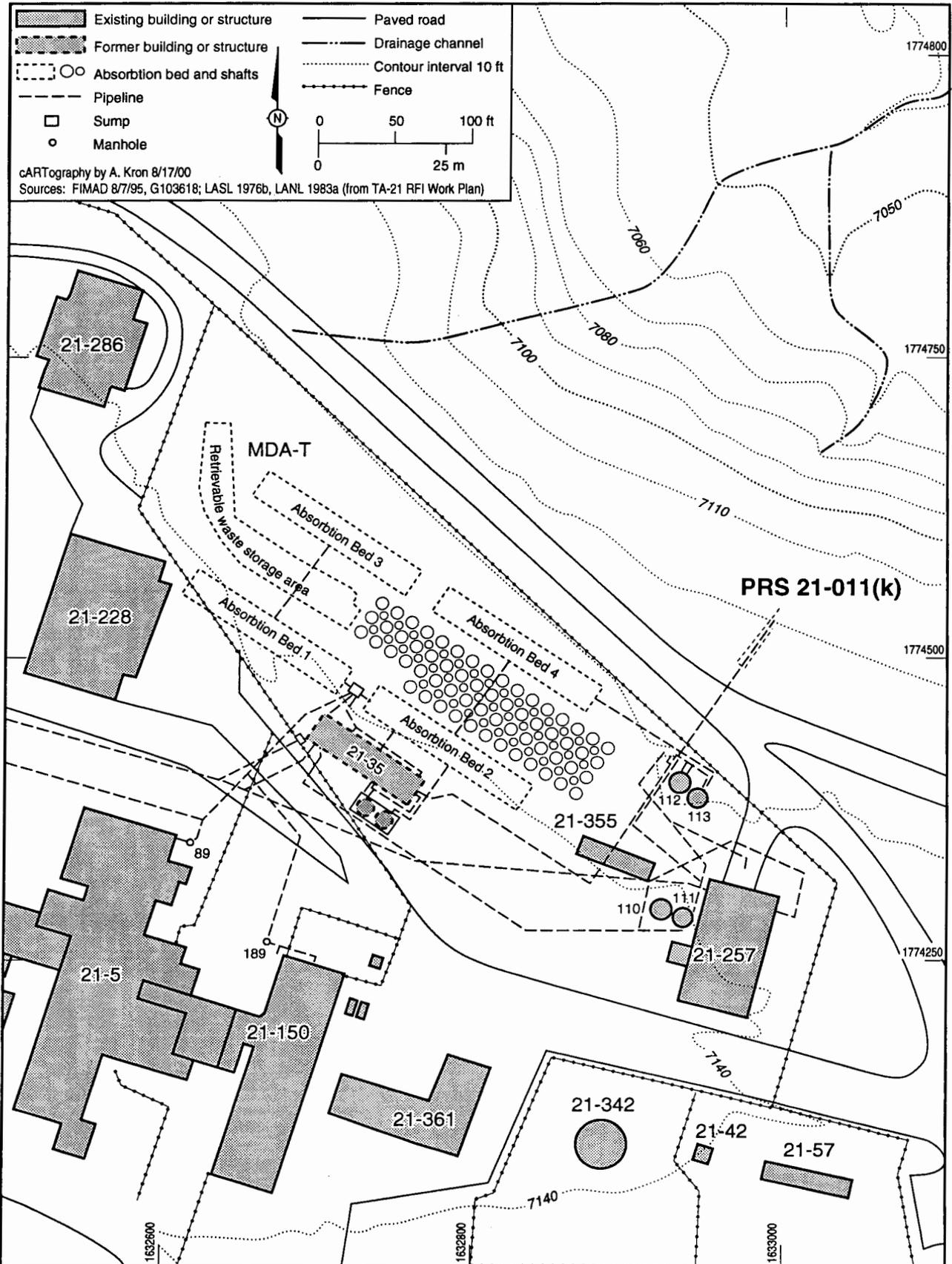


Figure 1-1 Location of PRS 21-011(k)

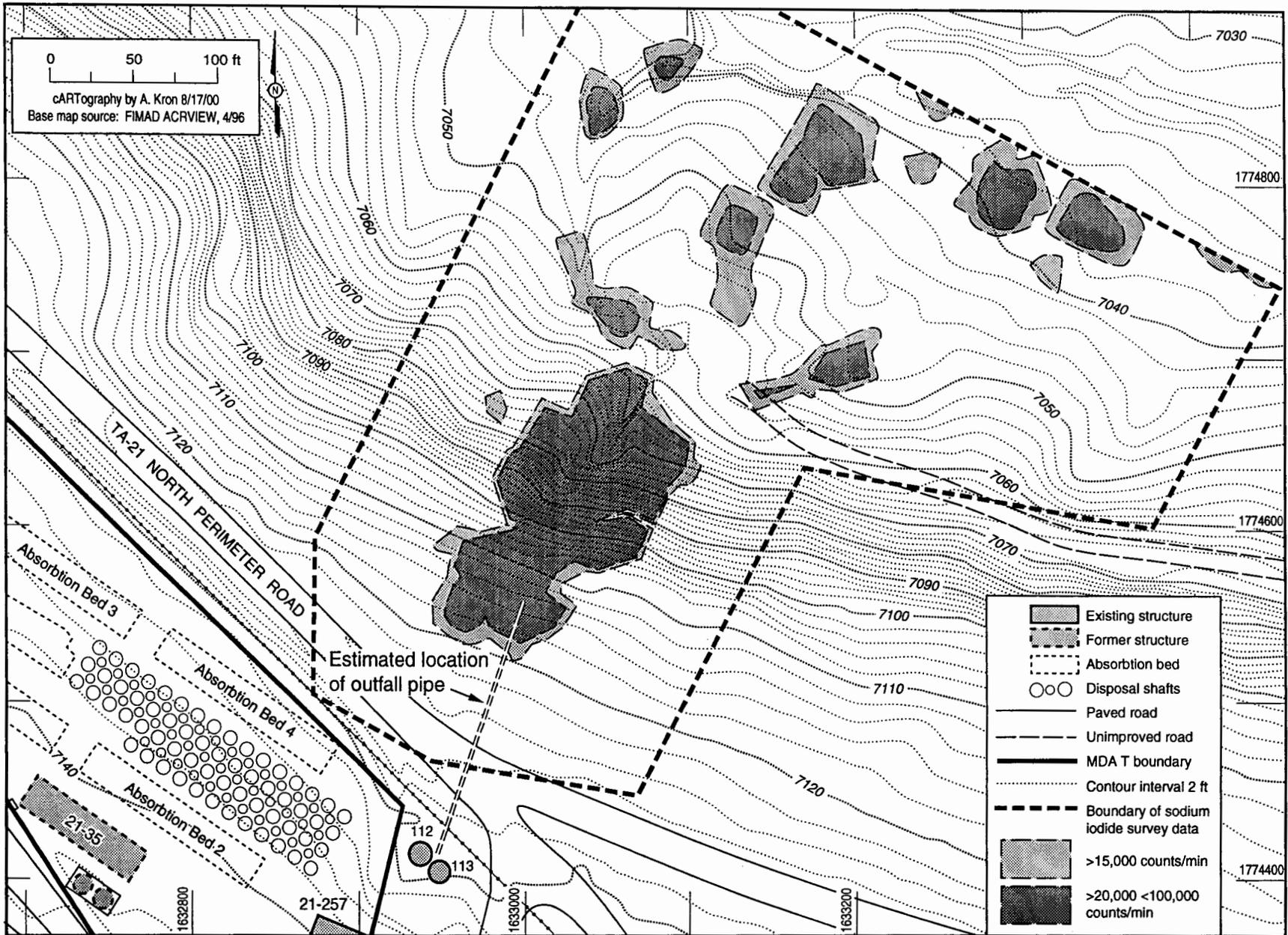


Figure 1-2 Sodium iodide surface data from the post-investigation survey at PRS 21-011(k)

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

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PRS Number: 21-011(K) HSWA Non-HSWA

Yes	No	
X		Fact sheet describing planned activities is complete and attached to checklist.
X		COPC(s) for human health risk (HH), ecological risk (ECO), or other requirements are known or will be determined during accelerated site characterization.
X		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.
X		Cleanup levels/preliminary remediation goals (PRGs) are appropriate.
X		Remedy is obvious.
X		Time for removal is less than six months.
X		Remedy is final.
X		Land use assumptions are straightforward.
X		Treatment, Storage, and Disposal (TSD) Facilities are available for waste type and volume.
X		Cleanup cost is reasonable for the planned action and meets accelerated decision logic criterion for decision to proceed with ACA.
X		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: 21-011(k) 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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