

Voluntary Corrective Action Completion Report for

Potential Release Sites

0-030(l)
0-030(m)
0-033(a)

6th Street Warehouse

Field Unit 1

Environmental
Restoration
Project

August 1996

A Department of Energy
Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

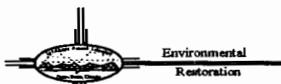
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Date: October 11, 1996
Refer to: EM/ER:96-489

HSWA LANL 5/10/96

Mr. Benito Garcia
NMED - HRMB
P.O. Box 26110
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**SUBJECT: VCA COMPLETION REPORT FOR ACTIVITIES AT TA-0,
PRSS 0-030(l), 0-030(m), AND 0-033(a)**

Dear Mr. Garcia:

Enclosed please find two copies of the Voluntary Corrective Action Completion Report for Technical Area 0, Potential Release Sites (PRSS) 0-030(l), 0-030(m), and 0-033(a) cleanup activities completed in Fiscal Year 1996. One report is for your information; the second should go to your technical branch. The other appropriate entities within your bureau have been included on distribution. The Environmental Restoration Project believes that this completion report justifies no further action (NFA) at these PRSS. These PRSS are listed in the Hazardous and Solid Waste Amendments (HSWA) Module of the Los Alamos National Laboratory's Resource Conservation and Recovery Act operating permit, therefore, we are asking for your concurrence in our recommendation to remove these sites from the HSWA Module.

The Department of Energy has reviewed and approved this report and agrees with the recommendation for NFA. The approval form is attached to the report. The Certification of Completion has been signed and is included in the enclosed report.

If you have any questions, please call Garry Allen at 505 667-3394 or Bonnie Koch at 505 665-7202.

Sincerely,

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LANL/ER Project

Sincerely,

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-2-

October 11, 1996

- Enclosures: (1) Final VCA Completion Report for TA-0, PRSs 0-030(l), 0-030(m) and 0-033(a)
(2) Certification of Completion
(3) DOE Approval Form

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1.0 INTRODUCTION

This report outlines the voluntary corrective action (VCA) activities at Sixth Street Warehouses potential release sites (PRSs). The Sixth Street Warehouses, also known as Zia Warehouses 1, 2, 3, and 4, are located in Technical Area (TA) 0 of the Los Alamos townsite (Fig. 1.0-1). The Sixth Street Warehouses area includes PRS Group 0-1 which has been subdivided into PRS Aggregates 0-B and 0-C. Collectively, these aggregates include PRS 0-004 (a container storage area), PRSs 0-030(b, l, and m) (septic systems), PRS 0-033(a) [an underground fuel oil storage tank (UST)], PRS 0-033(b) (an area of potential soil contamination from floor drains associated with the materials testing laboratory), and PRS 0-010(b) (an alleged landfill) (Fig. 1.0-2). VCAs were performed at PRSs 0-030(l and m) and PRS 0-033(a); this report presents the characterization of these three sites prior to VCA, a description of subsequent remedial activities, and confirmation of compliance with VCA requirements. Discussions of the remaining PRSs are presented in the Sixth Street Warehouses Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report for PRS 0-004, PRS 0-030(b), PRS 0-010(b), and PRS 0-033(b) submitted to the Environmental Protection Agency (EPA) (LANL 1996, 05-0231).

The Sixth Street Warehouses PRSs are identified in the Los Alamos National Laboratory's (LANL) Hazardous and Solid Waste Amendment (HSWA) portion of the RCRA permit. Of the RCRA and specifically in the UST associated with PRS 0-033(a) is also subject to the authority of the New Mexico Environment Department (NMED) UST Bureau. The 45-Day Report for Fuel Oil UST Release at TA-0, Sixth Street, attached as Appendix B of this report, presents the activities associated with the removal of the PRS 0-033(a).

There are two primary objectives of an RFI. The first objective is to determine the nature and extent of any releases to the environment from any of the PRSs. The second objective is to provide sufficient information for a baseline risk assessment for any contaminants of potential concern (COPCs). Once the objectives have been obtained, a reasonable course of action may be to cleanup or remediate. If so, a VCA is recommended.

The VCA process is intended to address small-scale PRSs where the nature and extent of contamination has been clearly defined, an obvious remedy may be implemented with a minimum of administrative requirements, implementation of cleanup can occur within six months, and cleanup costs are reasonable. Land use assumptions must be straightforward. Treatment, storage and disposal (TSD) facilities must be available for the waste type and

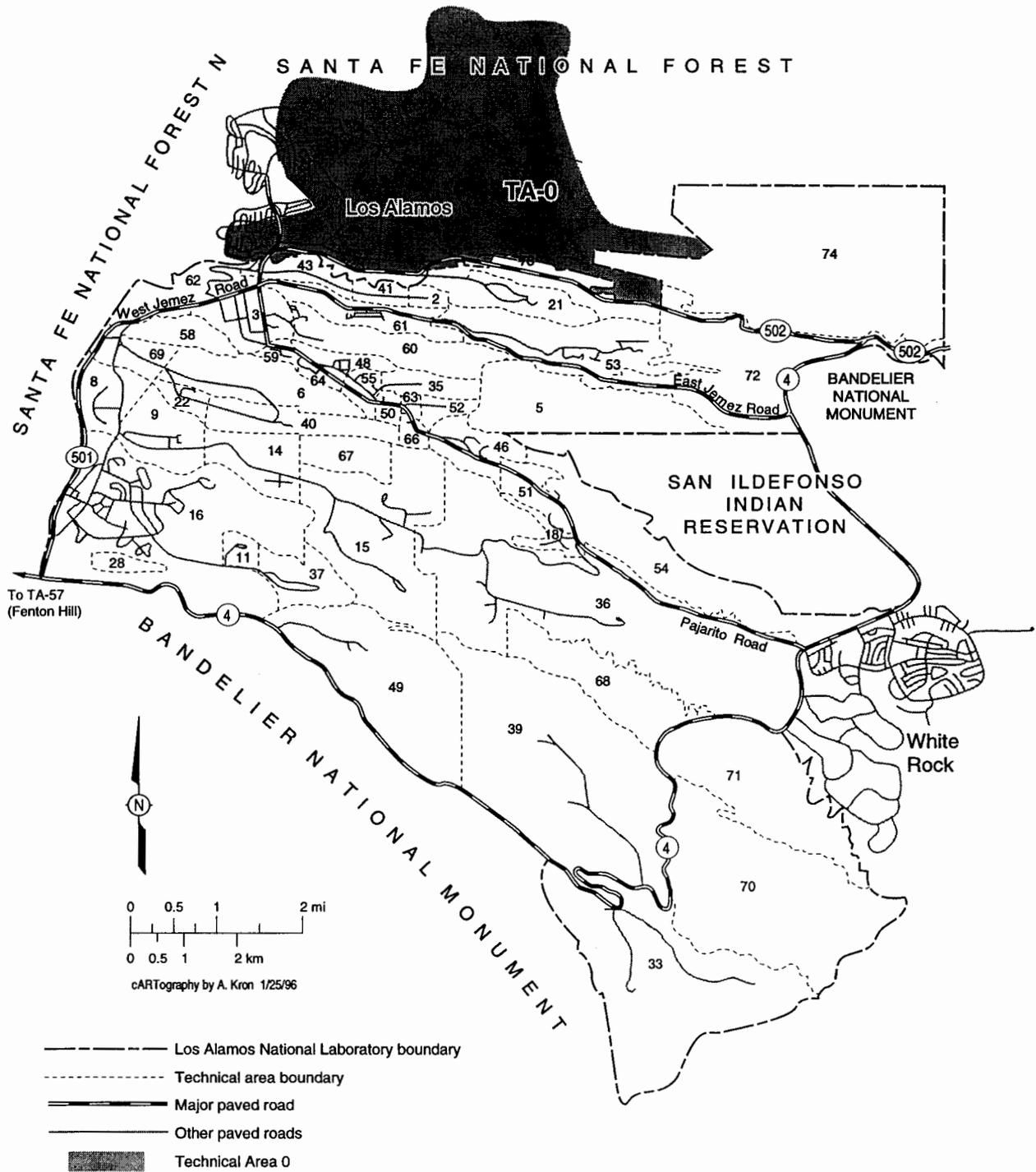


Fig. 1.0-1 Location of TA-0 with respect to Laboratory TAs and surrounding landholdings.

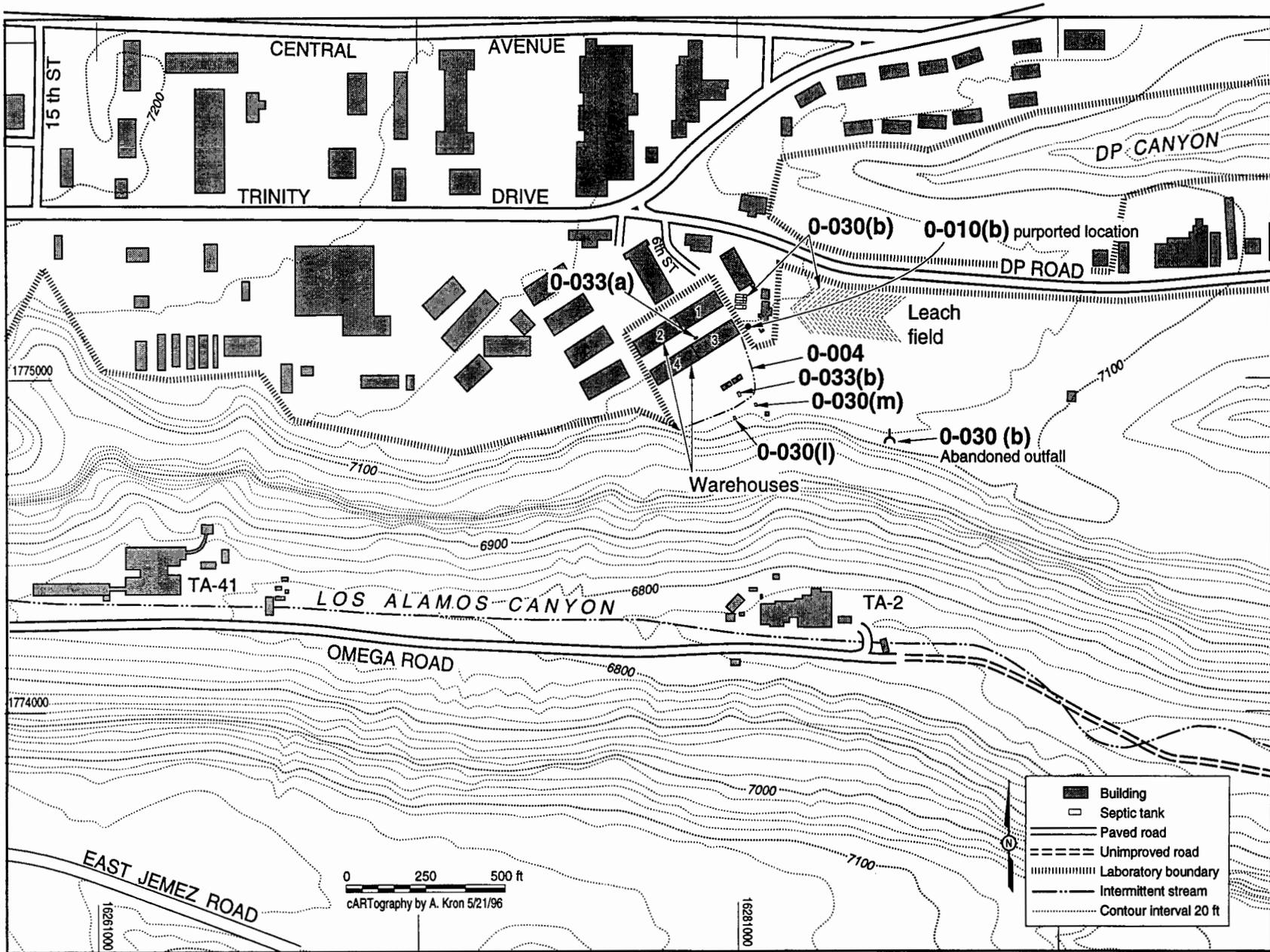


Fig. 1.0-2 Location of the 6th Street Warehouse area (PRS Group 0-1) in Los Alamos.

volume generated at the site. Sites designated for VCA are typically cleaned up as part of normal facility housekeeping or as best management practice. The following sections of this report indicate how these criteria have been met for PRSs 0-030(l and m) and 0-033(a).

1.1 Site Type and Description

Appendix E presents the costs associated with the VCAs for these PRSs.

The Sixth Street Warehouses Site is located in Los Alamos townsite, south of the intersection of DP Road and Trinity Drive on the top and upper slopes of the East Mesa north of Los Alamos Canyon (Fig. 1.1-1). Overall, the surface of the mesa slopes gently to the east at an elevation of approximately 7 230 ft. The walls of Los Alamos Canyon are steep with essentially vertical sides near the top of the mesa. The mesa top is characterized by heavy commercial and urban development.

1.2 Operational History

In addition to the Zia Warehouses 1 through 4, the Sixth Street Warehouses site includes, a cold storage plant, and the materials testing laboratory (US Engineering Office 1946, 05-0122). The facilities were owned by the Atomic Energy Commission (AEC) and operated by the Zia Company. The area is now owned by AEC successor, the Department of Energy (DOE). The warehouses contained a chemical storage area, a sheet metal shop, an electrical line shop, a boiler room, and various utility shops. Areas of potential environmental concern include storm sewers, floor drains, a fuel oil UST, and a blow-down tank. Specific wastes generated by routine operations in the warehouses are unknown (LANL 1990, 0145).

In 1961, Warehouses 3 and 4 were leased for commercial use by private businesses (the Zia Company 1961, 05-0143). Currently, EG&G Storage and Johnsons Controls' welding training center are located in Warehouses 3 and 4. A boiler room was also located in Warehouses 3 and 4, where a 4-ft³ concrete blow-down tank released pressure from the boiler (US Engineering Office 1946, 05-0122). The blow-down tank was located at the east end of the warehouses and discharged to the PRS 0-030(l) septic tank. Chemicals used to descale boilers may have been released to the septic tank through the blow-down tank. No information exists as to the nature or use of these chemicals. Warehouses 1 and 2 are currently storage space for the Laboratory's archives.

The materials testing laboratory was constructed south of Warehouses 3 and 4 in 1948 (LANL 1990, 0145). Operations at the materials testing laboratory involved using solvents for asphalt leaching, destructive testing of concrete cylinders, and sieve tests of aggregates for

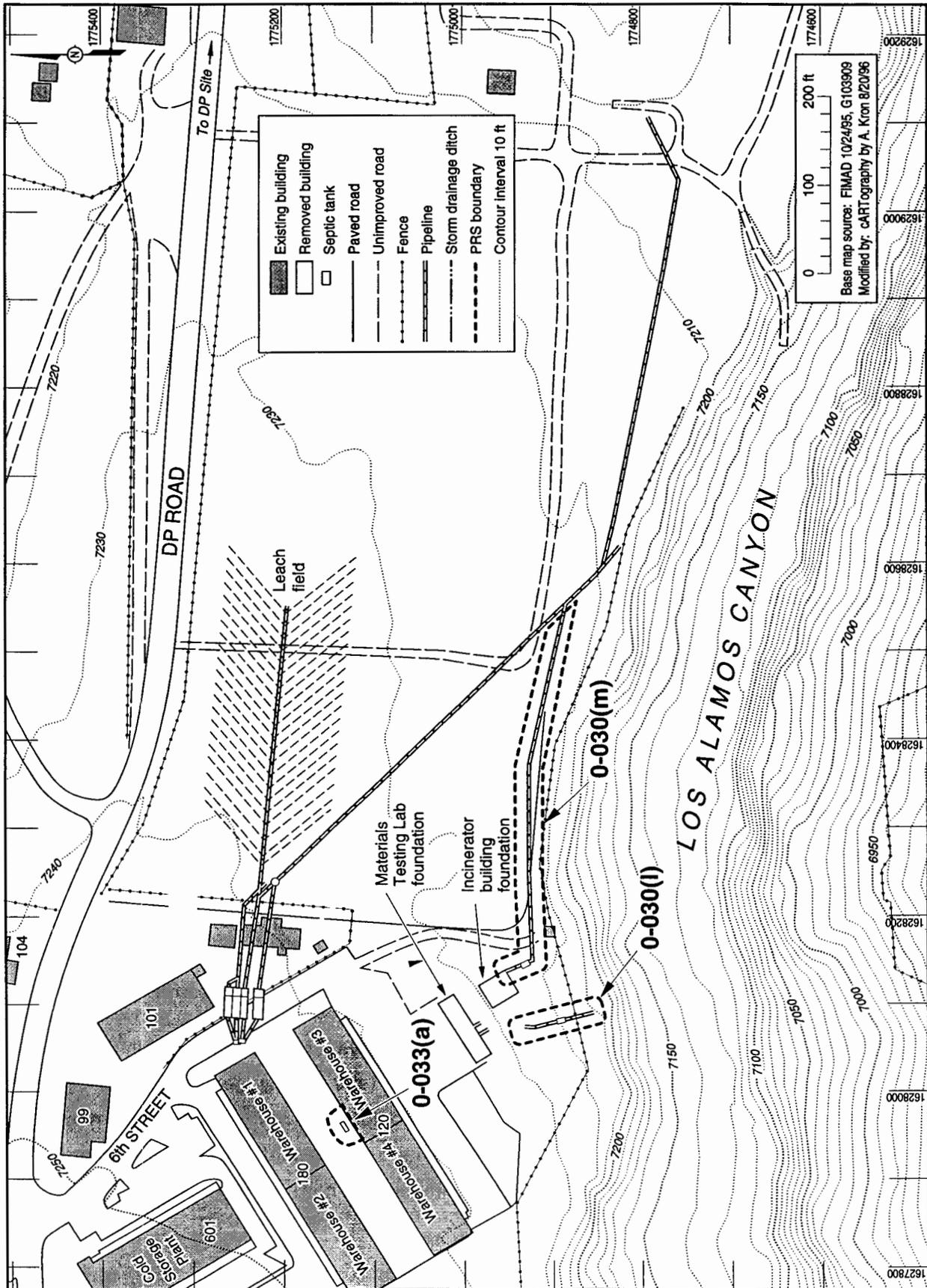


Fig. 1.1-1 PRS areas of investigation at the 6th Street Warehouse area.

roadwork. The materials testing laboratory had three floor drains, which discharged to two outfalls in Los Alamos Canyon.

PRS 0-030(l) consisted of a single 1 000-gal. concrete septic tank and 6-in. diameter vitrified-clay pipe (VCP) drainlines. The outlet line discharged to Los Alamos Canyon. This septic system reportedly handled sanitary wastes from Zia Warehouses 3 and 4 and discharge from the blow-down tank (LANL 1992, 0781).

PRS 0-030(m) consisted of a single septic tank with 6-in. diameter VCP drainlines. The outlet line ran east along the edge of the mesa for approximately 400 ft before connecting to the outfall line from PRS 0-030(b) and discharging to Los Alamos Canyon. This septic system served an incinerator building where garbage collected from private residences was burned. Prior to incinerating the garbage, excess liquids of unknown chemical content were allowed to drain off and were supposedly piped into the septic tank. This system also handled sanitary wastes from the incinerator building (LANL 1992, 0781).

PRS 0-033(a) consists of a UST that was used to store diesel fuel. The tank was located adjacent to the north side of Warehouse 3 and on November 13, 1995, was excavated and removed pursuant to the NMED UST Bureau regulations.

1.3 RFI Information/Other Decision Data

1.3.1 Field Activities

Field activities began July 27, 1995, and all excavations, drilling, and sampling activities were completed by January 1996. The field investigation approach, methods, and guidelines presented in the original RFI work plan and the field implementation plan (FIP) were followed during the investigation (LANL 1992, 0781). Deviations from the work plan have been documented and are presented in Section 1.4 of this report. Field activities applicable to the three VCAs are presented below. For discussions on PRS-specific field activities (sampling) and the results of the PRS-specific investigations, see Sections 2.0, 3.0, and 4.0.

To locate subsurface structures, surface drainage pathways, and areas potentially affected by volatile organic compounds (VOCs), four field surveys (site survey, geophysical survey, soil gas survey, and geomorphic mapping) were to be completed prior to selecting surface and subsurface sampling locations. Three of these site surveys met with varying degrees of success and one, the soil gas survey, was not completed. The reasons for not performing the soil gas survey are discussed in Section 1.3.1.4.

1.3.1.1 Site Survey

Prior to initiating any other field activities, a visual inspection of the entire site was performed in an effort to ascertain the locations of the buried structures (septic tanks, septic tank drainlines, and UST). To assist in this task, historical aerial photographs and engineering drawings were reviewed. In general, this survey resulted in little usable information. Of the two septic systems, only the septic tank for PRS 0-030(l) was located. This tank was not backfilled when it was abandoned and the top had subsequently collapsed allowing surficial soil to fill the tank, thus creating a depression which marked the location of the tank. No such depression or other evidence was observed in the general areas of the other septic tank.

During this initial site inspection, probable locations were staked for several of the septic system components. Locations were based on coordinates recorded on the 1943 engineering drawing and on distances to existing site features determined from the site drawing. However, prior to actual excavation, there was no way to verify that these structures actually existed or that the surveyed locations precisely coincided with the structure's location.

1.3.1.2 Geophysical Surveys

In a further attempt to precisely locate the buried septic system components, electromagnetic (EM), magnetic, ground-penetrating radar (GPR), and pipe tracking surveys were performed at the site. This survey was not successful in locating tank 0-030(m), because it was later found that it was a wooden tank. However, it did confirm the location of UST PRS 0-033(a) (Geophex, Ltd. 1995, 05-0182).

1.3.1.3 Geomorphologic Mapping

All sediment catchment areas and outfalls that received runoff from the PRSs were located and mapped prior to selection of surface soil and sediment sampling locations.

1.3.1.4 Soil Gas Survey

To identify areas potentially affected by VOCs, a soil gas survey was supposed to be conducted in the areas surrounding the septic tanks and drain lines, as well as areas with visual evidence suggesting that contamination may exist. However, for the following reasons, the soil gas survey was not conducted.

- The other site surveys did not locate many of the buried septic system structures. It was superfluous to conduct a soil gas survey without accurately locating the septic system components.

- A backhoe was subsequently used to locate the septic system components and to determine their precise size and design. This provided an opportunity to collect soil and sludge samples from within, adjacent to, and below the septic tanks and pipelines. The results from these samples provided a means to evaluate possible VOC contamination without conducting a soil gas survey.
- For health and safety reasons a photoionization detector (PID) was used to monitor the work zone for volatile organic vapors during excavation and sampling activities. The PID was also used to screen samples for volatile organic vapors. Because no volatile organic vapors were detected during any of the field activities, there was no justifiable reason for completing the soil gas survey.

1.4 Deviations From The Work Plan

Three major deviations from the RFI Work Plan occurred during the field investigation. The first deviation, eliminating the soil gas survey, has been discussed in the previous section.

The second deviation was the elimination of the coring task. The RFI work plan called for a minimum of three cores at locations with anomalously high soil gas concentrations. Because the soil gas survey was not completed, there were no soil gas results to potentially trigger coring.

It should be pointed out that as mobile chemical analytical laboratory (MCAL) and mobile radiological analytical laboratory (MRAL) soil sample data were received for the various PRSs, they were evaluated for evidence of contamination that might require further vertical investigations. If necessary, coring would have been initiated, but none of the available MCAL/MRAL data warranted the use of a drill rig to collect deeper samples. The only exception was the coring that was completed as part of the UST closure and carried out pursuant to NMED UST regulations.

The third deviation was the number of samples actually collected and analyzed exceeded the number of samples specified in the work plan. VOCs, semivolatile organic compounds (SVOCs), target analyte list (TAL) metals, polychlorinated biphenyls (PCBs)/pesticides, gross alpha/beta and gamma activities were analyzed in most of the samples regardless of the field screening results, where as the work plan called for suites of analytes to be analyzed in only

50% of the samples, depending upon the field screening results. Certain radiological analyses such as tritium, plutonium isotopes, and americium-241 were also added to the analyte list in areas where historical knowledge indicated that they might exist.

The reason for expanding the number of samples collected and the list of analytes (in most cases) over the work plan's original specifications was a change in scope of the process of septic tank removals. Initially, the RFI work plan called for removal of all septic tanks and confirmatory samples to be collected after removal. The modified plan required that the contents of the tanks be defined before removal to determine the kind of waste that would be generated if the contents and tank were removed. In addition, the tank would only be removed if the contents included COPCs at concentrations greater than screening action levels (SALs), or if the cost of removing a specific tank was negligible, compared with abandoning the tank in place according to NMED septic tank closure specifications.

To accomplish real-time analysis of the septic tank contents (to determine if the tank should be removed) analyses were completed by field laboratories for VOCs, metals [using X-ray fluorescence (XRF)] and radionuclides (using gamma spectroscopy for gamma activity, liquid scintillation (LS) for tritium, and gas proportional counting for gross alpha/beta activities). Ten percent of the total number of samples collected for field laboratory analyses were sent to an off-site laboratory to verify MCAL and MRAL analyses. Those samples representing the ten percent of total samples will be referred to as ten-percent samples throughout this report. Because limited samples were sent to off-site laboratories for routine metals analysis (defined in the analytical laboratory statement of work [SOW for radiochemical alpha spectroscopy (RAS) (LANL 1995, 49738)]), XRF data were included in the background comparisons and screening assessment. However, XRF data are not directly comparable to routine metals analysis data because XRF analyses and routine metals analyses have different sample preparation methods. The data used for background comparisons to XRF data in this report were taken from the instrumental neutron activation analysis (INAA) data in the Longmire, Duffy, and Reneau 1993 report, "Preliminary Background Elemental Concentrations in Bandelier Tuff and Selected Soil Series, 1993" (Longmire et al. 1993, 0958).

The only other notable deviation to the screening and analyses specified in the work plan was the elimination of benzene, toluene, ethylbenzene, and xylene (BTEX) and TAL metals for the UST samples collected from the borehole of the PRS 0-033(a) UST, per NMED UST Bureau guidance. The UST Bureau requested that only total petroleum hydrocarbons (TPH) analyses be conducted on the UST samples. However, for waste characterization purposes, BTEX and gross alpha/beta/gamma activities were analyzed for two samples. Another minor deviation

occurred when the majority of combustible gas and oxygen monitoring was eliminated during subsurface sampling. The practice was to screen a few samples with the combustible gas/oxygen meter at the beginning of subsurface sampling at each PRS. After determining that a combustible condition did not exist, the remaining samples collected at that PRS were not screened with the combustible gas/oxygen meter.

2.0 PRS 0-030(I), ZIA WAREHOUSES SEPTIC SYSTEM

2.1 Site-Characterization

2.1.1 Field Activities

Excavation work at PRS 0-030(I) was initiated on July 27, 1995. As was the practice at this and all other PRSs where overburden soil was removed to expose the tops of septic system components, the soil was stockpiled on plastic sheeting near the excavation. In general, excavations in the form of trenches or pits would be completed in an effort to first locate the specific structure and then expose enough of the structure to develop and carry out a sampling plan. When an excavation was allowed to stay open for sampling or other purposes, it was bermed and covered with black polyethylene plastic to prevent storm water runoff.

Because the location of the PRS 0-030(I) septic tank was already known, no exploratory excavation work was required. The top of the tank and the connecting inlet and outlet pipelines were immediately exposed. The tank walls were constructed of 4-in. to 6-in. thick rebar and wire mesh reinforced concrete. The tank dimensions were approximately 10 ft long x 6 ft wide. The tank was originally covered with three concrete panels, each approximately 6 ft long by 3 ft wide; however, one of these panels had collapsed, allowing the tank to fill with the surrounding, native soil. The depth of the tank was found to be approximately 5 ft.

Initially, one sample and a duplicate were collected from what was thought to be the bottom one foot of the tank and a second sample was collected from outside the tank at what was thought to be one foot below the tank. However, it was discovered that pieces of the collapsed concrete lid panel were initially mistaken for the bottom of the tank, and that the true tank depth was considerably deeper. Therefore, analyses not already completed or not in progress for these samples were canceled. Four additional samples were then collected from inside the tank and one additional sample was collected from outside the tank at the appropriate depths. Two samples and a ten-percent metals sample were collected below the VCP inlet pipe and one sample was collected from within the inlet pipe near its connection to the septic tank. Two samples were collected from the outfall channel. Sample information is summarized in Table 2.1.1-1 and sample locations are shown in Fig. 2.1.1-1.

TABLE 2.1.1-1

SUMMARY OF SITE-CHARACTERIZATION SAMPLES COLLECTED AT PRS 0-030(I)

SAMPLE INFORMATION				ANLYTICAL SUITE AND REQUEST NUMBER						
LOCATION ID	SAMPLE ID	LOCATION	MATRIX	VOCs ^a	SVOCs ^b	PCBs ^c	PESTI- CIDES	XRF ^d METALS	TAL ^e METALS	RAD ^f
00-04230	0100-95-0456	Outside tank	Soil	X ^g	NA ^h	X	NA	X	NA	X
00-04239	0100-95-0458	Inside tank	Soil	X	865 ⁱ	865	865	X	NA	868
00-04240	0100-95-0459	Inside tank	Soil	X	865	865	865	X	NA	868
00-04310	0100-95-0490	Below inlet pipe ~40 ft N of tank	Soil	X	1002	1002	1002	X	NA	1003
00-04222	0100-95-0514	Outfall channel	Soil	NA	822	822	822	X	NA	823
00-04226	0100-95-0519	Outfall channel	Soil	NA	822	822	822	X	NA	823
00-04321	0100-95-0525 ^{j,k}	Inside tank	Soil	X	NA	X	NA	NA	NA	X
00-04423	0100-95-0627	Below inlet pipe ~20 ft N of tank	Soil	NA	NA	NA	NA	NA	781	NA
00-04321	0100-95-0667 ^{j,k}	Inside tank	Soil	X	NA	X	NA	NA	NA	X
00-04423	0100-95-0668	Below inlet pipe ~20 ft N of tank	Soil	X	780	780	780	X	NA	784
00-04321	0100-95-0669	Inside tank	Soil	X	782	782	782	X	990	785
00-04324	0100-95-0670	Inside tank	Soil	X	782	782	782	X	990	785
00-04325	0100-95-0671	Inside tank	Soil	X	782	782	782	X	990	785
00-04230	0100-95-0672	Outside and below tank (composite)	Soil	X	782	782	782	X	NA	785

^a VOCs = Volatile organic compounds.

^b SVOCs = Semivolatile organic compounds.

^c PCBs = Polychlorinated biphenyls.

^d XRF = X-ray fluorescence spectroscopy.

^e TAL = Target analyte list metals: aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, and uranium.

^f RAD = Radiological analysis consisted of any one or all of the following: gross alpha/beta/gamma activity, tritium, gamma spectroscopy/scan, americium-241, plutonium isotopes, and uranium isotopes.

^g X = Analyzed, but not assigned a request number. All samples sent to mobile chemical analytical laboratory (MCAL) and mobile radiological analytical laboratory (MRAL) were not assigned a request number.

^h NA = Not analyzed.

ⁱ Request number. Only samples sent to sample management office (SMO) for off-site analysis were assigned request numbers.

^j = Sample 0100-95-0667 is a duplicate of sample 0100-95-0525.

^k = Sample was not collected at the proper depth. Some analyses were cancelled and samples were recollected.

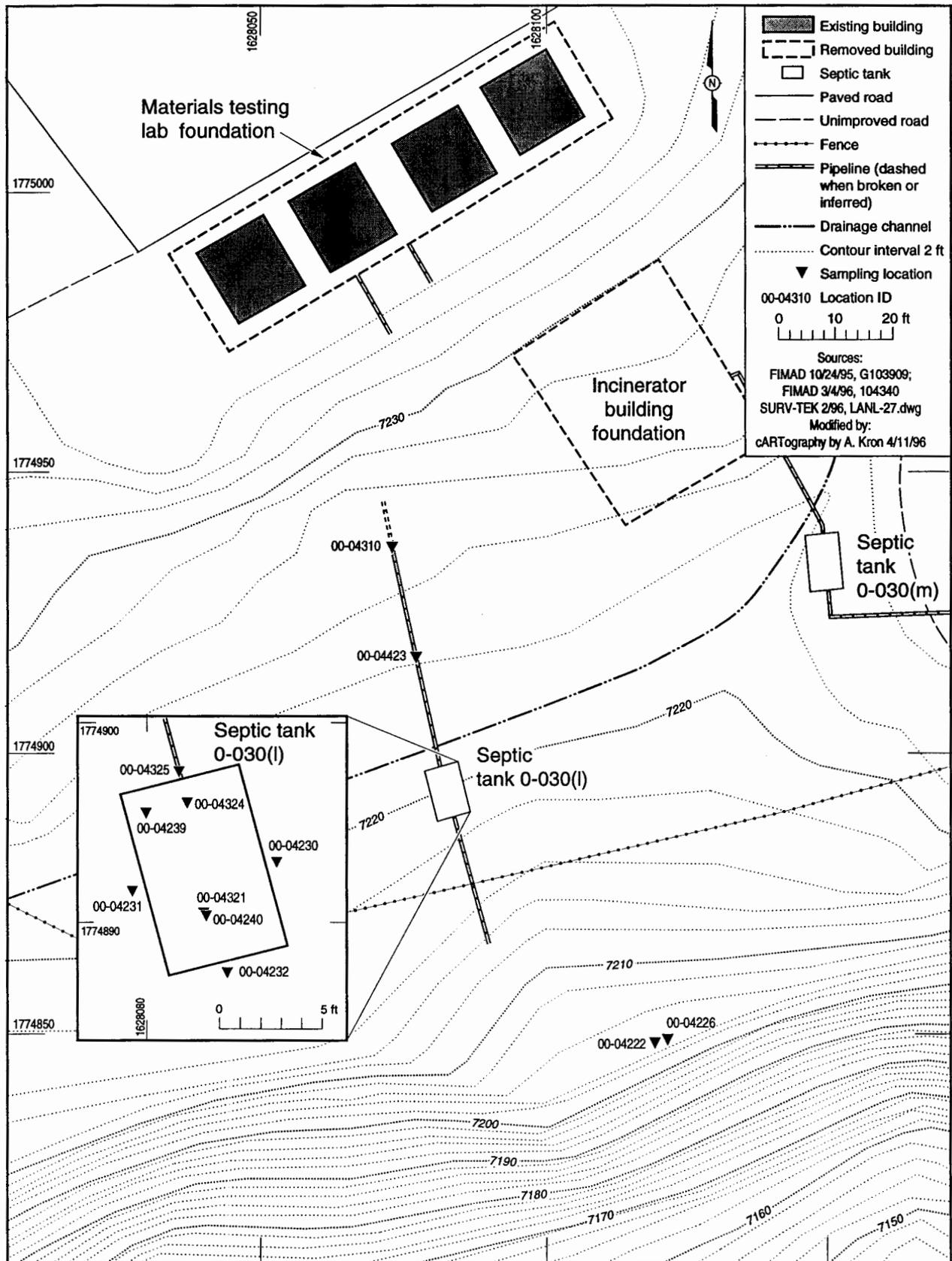


Fig. 2.1.1-1 PRS 0-030(I) site-characterization sample locations.

2.1.2 Nature and Extent of Contamination

The analytical results indicated that the tank's contents contained trace, nonhazardous concentrations of some pesticides, polycyclic aromatic hydrocarbons (PAHs), and a single VOC. Site-characterization analytical results for PRS 0-030(l) are presented in Appendix C, Tables C-1 through C-3.

2.1.3 Risk Calculations and/or Clean-up Level Derivations

A screening assessment was performed using the site characterization data for PRS 0-030(l) and is presented in the following sections. Based on these results and the relatively inexpensive cost estimate to remove this septic tank, the decision was made to remove the tank and approximately 40 ft of the inlet pipeline.

2.1.4 Site-Characterization Screening Assessment

2.1.4.1 Site-Characterization Background Comparisons

2.1.4.1.1 Inorganics

Twelve soil samples collected from PRS 0-030(l) were submitted to the MCAL and/or an off-site fixed laboratory for inorganic metals analysis. Those samples sent to the MCAL were analyzed by XRF spectroscopy and will be referred to as XRF metals throughout this report. Samples sent off-site have been defined by the TAL metals list and were analyzed using SW-846 methods of metals analyses. These analyses by SW-846 methods will be referred to as TAL metals analyses throughout this report. Three of the 12 soil samples were submitted for both XRF and TAL analyses. Eight soil samples were analyzed only by XRF and one sample was analyzed only for TAL metals. Ten metals were identified above their respective background screening values by both the laboratory analyses and the XRF analyses. Three additional metals were identified above their respective background screening values by the laboratory analysis only. Two metals, silver and uranium, have no available fixed-laboratory UTLs to which they can be compared; of those, only silver had any detected concentrations. Two additional metals were identified above their background screening values by XRF only. UTLs by XRF analysis are unavailable for magnesium, silver, and thallium. The data for these inorganics greater than UTL are presented in Table 2.1.4-1. For all data associated with samples containing concentrations of at least one inorganic analyte greater than UTL, see Appendix C, Table C-1.

TABLE 2.1.4-1

INORGANICS WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD CONCENTRATIONS FOR PRS 0-030(I)

		ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	CADMIUM (mg/kg)	CALCIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	IRON (mg/kg)
	SAL ^a	31	N/A ^b	5 300	38	N/A	211	2 800	N/A
LABORATORY ANALYSIS									
LOCATION ID	SAMPLE ID	ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	CADMIUM (mg/kg)	CALCIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	IRON (mg/kg)
UTL ^c	n/a ^d	1	7.82	315	2.7	6 120	19.3	15.5	21 300
00-04423	0100-95-0627	— ^e	—	—	—	—	—	23.3709	—
00-04321	0100-95-0669	—	—	—	—	—	—	38.7	—
00-04324	0100-95-0670	1.2	7.8	925	—	10 900	35.9	247	33 100
00-04325	0100-95-0671	—	—	—	—	—	24.3	82.4	—
XRF ANALYSIS									
LOCATION ID	SAMPLE ID	ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	CADMIUM (mg/kg)	CALCIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	IRON (mg/kg)
UTL	n/a	1.59 ^f	10.81 ^f	828.9 ^f	1.7	8 380	71.07 ^f	15.5	48 640
00-04423	0100-95-0668	—	—	—	—	—	—	24.3	—
00-04325	0100-95-0671	—	—	—	—	—	—	44.5	—
00-04321	0100-95-0669	—	—	—	—	—	—	63.4	—
00-04324	0100-95-0670	—	—	1 254	3.43	27 100	114	291	—
00-04240	0100-95-0459	—	—	—	—	—	—	21.5	—
00-04222	0100-95-0514	—	—	—	—	—	—	33.9	—
00-04226	0100-95-0519	—	10.4	—	—	—	—	17.9	—
00-04230	0100-95-0456	10	—	—	—	—	—	52.1	—
00-04230	0100-95-0672	—	—	—	—	—	—	—	—
00-04239	0100-95-0458	—	12.5	—	—	8 580	—	62	—
00-04310	0100-95-0490	—	—	—	—	—	—	—	—

TABLE 2.1.4-1 (CONTINUED)

INORGANICS WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD CONCENTRATIONS FOR PRS 0-030(l)

		LEAD (mg/kg)	MAGNESIUM (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	THALLIUM (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
	SAL	400	N/A	23	1 500	380	5.4	230	23 000
LABORATORY ANALYSIS									
LOCATION ID	SAMPLE ID	LEAD (mg/kg)	MAGNESIUM (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	THALLIUM (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
UTL	n/a	23.3	4 610	0.1	15.2	N/A	1	N/A	50.8
00-04423	0100-95-0627	29.0662 ^f	–	0.2781	–	0.1876	1.4	NA	107.3113
00-04321	0100-95-0669	27.4	–	0.84	–	0.45	2.3	NA	108
00-04324	0100-95-0670	101	12 400	–	85.4	1.3	1.9	NA	604
00-04325	0100-95-0671	55.4	5 350	–	30.1	0.99	1.3	NA	238
XRF ANALYSIS									
LOCATION ID	SAMPLE ID	LEAD (mg/kg)	MAGNESIUM (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	THALLIUM (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
UTL	n/a	56 ^f	N/A	0.1	15.2	N/A	N/A	6.73 ^f	146.2 ^f
00-04423	0100-95-0668	–	NA	–	–	NA	NA	–	–
00-04325	0100-95-0671	–	NA	–	–	NA	NA	–	154
00-04321	0100-95-0669	–	NA	–	20.8	NA	NA	–	146
00-04324	0100-95-0670	177	NA	10.4	111	NA	NA	8.61	773
00-04240	0100-95-0459	–	NA	–	–	NA	NA	9.63	–
00-04222	0100-95-0514	–	NA	–	–	NA	NA	–	–
00-04226	0100-95-0519	–	NA	–	–	NA	NA	–	–
00-04230	0100-95-0456	161	NA	–	–	NA	NA	12.5	364
00-04230	0100-95-0672	–	NA	–	–	NA	NA	–	–
00-04239	0100-95-0458	–	NA	–	–	NA	NA	–	–
00-04310	0100-95-0490	–	NA	–	–	NA	NA	13	–

^a SAL = Screening action level.

^b N/A = Not available.

^c UTL = Upper tolerance limit.

^d n/a = Not applicable.

^e – = Analyte not detected or detected at a concentration less than background threshold concentrations.

^f = Background value taken from Longmire, Duffy, and Reneau. "Preliminary Background Elemental Concentrations In Bandelier Tuff and Selected Series, 1993, (Longmire et al., 1993 0958).

Because the background comparisons include site data by two different methods and two different sets of background data, all of the inorganics listed in Table 2.1.4-1 will be carried forward through the screening assessment process for further evaluation. Only those metals with concentrations less than background using both methods of analyses were eliminated as COPCs.

2.1.4.1.2 Radionuclides

Ten soil samples collected from PRS 0-030(l) were analyzed for radionuclides. Cobalt-60, neptunium-237, and plutonium-239/240 were detected above their respective background screening values. The data for samples with concentrations of radionuclides exceeding background threshold levels are shown in Table 2.1.4-2. For all data associated with samples containing concentrations of at least one radionuclide greater than background threshold concentrations, see Appendix C, Table C-2.

TABLE 2.1.4-2

**RADIONUCLIDES WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD
CONCENTRATIONS FOR PRS 0-030(I)**

LOCATION ID	SAMPLE ID	COBALT-60 (pCi/g)	NEPTUNIUM-237 (pCi/g)	PLUTONIUM- 239/240 (pCi/g)
UTL ^a	n/a ^b	N/A ^c	N/A	0.052
SAL ^d	n/a	1.1	1.9	24
00-04239	0100-95-0458	– ^e	0.017	–
00-04310	0100-95-0490	–	–	0.145
00-04324	0100-95-0670	0.081	0.093	NA ^f

^a UTL = Upper tolerance limit.

^b n/a = Not applicable.

^c N/A = Not available.

^d SAL = Screening action level.

^e – = Analyte not detected or detected at a concentration less than background threshold concentration.

^f NA = Not analyzed.

Because background data that are adequate and appropriate for further statistical evaluation are presently unavailable for these radionuclides, these radionuclides will be carried forward through the screening assessment process.

2.1.4.2 Evaluation of Organics

Ten soil samples collected at PRS 0-030(I) were analyzed for SVOCs, pesticides, and PCBs. Eleven samples were also analyzed by the MCAL for VOCs. Twenty-three organic compounds were detected in these soil samples, and the results are shown in Table 2.1.4-3. All of the detected organics are carried forward through the screening assessment process. For all data associated with samples containing concentrations of at least one organic analyte greater than UTL, see Appendix C, Table C-3.

TABLE 2.1.4-3

ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLS^a FOR PRS 0-030(I)

LOCATION ID	SAMPLE ID	ANTHRACENE (mg/kg)	BENZO[a]ANTHRACENE (mg/kg)	BENZO[a]PYRENE (mg/kg)	BENZO[b]FLUORANTHENE (mg/kg)
SAL ^b	n/a ^c	19	0.61	0.061	0.61
00-04239	0100-95-0458	_d	0.14(J) ^e	0.12(J)	0.11(J)
00-04240	0100-95-0459	-	-	-	0.1(J)
00-04310	0100-95-0490	-	-	-	-
00-04222	0100-95-0514	-	-	-	-
00-04226	0100-95-0519	-	-	-	-
00-04423	0100-95-0668	-	-	-	-
00-04321	0100-95-0669	0.14(J)	0.3(J)	0.43	0.43
00-04324	0100-95-0670	-	0.18(J)	0.15(J)	0.16(J)
00-04325	0100-95-0671	-	0.2(J)	0.19(J)	0.2(J)
00-04230	0100-95-0672	-	-	-	-

TABLE 2.1.4-3 (CONTINUED)

ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLS^a FOR PRS 0-030(l)

LOCATION ID	SAMPLE ID	BENZO[g,h,i]PERYLENE (mg/kg)	BENZO[k]FLUORANTHENE (mg/kg)	CHLORDANE [ALPHA-] (mg/kg)	CHLORDANE [GAMMA-] (mg/kg)
SAL	n/a	N/A ^f	6.1	0.34	0.34
00-04239	0100-95-0458	-	0.13(J)	-	-
00-04240	0100-95-0459	-	-	-	-
00-04310	0100-95-0490	-	-	-	-
00-04222	0100-95-0514	-	-	-	0.00062(J)
00-04226	0100-95-0519	-	-	0.00077(J)	-
00-04423	0100-95-0668	-	-	-	-
00-04321	0100-95-0669	0.29(J)	0.36	-	-
00-04324	0100-95-0670	-	0.13(J)	-	-
00-04325	0100-95-0671	0.12(J)	0.18(J)	-	-
00-04230	0100-95-0672	-	-	-	-

TABLE 2.1.4-3 (CONTINUED)

ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLS^a FOR PRS 0-030(I)

LOCATION ID	SAMPLE ID	CHRYSENE (mg/kg)	DDD [p,p'] ^g (mg/kg)	DDE [p,p'] ^h (mg/kg)	DDT [p,p'] ⁱ (mg/kg)	DIBENZO[a,h]ANTHRACENE (mg/kg)
SAL	n/a	24	1.9	1.3	1.3	0.061
00-04239	0100-95-0458	0.17(J)	–	0.00696	0.0136	–
00-04240	0100-95-0459	0.087(J)	0.07	0.0117	0.154	–
00-04310	0100-95-0490	–	–	–	–	–
00-04222	0100-95-0514	–	–	0.0058	0.0079	–
00-04226	0100-95-0519	–	–	0.032	0.033	–
00-04423	0100-95-0668	0.11(J)	–	0.00616	0.0136	–
00-04321	0100-95-0669	0.85	0.0114	0.00778	0.0164	0.091(J)
00-04324	0100-95-0670	0.2(J)	–	–	0.00912	–
00-04325	0100-95-0671	0.24(J)	0.00816	–	0.0374	–
00-04230	0100-95-0672	–	–	–	–	–

TABLE 2.1.4-3 (CONTINUED)

ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLS^a FOR PRS 0-030(I)

LOCATION ID	SAMPLE ID	DICHLOROBENZENE (1,4) [p-] (mg/kg)	DIELDRIN (mg/kg)	ENDOSULFAN II (mg/kg)	ENDRIN KETONE (mg/kg)	FLUORANTHENE (mg/kg)
SAL	n/a	7.4	0.028	3.3	20	2 600
00-04239	0100-95-0458	-	-	-	-	0.25(J)
00-04240	0100-95-0459	-	-	-	-	-
00-04310	0100-95-0490	-	-	-	-	-
00-04222	0100-95-0514	-	-	0.00082(J)	-	-
00-04226	0100-95-0519	-	0.00058(J)	0.00075(J)	-	-
00-04423	0100-95-0668	-	-	-	-	-
00-04321	0100-95-0669	-	-	-	0.00526	0.073(J)
00-04324	0100-95-0670	0.13(J)	-	-	-	0.23(J)
00-04325	0100-95-0671	-	-	-	-	0.28(J)
00-04230	0100-95-0672	-	-	-	-	-

TABLE 2.1.4-3 (CONTINUED)

ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLS^a FOR PRS 0-030(I)

LOCATION ID	SAMPLE ID	INDENO[1,2,3-CD] PYRENE (mg/kg)	METHOXYCHLOR (mg/kg)	NITROANILINE [2-] (mg/kg)	PHENANTHRENE (mg/kg)	PYRENE (mg/kg)	TETRACHLORO- ETHENE (mg/kg)
SAL	n/a	0.61	330	3.9	N/A	2 000	7.0
00-04239	0100-95-0458	–	–	–	0.098(J)	0.18(J)	–
00-04240	0100-95-0459	–	–	–	–	–	–
00-04310	0100-95-0490	–	–	–	–	–	–
00-04222	0100-95-0514	–	–	–	–	–	–
00-04226	0100-95-0519	–	0.003(J)	–	–	–	–
00-04423	0100-95-0668	–	–	0.88	–	–	–
00-04321	0100-95-0669	0.32(J)	–	–	–	0.078(J)	–
00-04324	0100-95-0670	0.084(J)	–	–	–	0.19(J)	0.038
00-04325	0100-95-0671	0.12(J)	–	–	–	0.25(J)	0.045
00-04230	0100-95-0672	–	–	–	–	–	–

^a EQLs = Estimated quantitation limits.

^b SAL = Screening action level.

^c n/a = Not applicable.

^d – = Analyte undetected or detected at a concentration less than the EQL.

^e J = The analyte was positively identified, but the associated numerical value is only an approximate concentration of the analyte in the sample.

^f N/A = Not available.

^g DDD = Dichlorodipenyldichloroethene.

^h DDE = Dichlorodipenyldichloroethylene.

ⁱ DDT = Dichlorotriphenyldichloroethene.

Of the organics that were not detected in any sample collected from PRS 0-030(l), five had estimated quantitation limits (EQLs) that were higher than their respective SALs [i.e., m-benzidine, bis(2-chloroethyl)ether, hexachlorobenzene, N-nitrosodi-n-propylamine, and N-nitrosodimethylamine]. Twelve other organics do not have SALs to which the EQLs can be compared [i.e., acenaphthylene, 1,2,3,4,5,6-hexachlorocyclohexane (delta-BHC), bis(2-chloroethoxy)methane, 4-bromophenylphenyl ether, 4-chloro-3-methyl phenol, 4-chlorophenylphenyl ether, 2-methyl-4,6-dinitrophenol, 2-methylnaphthalene, 3-nitroaniline, 4-nitroaniline, 2-nitrophenol, and 4-nitrophenol]. These 17 organics are not expected to be present at the site based on historical operations. Therefore, none of the nondetected organics are carried forward through the screening assessment process.

2.1.4.3 Human Health Screening Assessment

Sixteen metals, three radionuclides, and all detected organics were carried forward from the background and EQL comparisons. As required by the subsequent step in the screening assessment process, the analytes carried forward were then compared to their chemical-specific SAL.

Only benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations above their respective SALs and therefore retained as COPCs. Concentrations above SAL for these chemicals are shown in Table 2.1.4-4.

TABLE 2.1.4-4

CHEMICALS WITH CONCENTRATIONS EXCEEDING SAL FOR PRS 0-030(I)

LOCATION ID	SAMPLE ID	BENZO[A] PYRENE (mg/kg)	DIBENZO(a,h) ANTHRACENE (mg/kg)
SAL ^a	n/a ^b	0.061	0.061
00-04239	0100-95-0458	0.12 (J) ^c	— ^d
00-04321	0100-95-0669	0.43	0.091 (J)
00-04324	0100-95-0670	0.15 (J)	—
00-04325	0100-95-0671	0.19 (J)	—

^a SAL = Screening action level.

^b n/a = Not applicable.

^c J = Estimated quantity.

^d — = Analyte undetected.

Six chemicals that have no SAL (arsenic, benzo(g,h,i)perylene, calcium, iron, magnesium, and phenanthrene) were also detected and therefore were retained as COPCs.

Chemicals that were detected at concentrations below their respective SALs were evaluated for multiple chemical effects. Multiple chemical evaluations (MCEs) are performed separately for three classes of chemicals: radionuclides, noncarcinogens, and carcinogens. The MCE is presented in Table 2.1.4-5.

**TABLE 2.1.4-5
MULTIPLE CHEMICAL EVALUATION (MCE) FOR PRS 0-030(I)**

CHEMICAL	SAL ^a	SAMPLE VALUE	NORMALIZED VALUE
RADIONUCLIDES	(pCi/g)	(pCi/g)	
Cobalt-60	1.1	0.081	0.07
Neptunium-237	1.9	0.093	0.05
Plutonium-239	24	0.145	0.006
		NORMALIZED SUM	0.1
NONCARCINOGENS	(mg/kg)	(mg/kg)	
Anthracene	19	0.14	0.007
Antimony	31	10	0.3
Barium	5 300	1 254	0.2
Chromium	211	114	0.5
Copper	2 800	291	0.1
Endosulfan II	3.3	0.00082	0.0002
Endrin ketone	20	0.00526	0.0003
Fluoranthene	2 600	0.28	0.0001
Lead	400	177	0.4
Mercury	23	10.4	0.5
Methoxychlor	330	0.003	9x10 ⁻⁶
Nickel	1 500	111	0.07
Nitroaniline [2-]	3.9	0.88	0.2
Pyrene	2 000	0.25	0.0001
Silver	380	1.3	0.003
Thallium	5.4	2.3	0.4
Uranium	230	13	0.06
Zinc	23 000	773	0.03
CARCINOGENS	(mg/kg)	(mg/kg)	
Benzo[a]anthracene	0.61	0.3	0.5
Benzo[b]fluoranthene	0.61	0.43	0.7
Benzo[k]fluoranthene	6.1	0.36	0.06
Cadmium	38	3.43	0.09
Chlordane [alpha-]	0.34	0.00077	0.002
Chlordane [gamma-]	0.34	0.00062	0.002
Chrysene	24	0.85	0.04
DDD [p,p'] ^b	1.9	0.07	0.04
DDE [p,p'] ^c	1.3	0.032	0.02

TABLE 2.1.4-5 (CONTINUED)
MULTIPLE CHEMICAL EVALUATION (MCE) FOR PRS 0-030(I)

CHEMICAL	SAL ^a	SAMPLE VALUE	NORMALIZED VALUE
		NORMALIZED SUM	2.8
DDT [p,p'] ^d	1.3	0.154	0.1
Dichlorobenzene (1,4) [p-]	7.4	0.13	0.02
Dieldrin	0.028	0.00058	0.02
Indeno[1,2,3-cd]pyrene	0.61	0.32	0.5
Tetrachloroethene	7.0	0.045	0.006
		NORMALIZED SUM	2.1

^a SAL = Screening action level.

^b DDD[p,p'] = Dichlorodiphenyldichloroethane.

^c DDE[p,p'] = Dichlorodiphenyldichloroethylene.

^d DDT[p,p'] = Dichlorodiphenyltrichloroethane.

The results of the MCE were less than one for radionuclides (0.1) indicating that adverse human health effects from exposure are unlikely. Noncarcinogens and carcinogens, however, were above a normalized sum of one at 2.8 and 2.1, respectively, indicating that the potential for adverse health effects exists.

2.1.4.4 Site-Characterization Decision Analysis

Based on these results, a VCA was proposed to remove the tank and approximately 40 ft of the inlet pipeline. Chemicals retained as COPCs prior to the VCA by the preceding screening were reinvestigated following the VCA. Confirmatory samples were subsequently collected to confirm that after cleanup no COPCs remained at levels causing a potential human or environmental health risk. Results of confirmatory sampling and analyses are presented in Section 2.3 of this report.

2.2 Remedial Implementation

On October 11 and 12, 1995, the septic tank and approximately 40 ft of inlet line were excavated and removed. The tank contents and inlet line were placed into one B25 box and eight 55-gal. drums. The tank itself was wrapped in black polyethylene plastic. Confirmatory samples were collected from beneath the tank. Confirmatory sample analyses and results are presented in Subsection 2.3 of this report. Samples were also collected for waste characterization purposes. Analyses and results of the waste-characterization samples are presented in

Section 4.1.1 of this report. When excavation and sampling were completed, the septic tank and inlet pipeline excavations were immediately backfilled and the area was restored to its original contours. The disturbed areas were reseeded when daily temperatures were appropriate for optimum seed germination. Erosion control measures in the form of fiber mats were installed in reseeded areas with an excessive slope.

2.3 Confirmatory Sampling

2.3.1 Field Activities

Confirmatory samples were collected and analyzed to assess whether or not COPCs remained at PRS 0-030(l) following the completion of the VCA. Table 2.3.1-1 summarizes the samples collected and analyses performed for each sample. Fig. 2.3.1-1 depicts confirmatory sample collection sites. Two confirmatory samples, a ten-percent metals sample and a ten-percent tritium sample were collected from beneath the tank.

TABLE 2.3.1-1
SUMMARY OF CONFIRMATORY SAMPLES COLLECTED AT PRS 0-030(I)

SAMPLE INFORMATION				ANALYTICAL SUITE AND REQUEST NUMBER						
LOCATION ID	SAMPLE ID	LOCATION	MATRIX	VOCs ^a	SVOCs ^b	PCBs ^c	PESTI- CIDES	XRF ^d METALS	TAL ^e METALS	RAD ^f
00-04318	0100-95-0694	Below tank	Soil	X ^g	1351 ^h	1351	1351	X	NA ⁱ	1353
00-04319	0100-95-0695	Below tank	Soil	X	1351	1351	1351	X	NA	1353
00-04318	0100-95-0700	Below tank	Soil	NA	NA	NA	NA	NA	NA	1353
00-04318	0100-95-0701	Below tank	Soil	NA	NA	NA	NA	NA	1352	NA

^a VOCs = Volatile organic compounds.

^b SVOCs = Semivolatile organic compounds.

^c PCBs = Polychlorinated biphenyls.

^d XRF = X-ray fluoroscopy.

^e TAL = Target analyte list metals: aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, and uranium.

^f RAD = Radiological analysis consisted of any one or all of the following: gross alpha/beta/gamma activity, tritium, gamma spectroscopy/scan, americium-241, plutonium isotopes, and uranium isotopes.

^g X = Analyzed, but not assigned a request number. All samples sent to mobile chemical analytical laboratory (MCAL) and mobile radiological analytical laboratory (MRAL) were not assigned a request number.

^h Request number. Only samples sent to sample management office (SMO) for off-site analysis were assigned request numbers.

ⁱ NA = Not analyzed.

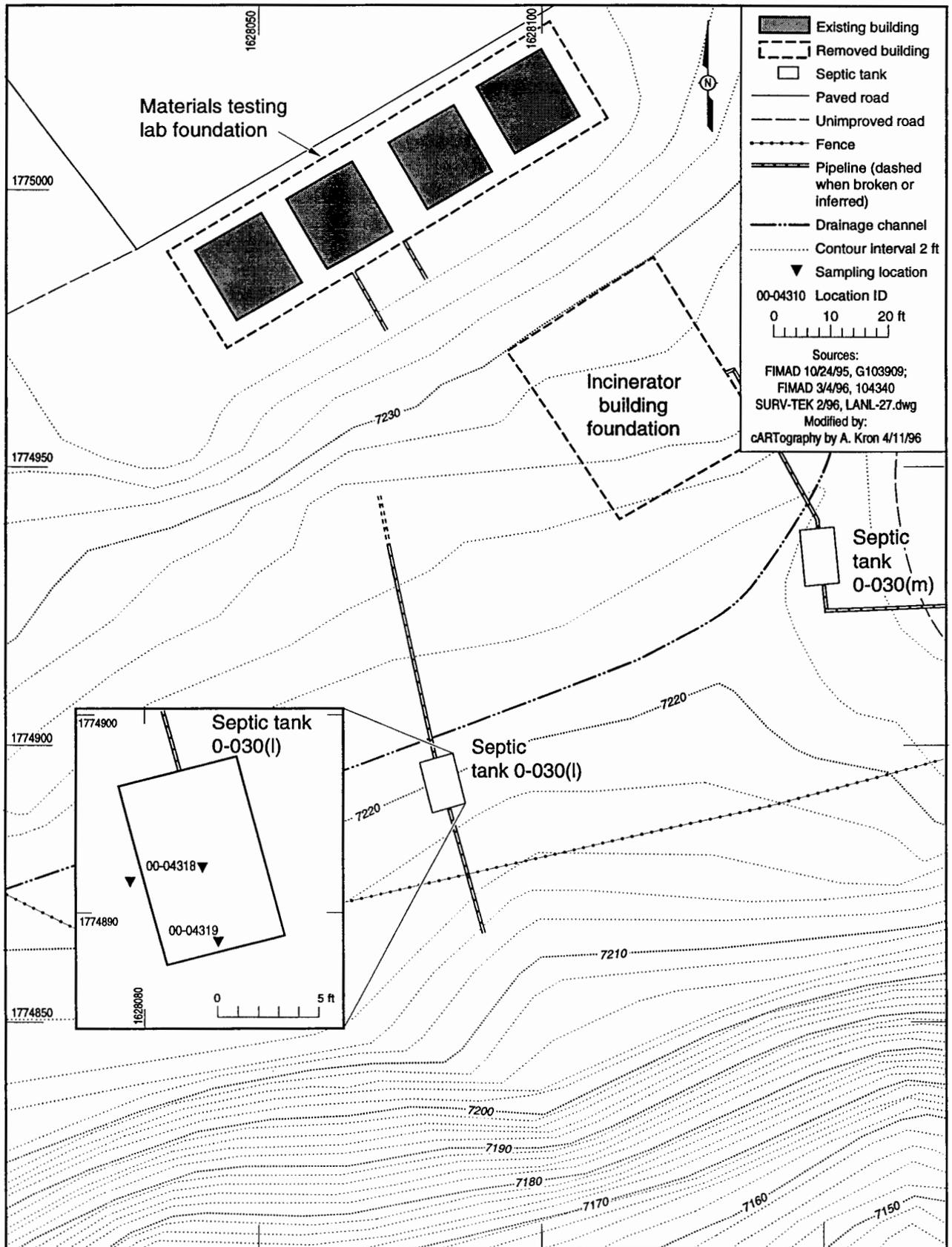


Fig. 2.3.1-1 PRS 0-030(l) confirmatory sample locations.

For any COPCs retained during confirmatory sample analyses, a screening assessment was performed using the confirmatory sample data for PRS 0-030(l) to determine if remaining COPCs presented a human health risk. The assessment is presented in the following sections.

2.3.2 Confirmatory Screening Assessment

2.3.2.1 Background Comparisons

2.3.2.1.1 Inorganics

One confirmatory soil sample from PRS 0-030(l) was analyzed for TAL metals and two soil samples were analyzed for XRF metals. Only one of the inorganics, nickel, was above its background screening value. Therefore, only nickel was carried forward through the screening assessment process. The data for this inorganic are presented in Table 2.3.2-1. For all data associated with samples containing concentrations of at least one inorganic analyte greater than upper tolerance limit (UTL), see Appendix C, Table C-4.

**TABLE 2.3.2-1
INORGANICS WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD
CONCENTRATIONS FOR PRS 0-030(l)**

LOCATION ID	SAMPLE ID	NICKEL (mg/kg)
UTL ^a	n/a ^b	15.2
SAL ^c	n/a	1 500
00-004319	0100-95-0695	19

^a UTL = Upper tolerance limit.
^b n/a = Not applicable.
^c SAL = Screening action level.

2.3.2.1.2 Radionuclides

Three confirmatory samples from PRS 0-030(l) were analyzed for radionuclides. Neptunium-237, plutonium-238, plutonium-239/240, radium-226, and tritium were detected. The data for these analytes are shown in Table 2.3.2-2. For all data associated with samples containing detected concentrations of at least one radionuclide, see Appendix C, Table C-5.

TABLE 2.3.2-2

RADIONUCLIDES WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD CONCENTRATIONS FOR PRS 0-030(l)

LOCATION ID	SAMPLE ID	NEPTUNIUM-237 (pCi/g)	PLUTONIUM-238 (pCi/g)	PLUTONIUM-239/240 (pCi/g)	RADIUM-226 (pCi/g)	TRITIUM (pCi/g)
UTL ^a	n/a ^b	N/A ^c	0.014	0.052	N/A	N/A
SAL ^d	n/a	1.9	27	24	0.1	260
00-04318	0100-95-0694	0.154	0.0158	0.169	3.29	NA ^e
00-04319	0100-95-0695	0.523	0.02	- ^f	1.84	NA
00-04318	0100-95-0700	NA	NA	NA	NA	36.0

^a UTL = Upper tolerance limit.

^b n/a = Not applicable.

^c N/A = Not available.

^d SAL = Screening action level.

^e NA = Not analyzed.

^f - = Analyte not detected or detected at a concentration less than background threshold concentration.

Because background data that is adequate and appropriate for further statistical evaluation are presently unavailable for these radionuclides, these radionuclides will be carried forward through the screening assessment process.

2.3.2.2 Evaluation of Organics

Two soil samples from PRS 0-030(l) were analyzed for SVOCs, pesticides, and PCBs. Two analytes were detected in these soil samples. The results are shown in Table 2.3.2-3. For all data associated with samples containing concentrations of at least one organic analyte greater than UTL, see Appendix C, Table C-6.

TABLE 2.3.2-3

PRS 0-030(l) ORGANICS WITH DETECTED CONCENTRATIONS

LOCATION ID	SAMPLE ID	DDE [p,p'] ^a (mg/kg)	DDT [p,p'] ^b (mg/kg)
SAL ^c	n/a ^d	1.3	1.3
00-04318	0100-95-0694	0.0141	0.0336

^a DDE[p,p'] = Dichlorodipenyldichloroethylene.

^b DDT[p,p'] = Dichlorodipenyltrichloroethane.

^c SAL = Screening action level.

^d n/a = Not applicable.

Of the organics that were not detected in any sample collected from PRS 0-030(l), three had EQLs that were higher than their respective SALs [i.e., dibenzo[a,h]anthracene, bis(2-chloroethyl)ether, and benzo[a]pyrene]. Eleven other organics do not have SALs to which the EQLs can be compared [i.e., acenaphthylene, benzo[g,h,i]perylene, BHC[delta-], bis(2-chloroethoxy)methane, 4-bromophenylphenyl ether, 4-chlorophenylphenyl ether, 2-methyl-4,6-dinitrophenol, methyl naphthalene, 3-nitroaniline, 4-nitroaniline, and phenanthrene]. These fourteen organics are not expected to be present at the site based on historical operations. Therefore, none of the nondetected organics are carried forward through the screening assessment process.

2.3.3 Human Health Screening Assessment

Eight chemicals [neptunium-237, plutonium-238, plutonium-239/240, radium-226, nickel, tritium, dichlorodipenyldichloroethylene (DDE), and dichlorodipenyltrichloroethane (DDT)] were carried forward from the background and EQL comparisons.

Of the eight chemicals, only radium-226 was detected at concentrations exceeding its SAL. Radium-226 is a naturally occurring radionuclide in the uranium decay chain. There are no LANL soil background data for radium-226, however, there are background data for the Bandelier Tuff. The radium-226 background screening values for the Tshirege Member of the Bandelier range from 2.6 to 6.23 pCi/g (Longmire et al. 1995, 1266). These concentrations from the Bandelier Tuff are consistent with values measured for PRS 0-030(I), which indicate that radium-226 is present in concentrations consistent with natural background. In addition, DOE Order 5400.5 indicates that cleanup levels for radium-226 are 5 pCi/g for the first 15 cm and 15 pCi/g for depths greater than 15 cm. All detected concentrations of radium-226 were below 5 pCi/g at PRS 0-030(I). Radium-226 was eliminated as a COPC for these reasons.

The other six chemicals were detected at concentrations below their respective SALs. These chemicals were evaluated for multiple chemical effects. The MCE is presented in Table 2.3.2-4.

TABLE 2.3.2-4
MULTIPLE CHEMICAL EVALUATION (MCE) FOR PRS 0-030(I)

CHEMICAL	SAL ^a	SAMPLE VALUE	NORMALIZED VALUE
RADIONUCLIDES	(pCi/g)	(pCi/g)	
Neptunium-237	1.9	0.523	0.3
Plutonium-238	27	0.02	0.0007
Plutonium-239/240	24	0.169	0.007
Tritium	260	36.0	0.1
	NORMALIZED SUM		0.4
NONCARCINOGENS	(mg/kg)	(mg/kg)	
Nickel	1 500	19	0.01
CARCINOGENS	(mg/kg)	(mg/kg)	
DDE[p,p'] ^b	1.3	0.0141	0.01
DDT[p,p'] ^c	1.3	0.0336	0.03
	NORMALIZED SUM		0.04

^a SAL = Screening action level.

^b DDE[p,p'] = Dichlorodiphenyldichloroethylene.

^c DDT[p,p'] = Dichlorodiphenyltrichloroethane.

The results of the MCE were less than one for radionuclides (0.4), noncarcinogens (0.01), and carcinogens (0.04), indicating that adverse human health effects from exposure are unlikely. Therefore, all of the chemicals with concentrations below their respective SALs are eliminated as COPCs.

2.3.4 Ecological Assessment

All information obtained from the Phase I investigation at TA-0, 6th Street warehouses PRSs will be considered as part of a larger ecological exposure unit once the ecological exposure unit approach has been formally approved by LANL ER Project regulators. However, because PRS 0-030(l) is located on a mesa top and is surrounded by disturbed areas, the area provides limited habitat for biota, does not contain sensitive habitats, and threatened or endangered species are not present. Therefore, is no immediate ecological risk at this site and no further action (NFA) for ecological concerns is proposed for this site (Ebinger et al. 1994, 1216).

2.3.5 Conclusions and Recommendations

The results of confirmation sampling following the VCA of PRS 0-030(l) show that no COPCs remain at levels considered to be hazardous to human health and there is no immediate ecological risk at this site. Therefore, NFA is recommended for this site and a Class III permit modification will be requested to remove PRS 0-030(l) from the HSWA module of the Laboratory's RCRA operating permit.

3.0 PRS 0-030(M), INCINERATOR BUILDING SEPTIC SYSTEM

3.1 Site-Characterization

3.1.1 Field Activities

The investigation of PRS 0-030(m) was initiated on August 2, 1995. Initially, the backhoe excavated four trenches in an effort to locate the septic system components. The VCP inlet and outlet pipelines were located first, and the septic tank was then located by excavating between the two pipelines. Unlike the PRS 0-030(l) concrete septic tank, the PRS 0-030(m) septic tank was constructed entirely of wood. There was no lid on the tank and it was full of what appeared to be native soil. The tank dimensions were determined to be approximately 10 ft long x 6 ft wide x 6 ft deep.

The first two samples and a ten-percent metals sample were collected below the tank by first hand augering through the decayed tank bottom. It was found that the tank contained a few inches of native soil which graded into a moist to wet, dark gray organic clay to silty, sandy clay sediment. Below the tank, approximately 1.1 ft of dark gray to black silt and very fine sand with occasional brownish pebbles and broken glass were encountered. This layer was in contact with reddish gray tuff. Subsequently, an additional 16 samples were collected, including one from outside and below the tank, seven from inside the tank including a duplicate, a ten-percent metals and a ten-percent tritium sample, three from inside and below the inlet pipeline, including a duplicate, and five from inside and below the outlet pipeline. Sample information is summarized in Table 3.1.1-1 and sample locations are shown in Fig. 3.1.1-1.

TABLE 3.1.1-1

SUMMARY OF SITE-CHARACTERIZATION SAMPLES COLLECTED AT PRS 0-030(m)

SAMPLE INFORMATION				ANALYTICAL SUITE AND REQUEST NUMBER								
LOCATION ID	SAMPLE ID	LOCATION	MATRIX	VOCs ^a	SVOCs ^b	PCBs ^c	PESTI- CIDES	TPH ^d	XRF ^e METALS	TAL ^f METALS	RAD ^g	TCLP ^h METALS
00-04327	0100-95-0454 ⁱ	Outside and below tank (composite)	Soil	χ ^j	796 ^k	796	796	NA ^l	X	NA	798	NA
00-04242	0100-95-0461	Inside tank	Soil	X	865	865	865	X	X	NA	868	NA
00-04243	0100-95-0462 ^m	Inside tank	Soil	X	865	865	865	X	X	NA	868	NA
00-04243	0100-95-0463 ^m	Inside tank	Soil	X	865	865	865	X	X	NA	868	NA
00-04245	0100-95-0464	Inside tank	Soil	X	865	865	865	X	X	NA	868	NA
00-04246	0100-95-0465	Inside tank	Soil	X	865	865	865	X	X	NA	868	NA
00-04245	0100-95-0466	Inside tank	Soil	NA	NA	NA	NA	NA	NA	866	NA	NA
00-04246	0100-95-0467	Inside tank	Soil	NA	NA	NA	NA	NA	NA	NA	868	NA
00-04305	0100-95-0480	Inside outlet pipe ~95 ft E of tank	Soil	X	989	989	989	NA	X	NA	991	NA
00-04305	0100-95-0481	Below outlet pipe ~95 ft E of tank	Soil	X	989	989	989	NA	X	NA	991	NA
00-04306	0100-95-0482	Below outlet pipe ~220 ft E of tank	Soil	X	989	989	989	NA	X	NA	991	NA
00-04307	0100-95-0483	Inside outlet pipe S of tank	Soil	X	992	992	992	NA	X	NA	994	NA
00-04307	0100-95-0486	Below outlet pipe S of tank	Soil	X	992	992	992	NA	X	NA	994	NA

TABLE 3.1.1-1 (CONTINUED)

SUMMARY OF SITE-CHARACTERIZATION SAMPLES COLLECTED AT PRS 0-030(m)

SAMPLE INFORMATION				ANALYTICAL SUITE AND REQUEST NUMBER								
LOCATION ID	SAMPLE ID	LOCATION	MATRIX	VOCs ^a	SVOCs ^b	PCBs ^c	PESTI- CIDES	TPH ^d	XRF ^e METALS	TAL ^f METALS	RAD ^g	TCLP ^h METALS
00-04322	0100-95-0526	Below tank	Soil	X	791	791	791	NA	X	990	792	1122
00-04322	0100-95-0628	Below tank	Soil	NA	NA	NA	NA	NA	NA	797	NA	NA
00-04426	0100-95-0673	Below tank	Soil	X	791	791	791	NA	X	990	792	NA
00-04326	0100-95-0674 ⁿ	Inside inlet pipe	Soil	X	796	796	796	NA	X	NA	798	NA
00-04326	0100-95-0676 ⁿ	Inside inlet pipe	Soil	X	796	796	796	NA	X	NA	798	NA
00-04326	0100-95-0677	Below inlet pipe 1 ft N of tank	Soil	X	796	796	796	NA	X	NA	798	NA

^a VOCs = Volatile organic compounds.

^b SVOCs = Semivolatile organic compounds.

^c PCBs = Polychlorinated biphenyls.

^d TPH = Total petroleum hydrocarbons.

^e XRF = X-ray fluoroscopy.

^f TAL = Target analyte list metals: aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, and uranium.

^g RAD = Radiological analysis consisted of any one or all of the following: gross alpha/beta/gamma activity, tritium, gamma spectroscopy/scan, americium-241, plutonium isotopes, and uranium isotopes.

^h TCLP = Toxicity characteristic leaching procedure.

ⁱ Sample represents composite of locations 00-04327, 00-04328, and 00-04329.

^j X = Analyzed, but not assigned a request number. All samples sent to mobile chemical analytical laboratory (MCAL) and mobile radiological analytical laboratory (MRAL) were not assigned a request number.

^k Request number. Only samples sent to sample management office (SMO) for off-site analysis were assigned request numbers.

^l NA = Not analyzed.

^m Sample 0100-95-0462 is a duplicate of sample 0100-95-0463.

ⁿ Sample 0100-95-0676 is a duplicate of sample 0100-95-0674.

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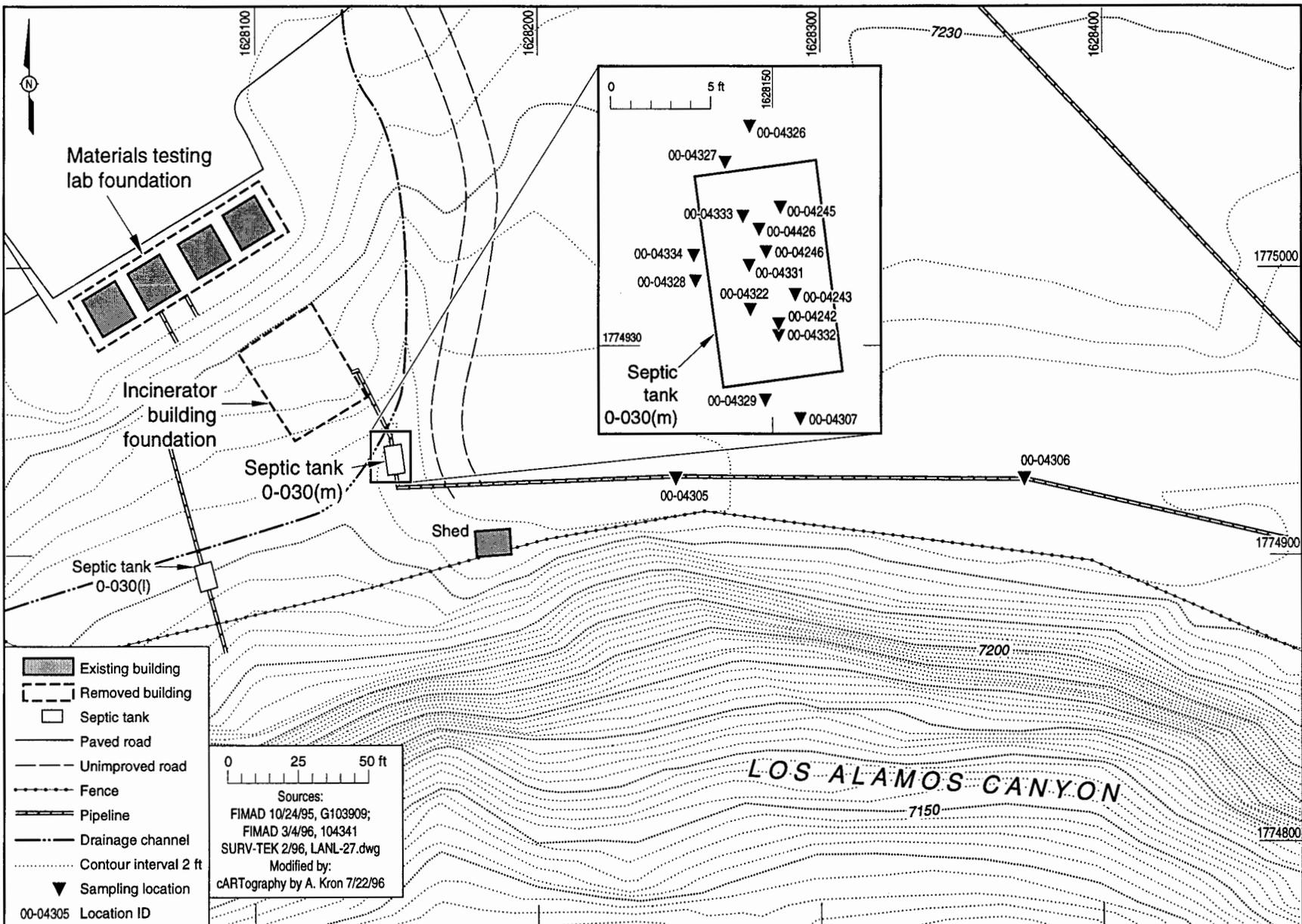


Fig. 3.1.1-1 PRS 0-030(m) site-characterization sample locations.

3.1.2 Nature and Extent of Contamination

The analytical results indicated that the tank contained variable and elevated concentrations of several pesticides, SVOCs composed primarily of PAHs, and metals. Elevated radiological constituents were also reported but seemed to be confined primarily to the silty sand layer immediately below the tank. Site-characterization analytical results for PRS 0-030(m) are presented in Appendix C, Tables C-7 through C-9.

3.1.3 Risk Calculations and/or Cleanup Level Derivation

A screening assessment was performed using the site characterization data for PRS 0-030(m) and is presented in the following sections. Based on these results, the decision was made to remove the tank and the entire inlet pipeline.

3.1.4 Site-Characterization Screening Assessment

3.1.4.1 Site-Characterization Background Comparisons

3.1.4.1.1 Inorganics

Eighteen soil samples collected from PRS 0-030(m) were analyzed for inorganics. Sixteen of these soil samples were analyzed for XRF metals and four soil samples were analyzed for TAL metals. Ten metals were identified above their respective background screening values by both the laboratory analysis and the XRF analysis. Two additional metals were identified above their respective background screening values by the laboratory analysis, and one additional metal was identified above its background screening value by XRF. The data for these inorganics are presented in Table 3.1.4-1. For all data associated with samples containing concentrations of at least one inorganic analyte greater than UTL, see Appendix C, Table C-7.

TABLE 3.1.4-1

INORGANICS WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD CONCENTRATIONS FOR PRS 0-030(m)

		ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	BERYLLIUM (mg/kg)	CADMIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
	SAL ^a	31	N/A ^b	5 300	N/A	38	211	2 800	400	23	1 500	380	230	23 000
LABORATORY ANALYSIS														
LOCATION ID	SAMPLE ID	ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	BERYLLIUM (mg/kg)	CADMIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
UTL ^c	n/a ^d	1	7.82	315	1.95	2.7	19.3	15.5	23.3	0.1	15.2	N/A	N/A	50.8
00-04245	0100-95-0466	3.9	- ^e	-	-	3.8	-	520(J) ^f	289	3.1	169.23	2.5537	NA ^g	645(J)
00-04322	0100-95-0526	3.24	-	-	9.964	16.76	26.34	4 404.18	1 650	29.2	145.76	7.1	NA	1 519.8
00-04322	0100-95-0628	9.5	-	350	8.1	11.9	21.2	853	444	32.2	20.6	9.6	NA	2 980
00-04426	0100-95-0673	22.3	10.4	-	2.7	121	84.3	3 120	12 600	-	1 110	17.5	NA	951
XRF ANALYSIS														
LOCATION ID	SAMPLE ID	ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	BERYLLIUM (mg/kg)	CADMIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
UTL	n/a	1.59 ^h	10.81 ^h	828.9 ^h	N/A	1.7	71.07 ^h	15.5	56 ^h	0.1	15.2	N/A	6.73 ^h	146.2 ^h
00-04305	0100-95-0480	-	11	-	NA	-	-	17	80	-	17	NA	-	-
00-04305	0100-95-0481	-	-	-	NA	-	-	-	-	-	-	NA	-	-
00-04306	0100-95-0482	-	-	-	NA	-	-	16	-	-	-	NA	-	-
00-04326	0100-95-0677	-	-	-	NA	3.13	-	97.9	77.8	-	20.1	NA	35.4	237
00-04322	0100-95-0526	22.5	-	854	NA	17.7	105	2 557	768	41.8	-	NA	201	1 904
00-04426	0100-95-0673	8.85	-	-	NA	7.87	77.6	979	317	-	-	NA	90	736
00-04326	0100-95-0674	4.3	-	-	NA	-	-	28.6	75.8	-	-	NA	31.5	224
00-04326	0100-95-0676	-	-	-	NA	-	-	65.9	96.5	-	-	NA	25.9	265
00-04245	0100-95-0464	21.4	-	-	NA	6.56	-	267	499	-	-	NA	39.5	975
00-04243	0100-95-0463	18.1	-	-	NA	3.79	-	95.9	371	-	-	NA	11.7	626
00-04243	0100-95-0462	21.7	22.4	-	NA	13	-	200	422	-	20.3	NA	118	2 297
00-04242	0100-95-0461	49.3	-	-	NA	5.59	-	72.9	306	-	-	NA	8.83	1 605
00-04327	0100-95-0454	-	-	-	NA	-	-	-	-	-	-	NA	9.23	-
00-04307	0100-95-0483	-	-	-	NA	-	-	-	97	7	-	NA	9	170
00-04307	0100-95-0486	7	-	-	NA	-	-	-	-	-	-	NA	8	-

TABLE 3.1.4-1 (CONTINUED)

INORGANICS WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD CONCENTRATIONS FOR PRS 0-030(m)

		ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	BERYLLIUM (mg/kg)	CADMIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
	SAL	31	N/A	5 300	N/A	38	211	2 800	400	23	1 500	380	230	23 000
XRF ANALYSIS (CONTINUED)														
LOCATION ID	SAMPLE ID	ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	BERYLLIUM (mg/kg)	CADMIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
UTL	n/a	1.59 ^h	10.81 ^h	828.9 ^h	N/A	1.7	71.07 ^h	15.5	56 ^h	0.1	15.2	N/A	6.73 ^h	146.2 ^h
00-04246	0100-95-0465	13	–	–	NA	–	–	64	191	–	21	NA	–	381

^a SAL = Screening action level.

^b N/A = Not available.

^c UTL = Upper tolerance level.

^d n/a = Not applicable.

^e – = Analyte not detected or detected at a concentration less than background threshold concentration.

^f J = The analyte was positively identified, but the associated numerical value is only an approximate concentration of the analyte in the sample.

^g NA = Not analyzed.

^h = Background value from 0958 Longmire, P., C. Duffy, and S. Reneau 1993. "Preliminary Background Elemental Concentrations In Bandelier Tuff and Selected Soil Services, 1993," unpublished report, LANL, Los Alamos, New Mexico (Longmire et al. 1993, 0958).

Because the background comparisons include site data by two different methods and two different sets of background data, all of the inorganics listed in Table 3.1.4-1 will be carried forward through the screening assessment process for further evaluation. Only those metals with concentrations less than background using both methods of analyses were eliminated as COPCs.

3.1.4.1.2 Radionuclides

Seventeen soil samples collected from PRS 0-030(m) were analyzed for radionuclides. Americium-241, plutonium-238, plutonium-239/240, radium-226, and uranium-235 were detected above their respective background screening values. The data for these radionuclides are shown in Table 3.1.4-2. For all data associated with samples containing concentrations of at least one radionuclide greater than background screening threshold, see Appendix C, Table C-8.

**TABLE 3.1.4-2
RADIONUCLIDES WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD
CONCENTRATIONS FOR PRS 0-030(m)**

LOCATION ID	SAMPLE ID	AMERICIUM-241 (pCi/g)	PLUTONIUM-238 (pCi/g)	PLUTONIUM- 239/240 (pCi/g)	RADIUM-226 (pCi/g)	URANIUM-235 (pCi/g)
UTL ^a	n/a ^b	0.336	0.014	0.052	N/A ^c	0.084
SAL ^d	n/a	22	27	24	0.1	10
00-04327	0100-95-0454	— ^e	—	0.214	1.47	—
00-04242	0100-95-0461	0.344	0.02	1.78	NA ^f	NA
00-04243	0100-95-0462	1.26	0.014	30.8	NA	NA
00-04243	0100-95-0463	—	0.01	1.76	NA	NA
00-04245	0100-95-0464	—	0.01	0.99	NA	NA
00-04246	0100-95-0465	—	—	0.77	NA	NA
00-04305	0100-95-0480	—	—	0.265	NA	NA
00-04305	0100-95-0481	—	—	0.06	NA	NA
00-04306	0100-95-0482	—	—	0.07	NA	NA
00-04307	0100-95-0483	—	—	0.286	2.19	—
00-04307	0100-95-0486	—	—	0.111	1.65	—
00-04322	0100-95-0526	1.33	—	0.0141	NA	NA
00-04326	0100-95-0674	—	—	0.325	1.16	0.52
00-04326	0100-95-0676	—	—	0.347	1.12	0.62
00-04326	0100-95-0677	—	—	0.769	1.45	0.69

^a UTL = Upper tolerance limit.

^b n/a = Not applicable.

^c N/A = Not available.

^d SAL = Screening action level.

^e — = Analyte not detected or detected at a concentration less than background threshold concentration.

^f NA = Not analyzed.

Because background data that are adequate and appropriate for further statistical evaluation are presently unavailable for these radionuclides, these radionuclides will be carried forward through the screening assessment process.

3.1.4.2 Evaluation of Organics

Sixteen soil samples collected at PRS 0-030(m) were analyzed for SVOCs, pesticides, and PCBs in a fixed laboratory. In addition, 13 samples were submitted to a fixed laboratory and 5 samples were submitted to the MCAL for VOC analyses. Thirty-five organic analytes were detected in these soil samples, and the results are shown in Table 3.1.4-3. All of the detected organics are carried forward through the screening assessment process. For all data associated with samples containing concentrations of at least one organic analyte greater than UTL, see Appendix C, Table C-9.

TABLE 3.1.4-3

ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLS^a FOR PRS 0-030(m)

LOCATION ID	SAMPLE ID	ACENAPHTHENE (mg/kg)	ALDRIN (mg/kg)	ANTHRACENE (mg/kg)	BENZO[A] ANTHRACENE (mg/kg)	BENZO[A] PYRENE (mg/kg)	BENZO[B] FLUORANTHENE (mg/kg)
SAL ^b	n/a ^c	360	0.026	19	0.61	0.061	0.61
00-04327	0100-95-0454	_d	-	-	-	-	-
00-04242	0100-95-0461	-	-	0.45(J) ^e	0.46(J)	0.32(J)	0.28(J)
00-04243	0100-95-0462	0.14(J)	0.00874	0.15(J)	-	-	-
00-04243	0100-95-0463	-	-	1.1	0.91	0.59	0.65
00-04245	0100-95-0464	-	-	0.31(J)	0.23(J)	0.19(J)	0.26(J)
00-04246	0100-95-0465	0.86	-	0.77	0.63	0.41(J)	0.45(J)
00-04305	0100-95-0480	-	-	-	-	-	-
00-04305	0100-95-0481	-	-	-	-	-	-
00-04306	0100-95-0482	-	-	-	-	-	-
00-04307	0100-95-0483	-	-	-	0.5	0.45	0.37(J)
00-04307	0100-95-0486	-	-	-	-	-	-
00-04322	0100-95-0526	-	-	-	-	-	-
00-04426	0100-95-0673	-	-	-	-	-	-
00-04326	0100-95-0674	-	-	0.062(J)	0.11(J)	0.1(J)	0.1(J)
00-04326	0100-95-0676	-	-	0.11(J)	0.19(J)	0.18(J)	0.15(J)
00-04326	0100-95-0677	-	-	0.046(J)	0.082(J)	0.089(J)	0.081(J)

TABLE 3.1.4-3 (CONTINUED)

ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLS^a FOR PRS 0-030(m)

LOCATION ID	SAMPLE ID	BENZO[G,H,I] PERYLENE (mg/kg)	BENZO[K] FLUORANTHENE (mg/kg)	BIS(2-ETHYLHEXYL) PHTHALATE (mg/kg)	CHLORDANE [ALPHA-] (mg/kg)	CHLORDANE [GAMMA-] (mg/kg)	CHRYSENE (mg/kg)
SAL	n/a	N/A ^f	6.1	32	0.34	0.34	24
00-04327	0100-95-0454	-	-	-	-	-	-
00-04242	0100-95-0461	0.24(J)	0.34(J)	-	0.0695	-	0.53(J)
00-04243	0100-95-0462	-	-	-	0.0111	-	0.14(J)
00-04243	0100-95-0463	0.48(J)	0.82	-	0.0199	0.0123	1.2
00-04245	0100-95-0464	0.49(J)	0.23(J)	-	0.024	-	0.34(J)
00-04246	0100-95-0465	0.3(J)	0.46(J)	-	-	-	0.89
00-04305	0100-95-0480	-	-	-	0.00399	-	0.15(J)
00-04305	0100-95-0481	-	-	-	-	-	-
00-04306	0100-95-0482	-	-	-	-	-	-
00-04307	0100-95-0483	0.21(J)	-	-	-	-	-
00-04307	0100-95-0486	-	-	-	-	-	-
00-04322	0100-95-0526	-	-	0.14(J)	-	-	-
00-04426	0100-95-0673	-	-	-	-	-	-
00-04326	0100-95-0674	0.092(J)	0.11(J)	-	-	-	0.12(J)
00-04326	0100-95-0676	0.15(J)	0.17(J)	-	-	-	0.2(J)
00-04326	0100-95-0677	0.073(J)	0.072(J)	-	-	-	0.097(J)

TABLE 3.1.4-3 (CONTINUED)

ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLS^a FOR PRS 0-030(m)

LOCATION ID	SAMPLE ID	DDD [p,p'] ^g (mg/kg)	DDE [p,p'] ^h (mg/kg)	DDT [p,p'] ⁱ (mg/kg)	DI-N-BUTYL PHTHALATE (mg/kg)	DI-N-OCTYL PHTHALATE (mg/kg)	DIBENZO FURAN (mg/kg)
SAL	n/a	1.9	1.3	1.3	6 500	1 300	260
00-04327	0100-95-0454	0.0092	0.018	0.053	–	–	–
00-04242	0100-95-0461	11	0.786	0.619	–	–	0.3(J)
00-04243	0100-95-0462	2.04	0.167	0.11	1.3	–	–
00-04243	0100-95-0463	6.54	0.232	0.689	–	0.48	0.76
00-04245	0100-95-0464	6.25	0.364	0.263	0.43(J)	–	0.26(J)
00-04246	0100-95-0465	17.5	0.358	0.312	–	–	0.58
00-04305	0100-95-0480	0.594	0.0993	0.672	–	–	–
00-04305	0100-95-0481	0.00994	0.0049	0.0161	–	–	–
00-04306	0100-95-0482	0.00826	0.0116	0.029	–	–	–
00-04307	0100-95-0483	0.44	0.099	0.24	–	–	–
00-04307	0100-95-0486	0.0995	0.0426	0.073	–	–	–
00-04322	0100-95-0526	–	–	–	2.6	–	–
00-04426	0100-95-0673	–	–	–	–	–	–
00-04326	0100-95-0674	0.23	0.33	0.66	0.075(J)	–	–
00-04326	0100-95-0676	0.26	0.3	1.1	–	–	–
00-04326	0100-95-0677	0.095	0.16	0.28	–	–	–

TABLE 3.1.4-3 (CONTINUED)

ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLS^a FOR PRS 0-030(m)

LOCATION ID	SAMPLE ID	DIBENZO[A,H] ANTHRACENE (mg/kg)	DICHLORO BENZENE (1,4) [P-] (mg/kg)	DIELDRIN (mg/kg)	ENDOSULFAN I (mg/kg)	ENDRIN (mg/kg)
SAL	n/a	0.061	7.4	0.028	3.3	20
00-04327	0100-95-0454	-	-	-	-	-
00-04242	0100-95-0461	-	-	-	-	0.179
00-04243	0100-95-0462	-	-	0.0133	-	0.0443
00-04243	0100-95-0463	0.48	-	-	0.0288	0.0618
00-04245	0100-95-0464	-	-	-	-	0.0718
00-04246	0100-95-0465	0.16(J)	-	-	-	-
00-04305	0100-95-0480	-	-	-	-	0.00402
00-04305	0100-95-0481	-	-	-	-	-
00-04306	0100-95-0482	-	-	-	-	-
00-04307	0100-95-0483	-	-	-	-	-
00-04307	0100-95-0486	-	-	-	-	-
00-04322	0100-95-0526	-	0.34(J)	-	-	-
00-04426	0100-95-0673	-	-	-	-	-
00-04326	0100-95-0674	-	-	-	-	-
00-04326	0100-95-0676	-	-	-	-	-
00-04326	0100-95-0677	-	-	-	-	-

TABLE 3.1.4-3 (CONTINUED)

ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLS^a FOR PRS 0-030(m)

LOCATION ID	SAMPLE ID	ENDRIN ALDEHYDE (mg/kg)	ENDRIN KEYTONE (mg/kg)	FLUORANTHENE (mg/kg)	FLUORENE (mg/kg)	HEPTACHLOR (mg/kg)	HEPTACHLOR EPOXIDE (mg/kg)
SAL	n/a	20	20	2 600	300	0.099	0.049
00-04327	0100-95-0454	-	-	-	-	-	-
00-04242	0100-95-0461	-	0.00569	1.7	0.61	0.00363	-
00-04243	0100-95-0462	-	-	0.43(J)	0.17(J)	-	0.00898
00-04243	0100-95-0463	-	-	3.3	1.5	-	-
00-04245	0100-95-0464	-	-	0.92	0.56	-	-
00-04246	0100-95-0465	-	-	2.5	1	-	-
00-04305	0100-95-0480	0.0213	-	0.24(J)	-	-	-
00-04305	0100-95-0481	-	-	-	-	-	-
00-04306	0100-95-0482	-	-	-	-	-	-
00-04307	0100-95-0483	-	-	0.56	-	0.022	-
00-04307	0100-95-0486	-	-	0.053(J)	-	-	-
00-04322	0100-95-0526	-	NA	0.12(J)	-	-	-
00-04426	0100-95-0673	-	NA	0.12(J)	-	-	-
00-04326	0100-95-0674	0.0057	-	0.27(J)	-	-	-
00-04326	0100-95-0676	-	-	0.47	-	-	-
00-04326	0100-95-0677	-	-	0.2(J)	-	-	-

TABLE 3.1.4-3 (CONTINUED)

ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLS^a FOR PRS 0-030(m)

LOCATION ID	SAMPLE ID	INDENO [1,2,3-CD] PYRENE (mg/kg)	METHYL NAPHTHALENE [2-] (mg/kg)	METHYL PHENOL [4-] (mg/kg)	NAPHTHALENE (mg/kg)	PHENANTHRENE (mg/kg)	PYRENE (mg/kg)
SAL	n/a	0.61	n/a	330	800	n/a	2 000
00-04327	0100-95-0454	–	0.41	0.41	0.41	0.41	0.41
00-04242	0100-95-0461	0.26(J)	0.33	0.36	0.43	2.3	1.8
00-04243	0100-95-0462	–	0.28	0.55	0.2	0.65	0.37
00-04243	0100-95-0463	0.48	0.68	0.8	1.2	5.1	4.6
00-04245	0100-95-0464	0.14(J)	0.39	0.39	0.69	1.6	1
00-04246	0100-95-0465	0.29(J)	0.56	0.37	1.1	3.5	3.3
00-04305	0100-95-0480	–	0.36	0.36	0.36	0.18	0.25
00-04305	0100-95-0481	–	0.34	0.34	0.34	0.34	0.34
00-04306	0100-95-0482	–	0.35	0.35	0.35	0.35	0.35
00-04307	0100-95-0483	0.17(J)	0.44	0.44	0.44	0.57	0.43
00-04307	0100-95-0486	–	0.4	0.4	0.4	0.4	0.045
00-04322	0100-95-0526	–	0.63	4.6	0.29	0.22	0.13
00-04426	0100-95-0673	–	0.18	0.59	0.11	0.16	0.13
00-04326	0100-95-0674	0.082(J)	0.43	0.43	0.43	0.21	0.16
00-04326	0100-95-0676	0.14(J)	0.45	0.45	0.45	0.34	0.27
00-04326	0100-95-0677	0.065(J)	0.41	0.41	0.41	0.14	0.13

^a EQL = Estimated quantitation level.

^b SAL = Screening action level.

^c n/a = Not applicable.

^d – = Analyte not detected or detected at a concentration less than EQLs.

^e J = The analyte was positively identified, but the associated numerical value is only an approximate concentration of the analyte in the sample.

^f N/A = Not available.

^g DDD = Dichlorodiphenyldichloroethane.

^h DDE = Dichlorodiphenyldichloroethylene.

ⁱ DDT = Dichlorodiphenyltrichloroethane.

Of the organic compounds that were not detected in any sample collected from PRS 0-030(m), 16 had EQLs that were higher than their respective SALs [i.e., Aroclor 1016™, Aroclor 1221™, Aroclor 1232™, Aroclor 1242™, Aroclor 1248™, Aroclor 1254™, Aroclor 1260™, m-benzidine, alpha-BHC, bis(2-chloroethyl)ether, 3,3'-dichlorobenzidine, hexachlorobenzene, N-nitrosodi-n-propylamine, N-nitrosodimethylamine, pentachlorophenol, and toxaphene]. Eleven other organics do not have SALs to which the EQLs can be compared [i.e., acenaphthylene, delta-BHC, bis(2-chloroethoxy)methane, 4-bromophenylphenyl ether, 4-chloro-3-methyl phenol, 4-chlorophenylphenyl ether, 2-methyl-4,6-dinitrophenol, 3-nitroaniline, 4-nitroaniline, 2-nitrophenol, and 4-nitrophenol]. These 27 organics are not expected to be present at the site based on historical operations. Therefore, none of the nondetected organics are carried forward through the screening assessment process.

3.1.4.3 Human Health Screening Assessment

Sixteen metals, three radionuclides, and all detected organics were carried forward from the background and EQL comparisons to be compared with their respective SALs.

Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dichlorodiphenyldichloroethane (DDD), dibenzo(a,h)anthracene, antimony, cadmium, copper, lead, mercury, plutonium-239/240, and radium-226 were detected at concentrations above their respective SALs. All are retained as COPCs. Concentrations above SAL for these chemicals are shown in Table 3.1.4-4.

Five chemicals that have no SAL (arsenic, benzo(g,h,i)perylene, beryllium, 2-methylnaphthalene, and phenanthrene) were also detected and therefore carried through the screening assessment process.

TABLE 3.1.4-4

CHEMICALS WITH CONCENTRATIONS EXCEEDING SAL FOR PRS 0-030(m)

LOCATION ID	SAMPLE ID	ANTIMONY (mg/kg)	CADMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MERCURY (mg/kg)	PLUTONIUM- 239/240 (pCi/g)	RADIUM-226 (pCi/g)
SAL ^a	n/a ^b	31	38	2 800	400	23	24	0.1
00-04322	0100-95-0526	— ^c	—	4 404.18 ^d	1 650 ^d	29.2 ^d	—	—
00-04322	0100-95-0628	—	—	—	444 ^d	32.2 ^d	—	—
00-04426	0100-95-0673	—	121 ^d	3 120 ^d	12 600 ^d	—	—	—
00-04326	0100-95-0677	—	—	—	—	—	—	1.45
00-04322	0100-95-0526	—	—	—	768 ^e	41.8 ^e	—	—
00-04326	0100-95-0674	—	—	—	—	—	—	1.16
00-04326	0100-95-0676	—	—	—	—	—	—	1.12
00-04245	0100-95-0464	—	—	—	499 ^e	—	—	—
00-04243	0100-95-0463	—	—	—	—	—	—	—
00-04243	0100-95-0462	—	—	—	422 ^e	—	30.8	—
00-04242	0100-95-0461	49.3 ^e	—	—	—	—	—	—
00-04327	0100-95-0454	—	—	—	—	—	—	1.47
00-04307	0100-95-0483	—	—	—	—	—	—	2.19
00-04307	0100-95-0486	—	—	—	—	—	—	1.65
00-04246	0100-95-0465	—	—	—	—	—	—	—

TABLE 3.1.4-4 (CONTINUED)
CHEMICALS WITH CONCENTRATIONS EXCEEDING SAL FOR PRS 0-030(m)

LOCATION ID	SAMPLE ID	BENZO[A] ANTHRACENE (mg/kg)	BENZO[A] PYRENE (mg/kg)	BENZO[B] FLUORANTHENE (mg/kg)	DDD [p,p'] (mg/kg)	DIBENZO[A,H] ANTHRACENE (mg/kg)
SAL	n/a	0.61	0.061	0.61	1.9	0.061
00-04322	0100-95-0526	-	-	-	-	-
00-04322	0100-95-0628	-	-	-	-	-
00-04426	0100-95-0673	-	-	-	-	-
00-04326	0100-95-0677	-	0.89(J) ^f	-	-	-
00-04322	0100-95-0526	-	-	-	-	-
00-04326	0100-95-0674	-	0.1(J)	-	-	-
00-04326	0100-95-0676	-	0.18(J)	-	-	-
00-04245	0100-95-0464	-	0.19(J)	-	6.25	-
00-04243	0100-95-0463	0.91	0.59	0.65	6.54	0.48
00-04243	0100-95-0462	-	-	-	2.04	-
00-04242	0100-95-0461	-	0.32(J)	-	11	-
00-04327	0100-95-0454	-	-	-	-	-
00-04307	0100-95-0483	-	0.45	-	-	-
00-04307	0100-95-0486	-	-	-	-	-
00-04246	0100-95-0465	0.63	0.41(J)	-	17.5	0.16(J)

^a SAL = Screening action level.

^b n/a = Not applicable.

^c - = Analyte not detected or detected at a concentration less than its SAL.

^d Target analyte list (TAL) metals analysis by SW-846 methods.

^e Metals analysis by X-ray fluorescence (XRF) spectroscopy method.

^f J = The analyte was positively identified, but the associated numerical value is only an approximate concentration of the analyte in the sample.

Chemicals that were detected at concentrations below their respective SALs were evaluated for multiple chemical effects. The MCE is presented in Table 3.1.4-5.

TABLE 3.1.4-5
MULTIPLE CHEMICAL EVALUATION (MCE) FOR PRS 0-030(m)

CHEMICAL	SAL ^a	SAMPLE VALUE	NORMALIZED VALUE
RADIONUCLIDES	(pCi/g)	(pCi/g)	
Americium-241	22	1.33	0.06
Plutonium-238	27	0.02	0.0007
Uranium-235	10	0.69	0.07
		NORMALIZED SUM	0.1
NONCARCINOGENS	(mg/kg)	(mg/kg)	
Acenaphthene	360	1.5	0.004
Anthracene	19	1.1	0.06
Barium	5 300	854	0.2
Chromium	211	105	0.5
Di-n-butyl phthalate	6 500	2.6	0.0004
Di-n-octyl phthalate	1 300	0.48	0.0004
Dibenzofuran	260	0.76	0.003
Endosulfan I	3.3	0.0288	0.009
Endrin	20	0.179	0.009
Endrin aldehyde	20	0.0213	0.001
Endrin ketone	20	0.00569	0.0003
Fluoranthene	2 600	3.3	0.001
Fluorene	300	1.5	0.005
Methylphenol [4-]	330	4.6	0.01
Naphthalene	800	1.2	0.002
Nickel	1 500	1 110	0.7
Pyrene	2 000	4.6	0.002
Silver	380	17.5	0.05
Uranium	230	201	0.9
Zinc	23 000	2 980	0.1

TABLE 3.1.4-5 (CONTINUED)

MULTIPLE CHEMICAL EVALUATION (MCE) FOR PRS 0-030(m)

CHEMICAL	SAL ^a	SAMPLE VALUE	NORMALIZED VALUE
		NORMALIZED SUM	2.6
CARCINOGENS	(mg/kg)	(mg/kg)	
Aldrin	0.026	0.00874	0.3
Benzo[k]fluoranthene	6.1	0.82	0.1
Bis(2-ethylhexyl)phthalate	32	0.14	0.004
Chlordane [alpha-]	0.34	0.0695	0.2
Chlordane [gamma-]	0.34	0.0123	0.04
Chrysene	24	1.2	0.05
DDE [p,p'] ^b	1.3	0.786	0.6
DDT [p,p'] ^c	1.3	0.689	0.5
Dichlorobenzene (1,4) [p-]	7.4	0.34	0.05
Dieldrin	0.028	0.0133	0.5
Heptachlor	0.099	0.022	0.2
Heptachlor epoxide	0.049	0.00898	0.2
Indeno[1,2,3-cd]pyrene	0.61	0.48	0.8
		NORMALIZED SUM	3.5

^a SAL = Screening action level.

^b DDE[p,p'] = Dichlorodiphenyldichloroethylene.

^c DDT[p,p'] = Dichlorodiphenyltrichloroethane.

The results of the MCE were less than one for radionuclides (0.1) indicating that adverse human health effects from exposure are unlikely. Noncarcinogens and carcinogens, however, were above a normalized sum of one at 2.6 and 3.5, respectively, indicating that the potential for adverse health effects exists.

3.1.4.4 Site-Characterization Decision Analysis

Based on these results, VCA was proposed to remove the tank and entire inlet pipeline. Chemicals retained as COPCs prior to VCA by the preceding screening were reinvestigated following the VCA. Confirmatory samples were subsequently collected to confirm that after cleanup no COPCs remained at levels causing a potential human or environmental health risk. Results of confirmatory sampling and analyses are presented in Section 3.3 of this report.

It was determined that the wastes would be classified as low-level radioactive waste. A discussion of the waste generated by the VCA is presented in Section 5.

3.2 Remedial Implementation

From November 14 through 20, 1995, the septic tank and inlet pipeline were excavated and pulled. The silty sand layer below the tank was removed and approximately six to eight inches of tuff was excavated around the entire tank in an attempt to remove any residual contamination. The tank contents, surrounding soil and tuff, and inlet line were placed into four B25 boxes and 42 yd³ soil bags. Decayed wood from the tank itself was mixed throughout the soil. Confirmatory samples were collected from beneath the tank. Analytical results for the confirmatory samples are presented in Subsection 3.2.2 of this report. For waste characterization purposes, composite samples of the tank contents and underlying sediment were collected prior to removal of this material. Analytical results for these samples are presented in Section 5 of this report. After excavation and sampling were complete, the inlet pipeline excavation was immediately backfilled and the area was restored to its original contours. The septic tank excavation was covered with plastic and allowed to remain open until the preliminary radiological analyses were available. After confirming that no elevated radiological constituent concentrations remained, this excavation was also backfilled with clean, crushed tuff and the entire area was restored to its original contours. The disturbed areas were reseeded as soon as the average daily temperatures were appropriate for optimum seed germination. Erosion control measures in the form of fiber mats were installed in reseeded areas with an excessive slope.

3.3 Confirmatory Sampling

3.3.1 Field Activities

Confirmatory samples were collected and analyzed to assess whether or not COPCs remained at PRS 0-030(m) following the completion of VCA. Two confirmatory samples were collected from beneath the tank, one near each end of the excavation. Table 3.3.1-1 summarizes the samples collected and analyses performed for each sample. Fig. 3.3.1-1 shows confirmatory sample locations.

TABLE 3.3.1-1

SUMMARY OF CONFIRMATORY SAMPLES COLLECTED AT PRS 0-030(m)

SAMPLE INFORMATION				ANALYTICAL SUITE AND REQUEST NUMBER					
LOCATION ID	SAMPLE ID	LOCATION	MATRIX	VOCs ^a	SVOCs ^b	PCBs ^c	PEST-CIDES	XRF ^d METALS	RAD ^e
00-04371	0100-95-0914	Below tank	Soil	X ^f	16119	1611	1611	X	1612
00-04372	0100-95-0915	Below tank	Soil	X	1611	1611	1611	X	1612

^a VOCs = Volatile organic compounds.

^b SVOCs = Semivolatile organic compounds.

^c PCBs = Polychlorinated biphenyls.

^d XRF = X-ray fluoroscopy.

^e RAD = Radiological analysis: consisted of any one or all of the following: gross alpha/beta/gamma activity, tritium, gamma spectroscopy/scan, americium-241, plutonium isotopes, and uranium isotopes.

^f X = Analyzed, but not assigned a request number. All samples sent to mobile chemical analytical laboratory (MCAL) and mobile radiological analytical laboratory (MRAL) were not assigned a request number.

^g Request number. Only samples sent to sample management office (SMO) for off-site analysis were assigned request numbers.

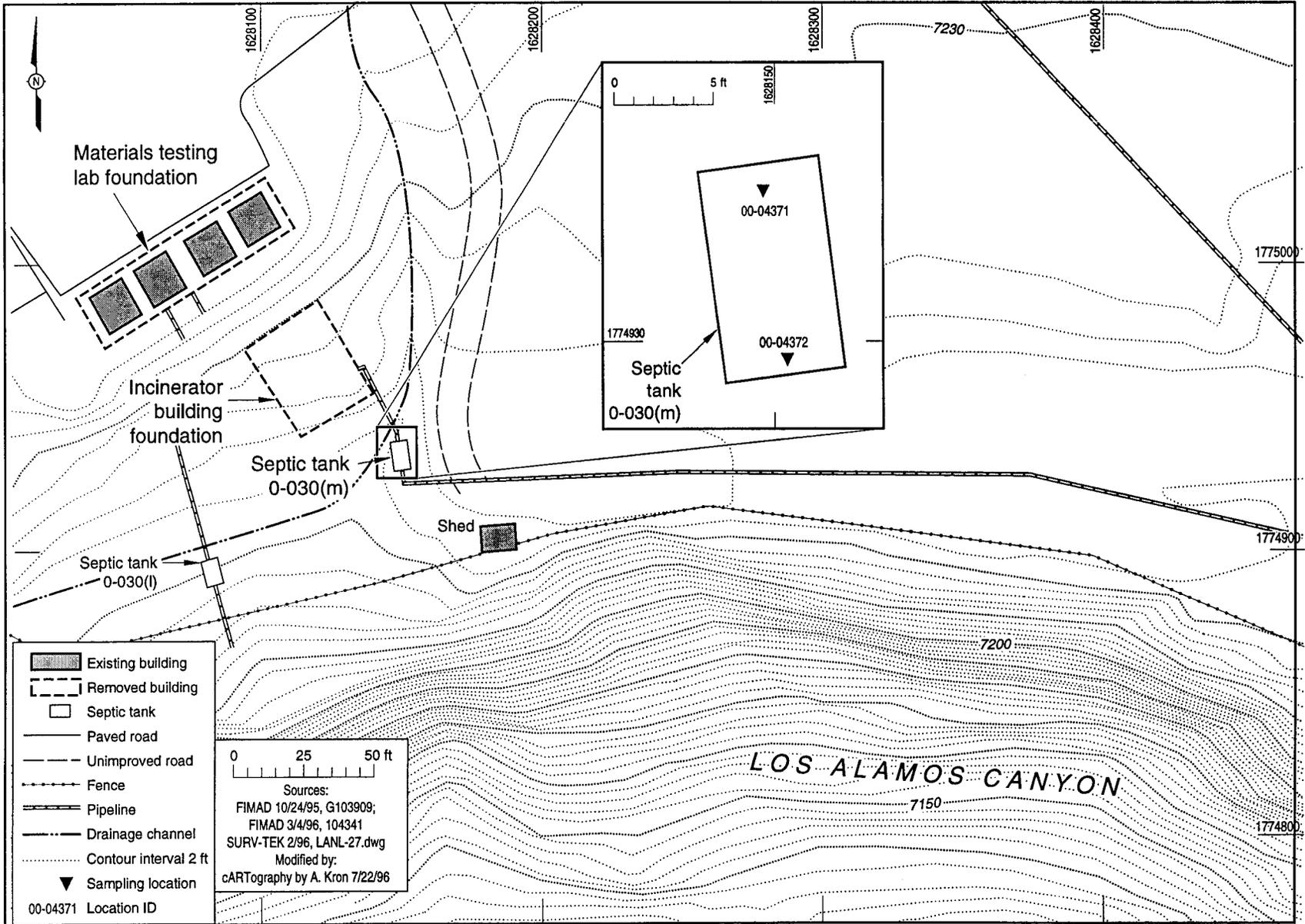


Fig. 3.3.1-1 PRS 0-030(m) confirmatory sample locations.

For any COPCs retained during confirmatory sample analyses, a screening assessment was performed using the confirmatory sample data for PRS 0-030(m) to determine if remaining COPCs presented a human health risk. The assessment is presented in the following sections.

3.3.2 Confirmatory Screening Assessment

3.3.2.1 Background Comparisons

3.3.2.1.1 Inorganics

Two confirmatory soil samples collected from PRS 0-030(m) were analyzed for metals by XRF. Copper, nickel, uranium, and zinc were above their respective background screening values. The data are presented in Table 3.3.2-1. For all data associated with samples containing concentrations of at least one inorganic analyte greater than its UTL, see Appendix C, Table C-10.

**TABLE 3.3.2-1
INORGANICS WITH CONCENTRATIONS ABOVE
BACKGROUND THRESHOLD CONCENTRATIONS FOR PRS 0-030(m)**

LOCATION ID	SAMPLE ID	COPPER (mg/kg)	NICKEL (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
UTL ^a	n/a ^b	15.5	15.2	6.73 ^c	146.2 ^c
SAL ^d	n/a	2 800	1 500	230	23 000
00-04371	0100-95-0914	33.1	17.2	20.4	332
00-04372	0100-95-0915	55.8	– ^e	–	–

^a UTL = Upper tolerance limit.

^b n/a = Not applicable.

^c Background screening value is taken from Longmire, Duffy, and Reneau. "Preliminary Background Elemental Concentrations In Bandelier Tuff and Selected Soil Series, 1993," (Longmire et al. 1993, 0958).

^d SAL = Screening action level.

^e – = Analyte not detected or detected at a concentration less than background threshold concentration.

Because background data are inadequate to perform further statistical tests, copper, nickel, uranium, and zinc are carried forward through the screening assessment process.

3.3.2.1.2 Radionuclides

Two confirmatory soil samples from PRS 0-030(m) were analyzed for radionuclides. Neptunium-237, plutonium-238, plutonium-239/240, and radium-226 were detected above their respective background screening values. The data for these radionuclides are presented in Table 3.3.2-2. For all data associated with samples containing concentrations of at least one radionuclide greater than background threshold concentrations, see Appendix C, Table C-11.

**TABLE 3.3.2-2
RADIONUCLIDES WITH CONCENTRATIONS ABOVE BACKGROUND THRESHOLD
CONCENTRATIONS FOR PRS 0-030(m)**

LOCATION ID	SAMPLE ID	NEPTUNIUM-237 (pCi/g)	PLUTONIUM-238 (pCi/g)	PLUTONIUM- 239/240 (pCi/g)	RADIUM-226 (pCi/g)
UTL ^a	n/a ^b	N/A ^c	0.014	0.052	N/A
SAL ^d	n/a	1.9	27	24	0.1
00-04371	0100-95-0914	0.551	– ^e	0.112	4.21
00-04372	0100-95-0915	0.529	0.027	0.574	4.11

^a UTL = Upper tolerance limit.

^b n/a = Not applicable.

^c N/A = Not available.

^d SAL = Screening action level.

^e – = Analyte not detected or detected at a concentration less than background threshold concentrations.

Because background data that is adequate and appropriate for further statistical evaluation are presently unavailable for these radionuclides, these radionuclides will be carried forward through the screening assessment process.

3.3.2.2 Evaluation of Organics

Two confirmatory soil samples collected for PRS 0-030(m) were analyzed for SVOCs, PCBs, and pesticides. The chemicals that were detected are shown in Table 3.3.2-3. For all data associated with samples containing concentrations of at least one organic analyte greater than UTL, see Appendix C, Table C-12.

TABLE 3.3.2-3

PRS 0-030(m) ORGANICS WITH DETECTED CONCENTRATIONS

LOCATION ID	SAMPLE ID	ALDRIN (mg/kg)	CHLORDANE [ALPHA-] (mg/kg)	CHLORDANE [GAMMA-] (mg/kg)
SAL ^a	n/a ^b	0.026	0.34	0.34
00-04371	0100-95-0914	0.002(J) ^c	0.002(J)	0.002(J)
00-04372	0100-95-0915	0.0019(J)	0.0019(J)	0.0019(J)

^a SAL = Screening action level.

^b n/a = Not applicable.

^c J = Estimated quantity.

Of the organics that were not detected in any soil sample from PRS 0-030(m), 13 had EQLs that were higher than their respective SALs [i.e., m-benzidine, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, bis(2-chloroethyl)ether, dibenzo[a,h]anthracene, 3,3'-dichlorobenzidine, hexachlorobenzene, indeno[1,2,3 cd]-pyrene, 2-nitroaniline, N-nitrosodi-n-propylamine, N-nitrosodimethylamine, and pentachlorophenol]. Thirteen other organics do not have SALs to which the EQLs can be compared [i.e., acenaphthylene, benzo[g,h,i]perylene, BHC[delta-], bis(2-chloroethoxy)methane, 4-bromophenylphenyl ether, 4-chloro-3-methylphenol, 2-methyl-4,6-dinitrophenol, methylnaphthalene, 3-nitroaniline, 4-nitroaniline, 2-nitrophenol, 4-nitrophenol, and phenanthrene]. These 26 organics are not expected to be present at the site based on historical operations. Therefore, none of the nondetected organics are carried forward through the screening assessment process.

3.3.3 Human Health Screening Assessment

Eleven chemicals (neptunium-237, plutonium-238, plutonium-239/240, radium-226, copper, nickel, uranium, zinc, aldrin, alpha-chlordane, and gamma-chlordane) were carried forward from the background and EQL comparisons for comparison with their respective SALs.

Of the 11 chemicals carried forward, only radium-226 was detected at concentrations exceeding SAL. All detected concentrations of radium-226 were below 5 pCi/g at PRS 0-030(m). For the same reasons stated in Subsection 2.3.2.2, radium-226 was eliminated as a COPC.

The other 10 chemicals were detected at concentrations below their respective SALs. These chemicals were evaluated for multiple chemical effects, as described in Section 3.4.1. The MCE is presented in Table 3.3.2-4.

TABLE 3.3.2-4
MULTIPLE CHEMICAL EVALUATION (MCE) FOR PRS 0-030(m)

CHEMICAL	SAL ^a	SAMPLE VALUE	NORMALIZED VALUE
RADIONUCLIDES	(pCi/g)	(pCi/g)	
Neptunium-237	1.9	0.551	0.3
Plutonium-238	27	0.027	0.001
Plutonium-239	24	0.574	0.02
	NORMALIZED SUM		0.3
NONCARCINOGENS	(mg/kg)	(mg/kg)	
Copper	2 800	55.8	0.02
Nickel	1 500	17.2	0.01
Uranium	230	20.4	0.09
Zinc	23 000	332	0.01
	NORMALIZED SUM		0.1
CARCINOGENS	(mg/kg)	(mg/kg)	
Aldrin	0.026	0.002	0.08
Alpha-Chlordane	0.34	0.002	0.006
Gamma-Chlordane	0.34	0.002	0.006
	NORMALIZED SUM		0.09

^a SAL = Screening action level.

The results of the MCE were less than one for radionuclides (0.3), noncarcinogens (0.1), and carcinogens (0.09), indicating that adverse human health effects from exposure are unlikely. Therefore, all of the chemicals with concentrations below their respective SALs are eliminated as COPCs.

3.3.4 Ecological Assessment

All information obtained from the Phase I investigation at TA-0, 6th Street warehouses PRSs will be considered as part of a larger ecological exposure unit once the ecological exposure unit approach has been formally approved by LANL ER Project regulators. However, because PRS 0-030(m) is located on a mesa top and is surrounded by disturbed areas, the area provides limited habitat for biota, does not contain sensitive habitats, and threatened or endangered species are not present, there is no immediate ecological risk at this site (Ebinger et al. 1994, 1216). Therefore, NFA for ecological concerns is proposed for this site.

3.3.5 Conclusions and Recommendations

The results of confirmation sampling following the VCA of PRS 0-030(m) show that no COPCs remain at levels considered to be hazardous to human health and there is no immediate ecological risk at this site. Therefore, NFA is recommended for this site and a Class III permit modification will be requested to remove PRS 0-030(m) from the HSWA module of the Laboratory's RCRA operating permit.

4.0 PRS 0-033(a), FUEL OIL UST

4.1 Site-Characterization

No site characterization was conducted at PRS 0-033(a) as a result of the New Mexico Underground Storage Tank Regulations (USTR) Section 401(a), which requires all USTs installed prior to 1989 to be upgraded or removed before December 22, 1998. Because the UST would not be upgraded and therefore removed, it was not necessary to complete a site characterization.

4.2 Remedial Implementation

PRS 0-033(a) is the fuel oil UST adjacent to the north side of Warehouse 3. On November 13, 1995, the 6th Street Warehouses UST was excavated and removed pursuant to the NMED UST Bureau regulations. NMED UST Bureau regulations require a 45-day site assessment report detailing closure activities. This report is attached in Appendix B. The report was submitted to the bureau on January 11, 1996. Appendix E includes the PRS 0-033(a) Transmittal Of Underground Storage Tank Closure Form And Tank Closure Work Sheet.

4.3 Confirmatory Sampling

4.3.2 Field Activities

Following excavation and removal of PRS 0-033(a) UST, a visual inspection revealed an approximate 2-in. diameter hole in the lower west end of the tank. The soil surrounding the UST appeared to be contaminated with fuel oil. Following removal of the UST, the contaminated fill material was removed and the tuff below the tank was removed to a depth of approximately 10 ft. Four samples of tuff from below the tank were then collected and submitted to LANL's MCAL for TPH analysis.

On December 4 through December 13, 1995, five boreholes were drilled and sampled. A total of 43 samples were collected at five-foot intervals and from zones of possible contamination and submitted to the MCAL for TPH analysis. Sample information and analyses are summarized in Table 4.3.2-1. See Fig. 4.3.2-1 for sample locations.

TABLE 4.3.2-1

SUMMARY OF CONFIRMATORY SAMPLES COLLECTED AT PRS 0-033(a)

SAMPLE INFORMATION				ANALYTICAL SUITE AND REQUEST NUMBER					
LOCATION ID	SAMPLE ID	LOCATION	MATRIX	SVOCs ^a	PCBs ^b	PESTI- CIDES	TPH ^c	XRF ^d METALS	RAD ^e
n/a ^f	0100-95-0736	UST Excavation bottom, W end	Soil	NA ^g	NA	NA	X ^h	NA	NA
n/a	0100-95-0737	UST Excavation bottom, SE corner	Soil	NA	NA	NA	X	NA	NA
n/a	0100-95-0738	UST Excavation bottom, NE corner	Soil	NA	NA	NA	X	NA	NA
n/a	0100-95-0739	UST Excavation bottom, SW corner	Soil	NA	NA	NA	X	NA	NA
00-04373	0100-95-0916	Boring #1, 11 ft	Soil	NA	NA	NA	X	NA	NA
00-04373	0100-95-0917	Boring #1, 15 ft	Soil	NA	NA	NA	X	NA	NA
00-04373	0100-95-0918	Boring #1, 20 ft	Soil	NA	NA	NA	X	NA	NA
00-04373	0100-95-0919	Boring #1, 25 ft	Soil	NA	NA	NA	X	NA	NA
00-04373	0100-95-0920	Boring #1, 30 ft	Soil	NA	NA	NA	X	NA	NA
00-04373	0100-95-0921	Boring #1, 35 ft	Soil	NA	NA	NA	X	NA	NA
00-04373	0100-95-0922	Boring #1, 40 ft	Soil	NA	NA	NA	X	NA	NA
00-04374	0100-95-0923	Boring #2, 3 ft	Soil	NA	NA	NA	X	NA	NA
00-04374	0100-95-0924	Boring #2, 8 ft	Soil	NA	NA	NA	X	NA	NA
00-04374	0100-95-0925	Boring #2, 12 ft	Soil	NA	NA	NA	X	NA	NA
00-04374	0100-95-0926	Boring #2, 13 ft	Soil	NA	NA	NA	X	NA	NA
00-04374	0100-95-0927	Boring #2, 17 ft	Soil	NA	NA	NA	X	NA	NA
00-04374	0100-95-0928	Boring #2, 19 ft	Soil	NA	NA	NA	X	NA	NA
00-04374	0100-95-0929	Boring #2, 23.5 ft	Soil	NA	NA	NA	X	NA	NA
00-04374	0100-95-0930	Boring #2, 28 ft	Soil	NA	NA	NA	X	NA	NA
00-04374	0100-95-0931	Boring #2, 33 ft	Soil	NA	NA	NA	X	NA	NA

TABLE 4.3.2-1 (CONTINUED)

SUMMARY OF CONFIRMATORY SAMPLES COLLECTED AT PRS 0-033(a)

SAMPLE INFORMATION				ANALYTICAL SUITE AND REQUEST NUMBER ^{a,b}					
LOCATION ID	SAMPLE ID	LOCATION	MATRIX	SVOCs	PCBs	PESTI- CIDES	TPH	XRF METALS	RAD
00-04374	0100-95-0932	Boring #2, 36 ft	Soil	NA	NA	NA	X	NA	NA
00-04374	0100-95-0933	Boring #2, 38.5 ft	Soil	NA	NA	NA	X	NA	NA
00-04375	0100-95-0934	Boring #3, 3 ft	Soil	NA	NA	NA	X	NA	NA
00-04375	0100-95-0935	Boring #3, 8 ft	Soil	NA	NA	NA	X	NA	NA
00-04375	0100-95-0936	Boring #3, 14 ft	Soil	NA	NA	NA	X	NA	NA
00-04375	0100-95-0937	Boring #3, 19 ft	Soil	NA	NA	NA	X	NA	NA
00-04375	0100-95-0938	Boring #3, 24 ft	Soil	NA	NA	NA	X	NA	NA
00-04375	0100-95-0939	Boring #3, 29 ft	Soil	NA	NA	NA	X	NA	NA
00-04375	0100-95-0940	Boring #3, 34.5 ft	Soil	NA	NA	NA	X	NA	NA
00-04375	0100-95-0941	Boring #3, 39 ft	Soil	NA	NA	NA	X	NA	NA
00-04376	0100-95-0942	Boring #4, 8 ft	Soil	NA	NA	NA	X	NA	NA
00-04376	0100-95-0943	Boring #4, 12 ft	Soil	NA	NA	NA	X	NA	NA
00-04376	0100-95-0944	Boring #4, 14 ft	Soil	NA	NA	NA	X	NA	NA
00-04376	0100-95-0945	Boring #4, 19 ft	Soil	NA	NA	NA	X	NA	NA
00-04376	0100-95-0946	Boring #4, 23.5 ft	Soil	NA	NA	NA	X	NA	NA
00-04376	0100-95-0947	Boring #4, 27 ft	Soil	NA	NA	NA	X	NA	NA
00-04376	0100-95-0948	Boring #4, 28.5 ft	Soil	NA	NA	NA	X	NA	NA
00-04376	0100-95-0949	Boring #4, 31.5 ft	Soil	NA	NA	NA	X	NA	NA
00-04376	0100-95-0950	Boring #4, 38 ft	Soil	NA	NA	NA	X	NA	NA
00-04377	0100-95-0951	Boring #5, 4 ft	Soil	NA	NA	NA	X	NA	NA
00-04377	0100-95-0952	Boring #5, 8.5 ft	Soil	NA	NA	NA	X	NA	NA
00-04377	0100-95-0953	Boring #5, 14.5 ft	Soil	NA	NA	NA	X	NA	NA
00-04377	0100-95-0954	Boring #5, 19 ft	Soil	NA	NA	NA	X	NA	NA
00-04377	0100-95-0955	Boring #5, 23 ft	Soil	NA	NA	NA	X	NA	NA

TABLE 4.3.2-1 (CONTINUED)
SUMMARY OF CONFIRMATORY SAMPLES COLLECTED AT PRS 0-033(a)

SAMPLE INFORMATION				ANALYTICAL SUITE AND REQUEST NUMBER					
LOCATION ID	SAMPLE ID	LOCATION	MATRIX	SVOCs	PCBs	PESTI- CIDES	TPH	XRF METALS	RAD
00-04377	0100-95-0955	Boring #5, 23 ft	Soil	NA	NA	NA	X	NA	NA
00-04377	0100-95-0956	Boring #5, 27 ft	Soil	NA	NA	NA	X	NA	NA
00-04377	0100-95-0959	Boring #5, 34 ft	Soil	NA	NA	NA	X	NA	NA
00-04377	0100-95-0960	Boring #5, 37 ft	Soil	NA	NA	NA	X	NA	NA

^a SVOCs = Semivolatile organic compounds.

^b PCBs = Polychlorinated biphenyls.

^c TPH = Total petroleum hydrocarbons.

^d XRF = X-ray fluoroscopy.

^e RAD = Radiological analysis: consisted of any one or all of the following: gross alpha/beta/gamma activity, tritium, gamma spectroscopy/scan, americium-241, plutonium isotopes, and uranium isotopes.

^f n/a = Not applicable.

^g NA = Not analyzed.

^h X = Analyzed, but not assigned a request number. All samples sent to mobile chemical analytical laboratory (MCAL) and mobile radiological analytical laboratory (MRAL) were not assigned a request number.

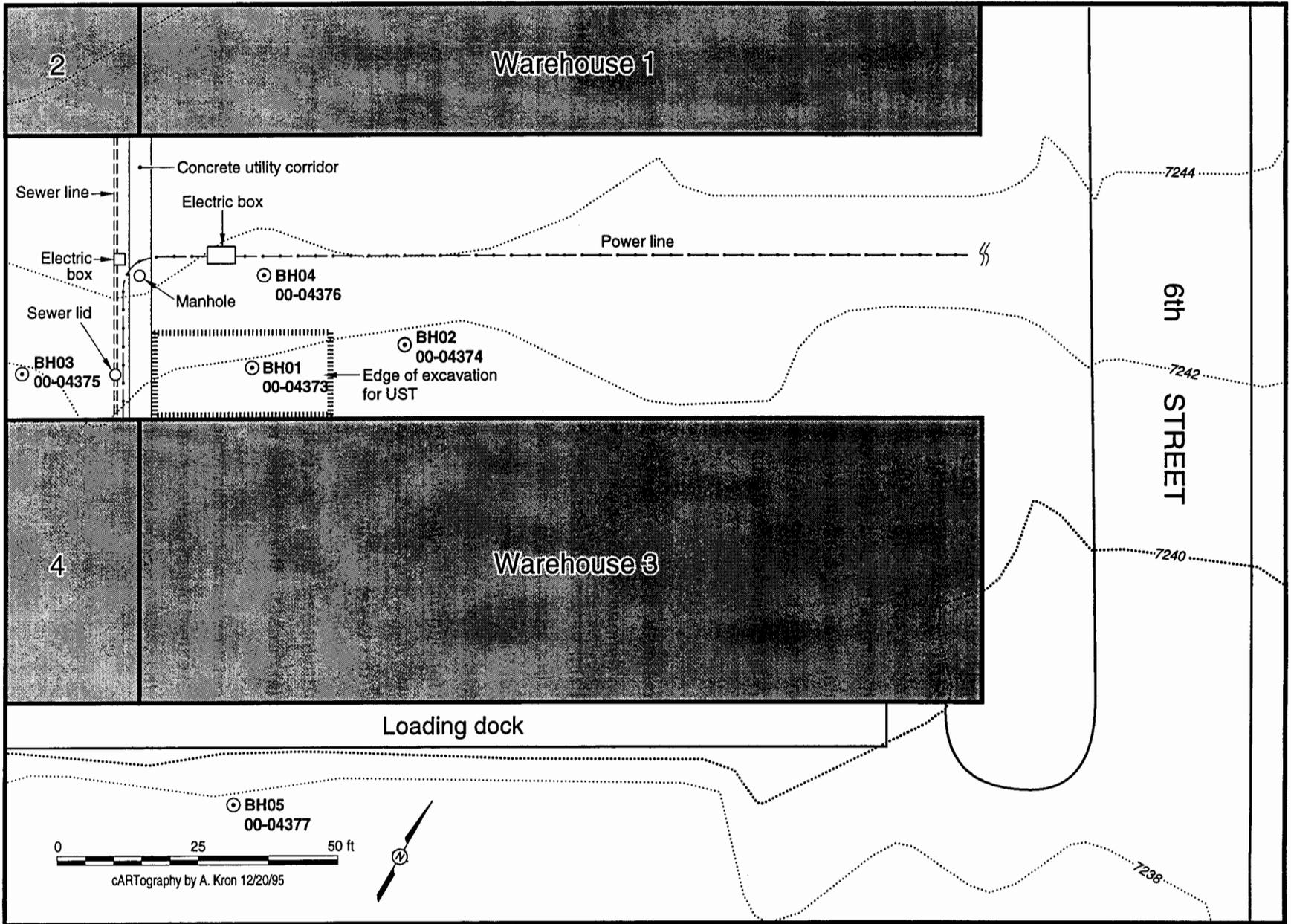


Fig. 4.3.2-1 PRS 0-033(a) sample locations.

4.3.3 Nature And Extent

TPH concentrations ranging from approximately 3 000 to 10 000 mg/kg (ppm) were detected in the samples collected from the five boreholes. The depth of the boreholes ranged from three feet deep to 40 ft deep. For more information regarding the nature and extent of TPH contamination, see Appendix B, Section 2.0.3. The 45-day report for fuel oil UST release summarizes the samples collected as part of the UST closure. Figure 4.3.3-1 depicts the confirmatory sample locations. For other information regarding the closure, see Appendix B.

4.3.4 Ecological Assessment

All information obtained from the Phase I investigation at TA-0, 6th Street Warehouses PRSs will be considered as part of a larger ecological exposure unit once the ecological exposure unit approach has been formally approved by LANL ER Project regulators. However, because PRS 0-033(a) is located on a mesa top and is surrounded by disturbed areas, the area provides limited habitat for biota, does not contain sensitive habitats, and threatened or endangered species are not present, there is no immediate ecological risk at this site (Ebinger et al. 1994, 1216). Therefore, NFA for ecological concerns is proposed for this site.

4.3.5 Conclusions

Based on the analytical data, it is clear that both the horizontal and vertical extent of TPH affected tuff have been defined. At the lowest depth, the TPH concentrations did not exceed 5 500 ppm. Borehole #01 provides evidence that the TPH plume extends vertically to no deeper than 30 to 35 ft. The four surrounding boreholes indicate that there has been little, if any, horizontal movement of the TPH plume. There appear to be three primary reasons for this apparent lack of significant migration of the fuel oil: 1) the moderately welded tuff lacks sufficient permeability for significant migration, 2) the observed fractures in the tuff were mostly clay lined, thus inhibiting migration, and 3) the wet zone at a depth of 30 to 35 ft in borehole #01 has acted as a barrier to vertical migration.

The NMED UST Department has determined that this site does not pose an immediate public health or environmental threat for the following reasons.

- The horizontal extent of soil contamination has been adequately defined. The vertical extent of soil contamination has been adequately defined and is greater than 900 ft above high static ground water.

- Contaminated soils have been excavated and properly disposed.
- Depth to the ground water at the site is greater than 1 000 ft below ground surface.

Based on this information, the Department requires no additional work at this time.

5.0 WASTE MANAGEMENT

Wastes generated during the RFI were managed according to the approved Waste Characterization Scheme and Storm Water Pollution Prevention Plan (SWPPP). For each PRS, the following wastes were generated.

- **PRS 0-030(I)** Personal protective equipment (PPE), sampling equipment and polyethylene sheeting, soil, and VCP (one B-25 box and eight 55-gal. drums); concrete tank, decontamination water, and sample containers returned from the MCAL and MRAL.
- **PRS 0-030(m)** PPE, sampling equipment and polyethylene sheeting, soil, wood, and VCP (four B25 boxes and 42 yd³ soil bags), decontamination water, and sample containers returned from the MCAL and MRAL.
- **PRS 0-033(a)** PPE and sampling equipment, mixture of water and fuel oil from inside the UST, steel UST; excavated soil and drill cuttings; decontamination water, and sample containers returned from the MCAL and MRAL.

All wastes were stored on site in a controlled access area pending receipt of analytical data and completion of the waste profiles. All containers were properly labeled with the date of generation, status of the contents, and other required information. Wastes that might be potentially classified as low-level radioactive were stored within a secondary fenced area which was locked to provide added security and prevent unauthorized access. This area was also bermed and lined with polyethylene sheeting to prevent storm water runoff and runoff. Best management practices were implemented at all times and informal inspections of excavation covers, runoff/runoff controls, and waste containers were conducted as necessary during field operations. Informal site inspections were conducted daily when wastes were still being stored on site and field activities were not taking place.

Following receipt of the waste characterization analytical data, waste profile forms (WPFs) were completed for each waste stream. WPFs were submitted for the PRSs 0-030(l) and 0-030(m) septic tanks, septic tank contents and inlet pipelines, the soil from the PRS 0-033 UST closure, and all PPE, sampling equipment and plastic sheeting. The wastes were all subsequently classified for disposal purposes and approved for shipment to the designated disposal facilities following completion of the necessary disposal and shipment documentation.

The PRS 0-030(l) septic tank was disposed in Area J. The trace concentrations of pesticides and SVOCs detected in the spent waste stream contained within the B-25 box and 55-gal. drums were determined to be nonhazardous chemical waste. The B-25 box was subsequently shipped offsite to Colorado Springs recycling and disposal facility and the eight 55-gallon drums were staged at Area L to be shipped offsite. PRS 0-030(m) organic wastes were also classified as nonhazardous, however because radionuclide concentrations are over background all PRS 0-030(m) wastes were shipped to TA-54 Area G. The PRS 0-033(a) UST soils were classified as nonhazardous waste and were shipped to the Keers Environmental Hydrocarbon Soil Land Farm near Mountainair, New Mexico. All PPE, sampling equipment, and plastic sheeting were transported to the Los Alamos County Landfill for disposal. Approximately 60 gal. of decontamination water were discharged back to the sampling sites per the LANL memorandum dated February 13, 1996, regarding the disposal of sampling tool decontamination rinse water. Appropriate best management practices were maintained at all times and appropriate documentation accompanied shipments.

The only wastes remaining on site are two partial 55-gal. drums of returned sample containers. If possible, these will be disposed per the existing WPFs. If necessary, they will be profiled and disposed as directed.

5.1 Waste Characterization Data

5.1.1 PRS 0-030(l)

For waste characterization purposes, a concrete chip sample from the tank and a piece of the inlet pipe were collected for radiological analysis. A summary of waste characterization samples collected are shown in Table 5.1.1-1. Four samples of the containerized tank contents were also collected and analyzed for the full suite of COPCs.

The results of the waste-characterization analyses are presented in Tables 5.1.1-2, 5.1.1-3, and 5.1.1-4.

TABLE 5.1.1-1
SUMMARY OF WASTE-CHARACTERIZATION SAMPLES COLLECTED AT PRS 0-030(I)

SAMPLE INFORMATION			ANALYTICAL SUITE AND REQUEST NUMBER							
LOCATION ID	SAMPLE ID	MATRIX	VOCs ^a	SVOCs ^b	PCBs ^c	PEST-CIDES	TAL ^d METALS	RAD ^e	TCLP ^f METALS	TCLP ORGANICS
00-04316	0100-95-0690	Soil	1328 ^g	1328	1328	1328	1329	X ^h	1329	1328
00-04317	0100-95-0691	Soil	1328	1328	1328	1328	1329	X	1329	1328
n/a ⁱ	0100-95-0692	Soil	1328	1328	1328	1328	1329	X	1329	1328
n/a	0100-95-0693	Soil	1328	1328	1328	1328	1329	X	1329	1328

^a VOCs = Volatile organic compounds.

^b SVOCs = Semivolatile organic compounds.

^c PCBs = Polychlorinated biphenyls.

^d TAL = Target analyte list metals: aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, and uranium.

^e RAD = Radiological analysis: consisted of any one or all of the following: gross alpha/beta/gamma activity, tritium, gamma spectroscopy/scan, americium-241, plutonium isotopes, and uranium isotopes.

^f TCLP = Toxicity characteristic leaching process.

^g Request number. Only samples sent to sample management office (SMO) for off-site analysis were assigned request numbers.

^h X = Analyzed, but not assigned a request number. All samples sent to mobile chemical analytical laboratory (MCAL) and mobile radiological analytical laboratory MRAL were not assigned a request number.

ⁱ n/a = Not applicable.

TABLE 5.1.1-2

DETECTED INORGANIC ANALYTES^a IN WASTE-CHARACTERIZATION SAMPLES FOR PRS 0-030(I)

		TCLP ^b METALS						
LOCATION ID	SAMPLE ID	ARSENIC (mg/L)	BARIUM (mg/L)	CADMIUM (mg/L)	LEAD (mg/L)			
00-04316	0100-95-0690	0.0279	0.681	0.0034(U) ^c	0.032			
00-04317	0100-95-0691	0.027(U)	0.830	0.0034(U)	0.0259(U)			
n/a ^d	0100-95-0692	0.027(U)	1.130	0.0034(U)	0.0788			
n/a	0100-95-0693	0.027(U)	0.830	0.005	0.0259(U)			
		TAL ^e METALS						
LOCATION ID	SAMPLE ID	ALUMINUM (mg/kg)	ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	BERYLLIUM (mg/kg)	CADMIUM (mg/kg)	
00-04316	0100-95-0690	5 600	6.1 ^f	1.4 ^f	58.8	0.60 ^f	1.0 ^f	
00-04317	0100-95-0691	6 650	12.4 ^f	2.6 ^f	109	0.58 ^f	0.64 ^f	
n/a	0100-95-0692	7 370	5.6(U)	2.6 ^f	102	0.63 ^f	0.7(U)	
n/a	0100-95-0693	5 290	6.6 ^f	2.6 ^f	94.8	0.57 ^f	0.69(U)	
		TAL METALS (CONTINUED)						
LOCATION ID	SAMPLE ID	CALCIUM (mg/kg)	CHROMIUM (mg/kg)	COBALT (mg/kg)	COPPER (mg/kg)	IRON (mg/kg)	LEAD (mg/kg)	MAGNESIUM (mg/kg)
00-04316	0100-95-0690	1 970	4.0	2.3	6.3	8 290	31.7	1 070
00-04317	0100-95-0691	2 060	59.9	6.4 ^f	12.1	11 200	44	1 450
n/a	0100-95-0692	3 120	7.6	4.2 ^f	18.5	10 300	33.2	1 740
n/a	0100-95-0693	2 830	6.3	4.4 ^f	15.5	8 060	36.3	1 290

TABLE 5.1.1-2 (CONTINUED)

DETECTED INORGANIC ANALYTES^a IN WASTE-CHARACTERIZATION SAMPLES FOR PRS 0-030(l)

LOCATION ID	SAMPLE ID	TAL METALS (CONTINUED)						
		MANGANESE (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	POTASSIUM (mg/kg)	SODIUM (mg/kg)	VANADIUM (mg/kg)	ZINC (mg/kg)
00-04316	0100-95-0690	202	0.05(U)	4.1 ^f	812 ^f	144 ^f	10.5	35.8
00-04317	0100-95-0691	357	0.05(U)	31.6	1 550	97.1 ^f	20.6	41.7
n/a	0100-95-0692	248	0.69	7.1 ^f	1 150	268 ^f	14.6	60.7
n/a	0100-95-0693	220	0.42	0.62	1 130	214 ^f	13	44

^a Only inorganic analytes that were detected in a least one sample are presented in this table.

^b TCLP = Toxicity characteristics leaching procedure.

^c U = Undetected quantity.

^d n/a = Not applicable.

^e TAL = Target analyte list.

^f Detected in blank.

TABLE 5.1.1-3

RADIOLOGICAL RESULTS FOR PRS 0-030(I) WASTE-CHARACTERIZATION SAMPLES

LOCATION ID	SAMPLE ID	GROSS ALPHA (pCu/g)	GROSS BETA (pCu/g)	TRITIUM (pCu/ml)
00-04316	0100-95-0690	20 +/-13.2	27.7 +/-7.2	0.3 +/-0.2
00-04317	0100-95-0691	13.2 +/-10.8	11.2 +/-4.6	0.2 +/-0.1
n/a ^a	0100-95-0692	4.4 +/-6.2	8.1 +/-3.9	0.4 +/-0.1
n/a	0100-95-0693	9.3 +/-9.0	10.8 +/-4.5	0.5 +/-0.2

^a n/a = Not applicable.

TABLE 5.1.1-4

DETECTED ORGANIC ANALYTES^a IN WASTE-CHARACTERIZATION SAMPLES FOR PRS 0-030(I)

		VOCs ^b		PESTICIDES					
LOCATION ID	SAMPLE ID	TETRACHLOROETHENE (mg/kg)	METHYL CHLORIDE (mg/kg)	4,4'-DDD ^c (mg/kg)	4,4'-DDE ^d (mg/kg)	4,4'-DDT ^e (mg/kg)			
00-04316	0100-95-0690	ND ^f	0.019	ND	0.021	0.027			
00-04317	0100-95-0691	ND	0.0159	ND	0.056	0.11			
n/a ^h	0100-95-0692	ND	0.0179	0.006	0.02	0.025			
n/a	0100-95-0693	ND	0.0219	0.028	0.045	0.085			
		SVOCs ⁱ							
LOCATION ID	SAMPLE ID	BENZO(a) ANTHRACENE (mg/kg)	BENZO(b) FLUORANTHENE (mg/kg)	BENZO(k) FLUORANTHENE (mg/kg)	BENZO(a) PYRENE (mg/kg)	CHRYSENE (mg/kg)	FLUORANTHENE (mg/kg)	PHENANTHRENE (mg/kg)	PYRENE (mg/kg)
00-04316	0100-95-0690	ND ^a	ND	ND	ND	ND	ND	ND	ND
00-04317	0100-95-0691	ND	ND	ND	ND	ND	ND	ND	ND
n/a ^c	0100-95-0692	ND	ND	ND	ND	ND	0.46	ND	0.41
n/a	0100-95-0693	1.0	0.71	0.7	0.72	1.3	1.2	0.52	0.98

^a Only organic analytes that were detected in a least one sample are presented in this table.

^b VOCs = Volatile organic compounds.

^c DDD = Dichlorodiphenyldichloroethene.

^d DDE = Dichlorodiphenyldichloroethylene.

^e DDT = Dichlorotriphenyldichloroethene.

^f ND = Not detected.

^g Detected in blank.

^h n/a = Not applicable.

ⁱ SVOCs = Semivolatile organic compounds.

5.1.2 PRS 0-030(m)

For waste characterization purposes, four composite samples of the tank contents and underlying sediment were collected prior to removal of this material. These samples were analyzed for the full suite of COPCs in addition to other waste disposal parameters. A summary of samples collected is presented in Table 5.1.2-1.

The results of the waste-characterization analyses are presented in Tables 5.1.2-2, 5.1.2-3, and 5.1.2-4.

TABLE 5.1.2-1

SUMMARY OF WASTE-CHARACTERIZATION SAMPLES COLLECTED AT PRS 0-030(m)

SAMPLE INFORMATION			ANALYTICAL SUITE AND REQUEST NUMBER							
LOCATION ID	SAMPLE ID	MATRIX	VOCs ^a	SVOCs ^b	PCBs ^c	PEST-CIDES	TAL ^d METALS	RAD ^e	TCLP ^f METALS	TCLP ORGANICS
00-04331	0100-95-06969	Soil	1325 ^h	1325	1325	1325	1326	1327	1326	1325
00-04332	0100-95-0697 ^h	Soil	1325	1325	1325	1325	1326	1327	1326	1325
00-04333	0100-95-0698 ^h	Soil	1325	1325	1325	1325	1326	1327	1326	1325
00-04334	0100-95-0699 ^h	Soil	1325	1325	1325	1325	1326	1327	1326	1325

^a VOCs = Volatile organic compounds.

^b SVOCs = Semivolatile organic compounds.

^c PCBs = Polychlorinated biphenyls.

^d TAL = Target analyte list metals: aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, and uranium.

^e RAD = Radiological analysis: consisted of any one or all of the following: gross alpha/beta/gamma activity, tritium, gamma spectroscopy/scan, americium-241, plutonium isotopes, and uranium isotopes.

^f TCLP = Toxicity characteristic leaching process.

^g Sample also analyzed for corrosivity, reactivity, and free liquid.

^h Request number. Only samples sent to sample management office (SMO) for off-site analysis were assigned request numbers.

TABLE 5.1.2-2

DETECTED INORGANIC ANALYTES^a IN WASTE-CHARACTERIZATION SAMPLES FOR PRS 0-030(m)

		TCLP ^b METALS							
LOCATION ID	SAMPLE ID	ARSENIC (mg/L)	BARIUM (mg/L)	CADMIUM (mg/L)	CHROMIUM (mg/L)	LEAD (mg/L)	SILVER (mg/L)		
00-04331	0100-95-0696	0.027(U) ^c	1.190	0.0437	0.0134	0.313	0.0062		
00-04332	0100-95-0697	0.027(U)	1.340	0.0601	0.0096(U)	0.398	0.0044(U)		
00-04333	0100-95-0698	0.027(U)	1.360	0.144	0.0096(U)	1.740	0.0044(U)		
00-04334	0100-95-0699	0.0329	0.894	0.131	0.0096(U)	0.0316	0.0044(U)		
		TAL ^d METALS							
LOCATION ID	SAMPLE ID	ALUMINUM (mg/kg)	ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	BERYLLIUM (mg/kg)	CADMIUM (mg/kg)	CALCIUM (mg/kg)	CHROMIUM (mg/kg)
00-04331	0100-95-0696	9 560	6.4(U)	2.8 ^e	230	1.6	3.5	2 910	13.9
00-04332	0100-95-0697	9 850	6.8(U)	3.3 ^e	208	3.5	2.9	2 910	21.1
00-04333	0100-95-0698	8 860	7.0B	4.0 ^e	149	8.2	2.2	2 340	10.1
00-04334	0100-95-0699	4 700	9.6B	1.5 ^e	74.8	55.0 ^e	0.76	1 320	6.1
		TAL METALS (CONTINUED)							
LOCATION ID	SAMPLE ID	COBALT	COPPER	IRON	LEAD (mg/L)	MAGNESIUM (mg/L)	MANGANESE	MERCURY (mg/L)	
00-04331	0100-95-0696	5.6 ^e	265	10 700	204	1 470	232	1.4	
00-04332	0100-95-0697	4.8 ^e	164	11 400	150	1 700	226	11.7	
00-04333	0100-95-0698	7.9 ^e	1 910	13 000	178	1 680	558	0.7	
00-04334	0100-95-0699	3.0 ^e	31.2	8 430	47.5	745	159	0.84	

TABLE 5.1.2-2 (CONTINUED)

DETECTED INORGANIC ANALYTES^a IN WASTE-CHARACTERIZATION SAMPLES FOR PRS 0-030(m)

LOCATION ID	SAMPLE ID	TAL METALS (CONTINUED)							
		NICKEL	POTASSIUM	SELENIUM (mg/L)	SILVER (mg/L)	SODIUM	THALLIUM	VANADIUM	ZINC
00-04331	0100-95-0696	6.9 ^e	1 150	0.71 ^e	4.0	244 ^e	0.23(U)	16.4	488
00-04332	0100-95-0697	6.9 ^e	1 270 ^e	0.98 ^e	1.9 ^e	200 ^e	2.5 ^e	18.1	298
00-04333	0100-95-0698	11.9	1 320	0.38(U)	1.3(U)	126 ^e	0.22(U)	21.0	335
00-04334	0100-95-0699	4.4 ^e	782 ^e	0.39(U)	1.3(U)	111 ^e	0.22(U)	10.8 ^e	140

^a Only inorganic analytes that were detected in a least one sample are presented in this table.

^b TCLP = Toxicity characteristics leaching procedure.

^c U = Undetected quantity.

^d TAL = Target analyte list.

^e Detected in blank.

**TABLE 5.1.2-3
RADIOLOGICAL RESULTS FOR PRS 0-030(m) WASTE-CHARACTERIZATION SAMPLES**

		MOBILE RADIOLOGICAL ANALYTICAL LABORATORY (MRAL)				
LOCATION ID	SAMPLE ID	GROSS ALPHA (pCu/g)	GROSS BETA (pCu/g)		TRITIUM (pCu/ml)	
00-04331	0100-95-0696	9.3 +/-9.0	13.9 +/-5.1		0.4 +/-0.2	
00-04332	0100-95-0697	28.8 +/-15.9	45.9 +/-9.3		0.2 +/-0.1	
00-04333	0100-95-0698	27.8 +/-15.6	50.6 +/-9.7		0.0 +/-0.3	
00-04334	0100-95-0699	8.3 +/-8.5	19.1 +/-6.0		0.0 +/-0.3	
		FIXED LABORATORY				
LOCATION ID	SAMPLE ID	URANIUM-234 (pCu/g)	URANIUM-235 (pCu/g)	URANIUM-238 (pCu/g)	PLUTONIUM-238 (pCu/g)	PLUTONIUM-239/240 (pCu/g)
00-04331	0100-95-0696	8.8 +/-1.1	0.40 +/-0.09	9.0 +/-1.1	0.04 +/-0.02	3.93 +/-0.49
00-04332	0100-95-0697	4.88 +/-0.61	0.22 +/-0.06	5.17 +/-0.65	0.03 +/-0.01	5.66 +/-0.69
00-04333	0100-95-0698	17.8 +/-2.2	0.61 +/-0.14	17.9 +/-2.2	0.02 +/-0.01	4.41 +/-0.54
00-04334	0100-95-0699	2.59 +/-0.36	0.12 +/-0.04	2.38 +/-0.33	0.00 +/-0.01	1.48 +/-0.20

TABLE 5.1.2-4

DETECTED ORGANIC ANALYTES^a IN WASTE-CHARACTERIZATION SAMPLES FOR PRS 0-030(m)

		VOCs ^b			PESTICIDES			
LOCATION ID	SAMPLE ID	ACETONE (mg/kg)	METHYL CHLORIDE (mg/kg)	4-ISOPROPYL TOLUENE (mg/kg)	ALPHA CHLORDANE (mg/kg)	4,4'-DDD ^c (mg/kg)	4,4'-DDE ^d (mg/kg)	4,4'-DDT ^e (mg/kg)
00-04331	0100-95-0696	ND ^f	0.0179	ND	0.033	6.5	0.33	0.61
00-04332	0100-95-0697	ND	0.0119	0.007	ND	3.6	0.26	0.3
00-04333	0100-95-0698	ND	0.0089	ND	ND	3.5	0.31	0.23
00-04334	0100-95-0699	ND	0.0289	ND	ND	0.053	0.02	0.036
		SVOCs ^h						
LOCATION ID	SAMPLE ID	ACENAPHTHENE (mg/kg)	ANTHRACENE (mg/kg)	BENZO(a) ANTHRACENE (mg/kg)	BENZO(b) FLUORANTHENE (mg/kg)	BENZO(a) PYRENE (mg/kg)		
00-04331	0100-95-0696	0.66	0.7	0.7	0.58	0.52		
00-04332	0100-95-0697	ND	ND	ND	ND	ND		
00-04333	0100-95-0698	ND	ND	ND	ND	ND		
00-04334	0100-95-0699	ND	ND	ND	ND	ND		

TABLE 5.1.2-4 (CONTINUED)

DETECTED ORGANIC ANALYTES^a IN WASTE-CHARACTERIZATION SAMPLES FOR PRS 0-030(m)

LOCATION ID	SAMPLE ID	SVOCs (CONTINUED)					
		CHRYSENE (mg/kg)	DI-N-BUTYL- PHALATE (mg/kg)	FLUORENE (mg/kg)	FLUORANTHENE (mg/kg)	PHENANTHRENE (mg/kg)	PYRENE (mg/kg)
00-04331	0100-95-0696	0.78	ND	0.81	2.3	2.9	1.8
00-04332	0100-95-0697	ND	0.84	ND	ND	ND	ND
00-04333	0100-95-0698	ND	0.53	ND	ND	ND	ND
00-04334	0100-95-0699	ND	ND	ND	ND	ND	ND

^a Only organic analytes that were detected in a least one sample are presented in this table.

^b VOCs = Volatile organic compounds.

^c DDD = Dichlorodiphenyldichloroethene.

^d DDE = Dichlorodiphenyldichloroethylene.

^e DDT = Dichlorotriphenyldichloroethene.

^f ND = Not detected.

^g Detected in blank.

^h SVOCs = Semivolatile organic compounds.

5.1.3 PRS 0-033(a)

Two soil samples were collected for waste characterization purposes. These samples were analyzed for organic and radiological constituents in addition to other waste disposal parameters. A summary of samples collected is presented in Table 5.1.3-1.

TABLE 5.1.3-1

SUMMARY OF WASTE-CHARACTERIZATION SAMPLES COLLECTED AT PRS 0-033(a)

SAMPLE INFORMATION			ANALYTICAL SUITE AND REQUEST NUMBER			
LOCATION ID	SAMPLE ID	MATRIX	VOCs ^a	BTEX ^b	TPH ^c	RAD ^d
n/a ^e	0100-95-0747	Soil	X ^f	X	X	X
n/a	0100-95-0748	Soil	X	X	X	X

^a VOCs = Volatile organic compounds.

^b BTEX = Benzene, toluene, ethylene, and xylene.

^c TPH = Total petroleum hydrocarbons.

^d RAD = Radiological analysis consisted of any one or all of the following: gross alpha/beta/gamma activity, tritium, gamma spectroscopy/scan, americium-241, plutonium isotopes, and uranium isotopes.

^e n/a = Not applicable.

^f X = Analyzed, but not assigned a request number. All samples sent to MCAL and MRAL were not assigned a request number.

The results of the waste-characterization analyses are presented in Tables 5.1.3-2 and 5.1.3-3.

TABLE 5.1.3-2

RADIOLOGICAL RESULTS FOR PRS 0-033(a) WASTE-CHARACTERIZATION SAMPLES

LOCATION ID	SAMPLE ID	GROSS ALPHA (pCu/g)	GROSS BETA (pCu/g)	TRITIUM (pCu/ml)
00-04331	0100-95-0696	9.3 +/-9.0	13.9 +/-5.1	0.4 +/-0.2
00-04332	0100-95-0697	28.8 +/-15.9	45.9 +/-9.3	0.2 +/-0.1

TABLE 5.1.3-3
DETECTED ORGANIC ANALYTES^a IN WASTE-CHARACTERIZATION SAMPLES FOR PRS 0-033(a)

		VOCs ^b				
LOCATION ID	SAMPLE ID	ACETONE	2-BUTANONE	SEC-BUTYL-BENZENE	ISOPROPYL-BENZENE	METHYLENE CHLORIDE
n/a ^c	0100-95-0747	1.09	0.24	0.041	0.037	0.048
n/a	0100-95-0748	ND ^d	ND	ND	ND	ND
		VOCs (CONTINUED)				
LOCATION ID	SAMPLE ID	NAPHTHALENE	N-PROPYL-BENZENE	1,2,4-TRI-METHYLBENZENE	1,3,5-TRI-METHYLBENZENE	
n/a	0100-95-0747	0.249	0.078	0.228	0.052	
n/a	0100-95-0748	0.067	0.012	0.027	0.04	
		BTEX ^e				
LOCATION ID	SAMPLE ID	TOLUENE	ETHYLBENZENE	XYLENES	TPH ^f	
n/a	0100-95-0747	0.061	0.123	0.157	11 331	
n/a	0100-95-0748	ND	0.014	ND	2 232	

^a Only organic analytes that were detected in a least one sample are presented in this table.

^b VOCs = Volatile organic compounds.

^c n/a = Not applicable.

^d ND = Not detected.

^e BTEX = Benzene, toluene, ethylbenzene, and xylenes.

^f TPH = Total petroleum hydrocarbons.

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APPENDIX A DATA QUALITY EVALUATION TABLES

Appendix A presents data quality assurance/quality control (QA/QC) comments and qualifications relevant to PRSs 0-030(l), 0-030(m), and 0-033(a) investigations. Only those samples sent to an offsite laboratory for analyses are evaluated in the following tables. No samples for PRS 0-033(a) were submitted to an offsite fixed laboratory for analysis; therefore, there are no QA/QC comments or qualifications for PRS 0-033(a) samples.

TABLE A-1
DATA QUALITY EVALUATION FOR PRS 0-030(I)
SITE-CHARACTERIZATION SAMPLES

SAMPLE ID	REQUEST NUMBER	MATRIX	ANALYTE SUITE	QUALITY CONTROL (QC) COMMENTS
0100-95-0627	781	Soil	TAL ^a metals	Selenium and antimony qualified "UJ" ^b for low recovery in matrix spike sample. Lead qualified "J" ^c for high % RPD ^d for duplicate sample.
0100-95-0669	990	Soil	TAL metals	All data valid without qualification.
0100-95-0670	990	Soil	TAL metals	All data valid without qualification.
0100-95-0671	990	Soil	TAL metals	All data valid without qualification.
0100-95-0668	784	Soil	RAD ^e	All data valid without qualification.
0100-95-0669	785	Soil	RAD	All data valid without qualification.
0100-95-0670	785	Soil	RAD	All data valid without qualification.
0100-95-0671	785	Soil	RAD	All data valid without qualification.
0100-95-0672	785	Soil	RAD	All data valid without qualification.
0100-95-0458	868	Soil	RAD	All data valid without qualification.
0100-95-0459	868	Soil	RAD	All data valid without qualification.
0100-95-0490	1003	Soil	RAD	All data valid without qualification.
0100-95-0668	780	Soil	SVOCs ^f	All data valid without qualification.
0100-95-0669	782	Soil	SVOCs	All data valid without qualification.
0100-95-0670	782	Soil	SVOCs	All data valid without qualification.
0100-95-0671	782	Soil	SVOCs	All data valid without qualification.
0100-95-0672	782	Soil	SVOCs	All data valid without qualification.
0100-95-0514	822	Soil	SVOCs	All data valid without qualification.
0100-95-0519	822	Soil	SVOCs	All data valid without qualification.
0100-95-0458	865	Soil	SVOCs	All data valid without qualification.
0100-95-0459	865	Soil	SVOCs	All data valid without qualification.
0100-95-0490	1002	Soil	SVOCs	All data valid without qualification.
0100-95-0669	782	Soil	Pesticides/PCBs ^g	All data valid without qualification. High surrogate recovery on DB1701 column, some P values ^h .
0100-95-0670	782	Soil	Pesticides/PCBs	All data valid without qualification, some P values
0100-95-0671	782	Soil	Pesticides/PCBs	All data valid without qualification, some P values
0100-95-0672	782	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0514	822	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0519	822	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0458	865	Soil	Pesticides/PCBs	All data valid without qualification.

TABLE A-1 (CONTINUED)
DATA QUALITY EVALUATION FOR PRS 0-030(I)
SITE-CHARACTERIZATION SAMPLES

SAMPLE ID	REQUEST NUMBER	MATRIX	ANALYTE SUITE	QUALITY CONTROL (QC) COMMENTS
0100-95-0459	865	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0490	1002	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0668	780	Soil	Pesticides/PCBs ^a	All data valid without qualification.

^a TAL = Target analyte list metals.

^b UJ = Undetected estimated quantity.

^c J = Estimated quantity.

^d % RPD = Relative percent difference.

^e RAD = Radiological analysis.

^f SVOCs = Semivolatile organic compounds.

^g PCBs = Polychlorinated biphenyls.

^h P values = Professional judgement value.

TABLE A-2
DATA QUALITY EVALUATION FOR PRS 0-030(I)
CONFIRMATORY SAMPLES

SAMPLE ID	REQUEST NUMBER	MATRIX	ANALYTE SUITE	QUALITY CONTROL (QC) COMMENTS
0100-95-0701	1352	Soil	TAL ^a metals	Selenium and antimony qualified as "UJ" ^b for low recovery in matrix spike sample. Lead qualified "J" ^c for high recovery in matrix spike sample and high % RPD ^d for duplicate sample. Manganese qualified "J" for high recovery in matrix spike sample.
0100-95-0694	1353	Soil	RAD ^e	All data valid without qualification.
0100-95-0695	1353	Soil	RAD	All data valid without qualification.
0100-95-0694	1351	Soil	SVOCs ^f	All data valid without qualification.
0100-95-0695	1351	Soil	SVOCs	All data valid without qualification.
0100-95-0694	1351	Soil	Pesticides/PCBs ^g	All data valid without qualification.
0100-95-0695	1351	Soil	Pesticides/PCBs	All data valid without qualification.

^a TAL = Target analyte list metals.

^b UJ = Undetected estimated quantity.

^c J = Estimated quantity.

^d % RPD = Relative percent difference.

^e RAD = Radiological analysis.

^f SVOCs = Semivolatile organic compounds.

^g PCBs = Polychlorinated biphenyls.

TABLE A-3
DATA QUALITY EVALUATION FOR PRS 0-030(I)
WASTE-CHARACTERIZATION SAMPLES

SAMPLE ID	REQUEST NUMBER	MATRIX	ANALYTE SUITE	QUALITY CONTROL (QC) COMMENTS
0100-95-0690	1329	Soil	TAL ^a metals	All data valid without qualification.
0100-95-0691	1329	Soil	TAL metals	All data valid without qualification.
0100-95-0692	1329	Soil	TAL metals	All data valid without qualification.
0100-95-0693	1329	Soil	TAL metals	All data valid without qualification.
0100-95-0690	1328	Soil	VOCs ^b	Blank contamination caused the EQL ^c for methylene chloride to be raised.
0100-95-0691	1328	Soil	VOCs	Blank contamination caused the EQL for methylene chloride to be raised.
0100-95-0692	1328	Soil	VOCs	Blank contamination caused the EQL for methylene chloride to be raised.
0100-95-0693	1328	Soil	VOCs	Blank contamination caused the EQL for methylene chloride to be raised.
0100-95-0690	1328	Soil	TCLP ^d VOCs	All data valid without qualification.
0100-95-0691	1328	Soil	TCLP VOCs	All data valid without qualification.
0100-95-0692	1328	Soil	TCLP VOCs	All data valid without qualification.
0100-95-0693	1328	Soil	TCLP VOCs	All data valid without qualification.
0100-95-0690	1328	Soil	SVOCs ^e	All data valid without qualification.
0100-95-0691	1328	Soil	SVOCs	All data valid without qualification.
0100-95-0692	1328	Soil	SVOCs	All data valid without qualification.
0100-95-0693	1328	Soil	SVOCs	All data valid without qualification.
0100-95-0690	1328	Soil	TCLP SVOCs	All data valid without qualification.
0100-95-0691	1328	Soil	TCLP SVOCs	All data valid without qualification.
0100-95-0692	1328	Soil	TCLP SVOCs	All data valid without qualification.
0100-95-0693	1328	Soil	TCLP SVOCs	All data valid without qualification.
0100-95-0690	1328	Soil	Pesticides/PCBs ^f	All data valid without qualification.
0100-95-0691	1328	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0692	1328	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0693	1328	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0690	1328	Soil	TCLP pesticides/PCBs	All data valid without qualification.
0100-95-0691	1328	Soil	TCLP pesticides/PCBs	All data valid without qualification.
0100-95-0692	1328	Soil	TCLP pesticides/PCBs	All data valid without qualification.

TABLE A-3 (CONTINUED)

DATA QUALITY EVALUATION FOR PRS 0-030(l)
WASTE-CHARACTERIZATION SAMPLES

SAMPLE ID	REQUEST NUMBER	MATRIX	ANALYTE SUITE	QUALITY CONTROL (QC) COMMENTS
0100-95-0693	1328	Soil	TCLP pesticides/PCBs	All data valid without qualification.
0100-95-0690	1328	Soil	Herbicides	All data valid without qualification.
0100-95-0691	1328	Soil	Herbicides	All data valid without qualification.
0100-95-0692	1328	Soil	Herbicides	All data valid without qualification.
0100-95-0693	1328	Soil	Herbicides	All data valid without qualification.

- ^a TAL = Target analyte list metals.
^b VOCs = Volatile organic compounds.
^c EQL = Estimated quantitation limit.
^d TCLP = Toxicity leaching characteristics procedure.
^e SVOCs = Semivolatile organic compounds.
^f PCBs = Polychlorinated biphenyls.

TABLE A-4
DATA QUALITY EVALUATION FOR PRS 0-030(m)
SITE-CHARACTERIZATION SAMPLES

SAMPLE ID	REQUEST NUMBER	MATRIX	ANALYTE SUITE	QUALITY CONTROL (QC) COMMENTS
0100-95-0466	866	Soil	TAL ^a metals	Nickel, copper, and zinc qualified "J" ^b for high % RPD ^c in duplicate sample. Antimony qualified "UJ" ^d for low recovery in matrix spike sample.
0100-95-0526	990	Soil	TAL metals	Antimony qualified "UJ" for low recovery in matrix spike sample. Beryllium, cadmium, manganese, and silver qualified "+J" ^e for high recovery in matrix spike sample. Thorium qualified "-J" ^f for low recovery in matrix spike sample. Lead and potassium qualified "J" for high % RPD for duplicate sample. Zinc and chromium qualified "J" for high % RPD in serial dilution sample.
0100-95-0673	990	Soil	TAL metals	All data valid without qualification.
0100-95-0526	1122	Soil	TCLP9 TAL metals	All data valid without qualification.
0100-95-0454	798	Soil	RAD ^h	All data valid without qualification.
0100-95-0461	868	Soil	RAD	All data valid without qualification.
0100-95-0462	868	Soil	RAD	All data valid without qualification.
0100-95-0463	868	Soil	RAD	All data valid without qualification.
0100-95-0464	868	Soil	RAD	All data valid without qualification.
0100-95-0465	868	Soil	RAD	All data valid without qualification.
0100-95-0467	868	Soil	RAD	Tritium qualified "J" for high % RPD in duplicate analysis.
0100-95-0480	991	Soil	RAD	All data valid without qualification.
0100-95-0482	991	Soil	RAD	All data valid without qualification.
0100-95-0483	991	Soil	RAD	All data valid without qualification.
0100-95-0483	994	Soil	RAD	All data valid without qualification.
0100-95-0526	792	Soil	RAD	All data valid without qualification.
0100-95-0673	792	Soil	RAD	All data valid without qualification.
0100-95-0454	796	Soil	SVOCs ⁱ	All data valid without qualification.
0100-95-0461	865	Soil	SVOCs	All data valid without qualification.
0100-95-0462	865	Soil	SVOCs	All data valid without qualification.
0100-95-0463	865	Soil	SVOCs	Two analytes qualified "UJ" for low internal standard area. Five analytes qualified "-J" for low internal standard area.

TABLE A-4 (CONTINUED)

**DATA QUALITY EVALUATION FOR PRS 0-030(m)
SITE-CHARACTERIZATION SAMPLES**

SAMPLE ID	REQUEST NUMBER	MATRIX	ANALYTE SUITE	QUALITY CONTROL (QC) COMMENTS
0100-95-0464	865	Soil	SVOCs	Two analytes qualified "UJ" for low internal standard area. Five analytes qualified "-J" for low internal standard area.
0100-95-0465	865	Soil	SVOCs	Two analytes qualified "UJ" for low internal standard area. Five analytes qualified "-J" for low internal standard area.
0100-95-0480	989	Soil	SVOCs	All data valid without qualification.
0100-95-0481	989	Soil	SVOCs	All data valid without qualification.
0100-95-0482	989	Soil	SVOCs	All data valid without qualification.
0100-95-0483	992	Soil	SVOCs	All data valid without qualification.
0100-95-0526	791	Soil	SVOCs	All data valid without qualification.
0100-95-0673	791	Soil	SVOCs	All data valid without qualification.
0100-95-0674	796	Soil	SVOCs	All data valid without qualification.
0100-95-0676	796	Soil	SVOCs	All data valid without qualification.
0100-95-0677	796	Soil	SVOCs	All data valid without qualification.
0100-95-0454	796	Soil	Pesticides/PCBs ^l	All data valid without qualification.
0100-95-0461	865	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0462	865	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0463	865	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0464	865	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0465	865	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0480	989	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0481	989	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0482	989	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0483	992	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0526	791	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0673	791	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0674	796	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0676	796	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0677	796	Soil	Pesticides/PCBs	All data valid without qualification.

^a TAL = Target analyte list metals.

^b U = Undetected quantity.

^c % RPD = Relative percent difference.

^d UJ = Undetected estimated quantity.

^e +J = Estimated quantity, high bias.

^f -J = Estimated quantity, low bias.

^g TCLP = Toxicity leaching characteristics procedure.

^h RAD = Radiological analysis.

ⁱ SVOCs = Semivolatile organic compounds.

^l PCBs = Polychlorinated biphenyls.

TABLE A-5
DATA QUALITY EVALUATION FOR PRS 0-030(m)
CONFIRMATORY SAMPLES

SAMPLE ID	REQUEST NUMBER	MATRIX	ANALYTE SUITE	QUALITY CONTROL (QC) COMMENTS
0100-95-0914	1612	Soil	RAD ^a	All data valid without qualification.
0100-95-0915	1612	Soil	RAD	All data valid without qualification.
0100-95-0914	1611	Soil	SVOCs ^b	All data valid without qualification.
0100-95-0915	1611	Soil	SVOCs	All data valid without qualification.
0100-95-0914	1611	Soil	Pesticides/PCBs ^c	All data valid without qualification.
0100-95-0915	1611	Soil	Pesticides/PCBs	All data valid without qualification.

^a RAD = Radiological analysis.

^b SVOCs = Semivolatile organic compounds.

^c PCBs = Polychlorinated biphenyls.

TABLE A-6

**DATA QUALITY EVALUATION FOR PRS 0-030(m)
WASTE-CHARACTERIZATION SAMPLES**

SAMPLE ID	REQUEST NUMBER	MATRIX	ANALYTE SUITE	QUALITY CONTROL (QC) COMMENTS
0100-95-0696	1326	Soil	TAL ^a metals	Lead, manganese, selenium, zinc, and silver qualified "-J" ^b for low recovery in matrix spike sample. Arsenic and thorium qualified "UJ" ^c for low recovery in matrix spike sample. Mercury qualified "+J" ^d for high recovery in matrix spike sample.
0100-95-0697	1326	Soil	TAL metals	Lead, manganese, selenium, zinc, and silver qualified "-J" for low recovery in matrix spike sample. Arsenic and thorium qualified "UJ" for low recovery in matrix spike sample. Mercury qualified "+J" for high recovery in matrix spike sample.
0100-95-0698	1326	Soil	TAL metals	Lead, manganese, and zinc qualified "-J" for low recovery in matrix spike sample. Arsenic, selenium, silver, and thorium qualified "UJ" for low recovery in matrix spike sample. Mercury qualified "+J" for high recovery in matrix spike sample.
0100-95-0699		Soil	TAL metals	Lead, manganese, and zinc qualified "-J" for low recovery in matrix spike sample. Arsenic, selenium, silver, and thorium qualified "UJ" for low recovery in matrix spike sample. Mercury qualified "+J" for high recovery in matrix spike sample.
0100-95-0697	1326	Soil	TCLP ^e TAL metals	All data valid without qualification.
0100-95-0698	1326	Soil	TCLP TAL metals	All data valid without qualification.
0100-95-0699	1326	Soil	TCLP TAL metals	All data valid without qualification.
0100-95-0696	1326	Soil	TCLP TAL metals	All data valid without qualification.
0100-95-0696	1325	Soil	VOCs ^f	Blank contamination caused EQL to be raised for methylene chloride.
0100-95-0697	1325	Soil	VOCs	Blank contamination caused EQL ^g to be raised for methylene chloride. Seventeen analytes qualified "UJ" for low internal standard areas.
0100-95-0698	1325	Soil	VOCs	Acetone qualified "+J" for high surrogate recovery. Twenty-eight analytes qualified "UJ" for low internal standard areas.
0100-95-0699	1325	Soil	VOCs	Methylene chloride qualified "+J" for high surrogate recovery.

TABLE A-6 (CONTINUED)
DATA QUALITY EVALUATION FOR PRS 0-030(m)
WASTE-CHARACTERIZATION SAMPLES

SAMPLE ID	REQUEST NUMBER	MATRIX	ANALYTE SUITE	QUALITY CONTROL (QC) COMMENTS
0100-95-0696	1325	Soil	TCLP VOCs	All data valid without qualification.
0100-95-0697	1325	Soil	TCLP VOCs	All data valid without qualification.
0100-95-0698	1325	Soil	TCLP VOCs	All data valid without qualification.
0100-95-0699	1325	Soil	TCLP VOCs	All data valid without qualification.
0100-95-0696	1325	Soil	SVOCs ^h	All data valid without qualification.
0100-95-0697	1325	Soil	SVOCs	All data valid without qualification.
0100-95-0698	1325	Soil	SVOCs	All data valid without qualification.
0100-95-0699	1325	Soil	SVOCs	All data valid without qualification.
0100-95-0696	1325	Soil	TCLP SVOCs	All data valid without qualification.
0100-95-0697	1325	Soil	TCLP SVOCs	All data valid without qualification.
0100-95-0698	1325	Soil	TCLP SVOCs	All data valid without qualification.
0100-95-0699	1325	Soil	TCLP SVOCs	All data valid without qualification.
0100-95-0696	1325	Soil	Pesticides/PCBs ⁱ	All data valid without qualification.
0100-95-0697	1325	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0698	1325	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0699	1325	Soil	Pesticides/PCBs	All data valid without qualification.
0100-95-0696	1325	Soil	TCLP pesticides/PCBs	All data valid without qualification.
0100-95-0697	1325	Soil	TCLP pesticides/PCBs	All data valid without qualification.
0100-95-0698	1325	Soil	TCLP pesticides/PCBs	All data valid without qualification.
0100-95-0699	1325	Soil	TCLP pesticides/PCBs	All data valid without qualification.

^a TAL = Target analyte list metals.

^b J = Estimated quantity, low bias.

^c UJ = Undetected estimated quantity.

^d +J = Estimated quantity, high bias.

^e TCLP = Toxicity leaching characteristics procedure.

^f VOCs = Volatile organic compounds.

^g EQL = Estimated quantitation limit.

^h SVOCs = Semivolatile organic compounds.

ⁱ PCBs = Polychlorinated biphenyls.

APPENDIX B FORTY-FIVE-DAY REPORT

Attached is the 45-day report for fuel oil Underground storage tank (UST) releases at Technical Area 0, 6th Street Warehouses.

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APPENDIX C SAMPLE DATA TABLES

The following inorganic and radionuclide chemical analyses data tables provide all data for all samples with one or more analytes greater than background threshold concentrations. The organic analyses tables provide all data for all samples with one or more analytes greater than the estimated quantitation limit (EQL). To review tables showing only those concentrations of inorganic and radionuclide analytes greater than background threshold concentrations and all concentrations of organic analytes greater than EQLs, see Sections 2.0 and 3.0 of this report. Samples with analyte concentrations greater than screening action levels (SALs) are also presented in Sections 2.0 and 3.0.

TABLE C-1

**INORGANICS WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD
CONCENTRATIONS IN SITE-CHARACTERIZATION DATA FOR PRS 0-030(I)**

		ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	CADMIUM (mg/kg)	CALCIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	IRON (mg/kg)
	SAL ^a	31	N/A ^b	5 300	38	N/A	211	2 800	N/A
LABORATORY ANALYSIS									
LOCATION ID	SAMPLE ID	ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	CADMIUM (mg/kg)	CALCIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	IRON (mg/kg)
UTL ^c	n/a ^d	1	7.82	315	2.7	6 120	19.3	15.5	21 300
00-04423	0100-95-0627	0.7506	3.4	90.2362	0.4879	2199.1876	6.5033	23.3709	9167.3488
00-04321	0100-95-0669	0.73	2.5	117	0.5	3 060	11.8	38.7	10 700
00-04324	0100-95-0670	1.2	7.8	925	2.3	10 900	35.9	247	33 100
00-04325	0100-95-0671	0.73	4.8	214	0.99	3 760	24.3	82.4	16 300
XRF^e ANALYSIS									
LOCATION ID	SAMPLE ID	ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	CADMIUM (mg/kg)	CALCIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	IRON (mg/kg)
UTL	n/a	1.59 ^f	10.81 ^f	828.9 ^f	1.7	8 380	71.07 ^f	15.5	48 640
00-04423	0100-95-0668	-4	-4	256	-3	5 860	24.9	24.3	15 800
00-04325	0100-95-0671	-4	-4	410	-4	5 980	57	44.5	17 600
00-04321	0100-95-0669	-4	-4	318	-3	8 250	25.9	63.4	18 900
00-04324	0100-95-0670	-4	-4	1 254	3.43	27 100	114	291	43 000
00-04240	0100-95-0459	-4	-4	250	-3	5 260	-12	21.5	18 200
00-04222	0100-95-0514	-4	-4	205	-3	5 130	26.2	33.9	14 900
00-04226	0100-95-0519	-4	10.4	236	-3	5 290	25.9	17.9	15 200
00-04230	0100-95-0456	10	-4	571	-4	6 950	19	52.1	22 800
00-04230	0100-95-0672	-4	-4	140	-4	2 080	21.8	-8	13 300
00-04239	0100-95-0458	-4	12.5	301	-3	8 580	12.7	62	19 600

TABLE C-1 (CONTINUED)

**INORGANICS WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD
CONCENTRATIONS IN SITE-CHARACTERIZATION DATA FOR PRS 0-030(I)**

		LEAD (mg/kg)	MAGNESIUM (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	THALLIUM (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
	SAL	400	N/A	23	1 500	380	5.4	230	23 000
LABORATORY ANALYSIS									
LOCATION ID	SAMPLE ID	LEAD (mg/kg)	MAGNESIUM (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	THALLIUM (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
UTL	n/a	23.3	4 610	0.1	15.2	N/A	1	N/A	50.8
00-04423	0100-95-0627	29.0662 ^f	1403.3863	0.2781	5.6026	0.1876	1.4	NA	107.3113
00-04321	0100-95-0669	27.4	2 090	0.84	9.9	0.45	2.3	NA	108
00-04324	0100-95-0670	101	12 400	0.05	85.4	1.3	1.9	NA	604
00-04325	0100-95-0671	55.4	5 350	0.01	30.1	0.99	1.3	NA	238
XRF ANALYSIS									
LOCATION ID	SAMPLE ID	LEAD (mg/kg)	MAGNESIUM (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	THALLIUM (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
UTL	n/a	56 ^f	N/A	0.1	15.2	N/A	N/A	6.73 ^f	146.2 ^f
00-04310	0100-95-0490	-4	-4	212	-3	5 900	-12	12	13 990
00-04423	0100-95-0668	38.6	NA	-5	-13	NA	NA	-8	139
00-04325	0100-95-0671	41.8	NA	-5	-13	NA	NA	-8	154
00-04321	0100-95-0669	37.8	NA	-5	20.8	NA	NA	-8	146
00-04324	0100-95-0670	177	NA	10.4	111	NA	NA	8.61	773
00-04240	0100-95-0459	34.4	NA	-5	-13	NA	NA	9.63	72.5
00-04222	0100-95-0514	31.6	NA	-5	-13	NA	NA	-8	65.8
00-04226	0100-95-0519	26.5	NA	-5	-13	NA	NA	-8	76.1
00-04230	0100-95-0456	161	NA	-5	-13	NA	NA	12.5	364
00-04230	0100-95-0672	18.6	NA	-5	-13	NA	NA	-8	51.5
00-04239	0100-95-0458	44.4	NA	-5	13.1	NA	NA	-8	105
00-04310	0100-95-0490	28	NA	-5	-13	NA	NA	13	68

^a SAL = Screening action level.

^b N/A = Not available.

^c UTL = Upper tolerance limit.

^d n/a = Not applicable.

^e XRF = X-ray fluorescence spectroscopy.

^f = Background value taken from Longmire, Duffy, and Reneau, (Longmire et al. 1993, 0958) "Preliminary Background Elemental Concentrations In Bandelier Tuff and Selected Soil Series, 1993," Los Alamos National Laboratory unpublished report.

TABLE C-2

**RADIONUCLIDES WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD
CONCENTRATIONS IN SITE-CHARACTERIZATION DATA FOR PRS 0-030(I)**

LOCATION ID	SAMPLE ID	COBALT-60 (pCi/g)	NEPTUNIUM-237 (pCi/g)	PLUTONIUM- 239/240 (pCi/g)
UTL ^a	n/a ^b	N/A ^c	N/A	0.052
SAL ^d	n/a	1.1	1.9	24
00-04239	0100-95-0458	-0.0136	0.017	0.08
00-04310	0100-95-0490	-0.0073	-0.0292	0.145
00-04324	0100-95-0670	0.081	0.093	NA ^e

^a UTL = Upper tolerance limit.

^b n/a = Not applicable.

^c N/A = Not available.

^d SAL = Screening action level.

^e NA = Not analyzed.

TABLE C-3
**ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLs^a IN SITE-
 CHARACTERIZATION DATA FOR PRS 0-030(I)**

LOCATION ID	SAMPLE ID	ANTHRACENE (mg/kg)	BENZO[a]ANTHRACENE (mg/kg)	BENZO[a]PYRENE (mg/kg)	BENZO[b]FLUORANTHENE (mg/kg)
SAL ^b	n/a ^c	19	0.61	0.061	0.61
00-04239	0100-95-0458	0.39(U) ^d	0.14(J) ^e	0.12(J)	0.11(J)
00-04240	0100-95-0459	0.4(U)	0.4(U)	0.4(U)	0.1(J)
00-04310	0100-95-0490	0.36(U)	0.36(U)	0.36(U)	0.36(U)
00-04222	0100-95-0514	0.36(U)	0.36(U)	0.36(U)	0.36(U)
00-04226	0100-95-0519	0.37(U)	0.37(U)	0.37(U)	0.37(U)
00-04423	0100-95-0668	0.36(U)	0.36(U)	0.36(U)	0.36(U)
00-04321	0100-95-0669	0.14(J)	0.3(J)	0.43	0.43
00-04324	0100-95-0670	0.41(U)	0.18(J)	0.15(J)	0.16(J)
00-04325	0100-95-0671	0.36(U)	0.2(J)	0.19(J)	0.2(J)
00-04230	0100-95-0672	0.38(U)	0.38(U)	0.38(U)	0.38(U)

LOCATION ID	SAMPLE ID	BENZO[g,h,i]PERYLENE (mg/kg)	BENZO[k]FLUORANTHENE (mg/kg)	CHLORDANE [ALPHA-] (mg/kg)	CHLORDANE [GAMMA-] (mg/kg)
SAL	n/a	N/A ^f	6.1	0.34	0.34
00-04239	0100-95-0458	0.39(U)	0.13(J)	0.002(U)	0.002(U)
00-04240	0100-95-0459	0.4(U)	0.4(U)	0.00207(U)	0.00207(U)
00-04310	0100-95-0490	0.36(U)	0.36(U)	0.00188(U)	0.00188(U)
00-04222	0100-95-0514	0.36(U)	0.36(U)	0.0018(U)	0.00062(J)
00-04226	0100-95-0519	0.37(U)	0.37(U)	0.00077(J)	0.0018(U)
00-04423	0100-95-0668	0.36(U)	0.36(U)	0.00186(U)	0.00186(U)
00-04321	0100-95-0669	0.29(J)	0.36	0.00184(U)	0.00184(U)
00-04324	0100-95-0670	0.41(U)	0.13(J)	0.00212(U)	0.00212(U)
00-04325	0100-95-0671	0.12(J)	0.18(J)	0.00184(U)	0.00184(U)
00-04230	0100-95-0672	0.38(U)	0.38(U)	0.00194(U)	0.00194(U)

LOCATION ID	SAMPLE ID	CHRYSENE (mg/kg)	DDD [p,p'] ^g (mg/kg)	DDE [p,p'] ^h (mg/kg)	DDT [p,p'] ⁱ (mg/kg)	DIBENZO[a,h]ANTHRACENE (mg/kg)
SAL	n/a	24	1.9	1.3	1.3	0.061
00-04239	0100-95-0458	0.17(J)	0.00388(U)	0.00696	0.0136	0.39(U)
00-04240	0100-95-0459	0.087(J)	0.07	0.0117	0.154	0.4(U)
00-04310	0100-95-0490	0.36(U)	0.00365(U)	0.00365(U)	0.00365(U)	0.36(U)
00-04222	0100-95-0514	0.36(U)	0.0036(U)	0.0058	0.0079	0.36(U)
00-04226	0100-95-0519	0.37(U)	0.0036(U)	0.032	0.033	0.37(U)
00-04423	0100-95-0668	0.11(J)	0.00362(U)	0.00616	0.0136	0.36(U)
00-04321	0100-95-0669	0.85	0.0114	0.00778	0.0164	0.091(J)
00-04324	0100-95-0670	0.2(J)	0.00411(U)	0.00411(U)	0.00912	0.41(U)
00-04325	0100-95-0671	0.24(J)	0.00816	0.00358(U)	0.0374	0.36(U)
00-04230	0100-95-0672	0.38(U)	0.00376(U)	0.00376(U)	0.00376(U)	0.38(U)

TABLE C-3 (CONTINUED)

**ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLs IN SITE-
CHARACTERIZATION DATA FOR PRS 0-030(I)**

LOCATION ID	SAMPLE ID	DICHLOROBENZENE (1,4) [p-] (mg/kg)	DIELDRIN (mg/kg)	ENDOSULFAN II (mg/kg)	ENDRIN KETONE (mg/kg)	FLUORANTHENE (mg/kg)
SAL	n/a	7.4	0.028	3.3	20	2 600
00-04239	0100-95-0458	0.39(U)	0.00388(U)	0.00388(U)	0.00388(U)	0.25(J)
00-04240	0100-95-0459	0.4(U)	0.00401(U)	0.00401(U)	0.00401(U)	0.4(U)
00-04310	0100-95-0490	0.36(U)	0.00365(U)	0.00365(U)	0.00365(U)	0.36(U)
00-04222	0100-95-0514	0.36(U)	0.0036(U)	0.00082(J)	NA ^j	0.36(U)
00-04226	0100-95-0519	0.37(U)	0.00058(J)	0.00075(J)	NA	0.37(U)
00-04423	0100-95-0668	0.36(U)	0.00362(U)	0.00362(U)	0.00362(U)	0.36(U)
00-04321	0100-95-0669	0.36(U)	0.00357(U)	0.00357(U)	0.00526	0.073(J)
00-04324	0100-95-0670	0.13(J)	0.00411(U)	0.00411(U)	0.00411(U)	0.23(J)
00-04325	0100-95-0671	0.36(U)	0.00358(U)	0.00358(U)	0.00358(U)	0.28(J)
00-04230	0100-95-0672	0.38(U)	0.00376(U)	0.00376(U)	0.00376(U)	0.38(U)

LOCATION ID	SAMPLE ID	INDENO[1,2,3-cd] PYRENE (mg/kg)	METHOXYCHLOR (mg/kg)	NITROANILINE [2-] (mg/kg)	PHENANTHRENE (mg/kg)	PYRENE (mg/kg)	TETRACHLORO- ETHENE (mg/kg)
SAL	n/a	0.61	330	3.9	N/A	2 000	7.0
00-04239	0100-95-0458	0.39(U)	0.02(U)	0.94(U)	0.098(J)	0.18(J)	0.01(U)
00-04240	0100-95-0459	0.4(U)	0.0207(U)	0.97(U)	0.4(U)	0.4(U)	0.01(U)
00-04310	0100-95-0490	0.36(U)	0.0188(U)	0.88(U)	0.36(U)	0.36(U)	0.01(U)
00-04222	0100-95-0514	0.36(U)	0.018(U)	1.8(U)	0.36(U)	0.36(U)	0.01(U)
00-04226	0100-95-0519	0.37(U)	0.003(J)	1.8(U)	0.37(U)	0.37(U)	0.01(U)
00-04423	0100-95-0668	0.36(U)	0.0186(U)	0.88	0.36(U)	0.36(U)	0.01(U)
00-04321	0100-95-0669	0.32(J)	0.0184(U)	0.86(U)	0.36(U)	0.078(J)	0.01(U)
00-04324	0100-95-0670	0.084(J)	0.0212(U)	1(U)	0.41(U)	0.19(J)	0.038
00-04325	0100-95-0671	0.12(J)	0.0184(U)	0.87(U)	0.36(U)	0.25(J)	0.045
00-04230	0100-95-0672	0.38(U)	0.0194(U)	0.91(U)	0.38(U)	0.38(U)	0.01(U)

^a EQLs = Estimated quantitation limits.

^b SAL = Screening action level.

^c n/a = Not applicable.

^d U = Undetected quantity.

^e J = The analyte was positively identified, but the associated numerical value is only an approximate concentration of the analyte in the sample.

^f N/A = Not available.

^g DDD = Dichlorodiphenyldichloroethane.

^h DDE = Dichlorodiphenyldichloroethylene.

ⁱ DDT = Dichlorodiphenyltrichloroethane.

^j NA = Not analyzed.

TABLE C-4

**INORGANICS WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD
CONCENTRATIONS IN CONFIRMATORY DATA FOR PRS 0-030(I)**

LOCATION ID	SAMPLE ID	NICKEL (mg/kg)
UTL ^a	n/a ^b	15.2
SAL ^c	n/a	1 500
00-004319	0100-95-0695	19

^a UTL = Upper tolerance limit.

^b n/a = Not applicable.

^c SAL = Screening action level.

TABLE C-5

**RADIONUCLIDES WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD
CONCENTRATIONS IN CONFIRMATORY DATA FOR PRS 0-030(I)**

LOCATION ID	SAMPLE ID	NEPTUNIUM-237 (pCi/g)	PLUTONIUM-238 (pCi/g)	PLUTONIUM- 239/240 (pCi/g)	RADIUM-226 (pCi/g)	TRITIUM (pCi/g)
UTL ^a	n/a ^b	N/A ^c	0.014	0.052	N/A	N/A
SAL ^d	n/a	1.9	27	24	0.1	260
00-04318	0100-95-0694	-0.154	0.0158	0.169	3.29	NA ^e
00-04319	0100-95-0695	0.523	0.02	0	1.84	NA
00-04318	0100-95-0700	NA	NA	NA	NA	36.0

^a UTL = Upper tolerance limit.

^b n/a = Not applicable.

^c N/A = Not available.

^d SAL = Screening action level.

^e NA = Not analyzed.

TABLE C-6

ORGANICS WITH DETECTED CONCENTRATIONS IN CONFIRMATORY DATA FOR PRS 0-030(I)

LOCATION ID	SAMPLE ID	DDE [p,p'] ^a (mg/kg)	DDT [p,p'] ^b (mg/kg)
SAL ^c	n/a ^d	1.3	1.3
00-04318	0100-95-0694	0.0141	0.0336

^a DDE[p,p'] = Dichlorodipenyldichloroethylene.

^b DDT[p,p'] = Dichlorodipeny/trichloroethane.

^c SAL = Screening action level.

^d n/a = Not applicable.

TABLE C-7

INORGANICS WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD
CONCENTRATIONS IN SITE-CHARACTERIZATION DATA FOR PRS 0-030(m)

		ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	BERYLLIUM (mg/kg)	CADMIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
	SAL ^a	31	N/A ^b	5 300	N/A	38	211	2 800	400	23	1 500	380	230	23 000
LABORATORY ANALYSIS														
LOCATION ID	SAMPLE ID	ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	BERYLLIUM (mg/kg)	CADMIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
UTL ^c	n/a ^d	1	7.82	315	1.95	2.7	19.3	15.5	23.3	0.1	15.2	N/A	N/A	50.8
00-04245	0100-95-0466	3.9	5.3	250	1.1	3.8	14.8	520(J) ^e	289	3.1	169.23	2.5537	NA ^f	645(J)
00-04322	0100-95-0526	3.24	4.48	244	9.964	16.76	26.34	4 404.18	1 650	29.2	145.76	7.1	NA	1 519.75
00-04322	0100-95-0628	9.5	5.3	350	8.1	11.9	21.2	853	444	32.2	20.6	9.6	NA	2 980
00-04426	0100-95-0673	22.3	10.4	228	2.7	121	84.3	3120	12 600	0.08	1 110	17.5	NA	951
XRF ^g ANALYSIS														
LOCATION ID	SAMPLE ID	ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	BERYLLIUM (mg/kg)	CADMIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
UTL	n/a	1.59 ^h	10.81 ^h	828.9 ^h	N/A	1.7	71.07 ^h	15.5	56 ^h	0.1	15.2	N/A	6.7 ^h	146.2 ^h
00-04305	0100-95-0480	<4	11	462	NA	<3	19	17	80	<5	17	NA	<8	113
00-04305	0100-95-0481	<4	<4	221	NA	<3	<12	8	15	<5	<13	NA	<8	51
00-04306	0100-95-0482	<4	<4	274	NA	<3	<12	16	31	<5	<13	NA	<8	79
00-04326	0100-95-0677	<4	<4	331	NA	3.13	32.8	97.9	77.8	<5	20.1	NA	35.4	237
00-04322	0100-95-0526	22.5	<4	854	NA	17.7	105	2557	768	41.8	14.1	NA	201	1 904
00-04426	0100-95-0673	8.85	<4	552	NA	7.87	77.6	979	317	<5	<13	NA	90	736
00-04326	0100-95-0674	4.3	<4	404	NA	<3	44.9	28.6	75.8	<5	<13	NA	31.5	224
00-04326	0100-95-0676	<4	<4	396	NA	<3	44.5	65.9	96.5	<5	<13	NA	25.9	265
00-04245	0100-95-0464	21.4	<4	624	NA	6.56	52.8	267	499	<5	<13	NA	39.5	975
00-04243	0100-95-0463	18.1	<4	596	NA	3.79	50.8	95.9	371	<5	<13	NA	11.7	626
00-04243	0100-95-0462	21.7	22.4	731	NA	13	57.5	200	422	<5	20.3	NA	118	2 297
XRF ANALYSIS (CONTINUED)														
LOCATION ID	SAMPLE ID	ANTIMONY (mg/kg)	ARSENIC (mg/kg)	BARIUM (mg/kg)	BERYLLIUM (mg/kg)	CADMIUM (mg/kg)	CHROMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MERCURY (mg/kg)	NICKEL (mg/kg)	SILVER (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
UTL	n/a	1.59 ^h	10.81 ^h	828.9 ^h	N/A	1.7	71.07 ^h	15.5	56 ^h	0.1	15.2	N/A	6.73 ^h	146.2 ^h
00-04242	0100-95-0461	49.3	4.13	700.2	NA	5.59	40.5	72.9	306	<5	<13	NA	8.83	1 605
00-04327	0100-95-0454	<4	<4	70.3	NA	<3	3.94	<8	27.9	<5	<13	NA	9.23	73.2
00-04307	0100-95-0483	<4	<4	549	NA	<3	27	27	97	7	<13	NA	9	170
00-04307	0100-95-0486	7	<4	233	NA	<3	<12	<8	47	<5	<13	NA	8	82
00-04246	0100-95-0465	13	<4	623	NA	<3	33	64	191	<5	21	NA	<8	381

^a SAL = Screening action level.

^b N/A = Not available.

^c UTL = Upper tolerance limit.

^d n/a = Not applicable.

^e J = The analyte was positively identified, but the associated numerical value is only an approximate concentration of the analyte in the sample.

^f NA = Not analyzed.

^g XRF X-ray fluorescence spectroscopy.

^h = Background value taken from Longmire, Duffy, and Reneau, (Longmire et al. 1993, 0958) "Preliminary Background Elemental Concentrations In Bandelier Tuff and Selected Soil Series, 1993," Los Alamos National Laboratory unpublished report.

TABLE C-8

**RADIONUCLIDES WITH CONCENTRATIONS THAT EXCEED BACKGROUND THRESHOLD
CONCENTRATIONS IN SITE-CHARACTERIZATION DATA FOR PRS 0-030(m)**

LOCATION ID	SAMPLE ID	AMERICIUM-241 (pCi/g)	PLUTONIUM-238 (pCi/g)	PLUTONIUM-239/240 (pCi/g)	RADIUM-226 (pCi/g)	URANIUM-235 (pCi/g)
UTL ^a	n/a ^b	0.336	0.014	0.052	N/A ^c	0.084
SAL ^d	n/a	22	27	24	0.1	10
00-04327	0100-95-0454	0.01	0.002	0.214	1.47	0.15(U) ^e
00-04242	0100-95-0461	0.344	0.02	1.78	NA ^f	NA
00-04243	0100-95-0462	1.26	0.014	30.8	NA	NA
00-04243	0100-95-0463	0.0784	0.01	1.76	NA	NA
00-04245	0100-95-0464	0.02	0.01	0.99	NA	NA
00-04246	0100-95-0465	0.02	0	0.77	NA	NA
00-04305	0100-95-0480	0.005	0	0.265	NA	NA
00-04305	0100-95-0481	0.01	0	0.06	NA	NA
00-04306	0100-95-0482	0.01	0	0.07	NA	NA
00-04307	0100-95-0483	0.011	0.002	0.286	2.19	0.19(U)
00-04307	0100-95-0486	0.008	0.006	0.111	1.65	0.17(U)
00-04322	0100-95-0526	1.33	0.00912	0.0141	NA	NA
00-04326	0100-95-0674	0.008	0.003	0.325	1.16	0.52
00-04326	0100-95-0676	0.007	0.002	0.347	1.12	0.62
00-04326	0100-95-0677	0.009	0.004	0.769	1.45	0.69

^a UTL = Upper tolerance limit.

^b n/a = Not applicable.

^c N/A = Not available.

^d SAL = Screening action level.

^e U = Undetected quantity.

^f NA = Not analyzed.

TABLE C-9

**ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLs^a IN SITE-
CHARACTERIZATION DATA FOR PRS 0-030(m)**

LOCATION ID	SAMPLE ID	ACENAPHTHENE (mg/kg)	ALDRIN (mg/kg)	ANTHRACENE (mg/kg)	BENZO[a] ANTHRACENE (mg/kg)	BENZO[a] PYRENE (mg/kg)	BENZO[b] FLUORANTHENE (mg/kg)
SAL ^b	n/a ^c	360	0.026	19	0.61	0.061	0.61
00-04327	0100-95-0454	0.41(U) ^d	0.002(U)	0.41(U)	0.41(U)	0.41(U)	0.41(U)
00-04242	0100-95-0461	0.65(U)	0.00292(U)	0.45(J) ^e	0.46(J)	0.32(J)	0.28(J)
00-04243	0100-95-0462	0.14(J)	0.00874	0.15(J)	0.62(U)	0.62(U)	0.62(U)
00-04243	0100-95-0463	1.5(U)	0.00248(U)	1.1	0.91	0.59	0.65
00-04245	0100-95-0464	0.68(U)	0.00253(U)	0.31(J)	0.23(J)	0.19(J)	0.26(J)
00-04246	0100-95-0465	0.86	0.0029(U)	0.77	0.63	0.41(J)	0.45(J)
00-04305	0100-95-0480	0.36(U)	0.0924(U)	0.36(U)	0.36(U)	0.36(U)	0.36(U)
00-04305	0100-95-0481	0.3(U)	0.00177(U)	0.34(U)	0.34(U)	0.34(U)	0.34(U)
00-04306	0100-95-0482	0.30(U)	0.00179(U)	0.35(U)	0.35(U)	0.35(U)	0.35(U)
00-04307	0100-95-0483	0.44(U)	0.022(U)	0.44(U)	0.5	0.45	0.37(J)
00-04307	0100-95-0486	0.4(U)	0.021(U)	0.4(U)	0.4(U)	0.4(U)	0.4(U)
00-04322	0100-95-0526	0.52(U)	0.0055(U)	0.52(U)	0.52(U)	0.52(U)	0.52(U)
00-04426	0100-95-0673	0.43(U)	0.0022(U)	0.43(U)	0.43(U)	0.43(U)	0.43(U)
00-04326	0100-95-0674	0.43(U)	0.022(U)	0.062(J)	0.11(J)	0.1(J)	0.1(J)
00-04326	0100-95-0676	0.45(U)	0.045(U)	0.11(J)	0.19(J)	0.18(J)	0.15(J)
00-04326	0100-95-0677	0.41(U)	0.021(U)	0.046(J)	0.082(J)	0.089(J)	0.081(J)

LOCATION ID	SAMPLE ID	BENZO[g,h,i] PERYLENE (mg/kg)	BENZO[k] FLUORANTHENE (mg/kg)	BIS(2-ETHYLHEXYL) PHTHALATE (mg/kg)	CHLORDANE [ALPHA-] (mg/kg)	CHLORDANE [GAMMA-] (mg/kg)	CHRYSENE (mg/kg)
SAL	n/a	N/A ^f	6.1	32	0.34	0.34	24
00-04327	0100-95-0454	0.41(U)	0.41(U)	0.41(U)	0.002(U)	0.002(U)	0.41(U)
00-04242	0100-95-0461	0.24(J)	0.34(J)	0.57(U)	0.0695	0.00292(U)	0.53(J)
00-04243	0100-95-0462	0.62(U)	0.62(U)	0.62(U)	0.0111	0.00318(U)	0.14(J)
00-04243	0100-95-0463	0.48(J)	0.82	0.48(U)	0.0199	0.0123	1.2
00-04245	0100-95-0464	0.49(J)	0.23(J)	0.49(U)	0.024	0.00253(U)	0.34(J)
00-04246	0100-95-0465	0.3(J)	0.46(J)	0.56(U)	0.0029(U)	0.0029(U)	0.89
00-04305	0100-95-0480	0.36(U)	0.36(U)	0.36(U)	0.00399	9.24(U)	0.15(J)
00-04305	0100-95-0481	0.34(U)	0.34(U)	0.34(U)	0.00177(U)	0.00177(U)	0.34(U)
00-04306	0100-95-0482	0.35(U)	0.35(U)	0.35(U)	0.00179(U)	0.00179(U)	0.35(U)
00-04307	0100-95-0483	0.21(J)	0.44(U)	0.44(U)	0.022(U)	0.022(U)	0.44(U)
00-04307	0100-95-0486	0.4(U)	0.4(U)	0.41(U)	0.021(U)	0.021(U)	0.4(U)
00-04322	0100-95-0526	0.52(U)	0.52(U)	0.14(J)	0.0027(U)	0.0027(U)	0.52(U)
00-04426	0100-95-0673	0.43(U)	0.43(U)	0.43(U)	0.013(U)	0.0022(U)	0.43(U)
00-04326	0100-95-0674	0.092(J)	0.11(J)	0.43(U)	0.022(U)	0.022(U)	0.12(J)
00-04326	0100-95-0676	0.15(J)	0.17(J)	0.45(U)	0.045(U)	0.045(U)	0.2(J)
00-04326	0100-95-0677	0.073(J)	0.072(J)	0.41(U)	0.021(U)	0.021(U)	0.097(J)

TABLE C-9 (CONTINUED)

**ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLs^a IN SITE-
CHARACTERIZATION DATA FOR PRS 0-030(m)**

LOCATION ID	SAMPLE ID	DDD [p,p'] ^g (mg/kg)	DDE [p,p'] ^h (mg/kg)	DDT [p,p'] ⁱ (mg/kg)	DI-N-BUTYL PHTHALATE (mg/kg)	DI-N-OCTYL PHTHALATE (mg/kg)	DIBENZO- FURAN (mg/kg)
SAL	n/a	1.9	1.3	1.3	6 500	1 300	260
00-04327	0100-95-0454	0.0092	0.018	0.053	0.41(U)	0.41(U)	0.41(U)
00-04242	0100-95-0461	11	0.786	0.619	0.57(U)	0.57(U)	0.3(J)
00-04243	0100-95-0462	2.04	0.167	0.11	1.3	0.62(U)	0.62(U)
00-04243	0100-95-0463	6.54	0.232	0.689	0.48(U)	0.48	0.76
00-04245	0100-95-0464	6.25	0.364	0.263	0.43(J)	0.49(U)	0.26(J)
00-04246	0100-95-0465	17.5	0.358	0.312	0.56(U)	0.56(U)	0.58
00-04305	0100-95-0480	0.594	0.0993	0.672	0.36(U)	0.36(U)	0.36(U)
00-04305	0100-95-0481	0.00994	0.0049	0.0161	0.34(U)	0.34(U)	0.34(U)
00-04306	0100-95-0482	0.00826	0.0116	0.029	0.35(U)	0.35(U)	0.35(U)
00-04307	0100-95-0483	0.44	0.099	0.24	0.44(U)	0.44(U)	0.44(U)
00-04307	0100-95-0486	0.0995	0.0426	0.073	0.4(U)	0.4(U)	0.4(U)
00-04322	0100-95-0526	3.8(U)	0.26(U)	3.2(U)	2.6	0.52(U)	0.52(U)
00-04426	0100-95-0673	0.42(U)	0.2(U)	0.42(U)	0.43(U)	0.43(U)	0.43(U)
00-04326	0100-95-0674	0.23	0.33	0.66	0.075(J)	0.43(U)	0.43(U)
00-04326	0100-95-0676	0.26	0.3	1.1	0.45(U)	0.45(U)	0.45(U)
00-04326	0100-95-0677	0.095	0.16	0.28	0.41(U)	0.41(U)	0.41(U)

LOCATION ID	SAMPLE ID	DIBENZO[a,h] ANTHRACENE (mg/kg)	DICHLORO BENZENE (1,4) [p-] (mg/kg)	DIELDRIN (mg/kg)	ENDOSULFAN I (mg/kg)	ENDRIN (mg/kg)
SAL	n/a	0.061	7.4	0.028	3.3	20
00-04327	0100-95-0454	0.41(U)	0.41(U)	0.004(U)	0.002(U)	0.004(U)
00-04242	0100-95-0461	0.57(U)	0.57(U)	0.00567(U)	0.00292(U)	0.179
00-04243	0100-95-0462	0.62(U)	0.62(U)	0.0133	0.00318(U)	0.0443
00-04243	0100-95-0463	0.48	0.48(U)	0.00481(U)	0.0288	0.0618
00-04245	0100-95-0464	0.49(U)	0.49(U)	0.00491(U)	0.00253(U)	0.0718
00-04246	0100-95-0465	0.16(J)	0.56(U)	0.00563(U)	0.0029(U)	0.00563(U)
00-04305	0100-95-0480	0.36(U)	0.36(U)	0.179(U)	0.0924(U)	0.00402
00-04305	0100-95-0481	0.34(U)	0.34(U)	0.00343(U)	0.00177(U)	0.00343(U)
00-04306	0100-95-0482	0.35(U)	0.35(U)	0.00347(U)	0.00179(U)	0.00347(U)
00-04307	0100-95-0483	0.44(U)	0.44(U)	0.043(U)	0.022(U)	0.043(U)
00-04307	0100-95-0486	0.4(U)	0.4(U)	0.04(U)	0.021(U)	0.04(U)
00-04322	0100-95-0526	0.52(U)	0.34(J)	0.0052(U)	0.0027(U)	0.017(U)
00-04426	0100-95-0673	0.43(U)	0.43(U)	0.0042(U)	0.0022(U)	0.01(U)
00-04326	0100-95-0674	0.43(U)	0.43(U)	0.044(U)	0.022(U)	0.044(U)
00-04326	0100-95-0676	0.45(U)	0.45(U)	0.09(U)	0.045(U)	0.09(U)
00-04326	0100-95-0677	0.41(U)	0.41(U)	0.041(U)	0.021(U)	0.041(U)

TABLE C-9 (CONTINUED)

ORGANICS WITH CONCENTRATIONS IN SOIL THAT EXCEED EQLs^a IN SITE-CHARACTERIZATION DATA FOR PRS 0-030(m)

LOCATION ID	SAMPLE ID	ENDRIN ALDEHYDE (mg/kg)	ENDRIN KETONE (mg/kg)	FLUORANTHENE (mg/kg)	FLUORENE (mg/kg)	HEPTACHLOR (mg/kg)	HEPTACHLOR EPOXIDE (mg/kg)
SAL	n/a	20	20	2 600	300	0.099	0.049
00-04327	0100-95-0454	0.004(U)	0.004(U)	0.41(U)	0.41(U)	0.002(U)	0.002(U)
00-04242	0100-95-0461	0.00567(U)	0.00569	1.7	0.61	0.00363	0.00292(U)
00-04243	0100-95-0462	0.00617(U)	0.00617(U)	0.43(J)	0.17(J)	0.00318(U)	0.00898
00-04243	0100-95-0463	0.00481(U)	0.00481(U)	3.3	1.5	0.00248(U)	0.00248(U)
00-04245	0100-95-0464	0.00491(U)	0.00491(U)	0.92	0.56	0.00253(U)	0.00253(U)
00-04246	0100-95-0465	0.00563(U)	0.00563(U)	2.5	1	0.0029(U)	0.0029(U)
00-04305	0100-95-0480	0.0213	0.179(U)	0.24(J)	0.36(U)	0.0924(U)	0.0924(U)
00-04305	0100-95-0481	0.00343(U)	0.00343(U)	0.34(U)	0.34(U)	0.00177(U)	0.00177(U)
00-04306	0100-95-0482	0.00347(U)	0.00347(U)	0.35(U)	0.35(U)	0.00179(U)	0.00179(U)
00-04307	0100-95-0483	0.043(U)	0.043(U)	0.56	0.44(U)	0.022	0.022(U)
00-04307	0100-95-0486	0.04(U)	0.04(U)	0.053(J)	0.4(U)	0.021(U)	0.021(U)
00-04322	0100-95-0526	0.01(U)	NA	0.12(J)	0.52(U)	0.012(U)	0.01(U)
00-04426	0100-95-0673	0.0042(U)	NA	0.12(J)	0.43(U)	0.0022(U)	0.004(U)
00-04326	0100-95-0674	0.0057	0.044(U)	0.27(J)	0.43(U)	0.022(U)	0.022(U)
00-04326	0100-95-0676	0.09(U)	0.09(U)	0.47	0.45(U)	0.045(U)	0.045(U)
00-04326	0100-95-0677	0.041(U)	0.041(U)	0.2(J)	0.41(U)	0.021(U)	0.021(U)

LOCATION ID	SAMPLE ID	INDENO [1,2,3-cd] PYRENE (mg/kg)	METHYL NAPHTHALENE [2-] (mg/kg)	METHYL PHENOL [4-] (mg/kg)	NAPHTHALENE (mg/kg)	PHENANTHRENE (mg/kg)	PYRENE (mg/kg)
SAL	n/a	0.61	n/a	330	800	n/a	2 000
00-04327	0100-95-0454	0.41(U)	0.41	0.41	0.41	0.41	0.41
00-04242	0100-95-0461	0.26(J)	0.33	0.36	0.43	2.3	1.8
00-04243	0100-95-0462	0.62(U)	0.28	0.55	0.2	0.65	0.37
00-04243	0100-95-0463	0.48	0.68	0.8	1.2	5.1	4.6
00-04245	0100-95-0464	0.14(J)	0.39	0.39	0.69	1.6	1
00-04246	0100-95-0465	0.29(J)	0.56	0.37	1.1	3.5	3.3
00-04305	0100-95-0480	0.36(U)	0.36	0.36	0.36	0.18	0.25
00-04305	0100-95-0481	0.34(U)	0.34	0.34	0.34	0.34	0.34
00-04306	0100-95-0482	0.35(U)	0.35	0.35	0.35	0.35	0.35
00-04307	0100-95-0483	0.17(J)	0.44	0.44	0.44	0.57	0.43
00-04307	0100-95-0486	0.4(U)	0.4	0.4	0.4	0.4	0.045
00-04322	0100-95-0526	0.52(U)	0.63	4.6	0.29	0.22	0.13
00-04426	0100-95-0673	0.43(U)	0.18	0.59	0.11	0.16	0.13
00-04326	0100-95-0674	0.082(J)	0.43	0.43	0.43	0.21	0.16
00-04326	0100-95-0676	0.14(J)	0.45	0.45	0.45	0.34	0.27
00-04326	0100-95-0677	0.065(J)	0.41	0.41	0.41	0.14	0.13

^a EQLs = Estimated quantitation limits.

^b SAL = Screening action level.

^c n/a = Not applicable.

^d U = Undetected quantity.

^e J = Estimated quantity.

^f N/A = Not available.

^g DDD = Dichlorodiphenyldichloroethane.

^h DDE = Dichlorodiphenyldichloroethylene.

ⁱ DDT = Dichlorodiphenyltrichloroethane.

TABLE C-10

**INORGANICS WITH CONCENTRATIONS ABOVE BACKGROUND THRESHOLD
CONCENTRATIONS IN CONFIRMATORY DATA FOR PRS 0-030(m)**

LOCATION ID	SAMPLE ID	COPPER (mg/kg)	NICKEL (mg/kg)	URANIUM (mg/kg)	ZINC (mg/kg)
UTL ^a	n/a ^b	15.5	15.2	6.73 ^c	146.2 ^c
SAL ^d	n/a	2 800	1 500	230	23 000
00-04371	0100-95-0914	33.1	17.2	20.4	332
00-04372	0100-95-0915	55.8	<13	<8	130

^a UTL = Upper tolerance limit.

^b n/a = Not applicable.

^c = Background value taken from Longmire, Duffy, and Reneau, (Longmire et al. 1993, 0958) "Preliminary Background Elemental Concentrations In Bandelier Tuff and Selected Soil Series, 1993," Los Alamos National Laboratory unpublished report.

^d SAL = Screening action level.

TABLE C-11

**RADIONUCLIDES WITH CONCENTRATIONS ABOVE BACKGROUND THRESHOLD
CONCENTRATIONS IN CONFIRMATORY DATA FOR PRS 0-030(m)**

LOCATION ID	SAMPLE ID	NEPTUNIUM-237 (pCi/g)	PLUTONIUM-238 (pCi/g)	PLUTONIUM-239/240 (pCi/g)	RADIUM-226 (pCi/g)
UTL ^a	n/a ^b	N/A ^c	0.014	0.052	N/A
SAL ^d	n/a	1.9	27	24	0.1
00-04371	0100-95-0914	0.551	0.004	0.112	4.21
00-04372	0100-95-0915	0.529	0.027	0.574	4.11

^a UTL = Upper tolerance limit.

^b n/a = Not applicable.

^c N/A = Not available.

^d SAL = Screening action level.

TABLE C-12
ORGANICS WITH DETECTED CONCENTRATIONS IN CONFIRMATORY DATA
FOR PRS 0-030(m)

LOCATION ID	SAMPLE ID	ALDRIN (mg/kg)	CHLORDANE [ALPHA-] (mg/kg)	CHLORDANE [GAMMA-] (mg/kg)
SAL ^a	n/a ^b	0.026	0.34	0.34
00-04371	0100-95-0914	0.002(J) ^c	0.002(J)	0.002(J)
00-04372	0100-95-0915	0.0019(J)	0.0019(J)	0.0019(J)

^a SAL = Screening action level.

^b n/a = Not applicable.

^c J = The analyte was positively identified, but the associated numerical value is only an approximate concentration of the analyte in the sample.

APPENDIX D FINAL COSTS

Appendix D presents estimated and actual final costs for the voluntary corrective action (VCA) at Sixth Street Warehouses potential release sites PRSs 0-030(l), 0-030(m), and 0-033(a). Table D-1 provides estimated costs; Table D-2 provides the actual final costs.

**TABLE D-1
COST ESTIMATES PRIOR TO CLEANUP**

PRS	PRS 0-030(l)	PRS 0-030(m)	PRS 0-033(a)
Pre-field activities	\$49 800	\$50 000	\$48 000
Field activities	\$38 000	\$43 400	\$47 300
Waste management	\$2 000	\$2 000	\$2 000
Sample analyses	\$14 000	\$20 000	\$7 000
Post field activities	\$20 000	\$20 000	\$5 000
Total costs	\$123 800	\$135 400	\$109 300

**TABLE D-2
ESTIMATED DISTRIBUTION OF ACTUAL COSTS**

PRS	PRS 0-030(l)	PRS 0-030(m)	PRS 0-033(a)
Pre-field activities	\$32 458	\$32 458	\$32 458
Field activities	\$63 417	\$79 050	\$97 944
Waste management	\$18 400	\$18 400	\$18 400
Sample analyses	\$16 773	\$22 797	\$16 891
Post field activities	\$10 000	\$10 000	\$5 000
Total costs	\$141 048	\$162 705	\$170 693

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**APPENDIX E TRANSMITTAL OF UNDERGROUND STORAGE TANK CLOSURE FORM AND
TANK CLOSURE WORK SHEET.**

Attached is the Transmittal of Underground Storage Tank Closure Form and Tank Closure
Work Sheet.

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APPENDIX F CERTIFICATION OF COMPLETION FORM.

Attached is the Certificate of Completion sign off form..

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CERTIFICATION OF COMPLETION

I certify that all the work pertaining to the Voluntary Corrective Action Report has been completed in accordance with the Department of Energy approved VCA plan entitled VCA Plan for Potential Release Sites 0-030(l), 0-030(m), and 0-033(a), (6th Street Warehouse). Based on my personal involvement or inquiry of the person or persons who managed this cleanup, a review of all data gathered and a visit to the site, to the best of my knowledge and belief, all criteria of the plan have been met or exceeded. I believe that the completion of this VCA is both protective to human health and the environment. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.



Field Unit 1 Field Project Leader
Environmental Restoration Project
Los Alamos National Laboratory



Date Signed

VOLUNTARY CORRECTIVE ACTION (VCA) COMPLETION REPORT
APPROVAL/DISAPPROVAL FORM

PRS(s) 0-030(l), 0-030(m), and 0-033(a)

The undersigned have reviewed the VCA Completion Report and believe that the intent and goals of the VCA plan have been met.

FPL GR Allen

Date 30 Aug 96

FPC a. Koch *

Date 9/5/96

** I have not reviewed this document but agree with the approach of the VCA. Document will be reviewed in October, 1996.*

I, Theodore J. Taylor, DOE-LAAO, APPROVE X, DISAPPROVE _____ the accompanying Voluntary Correction Action Report for PRS(s) 0-030(l), 0-030(m), and 0-033(a), TA-0.

The following reasons reflect the decision for disapproval:

Signed: a. Koch
for Ted Taylor

Date: 10/22/96