Los Alamos National Laboratory

UNIVERSITY OF CALIFORNIA

Environmental Restoration

Environmental Restoration Project
MS M992
Los Alamos, New Mexico 87545
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Date: January 30, 1997
Refer to: EM/ER:97-023

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Mr. Ted Taylor
Los Alamos Area Office
US Department of Energy, MS A316
Los Alamos, NM 87544

SUBJECT: FINAL VCA PLAN FOR TA-0, PRS C-0-043 ACTIVITIES

Dear Ted:

Enclosed for your records please find two copies of the final Voluntary Corrective Action (VCA) Plan for Technical Area 0, Potential Release Site C-0-043 activities. These activities are planned for completion in Fiscal Year 1997.

Informational copies of this VCA Plan are being distributed to the regulators.

Your Field Project Coordinator participated in developing and reviewing this plan. The VCA Checklist and Field Authorization Form have been completed and signed and are also included in the enclosed plan.

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

Sincerely,

Miguel Delgado for

Jorg Jansen
Program Manager

JJ/rfr

Enclosure: (1) Final VCA Plan for TA-0, PRS C-0-043

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Voluntary Corrective Action Plan for

Potential Release Site

C-0-043
Catholic Church
Manhole

Field Unit 1

Environmental Restoration Project

December 1996

A Department of Energy
Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

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1.0 INTRODUCTION

1.1 Site Type and Description

Potential Release Site (PRS) C-0-043 consists of a brick and mortar manhole. This manhole is located along the entrance road to the west parking lot at the Immaculate Heart of Mary Catholic Church, which is known as the new Catholic Church (Fig. 1). The top of the manhole has been collapsed to ground level and is currently covered with a steel plate. PRS C-0-043 is currently scheduled for a Voluntary Corrective Action (VCA). During the VCA, the manhole will be removed as a best management practice to eliminate legacy waste from the Los Alamos town site. Field activities will be conducted in the fall/winter of 1996/1997 as part of the Los Alamos National Laboratory (LANL) Environmental Restoration (ER) Project.

1.1.1 Operational History

The PRS C-0-043 manhole is located on private property north of Canyon Road at the new Catholic Church (Fig. 2). This manhole is believed to have been part of the sanitary sewer system connected to the former Central Waste Water Treatment Plant. The Central Waste Water Treatment Plant was in operation from the mid-1940's until it was decommissioned in the early 1960's. Sanitary waste passed through the manhole from original town site buildings (barracks) near the current site of the new Catholic Church. It is believed that the manhole was connected only to residential-type buildings, so it is unlikely that radioactive or Resource Conservation and Recovery Act (RCRA) materials would have been discharged into the sewer lines accessible by this manhole. It is unknown when this manhole was put into or taken out of service.

1.1.2 COPCs and Rationale for Proposed Remedial Action

The potential for extensive chemical or radiological contamination beneath the PRS C-0-043 manhole is low; however, the manhole handled waste from the original town site and possibly early laboratory operations at Technical Area (TA) 1. To date, RCRA facility investigation (RFI) activities conducted at this site consist of collecting two samples from sediments inside the bottom of the manhole, which contained 5–10 in. of sediment. The analytical results for these samples indicate that there are several chemicals present at levels greater than background upper tolerance limits (UTLs). These analytical results are presented in Annex 7.2 and Attachment 5.

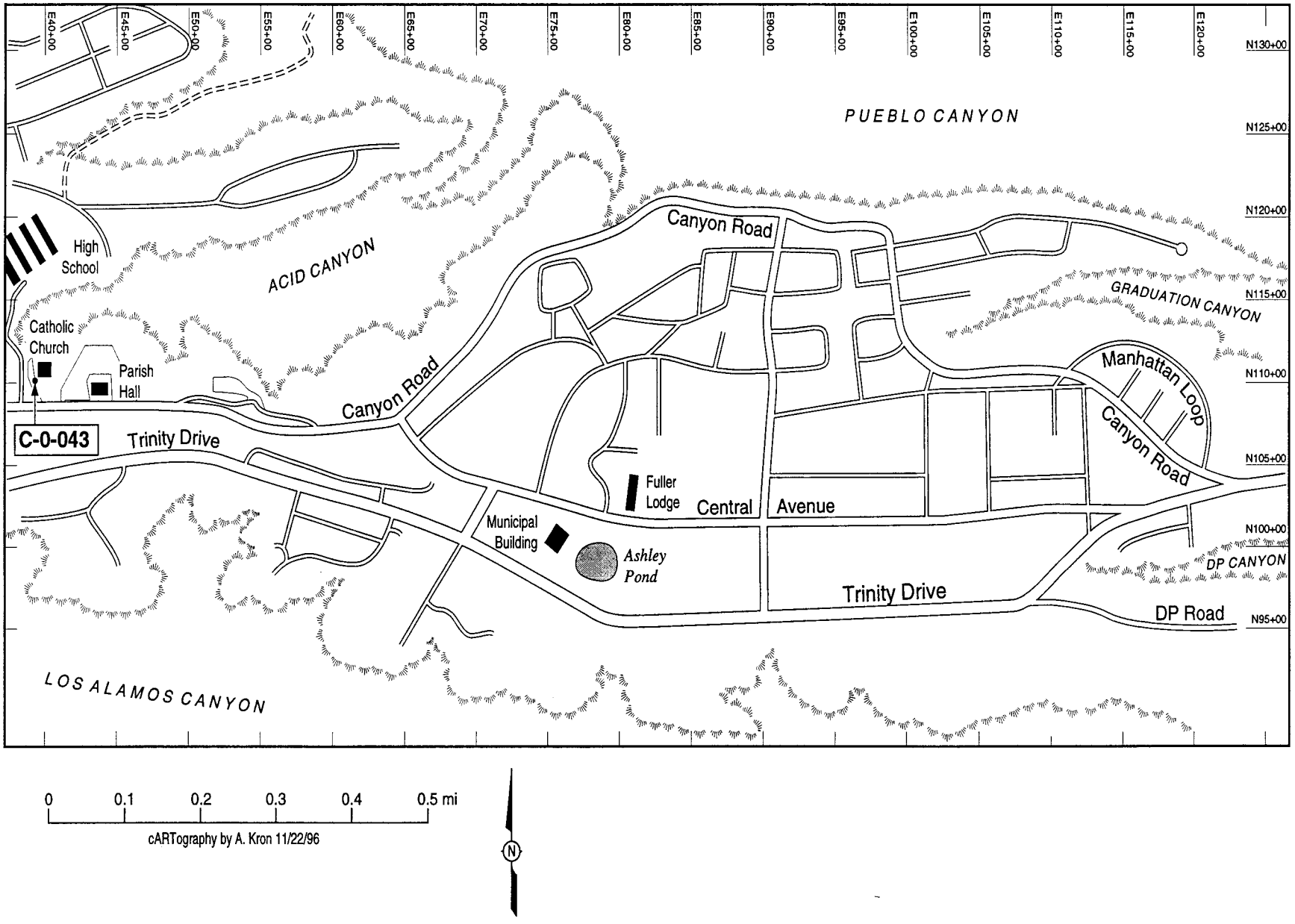

Fig. 1. Location of PRS C-0-043, the Catholic Church parking lot manhole.

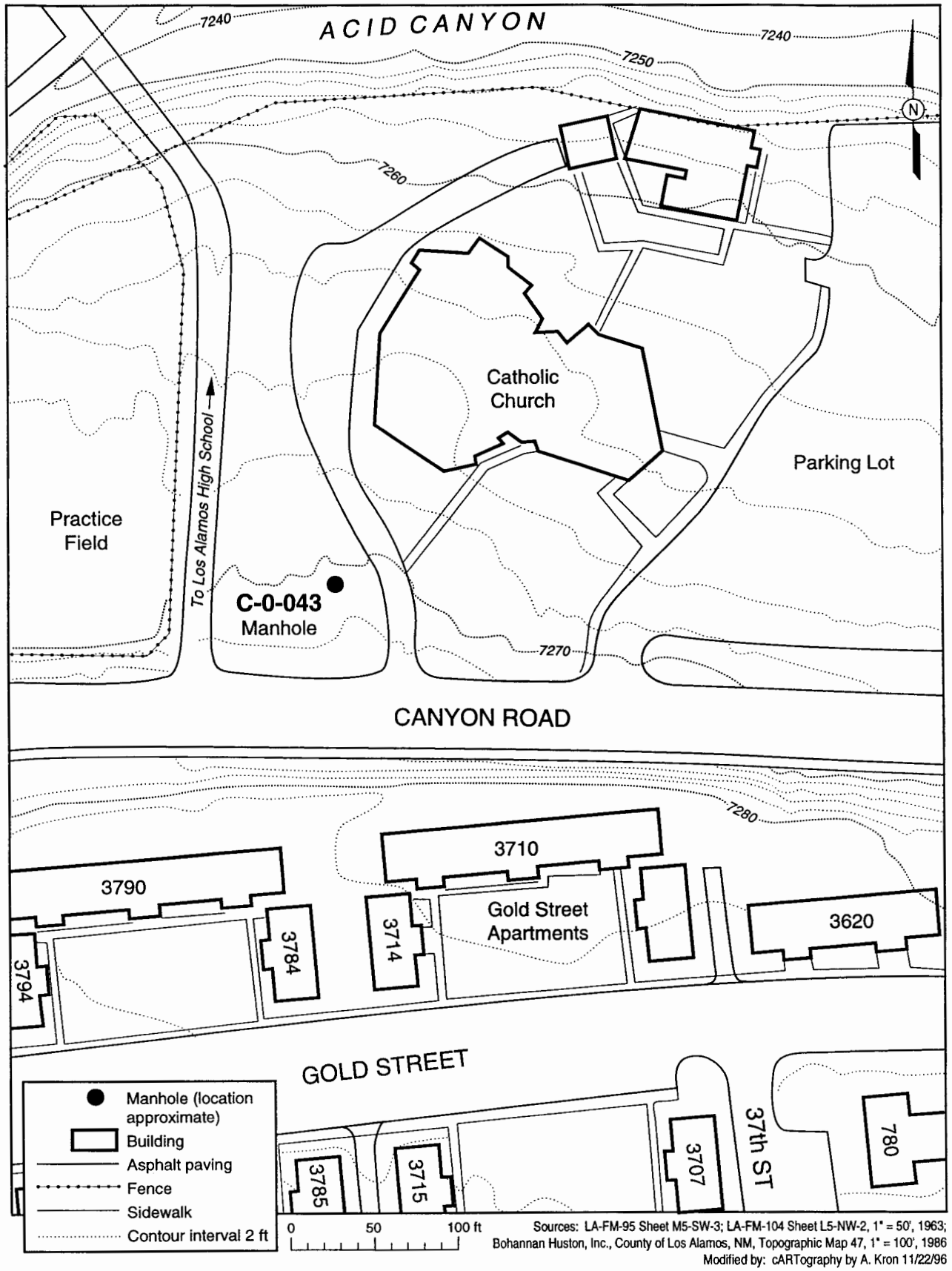

Fig. 2. Location map for PRS C-0-043.

A background comparison and human health screening assessment conducted on the RFI data are presented in Section 2.1. The results of this assessment indicate that chemicals of potential concern (COPCs) are not present at levels that present an unacceptable risk to human health; however, the manhole will be removed as a best management practice to eliminate legacy waste from the Los Alamos town site.

2.0 SITE CHARACTERIZATION

2.1 RFI Information and Other Decision Data

As discussed above, RFI activities at PRS C-0-043 consisted of collecting two sediment samples at the bottom of the manhole. A background comparison and human health screening assessment were conducted and are presented in the following sections.

2.1.1 Background Comparison

2.1.1.1 Evaluation of Inorganics

The two RFI soil samples collected from PRS C-0-043 were analyzed for target analyte list (TAL) metals and total uranium. Seven inorganics (antimony, calcium, copper, lead, manganese, thallium, and zinc) were detected at concentrations exceeding their respective background screening values. These seven inorganics are carried forward to the screening assessment. The data for these analytes are presented in Table 2-1.

2.1.1.2 Evaluation of Radionuclides

The two RFI soil samples collected from PRS C-0-043 were also analyzed for isotopic plutonium and gamma spectroscopy. Because uranium was detected at levels less than background levels, it will not be evaluated further in this section.

Analysis of radionuclides by gamma spectroscopy often leads to the reporting of concentrations for certain radionuclides that are inappropriate to evaluate as potential site contaminants. These include short-lived activation/fission products, naturally occurring background radionuclides, and daughter radionuclides. These classes of radionuclides will not be considered site contaminants for the following reasons.

TABLE 2-1

INORGANICS WITH CONCENTRATIONS EXCEEDING BACKGROUND SCREENING VALUES AT PRS C-0-043[a]

SAMPLE ID	DEPTH[b] (in.)	ANTIMONY (mg/kg)	CALCIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	MANGANESE (mg/kg)	THALLIUM (mg/kg)	ZINC (mg/kg)
UTL	N/A[c]	1[d]	6 120	15.5	23.3	714	1[d]	50.8
SAL[e]	N/A	31	NA	2 800	400	3 200	5.4	23 000
0100-96-0427	0–8	**4.9 (J-)[f]**	**7 690**	**15.8**	**52.3**	382 (J-)	**1.1**	**112**
0100-96-0428	0–5	0.75 (U)[g]	**7 930**	9.5	**37.4**	**947 (J-)**	**3.5**	**77.8**

[a] Values in bold type exceed background UTLs.
[b] Values represent the sediment depth inside the bottom of the manhole.
[c] N/A - Not applicable.
[d] Value represents the maximum reported background concentration in soil.
[e] SAL = Screening action level.
[f] J- = Estimated value, biased low.
[g] U = Undetected value.

Sixteen short-lived activation/fission products reported at PRS C-0-043 (barium-140, cadmium-109, cerium-139, cesium-134, cobalt-57, europium-152, mercury-203, lanthanum-140, manganese-54, ruthenium-106, selenium-75, sodium-22, tin-113, strontium-85, yttrium-88, and zinc-65) have half-lives ranging from a few days to 2.6 years. Several of these radionuclides are used as internal standards to measure equipment performance, laboratory background (or contamination), etc. Because activation/fission products with short half-lives are routinely reported for reasons not related to RFI investigations and are not expected to occur at this PRS, these short-lived activation/fission products are eliminated as potential radionuclide contaminants.

Potassium-40 is a naturally-occurring radionuclide that is also routinely reported by the analyst because it is used as an internal standard to measure such things as equipment performance, laboratory background (or contamination), etc. Reported concentrations of potassium-40 at this PRS are generally within known background ranges for potassium-40 (Longmire et al. 1995,1142; Longmire et al. 1995,1266). Therefore, potassium-40 will not be considered a potential radionuclide contaminant at this site.

Daughters of naturally occurring radionuclides (uranium and thorium) are also reported by gamma-spectroscopy analyses. These daughters (e.g., isotopes of actinium, bismuth, lead, protactinium, radium, radon, thallium, and thorium) are normally present in secular equilibrium

concentrations and are not directly evaluated as potential radionuclide contaminants. Quality assurance/quality control (QA/QC) activities have reviewed daughter radionuclides for consistency with parent activities, and all were attributed to background concentrations of the parent. Therefore, these radionuclides are eliminated as potential contaminants.

Estimated quantitation limits (EQLs) and minimum detectable activities are often not available for radionuclides by gamma spectroscopy. A value of three times the measurement uncertainty (3 sigma or three standard deviations) is used to calculate a sample-specific minimum detectable activity, which is then employed in the same manner as a detection limit. This methodology is similar to Currie's method of determining radionuclide minimum detectable activity (Currie 1988, 0792). This 3 sigma screening value takes into account variability due to counting statistics, but does not account for spectral peak identification problems. Thus, this 3 sigma screening is conservative, and may include radionuclides whose percentages are spuriously reported due to spectral interferences or misidentifications. Americium-241, cerium-144, cobalt-60, neptunium-237, plutonium-238, plutonium-239/240, and uranium-235 were eliminated from further consideration based on this criterion.

Cesium-137 is the remaining radionuclide that was detected, and it is eliminated from further consideration because it was detected at concentrations below background screening values. Therefore, no radionuclides are carried forward to the screening assessment.

2.1.1.3 Evaluation of Organics

The two RFI soil samples collected from PRS C-0-043 were also analyzed for volatile and semivolatile organic chemicals, polychlorinated biphenyls (PCBs), and pesticides. Eleven organics (acetone, bis(2-ethylhexyl)phthalate, 2-butanone, chloroform, p,p'-DDE, p,p'-DDT, 2-hexanone, 4-methyl-2-pentanone, phenanthrene, pyrene, and m,p-xylenes) were detected in these samples. These eleven organics are carried forward to the screening assessment. The data for these detected organic chemicals are presented in Table 2-2.

2.1.2 Human Health Screening Assessment

In the two RFI samples collected from PRS C-0-043, none of the detected chemicals exceeded screening action levels (SALs). Two organic chemicals, 2-hexanone and 4 methyl-2-pentanone, have no SALs, and there are no surrogates in common usage. One inorganic chemical, calcium, was detected at concentrations greater than the UTL, and it has no SAL because it is an essential nutrient. The recommended daily minimum requirement for calcium is 800 mg/day for a child 1 to 10 years old, and 1 200 mg/day for people 11 to 24 years old (National Research Council 1989, 1251). Using the highest concentration of calcium in site soil (7 930 mg/kg) and

TABLE 2-2

DETECTED ORGANIC CONCENTRATIONS AT PRS C-0-043

SAMPLE ID		0100-96-0427	0100-96-0428
DEPTH[a] (in.)		0–8	0–5
ANALYTE	SAL[b]	N/A[c]	N/A
2-Butanone	7 100	0.074	0.019 (J)[d]
2-Hexanone	n/a[e]	0.024	0.006 (J)
4-Methyl-2-Pentanone	n/a	0.005 (J)	0.025 (U)[f]
Acetone	2 100	0.025 (U)	0.056
Bis(2-ethylhexyl)phthalate	32	0.82 (U)	0.19 (J)
Chloroform	0.25	0.002 (J)	0.003 (J)
m,p-Xylene	320	0.01	0.008
p,p'-DDE	1.3	0.016 (J)	0.011 (J)
p,p'-DDT	1.3	0.026	0.028
Phenanthrene	100[g]	0.210 (J)	0.83 (U)
Pyrene	100	0.170 (J)	0.83 (U)

[a] Values represent the sediment depth inside the bottom of the manhole.
[b] SAL = Screening action level.
[c] N/A - Not applicable.
[d] J = Estimated detected value.
[e] n/a = Not available.
[f] U = Undetected value.
[g] Phenanthrene has no SAL. The SAL for pyrene, 100 mg/kg, was used as a surrogate SAL for phenanthrene.

the standard soil ingestion rates for children 1 to 10 years old (200 mg per day) and adults (100 mg per day), the amount of calcium ingested from site soil would be 1.586 mg for children and 0.793 mg for adults. Because the amount of calcium that would be ingested from the soil is approximately 500 to 1 500 times less than the recommended daily minimum requirement, calcium is eliminated as a COPC.

To evaluate multiple chemical effects for this data set, a multiple chemical evaluation (MCE) was conducted (Table 2-3). COPCs detected below their respective SALs were grouped according to their toxicological effects (carcinogenic or noncarcinogenic). Concentrations for all chemicals were then normalized with respect to SAL and summed. The result for carcinogens was less than one, indicating that potential resultant adverse human health effects from exposure are unlikely. Therefore, all carcinogens with concentrations below their respective

TABLE 2-3

MULTIPLE CHEMICAL EVALUATION FOR PRS-C-0-043[a]

CHEMICAL	LOCATION ID	SAMPLE ID	VALUE (mg/kg)	SAL	NORMALIZED VALUE
NONCARCINOGENS					
Antimony	00-04905	0100-96-0427	4.9	31	**0.1581**
Copper	00-04905	0100-96-0427	15.8	2 800	0.0056
Lead	00-04905	0100-96-0427	52.3	400	**0.1308**
Manganese	00-04906	0100-96-0428	947	3 200	**0.2959**
Thallium	00-04906	0100-96-0428	3.5	5.4	**0.6481**
Zinc	00-04905	0100-96-0427	112	23 000	0.0049
Phenanthrene	00-04905	0100-96-0427	0.21	100	0.0021
Pyrene	00-04906	0100-96-0428	0.17	100	0.0017
2-Butanone	00-04905	0100-96-0427	0.074	7 100	1×10^{-5}
m,p-Xylene	00-04905	0100-96-0427	0.01	320	3×10^{-5}
Acetone	00-04906	0100-96-0428	0.056	2 100	3×10^{-5}
NORMALIZED SUM					1.2
CARCINOGENS					
Bis(2ethylhexyl) phthalate	00-04906	0100-96-0428	0.19	32	0.0059
Chloroform	00-04906	0100-96-0428	0.003	0.25	0.012
DDE	00-04905	0100-96-0427	0.016	1.3	0.0123
DDT	00-04905	0100-96-0427	0.028	1.3	0.0215
NORMALIZED SUM					0.05

[a] Bolded normalized value indicates COPC contributes greater than 0.1 to the normalized sum.

SALs are eliminated as COPCs. The MCE result for noncarcinogens was greater than one at 1.2. There were four chemicals (antimony, lead, manganese, and thallium) that significantly contributed to the normalized sum being greater than one (Table 2-3). These four chemicals will be retained as COPCs.

2.1.3 Human Health Screening Assessment Conclusions

The screening assessment conducted on the results of the two RFI samples identified four COPCs: antimony, lead, manganese, and thallium. While these COPCs are unlikely to be a concern at this site, removal of the manhole structure is desirable for safety reasons because it is on land that is accessible to the public.

A VCA will be conducted to remove the manhole as a best management practice to eliminate legacy waste from the Los Alamos town site. Upon removal of the manhole, two confirmation soil samples will be collected from the underlying soils and submitted for fixed-laboratory analysis. The analytical results will be compared to the clean-up levels discussed in Annex 7.1.

2.2 Nature and Extent of Contamination

Based on field screening results (hand-held field instrument results for gross radiological and chemical contaminants) and analytical results from the initial RFI sampling, significant levels of contamination are not expected at this site.

Two confirmation samples will be collected beneath the manhole to determine whether any contamination is present. These confirmation samples will be screened for gross gamma radioactivity, gross alpha/beta radioactivity, tritium, and moisture content. The confirmation samples will then be submitted to a fixed laboratory for a full suite of analyses to confirm that no contamination is present in soils beneath the tank. Analyses will include total uranium (uranium-234 and uranium-236), plutonium (plutonium-238 and plutonium-239/240), americium-241, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), TAL metals, and PCBs/pesticides.

3.0 PROPOSED REMEDY

3.1 Description of the Proposed Remedial Action

Based on field screening and analytical results from the RFI, safety concerns regarding the presence of an open manhole, low removal costs, and the ER Project's desire to remove legacy structures, the PRS C-0-043 manhole will be removed as construction debris.

The top of the manhole has been collapsed to the current ground level and is covered with a steel plate. The structure itself is bell-shaped and constructed with brick and mortar. The brick floor is covered with approximately 0.5 in. of cement. The approximate dimensions of the structure are 2 ft in diameter at the surface by 6–8 ft in diameter at the bottom by 4 ft deep. The manhole has not been backfilled but contains some loose bricks, asphalt from the road, a large tuff boulder, and approximately 5–10 in. of sediment.

Trenches will be excavated with a backhoe along the accessible sides of the manhole to loosen the structure. An attempt will be made to remove the brick manhole as a complete structure. If this approach is successful, the structure will be placed on plastic sheeting, screened, and swiped before being placed into a dump truck. If the structure collapses inward, the bricks and mortar will be removed with the backhoe bucket, placed on plastic sheeting, screened and swiped, and then placed into a dump truck. Every effort will be made to minimize the amount of outside soil removed with the manhole structure. Upon removal of the manhole, two confirmation samples will be collected with the backhoe bucket from the bottom of the excavation. Because of the proximity of PRS C-0-043 to Los Alamos High School and the new Catholic Church and the possibility of public access to the excavation site, it would be unsafe to leave the excavation open pending analysis of the confirmation samples. Therefore, the excavation will be immediately backfilled with clean soil and compacted. Because of the limited size of the excavation, this precaution is not expected to significantly increase the cost of the field operation.

In the event that soil contamination is detected with hand-held monitoring instruments beneath or outside the manhole structure, the area will be excavated until field screening indicates that the contaminated soil has been removed. Additional soil samples will then be collected. Subsequently, the excavation will be backfilled with clean soil and compacted.

All removal activities will be conducted in accordance with site-specific plans, including the Spill Prevention Control and Countermeasures Implementation Plan Addendum (see Attachment 1), the Site-Specific Health and Safety Plan (see Annex 7.5 and Attachment 2), and the Waste Characterization Strategy Form Addendum (see Annex 7.6 and Attachment 3).

3.2 Basis for Cleanup Levels

PRS C-0-043 is located near Los Alamos High School and the new Catholic Church, and the site could potentially be used for residential purposes in the future. Therefore, Environmental

Protection Agency (EPA) Region IX preliminary remediation goals (PRGs) will be used as conservative cleanup levels for this site.

3.3 Site Restoration

Following VCA activities, the site will be restored to its pre-investigation condition. The excavation will be backfilled and compacted with clean soil, the affected areas will be landscaped to the extent necessary, and the asphalt will be repaired as needed. Every attempt will be made during field activities to minimize damage to the landscaping and the asphalt. Photographs will be taken before work begins to record the condition of the site.

4.0 WASTE MANAGEMENT

4.1 Estimated Types and Volumes of Waste

Waste generated during VCA activities will include disposable scoops, gloves, paper towels, plastic sheeting, and other miscellaneous sampling debris. It is anticipated that one partially-filled 5-gal. solid waste drum will be generated. The amount of construction debris (bricks and mortar) is estimated at 4 yds^3. It is not anticipated that liquid decontamination will be required for any equipment. Table 4-1 summarizes the types and volumes of waste that will be generated during this VCA.

4.2 Method of Management and Disposal

All waste generated during the VCA at PRS C-0-043 will be managed according to the Site-Specific Waste Characterization Strategy Form, Addendum 3 (see Annex 7.6 and Attachment 3). Based on acceptable knowledge, it is anticipated that all personal protective equipment (PPE) and disposable sampling equipment generated will be nonhazardous and will be disposed of as nonhazardous solid waste.

TABLE 4-1

SUMMARY OF WASTE TYPES AND VOLUMES FOR PRS C-0-043

ITEM	WASTE TYPE	ANTICIPATED VOLUME
Sampling waste/personal protective equipment	Solid	1 ft^3
Bricks/mortar	Solid	4 yd^3

The manhole will be field screened and swiped for radiological contamination upon removal. The swipes will be counted by ESH-1 personnel at the TA-21 Radiological Screening Laboratory. If the swipes indicate nondetectable activity, the manhole structure and associated debris will be disposed of at the Los Alamos County Landfill as construction debris. If the manhole structure is determined to contain radiological contamination, the structure will be appropriately containerized for disposal based on the type of contamination (e.g., drums or roll-off bins). The waste will be immediately shipped to an approved temporary storage area until appropriate disposal can be determined and arranged.

5.0 DESCRIPTION OF CONFIRMATORY/VERIFICATION SAMPLING

Two confirmation samples will be collected from beneath the manhole structure upon its removal. If soil outside the manhole appears contaminated based on visual inspection, or if field screening results suggest the presence of chemical or radiological contamination, additional samples will be collected, screened for radioactivity, and submitted to a fixed laboratory for analysis.

Analyses will include total uranium (uranium-234 and uranium-236) using inductively-coupled plasma/mass spectrometry (ICP/MS), plutonium (plutonium-238 and plutonium-239/240) using alpha spectrometry, americium-241 using gamma spectrometry, VOCs using EPA SW-846 Method 8260, SVOCs using EPA SW-846 Method 8270, TAL metals using EPA SW-846 Methods 6010 and 7470 (mercury), and PCBs/pesticides using EPA SW-846 Method 8080.

6.0 ESTIMATED TIME TO COMPLETE THE ACTION AND UNCERTAINTIES

Based on historical background information about PRS C-0-043 and the types of buildings it serviced, the VCA activities should be completed in one field day. However, it is possible that the extent of contamination will be greater than originally anticipated. If so, field activities will be stopped and the site will be reevaluated to determine the best approach for site remediation.

7.0 ANNEXES

7.1 Risk-Based Cleanup Level Assumptions and Calculations

PRS C-0-043 is located near Los Alamos High School and the new Catholic Church, and the site could potentially be used for residential purposes in the future. Therefore, EPA Region IX PRGs will be used as conservative cleanup levels for this site.

7.2 RFI Analytical Results

The analytical results from PRS C-0-043 RFI samples are presented in Attachment 5.

7.3 Implementation SOPs

The standard operating procedures (SOPs) applicable to the VCA activities at PRS C-0-043 are shown in Table 7-1.

TABLE 7-1

SOPs APPLICABLE TO THE VCA FOR PRS C-0-043[a]

GENERAL SOPs	
ER-SOP-01.01	General Instructions for Field Investigations
ER-SOP-01.02	Sample Container and Preservation
ER-SOP-01.03	Handling, Packaging and Shipping of Samples
ER-SOP-01.04	Sample Control and Field Documentation
ER-SOP-01.05	Field Quality Control Samples
ER-SOP-01.06	Management of RFI-Generated Waste
ER-SOP-01.08	Field Decontamination of Drilling and Sampling Equipment
SAMPLING TECHNIQUES	
ER-SOP-06.09	Spade and Scoop Method for Collection of Soil Samples
ER-SOP-06.10	Hand Auger and Thin-Wall Tube Sampler

[a] See LANL (Los Alamos National Laboratory). "Los Alamos National Laboratory Environmental Restoration Program Standard Operating Procedures," Los Alamos National Laboratory report, Los Alamos, New Mexico. (LANL, 0875)

7.4 Quality Assurance Plan

This VCA will be conducted in accordance with the LANL Quality Program Plan (LANL 1991, 0840) and the LANL Quality Assurance Project Plan (LANL 1996, 1292).

7.5 Site-Specific Health and Safety Plan

This VCA will be conducted in accordance with the Site-Specific Health and Safety Plan (SSHASP) (LANL 1995, 1306) and Modification 5 of the SSHASP (see Attachment 2).

7.6 Waste Management Checklist

This VCA will be conducted in accordance with the Site-Specific Waste Characterization Strategy Form, Addendum 3 (see Attachment 3).

7.7 VCA Checklist and Fieldwork Authorization Form

The VCA Checklist and Fieldwork Authorization Form is included as Attachment 4.

7.8 Cost Estimate

The estimated costs to complete the VCA at PRS C-0-043 are shown in Table 7-2.

TABLE 7-2

COST ESTIMATES FOR THE VCA AT PRS C-0-043

ACTIVITY	COST
PRE-FIELD ACTIVITIES	
Field preparation/readiness review	$ 3 700
Subtotal	$ 3 700
FIELD ACTIVITIES	
Field team (Field Operations Manager, Field Team Manager, Field Team Leader, Site Safety Officer, Sampler/Waste Manager, etc.)	$ 5 000
Geodetic surveys/"mark out" surveys	$ 630
Excavation, manhole removal, waste transportation and disposal, and site restoration	$ 1 300
Subtotal	$ 6 930
ANALYTICAL COSTS	
TA-21 radiochemistry laboratory	No charge
Confirmation sampling	$ 2 000
Subtotal	$2 000
POST FIELD ACTIVITIES	
Acceptance inspection	$ 1 000
Final report	$ 6 000
Subtotal	$ 7 000
TOTAL ESTIMATED COST	**$ 19 630**

8.0 REFERENCES

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ATTACHMENT 1 ADDENDUM TO THE SPILL PREVENTION, CONTROL, AND COUNTERMEASURE IMPLEMENTATION PLAN

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MEMORANDUM
ERM/GOLDER LOS ALAMOS PROJECT TEAM

To: **Terry Rust,** ***Field Operations Manager***

Fr: **Jayne A. Jones,** ***Field Team Manager***

Date: **December 4, 1996**

Re: **Addendum #2 to the Spill Prevention, Control and Countermeasure Implementation Plan, Field Unit #1, TA-0, PRSs 0-030 (d, h, i, k, n, o, and p)**

This addendum is to add the new site and field activities for PRS C-0-043 to the above referenced Spill Prevention, Control and Countermeasure Implementation Plan. Field activities will be conducted in the fall/winter of 1996 as part of the Los Alamos National Laboratory (LANL) Environmental Restoration (ER) Project.

PRS C-0-043 consists of a brick manhole located on private property north of Canyon Road at the "new" Catholic Church (Figure 1). It was part of the sanitary sewer line system connected to the former Central Waste Water Treatment Plant. The Central Waste Water Treatment Plant was in operation from the mid 1940's until it was decommissioned in the early 1960's. Sanitary waste passed through the manhole from original town site buildings (barracks) near the current site of the "new" Catholic Church. It is believed that the manhole was connected only to residential-type buildings, so it is unlikely that radioactive or RCRA materials would have been discharged into the sewer lines accessible by this manhole. It is unknown when this manhole was put into or taken out of service.

The manhole is being investigated in order to determine if there is a potential risk to human health and the environment. To date RFI activities have consisted of collecting two samples from sediments at the bottom of the manhole. The analytical results for the sediment samples indicate that there are no Chemicals of Potential Concern (COPC) within the manhole (Attachment 1). Upon removal of the manhole, two confirmation soil samples will be collected from the underlying soils and will be analyzed for total uranium (^{234}U, ^{236}U), plutonium (^{238}Pu, $^{239/240}Pu$), ^{241}americium (^{241}Am), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, polychlorinated biphenyl's (PCBs), and pesticides.

The manhole will be screened and swiped for radiological contamination upon removal. The swipes will be counted by ESH-1 personnel at the TA-21 radiological screening laboratory. If the swipes indicate non-detectable activity, the manhole structure will be disposed of at the Los Alamos County Landfill as construction debris. If the manhole structure is determined to be radiologically contaminated, the structure will be appropriately containerized for disposal based on the type of contamination (e.g., drums or roll-off bins). The waste will be immediately shipped to an appropriate temporary storage area until disposal can be determined and arranged.

Field work is estimated to last one day and will consist of: removing the manhole structure with a backhoe; backfilling and compacting the excavation with clean fill material; and covering the area with erosion control matting. Due to the small size of the excavation (approximately 5 ft by 5 ft by 5 ft) and it being located within a landscaped area, additional storm water controls will not be implemented.

The construction debris (mortar and bricks from the manhole) is estimated at 4 cubic yards and will be delivered directly to the county landfill upon receipt of non-detectable smear results. It is anticipated that a water decontamination process will not be required for any equipment.

CC: Steve Veenus, Santa Fe Engineering (ESH-18)
Mike Alexander, ESH-18
John Williams, ERM/Golder
Project File AW588.6.2

ERM/GOLDER LOS ALAMOS PROJECT TEAM

ATTACHMENT 2 SITE-SPECIFIC HEALTH AND SAFETY PLAN, MODIFICATION 5

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SSHASP MODIFICATION FORM

Project Title: Field Unit 1, SWMU 0-030 (d, h, i, j, k, n, o and p) Septic Tanks

TA(s): 0 SSHASP No.: 101 Modification No.: 5

Modifications of the SSHASP shall be made per Section 1.3 of the HASP.
Attach to this page the SSHASP modifications.

Comments of the following reviewers have been incorporated as stipulated, or resolved with written record and copy to the respective reviewer.

	(Print Name)	(Title)	(Signature)	(Date)
Prepared by	Jayne A. Jones	Field Team Manager		12/3/96

Review and Approval by:

	(Print Name)	(Title)	(Signature)	(Date)
Field Unit HS Representative	Jan Rundle	FU-1 HS Rep		12/10/96
FTM or DPL, or FTL or JS (optional at discretion of FPL)	JAYNE JONES	FTM/FTL		12/12/96
Technical Area (TA) Representative (optional at discretion of FPL)	NA			
FPL	Terry Rust	FOM	TERRY RUST	12/12/96

Concurrence by:

	(Print Name)	(Title/Company)	(Signature)	(Date)
Subcontractor Representative (Management or HS Rep.)	Kevin Hyde	H&S Coordinator/GTS		12/3/96
Subcontractor Representative (Management or HS Rep.)	BRAD PARKER	Parker Const.		12-20/96
Subcontractor Representative (Management or HS Rep.)				
ESH-1 Other	MARTY PEIFER	UC/ESH-1		12/19/96

SSHASP MODIFICATION #5
SSHASP #0101
FIELD UNIT 1
PRS 0-030, Townsite Septic Tanks
and
PRS C-0-043, Manhole

Purpose and Scope of Work

Modify SSHASP #0101 to reflect activities at a new PRS, C-0-043, for removal of a former sanitary sewer manhole. These new activities are considered to be construction type activities. Currently, a steel plate covers the open brick and mortar manhole. The top portion of the manhole has been collapsed down to ground level. The current top of the manhole is approximately 18 to 24 inches in diameter and the bottom diameter is a maximum of 4 ft. Approximately 5 to 10 inches or 1 cubic yard of sediment and a tuff boulder are present in the bottom of the manhole. It is assumed that two pipes are present near the bottom of the manhole; these pipes are not currently visible. It was determined during previous sampling activities that the manhole has a brick and mortar bottom.

Two soil samples from the bottom of the manhole were analyzed at a fixed laboratory for VOCs, SVOCs, pesticides/PCBs, TAL metals, total uranium (^{234}U, ^{236}U), plutonium (^{238}Pu, $^{239/240}Pu$) and americium (^{241}Am). The laboratory analytical results are attached and are presented in Appendix B for the hazard assessment.

To remove the manhole, a backhoe will be used to excavate around the perimeter and loosen the manhole structure. An attempt will be made to remove the manhole as one piece. If successful, the structure will be placed on plastic sheeting, screened, and swiped before being placed in a dump truck. If the structure collapses, the bricks and mortar will be removed with the backhoe bucket, placed on plastic, screened and swiped, and then placed into a dump truck. If the swipes and field screening indicate the structure is not radiologically contaminated, then the manhole structure will be taken to the Los Alamos County Landfill as construction debris. The sediment will be returned to the excavation after removal of the manhole. It is estimated that the removal activities will require 1 to 2 hours or a maximum of one day. After removal of the manhole, the open excavation will be backfilled with "clean" backfill material and compacted. The disturbed area will be covered with erosion control matting as a final restoration activity.

All excavation activities will be monitored and screened according to the health and safety provisions in SSHASP #0101. Dust suppression will be implemented during the removal of the manhole, specifically when the sediments inside the manhole are being removed because of the presence of lead and other metals. Hand washing facilities will be set up in the support zone for all personnel to wash hands prior to leaving the site.

DESCRIPTION OF MODIFICATIONS

1. A new task describing the scope of work has been added to Table 2-2 (attached) for the new PRS (C-0-043) for the removal and sampling activities, Task #13, Church Parking Lot Manhole, PRS C-0-043.
2. For a hazard assessment, the site background information is included in the revised Table 2-1 for the new PRS (attached), and analytical data are included in the revised table for Appendix B (attached). Table 4-2 (attached) was revised to include Task #13. The hazard assessment does not require any modifications to Tables 4-3, 6-1 and 6-2 in the original SSHASP.
3. Change in site personnel roles for field activities starting after December 2, 1996. Jayne Jones will be the FTM/FTL/sampler/waste manager and Kevin Hyde will be the SSO/RCT.

2.0 BACKGROUND INFORMATION

Project Title:	Field Unit 1, SWMUs 0-030(d,h,i,j,k,n,o,p) Septic Tanks and PRS C-0-043, Church Parking lot Manhole
TA:	0
Objective:	Ensure that the property is suitable for unrestricted use
Classification of Work:	Intrusive and Non-intrusive Activities

TABLE 2-1

SITE DESCRIPTIONS

	SWMUS								
	SWMU 0-030 (d)	**SWMU 0-030 (h)**	**SWMU 0-030 (i)**	**SWMU 0-030 (j)**	**SWMU 0-030 (k)**	**SWMU 0-030 (n)**	**SWMU 0-030 (o)**	**SWMU 0-030 (p)**	**PRS C-0-043**
	Characteristics								
Adjacent Facilities/Structure									
Roads/Highways	X	X	X	X	X	X	X	X	X
Buildings/Foundation	X			X	X	X	X	X	X
UST									
Below Ground Utilities (excavation permit review will be completed prior to intrusive work)									
Electric	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Cable	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Gas	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Phone	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Water	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

	SWMU 0-030 (d)	SWMU 0-030 (h)	SWMU 0-030 (i)	SWMU 0-030 (j)	SWMU 0-030 (k)	SWMU 0-030 (n)	SWMU 0-030 (o)	SWMU 0-030 (p)	PRS C-0-043
Sewer	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Other (specify)									
Above Ground Electric:									
<50kV	TBD	TBD		TBD	TBD	TBD	TBD	TBD	TBD
>50kV	TBD	TBD		TBD	TBD	TBD	TBD	TBD	TBD
>345kV	TBD	TBD		TBD	TBD	TBD	TBD	TBD	TBD
Other(specify):									
Topography									
Canyon Bottom									
Canyon Slopes *[enter approx. % grade]*	15 %	5 %	18 %	10 %	13 %	9 %	17 %	3 %	
Mesa Top	X	X	X	X	X	X	X	X	X
Rolling Hills									
Meadow									
Streams									
Other *[specify]*:									
Pathway of Release	*[for land and water indicate direction, e.g., N, NE, etc.]*								
Land	SE	N	S	NE	N	N	N	NE	N
Water	SE	N	SW	NE	N	N	N	NE	N
Air	X	X	X	X	X	X	X	X	X
Emergency	*[indicate "Y" or "N"]*								
Land	Y	Y	Y	Y	Y	Y	Y	Y	Y
Air	Y	Y	Y	Y	Y	Y	Y	Y	Y
Water	N	N	N	N	N	N	N	N	N
Onsite Facilities/Operations	*[where applicable indicate spatial dimensions]*								
Research									
Production									

	SWMU 0-030 (d)	SWMU 0-030 (h)	SWMU 0-030 (i)	SWMU 0-030 (j)	SWMU 0-030 (k)	SWMU 0-030 (n)	SWMU 0-030 (o)	SWMU 0-030 (p)	PRS C-0-043
Previous Release/Spill									
UST									
Firing Site									
Plating									
Landfill (municipal)									
Landfill (mixed waste)									
Storage (rad. mat'ls)									
Storage (chem. mat'ls)									
Storage (chem.. waste)									
Storage (rad. waste)									
Storage (mixed waste)									
Storage (petroleum products)									
Septic Tank	X	X	X	X	X	X	X	X	
Sanitary Sewer Line Manhole									X
Previous ER Information and/or Data Available									
Knowledge of Process	X	X	X	X	X	X	X	X	X
Initial Scoping/ Reconnaissance	X	X	X	X	X	X	X	X	X
Phase I									
Phase II									
Analytical Data (screening)									X
Analytical Data (validated)									X
Risk Assessment									
VCA									X
Remediation									
Other									
Previous Substances Used,									

	SWMU 0-030 (d)	SWMU 0-030 (h)	SWMU 0-030 (i)	SWMU 0-030 (j)	SWMU 0-030 (k)	SWMU 0-030 (n)	SWMU 0-030 (o)	SWMU 0-030 (p)	PRS C-0-043
Disposed, Detected, or Suspected									
HIGH EXPLOSIVES (HE)									
Not Applicable	X	X	X	X	X	X	X	X	X
RADIONUCLIDES	(indicate isotopes)								
Americium (^{241}Am)	X	X	X	X	X	X	X	X	X
Plutonium (^{238}Pu, $^{239/240}Pu$)	X	X	X	X	X	X	X	X	X
Polonium (^{210}Po)	X	X	X	X	X	X	X	X	
INORGANIC CORROSIVE ACIDS/BASES									
Not Applicable	X	X	X	X	X	X	X	X	X
HALOGENS									
Not Applicable	X	X	X	X	X	X	X	X	X
METALS									
Lead	X	X	X	X	X	X	X	X	X
TAL Metals (Excluding lead)	X	X	X	X	X	X	X	X	
Antimony									X
Thallium									X
Zinc									X
MINERALS *(indicate %)*									
Not applicable	X	X	X	X	X	X	X	X	X
ORGANIC ACIDS									
Not Applicable	X	X	X	X	X	X	X	X	X
ALCOHOLS									
Not Applicable	X	X	X	X	X	X	X	X	X
ALDEHYDES									
Not Applicable	X	X	X	X	X	X	X	X	X
GASES									

	SWMU 0-030 (d)	SWMU 0-030 (h)	SWMU 0-030 (i)	SWMU 0-030 (j)	SWMU 0-030 (k)	SWMU 0-030 (n)	SWMU 0-030 (o)	SWMU 0-030 (p)	PRS C-0-043
Hydrogen Sulfide	X	X	X	X	X	X	X	X	
Methane	X	X	X	X	X	X	X	X	
HYDROCARBONS (Halogenated)									
Not Applicable	X	X	X	X	X	X	X	X	
HYDROCARBONS (Non-halogenated)									
Not Applicable	X	X	X	X	X	X	X	X	
phenanthrene									X
di-n-butylphthalate									X
pyrene									X
2-butanone									X
chloroform									X
4-methyl-2-pentanone									X
2-hexanone									X
m,p-xylene									X
1,2,4-trimethylbenzene									X
naphthalene									X
HYDROCARBONS (Petro Based)									
Not Applicable	X	X	X	X	X	X	X	X	
KETONES									
Not Applicable	X	X	X	X	X	X	X	X	
PESTICIDES									
Not Applicable									
Other	X	X	X	X	X	X	X	X	
p,p'-DDE									X
p,p'-DDT									X
PCBs									
Not Applicable									

	SWMU 0-030 (d)	SWMU 0-030 (h)	SWMU 0-030 (i)	SWMU 0-030 (j)	SWMU 0-030 (k)	SWMU 0-030 (n)	SWMU 0-030 (o)	SWMU 0-030 (p)	PRS C-0-043
Other	X	X	X	X	X	X	X	X	
OTHER									
VOLATILES	All eight SWMU's consist of septic tanks and associated piping. No volatiles are expected to be found. As a safety precaution, monitoring will be conducted for VOCs with a PID (580 OVM w/11.7 lamp) during tasks 2-9, and 11.								
SEMI-VOLATILES	All eight SWMU's consist of septic tanks and associated piping. No semi-volatiles are expected to be found. As a safety precaution, monitoring will be conducted for SVOCs with a PID (580 OVM w/11.7 lamp) during tasks 2-9, and 11.								

TABLE 2-2 SCOPE OF WORK			
Task ID	**Task Description**	**Site ID(s)**	**Anticipated Dates/Duration**
Task 1 - Field Survey	This task includes surveying to locate subsurface structure(s) (areas surrounding septic tanks, drain lines, leach field and areas with visual evidence that suggests contamination) and the placement of surface and subsurface sampling locations. A. Site Survey 1. Records Review: Examination of historic photographs, maps, engineering plans. 2. Site Inspection (Non-intrusive): Locating buried structures in the field. 3. Locating and marking locations of buried structures. B) Geodetic Survey: Non-intrusive surveying services to lay out survey grids for geophysical survey C) Geophysical Survey: Subcontractor use of magnetic, electromagnetic, conductivity, and ground penetrating radar to locate buried structures. D) Geomorphologic Mapping: Locating and mapping outfall areas from the SWMUs septic systems.	**0-030** **(d,h,i,j,k,n,o,p)**	**January to February 1996/ 5 weeks**
Task 2 - Septic Tank 030 (d)	This task involves the subsurface sampling at septic tank SWMU D-030(d): A. This sub-task will involve the placement of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Mobilization: Establishment of site control boundaries, equipment, and temporary storage area. 2. Heavy Equipment Operation: Mobilizing backhoe and associated heavy equipment to the field site. B. This sub-task will involve sampling of septic tank system, subsurface piping and marking the sampling locations. 1. Septic Tank System: a) Interior Tank Sampling: The contents inside the tank (s) will be sampled using a hand-auger, and analyzed for potential contaminants of concern. It will not be necessary to enter any of the tanks. b) Excavation: Subcontractor will remove surface soil to expose the top of the tank and subsurface piping utilizing a backhoe. May use backhoe to uncover buried structures or assist in locating structures if geophysics does not achieve adequate results. c) Subsurface Sampling: A hand auger will be used to obtain soil samples beneath the tank, beneath the subsurface piping, and in other potentially contaminated areas. d) Equipment and Personnel Decontamination: Use of dry, aqueous, and methanol decontamination procedures to clean potentially/actually contaminated equipment and personnel in the EZ or CRZ. 2. Geodetic Survey: Sample locations will be geodetically surveyed. C. This sub-task will involve the removal of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Demobilization: Removal of site control boundaries, equipment, and supplies. 2. Heavy Equipment Operation: Demobilizing backhoe and associated heavy equipment from the field site.	0-030 (d)	**Summer 1996/ 2 to 3 weeks**

Task 3 - Septic Tank 030 (h)	This task involves the subsurface sampling at septic tank SWMU D-030(h): A. This sub-task will involve the placement of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Mobilization: Establishment of site control boundaries, equipment, and temporary storage area. 2. Heavy Equipment Operation: Mobilizing backhoe and associated heavy equipment to the field site. B. This sub-task will involve sampling of septic tank system, subsurface piping and marking the sampling locations. 1. Septic Tank System: a) Interior Tank Sampling: The contents inside the tank (s) will be sampled using a hand-auger, and analyzed for potential contaminants of concern. It will not be necessary to enter any of the tanks. b) Excavation: Subcontractor will remove surface soil to expose the top of the tank and subsurface piping utilizing a backhoe. May use backhoe to uncover buried structures or assist in locating structures if geophysics does not achieve adequate results. c) Subsurface Sampling: A hand auger will be used to obtain soil samples beneath the tank, beneath the subsurface piping, and in other potentially contaminated areas. d) Equipment and Personnel Decontamination: Use of dry, aqueous, and methanol decontamination procedures to clean potentially/actually contaminated equipment and personnel in the EZ or CRZ. 2. Geodetic Survey: Sample locations will be geodetically surveyed. C. This sub-task will involve the removal of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Demobilization: Removal of site control boundaries, equipment, and supplies. 2. Heavy Equipment Operation: Demobilizing backhoe and associated heavy equipment from the field site.	0-030 (h)	Spring 1996/ 2 to 3 weeks
Task 4 - Septic Tank 030 (i)	This task involves the subsurface sampling at septic tank SWMU D-030(i): A. This sub-task will involve the placement of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Mobilization: Establishment of site control boundaries, equipment, and temporary storage area. 2. Heavy Equipment Operation: Mobilizing backhoe and associated heavy equipment to the field site. B. This sub-task will involve sampling of septic tank system, subsurface piping and marking the sampling locations. 1. Septic Tank System: a) Interior Tank Sampling: The contents inside the tank (s) will be sampled using a hand-auger, and analyzed for potential contaminants of concern. It will not be necessary to enter any of the tanks. b) Excavation: Subcontractor will remove surface soil to expose the top of the tank and subsurface piping utilizing a backhoe. May use backhoe to uncover buried structures or assist in locating structures if geophysics does not achieve adequate results. c) Subsurface Sampling: A hand auger will be used to obtain soil samples beneath the tank, beneath the subsurface piping, and in other potentially contaminated areas. d) Equipment and Personnel Decontamination: Use of dry, aqueous, and methanol decontamination procedures to clean potentially/actually contaminated equipment and personnel in the EZ or CRZ. 2. Geodetic Survey: Sample locations will be geodetically surveyed. C. This sub-task will involve the removal of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Demobilization: Removal of site control boundaries, equipment, and supplies. 2. Heavy Equipment Operation: Demobilizing backhoe and associated heavy equipment from the field site.	0-030 (i)	Spring 1996/ 2 to 3 weeks

Task 5 - Septic Tank 030 (j)	This task involves the subsurface sampling at septic tank SWMU D-030(j): A. This sub-task will involve the placement of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Mobilization: Establishment of site control boundaries, equipment, and temporary storage area. 2. Heavy Equipment Operation: Mobilizing backhoe and associated heavy equipment to the field site. B. This sub-task will involve sampling of septic tank system, subsurface piping and marking the sampling locations. 1. Septic Tank System: a) Interior Tank Sampling: The contents inside the tank (s) will be sampled using a hand-auger, and analyzed for potential contaminants of concern. It will not be necessary to enter any of the tanks. b) Excavation: Subcontractor will remove surface soil to expose the top of the tank and subsurface piping utilizing a backhoe. May use backhoe to uncover buried structures or assist in locating structures if geophysics does not achieve adequate results. c) Subsurface Sampling: A hand auger will be used to obtain soil samples beneath the tank, beneath the subsurface piping, and in other potentially contaminated areas. d) Equipment and Personnel Decontamination: Use of dry, aqueous, and methanol decontamination procedures to clean potentially/actually contaminated equipment and personnel in the EZ or CRZ. 2. Geodetic Survey: Sample locations will be geodetically surveyed. C. This sub-task will involve the removal of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Demobilization: Removal of site control boundaries, equipment, and supplies. 2. Heavy Equipment Operation: Demobilizing backhoe and associated heavy equipment from the field site.	0-030 (j)	Spring 1996/ 2 to 3 weeks
Task 6 - Septic Tank 030 (k)	This task involves the subsurface sampling at septic tank SWMU D-030(k): A. This sub-task will involve the placement of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Mobilization: Establishment of site control boundaries, equipment, and temporary storage area. 2. Heavy Equipment Operation: Mobilizing backhoe and associated heavy equipment to the field site. B. This sub-task will involve sampling of septic tank system, subsurface piping and marking the sampling locations. 1. Septic Tank System: a) Interior Tank Sampling: The contents inside the tank (s) will be sampled using a hand-auger, and analyzed for potential contaminants of concern. It will not be necessary to enter any of the tanks. b) Excavation: Subcontractor will remove surface soil to expose the top of the tank and subsurface piping utilizing a backhoe. May use backhoe to uncover buried structures or assist in locating structures if geophysics does not achieve adequate results. c) Subsurface Sampling: A hand auger will be used to obtain soil samples beneath the tank, beneath the subsurface piping, and in other potentially contaminated areas. d) Equipment and Personnel Decontamination: Use of dry, aqueous, and methanol decontamination procedures to clean potentially/actually contaminated equipment and personnel in the EZ or CRZ. 2. Geodetic Survey: Sample locations will be geodetically surveyed. C. This sub-task will involve the removal of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Demobilization: Removal of site control boundaries, equipment, and supplies. 2. Heavy Equipment Operation: Demobilizing backhoe and associated heavy equipment from the field site.	0-030 (k)	Summer 1996/ 2 to 3 weeks

Task 7 - Septic Tank 030 (n)	This task involves the subsurface sampling at septic tank SWMU D-030(n): A. This sub-task will involve the placement of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Mobilization: Establishment of site control boundaries, equipment, and temporary storage area. 2. Heavy Equipment Operation: Mobilizing backhoe and associated heavy equipment to the field site. B. This sub-task will involve sampling of septic tank system, subsurface piping and marking the sampling locations. 1. Septic Tank System: a) Interior Tank Sampling: The contents inside the tank (s) will be sampled using a hand-auger, and analyzed for potential contaminants of concern. It will not be necessary to enter any of the tanks. b) Excavation: Subcontractor will remove surface soil to expose the top of the tank and subsurface piping utilizing a backhoe. May use backhoe to uncover buried structures or assist in locating structures if geophysics does not achieve adequate results. c) Subsurface Sampling: A hand auger will be used to obtain soil samples beneath the tank, beneath the subsurface piping, and in other potentially contaminated areas. d) Equipment and Personnel Decontamination: Use of dry, aqueous, and methanol decontamination procedures to clean potentially/actually contaminated equipment and personnel in the EZ or CRZ. 2. Geodetic Survey: Sample locations will be geodetically surveyed. C. This sub-task will involve the removal of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Demobilization: Removal of site control boundaries, equipment, and supplies. 2. Heavy Equipment Operation: Demobilizing backhoe and associated heavy equipment from the field site.	0-030 (n)	Spring 1996/ 2 to 3 weeks
Task 8 - Septic Tank 030 (o)	This task involves the subsurface sampling at septic tank SWMU D-030(o): A. This sub-task will involve the placement of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Mobilization: Establishment of site control boundaries, equipment, and temporary storage area. 2. Heavy Equipment Operation: Mobilizing backhoe and associated heavy equipment to the field site. B. This sub-task will involve sampling of septic tank system, subsurface piping and marking the sampling locations. 1. Septic Tank System: a) Interior Tank Sampling: The contents inside the tank (s) will be sampled using a hand-auger, and analyzed for potential contaminants of concern. It will not be necessary to enter any of the tanks. b) Excavation: Subcontractor will remove surface soil to expose the top of the tank and subsurface piping utilizing a backhoe. May use backhoe to uncover buried structures or assist in locating structures if geophysics does not achieve adequate results. c) Subsurface Sampling: A hand auger will be used to obtain soil samples beneath the tank, beneath the subsurface piping, and in other potentially contaminated areas. d) Equipment and Personnel Decontamination: Use of dry, aqueous, and methanol decontamination procedures to clean potentially/actually contaminated equipment and personnel in the EZ or CRZ. 2. Geodetic Survey: Sample locations will be geodetically surveyed. C. This sub-task will involve the removal of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Demobilization: Removal of site control boundaries, equipment, and supplies. 2. Heavy Equipment Operation: Demobilizing backhoe and associated heavy equipment from the field site.	0-030 (o)	Spring 1996/ 2 to 3 weeks

Task 9 - Septic Tank 030 (p)	This task involves the subsurface sampling at septic tank SWMU D-030(p): A. This sub-task will involve the placement of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Mobilization: Establishment of site control boundaries, equipment, and temporary storage area. 2. Heavy Equipment Operation: Mobilizing backhoe and associated heavy equipment to the field site. B. This sub-task will involve sampling of septic tank system, subsurface piping and marking the sampling locations. 1. Septic Tank System: a) Interior Tank Sampling: The contents inside the tank (s) will be sampled using a hand-auger, and analyzed for potential contaminants of concern. It will not be necessary to enter any of the tanks. b) Excavation: Subcontractor will remove surface soil to expose the top of the tank and subsurface piping utilizing a backhoe. May use backhoe to uncover buried structures or assist in locating structures if geophysics does not achieve adequate results. c) Subsurface Sampling: A hand auger will be used to obtain soil samples beneath the tank, beneath the subsurface piping, and in other potentially contaminated areas. d) Equipment and Personnel Decontamination: Use of dry, aqueous, and methanol decontamination procedures to clean potentially/actually contaminated equipment and personnel in the EZ or CRZ. 2. Geodetic Survey: Sample locations will be geodetically surveyed. C. This sub-task will involve the removal of access corridor(s), perimeter security barrier(s), mobile field support office, supplies and sanitation facilities. Associated sub-tasks include: 1. Demobilization: Removal of site control boundaries, equipment, and supplies. 2. Heavy Equipment Operation: Demobilizing backhoe and associated heavy equipment from the field site.	0-030 (p)	Summer 1996/ 2 to 3 weeks
Task 10 - On-Site Waste Management	On-site coordination of waste management, including identification, handling, transport, and disposition of non-hazardous, potentially hazardous and hazardous wastes. This task will be accomplished according to the Project-Specific Waste Characterization Strategy Form and may occur simultaneous with Tasks 2 through 9. Associated subtasks include: A. Containing and Labeling Wastes: DOT approved 55 gallon drums will be used for waste storage. Items too large to place in drums will be placed in larger approved containers such as roll-off bins. B) Transporting Waste Containers for Temporary Storage: During field activities, a temporary Waste Management Area will be located in the support zone. The waste containers will be transported off-site to an established temporary storage area and/or a <90 day storage area.	0-030 (d,h,i,j,k,n,o,p)	Spring to summer 1996
Task 11 - On-Going Monitoring	This task will occur concurrently with Tasks 2 through 9. On-going monitoring of surface and subsurface environmental samples. PPE initially will be at Level "D". PPE will be upgraded if conditions warrant. Upgrade of PPE level will depend on field screening of chemical compounds associated with the septic tanks, drain lines, leach fields and outfall areas during tasks 2 through 9. Associated sub-tasks include: A. Sample Monitoring/Screening: Volatile organic compounds will be monitored as necessary using a Photoionization detector (PID). A Combustible Gas/Oxygen meter (CGI) with hydrogen-sulfide indicator will be used as needed for septic tank sampling. Samples will be monitored for radiation using alpha and beta/gamma instruments. B. Exposure Monitoring: Real-time and integrated monitoring equipment will be used as necessary to monitor employee exposures to radiological (^{241}Am, $^{238,239}Pu$, ^{210}Po) and chemical (VOCs, SVOCs, lead, H_2S, CH_4) hazards.	0-030 (d,h,i,j,k,n,o,p)	Spring to summer 1996
Task 12 - Incident Response	Response to an incident (i.e., rendering first-aid/CPR, hazardous substance release, fire, and spill containment) tasks will be performed as necessary and in accordance with Sections 7, 9 and 10 of the HASP and this SSHASP. This task includes the following subtasks: A. First-aid/CPR B. Fire Fighting C. Incident Response *[in accordance with 29 CFR 1926.65(q)(6)(ii)]* D. Spill Containment *[in accordance with 29 CFR 1926.65(q)(6)(ii)]*	0-030 (d,h,i,j,k,n,o,p)	As Needed.

Task 13 - Church Parking Lot Manhole, PRS C-0-043	This task involves the subsurface sampling at PRS C-0-043, Church Parking Lot Manhole: A. This sub-task will involve the placement of access corridor(s), perimeter security barrier(s), mobile field support office, and supplies. Associated sub-tasks include: 1. Mobilization: Establishment of site control boundaries and equipment. 2. Heavy Equipment Operation: Mobilizing backhoe, dump truck, and associated heavy equipment to the field site. B. This sub-task will involve removing the sanitary sewer manhole structure, plugging the subsurface piping, collecting subsurface verification samples, and marking the sampling locations. 1. Sanitary Sewer Manhole: a) Excavation: A subcontractor will remove the steel plate over the manhole to expose open manhole structure and subsequently remove the manhole utilizing a backhoe. After the manhole is determined to be a nonradioactive waste it will be loaded onto dump trucks and transported to the Los Alamos County Landfill and disposed of as construction debris. b) Subsurface Sampling: Soil samples will be collected from the backhoe bucket after the manhole structure has been removed. Samples will be collected beneath the former location of the manhole. c) Equipment and Personnel Decontamination: Use of dry and aqueous procedures to clean potentially/actually contaminated equipment and personnel in the EZ or CRZ. 2. Geodetic Survey: Sample locations will be geodetically surveyed. 3. Site Restoration Activities: Includes bringing in clean backfill material, backfilling the open excavation and compacting the clean fill material. Erosion control matting will be placed over the disturbed area to assist with restoration of the landscaped area. C. This sub-task will involve the removal of access corridor(s), perimeter security barrier(s), mobile field support office, and supplies. Associated sub-tasks include: 1. Demobilization: Removal of site control boundaries, equipment, and supplies. Heavy Equipment Operation: Demobilizing backhoe, dump truck and associated heavy equipment from the field site.	C-0-043	December 1996/ 1 week.

TABLE 4-2
HAZARDOUS SUBSTANCES OF OCCUPATIONAL HEALTH CONCERN

Hazardous Chemical Products to be Used During Field Operations

The chemical products listed below are likely to be used for the tasks indicated, onsite or at satellite locations where field support operations occur. MSDSs for each product shall be kept readily available to users of these products, and shall be shared with other employer's employees onsite who may be affected by the hazardous products in accordance with 29 CFR 1926.65(b)(1)(iv) and (v) and 1926.65(i) and Section 4.2.2.3 of the HASP. It is LANL's policy that whenever feasible a less toxic product should be substituted for a more toxic product, especially for products having a carcinogen constituent.

HAZARDOUS SUBSTANCE	TASK(s)												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Compressed Gases													
Isobutylene (PID)		Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Pentane (FID or LEL/O_2)		Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Hydrogen Sulfide (H_2S meter)		Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Decontamination Fluids													
Methanol		Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	
Fuels/Lubricants (Petroleum-Based Hydrocarbons)													
Diesel		Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Gasoline		Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Site Contaminants													
METALS													
Lead		Min	Min	Min	Min	Min	Min	Min	Min	Neg	Min	Min	Neg
GASES													
Hydrogen Sulfide		Min	Min	Min	Min	Min	Min	Min	Min	Neg	Min	Min	Min
Methane		Min	Min	Min	Min	Min	Min	Min	Min	Neg	Min	Min	Min
RADIOLOGICAL SUBSTANCES													
Americium (^{241}Am)		Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Plutonium (unspecified)		Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Polonium 210		Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min

APPENDIX B
HAZARDOUS SUBSTANCE - HAZARD ASSESSMENT

This table includes a health hazard assessment, and associated rationales, of each chemical product and site contaminant listed in Table 2-1. This hazard assessment was completed in accordance with Section 4.1 of the HASP.

TASKS(S): All

Substance/ Synonym	Maximum Data[1]		Hazard Assessment Rating/Rationale
	Value	Location	
RADIOLOGICAL SUBSTANCES			
Process Knowledge			
Americium (^{241}Am)			Minimum - Included because of possible historic uses in area
Isotopic Plutonium (Pu^{238}, Pu^{239}, Pu^{240})			Minimum - Included because of possible historic uses in area
Polonium (Po^{210})			Minimum - Included because of possible historic uses in area
Soil Sample Results			
Americium (^{241}Am)	-0.250 pCi/g	bottom of manhole	Negligible
^{137}Cesium (^{137}Cs)	0.599 pCi/g	bottom of manhole	Negligible
^{238}Plutonium (^{238}Pu)	0.010 pCi/g	bottom of manhole	Negligible
^{239}Plutonium (^{239}Pu)	0.030 pCi/g	bottom of manhole	Negligible
Total Uranium	2.60 ug/g	bottom of manhole	Negligible
^{235}Uranium (^{235}U)	0.083 pCi/g	bottom of manhole	Negligible
Lead	52.3 mg/kg	bottom of manhole	Negligible
Antimony	4.9 mg/kg	bottom of manhole	Negligible
Thallium	3.5 mg/kg	bottom of manhole	Negligible
Zinc	112 mg/kg	bottom of manhole	Negligible
Phenanthrene	210 µg/kg	bottom of manhole	Negligible
di-n-butylphthalate	2500 µg/kg	bottom of manhole	Negligible

1 Reference resources where data reported, and either here or in the "location" column include a brief description of the sample location (e.g., borehole number, depth, etc.).

TASKS(S): All			
Substance/	Maximum Data		Hazard Assessment Rating/Rationale
Synonym	Value	Location	
Soil Sample Results (continued)			
pyrene	170 µg/kg	bottom of manhole	Negligible
2-butanone	83 µg/kg	bottom of manhole	Negligible
chloroform	3 µg/kg	bottom of manhole	Negligible
4-methyl-2-pentanone	6 µg/kg	bottom of manhole	Negligible
2-hexanone	30 µg/kg	bottom of manhole	Negligible
m,p-Xylene	10 µg/kg	bottom of manhole	Negligible
1,2,4-trimethylbenzene	20 µg/kg	bottom of manhole	Negligible
Naphthalene	3 µg/kg	bottom of manhole	Negligible
p,p'-DDE	16 µg/kg	bottom of manhole	Negligible
p,p'-DDT	28 µg/kg	bottom of manhole	Negligible
Soil Gas Vapor Results			
NA			
Air Monitoring or Sampling Results			
NA			
Water Sample Results			
NA			

2 Reference resources where data reported, and either here or in the "location" column include a brief description of the sample location (e.g., borehole number, depth, etc.).

TASKS(S): All

Substance/ Synonym	Maximum Data[1]		Hazard Assessment Rating/Rationale
	Value	Location	
CHEMICAL SUBSTANCES			
Process Knowledge			
Hydrogen Sulfide			Minimum - Slight potential for gas to be present in septic tank(s)
Methane			Minimum - Slight potential for gas to be present in septic tank(s)
Lead			Minimum - Slight potential for lead to be present in septic tank(s)
Other Metals[3]			Negligible - Most tanks contained only domestic waste as suggested by location and surrounding buildings. In tanks where metals may be present, exposure potential is very low and mostly through skin contact.
Volatiles			Negligible - Most tanks contained only domestic waste as suggested by location and surrounding buildings. In tanks where volatiles may be present, exposure potential is very low and mostly through skin contact.
Semi-Volatiles			Negligible - Most tanks contained only domestic waste as suggested by location and surrounding buildings.. In tanks where semi-volatiles may be present, exposure potential is very low and mostly through skin contact.
PCBs			Negligible - Most tanks contained only domestic waste as suggested by location and surrounding buildings.. In tanks where PCBs may be present, exposure potential is very low.
Pesticides			Negligible - Most tanks contained only domestic waste as suggested by location and surrounding buildings. In tanks where pesticides may be present, exposure potential is very low.

[3] Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

TASKS(S): *All*			
Substance/ Synonym	Maximum Data[1]		Hazard Assessment Rating/Rationale
	Value	Location	
Soil Sample Results			
NA			
Soil Gas Vapor Results			
NA			
Air Monitoring or Sampling Results			
NA			
Water Sample Results			
NA			

ATTACHMENT 3 ADDENDUM TO THE WASTE CHARACTERIZATION STRATEGY FORM

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MEMORANDUM
ERM/GOLDER LOS ALAMOS PROJECT TEAM

To: **Terry Rust,** ***Field Operations Manager***

Fr: **Jayne A. Jones,** ***Field Team Manager***

Date: **December 4, 1996**

Re: **Addendum #3 to the Waste Characterization Strategy Form, Field Unit #1, TA-0, PRSs 0-030 (d, h, i, k, n, o, and p)**

This addendum is to add the new site and field activities for PRS C-0-043 to the above referenced Waste Characterization Strategy Form. Field activities will be conducted in the fall/winter of 1996 as part of the Los Alamos National Laboratory (LANL) Environmental Restoration (ER) Project.

PRS C-0-043 consists of a brick manhole located on private property north of Canyon Road at the "new" Catholic Church (Figure 1). It was part of the sanitary sewer line system connected to the former Central Waste Water Treatment Plant. The Central Waste Water Treatment Plant was in operation from the mid 1940's until it was decommissioned in the early 1960's. Sanitary waste passed through the manhole from original town site buildings (barracks) near the current site of the "new" Catholic Church. It is believed that the manhole was connected only to residential-type buildings, so it is unlikely that radioactive or RCRA materials would have been discharged into the sewer lines accessible by this manhole. It is unknown when this manhole was put into or taken out of service.

The manhole is being investigated in order to determine if there is a potential risk to human health and the environment. To date RFI activities have consisted of collecting two samples from sediments at the bottom of the manhole. The analytical results for the sediment samples indicate that there are no Chemicals of Potential Concern (COPCs) within the manhole (Attachment 1). Upon removal of the manhole, two confirmation soil samples will be collected from the underlying soils and will be analyzed for total uranium (^{234}U, ^{236}U), plutonium (^{238}Pu, $^{239/240}Pu$), ^{241}americium (^{241}Am), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, polychlorinated biphenyl's (PCBs), and pesticides.

The manhole will be screened and swiped for radiological contamination upon removal. The swipes will be counted by ESH-1 personnel at the TA-21 radiological screening laboratory. If the swipes indicate non-detectable activity, the manhole structure will be disposed of at the Los Alamos County Landfill as construction debris. If the manhole structure is determined to be radiologically contaminated, the structure will be appropriately containerized for disposal based on the type of contamination (e.g., drums or roll-off bins). The waste will be immediately shipped to an appropriate temporary storage area until appropriate disposal can be determined and arranged.

Waste generated during VCA activities will include disposable scoops, gloves, paper towels, plastic sheeting, and other miscellaneous sampling debris. It is anticipated that one partially-filled 5-gallon solid waste drum will be generated. The PPE and sampling debris will be managed as a sanitary waste because it is not anticipated that the items will be contaminated. The amount of construction debris (mortar and bricks from the manhole) is estimated at 4 cubic yards and will be delivered directly to the county landfill upon receipt of non-detectable smear results. It is anticipated that a water decontamination process will not be required for any equipment.

CC: Mary Jane Winch
John Kelly
John Williams
Project File AW588.6.2

ERM/GOLDER LOS ALAMOS PROJECT TEAM

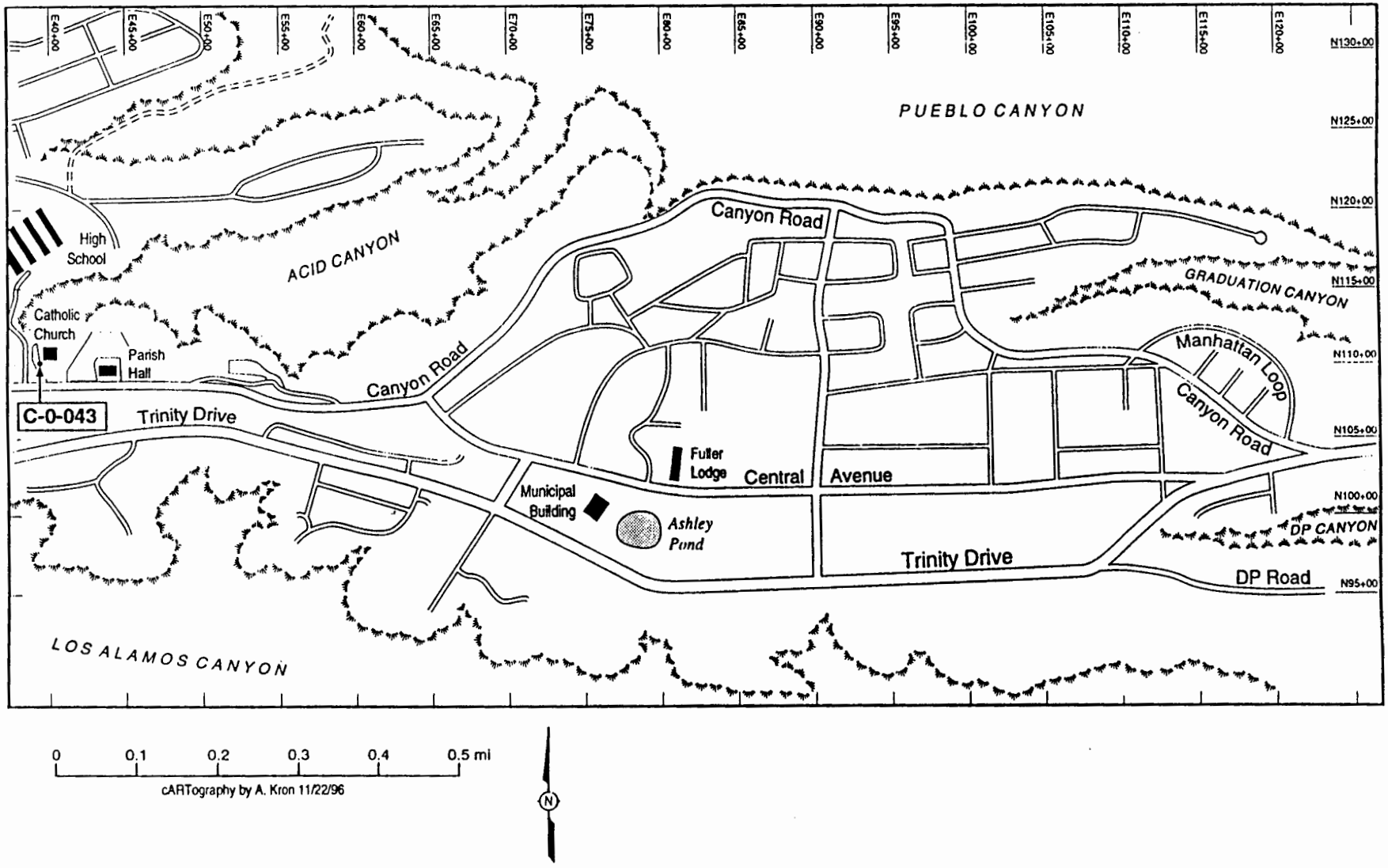

Figure 1. Location of PRS C-0-043, Catholic Church parking lot manhole.

PRELIMINARY DATA

Fixed Lab Radiochemistry

Field Unit 1, TA-0, Manhole at Catholic Church

				Ac-228		Am-241	
				Background = NA	SAL = NA	Background = 0.03 pCi/g	SAL = 22 pCi/g
Sample Number	Location ID	Location	Depth	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)
0100-96-0427	00-04905	bottom of manhole, south wall	0 - 8 in	1.190	0.149	-0.250	0.229
0100-96-0428	00-04906	bottom of manhole, northwall	0 - 5 in	1.130	0.182	-0.023	0.135
			Max Value	1.190	0.182	-0.023	0.229
			Min Value	1.130	0.149	-0.250	0.135

* Average background value for all soil = 28.6 pCi/g
Maximum background value for tuff = 37 pCi/g
** Average background value for all soil = NA
Maximum background value for tuff = 7.15 pCi/g

PRELIMINARY DATA

Fixed Lab Radiochemistry
Field Unit 1, TA-0, Manhole at Catholic Church

	Ba-140		Bi-211		Bi-212		Bi-214	
	Background = NA	SAL = NA	Background = NA	SAL = NA	Background = NA	SAL = NA	Background = NA	SAL = NA
Sample Number	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)
0100-96-0427	0.007	0.193	0.048	0.003	0.881	0.826	0.739	0.101
0100-96-0428	0.162	0.234	0.087	0.005	0.249	0.923	0.806	0.129
	0.162	0.234	0.087	0.005	0.881	0.923	0.806	0.129
	0.007	0.193	0.048	0.003	0.249	0.826	0.739	0.101

* Average background value for all soil = 28.6 pCi/g
Maximum background value for tuff = 37 pCi/g
** Average background value for all soil = NA
Maximum background value for tuff = 7.15 pCi/g

PRELIMINARY DATA

Fixed Lab Radiochemistry
Field Unit 1, TA-0, Manhole at Catholic Church

	Cd-109		Ce-139		Ce-144		Co-57	
	Background = NA	SAL = NA	Background = NA	SAL = NA	Background = NA	SAL = 56 pCi/g	Background = NA	SAL = NA
Sample Number	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)
0100-96-0427	1.690	0.888	-0.007	0.015	-0.013	0.109	-0.011	0.015
0100-96-0428	2.010	0.685	0.001	0.019	0.033	0.127	0.009	0.016
	2.010	0.888	0.001	0.019	0.033	0.127	0.009	0.016
	1.690	0.685	-0.007	0.015	-0.013	0.109	-0.011	0.015

* Average background value for all soil = 28.6 pCi/g
Maximum background value for tuff = 37 pCi/g
** Average background value for all soil = NA
Maximum background value for tuff = 7.15 pCi/g

PRELIMINARY DATA

Fixed Lab Radiochemistry
Field Unit 1, TA-0, Manhole at Catholic Church

	Co-60		Cs-134		Cs-137		Eu-152	
	Background = NA	SAL = 1.1 pCi/g	Background = NA	SAL =1.9 pCi/g	Background = 0.59 pCi/g	SAL = 5.1 pCi/g	Background = NA	SAL = 2.6 pCi/g
Sample Number	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)
0100-96-0427	0.024	0.027	-0.015	0.021	0.599	0.068	-0.038	0.056
0100-96-0428	-0.019	0.038	0.011	0.024	0.251	0.063	0.017	0.069
	0.024	0.038	0.011	0.024	0.599	0.068	0.017	0.069
	-0.019	0.027	-0.015	0.021	0.251	0.063	-0.038	0.056

* Average background value for all soil = 28.6 pCi/g
Maximum background value for tuff = 37 pCi/g
** Average background value for all soil = NA
Maximum background value for tuff = 7.15 pCi/g

PRELIMINARY DATA

Fixed Lab Radiochemistry

Field Unit 1, TA-0, Manhole at Catholic Church

	Hg-203		K-40		La-140		Mn-54	
	Background = NA	SAL = NA	Background = *	SAL = 12 pCi/g	Background = NA	SAL = NA	Background = NA	SAL = 3.5 pCi/g
Sample Number	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)
0100-96-0427	-0.021	0.026	19.000	1.600	-15.000	26.600	0.017	0.024
0100-96-0428	-0.019	0.027	21.400	1.950	-35.400	33.100	0.029	0.030
	-0.019	0.027	21.400	1.950	-15.000	33.100	0.029	0.030
	-0.021	0.026	19.000	1.600	-35.400	26.600	0.017	0.024

* Average background value for all soil = 28.6 pCi/g
Maximum background value for tuff = 37 pCi/g
** Average background value for all soil = NA
Maximum background value for tuff = 7.15 pCi/g

PRELIMINARY DATA

Fixed Lab Radiochemistry
Field Unit 1, TA-0, Manhole at Catholic Church

	Na-22		Np-237		Pa-231	
	Background = NA	SAL = 1.3 pCi/g	Background = NA	SAL = 1.9 pCi/g	Background = NA	SAL = NA
Sample Number	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)
0100-96-0427	0.000	0.025	0.502	0.307	1.760	0.692
0100-96-0428	0.000	0.036	-0.437	0.188	1.040	0.752
	0.000	0.036	0.502	0.307	1.760	0.752
	0.000	0.025	-0.437	0.188	1.040	0.692

* Average background value for all soil = 28.6 pCi/g
Maximum background value for tuff = 37 pCi/g
** Average background value for all soil = NA
Maximum background value for tuff = 7.15 pCi/g

PRELIMINARY DATA

Fixed Lab Radiochemistry
Field Unit 1, TA-0, Manhole at Catholic Church

	Pa-233		Pa-234m		Pb-211		Pb-212	
	Background = NA	SAL = NA	Background = NA	SAL = NA	Background = NA	SAL = NA	Background = NA	SAL = NA
Sample Number	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)
0100-96-0427	0.019	0.038	1.590	3.640	-0.203	0.502	1.120	0.106
0100-96-0428	-0.008	0.040	2.570	5.320	-0.600	0.676	1.240	0.127
	0.019	0.040	2.570	5.320	-0.203	0.676	1.240	0.127
	-0.008	0.038	1.590	3.640	-0.600	0.502	1.120	0.106

* Average background value for all soil = 28.6 pCi/g
Maximum background value for tuff = 37 pCi/g
** Average background value for all soil = NA
Maximum background value for tuff = 7.15 pCi/g

PRELIMINARY DATA

Fixed Lab Radiochemistry

Field Unit 1, TA-0, Manhole at Catholic Church

	Pb-214		Pu-238		Pu-239		Ra-223	
	Background = NA	SAL = NA	Background = 0.07 pCi/g	SAL = 27 pCi/g	Background = 0.07 pCi/g	SAL = 24 pCi/g	Background = NA	SAL = NA
Sample Number	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)
0100-96-0427	0.986	0.099	0.010	0.010	0.030	0.010	-0.450	0.370
0100-96-0428	0.970	0.119	0.010	0.010	0.010	0.010	-0.144	0.414
	0.986	0.119	0.010	0.010	0.030	0.010	-0.144	0.414
	0.970	0.099	0.010	0.010	0.010	0.010	-0.450	0.370

* Average background value for all soil = 28.6 pCi/g
Maximum background value for tuff = 37 pCi/g
** Average background value for all soil = NA
Maximum background value for tuff = 7.15 pCi/g

PRELIMINARY DATA

Fixed Lab Radiochemistry

Field Unit 1, TA-0, Manhole at Catholic Church

	Ra-224		Ra-226		Rn-219		Ru-106	
	Background = NA	SAL = NA	Background = **	SAL = 0.10 pCi/g	Background = NA	SAL = NA	Background = NA	SAL = 13 pCi/g
Sample Number	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)
0100-96-0427	0.670	0.685	2.110	0.779	-0.050	0.243	-0.145	0.195
0100-96-0428	1.200	0.967	2.050	0.866	0.106	0.302	0.035	0.218
	1.200	0.967	2.110	0.866	0.106	0.302	0.035	0.218
	0.670	0.685	2.050	0.779	-0.050	0.243	-0.145	0.195

* Average background value for all soil = 28.6 pCi/g
Maximum background value for tuff = 37 pCi/g
** Average background value for all soil = NA
Maximum background value for tuff = 7.15 pCi/g

PRELIMINARY DATA

Fixed Lab Radiochemistry
Field Unit 1, TA-0, Manhole at Catholic Church

	Se-75		Sn-113		Sr-85		Th-234	
	Background = NA	SAL = NA	Background = NA	SAL = NA	Background = NA	SAL = NA	Background = NA	SAL = NA
Sample Number	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)
0100-96-0427	-0.015	0.025	-0.029	0.026	-0.067	0.032	-0.251	1.000
0100-96-0428	0.000	0.027	-0.033	0.032	-0.059	0.034	-1.590	0.975
	0.000	0.027	-0.029	0.032	-0.059	0.034	-0.251	1.000
	-0.015	0.025	-0.033	0.026	-0.067	0.032	-1.590	0.975

* Average background value for all soil = 28.6 pCi/g
Maximum background value for tuff = 37 pCi/g
** Average background value for all soil = NA
Maximum background value for tuff = 7.15 pCi/g

PRELIMINARY DATA

Fixed Lab Radiochemistry

Field Unit 1, TA-0, Manhole at Catholic Church

	Th-227		Tl-208		Total U	
	Background = NA	SAL = NA	Background = NA	SAL = NA	Background = 4.7 ug/g	SAL = 29 mg/kg
Sample Number	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (ug/g)	Uncertainty (pCi/g)
0100-96-0427	-0.086	0.117	0.409	0.056	2.600	0.360
0100-96-0428	-0.104	0.142	0.422	0.069	2.040	0.280
	-0.086	0.142	0.422	0.069	2.600	NA
	-0.104	0.117	0.409	0.056	2.040	NA

* Average background value for all soil = 28.6 pCi/g
Maximum background value for tuff = 37 pCi/g
** Average background value for all soil = NA
Maximum background value for tuff = 7.15 pCi/g

PRELIMINARY DATA

Fixed Lab Radiochemistry
Field Unit 1, TA-0, Manhole at Catholic Church

	U-235		Y-88		Zn-65	
	Background = NA	SAL = 10 pCi/g	Background = NA	SAL = NA	Background = NA	SAL = NA
Sample Number	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)	Value (pCi/g)	Uncertainty (pCi/g)
0100-96-0427	0.083	0.033	-0.023	0.033	0.010	0.056
0100-96-0428	0.066	0.038	0.019	0.033	-0.020	0.066
	0.083	0.038	0.019	0.033	0.010	0.066
	0.066	0.033	-0.023	0.033	-0.020	0.056

* Average background value for all soil = 28.6 pCi/g
Maximum background value for tuff = 37 pCi/g
** Average background value for all soil = NA
Maximum background value for tuff = 7.15 pCi/g

PRELIMINARY DATA

Inorganic Analytical Results

Field Unit 1, TA-0, Manhole at Catholic Church

Sample Number	Location ID	Location	Depth	Units	Al	Sb	As	Ba	Be	Cd	Ca	Cr
				UTL (mg/kg)	12300	2.5	11.6	1140	3.31	2.7	54400	34.2
				SAL (mg/kg)	77000	31	NA	5300	NA	38	NA	210
0100-96-0427	00-04905	Bottom of manhole, southern wall	0 - 8 in.	mg/kg	10100	4.9BN	4.4	152	0.81B	ND	7690	11.6
0100-96-0428	00-04906	Bottom of manhole, north wall	0 - 5 in.	mg/kg	10400	ND	5.8	218	0.94B	ND	7930	10.8

Sample Number	Location ID	Location	Depth	Units	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni
				UTL (mg/kg)	51.1	15.7	35600	39	16100	1030	0.1	26.7
				SAL (mg/kg)	4600	2800	NA	400	NA	NA	23	NA
0100-96-0427	00-04905	Bottom of manhole, southern wall	0 - 8 in.	mg/kg	6.6B	15.8	11700	52.3	1930	382N	ND	8.3B
0100-96-0428	00-04906	Bottom of manhole, north wall	0 - 5 in.	mg/kg	12.6	9.5	13400	37.4	1910	947	ND	8.5B

Sample Number	Location ID	Location	Depth	Units	K	Se	Ag	Na	Tl	V	Zl
				UTL (mg/kg)	6180	1.7	NA	1880	0.9	66	101
				SAL (mg/kg)	NA	380	380	NA	NA	540	23000
0100-96-0427	00-04905	Bottom of manhole, southern wall	0 - 8 in.	mg/kg	1980	0.73B	ND	369B	1.1B	25.2	112
0100-96-0428	00-04906	Bottom of manhole, north wall	0 - 5 in.	mg/kg	1910	0.60B	ND	355B	3.5	28.5	77.8

NA = Not Available
ND = Not Detected

PRELIMINARY DATA

Pesticide/PCBs

Field Unit 1, TA-0, Manhole at Catholic Church

Sample Number	Location ID	Location	Depth	Analyte	Detection Limit (ug/kg)	Concentration (ug/kg)
0100-96-0427	00-04905	bottom of manhole, south wall	0 - 8 in	p,p'-DDE	20	16J
				p,p'-DDT	20	26
0100-96-0428	00-04906	bottom of manhole, north wall	0 - 5 in	p,p'-DDE	21	11J
				p,p'-DDT	21	28

NA = Not Applicable

PRELIMINARY DATA
Detected Semi-Volatile Compounds
Field Unit 1, TA-0, Manhole at Catholic Church

Sample Number	Location ID	Location	Depth	Analyte	Detection Limits (ug/kg)	Concentration (ug/kg)
0100-96-0427	00-04905	bottom of manhole, south wall	0 - 8 in	Phenanthrene	NA	210J
				Di-n-butylphthalate	NA	1100B
				Pyrene	NA	170J
0100-96-0428	00-04906	bottom of manhole, north wall	0 - 5 in	Di-n-butylphthalate	NA	2500B
				Bis(2-ethylhexyl)phthalate	NA	190J

NA - Not Applicable

PRELIMINARY DATA

Detected Volatile Organic Compounds
Field Unit 1, TA-0, Manhole at Catholic Church

Sample Number	Location ID	Location	Depth	Analyte	Detection Limits (ug/kg)	Concentration (ug/kg)
0100-96-0427	00-04905	bottom of manhole, south wall	0 - 8 in	2-Butanone	25	83
				Chloroform	6	2J
				4-Methyl-2-Pentanone	25	6J
				2-Hexanone	25	30
				m,p-Xylene	6	10
				1,2,4-Trimethylbenzene	6	20B
				Naphthalene	6	3JB
0100-96-0428	00-04906	bottom of manhole, north wall	0 - 5 in	Acetone	25	57
				2-Butanone	25	22J
				Chloroform	6	3J
				2-Hexanone	25	8J
				m,p-Xylene	6	8
				1,2,4-Trimethylbenzene	6	11B

NA = Not Applicable

ATTACHMENT 4 VCA CHECKLIST AND FIELDWORK AUTHORIZATION FORM

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Voluntary Corrective Action
Checklist and Fieldwork Authorization Form

PRSs No. C-0-043 HSWA or AOC

✓ PCOC(s) defined.

✓ Nature and extent defined or field screening method available to guide where not defined.

✓ Remedy is obvious.

✓ Time for removal is less than 6 months.

✓ Land use assumptions straightforward.

____ Treatment, Storage, Disposal Facilities are available for waste type and volume.

✓ Cleanup cost is reasonable for the planned action, and meets accelerated decision logic criterion for decision to proceed with VCA.

Explain criteria not checked above. Waste types and volumes are not known at this time.

Through reviewing the above criteria associated with these sites, I believe that a VCA is the appropriate Accelerated Cleanup approach.

FPL ____ Date 10 Jan 97

FPC ____ Date 13 Jan 97

Through reviewing the VCA Plan, for PRS C-0-043, and believing that the above criteria have been met, I authorize the fieldwork to proceed.

DOE ER Program Manager ____ Date 1/13/97

ATTACHMENT 5 ANALYTICAL RESULTS FROM RFI SAMPLES AT PRS C-0-043

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TABLE 1
PRELIMINARY DATA FOR DETECTED SEMIVOLATILE ORGANIC COMPOUNDS AT PRS C-0-043, THE CATHOLIC CHURCH MANHOLE

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	ANALYTE	RESULT (mg/kg)	SAL (mg/kg)
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	Phenanthrene	0.21 (J)	n/a
				Pyrene	0.17 (J)	100
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	Bis(2-ethylhexyl)phthalate	0.19 (J)	32

J = Estimated detected quantity.
n/a = Not available.

TABLE 2

PRELIMINARY DATA FOR DETECTED VOLATILE ORGANIC COMPOUNDS AT PRS C-0-043, THE CATHOLIC CHURCH MANHOLE

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	ANALYTE	RESULT (mg/kg)	SAL (mg/kg)
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	2-Butanone	0.074	7 100
				Chloroform	0.002 (J)	0.25
				4-Methyl-2-Pentanone	0.005 (J)	n/a
				2-Hexanone	0.024	n/a
				m,p-Xylene	0.01	320
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	Acetone	0.056	2 100
				2-Butanone	0.019 (J)	7 100
				Chloroform	0.003 (J)	0.25
				2-Hexanone	0.006 (J)	n/a
				m,p-Xylene	0.009	320

J = Estimated detected quantity.
n/a = Not available.

TABLE 3

PRELIMINARY DATA FOR DETECTED PESTICIDES/POLYCHLORINATED BIPHENYLS AT PRS C-0-043, THE CATHOLIC CHURCH MANHOLE

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	ANALYTE	RESULT (mg/kg)	SAL (mg/kg)
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	p,p'-DDE	0.016 (J)	1.3
				p,p'-DDT	0.026	1.3
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	p,p'-DDE	0.011 (J)	1.3
				p,p'-DDT	0.028	1.3

J = Estimated detected quantity.

TABLE 4

PRELIMINARY DATA FOR DETECTED INORGANIC CONSTITUENTS AT PRS C-0-043, THE CATHOLIC CHURCH MANHOLE

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	Aluminum (mg/kg)	Antimony (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)
			UTL	38 700	1	7.82	315	1.95	2.6	6 120	19.3
			SAL	77 000	31	n/a	5 300	n/a	38	n/a	210
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	10 100	**4.9**	4.4	152	0.81	0.07 (U)	7 690	11.6
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	10 400	0.75 (U)	5.8	218	0.94	0.08 (U)	7 930	10.8

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	Cobalt (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Magnesium (mg/kg)	Manganese (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)
			UTL	19.2	15.5	21 300	23.3	4 610	714	0.1	15.2
			SAL	4 600	2 800	n/a	400	n/a	3 200	23	1 500
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	6.6	15.8	11 700	52.3	1 930	382	0.01 (U)	8.3
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	12.6	9.5	13 400	37.4	1 910	947	0.01 (U)	8.5

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	Potassium (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Sodium (mg/kg)	Thallium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
			UTL	3 410	1.7	n/a	915	1	41.9	50.8
			SAL	n/a	380	380	n/a	n/a	540	23 000
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	1 980	0.73	0.25 (U)	369	1.1	25.2	112
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	1 910	0.6	0.25 (U)	355	3.5	28.5	77.8

U = Undetected.
n/a = Not available.

TABLE 5

PRELIMINARY DATA FOR DETECTED RADIONUCLIDES AT PRS C-0-043, THE CATHOLIC CHURCH MANHOLE

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	Actinium-228 (pCi/g)		Americium-241 (pCi/g)		Barium-140 (pCi/g)		Bismuth-211 (pCi/g)		Bismuth-212 (pCi/g)		Bismuth-214 (pCi/g)	
UTL				n/a		0.336		n/a		n/a		n/a		n/a	
SAL				n/a		22		n/a		n/a		n/a		n/a	
				Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	1.190	0.074	-0.250	0.115	0.007	0.097	0.048	0.002	0.881	0.423	0.739	0.051
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	1.130	0.091	-0.023	0.068	0.162	0.117	0.087	0.000	0.249	0.461	0.806	0.065

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	Cadmim-109 (pCi/g)		Cerium-139 (pCi/g)		Cerium-144 (pCi/g)		Cobalt-57 (pCi/g)		Cobalt-60 (pCi/g)		Cesium-134 (pCi/g)	
UTL				n/a		n/a		n/a		n/a		n/a		n/a	
SAL				n/a		n/a		56		n/a		1.1		1.9	
				Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	1.690	0.444	-0.007	0.008	-0.013	0.055	-0.011	0.008	0.024	0.014	-0.015	0.011
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	2.010	0.343	0.001	0.009	0.033	0.063	0.009	0.008	-0.019	0.019	0.011	0.012

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	Cesium-137 (pCi/g)		Europium-152 (pCi/g)		Mercury-203 (pCi/g)		Potassium-40 (pCi/g)		Lanthanum-140 (pCi/g)		Manganese-54 (pCi/g)	
UTL				1.7		n/a		n/a		28.6*		n/a		n/a	
SAL				5.1		2.6		n/a		12		n/a		3.5	
				Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	0.599	0.034	-0.038	0.028	-0.021	0.013	19.000	1.600	-15.000	13.300	0.017	0.012
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	0.251	0.031	0.017	0.035	-0.019	0.014	21.400	0.973	-35.400	16.600	0.029	0.015

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	Sodium-22 (pCi/g)		Neptunium-237 (pCi/g)		Protactinium-231 (pCi/g)		Protactinium-233 (pCi/g)		Protactinium-234m (pCi/g)		Lead-211 (pCi/g)	
UTL				n/a		n/a		n/a		n/a		n/a		n/a	
SAL				1.3		1.9		n/a		n/a		n/a		n/a	
				Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	0.000	0.013	0.502	0.154	1.760	0.346	0.019	0.019	1.590	1.820	-0.203	0.251
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	0.001	0.018	-0.437	0.094	1.040	0.376	-0.008	0.020	2.570	2.660	-0.600	0.338

TABLE 5 (CONTINUED)

PRELIMINARY DATA FOR DETECTED RADIONUCLIDES AT PRS C-0-043, THE CATHOLIC CHURCH MANHOLE

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	Lead-212 (pCi/g)		Lead-214 (pCi/g)		Plutonium-238 (pCi/g)		Plutonium-239 (pCi/g)		Radium-223 (pCi/g)		Radium-224 (pCi/g)	
UTL				n/a		n/a		0.104		0.092		n/a		n/a	
SAL				n/a		n/a		27		24		n/a		n/a	
				Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	1.120	0.053	0.986	0.050	0.010	0.004	0.030	0.006	-0.450	0.185	0.670	0.343
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	1.240	0.063	0.970	0.059	0.010	0.007	0.010	0.004	-0.144	0.207	1.200	0.484

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	Radium-226 (pCi/g)		Radon-219 (pCi/g)		Ruthenium-106 (pCi/g)		Selenium-75 (pCi/g)		Tin-113 (pCi/g)		Strontium-85 (pCi/g)	
UTL				**		n/a		n/a		n/a		n/a		n/a	
SAL				0.1		n/a		13		n/a		n/a		n/a	
				Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value	Uncertainty
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	2.110	0.390	-0.050	0.122	-0.145	0.098	-0.015	0.013	-0.029	0.013	-0.067	0.016
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	2.060	0.433	0.106	0.151	0.035	0.109	0.000	0.014	-0.033	0.016	-0.059	0.017

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	Thorium-234 (pCi/g)		Thorium-227 (pCi/g)		Thallium-208 (pCi/g)		Total uranium		Uranium-235 (pCi/g)		Yttrium-88 (pCi/g)	
UTL				n/a		n/a		n/a		5.45 ug/g		0.084		n/a	
SAL				n/a		n/a		n/a		29 mg/kg		10		n/a	
				Value	Uncertainty	Value	Uncertainty	Value	Uncertainty	Value (ug/g)	Uncertainty (pCi/g)	Value	Uncertainty	Value	Uncertainty
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	-0.251	0.500	-0.086	0.059	0.409	0.028	2.600	0.180	0.083	0.017	-0.023	0.017
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	-1.590	0.488	-0.104	0.071	0.422	0.034	2.040	0.140	0.066	0.019	0.019	0.016

SAMPLE ID	LOCATION ID	LOCATION DESCRIPTION	DEPTH (in.)	Zinc-65 (pCi/g)	
UTL				n/a	
SAL				n/a	
				Value	Uncertainty
0100-96-0427	00-04905	Sediment in bottom of manhole, south wall	0–8	0.010	0.028
0100-96-0428	00-04906	Sediment in bottom of manhole, north wall	0–5	-0.020	0.033

NA = Not available.