Los Alamos National Laboratory

UNIVERSITY OF CALIFORNIA

Environmental Restoration

Environmental Restoration Project
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Los Alamos, New Mexico 87545
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0024
TA-73

Date: June 20, 1996
Refer to: EM/ER:96-365

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

SUBJECT: FINAL VOLUNTARY CORRECTIVE ACTION (VCA) PLANS FOR ACTIVITIES AT TECHNICAL AREA (TA) 73, POTENTIAL RELEASE SITES (PRSs) 73-004(a, b), 73-005(a-f), AND 73-007

Dear Ted:

Enclosed for your records please find a copy of the final VCA Plans for activities in TA-73, PRSs 73-004(a, b), 73-005(a-f), and 73-007. These activities are planned for completion in Fiscal Year 1996.

Your Field Project Coordinator participated in developing and reviewing these plans. The VCA Checklists and Field Authorization Forms have been completed and signed and are included in the enclosed plans.

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

If you have any questions, please call Garry Allen at (505) 667-3394 or Bonnie Koch at (505) 665-7202. Thank you for your cooperation in this matter.

Sincerely,

Jorg Jansen
Program Manager

JJ/el

Enclosures: Final VCA Plans for TA-73, PRSs 73-004(a, b), 73-005(a-f), and 73-007
VCA Checklist and Field Work Authorization Form

TC TO

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Voluntary Corrective Action Completion Report for Potential Release Sites

73-004(a,b)

Septic System

Field Unit 1

Environmental Restoration Project

May 1996

A Department of Energy Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

LA-UR-96-2172

THIS IS A VCA Plan for 73-004(a,b) NOT A VAC COMPLETION REPORT

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Site Type and Description

Solid Waste Management Unit (SWMU) Group 73-2 consists of four SWMUs that are septic systems and six Areas of Concern (AOCs) that appear to be septic system related. Within this SWMU group, 73-004(a, b) are scheduled for precharacterization activities and VCAs, and are addressed in this plan.

Field activities will be conducted for SWMUs 73-004(a, b) during the spring and summer of 1996, as part of the Los Alamos National Laboratory (LANL) Environmental Restoration (ER) Project. The potential for chemical or radiological contamination within these septic systems is low; however, the tanks, associated drainlines, and outfall points will be investigated to determine if contamination is present.

1.1.1 Operational History

SWMU 73-004(a)

Septic system 73-004(a) was installed during the mid-to late 1940s and remained in use until 1973. The septic tank is located on Department of Energy (DOE) property, approximately 10 feet northwest of the incinerator building which is northwest of the airport terminal (Figure 1-1). The tank served the incinerator building and handled sanitary waste from the toilet and shower facilities located on the charging floor. Therefore, it is unlikely that the septic tank contains Resource Conservation and Recovery Act (RCRA) or radioactive contamination. The tank was reportedly constructed of concrete with a vitrified clay outfall pipe that discharged to Pueblo Canyon.

SWMU 73-004(b)

Septic system 73-004(b) was installed in 1949, but its period of operation is uncertain; however, the steam cleaning plant which this system served was demolished in 1971. This septic tank is also located on DOE property, approximately 100 feet west-southwest of the incinerator building (Figure 1-1). The tank received wash water from the former steam cleaning plant which was used to wash down garbage trucks, cans, and dumpsters that contained municipal waste. There is an increased possibility that this septic tank could have received contamination; however, it is unlikely that it contains Resource Conservation and Recovery Act (RCRA) or radioactive contamination. This tank was also reportedly constructed of concrete with a vitrified clay outfall pipe that discharged to Pueblo Canyon.

1.1.2 COPCs and Rationale for Proposed Remedial Action

These septic tanks are being investigated in order to determine if they are a potential risk to human health and the environment. To date, RFI activities have not been performed at either of these sites. The potential for chemical or radiological contamination within these septic tanks is low; however, the tank serving the steam cleaning plant could have indirectly received waste from the original town site and possibly early laboratory operations at Technical Area (TA)-1. The same may also be possible for the incinerator building septic tank. The Chemicals of Potential Concern (COPCs) as identified in the RCRA Facility Investigation (RFI) Work Plan for Operable Unit (OU) 1071 are volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, and polychlorinated biphenyl's (PCBs)/pesticides. Gross alpha/beta/gamma and tritium have been added to the list.

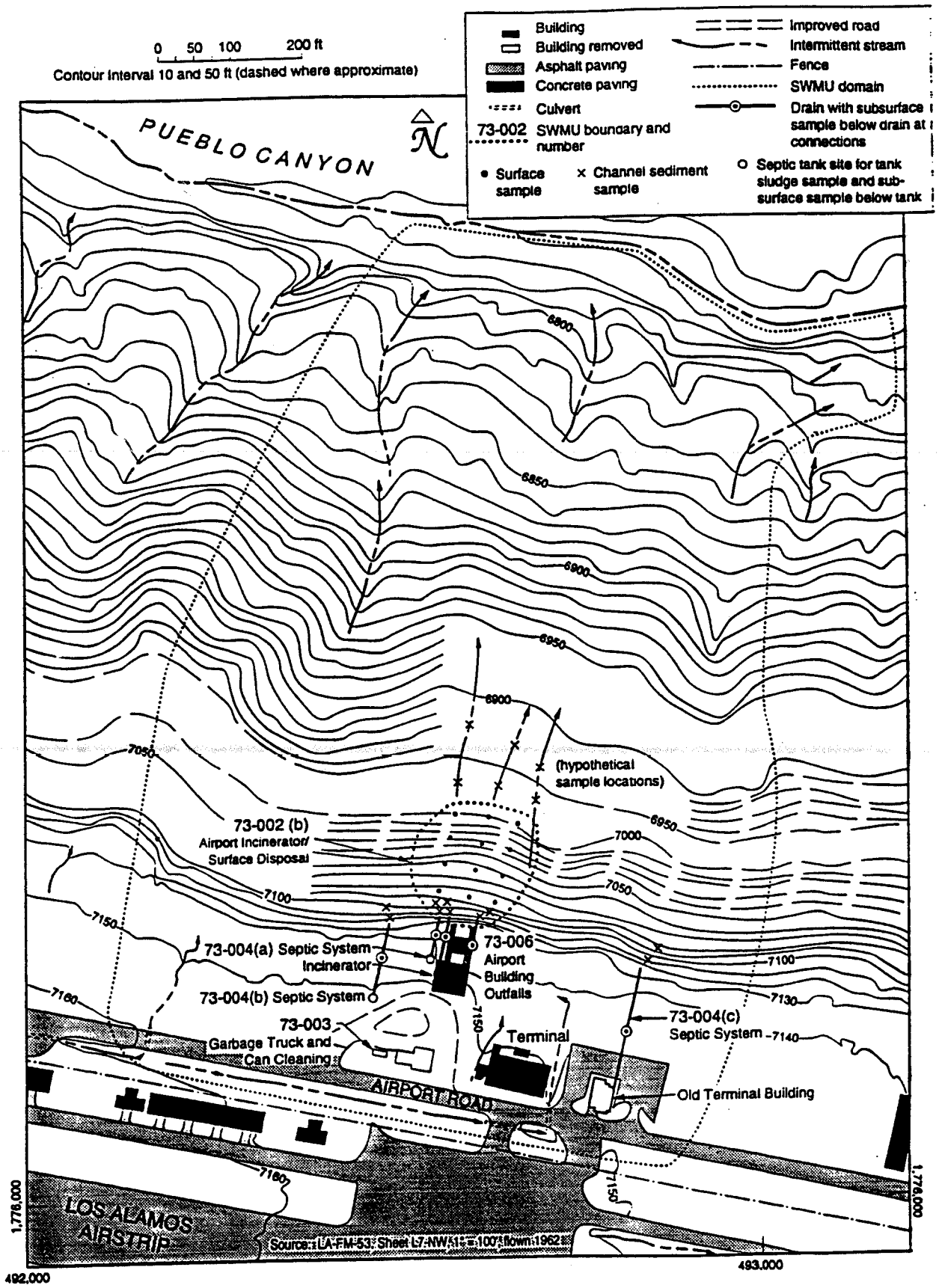

Figure 1.1 Airport terminal vicinity SWMUs.

2.0 SITE CHARACTERIZATION

2.1 RFI Information/Other Decision Data

Phase 1 RFI activities have not been performed at either of these septic systems. The limited amount of historical information available for these systems suggests that the wastes discharged to these septic tanks were mostly sanitary in nature. The wash water discharged from the steam cleaning plant could have had the potential for containing COPCs. However, if the historical information is correct, these septic tanks should have an easy remedy because the amount of contamination, if present, should be minimal. The precharacterization activities will determine the nature of any contamination associated with these septic tank systems and a decision will subsequently be made as to the type of remedial activity required for each site.

2.2 Nature and Extent of Contamination

Currently, the nature and extent of any potential contamination is unknown for either of these septic tanks. Field work for precharacterization and subsequent VCA activities at these sites will be completed in four field tasks: field surveys, surface sampling, subsurface sampling, and corrective actions. Field survey activities at each site will consist of non-intrusive activities such as an initial site survey, geophysical surveying, geodetic surveying, and geomorphologic mapping. Surface sediment samples will be collected for each septic system from sediment catchments adjacent to or immediately downslope of drainline outfall points.

This VCA Plan assumes that the septic tanks are still in place and can be located during the field survey tasks. Once located, it is also assumed that there will be no access problems or physical constraints which would prevent completion of the investigation and subsequent remediation. In general, physical constraints include buildings and related structures, retaining walls, concrete driveways and sidewalks, and buried utilities on private property. Asphalt is judged to be repairable and is not considered a constraint.

During precharacterization activities, each tank will be partially excavated utilizing a backhoe to expose the top of the tank and both the inlet and outlet drainlines adjacent to the tank. The intent is to minimize excavation activities until screening and analytical results are available with which to determine what type of waste is contained within the tank. The tanks are expected to have been backfilled with fill material when they were initially taken out of service. A minimum of eight samples will be collected from each septic tank system; four from within the tank, one each from below the inlet and outlet drainlines, and two from the first sediment catchment area below the outfall point. The total number of samples collected during the precharacterization activities is dependent upon the size of the septic tank, the configuration of the septic tank, and the tank contents. Samples will be collected using the procedures described in LANL-ER-SOP-06.10, Hand Auger and Thin-Wall Tube Sampler, or LANL-ER-SOP-6.09, Spade and Scoop Method for Collection of Soil Samples, and/or LANL-ER-SOP-06.19, Weighted Bottle Sampler for Liquids and Slurries in Tanks. All material removed during excavation and sampling activities will be continuously monitored with field instruments for indications of chemical or radiological contamination.

The samples from the tank's interior will be collected from two boreholes hand augered adjacent to the inlet and outlet ends, or in each chamber of the tank, depending upon its method of construction. Two samples will be collected from each borehole, including one from a depth midway between the top and bottom of the tank (if the tank was previously backfilled), and one from immediately above the tank floor. In order to determine the interval most likely to contain contamination and from which to collect the mid-depth sample, a pilot borehole will first be hand augered adjacent to each sample borehole and continuously logged and screened.

The samples will be analyzed at the Mobile Chemistry Analytical Laboratory (MCAL) for VOCs by EPA SW 846 Method 8260 and at the Mobile Radiological Analytical Laboratory (MRAL) for gross alpha/beta/gamma, and tritium. The samples will be sent to a fixed laboratory for analysis of SVOCs by EPA SW 846 Method 8270, TAL metals by EPA SW 846 Method 6010 and 7470 (Hg), and PCBs and pesticides by EPA SW 846 Method 8080.

A specific remedial action for each tank cannot be determined until the nature and extent of contamination is known. Specific remedial actions will be determined on a case-by-case basis after reviewing the precharacterization analytical results.

3.0 PROPOSED REMEDY

3.1 Description of the Proposed Remedial Action

The analytical results will be assessed to determine if remedial action is required for either septic system. Remedial actions will be developed on a case-by-case basis, depending on the nature and extent of the contamination. If analytical results indicate that contamination is not present, the sites will be proposed for no further action (NFA). If required, VCA activities may include removal of the entire septic system (tank contents, septic tank, and drainlines) or removal of just the tank contents with abandonment of the tank and drainlines in place with no further action. If soil contamination is encountered outside the tank, it may be necessary to remove both the tank and the surrounding contaminated soils.

The field activities will be conducted according to the site-specific plans prepared for the septic tank investigations. These plans include the Spill Prevention Control and Countermeasures Implementation Plan (SPCCIP), the Site-Specific Health and Safety Plan (SSHASP), and the Waste Characterization Strategy Form.

If mixed waste is determined to be present in the subsurface, the tank, contents, and drainlines will be left in place until waste disposal arrangements are made.

3.2 Basis for Cleanup Levels

Cleanup levels will be based, in part, on the type of contamination found; however, because sampling has not previously been conducted, the type and extent of any chemical or radiological contamination that may be present is unknown.

Cleanup levels will also be based on the assumption that future land use will remain as an airport, thus permitting the use of an industrial scenario. However, a cost benefit analysis will be performed to determine if another, more conservative scenario such as residential would be more protective of human health and the environment for little added cost. Both sites are currently on DOE property.

3.3 Site Restoration

Following precharacterization and VCA activities, the sites will be restored to their pre-investigation conditions. Excavations will be backfilled and compacted, the affected areas will be re-landscaped to the extent necessary, and asphalt or concrete will be repaired, as needed. Pre-work photographs will be taken to record the conditions of the site prior to beginning work.

4.0 WASTE MANAGEMENT

4.1 Estimated Types and Volumes of Waste

Waste types: Wastes generated during precharacterization activities will consist of personal protective equipment (PPE) (disposable coveralls, duct tape and gloves), disposable sampling equipment, paper towels, plastic sheeting, and equipment decontamination fluids (potable water, deionized water, Alconox, and possibly a methanol and deionized water mixture at a non-hazardous concentration of <9%).

Wastes generated during VCA activities will depend on the precharacterization analytical results and on the decision to remove or abandon the tank(s) in place. In general, the decision to remove a septic system could result in generation of the following waste types: 1) sludge and backfill material from within the tank, 2) concrete, steel, or wood debris from the tank itself, 3) vitrified clay or cast iron pipe from the inlet and outlet pipelines, and 4) soil or tuff from below the tank and pipelines.

Waste volumes: It is anticipated that one partially-filled, 55-gallon drum (approximately one cubic foot) of solid wastes will be generated per location during the precharacterization activities.

The intent for decontamination fluids is to discharge the water at each site according to the New Mexico Environment Department (NMED) letter dated December 20, 1995. The decontamination fluids to be discharged will be a mixture of deionized or potable water and Alconox, of which less than 6 gallons will be discharged daily. The amount of decontamination fluids discharged at each site will be documented according to the site-specific SPCCIP. However, if field observations or field screening indicate that contaminated soils were encountered at either site, the decontamination fluids for that area of the investigation will be segregated until analytical data have been reviewed. The fluids will then be discharged or drummed for disposal, as appropriate. It is estimated that, if any, less than one 55-gallon drum of decontamination fluids, which cannot be discharged, will be generated for both sites.

A final methanol and deionized water rinse will only be used, if necessary, as a final step in decontaminating reusable sampling equipment. If the use of methanol is necessary, much less than one liquid waste drum (approximately 10-20 gallons) of deionized water, with less than nine percent methanol, will be generated for both sites.

The volume of wastes generated as a result of VCA activities at either of the septic systems will depend on the analytical results of the precharacterization samples and on the decision to remove or abandon the tank(s) in place. Waste volumes will also depend on the method of construction of the tank(s), depth of each tank, and the extent of contamination. It is anticipated that no more than 15-20 cubic yards of waste would be generated by removal of one of the tanks and its associated inlet and outlet pipelines.

4.2 Method of Management and Disposal

All waste generated at SWMUs 73-004(a, b) will be managed according to the site-specific Waste Characterization Strategy Form. Based on acceptable knowledge, it is anticipated that all PPE and disposable sampling equipment generated will be nonhazardous. Upon generation, the waste will be immediately shipped from each Potential Release Site (PRS) to a temporary storage area at TA-3, South Mesa (SM)- 271 until appropriate disposal can be determined and arranged.

Based on the analytical results of the septic system samples, the waste classification and disposition of the contents from each septic system will be determined prior to selection of a final remedy. If the tank contents are determined to contain chemical or radiological contamination,

and the decision is made to remove the tank and/or its contents, the waste will be appropriately containerized (i.e., drums or roll-off bins) for disposal based on the type of contamination and the disposal facility requirements. If the tank is to be removed, it may be left in tact for disposal or it may be demolished in order to facilitate containerization prior to disposal. Upon generation, the waste may be shipped immediately from each SWMU/AOC, under manifest, to a temporary storage area at TA-3, SM 271 until disposal arrangements can be finalized.

It is not anticipated that RCRA hazardous waste will be generated during field activities, but if it is, the waste will be appropriately containerized for disposal. The waste will be shipped from each SWMU/AOC, under manifest, to a < 90 day storage area at TA-3, SM 271 until appropriate disposal can be determined and arranged. A provisional Environmental Protection Agency (EPA) ID Number will be obtained through Environment, Safety & Health (ESH)-19 prior to shipping any hazardous waste for storage or final disposition. The RCRA hazardous waste will be managed according to all laboratory procedures for < 90-day storage areas.

5.0 DESCRIPTION OF CONFIRMATORY SAMPLING

If the decision is made to remove a septic tank, the contents of the tank will first be removed and the tanks interior will be visually inspected for cracks. If a breach in the tank structure is identified, a soil sample will be collected outside the tank, adjacent to the breach, after the tank has been removed. Even if the tank's integrity appears to be satisfactory, but soil outside the tank appears to be contaminated based on field screening or visual inspection, the potentially contaminated soil may be removed before two confirmatory samples are collected and analyzed for the COPC list. If analytical results indicate that contamination is present above screening action levels, additional soil will be excavated and additional confirmatory samples will be collected from locations at the bottom of the excavation and submitted for analysis. If the decision is made to also remove the drainlines, confirmatory samples will be collected from below the lines after they are removed.

If a tank is to be abandoned in place, no confirmatory samples will be collected.

6.0 ESTIMATED TIME TO COMPLETE THE ACTION AND UNCERTAINTIES

The estimated time to complete the field activities are assumed to be similar for each SWMU. Whenever possible, the field activities will overlap for the sites. The estimated time required for the precharacterization and VCA activities is listed in Table 6-1.

TABLE 6-1
ESTIMATED TIME TO COMPLETE TASKS

TASK DESCRIPTION	APPROX. TIME (Working Days)
Conduct field surveys	5 days
Expose septic system components and collect precharacterization samples	5 days
Analyze precharacterization samples (MCAL, MRAL and fixed laboratory)	7 to 10 days
Complete data assessment and select remedial actions	2 days
Complete VCA activities and collect confirmatory samples, if required	5 days
Analyze confirmatory samples (MCAL, MRAL and fixed laboratory)	30 days
Conduct data assessment to verify completion of VCA activities	2 days
Backfill excavations and restore sites to their original conditions	5 days

The primary uncertainty that may impact the schedule for these VCA activities is not knowing if contamination will be encountered at either of the sites. If overexcavation is required at a site, then a delay might occur in completion of the field activities, depending on the nature and extent of the contamination.

The VCA activities should reasonably be limited to estimates provided in this plan. Efforts will be made to minimize the amount of waste generated and consideration will be given to abandoning a septic tank in place, if possible. If the extent of contamination is greater than anticipated, the site will be reevaluated in order to determine the most effective and efficient approach for site remediation.

7.0 ANNEXES

ANNEX 7.1

Risk-Based Cleanup Level Assumptions and Calculations

(This annex does not apply to these sites unless soil contamination is found during septic tank investigation or excavation. It is assumed that no contaminant of concern will be found outside the septic tank systems. If remedial action is required, an industrial scenario will be used to calculate cleanup levels.)

ANNEX 7.2

RFI Analytical Results

(This annex does not apply because no RCRA Facility Investigations have been completed at either of these sites.)

ANNEX 7.3

Site Maps

(Other than the site map presented in this VCA Plan, no maps exist that contain any information from previous field investigations because no previous work has been performed.)

ANNEX 7.4

Implementation SOPs

Implementation SOPs

The SOPs applicable to the precharacterization and VCA activities are listed below:

GENERAL

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

RECONNAISSANCE/FIELD SURVEY

ER-SOP-03.02	General Surface Geophysics
ER-SOP-03.12	Field and Laboratory Notebook Documentation for Environmental Restoration Earth Science Studies

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
ER-SOP-06.18	Collection of Sand, Packed Powder, or Granule Samples Using the Hand Auger
ER-SOP-06.19	Weighted Bottle Sampler for Liquids and Slurries in Tanks

See Environmental Restoration Standard Operating Procedures, Volumes I and II, November 17, 1993, Los Alamos National Laboratory.

ANNEX 7.5

Quality Assurance Plan

(See Quality Program Plan and Quality Assurance Project Plan for Environmental Restoration, February 1995 revision, Los Alamos National Laboratory.)

ANNEX 7.6

Site-Specific Health and Safety Plan

(See the site-specific Health and Safety Plan and the Los Alamos Laboratory Environmental Restoration Project Health and Safety Plan, February 11, 1995, Los Alamos National Laboratory.)

ANNEX 7.7

Waste Management Checklist

(See the site-specific Waste Characterization Strategy Form.)

ANNEX 7.8

VCA Checklist and Fieldwork Authorization Form

Voluntary Corrective Action (VCA)
Checklist and Fieldwork Authorization Form
PRS No. 73-004(a,b) HSWA or AOC

✓ COPC(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.

✓ Remedy is final.

✓ 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. _____

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

FPL Beverly Martin for ga Date 6/19/96

FPC T-J-Cyl for B. Koch Date 6/20/96

The undersigned have reviewed the final plan and believe that it fully satisfies the appropriate Accelerated Cleanup approach.

FPL Beverly Martin for ga Date 6/19/96

FPC T-J-Cyl for B. Koch Date 6/20/96

Through reviewing the VCA Plan, for site(s) 73-004(a,b), and believing that the above criteria have been met, I authorize the fieldwork to proceed.

DOE ER Program Manager T-J-Cyl Date 6/20/96

EM/ER:96-134

ANNEX 7.9

VCA Cost Estimate

VCA Cost Estimate

(Assumption: Both septic tank systems have the same scope of work. Therefore, the cost should be approximately the same for each site.)

Pre-Field Activities

Field Preparation/Readiness Review	Subtotal	$ 13,000

Field Activities

Field Team (FOM, FTM, FTL, SSO, Sampler/Waste Manager, etc.)	$ 38,000
Geodetic Surveys/"mark out" surveys	$ 2,000
Excavation, tank abandonment/removal, waste transportation, etc.	$ 12,000
Waste Disposal	$ 2,500
Site Restoration	$ 11,500
Subtotal	$ 66,000

Analytical Costs

Rad Van	$ 3,000
Fixed Laboratory	$ 44,000
Subtotal	$ 47,000

Post Field Activities

Acceptance Inspection	$ 1,000
Final Report	$ 6,000
Subtotal	$ 7,000

Total Estimated Cost	**$ 133,000**

Voluntary Corrective Action Completion Report for Potential Release Sites

73-005(a–f)
73-007

Septic Systems

Field Unit 1

Environmental Restoration Project

May 1996

A Department of Energy
Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

LA-UR-96-2171

Voluntary Corrective Action Completion Report for Potential Release Sites

73-005(a–f)
73-007

Septic Systems

Field Unit 1

Environmental Restoration Project

May 1996

A Department of Energy
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LA-UR-96-2171

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1.0 INTRODUCTION

1.1 Site Type and Description

Solid Waste Management Unit (SWMU) Group 73-2 consists of four SWMUs that are septic systems and six Areas of Concern (AOCs) that appear to be septic system related. Within this SWMU group, SWMU 73-007 and AOCs 73-005(a-f) are scheduled for precharacterization activities and VCAs, and are addressed in this plan.

Field activities will be conducted for SWMU 73-007 and AOCs 73-005(a-f) during the spring and summer of 1996, as part of the Los Alamos National Laboratory (LANL) Environmental Restoration (ER) Project. The potential for chemical or radiological contamination within these septic systems is low; however, the tanks, associated drainlines, and outfall points will be investigated to determine if contamination is present.

1.1.1 Operational History

SWMU 73-007

Septic system 73-007 was discovered recently during a preliminary site survey. There is currently no information to indicate what facilities were served by this system and what types of waste might have been introduced into the system. It is assumed that the system served a facility or facilities in the original contractors' row that was located in this area from approximately 1947 to 1951. The septic tank is located on Department of Energy (DOE) property, approximately 170 feet south of East Road (Highway 502) (Figure 1-1). It is likely that the system handled only sanitary waste and unlikely that it contains Resource Conservation and Recovery Act (RCRA) or radioactive contamination. The tank was constructed from a steel cylinder approximately 3 to 4 feet in diameter and 6 to 8 feet deep with a cast iron inlet pipe and vitrified clay outfall pipe that probably discharged to DP Canyon.

AOCs 73-005(a-f)

These probable septic systems were also discovered recently during a preliminary site survey, and are all located south of Highway 502 (Figure 1-1). They consist of unlined pits with vertical sides, excavated into the tuff. AOC 73-005(a) is approximately 8 feet square with a vitrified clay inlet pipe and what appears to be a shallow surface trench for directing discharge water toward DP Canyon. AOC 73-005(b), is a rectangular pit approximately 10 feet long by 3 feet wide with a vitrified clay outlet pipe approximately 30 feet long that discharges at the ground surface toward DP Canyon. AOCs 73-005(c, d) are also rectangular pits of similar dimensions, but neither have discernible inlet or outlet pipelines. AOCs 73-005(e, f) are relatively square pits, approximately four feet on a side, with no discernible inlet or outlet pipelines. All of the pits are partially backfilled with soil so it is not possible to estimate their depths. It is assumed that these septic systems handled sanitary waste only from former facilities on contractors' row, but there are no records to verify this.

1.1.2 COPCs and Rationale for Proposed Remedial Action

These septic tanks are being investigated to determine if they are a potential risk to human health and the environment. To date, RCRA Facility Investigation (RFI) activities have not been performed at any of these sites. The potential for chemical or radiological contamination within these septic tanks is low; however, no factual information is available regarding these tanks and it

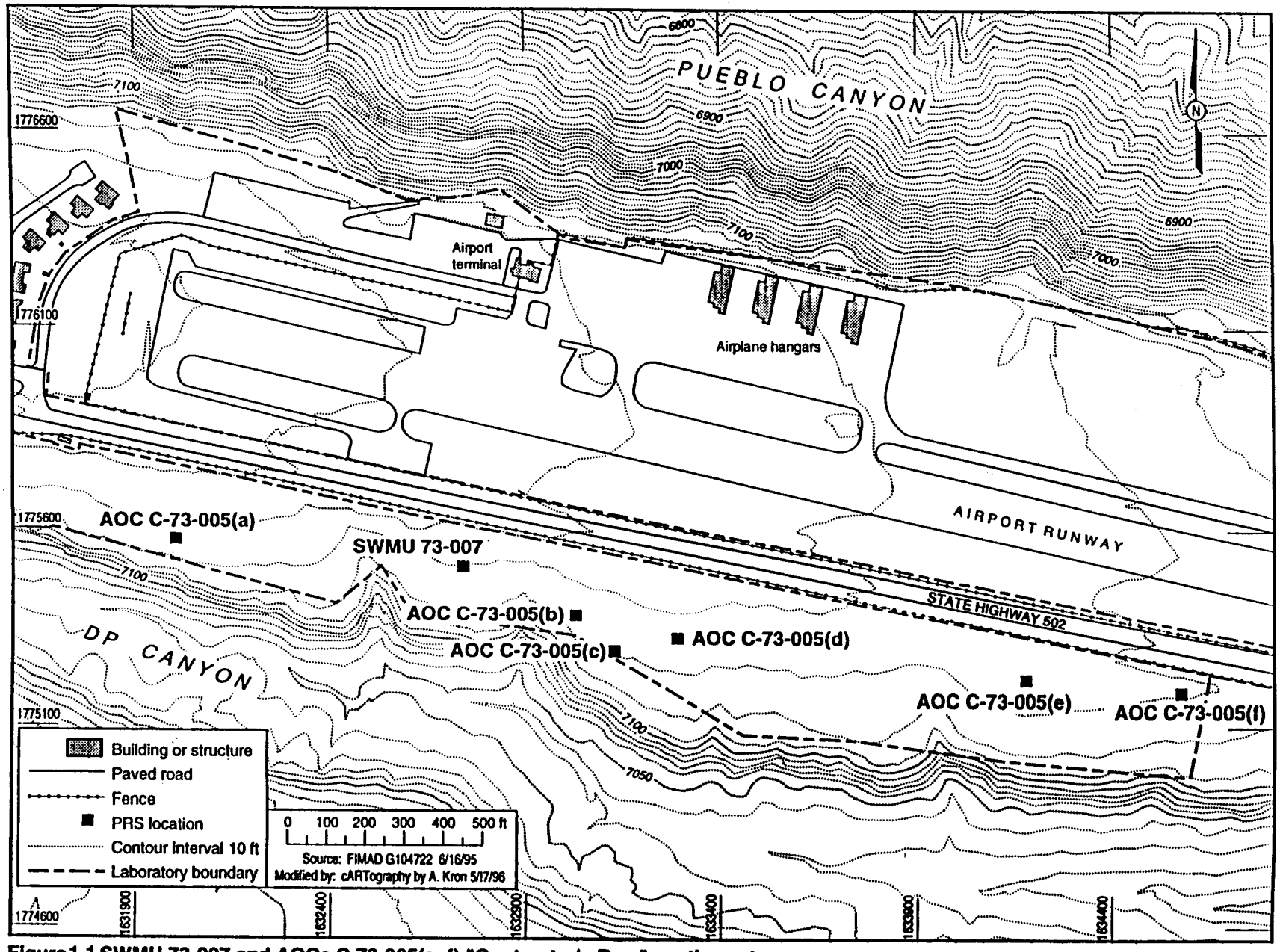

Figure 1.1 SWMU 73-007 and AOCs C-73-005(a–f) "Contractor's Row" septic systems.

is assumed that they probably served facilities on contractors' row. Because of the uncertainties surrounding these tanks, the samples will be analyzed for the same list of Chemicals of Potential Concern (COPCs) identified in the Operable Unit 1071 RFI Work Plan for the other septic systems. This list includes volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, and polychlorinated biphenyl's (PCBs)/pesticides. Gross alpha/beta/gamma and tritium have been added to the list.

2.0 SITE CHARACTERIZATION

2.1 RFI Information/Other Decision Data

Phase 1 RFI activities have not been performed at any of these septic systems. The lack of historical information available for these systems forces us to assume that the wastes discharged to these septic tanks were mostly sanitary in nature. The precharacterization activities will determine the nature of any contamination associated with these septic tank systems and a decision will subsequently be made as to the type of remedial activity required for each site.

2.2 Nature and Extent of Contamination

Currently, the nature and extent of potential contamination is unknown for these septic tanks. Field work for precharacterization and subsequent VCA activities at these sites will be completed in four field tasks: field surveys, surface sampling, subsurface sampling, and corrective actions. Field survey activities at each site will consist of non-intrusive activities such as an initial site survey, geophysical surveying, geodetic surveying, and geomorphic mapping. Several of these activities will be abbreviated since the tank locations and nature of the tanks are already known. Geophysical techniques will be used to trace inlet or outlet pipelines, as appropriate.

During precharacterization activities, tanks with no discernible inlet or outlet lines will be further examined in an effort to verify the presence or absence of these lines. If necessary, a backhoe will be used to dig shallow exploration trenches around the tanks for this purpose. However, the intent is to minimize excavation activities until screening and analytical results are available with which to determine what type of waste, if any, is contained within each tank.

As many as six samples will be collected from each septic tank system; two from within the tank, one each from below the inlet and outlet drainlines, and two from the first sediment catchment area below the outfall point, assuming the ends of the drainlines are confirmed to exist. The total number of samples collected during the precharacterization activities will be dependent upon the depth of fill material in the septic tank, the existence of inlet and outlet lines, and whether or not the outfall point can be located. Samples will be collected using the procedures described in LANL-ER-SOP-06.10, Hand Auger and Thin-Wall Tube Sampler or LANL-ER-SOP-6.09, Spade and Scoop Method for Collection of Soil Samples. All material removed during excavation and sampling activities will be continuously monitored with field instruments for indications of chemical or radiological contamination.

The samples will be analyzed at the Mobile Chemistry Analytical Laboratory (MCAL) for VOCs by EPA SW 846 Method 8260 and at the Mobile Radiological Analytical Laboratory (MRAL) for gross alpha/beta/gamma, and tritium. The samples will be sent to a fixed laboratory for analysis of SVOCs by EPA SW 846 Method 8270, TAL metals by EPA SW 846 Method 6010 and 7470 (Hg), and PCBs and pesticides by EPA SW 846 Method 8080.

A specific remedial action for each tank cannot be determined until the nature and extent of contamination is known. Specific remedial actions will be determined on a case-by-case basis after reviewing the precharacterization analytical results.

3.0 PROPOSED REMEDY

3.1 Description of the Proposed Remedial Action

The analytical results will be assessed to determine if remedial action is required for any of the septic systems. Remedial actions will be developed on a case-by-case basis, depending on the nature and extent of the contamination. If analytical results indicate that contamination is not present, the sites will be proposed for no further action (NFA). However, at a minimum, the pits will be backfilled so they no longer present a physical hazard to people and animals walking in the area. If required, VCA activities may include removal of the septic tank contents and drainlines, or removal of just the tank contents with abandonment of the drainlines in place, with no further action. If soil contamination is encountered outside the tank, it may be necessary to remove both the tank and the surrounding contaminated soils.

The field activities will be conducted according to the site-specific plans prepared for the septic tank investigations. These plans include the Spill Prevention Control and Countermeasures Implementation Plan (SPCCIP), the Site-Specific Health and Safety Plan (SSHASP), and the Waste Characterization Strategy Form.

If mixed waste is determined to be present in the subsurface, the tank, contents, and drainlines will be left in place until waste disposal arrangements are made.

3.2 Basis for Cleanup Levels

Cleanup levels will be based, in part, on the type of contamination found; however, because sampling has not previously been conducted, the type and extent of any chemical or radiological contamination that may be present is unknown.

Cleanup levels will also be based on the assumption that future land use may be residential. Thus a residential scenario will be utilized in calculating cleanup levels. All sites are currently on DOE property.

3.3 Site Restoration

Following precharacterization and VCA activities, the excavations will be backfilled and compacted, and the affected areas will be re-landscaped to the extent necessary. Pre-work photographs will be taken to record the conditions of the site prior to beginning work.

4.0 WASTE MANAGEMENT

4.1 Estimated Types and Volumes of Waste

Waste types: Wastes generated during precharacterization activities will consist of personal protective equipment (PPE) (disposable coveralls, duct tape and gloves), disposable sampling equipment, paper towels, plastic sheeting, and equipment decontamination fluids (potable water, deionized water, Alconox, and possibly a methanol and deionized water mixture at a non-hazardous concentration of <9%).

Wastes generated during VCA activities will depend on the precharacterization analytical results and on the decision to remove or abandon the tank(s) in place. In general, the decision to remove a septic system could result in generation of the following waste types: 1) sludge and backfill material from within the tank, 2) concrete, steel, or wood debris from the tank itself, 3) vitrified clay or cast iron pipe from the inlet and outlet pipelines, and 4) soil or tuff from below the tank and pipelines.

Waste volumes: It is anticipated that one partially-filled, 55-gallon drum (approximately one cubic foot) of solid wastes will be generated per location during the precharacterization activities.

The intent for decontamination fluids is to discharge the water at each site according to the New Mexico Environment Department (NMED) letter dated December 20, 1995. The decontamination fluids to be discharged will be a mixture of deionized or potable water and Alconox, of which less than 6 gallons will be discharged daily. The amount of decontamination fluids discharged at each site will be documented according to the site-specific SPCCIP. However, if field observations or field screening indicate that contaminated soils were encountered at any site, the decontamination fluids for that area of the investigation will be segregated until analytical data have been reviewed. The fluids will then be discharged or drummed for disposal, as appropriate. It is estimated that, if any, less than one 55-gallon drum of decontamination fluids, which cannot be discharged, will be generated for all sites.

A final methanol and deionized water rinse will only be used, if necessary, as a final step in decontaminating reusable sampling equipment. If the use of methanol is necessary, much less than one liquid waste drum (approximately 10-20 gallons) of deionized water, with less than nine percent methanol, will be generated for all sites.

The volume of wastes generated as a result of VCA activities at each of the septic systems will depend on the analytical results of the precharacterization samples and on the decision to remove or abandon the tank(s) in place. Waste volumes will also depend on the method of construction of the tank(s), depth of each tank, and the extent of contamination. Because of the dimensions and "pit" style construction of the AOCs, it is anticipated that no more than 5 to 15 cubic yards of waste would be generated by removal of a tank's contents and any inlet or outlet pipelines. Removal of SWMU 73-007 would result in even less waste since the steel, cylindrical tank is mostly empty.

4.2 Method of Management and Disposal

All waste generated at SWMU 73-007 and AOCs 73-005(a-f) will be managed according to the site-specific Waste Characterization Strategy Form. Based on acceptable knowledge, it is anticipated that all PPE and disposable sampling equipment generated will be nonhazardous. Upon generation, the waste will be shipped from each Potential Release Site (PRS) to a temporary storage area at Technical Area (TA)-3, South Mesa (SM)-271 until appropriate disposal can be determined and arranged.

Based on the analytical results of the septic system samples, the waste classification and disposition of the contents from each septic system will be determined prior to selection of a final remedy. If the tank contents are determined to contain chemical or radiological contamination, and the decision is made to remove the tank and/or its contents, the waste will be appropriately containerized (i.e., drums or roll-off bins) for disposal based on the type of contamination and the disposal facility requirements. If the tank is to be removed, it may be left in tact for disposal or it may be demolished in order to facilitate containerization prior to disposal. Upon generation, the waste may be shipped immediately from each SWMU/AOC, under manifest, to a temporary storage area at TA-3, SM 271 until disposal arrangements can be finalized.

It is not anticipated that RCRA hazardous waste will be generated during field activities, but if it is, the waste will be appropriately containerized for disposal. The waste will be shipped from each SWMU/AOC, under manifest, to a < 90 day storage area at TA-3, SM 271 until appropriate disposal can be determined and arranged. A provisional Environmental Protection Agency (EPA) ID Number will be obtained through Environment, Safety & Health (ESH)-19 prior to shipping any hazardous waste for storage or final disposition. The RCRA hazardous waste will be managed according to all laboratory procedures for < 90-day storage areas.

5.0 DESCRIPTION OF CONFIRMATORY SAMPLING

If the decision is made to remediate any of the AOC septic tanks (pits) (73-005(a-f)), the material in the tank, as well as a few inches of tuff from the sides and floor of the tank, will first be excavated and placed in appropriate containers based on the type of contamination and disposal requirements. If a visual inspection and field screening indicate that chemical and/or radiological contamination is still present, additional tuff may be removed. Two confirmatory samples will then be collected from locations at the bottom of the excavation and submitted for analysis of the COPC list. If the analytical results indicate that contaminated material is still present above screening action levels, then more tuff will be excavated and additional confirmatory samples collected.

If the cylindrical steel septic tank at SWMU 73-007 is abandoned in place, no confirmatory samples will be collected. If the tank is removed, then confirmatory samples will be collected beneath the tank after its removal. Similarly, if the decision is made to also remove the drainlines, confirmatory samples will be collected from below the lines after they are removed.

Confirmatory samples will be submitted to the MCAL, MRAL, and a fixed analytical laboratory for analysis, as appropriate. The samples will be analyzed for the entire COPC list.

6.0 ESTIMATED TIME TO COMPLETE THE ACTION AND UNCERTAINTIES

The estimated time to complete the field activities are assumed to be similar for each SWMU/AOC. Whenever possible, the field activities will overlap for several of the sites. The estimated time required for the precharacterization and VCA activities is listed in Table 6-1.

TABLE 6-1
ESTIMATED TIME TO COMPLETE TASKS

TASK DESCRIPTION	APPROX. TIME (Working Days)
Conduct field surveys	5 days
Expose septic system components and collect precharacterization samples	5 days
Analyze precharacterization samples (MCAL, MRAL and fixed laboratory)	7 to 10 days
Complete data assessment and select remedial actions	2 days
Complete VCA activities and collect confirmatory samples, if required	5 days
Analyze confirmatory samples (MCAL, MRAL and fixed laboratory)	30 days
Conduct data assessment to verify completion of VCA activities	2 days
Backfill excavations and restore sites to their original conditions	5 days

The primary uncertainty that may impact the schedule for these VCA activities is not knowing if contamination will be encountered at any of the sites. If overexcavation is required at a site, then a delay might occur in completion of the field activities, depending on the nature and extent of the contamination.

The VCA activities should reasonably be limited to estimates provided in this plan. Efforts will be made to minimize the amount of waste generated and consideration will be given to abandoning a septic tank in place, if possible. If the extent of contamination is greater than anticipated, the site will be reevaluated in order to determine the most effective and efficient approach for site remediation.

7.0 ANNEXES

ANNEX 7.1

Risk-Based Cleanup Level Assumptions and Calculations

(This annex does not apply to these sites unless soil contamination is found during septic tank investigation or excavation. It is assumed that no contaminant of concern will be found outside the septic tank systems. If remedial action is required, a residential scenario will be used to calculate cleanup levels.)

ANNEX 7.2

RFI Analytical Results

(This annex does not apply because no RCRA Facility Investigations have been completed at these sites.)

ANNEX 7.3

Site Maps

(Other than the site map presented in this VCA Plan, no maps exist that contain any information from previous field investigations because no previous work has been performed.)

ANNEX 7.4

Implementation SOPs

Implementation SOPs

The SOPs applicable to the precharacterization and VCA activities are listed below:

GENERAL

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

RECONNAISSANCE/FIELD SURVEY

ER-SOP-03.02	General Surface Geophysics
ER-SOP-03.12	Field and Laboratory Notebook Documentation for Environmental Restoration Earth Science Studies

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
ER-SOP-06.18	Collection of Sand, Packed Powder, or Granule Samples Using the Hand Auger

See Environmental Restoration Standard Operating Procedures, Volumes I and II, November 17, 1993, Los Alamos National Laboratory.

ANNEX 7.5

Quality Assurance Plan

(See Quality Program Plan and Quality Assurance Project Plan for Environmental Restoration, February 1995 revision, Los Alamos National Laboratory.)

ANNEX 7.6

Site-Specific Health and Safety Plan

(See the site-specific Health and Safety Plan, and the Los Alamos Laboratory Environmental Restoration Project Health and Safety Plan, February 11, 1995, Los Alamos National Laboratory.)

ANNEX 7.7

Waste Management Checklist

(See the site-specific Waste Characterization Strategy Form.)

ANNEX 7.8

VCA Checklist and Fieldwork Authorization Form

Voluntary Corrective Action (VCA)
Checklist and Fieldwork Authorization Form
PRS No. 73-005(a-f) and 73-007 HSWA or AOC

✓ COPC(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.

✓ Remedy is final.

✓ 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. _____

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

FPL Beverly Marten for QA Date 6/19/96

FPC T. Skok for B. Koch Date 6/20/96

The undersigned have reviewed the final plan and believe that it fully satisfies the appropriate Accelerated Cleanup approach.

FPL Beverly Marten for QA Date 6/19/96

FPC T. Skok for B. Koch Date 6/20/96

Through reviewing the VCA Plan, for site(s) 73-005(a-f) and 73-007, and believing that the above criteria have been met, I authorize ~~the fieldwork~~ to proceed.

DOE ER Program Manager T. J. Skok Date 6/20/96

EM/ER:96-134

ANNEX 7.9

VCA Cost Estimate

VCA Cost Estimate

(Assumption: All septic tank systems have a similar scope of work. Therefore, the cost should be approximately the same for each site.)

Pre-Field Activities		
Field Preparation/Readiness Review	Subtotal	$ 13,000
Field Activities		
Field Team (FOM, FTM, FTL, SSO, Sampler/Waste Manager, etc.)		$ 20,000
Geodetic Surveys/"mark out" surveys		$ 2,000
Excavation, tank abandonment/removal, waste transportation, etc.		$ 5,000
Waste Disposal		$ 1,000
Site Restoration		$ 7,000
	Subtotal	$ 35,000
Analytical Costs		
Rad Van		$ 4,000
Fixed Laboratory		$ 59,000
	Subtotal	$ 63,000
Post Field Activities		
Acceptance Inspection		$ 1,000
Final Report		$ 6,000
	Subtotal	$ 7,000
Total Estimated Cost		**$ 118,000**