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Date: April 4, 1996
Refer to: EM/ER:96-180

Mr. Benito Garcia
NMED-HRMB
P.O. Box 26110
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SUBJECT: FINAL VOLUNTARY CORRECTIVE ACTION (VCA) PLAN FOR ACTIVITIES AT TECHNICAL AREA (TA) 32 FOR POTENTIAL RELEASE SITES (PRSs)

Dear Mr. Garcia:

Enclosed please find an informational copy of the final VCA Plan for activities in TA-32 for PRSs 32-002(a,b) and 32-004 to be completed in Fiscal Year 1996.

The Department of Energy (DOE) participated in developing and reviewing this plan. The VCA Checklist and Field Authorization Form have been completed and signed. DOE authorization for field work to proceed has been granted and is included with the enclosed plan.

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

Sincerely,

Jorg Jansen, Program Manager
Environmental Restoration

Sincerely,

for Theodore J. Taylor, Program Manager
Los Alamos Area Office

JJ/TT/bp

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Enclosure: Final VCA Plan for TA-32 for PRSs 32-002(a, b) and 32-004
VCA Checklist and Field Authorization Form

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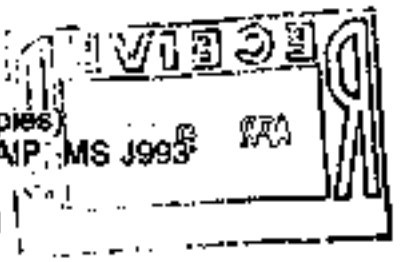

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Voluntary Corrective Action Plan for

Potential Release Sites

32-002(a)
32-002(b)
32-004

Field Unit 1

Environmental
Restoration
Project

March 1996

A Department of Energy
Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

LA-UR-96-1038

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1.0 INTRODUCTION

This voluntary corrective action (VCA) Plan addresses all site activities for excavation, removal, and disposal of drain lines at potential release sites (PRSs) 32-002(a,b) and 32-004. Each of these PRSs is a solid waste management unit (SWMU) listed in the Hazardous and Solid Waste Amendments (HSWA) Module of Los Alamos National Laboratory's (LANL's) Resource Conservation and Recovery Act (RCRA) Part B Operating Permit (**EPA, 1990, 0306**). The remediation activities will include 1) removal of drain lines, where present, 2) removal of soil or rock beneath the pipelines found to be contaminated based on sampling results, 3) sampling pipe and pipe contents for waste characterization purposes, and 4) sampling trench fill material to assess potential releases from the drain lines and for verification of effective cleanup.

1.1 Site Type and Description

PRS 32-002 (a, b) is comprised of approximately three drain lines and two septic tank systems that served buildings 32-1 and 32-2. PRS 32-004 is comprised of one drain line which served building 32-3. Both PRSs are located south of Trinity Drive at the site of the present Los Alamos County Roads Division, near the north rim of Los Alamos Canyon (Annex 7.3, Figure 7.3-1)

1.1.1 Operational History

PRSs 32-002 (a, b) and 32-004 served part of TA-32, which was the Medical Research and Training Facility at the Los Alamos Scientific Laboratory from 1944 until it was decommissioned in 1954 (Annex 7.3, Figure 7.3-2). Research activities at the site used radioisotopes including: plutonium-238, plutonium-239, americium-241, carbon-14, and tritium. Volatile organic compounds (VOCs), semivolatile compounds (SVOCs), and metal solutions were also used at the facility (**LANL 1990, 0145**).

PRS 32-002(a)

PRS 32-002(a), previously designated as TA-32-7, consisted of an above-ground wood-frame septic tank measuring 4 ft wide, 6 ft long, and 4 ft deep and the associated drain line. The septic tank received waste from building 32-1 from an influent septic line believed to be a 4-in. diameter vitrified clay pipe (VCP). It is likely that the septic tank was left at the site after decommissioning in 1954. However, there are no archival records that indicate the fate of this tank, and there is no evidence that the tank remains in place. The outfall for PRS 32-002(a) is a 4-in. diameter VCP located at the edge of Los Alamos Canyon. Because radionuclides, VOCs, SVOCs, and metals were used at TA-32, and no municipal waste line serviced this area, it is possible that radionuclides and other waste from laboratory sinks and drains were discharged

through this septic tank and its associated piping and drain lines (LANL 1995, 06-0128).

PRS 32-002(b)

PRS 32-002(b), previously designated as TA-32-8, consisted of a reinforced concrete septic tank that was 9 ft wide, 6 ft long, and 6 ft deep and the associated drain lines. The outfall for PRS 32-002(b) consisted of a 4-in. VCP that discharged directly onto the hillside in Los Alamos Canyon. Septic Tank 32-8 was installed when Septic Tank TA-32-7 could no longer meet the usage requirements from laboratory building 32-1. At this point the influent septic line for TA-32-7 was diverted to Septic Tank TA-32-8. The remainder of the effluent line of TA-32-7 was believed to have been left in place. A second vitrified clay influent septic line was also installed from laboratory building 32-2 to Septic Tank TA-32-8. There is no evidence that this line was removed. The septic tank was removed in 1988. Because radionuclides, VOCs, SVOCs and metals were used at TA-32, it is possible that radionuclides and other waste from laboratory sinks and drains were discharged through this septic tank and its associated piping and drain lines (LANL 1995, 06-0128).

PRS 32-004

PRS 32-004 consists of a 4-in. vitrified clay drain line which serviced former building TA-32-3. The line was connected to a room adjacent to the radiation source room and runs from TA-32-3 directly to the edge of the mesa where it discharged onto the hillside directly into Los Alamos Canyon. There is no evidence that this line was removed.

1.1.2 COPCs and Rational for Proposed Remedial Action

The Phase II investigation will identify the locations of the drain lines, supplement the present COPC list determined from the Phase I results, and provide preliminary information regarding drain line condition and potential releases. As part of the Phase II investigation, trenches will be excavated to expose the pipe (LANL 1995, 06-0128). The influent drain lines and outfall drain lines (if present) for each of the three PRSs will be sampled at two locations at opposite ends of each pipe. The pipe will then be breached and a sample will be collected from material found inside of the pipe. Field screening will be conducted at each sampling location for organic vapors using a photoionization detector (PID) and for radiation using appropriate alpha, beta, and gamma radiation detection instruments. Samples will be submitted to a fixed laboratory for analysis of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), target analyte list (TAL) metals, and metals by toxicity characteristic leaching procedure (TCLP). Samples will also be submitted to the mobile radiochemical analysis laboratory (MRAL) for radiation screening to determine if gross radioactive contamination is present. If the results indicate the presence of radioactive contamination, then these samples will be submitted to an offsite fixed laboratory for analysis of specific

isotopes. The radioactive COPCs include isotopic uranium, isotopic plutonium, americium-241, cesium-137, and tritium.

The information collected during the Phase II investigation will be used to focus the VCA activities, which include removing and disposing of the drain lines (and contaminated soil, if any) and collecting samples to evaluate whether COPCs have been released to the surrounding soil. It is possible that releases may have occurred through structural failure and/or leaks at pipe section joints. As a best management practice, the sections of drain lines that lie on Los Alamos County property will be removed. Drain lines will also be removed if hazardous and/or radioactive constituents are found to exist inside the drain line or if areas of contamination are found within the soil surrounding a drain line.

2.0 SITE CHARACTERIZATION

2.1 RFI Information/Other Decision Data

PRS 32-002(a) drain line and outfall

Samples were collected during the Phase I investigation in the outfall area below PRS 32-002(b) (Annex 7.3, Figure 7.3-2). Some of these locations are also within the drainage pathway below PRS 32-002(b). Sample depths and analytical results for inorganics, SVOCs, and VOCs are presented in Annex 7.2, Tables 7.2-1, 7.2-2, and 7.2-3, respectively. Mercury, lead, chromium, manganese, Aroclor 1260™, and polyaromatic hydrocarbons (PAHs) were all detected above screening action levels (SALs) are have been identified as the COPCs for the VCA. The COPCs associated with the drain line and the tank footprint are assumed to be the same as those identified for the outfall, but will be more specifically determined from sample results obtained from the Phase II investigation of the drain line and septic tank footprint.

PRS 32-002(b) drain line and outfall

Limited sampling was conducted during Phase I investigation at PRS 32-002(b). Samples were collected from the footprint of the former septic tank, outfall areas, and in two trenches that were excavated to intercept the influent drain line (Annex 7.3, Figure 7.3-2). A vertical 3-in. diameter steel pipe was found within one of the trenches located within the footprint of building 32-1 and the material surrounding the pipe was sampled and analyzed for inorganics, SVOCs, and VOCs. Sample depths and analytical results for all the samples associated with PRS 32-002(b) are presented in Annex 7.2, Tables 7.2-1, 7.2-2, and 7.2-3. Mercury, lead, chromium, manganese, Aroclor 1260™, and PAHs were all detected above SALs at one or more of the locations sampled. Details of the investigation and the results are provided in the

Phase I RFI Report for TA-32 (**LANL 1995, 06-0126**). Because these data do not adequately characterize the drain lines, COPCs will be determined from sampling results obtained during the Phase I investigation.

PRS 32-004 drain line and outfall

PRS 32-004 was not sampled during the RFI Phase I investigation. As a result, no COPCs have been identified. COPCs will be determined from sample results obtained from the Phase II sampling.

2.2 Nature and Extent of Contamination

Information regarding nature and extent of contamination will be collected during the Phase I investigation, prior to conducting the VCA.

3.0 PROPOSED REMEDY

3.1 Description of the Proposed Remedial Action

The approach of VCA activities involves the following tasks: exposing the drain lines; removing, characterizing and disposing the drain lines, sampling the materials beneath the drain lines, removing contaminated soil in the outfall area, if necessary, and restoring the disturbed areas. All field work will be performed in accordance with applicable ER Project Standard Operating Procedures (SOPs), applicable federal, state, and local regulations, and all site-specific plans. These plans include the Spill Prevention Control and Countermeasures Implementation plan, the Storm Water Pollution Prevention Plan, the site-specific Health and Safety Plan, and the Waste Characterization Strategy.

The location of each drain line will be identified during the Phase II investigation. A trench will be excavated along the length of each drain line using a backhoe or similar excavator to expose the drain line and/or drain line trench. The trenches will be excavated in 25-ft increments. Where present, asphalt and/or concrete will be removed as excavation along the drain line proceeds and will be stockpiled and ultimately disposed of as uncontaminated solid waste at the Los Alamos County Landfill. Prior to removal from the trench, pipe sections will be field-screened for organic vapors using a PID and for radiation using appropriate alpha, beta, and gamma radiation detectors. Pipe sections will be removed from each trench and will be labeled, photographed, and sampled for waste characterization purposes. The pipe sections will then be wrapped in plastic, sealed with duct tape, and placed in a plastic-lined dump truck or

appropriate containers (e.g., B-25 boxes) and transported to an appropriate storage area pending acceptance at a disposal facility. Characterization for disposal facility acceptance will be based on the Phase II investigation results, VCA field-screening results, and/or waste characterization results. The trench will be field-screened for radioactivity and organic vapors prior to collection of verification samples. In the event that field-screening results indicate elevated levels of organic vapors or radioactivity, soil will be removed (containerized, sampled, and transported to an appropriate storage area) and replaced by clean fill material. One verification sample will be collected from every 25 feet of trench after drain line and soil removal is complete.

Any cleanup actions that may be implemented at the outfall or on the hillsides areas will be based on the results of the Phase II investigation in those areas and the subsequent screening and risk assessments.

3.2 Basis for Cleanup Levels

At a minimum, the drain lines that lie on Los Alamos County property will be removed as a best management practice. Cleanup levels for any surrounding soil that is determined to be contaminated will be calculated based on the risk associated with contaminants identified during the Phase II investigation. Risk calculations for the mesa top portions of the PRSs will be based on the assumption of future residential use. These calculations will be presented in the VCA Report.

Cleanup requirements for the outfall areas will be assessed after the nature and extent of contamination is defined in the Phase II investigation. If cleanup is required, the appropriate risk-based level will be calculated using a recreational land use scenario. These calculations will be presented in the VCA Report.

3.3 Site Restoration

Following VCA field activities, all disturbed areas will be restored to original conditions. Each 25-ft-long trench will be backfilled and compacted on a daily basis using the excavated soil (or clean fill in the event contaminated soils are detected by field-screening instruments and removed); each open trench will be backfilled prior to excavating a subsequent trench. Disturbed areas will be landscaped as necessary, and asphalt will be repaired as needed. Every attempt will be made to restore the site to the original condition and to the satisfaction of the property owner.

4.0 WASTE MANAGEMENT

4.1 Estimated Types and Volumes of Waste

The majority of waste materials generated during implementation of this plan will be in the form of potentially contaminated pipe. Other waste materials will include personal protective equipment (PPE), disposable scoops, plastic sheeting, other miscellaneous sampling trash, and decontamination fluids (deionized or potable water and Alconox). Waste volumes and types will depend on the results of the Phase II investigation, VCA field-screening results, and possible waste characterization samples. The nature and volumes of wastes that may be generated during the VCA is estimated in Table 4-1. The existing data are insufficient to waste characterization purposes, however, for planning purposes, it is assumed that the VOCs detected in the Phase I investigation may result in a hazardous waste determination.

TABLE 4-1
ANTICIPATED WASTE VOLUMES

ITEM	TYPE	ANTICIPATED VOLUME
VCP	solid, hazardous	300 linear feet
PPE, sampling equipment, plastic sheeting, etc.	solid, municipal refuse	1/3 cubic yard
Contaminated soil	solid, hazardous	unknown

4.2 Method of Management and Disposal

Wastes generated during VCA activities that are not transported off-site on a daily basis will be stored in a waste management staging area located on DOE property at TA-32. If Phase II investigation results indicate the presence of RCRA hazardous waste, the staging area will be registered as a <90-day accumulation area. At the completion of removal activites, these wastes will be transported to the appropriate facility for final disposal.

5.0 DESCRIPTION OF CONFIRMATION/VERIFICATION SAMPLING

Once a 25-ft section of pipe is exposed, field-screened, and removed from the trench, one verification sample will be collected from materials at the bottom of the trench. Selection of sample locations will be biased towards locations where contamination was detected from visual indication and/or field radiation and organic vapor measurements, prior to removal of the contaminated soil, to assess the effectiveness of the cleanup. Soil samples will be collected from materials directly beneath the pipe using the backhoe bucket, or with a spade and scoop if discrete sampling is necessary. Samples will be collected from the backhoe bucket with a disposal scoop in a representative manner.

In the event that contaminated soil is removed from the outfall areas, confirmation samples will be collected from the location where soil was removed.

All soil samples will be field-screened for organic vapors using a PID and for radiation using appropriate alpha, beta, and gamma radiation detectors. Samples will be submitted to the MPAL for transportation screening requirements and to fixed laboratory for analysis of COPCs identified from the Phase II investigation. Samples will be analyzed using appropriate EPA methodologies.

Additional samples, beyond those described above, will be collected for quality assurance/quality control (QA/QC) purposes. One set of QA/QC samples wil be collected for every 20 soil samples. The types of QA/QC samples to be collected are field duplicates, equipment rinsates (if non-disposable equipment is used), and field blanks. One trip blank will be analyzed for every shipment containing samples to be analyzed for VOCs. Samples will be preserved, as necessary, according to EPA SW-846 and LANL ER Project requirements.

6.0 ESTIMATED TIME TO COMPLETE THE ACTION AND UNCERTAINTIES

Site activities of PRSs 32-002(a,b) and 32-004 are estimated to require a maximum of 15 working days to complete. This includes excavation, confirmation/verification sampling, and site restoration occurring concurrently (on a daily basis). Costs to compete this VCA are included as Annex 7.9. Should the nature and/or extent of contamination found during the VCA be significantly different that identified from the Phase II investigation, remediation activities will be re-evaluated.

REFERENCES

United States Environmental Protection Agency (USEPA), April 10, 1990. Module VIII of RCRA Permit No. NM0890010515, EPA Region 6, Issued to Los Alamos National Laboratory, Los Alamos, New Mexico, effective May 23, 1990, EPA Region 6, Hazardous Waste Management Division, Dallas, Texas. **(EPA 1990, 0306)**.

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Los Alamos National Laboratory (LANL), June 30, 1995. "RFI Report for Potential Release Sites 32-001, 32-002(a), 32-002(b), 32-003, and 32-004", Field Unit 1, Los Alamos National Laboratory Report LA-UR-95-2231, Los Alamos, New Mexico. **(LANL 1995, 06-0126)**

Los Alamos National Laboratory (LANL), November 1990. "Solid Waste Management Units Reports," Vols. 1 through IV, Los Alamos National Laboratory Report No. LA-UR-90-3400, prepared by IT Corporation under Contract Number 9-XS8-0062R-1. Los Alamos, New Mexico. **(LANL 1990,0145)**

7.0 ANNEXES

Annex 7.1

Risk-Based Cleanup Level Assumptions and Calculations

Risk-Based Cleanup Level Assumptions and Calculations

The drain lines associated with PRSs 32-002(a), 32-002(b), and 32-004 will be removed as a best management practice. If it is determined during the corrective action process that fill material surrounding the drain lines is contaminated, risk-based cleanup levels will be calculated following the determination of nature and extent of contamination.

Following characterization of the outfall areas and hillsides associated with each drain line, risk-based cleanup levels will be calculated.

Annex 7.2

RFI Analytical Results

TABLE 7.2-1

TA-37 ANALYTICAL RESULTS FOR INORGANIC ANALYTES DETECTED AT SWMU 32-002(b)[a]

COMPARISON LEVELS FOR SOIL SAMPLES (mg/kg)				Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
			SAL[b]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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SAMPLE ID	LOCATION ID	DEPTH (ft)	LOCATION	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
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[illegible]	[illegible]	[illegible]	Trench 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Trench 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Trench 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Trench [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Trench 2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Trench 2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Outfall	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Outfall	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Outfall	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Outfall	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Outfall	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Outfall	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Outfall	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Septic Tank	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Outfall	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Outfall	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Outfall	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Septic Tank	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Septic Tank	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[a] All data were extracted from FAIAD on June 6, 1995, and all results are measured in mg/kg.
[b] SAL = Screening action level.
[c] UTL = Background upper tolerance limit.
[d] NA = No appropriate value is available.
[e] No UTL can be calculated, so the maximum of the background range is used for comparison.
[f] [illegible]
[g] Values in parentheses are from replicate analyses for mercury.

TABLE 7.2-2

ANALYTICAL RESULTS FOR SEMIVOLATILE ORGANIC ANALYTES DETECTED AT SWMU 22-002(b)[a]

COMPARISON LEVELS FOR SOIL SAMPLES (mg/kg)				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			SAL[b]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			UTL[c]	NA[d]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SAMPLE ID	LOCATION ID	DEPTH	LOCATION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Septic Tank	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Septic Tank	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Septic Tank	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Septic Tank	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Trench 1	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Trench 1	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Trench 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Trench 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Trench 2	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Trench 2	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Septic Tank	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Septic Tank	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Septic Tank	<1	<1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[a] [illegible]
[b] SAL = Screening action level.
[c] UTL = Background upper tolerance limit.
[d] NA = No applicable value is available.

TABLE 7.2-3

ANALYTICAL RESULTS FOR VOLATILE ORGANIC ANALYTES DETECTED AT SWMU 32-002(b)*

COMPARISON LEVELS FOR SOIL SAMPLES (mg/kg)				Acetone	Benzene	Toluene	Xylenes (o+m+p)(mixed)
			SAL[b]	8,000	0.67	910	160,000
			UTL[c]	NA[d]	NA	NA	NA
SAMPLE ID	LOCATION ID	DEPTH	LOCATION	Acetone	Benzene	Toluene	Xylenes (o+m+p)(mixed)
AAA1285	32-1006	0 - 4 in.	Septic Tank	<0.02	0.01	0.029	0.012
AAA1288	32-1007	0 - 4 in.	Septic Tank	<0.02	<0.005	0.013	0.0095
AAA4681	32-1002	4 - 6 in.	Septic Tank	<0.02	<0.005	0.011	<0.005
AAA4682	32-1009	4 - 6 in.	Septic Tank	<0.02	<0.005	0.029	0.009
AAA4695	32-1007	1.5 ft	Trench 1	<0.02	<0.005	<0.005	<0.005
AAA4696	32-1007	1.5 ft	Trench 1	<0.02	<0.005	<0.005	<0.005
AAA4697	32-1008	1.7 ft	Trench 1	0.04	<0.005	0.011	<0.005
AAA4698	32-1009	1.5 ft	Trench 1	<0.02	<0.005	<0.005	<0.005
AAA4699	32-1010	3.2 ft	Trench 2	0.037	<0.005	0.023	0.026
AAA4700	32-1011	3.2 ft	Trench 2	0.034	<0.005	0.012	<0.005
AAA4701	32-1012	3.2 ft	Trench 2	<0.02	<0.005	0.0066	<0.005
AAA4713 (Duplicate of AAA1285)	32-1006	4 - 6 in.	Septic Tank	<0.02	<0.005	<0.005	<0.005
AAA4714 (Duplicate of AAA1288)	32-1002	4 - 6 in.	Septic Tank	<0.02	<0.005	0.018	0.0097
AAA4719 (Duplicate of AAA1285)	32-1002	4 - 6 in.	Septic Tank	<0.02	<0.005	0.012	0.0088

[a] All data were extracted from FINDAD on June 6, 1995, and all results are measured in mg/kg.

[b] SAL = Screening action level.

[c] UTL = Background upper tolerance limit.

[d] NA = No applicable SAL is available.

Annex 7.3

Site Maps

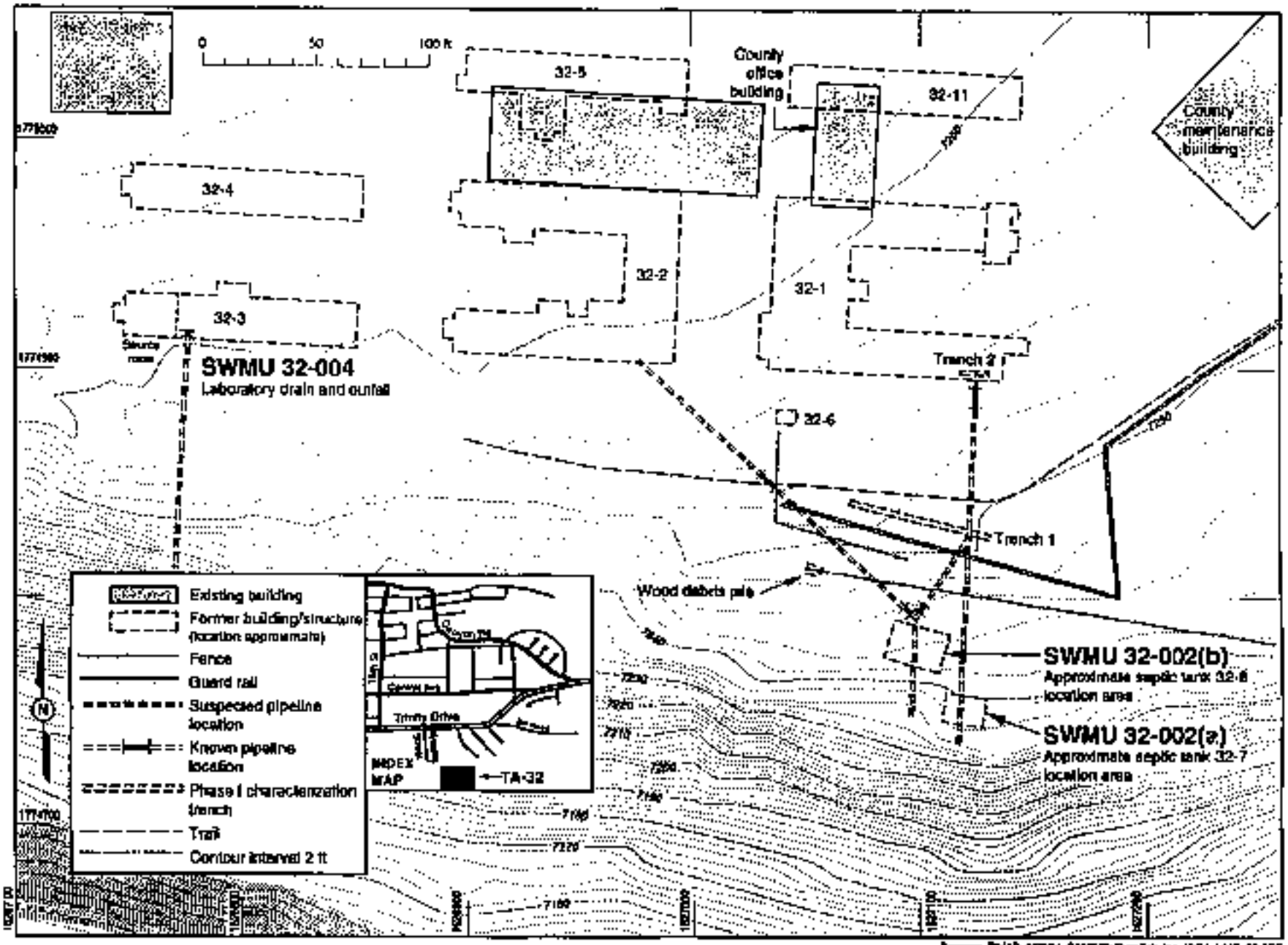


Figure 7.3-1 Drain lines associated with PRSs 32-002(a and b).

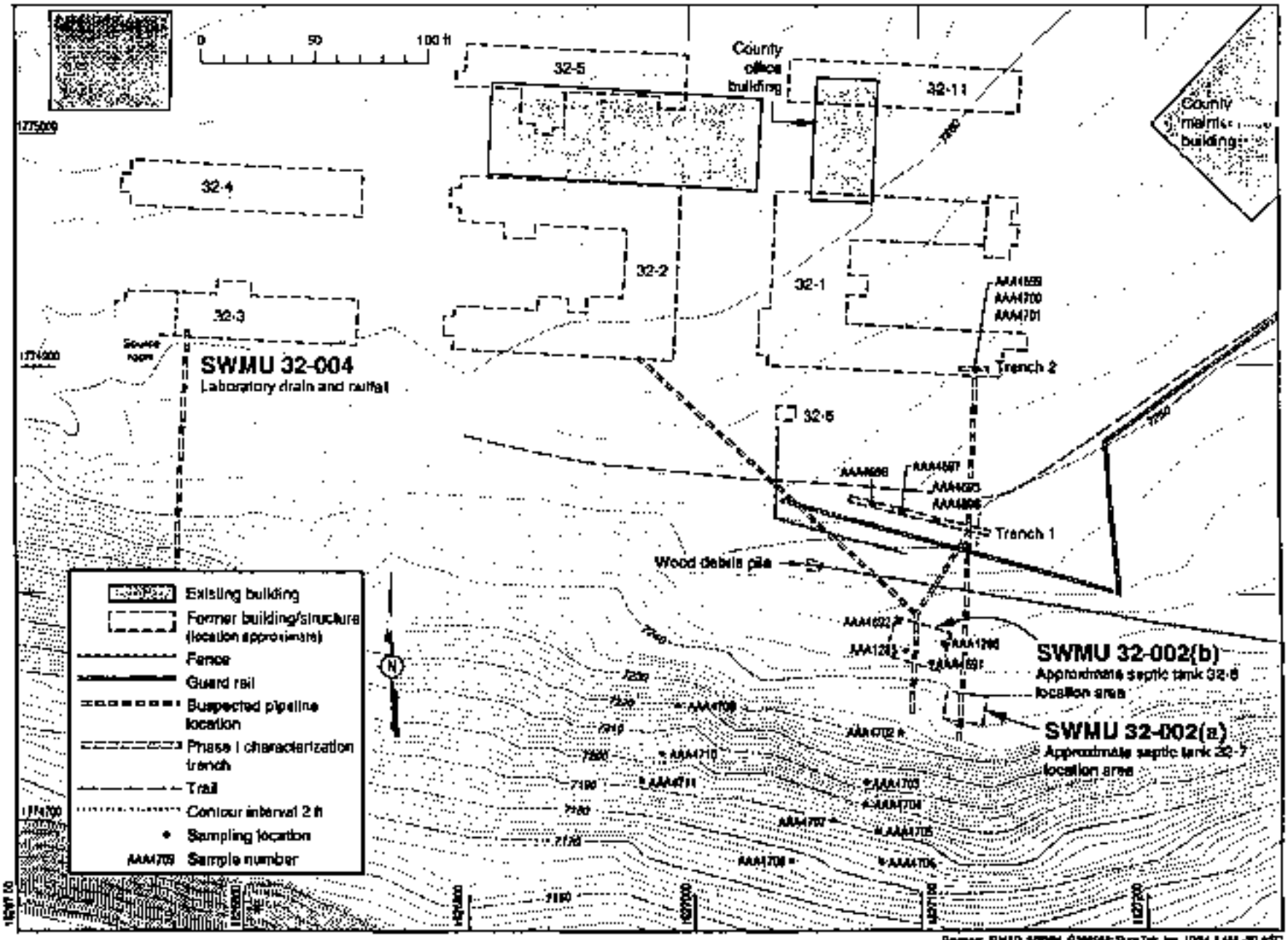


Figure 7.3-2 Sampling locations associated with PRSs 32-002(a and b) and 32-004.

Annex 7.4
Implementation SOPs

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 1996 revision. Los Alamos National Laboratory

Annex 7.6
Site-Specific Health and Safety Plan

Los Alamos National Laboratory

ER PROJECT SHORT FORM SSHASP

SSHASP Number 095

Location TA-32 (Townsite) *Field Unit* 1

Task Name Phase II Investigation *Date* 10/2/95 - 10/30/95

SSO Approval [signature] *Date* 10/13/95

Field Project Leader Approval Beverly Martin for Danny Katzman *Date* 10/13/95

Field Unit HS Rep. Approval [signature] *Date* 10/19/95

ESH-1 ER/D&D Team Leader [signature] *Date* 10/19/95

Subcontractor HS Approval [signature] *Date* [illegible]

Facility Representative Concurrence N.A. *Date*

Key Personnel

Field Unit Representative Beverly Martin *Phone/Pager* 665-7430/699-4091

Field Team Manager Danny Katzman *Phone/Pager* 662-1318/470-4747

Field Team Leader Andy Crowder *Phone/Pager* 662-1338/470-2497

Site Safety Officer John Hayes/Bill Holland (alternate) *Phone/Pager* 662-1348/820-4141

RCT John Hayes *Phone/Pager* 662-1348/820-4141

Field Unit HS Representative Joe Louck *Phone/Pager* 665-5669/104-6959 (665-9000)

ESH-1 Oversight Mary Peifer *Phone/Pager* 667-0083/104-6649 (665-9000)

Task Description

TA-32 is located south of Trinity Drive, behind the present Los Alamos County Roads Division, at the north edge of Los Alamos Canyon. The site served as the medical research and training facility from 1944 until decomissioning in 1955. Three solid waste management units (SWMUs) were identified in LANL's RCRA Facility Permit. Two more were identified during a Phase I study. All of the SWMUs at TA-32 are included in the Phase II investigation. The tasks associated with the Phase II investigation are summarized in Appendix A.

Hazard Analysis

List all chemical, biological, physical, and radiological hazards associated with this task including hazard assessment ratings (ER Project HASP, Appendix C).

Chemical: Metals[1] -HAR of negligible except for lead and mercury (HAR-minimal). VOCs[2] - HAR of negligible. SVOCs[3] - HAR of Negligible. PCBs[4]- HAR of Minimal.

Biological: Snakes, ticks, rodents (hantavirus), bloodborne pathogens. HAR of Minimal.

Physical: Slips, trips, and falls, working around an open excavation, noise, working around heavy equipment. HAR of Minimal.

Radiological: Process knowledge indicates potential contamination with tritium, Am-241 C-14, U-234,235, 238 Pu -238, 239,240. HAR of minimal.

List all other associated Special Work Permits/Procedures and Number :
(include RWP, SWP, CSP, LO/TO, Spark/Flame, etc.): Excavation Permit, Spark/Flame. An RWP is not expected to be necessary.

Will task affect other LANL operations, other employees, or other tasks? No___X___Yes___

If yes, explain precautions taken and contacts notified

Hazard Controls

Engineering/Administrative Controls, Special Equipment, etc. Dust suppression techniques (wetting) will be used to keep dust levels at a minimum. Heavy equipment shall be used to excavate and expose pipe. Shoring and/or sloping shall be used if personnel enter the excavation and it exceeds 5 feet in depth. ALARA will be practiced.

Additional Comments Attached: Yes___No__

PPE (Personal Protective Equipment)

Head Hard Hat
Face & Eye Safety Glasses
Gloves Outer = leather Inner = Nitrile should be worn when handling contaminated soil/pipe.
Hearing Hearing plugs shall be worn if noise levels exceed 85 dB(A)
Body Coveralls (cotton or Kleenguard at SSO discretion)

[1] Metals: Arsenic, Barium, Beryllium, Cadmium, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Thallium, Zinc. Only Lead and Mercury were above the screening action level (SAL).
[2] VOCs: Acetone, Benzene, Toluene, Xylenes. None above SAL.
[3] SVOCs: Di-n-butyl phthalate, bis (2-ethylhexyl phthalate), Butylbenzyl phthalate, PAHs (Benzo (b) fluoranthene, Chrysene, Fluoranthene, Pyrene). None above SAL.
[4] PCBs: Aroclor 1260™. Not above SAL.

Foot Steel toes

Respiratory: Type of Respirator NA Type of Cartridge

Additional Protection/Comments

Monitoring

List all personnel and area monitoring to be performed for this task, including action levels and equipment to be used, and any dosimetry requirements.

Chemical: A PID with a 10.6 eV lamp shall be used to monitor for all VOC constituents. Action level will be based on one-half the TWA for benzene, 0.5 ppm sustained in the BZ for 5 min. If wetting does not provide adequate dust control a mini-ram shall be used. Action Level = 1 mg/m^3.

Biological: None

Physical: If noise levels exceed 85 dB(A).

Radiological: β/γ ESP-1 with HP-260 probe or equivalent. α -Ludlum 139 with air proportional probe or equivalent. In addition, health physics personal dosimetry will be required per Appendix B. Dust suppression will be implemented to limit the potential for airborne contaminants. In addition to field screening instruments, the rad-van will be utilized to confirm and supplement field measurements.

Site Control

Describe how site access and control will be maintained. Attach a site map.
The site shall be marked off with cones and tape to prevent unauthorized entrance. EZ, CRZ, and SZ shall be established at each SWMU or excavation.

Decontamination

Describe how decon will be performed and which option will be used (ER Project HASP, Section 8).
Decon will be performed using ER Project HASP Option 1 (Appendix C). Decon of equipment will be done in the EZ with decon waste stored on-site. All personnel and equipment will be screened by an RCT or HPT for radiological contamination and for release off-site.

Spill Containment

Unless site personnel are trained to the first responder operations level, all site spills will be handled by LANL Emergency Management and Response (EM&R).

Emergency Response

Attach an emergency call-out list and a route to ESH-2/LAMC (See Appendix D).

First-Aid/CPR Provider: John Hayes

Communications: Cellular phone will be on-site (470-2497)

Incident Response Equipment: An approved first-aid kit, BBP kit, and eye wash shall be kept in the SZ.

Fire Extinguishing Equipment: : A 20 lb. ABC fire extinguisher shall be kept in the SZ.

Medical Surveillance

List all medical surveillance required for this task (ER Project HASP, Section 11).

All personnel shall be medically approved for HAZWOPER work. Any exposure to bloodborne pathogens. Hearing conservation if noise levels exceed 85 dB(A). In addition, health physics personal dosimetry will be required per attached Appendix B.

Training Requirements

Attach a copy of an appropriate training matrix (ER Project HASP, Section 10).

See Appendix E

Participant Acknowledgement: (Per ER Project HASP, Sections 1.2 and 10.1.3)

Pre-job Conference: Date/Initials _____

Printed Name	Z Number	Signature	Date
Grant Evenson	115453	Grant Evenson	10/30/95
John K Hayes	117228	John K Hayes	10/30/95
DAVID MENZIE	117379	David Menzie	10/30/95
William Holwig	11[illegible]9	William Holwig	10/31/95
Jeff Walterscheid	083933	Jeff Walterscheid	1/29/96
Clint Daymon	117208	Clint Daymon	11/7/96
KEN CALDER	11582	Ken Calder	8 FEB 96
ERIC MERCADO	118521	Eric Mercado	2/8/96
Danny Katzman	114827	Danny Katzman	3/4/96
Scott Wimer	116417	Scott Wimer	3/4/96
Arthur Lavy	116023	Arthur Lavy	3-14-96

Appendix A
Scope of Work

Task ID		Task Description	Potential Contaminants & Hazards	Anticipated Dates/Duration	Site ID(s)
Task 1 - Site Preparation	1-A	**Site Survey:** Site walk-throughs and visual inspection of site features	None	10/2/95 - 10/13/95	32-001 32-002(a) 32-002(b) 32-003 32-004 Former Bldgs
	1-B	**Geodetic Survey:** Survey contractor will mark former locations of site facilities, proposed sampling locations, and actual locations following subsurface investigation	None	10/13/95 - 10/14/95	
	1-C	**Mobilization/Demobilization:** Set-up and removal of equipment work zones, and portable facilities.	All equipment will be screened out (α and β/γ)	10/16/95 & 10/31/95	
Task 2 - Pothole-Style Excavations at Septic Tank Piping	2-A	**Excavating:** Potholes will be excavated along septic tank piping to a depth of 4 feet to observe and sample drainlines for rad and chemical contamination.	Rads, SVOCs, VOCs, Metals, PCBs	10/16/95 - 10/30/95	32-002(a, b) (Septic System Lines)
	2-B	**Sampling:** The soil beneath the pipes and the contents of the pipes will be sampled after pipe is exposed in potholes.			
Task 3 - Hand-Auger Sampling at Septic Tanks	3-A	**Hand-Auger Drilling:** Hand-auger boreholes will be drilled at former septic tank locations.	Rads, SVOCs, Metals, PCBs	10/16/95 - 10/19/95	32-002(a, b) (Septic System)
	3-B	**Sampling:** Samples will be collected from the hand-auger boreholes.			
Task 4 - Small-Scale Excavations	4-A	**Excavating:** Shallow surface excavations (≤ 2 ft) will be conducted to remove PCB-contaminated soil at or near the surface.	PCBs, Rads	10/23/95 - 10/27/95	32-001 (Incinerator) 32-003 (Former Transformer Pad)
	4-B	**Sampling:** Samples will be collected to ensure that the lateral and vertical extent of the PCB contamination is removed.			
Task 5 - Hillside Rad/Metals Screening and Sampling	5-A	**Screening:** Collect samples from hillside below canyon rim at outfall points and catchments in drainage channels.	Rads, SVOCs, Metals, PCBs Steep Cliffs	10/23/95 - 10/27/95	32-002(a, b) (Septic System); 32-004 (Source Room Outfall)
	5-B	**Sampling:** Collect samples from hillside below canyon rim at outfall points and catchments in drainage channels.			

Task 6 - **Excavate Source-Room Vault**	**6-A** **Excavating:** The radioactive-source storage vault area will be excavated to the base of the vault. **6-B** **Sampling:** Samples will be collected from the base of the excavation.	Rads	10/16/95 - 10/19/95	32-004 (Source Room Vault)
Task 7 - **Pothole-Style Excavations at Source-Room Drainline**	**7-A** **Excavating:** The drainline will be located and exposed by excavating exploratory trenches or potholes **7-B** **Sampling:** Samples will be collected from within and beneath the drainline.	Rads, VOCs, SVOCs, Metals	10/16/95 - 10/30/95	32-004 (Source Room Drainline)
Task 8 - **Hillside Rad/Metals Screening and Sampling**	**8-A** **Screening:** Collect samples for Rad and Metals screening from hillside below canyon rim at outfall points and catchments in drainage channels. **8-B** **Sampling:** Collect samples for laboratory analysis from hillside below canyon rim at outfall points and catchments in drainage channels.	Rads, SVOCs, Metals Steep Cliffs	10/23/95 - 10/27/95	32-004 (Source Room and Drainline)
Task 9 - **On-Site Waste Management**	**9-A** **Containing and Labeling Waste:** All investigation derived wastes will immediately be placed in 55-gallon drums or roll-off bins and sealed. Wastes generated will include PPE, soils, solid waste, decon water, and rainwater collected from bermed containment areas. **9-B** **Movement and Storage of Waste Containers:** All waste containers will be placed in a designated storage area on-site until they can be characterized and transferred off-site for appropriate disposal.	Rads, SVOCs, VOCs, Metals, PCBs Heavy Lifting Pinch Points	10/16/95 - 10/30/95	32-001 32-002(a) 32-002(b) 32-003 32-004

APPENDIX B

PERSONAL DOSIMETRY REQUIREMENTS

HEALTH PHYSICS (RADIATION) *(Refer to Section 6 of the HASP.)*

Hazardous Substance/ Condition	Task(s)	Action Level(s)	Dosimetry Requirement	Action Level(s) Rationale
External Sources of Radiation Exposure	All	Potential to exceed 100 mREM/year dose limit	Monthly TLD Badge	10 CFR 835

APPENDIX C
PERSONNEL AND EQUIPMENT DECONTAMINATION

Personal and Environmental Monitoring Equipment [illegible]

[illegible]	1	2	3	4	5	6	7	8	9
[illegible]									
Wash Soap	X	X	X	X	X	X	X	NA	NA
Wash Solvent	NA	X (water)	X (water)	X (water)	X (water)	X (water)	X (water)	NA	NA
Aqueous Rinse	NA	X	X	X	X	X	X	NA	NA
Rinse Solvent	NA	NA	NA	NA	NA	NA	NA	NA	NA
PPE to be Disposed	NA	X	X	X	X	X	X	NA	NA
PPE to be Laundered	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sampling and Heavy Equipment

[illegible]	1	2	3	4	5	6	7	8	9
Sampling Equipment Decon									
Localized at work site in CRZ	NA	X	X	X	X	X	X	X	NA
Wash Soap	NA	X	X	X	X	X	X	X	NA
Wash Solvent	NA	X (water)	X (water)	X (water)	X (water)	X (water)	X (water)	X (water)	NA
Aqueous Rinse	NA	X	X	X	X	X	X	X	NA
Rinse Solvent	NA	X (methanol <10%)	X (methanol <10%)	X (methanol <10%)	X (methanol <10%)	X (methanol <10%)	X (methanol <10%)	X (methanol <10%)	NA
Heavy Equipment Decon									
Localized at work site in CRZ	NA	X	NA	X	NA	X	X	NA	NA
Wash Soap	NA	X	NA	X	NA	X	X	NA	NA
Wash Solvent	NA	X (water)	NA	X (water)	NA	X (water)	X (water)	NA	NA
Aqueous Rinse	NA	X	NA	X	NA	X	X	NA	NA
Rinse Solvent	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX D
EMERGENCY CONTACTS AND PHONE NUMBERS

TA-32

MEDICAL EMERGENCY/FIRE:

Los Alamos Fire Dept. 667-7080

HAZARDOUS RELEASE/SPILL:

LANL HAZMAT Team (EM&R) 667-6211

LANL Occupational Medicine Clinic (ESH-2) 667-7848
Los Alamos Medical Center Hospital 662-2455
Security OS/Pro Force 667-6534
Los Alamos Police 662-8222
LANL Health and Safety ESH-5 665-7221
LANL Radiation ESH-1 667-7137
FPL: Garry Allen 667-3394
Alternate FPL: Beverly Martin 665-7430, 699-4091
FTM:Danny Katzman 662-3700, 4704747
FTL: Andy Crowder 662-3700, 470-2497
Field Unit HS Rep.: Joe Louck ..... 665-5669,104-6959 access 665-5669
Field Unit RCT: Marty Peifer ..... 667-0083,104-6649 access 665-5669

Management Contacts:

ERM/Golder Contacts: **Al Funk 662-3700, John Williams 662-3700**

Construction Project Coordinator: **Henry Nunez (505) 699-1318**

EMERGENCY REPORTING INFORMATION:

When calling for emergency services, have the following information available to report:

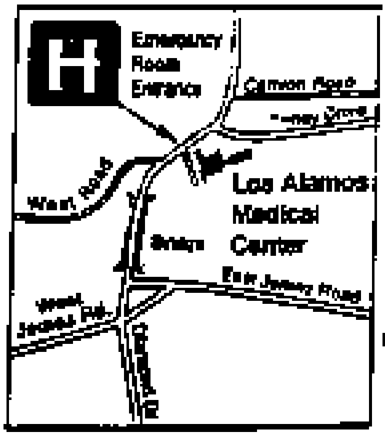
- Site name/location/phone #
- Number of personnel involved
- Caller ID
- Name and condition of affected employees
- Nature of emergency
- Actions taken and assistance required

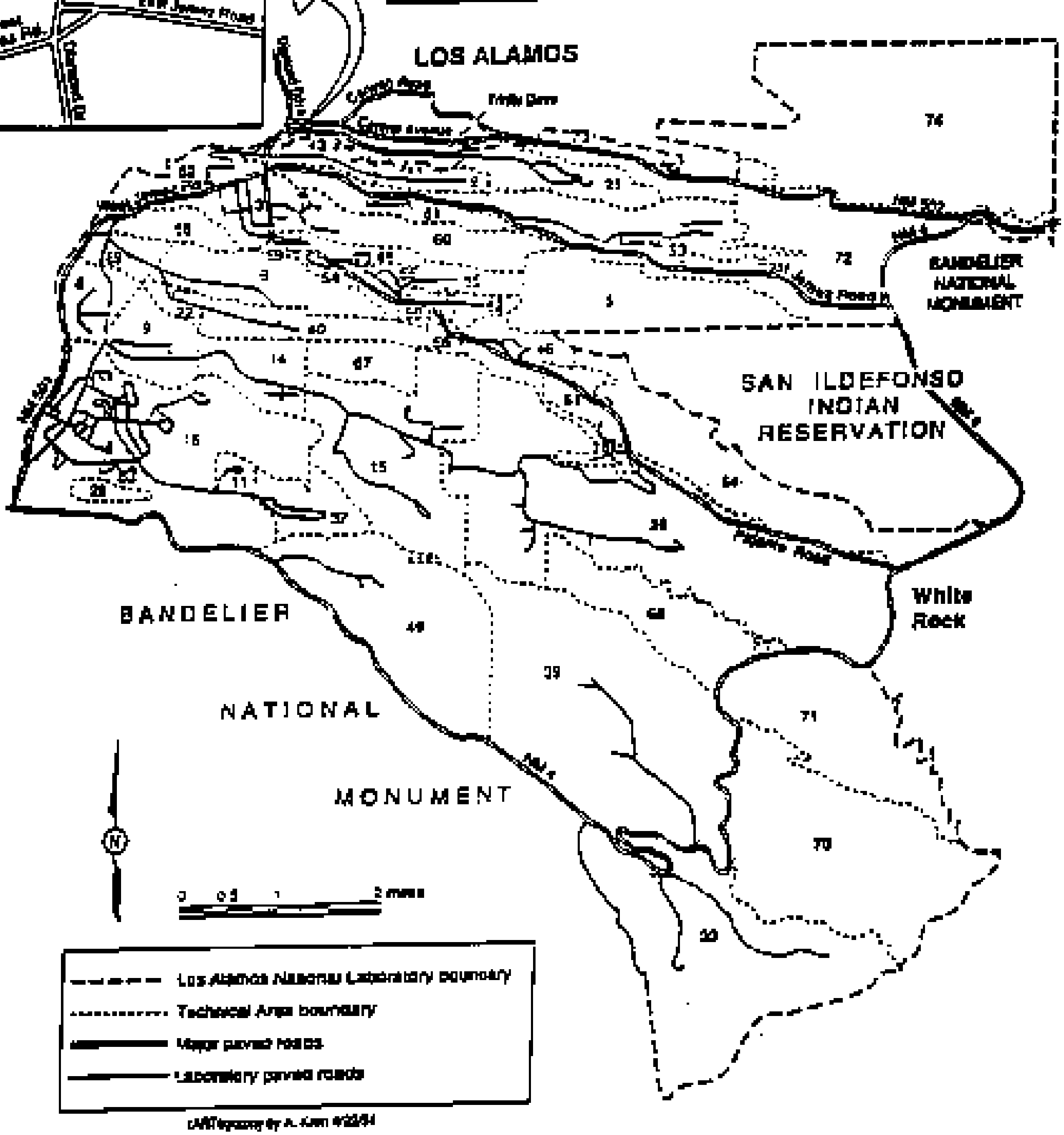
Routes to Emergency Services

Important phone numbers:

667-7848, LAMC Hospital

438-9402, Occupational Medicine Specialists





APPENDIX E

Training Requirements

Training Requirements	Personnel Role				
	FTM	FTL/ Sampler	SSO/ RCT	Waste Mgt	Heavy Equipment Operator
HASP	R	R	R	R	R
SSHASP	R	R	R	R	R
Pre-Job Brief	F or C	F or C	F or C	F or C	F or C
Daily Tailgate	F	F	F	F	F
TA Specific	C	C	C	C	C
GET	C	C	C	C	C
HazCom	R	R	R	R	R
Conduct Oper	R	R	R	R	R
Occurrence Reporting	R	R	R	R	R
OSHA Rights	R	R	R	R	R
Health Physics Checklist	C	C	C	C	C
Rad Worker II	C	C	C	C	C
40 Hr Worker	C	C	C	C	C
*24 Hr Field Training	F	F	F	F	F
8 Hr Supervisor	C	C			
8 Hr Refresher	C	C	C	C	C
First Aid			C		
CPR			C		
Sanitation [29 CFR 1926.51]			R		
Signs, Signals, Barricades [29 CFR 1926.200]			R		
Excavation/Trenching Competent Person [29 CFR 1926.651(k)(1) and 652(f)].		R	R		R
First Responder Awareness			C		
PPE (level D)	F	F	F	F	F
Lead [29 CFR 1926.62]	A/N	A/N	R	A/N	A/N
Arsenic - inorganic [29 CFR 1926.1116]	A/N	A/N	R	A/N	A/N
Beryllium [LANL-AR 8-7]	A/N	A/N	R	A/N	A/N
Cadmium [29 CFR 1926.63]	A/N	A/N	R	A/N	A/N
Bloodborne Pathogens			C		

SSHASP MODIFICATION FORM

Project Title: Phase II Investigation/Voluntary Corrective Actions

TA(s): 32 SSHASP No.: 095 Modification No.: 1

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	Clint Daymon	Site Safety Officer	Clint Daymon	1/9/96

Review and Approval by:

	(Print Name)	(Title)	(Signature)	(Date)
Field Unit HS Representative	Joe Louck	Field unit 1 Health & Safety Representative		2/5/96
FTM or DPL, or PTL or IS (optional at discretion of PPL)	Danny Kurzman	Field Team Manager		2/9/96
Technical Area (TA) Representative (optional at discretion of PPL)	N/A Beverly Martin		Beverly Martin 2/13/96	
PPL or designee	Beverly Martin	Field Operations Manager	Beverly Martin 2/19/96	

Concurrence by:

	(Print Name)	(Title/Company)	(Signature)	(Date)
Subcontractor Representative (Management or HS Rep.)				
Subcontractor Representative (Management or HS Rep.)				
Subcontractor Representative (Management or HS Rep.)				
Others	Kevin Hyde	Health & Safety Coordinator/ERM/Golder	Kevin Hyde	2/5/96

Modification No. 1

Modification:

A) i. The site safety officer position will change from John Hayes to Clint Daymon who will also be will be RSP 662-1326/820-4135
ii. The field team leader position will change from Andy Crowder to Jeff Walterscheid 662-1365/820-4135
iii. Kevin Hyde will replace bill holland as alternate SSO

B) Hard hats will be worn by field team members when working in the vicinity of operating heavy equipment and when overhead hazards exist.

C) All personal leaving the EZ will be screened for radiation by the RSP. If it is necessary to release equipment off-site, an ERM/Golder RCT will be brought in to complete the paperwork.

D) The primary CPR/first-aid provider will be Clint Daymon

E) The new on-site cellular phone number will be 470-4999

F) Methanol will only be used as a rinse solvent to decontaminate sampling equipment if sampling for volatiles/semi-volatiles

G) Modification of the training matrix table(see attached table).

Justification:

A) It was necessary to change field team members.

B) It is not necessary for field team members to where hard hats while sampling, when working in areas where heavy equipment is not operating, and where overhead hazards do not exist.

C) Personnel change from an on-site RCT to RSP.

D) Because of personnel changes in the SSO the primary first-aid/CPR provider is now Clint Daymon.

E) The personnel change in the FTL necessitates a change in phone numbers.

F) It is not necessary to use methanol to decontaminate equipment when sampling for metals, PCBs, radiation, or in situations where low concentrations of VOCs are present.

G) Training requirements for the Field Operations Manager(Bevely Martin) and the surveyors where left out of the original table.

APPENDIX E

TRAINING REQUIREMENTS

R = Read training; C = Class training; F = Field training; AN = As needed per the HASP; ER = Employer required.

Training Requirements	Personnel Role						
	FOM	FTM	FTL/ Sampler	SSO/RSP	Waste Manager	Surveyor	Heavy Equipment Operator
HASP	R	R	R	R	R	R	R
SSHASP	R	R	R	R	R	R	R
Pre-job Brief / TA Specific	C	C	C	C	C	C	C
Daily Tailgate	F	F	F	F	F	F	F
GET [Required for anyone on site > 10 consecutive work days]	C	C	C	C	C	C	C
HazCom	C	C	C	C	C	-	C
Hearing Conservation [per section 4.2.2.7 of HASP]	AN	AN	AN	AN	AN	-	AN
Conduct Oper	R	R	R	R	R	R	R
Occurrence Reporting	R	R	R	R	R	R	R
OSHA Rights	R	R	R	R	R	R	R
Health Physics Checklist	C	C	C	C	C	C	C
Rad Worker II	C	C	C	C	C	C	C
40 Hr Worker	C	C	C	C	C	C	C
*24 Hr Field Training	F	F	F	F	F	F	F
8 Hr Supervisor	-	-	C	C	-	-	-
8 Hr Refresher	C	C	C	C	C	C	C
First Aid	-	-	C	C	-	-	-
CPR	-	-	C	C	-	-	-
SSO [per Section 10.1.1.5 of the HASP]	-	-	-	F	-	-	-
Sanitation [29 CFR 1926.51]	-	-	-	R	-	-	-
Signs, signals, Barricades [29 CFR 1926.200]	-	-	-	R	-	-	-
Excavation/Trenching Competent Person [29 CFR 1926.651(k)(1) and 32(f)]	-	-	R	R	-	-	R

Training Requirements	Personnel Role						
	FOM	FTM	FTL/ Sampler	SSO/RSP	Waste Manager	Surveyor	Heavy Equipment Operator
First Responder Awareness [per 29 CFR 1926.65(q)(6) (i)]	R	R	R	R	R	R	R
Fire Extinguisher Use [per 29 CFR 1926.150(c)(1)(xi)]	-	-	R	R	-	-	-
Materials Handling, Storage, Use, Disposal [29 CFR 1926.250 and 252]	-	-	-	R	R	-	-
PPE(level D)	F	F	F	F	F	F	F
Lead [29 CFR 1926.62]	AN	AN	AN	R	AN	-	AN
Arsenic-inorganic [29 CFR 1926.1118]	AN	AN	AN	R	AN	-	AN
Beryllium [LANL-AR-6-7]	AN	AN	AN	R	AN	-	AN
Cadmium [29 CFR 1926.63]	AN	AN	AN	R	AN	-	AN
Bloodborne Pathogens	-	-	C	C	-	-	-

SSHASP MODIFICATION FORM

Project Title: TA-22 Phase I NEA

TA(s): SWX 32 (townsites) SSHASP No.: 095 Modification No.: 02

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	Kevin Hyde	H&S Coordinator	Kevin Hyde	3/6/96

Review and Approval by:

	(Print Name)	(Title)	(Signature)	(Date)
Field Unit H&S Representative	Joseph P. [illegible]	TH	Joseph P. [illegible]	3/6/96
FTM/DPL or FTL/JS (optional at discretion of FPL)	Jeff Whitesell	FTL	[illegible]	3/7/96
Technical Area Representative				
FPL				

Concurrence by:

	(Print Name)	(Title/Company)	(Signature)	(Date)
Subcontractor Representative (Management or HS Rep.)				
Subcontractor Representative (Management or HS Rep.)				
Subcontractor Representative (Management or HS Rep.)				
Other				

Modification No. 2

Modification:

Due to the naturally existing unguarded elevated surface of the mesa, the following control measures will be implemented by the acting SSO and adhered to by all site personnel and visitors. These control measures are to be used in lieu of a conventional fall arrest system as discussed in the justification section of this SSHASP modification.

In accordance with the provisions of 29 CFR 1926.502 (k)(6), the SSO will complete the following action items in those areas of expected work activity.

- A tape and/or rope barricade will be erected at 6 foot distances of any leading edge were drops of 6 feet or more exist. Such designation will alert site personnel that they are approaching a drop-off of 6 feet or more and should not proceed further.

- The SSO will designate a route of least effort between the hillside benches, by which all site personnel will access these benches. The SSO will create a waist high rope handrail to assist individuals either going up or down by this route.

- Materials and equipment will be bagged and lowered/raised from elevated surfaces as needed. In order to maintain focus on uneven terrain, materials and equipment should not be hand transported via the designated route.

- The SSO is to brief personnel of the above bulleted items and that they are not to put themselves in any situations where they feel unsafe.

Justification:

It has been determined from site visits and review of the soil sampling procedures that use of a fall restraint system, as typically used in the construction industry, would be both impractical and create a significant hazard (Ref. 29 CFR 1926.502 (k)(5)). Reasons for this determination are as follows.

- The anticipated soil sampling procedures will require individuals to conduct laterally random sampling patterns on each bench which would result in considerable line slack between the samplers and any anchor point.

- There also exists significant numerous tuff boulders and shrubs that would serve to snag lanyards and tie off lines, which would then distract site personnel from maintaining balance, foot holds, and hand holds, as well as presenting an entanglement/trip hazard.

- Finally, The designated field personnel have no practical experience with fall arrest systems, and the use of an unfamiliar system would again only serve to distract individuals from safely negotiating their ways between level areas of the mesa.

It is for these reasons that any hypothetical fall arrest system, for this scope of work, would not only be rendered impractical but dangerous as well.

Annex 7.7
Waste Management Checklist

File #
DA9533.6.2
Final WCSF

WASTE CHARACTERIZATION
STRATEGY FORM
ER PROGRAM, PRSs 32-001, 32-002(a), 32-002(b), 32-003, and 32-004
FY 96

Prepared by Grant Evenson ERM/Golder	Signature	12/08/95 Date
Reviewed by John Kelly ERM/Golder	Signature	1/26/96 Date
Reviewed by Mary Jane Winch Waste Management	Signature	2/18/96 Date
Reviewed by Larry Maassen ER Program Office	Signature	2/9/96 Date
Approved By Garry Allen or His Designee Field Unit 1 FPL	Signature	2/15/96 Date

tcox

WASTE CHARACTERIZATION STRATEGY FORM

OU Number	PRS/SWMU Numbers	Title
Field Unit 1, Former OU 1079	PRS 32-001 PRS 32-002(a) PRS 32-002(b) PRS 32-003 PRS 32-004	TA-32, Former Medical Research and Training Facility

Name: Grant Evenson	**Date:** 8 February, 1996
FPL: Garry Allen	**WMC:** Larry Maassen
Type of Activity: Phase II RFI of all PRSs and Potential VCAs of PRSs 32-001 and 32-003	
Waste Streams: (1) Soil/Rubble (2) Decon Water (3) PPE/Disposable Sampling Equipment (4) Wood Planks	

Site Description and Current Activities:

TA-32 is located south of Trinity Drive, behind the present Los Alamos County Roads Division, at the north edge of Los Alamos Canyon. The Site served as the medical research and training facility at Los Alamos Scientific Laboratory from 1944 until it was decommissioned in 1954. During this time period, research at TA-32 included work in the areas of organic chemistry, radiobiology, and biochemistry. A paved lot and the majority of the mesa top portion (location of the former buildings) of the TA-32 site is on Los Alamos County property. The remainder of TA-32 including the mesa top portion south of the paved lot and the slope, outfalls, and cliff wall is on DOE property. A Phase I RFI investigation was conducted in 1993 consisting of limited site characterization and sampling activities at PRSs 32-001, 32-002(b), and 32-003. Five PRSs have been identified at TA-32, two of which were discovered during the Phase I RFI. The figures associated with the content of this plan are included as Attachment B.

A general phased approach will be implemented for TA-32 Phase II field activities. This will include preliminary field screening, characterization sampling, and possible corrective action measures at PRSs 32-001 and 32-003. At all PRSs, prior to conducting any waste generating activities , preliminary field screening will be conducted consisting of organic vapor monitoring (PID), XRF screening (for metals), and hand-held and Rad Van screening to detect any radioactivity that may exist. Should field screening indicate that unanticipated waste streams may be generated, then field activities will be modified to rule out generation of unmanagable waste types. This modification may be necessary because Phase I analytical results revealed very low level, but detectable concentrations of metals at PRS 32-001 and low levels of toluene and acetone at PRS 32-003.

The PRSs include:

PRS 32-001

PRS 32-001 is the location of a former incinerator that was adjoined to the northeast corner of the medical research facility's main laboratory building. The incinerator was constructed of brick and was 2.5 ft wide, 2.5 ft long, and 10 ft high. It was removed sometime prior to 1954. According to the RFI Work Plan for OU 1079, the incinerator probably received any combustible waste from the medical research facilities. Disposition of the ash from the incinerator is unknown. The former incinerator location is currently under the asphalt parking lot of the Los Alamos County Roads Division. The results of the Phase I RFI sampling activities (Attachment A) indicated low levels of PCBs and metals below RCRA characteristic levels at this PRS. Waste generating activities at this

PRS will consist of hand-augered sampling and possible corrective-action involving soil excavation and removal. Samples will be analyzed for PCBs, VOCs, and gross alpha, beta, and gamma radiation as well as tritium in the MRAL. If radioactivity is elevated, the samples will be sent on to an outside fixed laboratory to be analyzed for selected radioisotopes.

PRS 32-002(a)

The Work Plan for OU 1079 describes SWMU 32-002(a) as a wood-frame septic tank that was 4 ft wide, 8 ft long, and 4 ft deep. Since radionuclides were used for experiments in the TA-32 laboratories, and no industrial waste line served TA-32, it is possible that radionuclides were disposed of through this septic system. The septic tank served laboratory building TA-32-1 and was connected to an outfall over the edge of Los Alamos Canyon. SWMU 32-002(a) is thought to have been either removed or abandoned in place, with the associated piping still in place. A wood debris pile improperly identified as the remains of the septic tank was sampled in the Phase I investigation, is now believed to be remnants of the PRS 32-003 transformer platform. Therefore, no sampling has been conducted at the actual location of the inlet pipe, septic tank, effluent piping, or outfall and runoff channel associated with the PRS. Since no data exists, samples during this investigation phase will be collected and analyzed for TAL metals, VOCs, SVOCs, PCBs, and laboratory-analyzed for radioactivity in the MRAL (gross alpha, beta, and gamma as well as tritium). If radioactivity is detected, samples will be sent on to an outside fixed laboratory and analyzed for specific radioisotopes (depending on the type of radiation detected) such as carbon-14, uranium-234, -235, and -238, plutonium-238 and -239/240, and americium-241.

PRS 32-002(b)

A second septic tank served TA-32 and is designated as SWMU 32-002(b). It is suspected that this septic tank was added when the first septic tank (at PRS 32-002(a)) was no longer able to handle the needs of laboratory building TA-32-1. The septic line from building TA-32-1 to septic tank PRS 32-002(a) was then diverted to septic tank PRS 32-002(b). This second septic tank was constructed of reinforced concrete and was 9 ft wide, 5 ft long, and 6 ft deep. A vitrified clay pipe septic line was also installed between laboratory building TA-32-2 and septic tank PRS 32-002(b). Septic tank PRS 32-002(b) is therefore assumed to have served both buildings. This septic tank was removed in 1988. The former location of the septic tank and its outfall are located on DOE property, while the inflow septic lines are beneath the asphalt of the Los Alamos County Roads Division parking lot. Phase I sampling results (Attachment A) indicate the presence of numerous Metals, SVOCs, and VOC concentrations. Also, an elevated field-screened radiation reading was noted in an outfall soil sample, (it was inadvertently overlooked for laboratory submittal and analysis) which indicates the possibility of radiological contamination in this septic system. The Phase I investigation did not fully bound the extent of contamination in the outfall. The presence of heavy metals, organics, and a possibility of radiological contamination substantiates the need for further sampling and analysis. Samples will be collected and analyzed for SVOCs, VOCs, PCBs, TAL metals in the MCAL, and for gross alpha, beta, and gamma radiation as well as in the MRAL and sent on to an outside fixed laboratory for isotopic radiological analyses if MRAL screening results are elevated.

PRS 32-003

A wood debris pile (originally identified as the location of the SWMU 32-002(a) septic tank remains during the Phase I investigation) is the remnants of the transformer platform. Analytical results from Phase I soil sampling results (Attachment A) indicate concentrations of PCBs, acetone, toluene, lead and zinc. Current efforts will focus on defining the extent of contamination and a possible excavation and removal of PCB-contaminated (and possibly VOC-contaminated) soils, and the removal of the wood debris pile as a good housekeeping measure. Samples will be collected and analyzed for PCBs, VOCs, TAL metals in the MCAL, and for gross alpha, beta, and gamma radiation as well as tritium in the MRAL and subsequent radioisotopic analyses for select isotopes if elevated activity is detected in the MRAL.

PRS 32-004

Recent evaluation of archival engineering drawings revealed the location of a vitrified clay drain line that served a room adjacent to a radiation source room and vault in building TA-32-3 (Attachment B). The line leads to an outfall that discharged directly to the hillside in Los Alamos Canyon. It is unknown if the pipe passed through a septic tank. No sampling activities were conducted during

the Phase I investigation and no previous investigations are documented. Waste generating activities to be conducted during this investigation will consist of hand-augered sampling at both the outfall beneath the drain line discharge point and at the location of the former source room. Samples will be collected and analyzed for PCBs, VOCs, SVOCs, TAL metals in the MCAL, and for gross alpha, beta, and gamma radiation as well as tritium in the MRAL. If radioactivity is elevated, the samples will be sent to a fixed laboratory to be analyzed for selected radioisotopes.

Investigation or Remediation Waste Description and Volume Estimate:

PRSs 32-001 (Former Incinerator Location) and 32-003 (Former Transformer Location)

Types of waste that may be generated during the sampling activities at PRSs 32-001and 32-003 will consist of non-indigenous waste including personal protective equipment (PPE), disposable sampling equipment, and equipment decontamination (decon) water. Decon water will consist of potable water, Liquinox™ detergent and de-ionized water, and will be generated as a product of sampling equipment and personnel decontamination. In the event that corrective action is required, additional waste types will include PCB-contaminated (and possibly VOC-contaminated) soils and plastic sheeting.

The estimated volume of the wastes that may be generated as a result of sampling and/or corrective-action activities at PRSs 32-001 and 32-003 includes 10 gallons of decon water per PRS. Decon fluids generated will be discharged at each PRS in accordance with established NMED and Laboratory guidelines unless contamination levels are considered too high based on field observations and/or screening. PPE and disposable sampling equipment from each PRS, 32-001 and 32-003, will be segregated into individual drums with the waste contents placed in labeled, plastic bags in the drums. PPE and disposable sampling equipment characterization is discussed later under the Acceptable Knowledge paragraph. The wood-debris pile will fill approximately three 55-gallon drums or this volume in similar containers. In the event that corrective action is implemented, a significantly greater volume of waste will be generated in the form of PCB-contaminated (and possibly VOC-contaminated) soils. The total area potentially requiring remediation at PRS 32-001 is approximately 400 square feet and the total area of PRS 32-003 is approximately 300 square feet. If it is assumed that the entire PRS area is contaminated to a depth of 1 foot, then approximately 15 cubic yards of soil for PRS 32-003 and 9 cubic yards for PRS 32-001 (soil) will be excavated and subsequently disposed of in accordance with the Waste Acceptance Criteria (WAC) for TA-54. Special attention and planning will be given to assure that mixed waste requiring special off-site shipment for disposal is not generated in bulk quantities. In addition, proper segregation of PCB-contaminated soils, from other soil generated from a corrective action, will take place on-site.

PRSs: 32-002(a) Septic Tank System, 32-002(b) Septic Tank System, and 32-004 Former Radiation Source Room and Vault

Types of waste that may be generated during the sampling activities at these PRSs will consist of non-indigenous waste including PPE, disposable sampling equipment, and equipment decon water. Decon water will consist of potable water, Liquinox™ detergent, and de-ionized water, and will be collected as a rinsate from equipment and personnel decontamination.

The estimated volume of the wastes that may be generated as a result of sampling activities at PRS 32-002(a), 32-002(b) and 32-004 includes 10 gallons per each PRS of waste decon water which will be discharged to the site in accordance with NMED and Laboratory guidelines. Each of these PRSs will also have its own individual used PPE with disposable sampling equipment drum. PPE and disposable sampling equipment will be containerized and segregated per PRS by sealing the contents in labeled, plastic bags within drums.

Waste Characterization Strategy:

Acceptable Knowledge

If corrective actions are implemented (PRSs 32-001 and 32-003) waste characterization of soil-waste will be based primarily on direct sampling of the material in the waste containers. If corrective actions are not implemented, ideally, the only waste generated for TA-32 Phase II activities will be decon water (approximately 10 gallons per PRS) and 5 individual PRS-specific used PPE with disposable sampling equipment drums. The intent for the decon fluids is to discharge them back to the site unless field observations or screening indicate noticeable contaminants in which case the water will be sampled and analyzed prior to final disposition. The used PPE with disposable sampling equipment drums will be characterized based primarily on acceptable knowledge, and to a lesser degree, on analytical results of RFI and waste-characterization sampling. Acceptable knowledge, as used here, will consist of documented field observations and sampling procedures.

No archival information or knowledge of operational practices at TA-32 exists to indicate the presence of high explosive compounds or asbestos. These components are therefore not expected to be encountered at this site and are therefore not a waste concern.

Waste segregation and minimization

Investigation-derived materials (excess soil cuttings and other excavated soil) generated during hand-augered sampling or exploratory trenching will be returned to the original locations or sampling points in a manner to best recreate original placement. This will comply with LANL-AR 5.3 criteria, which should result in the generation of no residual soil. In the event that a volume of soil-waste is generated due to possible corrective actions at PRS 32-001 and 32-003, the residual soil will be directly put into waste containers. This scenario would result in creating primary waste streams for both PRS 32-001 and PRS 32-003. In order to minimize waste, efforts will be made to knock-off excess soil from scoops, bowls and other sampling or excavating equipment, and to discourage kneeling in potentially contaminated soil during sampling activities.
Dry decontamination of non-disposable sampling equipment will be performed whenever possible to reduce the volume of any generated waste decon water.

Waste Characterization Analyses

In general, investigation derived-material (soil, wood) samples from corrective-action activities will be composited from individual grabs from each appropriate waste container and homogenized to produce a representative sample of the soil or wood waste streams. The exception to this procedure will be for grab samples for VOC analyses which will not composited and homogenized. Decon water will be directly sampled only if field observations/screening prevent direct discharge.

Specific Waste Characterization Analyses

VCAs at PRS 32-001 and/or PRS 32-003

If corrective actions are conducted at PRSs 32-001 and/or 32-003, the excavated soil and wood debris generated will be containerized in individual sets specific to each PRS and associated waste stream involved. Two composite samples from containers of waste-soil generated for each PRS; 32-001 and 32-003, will be collected for waste characterization. The waste-soil analytical suites will consist of TCLP Metals (PRS 32-003 only), VOCs (not composited, discrete samples), the Organochlorine Pesticides and PCBs analysis, and MRAL radiological gross alpha, beta, gamma, and subsequent isotopic speciation analyses (fixed lab) if radiological activity is detected. If corrective action is implemented at PRS 32-003, the potentially PCB-contaminated wood will be treated as a unique waste stream with all individual wood debris containers composited yielding a single sample. The analytical suite for this waste-wood sample will consist of an Organochlorine Pesticides and PCB analysis, a VOC sample, and a TCLP Metals sample. If necessary based on the discussion above, a waste decon water sample will be submitted for TCLP metals, VOCS, MRAL gross alpha, beta, gamma, and the Organochlorine Pesticides and PCB analysis.

Waste Characterization Analyses at PRSs 32-002(a), 32-002(b), 32-004 and PRSs 32-001 and 32-003 with no VCA activities

There will be no derived-material waste to be characterized, and the used PPE with disposable sampling equipment waste stream will not be sampled, but will be characterized with the previously stated application of Acceptable Knowledge rationale.

Preliminary RCRA Determination:

Based on acceptable knowledge and Phase I RFI analytical data (Attachment A), it is anticipated that all PPE, disposable sampling equipment, and wood from the debris pile generated will be non-hazardous. Upon generation, the waste will be stored on-site in a temporary storage area. If corrective actions are implemented and RCRA-regulated contaminated soil is generated, a less than 90 day storage area will be set up and the waste will be managed in accordance with State and Federal regulations. Any PCB contaminated soils will be stored in compliance with temporary storage requirements listed in 40 CFR 761.65. If any TSCA or RCRA regulated waste is generated on County Land, ESH-19 will be notified and a provisional EPA identification number will be assigned to the site prior to any waste shipments off-site.

All waste materials will be properly containerized for disposal using DOT-approved drums, boxes, or bins. Hazardous and TSCA regulated waste materials will be properly labeled in accordance with State and Federal regulations.

PRS 32-001 and PRS 32-003
Soil waste from possible VCA activities.
Analyte Suite:

Analyte	Direct Sampling of Waste	Acceptable Knowledge		
		Existing Information		Data from Site Characterization
		Present	Absent	
Volatile Compounds	☒	☐	☐	☐
Semi-Volatile Compounds	☐	☒	☐	☐
Organochlorine Pesticides & PCBs	☒	☐	☐	☐
Inorganic Compounds	☐	☒	☐	☐
High Explosive Compounds	☐	☐	☒	☐
Gross Alpha	☒ 1	☐	☐	☐
Gross Beta	☒ 1	☐	☐	☐
Gross Gamma	☒ 1	☐	☐	☐
Tritium	☒	☐	☐	☐
Asbestos	☐	☐	☒	☐
TCLP	☒	☐	☐	☐
Metals	☒ 2	☐	☐	☐
Organics	☒3	☐	☐	☐
Pesticides, Herbicides, Fungicides	☐	☐	☒	☐

1 Waste will be further analyzed for select radioisotopes if MRAL screening results indicate the presence of elevated radiological activities.
2 PRS 32-003 only, and PRS 32-001 if field screening (XRF) detects elevated concentrations.
3 TCLP organic analysis will be conducted only if VOC and SVOC data indicates elevated levels.

PRS 32-001, PRS 32-002(a), PRS 32-002(b), PRS 32-003, and PRS 32-004
Decontamination water waste.
Analyte Suite:

Analyte	Direct Sampling of Waste	Acceptable Knowledge		
		Existing Information		Data from Site Characterization
		Present	Absent	
Volatile Compounds	☒	☐	☐	☐
Semi-Volatile Compounds	☐	☒	☐	☐
Organochlorine Pesticides & PCBs	☒	☐	☐	☐
Inorganic Compounds	☐	☒	☐	☐
High Explosive Compounds	☐	☐	☒	☐
Gross Alpha	☒ 1	☐	☐	☐
Gross Beta	☒ 1	☐	☐	☐
Gross Gamma	☒ 1	☐	☐	☐
Tritium	☒	☐	☐	☐
Asbestos	☐	☐	☒	☐
TCLP	☒	☐	☐	☐
Metals	☒	☐	☐	☐
Organics	☒ 2	☐	☐	☐
Pesticides, Herbicides, Fungicides	☐	☐	☒	☐

1 Waste will be further analyzed for select radioisotopes if MRAL screening results indicate the presence of elevated radiological activities.
2 TCLP organic analysis will be conducted only if VOC and SVOC analyses show elevated levels.

PRS 32-003
Waste wood
Analyte Suite:

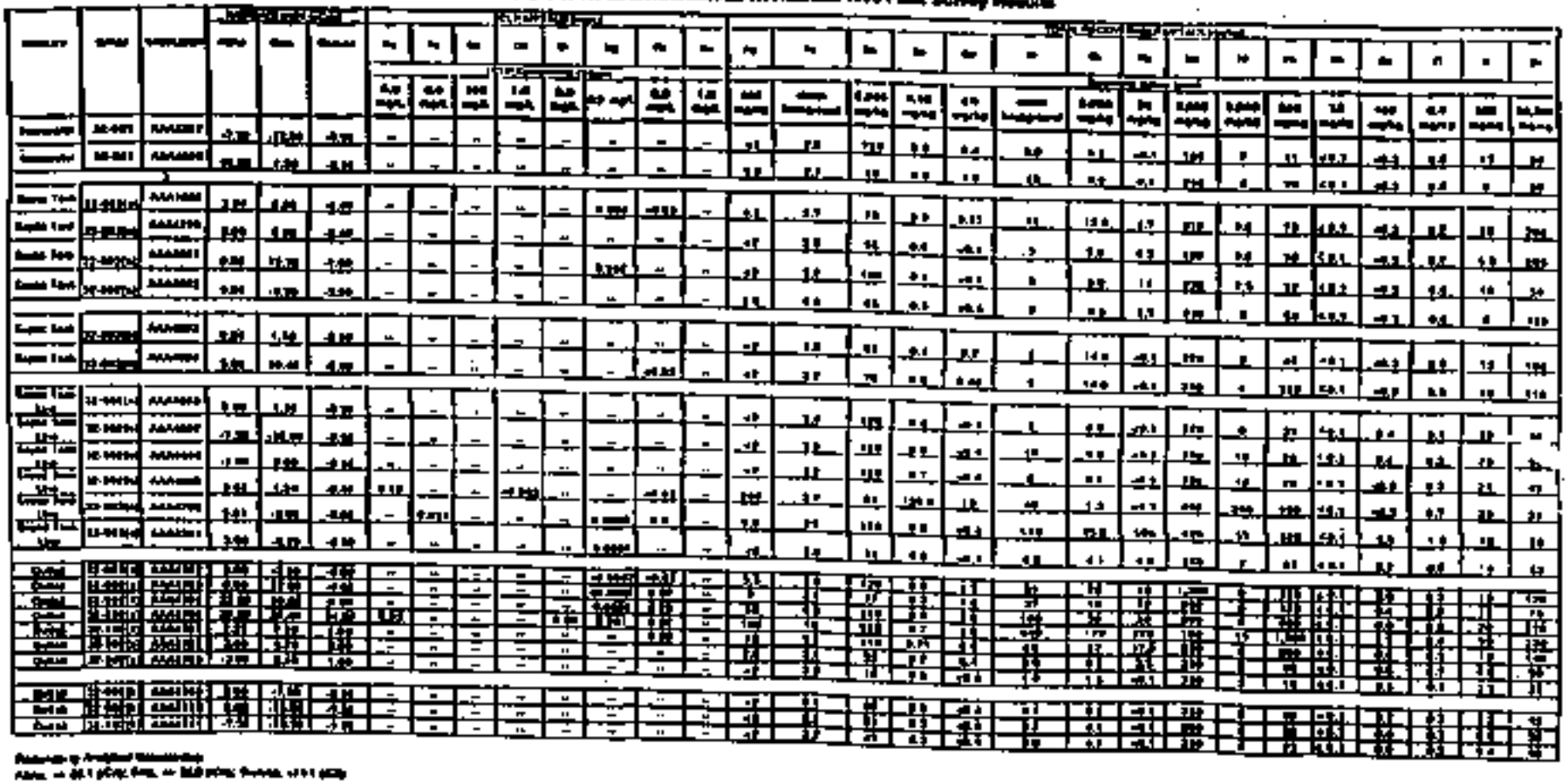
Analyte	Direct Sampling of Waste	Acceptable Knowledge		
		Existing Information		Data from Site Characterization
		Present	Absent	
Volatile Compounds	☒	☐	☐	☐
Semi-Volatile Compounds	☐	☒	☐	☐
Organochlorine Pesticides & PCBs	☒	☐	☐	☐
Inorganic Compounds	☐	☒	☐	☐
High Explosive Compounds	☐	☐	☒	☐
Gross Alpha	☒1	☐	☐	☐
Gross Beta	☒1	☐	☐	☐
Gross Gamma	☒1	☐	☐	☐
Tritium	☒	☐	☐	☐
Asbestos	☐	☐	☒	☐
TCLP	☒	☐	☐	☐
Metals	☒	☐	☐	☐
Organics	☒2	☐	☐	☐
Pesticides, Herbicides, Fungicides	☐	☐	☒	☐

1 Waste will be further analyzed for select radioisotopes if MRAL screening results indicate the presence of elevated radioactivity.
2 TCLP organic analysis will be conducted only if VOC analysis shows elevated levels.

Attachment A

Summary of Phase I Analytical Results

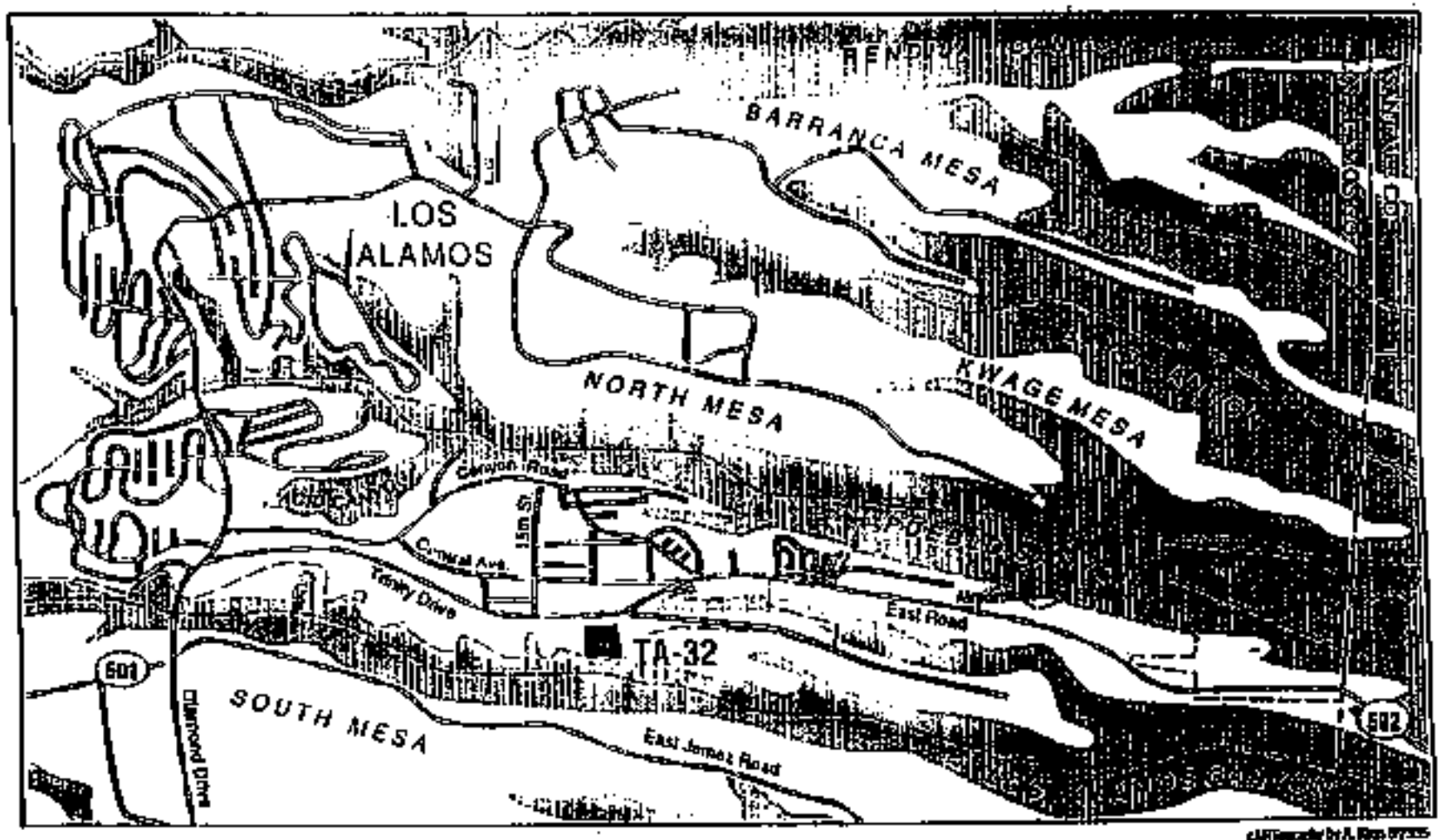
Table I. TA-03 Environmental Restoration 1993 Field Survey Results

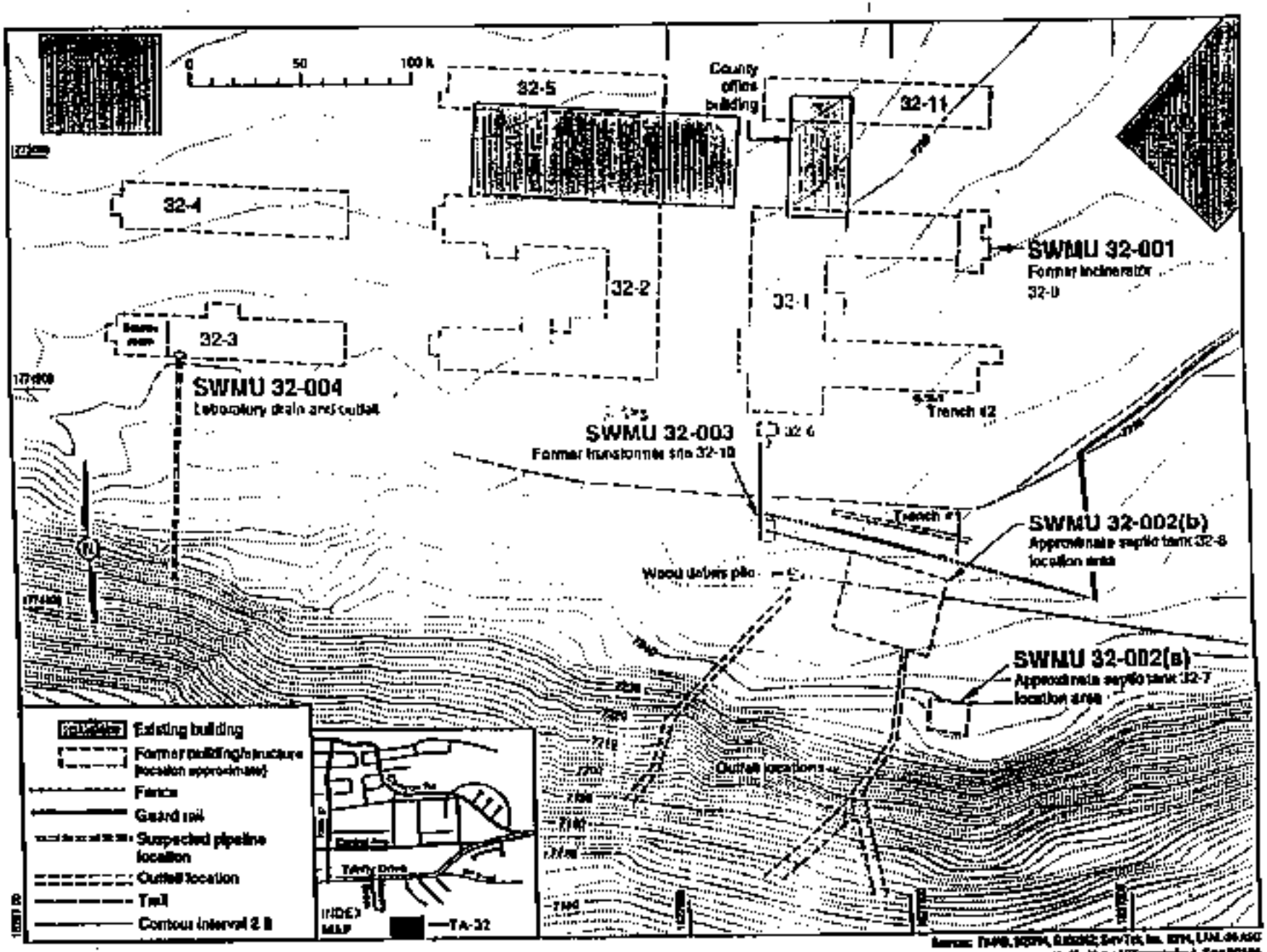


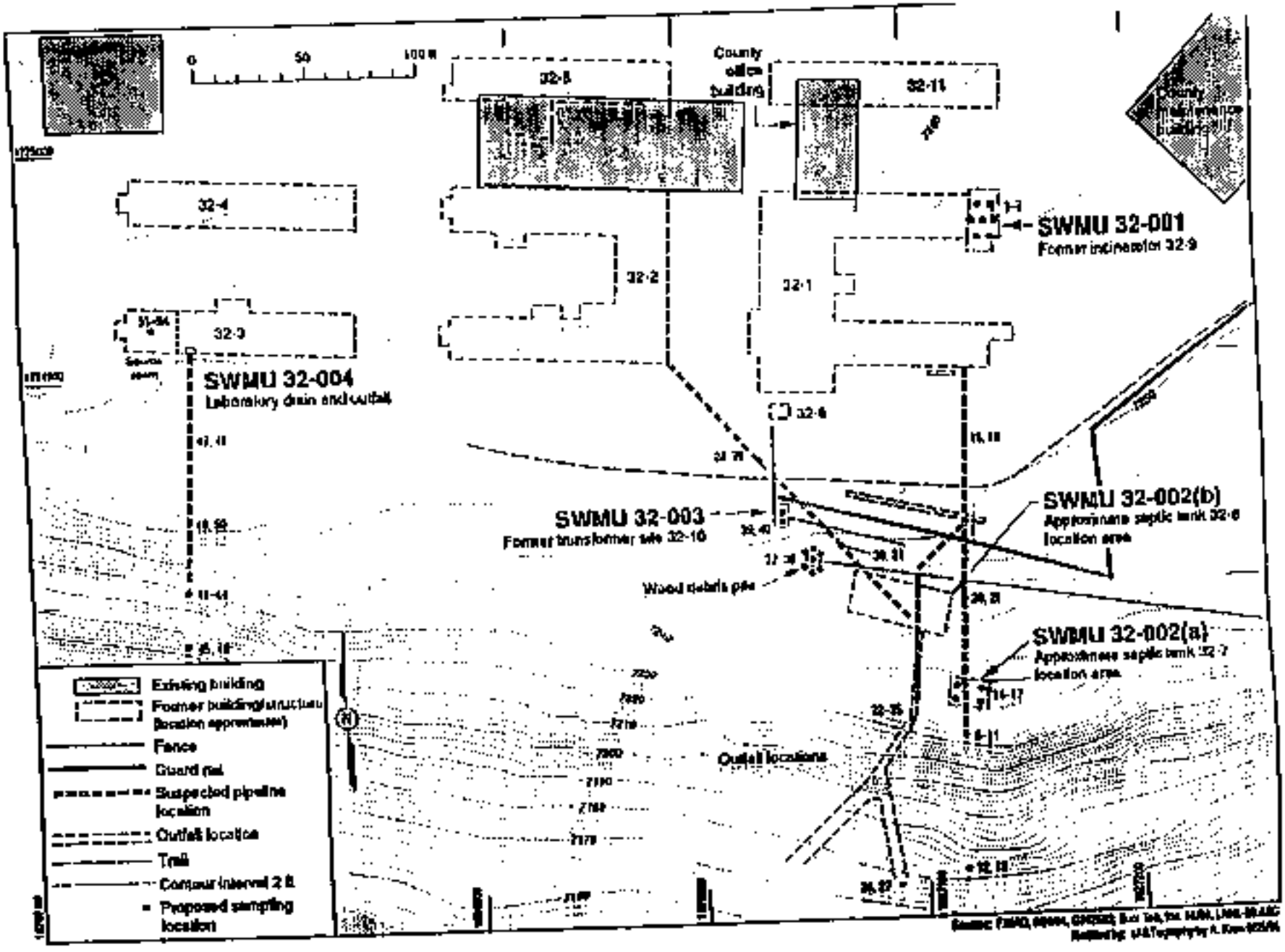
Notes:

Attachment B

FIGURES


LOS ALAMOS
BARRANCA MESA
NORTH MESA
KWAGE MESA
SOUTH MESA
Canyon Road
15th St
Central Ave
Trinity Drive
East Road
TA-32
501
502
Diamond Drive
East Jemez Road
Laboratory boundary
Intermittent stream
Major road
Secondary road
Canyon area
0
0.5
1 mi
0
0.5
1 km
N


0 50 100 ft
32-5
County offices building
32-11
32-4
32-2
32-1
32-3
SWMU 32-001
Former incinerator
32-9
SWMU 32-004
Laboratory drain and outfall
SWMU 32-003
Former transformer site 32-10
Trench #2
Trench #1
SWMU 32-002(b)
Approximate septic tank 32-8 location area
Wood debris pile
SWMU 32-002(a)
Approximate septic tank 32-7 location area
Outfall locations
Existing building
Former building/structure (location approximate)
Fence
Guard rail
Suspected pipeline location
Outfall location
Trail
Contour interval 2 ft
INDEX MAP
TA-32



Proposed Phase II sampling locations.

Annex 7.8

Field Work Approval Form

Voluntary Corrective Action (VCA)
Checklist and Fieldwork Authorization Form

PRS No. 32-002(a;b) (HSWA) or AOC
32-004

✓ 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.

✓ 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. Pipe will be further characterized during the Phase II RFI.

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

FPL JR Allen Date 13 march 96

FPC [illegible] Date 13 march 96

Through reviewing the VCA Plan, for site IA-32, and believing that the above criteria have been met, I authorize the fieldwork to proceed.

DOE ER Program Manager [signature] Date 4/1/96

EMER-96-020

Annex 7.8

Cost Estimate

VCA Cost Estimate

PRSs 32-002(a,b) and 32-004

Pre-Field Activities:	$38,061
Field Activities:	$86,888
Waste Disposal:	$40633
Sampling/Analytical:	$66,636
Post-Field Activities:	$22,902
Total:	**$257,120**

Voluntary Corrective Action (VCA)
Checklist and Fieldwork Authorization Form

PRS No. 32-002(a,b) (HSWA) or AOC
32-004

✓ 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.

✓ 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. Pipe will be further characterized during the Phase II RFI.

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

FPL JR Allen Date 13 March 96

FPC [signature] Date 13 March 96

Through reviewing the VCA Plan, for site TA-32, and believing that the above criteria have been met, I authorize the fieldwork to proceed.

DOE ER Program Manager [signature] Date 4/1/96

EMER:96-026