Los Alamos National Laboratory

ENVIRONMENTAL RESTORATION

Environmental Restoration

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Date: April 23 1996
Refer to: EM/ER:96-226

Mr. Benito Garcia
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502

041071

SUBJECT: FINAL VOLUNTARY CORRECTIVE ACTION (VCA) PLAN FOR ACTIVITIES AT TECHNICAL AREA (TA) 0 FOR AREA OF CONCERN (AOC) C-0-042

Dear Mr. Garcia:

Enclosed please find an informational copy of the final VCA Plan for activities in TA-0 for AOC C-0-042, Waste Oil Underground Storage Tank, 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,

Theodore J. Taylor, Program Manager
Los Alamos Area Office

JJ/TT/bp

Enclosure: Final VCA Plan for TA-0 for AOC C-0-042
VCA Checklist and Field Authorization Form

6842

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LANL SWO 049

Voluntary Corrective Action Plan for

Potential Release Site

C-0-042
Waste Oil Underground
StorageTank

Field Unit 1

Environmental
Restoration
Project

December 1995

A Department of Energy
Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

LA-UR-96-1320

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1.0 INTRODUCTION

1.1 Site Type and Description

Potential Release Site (PRS) C-0-042 is part of the Former Zia Motor Pool facility, Solid waste Management Unit (SWMU) Group 0-4, that includes Building 1 and the Former Automotive Maintenance Hangar. A waste oil underground storage tank (UST) associated with the former Automotive Maintenance Hangar was discovered during recent construction activities at the site. The site is located in the Los Alamos Townsite on Trinity Drive between 15th Street and the Los Alamos Credit Union (Annex 7.3, Figure 7.3-1).

1.1.1 Operational History

The subject waste oil UST serviced the former Automotive Maintenance Hangar located within SWMU 0-032. During the period of operation, the Zia Motor Pool was owned by the Atomic Energy Commission (AEC) and operated for the AEC by the Zia Company. The Automotive Maintenance Hangar was decommissioned and removed in 1962, prior to the initial land transfer from the AEC to Los Alamos County in July 1967. Based on available archival data, the waste oil UST was not used by subsequent land owners following property transfer from the AEC. This data is also supported by visual observations noted during the UST excavation that indicate the tank and all access-ways were covered with asphalt and fill material following demolition of the Automotive Maintenance Hangar. Most of the former Zia Motor Pool buildings and facilities have now been removed and the a portion of the site is currently under construction as a Los Alamos National Bank office complex. Previous RFI field work was conducted in SWMU 0-032 in 1994 to characterize the site, and one UST was removed. The site characterization activities at SWMU 0-032 (Building 1 and Former Automotive Maintenance Hangar) were completed and a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report was submitted to the EPA in May 1995. During the RFI field activities, all of the waste oil tanks could not be located due to inaccurate engineering drawings.

During recent construction activities, however, a 5000-gallon steel waste oil UST was discovered on the western edge of the currently active construction site by the construction contractors. This newly-discovered tank is assumed to be one of the tanks that could not be located during the RFI. The construction contractors found the tank manhole beneath the existing asphalt pavement indicating that the UST had been out of service for many years.

1.1.2 COPCs and Rationale for Proposed Remedial Action

Analytical results of liquid and sludge samples collected from within the tank indicated the presence of several RCRA constituents. RCRA constituents detected in the liquid samples included trichloroethylene (TCE) and cresols, and the sludge sample was found to contain benzene, cresols, 1,4-dichlorobenzene, TCE, barium, cadmium, chromium, and lead. Because of the presence and concentrations of these Chemicals of Potential Concern (COPC), the UST and contents will be removed to minimize the potential risk to human health and the environment. Verification/confirmation soil samples will be collected from beneath the ends of the tank to confirm that a release from the tank has not occurred.

2.0 SITE CHARACTERIZATION

2.1 RFI Information/Other Decision Data

The site characterization activities at SWMU 0-032 (Building 1 and Former Automotive Maintenance Hangar) were completed and a RCRA Facility Investigation (RFI) Report was submitted to the EPA in May 1995, however, this waste oil UST was not encountered during the investigation. When discovered, the UST was approximately half full of liquid and sludge. The tank contents were sampled for waste characterization. Analytical results of liquid and sludge samples are presented in Annex 7.2. The soils beneath and surrounding the UST have not been observed or sampled, but no indication of a release from the tank is evident.

2.2 Nature and Extent of Contamination

It appears that the tank is tight, in good condition, and has maintained its structural integrity. Unless an unknown subsurface release has occurred, all COPCs are contained within the tank. The east side of the tank was partially excavated to its total depth during construction activities and no evidence of a release was observed in the surrounding soils. If soil-staining is observed or field screening indicates the presence of contamination in the surrounding soils, the affected soils will be excavated and additional samples will be collected. Soil samples will be submitted to the mobile chemistry analytical laboratory (MCAL) for field determination of the nature and extent of soil contamination. If no indication of soil contamination is encountered, a minimum of two verification/confirmation samples will be collected from beneath the ends of the tank and submitted to the fixed analytical laboratory for analysis.

3.0 PROPOSED REMEDY

3.1 Description of the Proposed Remedial Action

The tank will be excavated and removed, with the sludge, and hauled off-site to a LANL audited and approved treatment, storage, and disposal facility (TSDF) by a licensed hazardous waste transporter. All hazardous waste transport and management activities will be conducted in accordance with applicable federal and state regulations, and LANL policies and procedures. The bottom and sidewalls of the tank excavation will be inspected for staining or other indications of a release from the tank. If no indications of a release are observed, then two soil samples will be collected from the bottom of the excavation at locations corresponding to the ends of the tank for verification/confirmation. If soil staining is observed and/or field screening with a photoionization detector (PID) indicates that a release has occurred, the contaminated soils will be over-excavated and removed. Soil samples will be collected from the contaminated areas and screened for COPCs in the MCAL to determine if COPCs are above SALs. If analytical results from the MCAL indicate COPCs above SALs, the soil will be excavated and the limits of the excavation re-sampled until all COPCs are below SALs. Additional verification/confirmation samples will be collected from the limits of the over-excavation to verify that all contamination above SALs has been removed. Following verification/confirmation sample collection, the excavation will be backfilled and compacted.

3.2 Basis for Cleanup Levels

In the event that contaminated soils are encountered during the excavation and removal of the tank, cleanup levels will be based on Screening Action Levels (SALs).

3.3 Site Restoration

Following removal of the tank, the excavation will be backfilled with clean fill material and compacted to LANL required specifications. The property owner can then proceed with the installation of a natural gas line and complete the asphalt paving in the area. The gas line installation and asphalt paving activities associated with the construction of the office complex has been delayed due to the UST operations. All efforts will be made to avoid further delays to the construction activities at the site.

4.0 WASTE MANAGEMENT

4.1 Estimated Types and Volumes of Waste

The types of waste to be generated will include the sludge and rinse water from cleaning of the tank, and used PPE and disposable sampling equipment. Analytical results from direct sampling of the waste and acceptable knowledge will be used to profile waste, and waste will be managed in accordance with the approved Waste Characterization Strategy Form (WCSF), included as Annex 7.7. The estimated volume of waste that may be generated as a result of UST removal and sampling activities will include approximately 650 gallons of sludge and rinse water from cleaning the tank, and less than one 55-gallon drum of PPE and disposable sampling equipment. The tank itself will be salvaged and sold as scrap metal.

4.2 Method of Management and Disposal

The tank and contents will be removed and hauled off-site by Tank Management Services, Inc., in conjunction with a licensed hazardous waste transporter with a valid EPA ID number (Envirosolve of Albuquerque) for hazardous waste transport and management. All hazardous waste transport and management activities will be conducted in accordance with applicable federal and state regulations, and LANL policies and procedures. The tank, with the sludge in it, will be transported to the Envirosolve 10-day transfer facility in Albuquerque. The sludge will be transferred to 55-gallon drums for subsequent transport to a LANL audited and approved TSDF. The cleaned tank will be salvaged as scrap metal. A provisional waste generator number (NMP360076677) has been issued by the state for the tank, sludge, and PPE/disposable sampling equipment. PPE and disposable sampling equipment generated will immediately be shipped off site, under manifest, to an established <90-day storage area at TA-3, SM 271 until appropriate disposal can be determined and arranged. PPE and sampling equipment that does not come in direct contact with the hazardous materials within the tank will be profiled for disposal at the Los Alamos County Landfill.

5.0 DESCRIPTION OF CONFIRMATION/VERIFICATION SAMPLING

The bottom and sidewalls of the tank excavation will be visually inspected for staining or other indications of a release from the tank. If no indications of a release are observed, then two samples will be collected from the bottom of the excavation, approximately 1-foot beneath the bottom of each end of the tank, for verification/confirmation. If soil staining is observed and field

screening with a PID indicates that a release has occurred, the contaminated soils will be over-excavated and removed. Soil samples will be collected from the contaminated areas and screened for COPCs in the MCAL to determine if COPCs are above SALs. If analytical results from the MCAL indicate COPCs above SALs, the soil will be excavated and the limits of the excavation re-sampled until all COPCs are below SALs. Additional verification/confirmation samples will be collected from the limits of the over-excavation to verify that all contamination above SALs is removed. Samples screened in the MCAL will be analyzed for VOCs, Metals (by x-ray fluorescence), and total petroleum hydrocarbons (TPH). Verification samples will be analyzed in a fixed analytical laboratory for total metals by EPA SW 846 Methods 6010 and 7470 (Hg), VOCs by EPA SW 846 Method 8260, SVOCs by EPA SW 846 Method 8270, and TPH by EPA 418.1.

6.0 ESTIMATED TIME TO COMPLETE THE ACTION AND UNCERTAINTIES

Site activities are estimated to require one day to remove the UST and collect verification samples. Final report preparation is estimated to require two days. Detailed costs to complete this VCA are included as Annex 7.9. Should significant soil contamination be encountered, the remediation activities will be terminated and re-evaluated.

7.0 ANNEXES

7.1 Risk-Based Cleanup Level Assumptions and Calculations

This section is not applicable to this site because all COPCs are assumed to be contained within the UST.

7.2 RFI Analytical Results

See attached Tables; Annex 7.2.

7.3 Site Map

See attached map; Figure 1.

7.4 Implementation SOPs

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

7.5 Quality Assurance Plan

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

7.6 Site Specific Health and Safety Plan

See the attached Site Specific Health and Safety Plan and Modification Form No. 2, dated 18 December 1995.

7.7 Waste Management Checklist

See the attached site-specific Waste Characterization Strategy Form.

7.8 Field Work Approval Form

See attached Field Work Approval Form in Annex 7.8.

7.9 Cost Estimate

See attached Annex 7.9.

ANNEX 7.1

Risk-Based Cleanup Level Assumptions and Calculations

This section does not apply to this site unless soil contamination is found during tank excavation. The UST was still holding liquid and sludge when discovered. It is assumed that no contaminant of concern will be found outside the UST.

ANNEX 7.2

Analytical Results for Analytes Detected in Waste Oil UST Contents at PRS C-0-042

The liquids in the waste oil UST were analyzed for TCLP metals, volatile organic compounds (VOCs) by SW 846 Method 8260, and semi-volatile organic compounds (SVOCs) by SW 846 Method 8270. The sludge in the waste oil UST was analyzed for total metals by EPA SW 846 Methods 6010 and 7470 (Hg), VOCs by EPA SW 846 Method 8260, SVOCs by EPA SW 846 Method 8270, and polychlorinated biphenyls by EPA SW 846 Method 8080A.

Table 7.2A
Analytical Results for Inorganic Analytes Detected in UST Contents at PRS C-0-042

ANALYTE	SAMPLE ID	SAMPLE VALUE
Ba	Liquid	68.1 mg/L
Cd	Liquid	0.22 mg/L
Pb	Liquid	1.75 mg/L
Ba	Sludge	807 mg/kg
Cd	Sludge	55.6 mg/kg
Cr	Sludge	17 mg/kg
Pb	Sludge	3120 mg/kg
Hg	Sludge	0.139 mg/kg

Table 7.2B
Analytical Results for Volatile Organic Analytes Detected in UST Contents at PRS C-0-042

ANALYTE	SAMPLE ID	SAMPLE VALUE
Trichloroethylene	Liquid	90.2 mg/L
Benzene	Sludge	13600 mg/kg
Toluene	Sludge	52700 mg/kg
Trichloroethylene	Sludge	25400 mg/kg

ANNEX 7.2 (Continued)

Table 7.2C
Analytical Results for Semi-Volatile Organic Analytes Detected in UST Contents at PRS C-0-042

ANALYTE	SAMPLE ID	SAMPLE VALUE
m-Cresol+ p-Cresol	Liquid	133 mg/L
Pyridine	Liquid	3.66 mg/L
1,2,4-Trichloro-benzene	Sludge	465 mg/kg
2,4-Dimethyl-phenol	Sludge	207 mg/kg
2-Methylnaph-thalene	Sludge	478 mg/kg
O-cresol	Sludge	114 mg/kg
O-dichloro-benzene	Sludge	424 mg/kg
m-Cresol+ p-Cresol	Sludge	841 mg/kg
P-dichloro-benzene	Sludge	150 mg/kg

Annex 7.3 Site Map

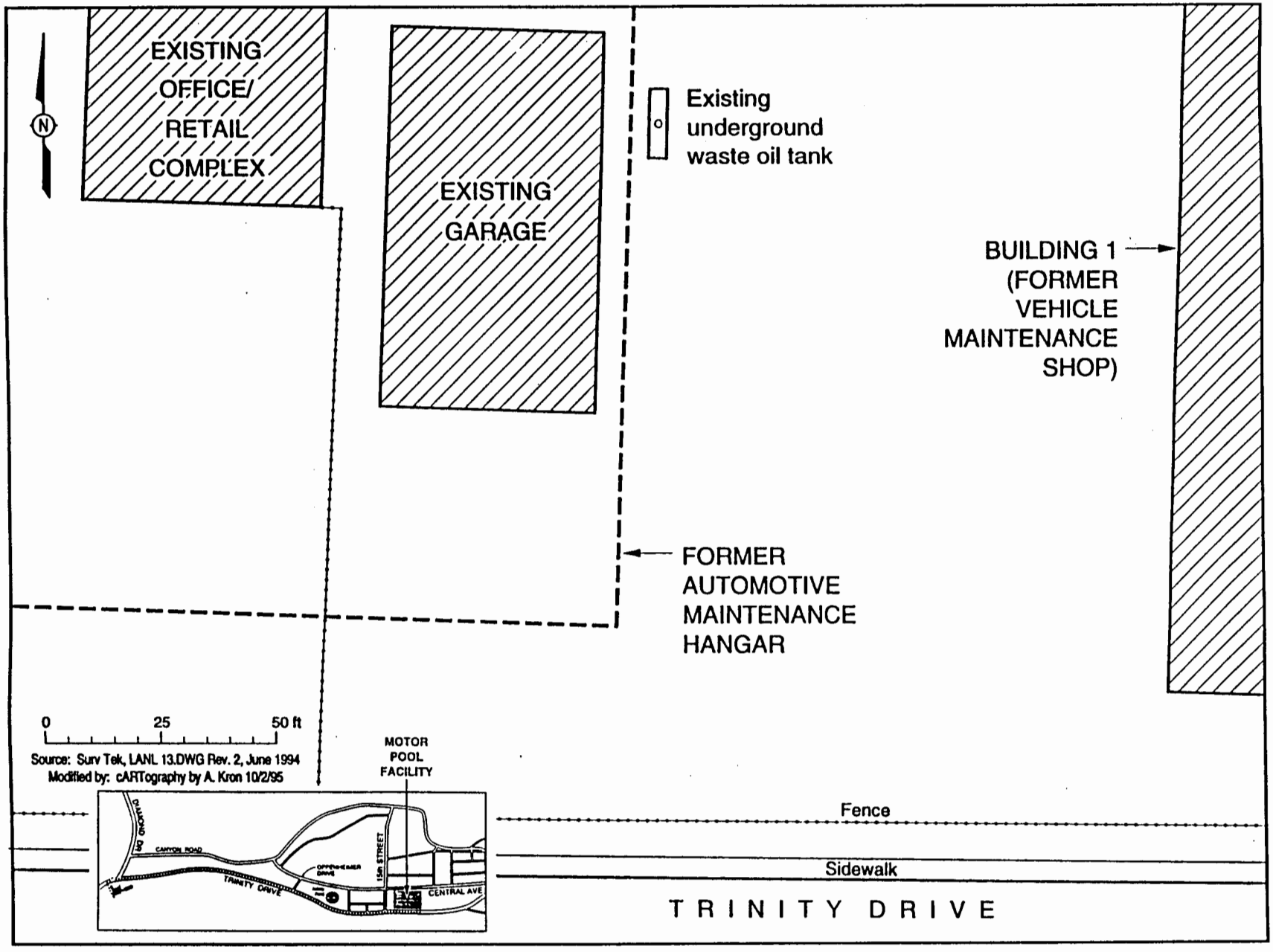


Figure 1. Location of waste oil tank at the Former Zia Motor Pool, SWMU 0-032

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 1995 revision, Los Alamos National Laboratory.

Annex 7.6 Site Specific Health and Safety Plan

Los Alamos National Laboratory

SSHASP Modification
Change Order 2

Location TA-00. SWMU 0-032. Former Zia Motorpool

Task Name Excavation and Removal of Underground Storage Tank *Date* 12/18/95

SSO Approval [signature] *Date* 12/1/95

Field Project Leader Approval [signature] for Gary Allen *Date* 12-5-95

Field Unit HS Rep. Approval [signature] *Date* 12/1/95

Health Physics Approval [signature] *Date* [illegible]

Subcontractor HS Approval [signature] *Date* 12/1/95

Facility Representative Concurrence N/A *Date*

Task Description

Heavy equipment will be used to excavate and used oil Underground Storage Tank (UST). Tank is located on the west end of the site adjacent to the Shannon Company maintenance garages. A retaining wall to the east separates the site from the on-going contruction activities at the former Zia Motorpool.

Hazard Analysis

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

Chemical: See attached hazard assessment table.

Biological: Cold Stress HAR = Low

Physical: Slips, trips, and falls, working around an open excavation, cave-in, noise, working around heavy equipment. HAR = Minimal. The tank removal procedure addresses excavation and lifting procedures, associated safety measures, and hazard control.

Radiological: Prior history, location, and characterization indicate no radiological contamination. HAR = Neg

List all other associated Special Work Permits and Number N/A
(include RWP, SWP, CSP, LO/TO, Spark/Flame, etc.)

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 supression techniques (wetting) will be used to keep dust levels at a minimum. Heavy equipment shall be used to excavate/remove the pipe. Shoring and/or sloping shall be used if personnel enter the excavation and it exceeds 5 feet in depth. The excavation and lift SOP generated for this project addresses the hazard controls for these operations.

Additional Comments Attached: No___Yes_X (Exavation and Lifting Procedure generated by ESH-5 Operational Safety)

PPE (Personal Protective Equipment)

Head Hard Hat
Face & Eye Safety Glasses w/side sheilds
Gloves Outer = leather Inner = Nitrile shall be worn when handling contaminated soil/pipe.
Hearing Hearing protection (plugs or muffs) with a NRR value of at least 25 shall be worn if noise levels exceed 85 dB(A). It can be assumed that noise levels are above 85 db(A) when one works around heavy equipment.
Body Cotton coveralls
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.

Chemical: A PID with a 10.7 eV lamp shall be used to monitor for benzene constituents. Action level will be based on one-half the TWA for benzene, 0.5 ppm sustained in the BZ for 5 min

Biological: N/A

Physical: One can assume that noise levels around heavy machinery are above 85 db(A). However, monitoring with a noise meter can be used to verify noise exposure. Refer to ER Project Health and Safety Activities Manual for noise monitoring procedures.

Radiological:None

Site Control

Describe how site access and control will be maintained. Attach a site map.
The site around excavation shall be marked off with cones and tape. FTL will act as site contol officer to prevent unauthorized entrance, log visitors, and control equipment. . EZ, CRZ, and SZ shall be set up.

Decontamination

At a minimum, coveralls and gloves will be removed before leaving the CRZ and entering support zone.

Spill Containment

All site spills will be handled by LANL Emergency Management and Response (EM&R).

Emergency Response

See attached contact list and a transport route to ESH-2/LAMC.

First-Aid/CPR Provider: Bill Holland or Hugh Rich

Communications: A cellular phone (470-2497) shall be kept on-site. Two blasts on an air horn shall be used to indicate a site emergency. In the event of a site emergency, all personnel shall meet at the muster area designated during the daily safety briefing.

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

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

Medical Surveillance

List all medical surveillance required for this task.

All personnel shall be medically approved for HAZWOPER work. Any exposure to bloodborne pathogens will necessitate medical evaluation per ERM/Golder's bloodborne pathogen Exposure Control Plan (for ERM/Golder project team employees) or other LANL approved ECP. If noise levels exceed 85 db(A) then exposed employees will be enrolled in a hearing conservation program.

Training Requirements

See attached Training Matrix

Participant Acknowledgment: *Pre-job Conference: Date/Initials*_____

Printed Name	Z Number	Signature	Date

EMERGENCY CONTACTS AND PHONE NUMBERS

Former Zia Motorpool (LANB Constuction Site)

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: Terry Rust ..... **665-8843. 104-8484** **(access 665-0062)**
FTM: Jayne Bradley **621-6285. 989-6793**
FTL: Andy Crowder **662-1338**
Field Unit HS Rep.: Joe Louck **665-5669. 104-6959**
JCI: Hery Nunez ..... **(505) 699-1318**

Management Contacts:

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

EMERGENCY REPORTING INFORMATION:

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

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

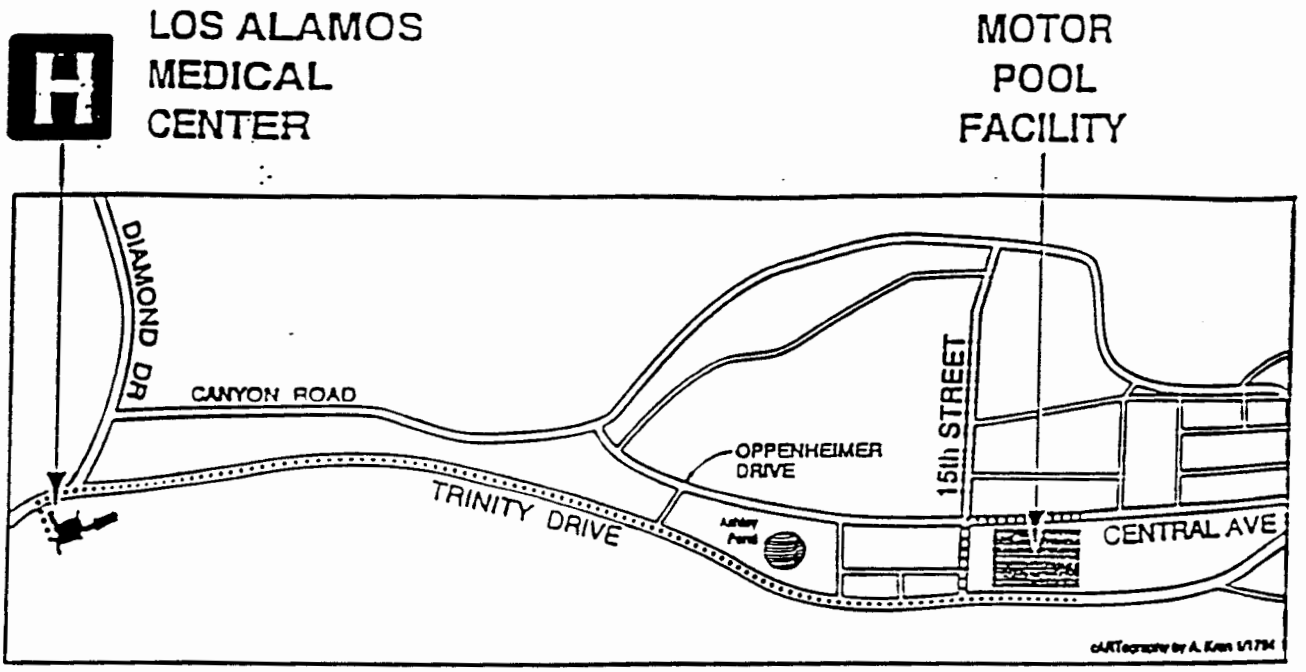


Figure 2. Route to Los Alamos Medical Center.

ATTACHMENTS

Harzard Assessment for Chemicals

Compound	Sampling Result (mg/kg)	Hazard Assessment Rating (HAR)	Rational
Lead	3,120	Minimal	Low potential for inhalation. Slight potential for skin contact and ingestion hazard.
Barium	807	Minimal	Low concentration
1.2.4-Trichlorobenzene	465	Minimal	Vapor pressure less than benzene.
2-Methylnaphthalene	478	Minimal	Low concentration
o-Dichlorobenzene	424	Minimal	Low concentration
o-Cresol	114	Minimal	Low concentration
p-Cresol + m-Cresol	841	Minimal	Low concentration
Benzene	13,600	Moderate	Potential for inhalation. Slight potential for skin contact
Toluene	52,700	Moderate	TLV 50 ppm
Trichloroethylene	25,400	Moderate	PEL/TLV 50 ppm

Training Requirements

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

Training Requirements	Personnel Role					
	FTM	FTL/ Sampler	SSO	Waste Mgt	Crane Operator	Laborer /Heavy Equipment Operator
HASP	R	R	R	R	R	R
SSHASP	R	R	R	R	R	R
Pre-Job Brief	F or C	F or C	F or C	F or C	F or C	F or C
Daily Tailgate	F	F	F	F	F	F
TA Specifc	C	C	C	C	C	C
GET	C	C	C	C	C	C
HazCom	R	R	R	R	R	R
Conduct Oper	R	R	R	R		
Occurence Reporting	R	R	R	R		
OSHA Rights	R	R	R	R	R	R
Health Physics Checklist	C	C	C	C		
Rad Worker II	C	C	C	C		
40 Hr Worker	C	C	C	C	C	C
*24 Hr Field Training	F	F	F	F	F	F
8 Hr Supervisor	C	C				
8 Hr Refresher	C	C	C	C	C	C
First Aid			C			
CPR			C			
First Responder Awareness			C			
PPE (level D)	F	F	F	F	F	F
Fire Extinguisher Use	R	R	R	R	R	R
Hearing Conservation	R	R	R	R	R	R
HMPT Training	C	C	C	C		
Stairs ands Ladders			R			
Tools- Hand and Power		R	R		R	R
Excavation and Trenching		R	R		R	R
Excavation/Trenching Protective Systems Competent Person [29 CFR 1926.652(a)(ii) and 32(f)]		R	R		R	R
Crane & Rigging Operator Safety [ANSI B30]		R	R		R	
Crane & Rigging Safety [29 CFR 1926.251, 406, 550(a)]		R	R		R	
Hoists [29 CFR 1926.406, 552]		R	R		R	
Benzene per CFR 1926.1128	F or C	F or C	R	F or C	F or C	F or C
Lead per 29 CFR 1926.62	F or C	F or C	R	F or C	F or C	F or C
Bloodborne Pathogens			C			

Los Alamos National Laboratory

*SHORT FORM SSHASP**
Field Unit 1

Location TA-00. SWMU 0-032. Former Zia Motorpool

Task Name Excavation and removal of drain pipe *Date* 6/29/95

SSO Approval [signature] *Date* 6/29/95

Field Project Leader Approval GR Allen *Date* 6-30-95

Field Unit HS Rep. Approval Joseph P. Sedillo *Date* 6/30/95

Health Physics Approval N/A JPL *Date* _____

Subcontractor HS Approval _____ *Date* _____

Facility Representative Concurrence N/A JPL *Date* _____

*The short form SSHASP may be used on sites with a limited scope and duration. It shall be used in association with the ER Project HASP.

Task Description

Heavy equipment will be used to excavate and remove approximately 380 feet of pipe which lies at a dep of 12 - 15 feet. Prior characterization events indicate low levels of TPH surrounding the pipe and in the sump which the pipe drained into. Once removed the pipe will be placed in roll off bins and disposed o properly.

Hazard Analysis

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

Chemical: TPH (benzene, xylene, etc.), Asphalt/Tar, Silica. The hazard assessment rating(HAR) for eac of these is minimal.

Biological: Snakes, ticks, rodents (hantavirus). HAR = Low

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

Radiological: Prior history, location, and characterization indicate no radiological contamination. HAR = Neg

List all other associated Special Work Permits and Number None Required
(include RWP, SWP, CSP, LO/TO, Spark/Flame, etc.)

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 supression techniques (wetting) will be used to keep dust levels at a minimum. Heavy equipment shall be used to excavate/remove the pipe. Shoring and/or sloping shall be used if personnel enter the excavation and it exceeds 5 feet in depth.

Additional Comments Attached: No X Yes

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
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.

Chemical: A PID with a 10.7 eV lamp shall be used to monitor for TPH 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: None

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 set up.

Decontamination

Given the nature of the activities disposable equipment (scoops, etc.) will be used. At a minimum, coveralls and gloves will be removed before leaving the CRZ and entering support zone.

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.

First-Aid/CPR Provider: Bill Holland or Hugh Rich

Communications: A cellular phone (470-3007) shall be kept on-site. Two blasts on an air horn shall be used to indicate a site emergency. In the event of a site emergency, all personnel shall meet at the muster area.

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

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

Medical Surveillance

List all medical surveillance required for this task.

All personnel shall be medically approved for HAZWOPER work. Any exposure to bloodborne pathogens. Hearing conservation if noise levels exceed 85 dB(A).

Training Requirements

See attached Traing Matrix

Participant Acknowledgment: ***Pre-job Conference: Date/Initials*** _____

Printed Name	**Z Number**	**Signature**	**Date**

EMERGENCY CONTACTS AND PHONE NUMBERS

Los Alamos Community Center @ Nectar & 19th Street

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: Terry Rust ..... **665-8843, 104-8484** (access 665-0062)
FTM: Jayne Bradley **621-6285, 989-6793**
FTL: Andy Crowder **662-1338**
Field Unit HS Rep.: Joe Louck **665-5669, 104-6959**

Management Contacts:

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

Parker Construction Contacts: **Paul Parker, 690-0920**

EMERGENCY REPORTING INFORMATION:

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

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

ATTACHMENTS

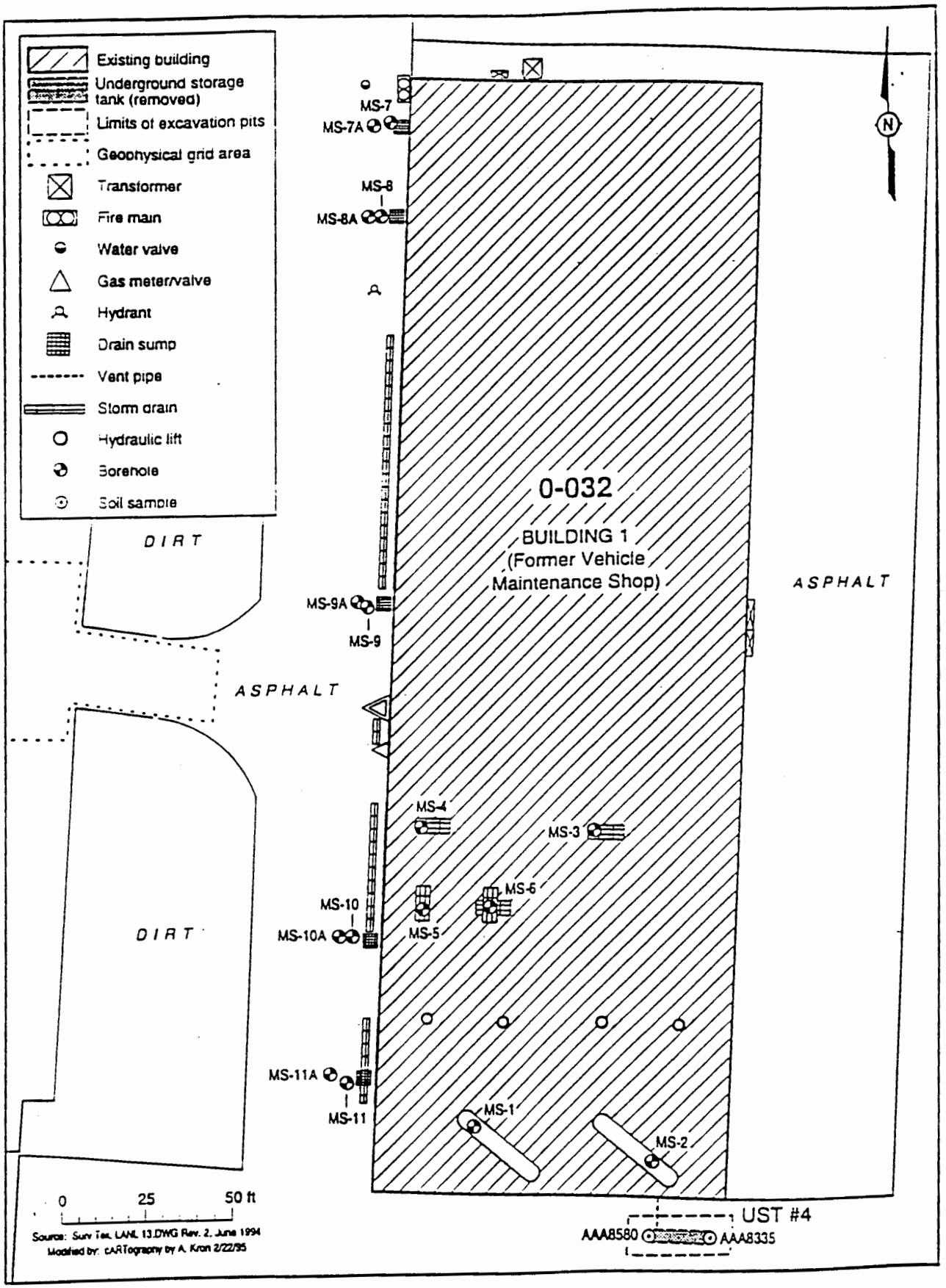


Figure 1. Location of SWMU 0-032, Former Zia Motor Pool.

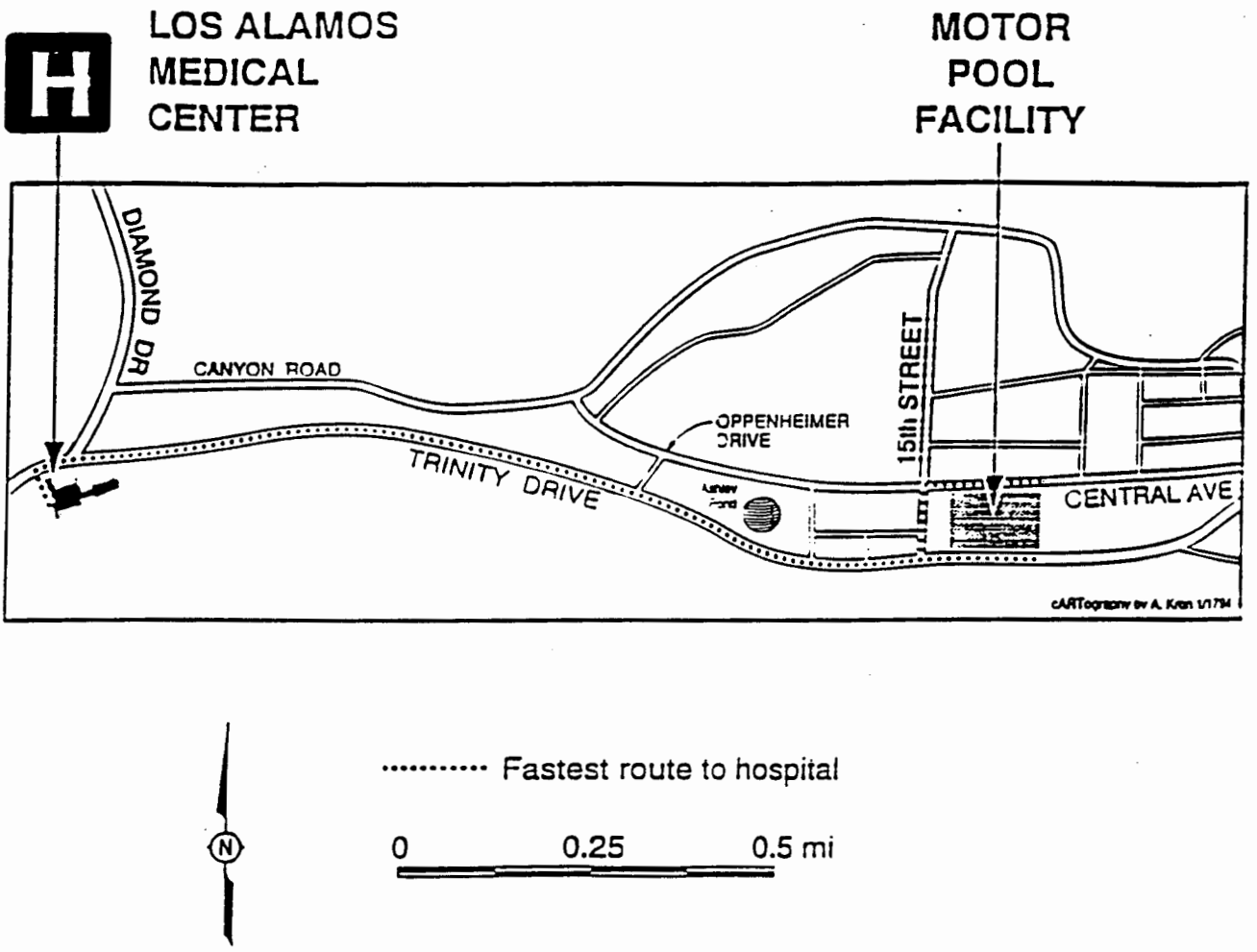


Figure 2. Route to Los Alamos Medical Center.

Training Requirements

Training Requirements	Personnel Role				
	FTM	FTL/ Sampler	SSO	Waste Mgt	Labor
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 Specifc	C	C	C	C	C
GET	C	C	C	C	C
HazCom	R	R	R	R	R
Conduct Oper	R	R	R	R	
Occurence Reporting	R	R	R	R	
OSHA Rights	R	R	R	R	R
Health Physics Checklist	C	C	C	C	
Rad Worker II	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		
First Responder Awareness			C		
PPE (level D)	F	F	F	F	F
Fire Extinguisher Use	R	R	R	R	R
Hearing Conservation	R	R	R	R	R
HMPT Training	C	C	C	C	
Stairs ands Ladders			R		
Tools- Hand and Power		R	R		R
Excavation and Trenching		R	R		R
Excavation and Trenching and Equipment		R	R		R
Benzene			R		
Bloodborne Pathogens			R		

Annex 7.7 Waste Management Checklist

CHARACTERIZATION STRATEGY FORM

Field Unit/TA	PRS/SWMU Numbers	Title
Field Unit 1, TA-00	SWMU 0-032	Former Zia Motor Pool Waste Oil UST

Name: Andrew Crowder, ERM/Golder	**Date:** 15 December 1995
FPL: Garry Allen	**WMC:** Larry Maassen
Type of Activity: VCA - Removal of waste-oil UST and contents.	
Waste Stream: (1) Waste Oil Sludge (2) Waste Oil UST (3) PPE/Disposable Sampling Equip.	

Site Description:

SWMU 0-032 is part of the Former Zia Motor Pool site that is currently under construction as an office complex. Most of the former Zia Motor Pool buildings and facilities have been removed. Previous RFI field work was conducted in 1994 to characterize the site and remove one underground storage tank (UST) from SWMU 0-032. The site characterization activities at SWMU 0-032 (Building 1 and Former Automotive Maintenance Hangar) were completed and a RCRA Facility Investigation Report was submitted to the EPA in May 1995. During recent construction activities, however, a 5000-gallon steel waste-oil UST was discovered on the western edge of the currently active construction site by the construction contractors. During the RFI field activities, all of the waste oil tanks could not be located due to inaccurate engineering drawings. This newly-discovered tank is assumed to be one of the tanks that could not be located during the RFI. The tank is on the west side of the recently constructed retaining wall and east of the current landowner's maintenance building near the southwest corner of the construction site. The Automotive Maintenance Hangar was decommissioned in 1962. The construction contractors found the tank manhole beneath the existing asphalt pavement indicating that the UST had been out of service for many years.

Investigation or Remediation Waste Description and Volume Estimate:

The waste-oil UST is estimated to have a capacity of 5000 gallons and is constructed of steel. The tank is approximately 5 feet in diameter and 19 feet long based on observations and known dimensions of the other waste-oil UST removed from the site during RFI activities. The top of the tank is approximately 4 feet below the ground surface and the manhole extends from the top of the tank to just below the asphalt. When discovered, the tank appeared to be approximately half-full with a mixture of oil, water, and sludge. At that time a clear bailer was lowered into the tank to examine the contents. These observations indicated the presence of approximately 1-foot of clear liquid (water) with a 1- to 2-inch layer of oil on the surface. The liquid contents of the tank were sampled, pumped out, and shipped off-site for incineration at an approved TSD facility by Chemical Waste Management (CWM). The remaining material in the tank is sludge. Prior to removal, the liquid contents of the tank were sampled twice for waste characterization. The first sample collected consisted of oil from the surface of the liquid in the tank and the second sample consisted of water from beneath the oil. The oil sample was submitted to First Recovery (Recycling Facility) and analyzed for polychlorinated biphenyls (PCBs), pH, total halogens, flashpoint, and base-sediment and water content (BSW). The results of this analysis indicated the presence of 1.68% total halogens, which disqualified the oil for recycling. The second sample (water) was submitted to CWM and analyzed for metals (by TCLP), volatile organic compounds (VOCs) by SW 846 Method 8260, semi-volatile organic compounds (SVOCs) by SW 846 Method 8270, and fingerprinting for

Field Unit/TA	PRS/SWMU Numbers	Title
Field Unit 1, TA-00	SWMU 0-032	Former Zia Motor Pool Waste Oil UST

chemical and physical properties. Analytical results indicated that the liquid contains a total trichloroethylene (TCE) concentration of 90.2 mg/L. All other analytes were below levels of regulatory concern (see attached analytical data). Because of the presence and concentration of TCE in the liquid within the tank, the contents of the tank were handled as hazardous waste. CWM pumped out the tank and transported the liquids to OSCO in Henderson, Colorado for treatment/disposal as a hazardous waste.

The sludge remaining in the tank after removal of the liquids is approximately 1-foot thick with a volume of approximately 650 gallons. Sludge samples were collected and submitted to CWM for waste characterization analysis. The sludge was analyzed for total metals by EPA SW 846 Methods 6010 and 7470 (Hg), VOCs by EPA SW 846 Method 8260, SVOCs by EPA SW 846 Method 8270, PCBs by EPA SW 846 Method 8080A, and fingerprinting for chemical and physical properties. Several RCRA constituents were detected in the sludge sample at elevated concentrations resulting in the classification of the sludge as a RCRA hazardous waste. RCRA compounds detected include benzene at a concentration of 13600 mg/kg, total cresols at a concentration of 955 mg/kg, 1,4-dichlorobenzene at a concentration of 150 mg/kg, TCE at a concentration of 25400 mg/kg, barium at a concentration of 807 mg/kg, cadmium at a concentration of 55.6 mg/kg, chromium at a concentration of 17 mg/kg, lead at a concentration of 3120 mg/kg, and mercury at a concentration of 0.139 mg/kg. Of these analytes detected, benzene, 1,4-dichlorobenzene, TCE, cadmium, and lead exceed 20 times their respective TCLP limit. Analytical results for flashpoint analysis indicate that the sludge has a flashpoint greater than 175 degrees Fahrenheit. Analytical results are presented in Attachment A. Based on these results, the sludge has been determined to be a RCRA hazardous waste and will be handled and treated accordingly.

The tank and contents will be removed and hauled off-site under the direction of Tank Management Services in conjunction with a licensed hazardous waste transporter with a valid EPA ID number (Environmental Waste Equipment Company of Albuquerque) for hazardous waste transport and management. All hazardous waste transport and management activities will be conducted in accordance with applicable federal and state regulations, and LANL policies and procedures. The tank, with the sludge in it, will be transported to the Envirosolve 10-day transfer facility in Albuquerque. The sludge will be transferred to 55-gallon drums for subsequent transport to a LANL approved TSD facility for incineration. The cleaned tank will be salvaged as scrap metal. A provisional waste generator number (NMP360076677) has been issued by the state for the tank, sludge, and PPE/disposable sampling equipment.

A minimum of two confirmation soil samples will be collected from beneath the ends of the tank using a backhoe to determine if a release has occurred. If soil-staining is observed or field screening indicates the presence of contamination in the surrounding soils, additional samples will be collected. Samples collected from beneath and around the tank will be submitted to the mobile chemistry analytical laboratory (MCAL) for field determination of the extent of soil contamination, if any. MCAL analyses will include TPH, total VOCs, total SVOCs, and total metals by XRF. Final verification samples will be submitted to a fixed analytical lab. Verification samples will be analyzed for TPH, total VOCs, total SVOCs, and total metals.

Waste Types: The types of waste to be generated will include the sludge and rinse water from cleaning of the tank, the clean, empty, steel tank to be salvaged, and PPE/disposable sampling equipment. The PPE/sampling equipment will include disposable gloves, scoops, paper towels, a disposable beaker, and aluminum pans.

Waste Packaging: The sludge will remain in the waste-oil tank during transport to the

Field Unit/TA	PRS/SWMU Numbers	Title
Field Unit 1, TA-00	SWMU 0-032	Former Zia Motor Pool Waste Oil UST

Envirosolve facility in Albuquerque. The tank with sludge will be placed in a DOT-approved half-round trailer with an additional leak-tight liner for initial transport to Envirosolve. Envirosolve will be used as a 10-day transfer facility for cleaning the sludge out of the tank and placing it in DOT-approved 55-gallon steel drums for final transport to the TSD facility. PPE and sampling waste will be placed in a DOT-approved 55-gallon steel drum or smaller, more suitable-size container.

Characterization Strategy:

Sludge samples have been analyzed and the results will be used for waste characterization. A complete description of these samples is provided below. PPE and disposable sampling equipment will be characterized based on the analytical results of the material that it comes in contact with (e.g., sludge, soil) and acceptable knowledge.

Sludge

The sludge was analyzed for total metals by EPA SW 846 Methods 6010 and 7470 (Hg), VOCs by EPA SW 846 Method 8260, SVOCs by EPA SW 846 Method 8270, PCBs by EPA SW 846 Method 8080A, and fingerprinting for chemical and physical properties. Analytical results are presented in Attachment A. Based on these results, the sludge has been characterized as a RCRA hazardous waste and will be handled and treated accordingly. The final disposition of the sludge will be incineration at the Rollins TSD facility in Deer Park, Texas or the Clean Harbors TSD facility in Kimball, Nebraska. Both of these TSD facilities have been audited and approved by LANL CST-5 and ESH-19.

Empty Tank

The tank will be reclaimed following removal of the sludge and residue. The tank will be thoroughly cleaned to remove as much residue as possible. The tank will then be transported to an appropriate salvage facility and sold as scrap. A recycling certificate will be generated and submitted to LANL.

PPE and Sampling Waste

PPE and sampling waste will be characterized based on the results of the liquid, sludge, and soil samples collected from within and around the tank, and disposed of accordingly. Acceptable knowledge and field documentation will be used to assist in determining the disposition of these materials.

Preliminary RCRA Determination:

<90-Day Storage Area

PPE and disposable sampling equipment generated will immediately be shipped off site, under manifest, to an established <90-day storage area at TA-3, SM 271 until appropriate disposal can be determined and arranged. However, PPE and sampling equipment that does not come in direct contact with the hazardous materials within the tank will be profiled for disposal at the Los Alamos County Landfill.

The tank and sludge will be transferred directly off-site by Environmental Waste Equipment and will not require an on-site <90-day storage area. The Envirosolve facility will be used as a 10-day

Field Unit/TA	PRS/SWMU Numbers	Title
Field Unit 1, TA-00	SWMU 0-032	Former Zia Motor Pool Waste Oil UST

transfer facility for cleaning out the tank and transferring the sludge to drums for final transport to the TSD facility by Environmental Waste Equipment. The tank itself will be cleaned and transported to a salvage facility. The provisional EPA ID Number obtained from the state for the sludge, tank, and PPE/disposable sampling equipment is *NMP360076677*.

Analyte Suite:

Analyte	Direct Sampling of Waste	Acceptable Knowledge		
		Existing Information		Data from Site Char.
		Present	Absent	
Volatile Compounds	X[1]			
Semi-Volatile Compounds	X[1]			
Organochlorine Pesticides & PCBs	X[1]			
Inorganic Compounds	X[1]			
High Explosive Compounds			X[2]	
Gross Alpha			X[2]	
Gross Beta			X[2]	
Gross Gamma			X[2]	
Asbestos			X[2]	
Tritium			X[3]	
TCLP: Metals	X[1]			
Organics [4]	NA[4]			
Pesticides, Herbicides, Fungicides			X[2]	

1. Direct sampling of the tank contents was conducted as described in the Characterization Strategy section of this form. The sludge sample was analyzed for total metals only.
2. Acceptable Knowledge indicates that these constituents are absent from the waste streams.
3. See Tritium Statement in Attachment B.
4. Analyses for total volatile and semi-volatile organics were performed instead of TCLP.

NA = Not analyzed

Field Unit/TA	PRS/SWMU Numbers	Title
Field Unit 1, TA-00	SWMU 0-032	Former Zia Motor Pool Waste Oil UST

Signatures:

Prepared By — Date: 21-FEB-96

Waste Management Representative — Date: 4/11/96

Garry Allen or Field Unit One Designee — Date: 2-22-96

Attachment A

Analytical Results
Former Zia Motor Pool Waste Oil Tank

A-1. Oil Sample Analytical Report
A-2. Oil/Water Sample Analytical Report
A-3. Sludge Sample Analytical Report

A-1. Oil Sample Analytical Report

006. LAST PAGE FOR THIS LOG #.

A P A L CHEM LAB SAMPLE MANAGEMENT SYSTEM LAB32

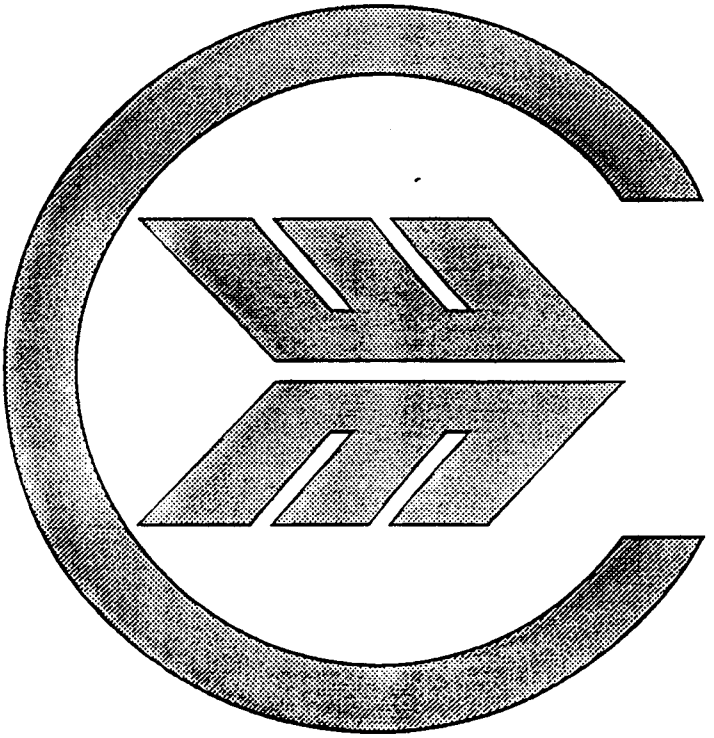
SAMPLE STATUS

LOG # 3134 TYPE EX

TEST #	TEST NAME		RESULT		DATE COMPLETED
0180	HALGN TOTL	HALGN TOTP	---	PPM	090595
		HALGN TOTW	1.68	%	
0460	PM - FL	FLASHF	192	F	090595
0850	PCBS	PCBP	<2.0	PPM	090595
0910	PH	PH	---		090595
1240	BSW	BSW	<0.05	%	090695

A-2. Oil/Water Sample Analytical Report

National Laboratory



Waste Analysis Report

Chemical Waste Management - Riverdale

Sample Id:	200090116
Date Sampled:	11-SEP-95
Date Logged:	15-SEP-95
Waste Profile Number:	
Source:	MIS
Generator Name:	CWM AETS
Generator Location:	LOS ALAMOS, NM
Waste Name:	OIL/WATER
Site Number:	0100-95-9431

Sample Id: 200090116 **Waste Profile No:** **Lab Asystant No:**

FINGERPRINT	Result	Analysis Date
Odor Incidental	NONE	09/16/95
Layering	SINGLE PHASE	09/16/95
Pct Free Liquids	100	09/16/95
L1: Color	LT BROWN	09/16/95
L1: Physical State	LIQUID	09/16/95
L1: Further Descrip	<5% OIL-LIKE GLOBULES	09/16/95
L1: Viscosity	LOW	09/16/95
L1: Turbidity	CLOUDY	09/16/95
L1: H2O Solubility	SOLUBLE	09/16/95
L1: H2O Reactivity	NONREACTIVE	09/16/95
L1: Temp Change	0 DEG F	09/16/95
Visual Oil And Grease	P	09/16/95
Cyanide Screen	< 5 PPM CYANTESMO PAPER	09/16/95
Sulfide Screen	POSITIVE	09/16/95
Phenol Screen	< 10 PPM	09/16/95
pH	6.0	09/16/95
pH Meas. Method	PAPER	09/16/95
pH Method	10% SOLUTION	09/16/95
Oxidizer Screen	NEGATIVE	09/16/95
Flam. Potential	NEGATIVE	09/16/95
Radiation Level	AT BACKGROUND	09/16/95
Paint Filter	FAIL	09/16/95
Paint Filter Method	OBSERVED	09/16/95

COMMENTS:

No FINGERPRINT Comments

WET CHEMISTRY	Result	Unit	Analysis Date
Sulfides (Total)	<50	ppm	09/19/95

COMMENTS:

No WET CHEMISTRY Comments

SPECTROSCOPY	Result	Unit	Analysis Date
Arsenic - TCLP	<0.67	mg/L	09/18/95
Barium - TCLP	68.1	mg/L	09/18/95
Cadmium - TCLP	0.22	mg/L	09/18/95
Chromium - TCLP	<0.09	mg/L	09/18/95
Lead - TCLP	1.75	mg/L	09/18/95
Mercury - TCLP	<0.005	mg/L	09/18/95
Selenium - TCLP	<0.23	mg/L	09/18/95
Silver - TCLP	<0.08	mg/L	09/18/95
Start Date/Time - TCLP	9-15-95/6PM		09/16/95
Stop Date/Time - TCLP	9-15-95/6:05PM		09/16/95

COMMENTS:

No SPECTROSCOPY Comments

Sample Id: 200090116 Waste Profile No: Lab Asystant No:

8270D AQUEOUS	Result	Unit	Analysis Date
O-Cresol	< 100	mg/L	09/18/95
M-Cresol + P-Cresol	133.	mg/L	09/18/95
1,4-Dichlorobenzene	< 3.25	mg/L	09/18/95
2,4-Dinitrotoluene	< 0.065	mg/L	09/18/95
Hexachlorobenzene	< 0.065	mg/L	09/18/95
Hexachloro-1,3-Butadiene	< 0.25	mg/L	09/18/95
Hexachloroethane	< 1.5	mg/L	09/18/95
Nitrobenzene	< 1	mg/L	09/18/95
Pentachlorophenol	< 50	mg/L	09/18/95
Pyridine	3.66	mg/L	09/18/95
2,4,5-Trichlorophenol	< 200	mg/L	09/18/95
2,4,6-Trichlorophenol	< 1	mg/L	09/18/95

COMMENTS:

No 8270D AQUEOUS Comments

8260D AQUEOUS	Result	Unit	Analysis Date
Benzene	< 0.25	mg/L	09/20/95
Carbon Tetrachloride	< 0.25	mg/L	09/20/95
Chlorobenzene	< 50	mg/L	09/20/95
Chloroform	< 3	mg/L	09/20/95
1,2-Dichloroethane	< 0.25	mg/L	09/20/95
1,1-Dichloroethylene	< 0.35	mg/L	09/20/95
Methyl Ethyl Ketone (Mek)	< 100	mg/L	09/20/95
Tetrachloroethene	< 0.35	mg/L	09/20/95
Trichloroethene	90.2	mg/L	09/20/95
Vinyl Chloride	< 0.1	mg/L	09/20/95

COMMENTS:

ALL VOLATILE SURROGATES HIGH TWICE

Sample Id: 200090116 **Waste Profile No:** **Lab Asystant No:**

This Report is intended for the use and benefit of Waste Management and its companies No representation concerning significance of the reported data is made to any other person or entity.

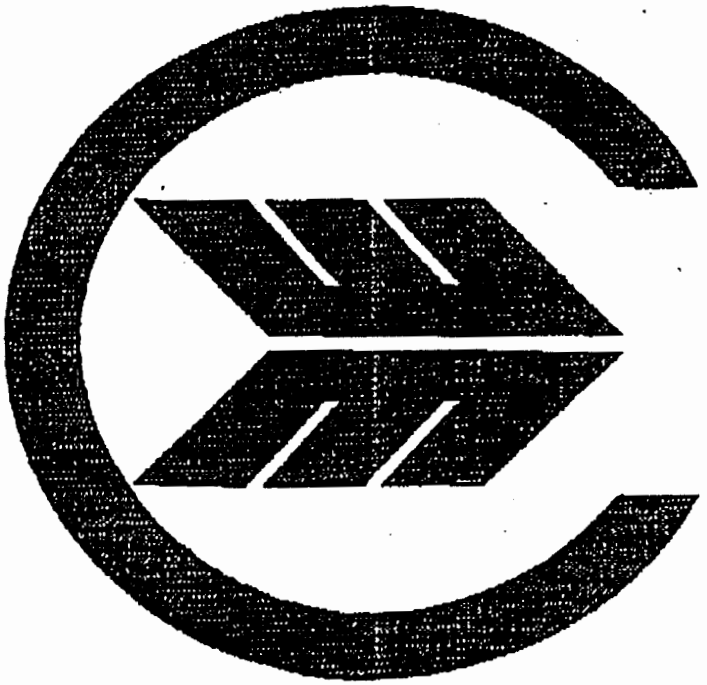
CERTIFICATION Except as explicitly noted all analytical data reported above were obtained under my direction and supervision. For Chemical Waste Management, Inc. companies, sample preparation and analytical methods and analytical equipment specified or approved in the facility's waste analysis plan were used in conducting this analysis. This laboratory follows a quality assurance control program.

Report Date Sep 20, 1995

Approved _____
Carl W. Armbruster, Asst Laboratory Manager

A-3. Sludge Sample Analytical Report

National Laboratory



Waste Analysis Report

Chemical Waste Management - Riverdale

Sample Id:	200090777
Date Sampled:	08-NOV-95
Date Logged:	10-NOV-95
Waste Profile Number:	SL-1
Source:	MIS
Generator Name:	LOS ALAMOS NATIONAL LAB
Generator Location:	LOS ALAMOS, NM
Waste Name:	SLUDGE
Site Number:	

Sample Id: 200090777 **Waste Profile No: SL-1** **Lab Asystant No:**

FINGERPRINT	Result	Analysis Date
Odor Incidental	NONE	12/04/95
Layering	SINGLE PHASE	12/04/95
Pct Free Liquids	100	12/04/95
L1: Color	BLACK	12/04/95
L1: Physical State	LIQUID	12/04/95
L1: Further Descrip	SLUDGE	12/04/95
L1: Viscosity	MEDIUM	12/04/95
L1: Turbidity	OPAQUE	12/04/95
L1: H2O Solubility	INSOLUBLE	12/04/95
L1: Relative Density	BOTH HEAVIER AND LIGHTER	12/04/95
L1: H2O Reactivity	NONREACTIVE	12/04/95
L1: Temp Change	0 DEG F	12/04/95
Visual Oil And Grease	P	12/04/95
Cyanide Screen	< 5 PPM CYANTESMO PAPER	12/04/95
Sulfide Screen	< 3 PPM	12/04/95
Phenol Screen	< 10 PPM	12/04/95
pH	7.04	12/04/95
pH Meas. Method	METER	12/04/95
pH Method	10% SOLUTION	12/04/95
Oxidizer Screen	NEGATIVE	12/04/95
Flam. Potential	POSITIVE	12/04/95
Radiation Level	AT BACKGROUND	12/04/95
Hazard Class - 1	FLAMMABLE	12/04/95

COMMENTS:

No FINGERPRINT Comments

WET CHEMISTRY	Result	Unit	Analysis Date
Flash Point - Open Cup	>175	fahrenheit	12/13/95

COMMENTS:

No WET CHEMISTRY Comments

SPECTROSCOPY	Result	Unit	Analysis Date
Arsenic	<10.3	ppm	11/14/95
Cadmium	55.6	ppm	11/14/95
Chromium	17.0	ppm	11/14/95
Lead	3120	ppm	11/14/95
Selenium	<19.5	ppm	11/14/95
Silver	<1.21	ppm	11/14/95
Barium	807	ppm	11/14/95
Mercury	0.139	ppm	11/15/95

COMMENTS:

No SPECTROSCOPY Comments

Sample Id: 200090777 **Waste Profile No:** SL-1 **Lab Asystant No:**

ORGANIC PCBS - LIMIT	Result	Unit	Analysis Date
Total Arochlors Is	< 36	ppm	12/01/95

COMMENTS:

No ORGANIC PCBS - LIMIT Comments

8270 EXTENDED SOLID	Result	Unit	Analysis Date
1,2,4,5-Tetrachlorobenzene	< 99	mg/kg	11/16/95
1,2,4-Trichlorobenzene	465.	mg/kg	11/16/95
1,3,5-Trinitrobenzene	< 150	mg/kg	11/16/95
1,2-Diphenylhydrazine	< 99	mg/kg	11/16/95
1,3-Dinitrobenzene	< 99	mg/kg	11/16/95
1,4-Dinitrobenzene	< 99	mg/kg	11/16/95
1,4-Naphthoquinone	< 99	mg/kg	11/16/95
1-Naphthylamine	< 99	mg/kg	11/16/95
2,3,4,6-Tetrachlorophenol	< 222	mg/kg	11/16/95
2,4,5-Trichlorophenol	< 141	mg/kg	11/16/95
2,4,6-Trichlorophenol	< 189	mg/kg	11/16/95
2,4-Dichlorophenol	< 99	mg/kg	11/16/95
2,4-Dimethylphenol	207.	mg/kg	11/16/95
2,4-Dinitrophenol	< 300	mg/kg	11/16/95
2,4-Dinitrotoluene	< 99	mg/kg	11/16/95
2,6-Dichlorophenol	< 105	mg/kg	11/16/95
2,6-Dinitrotoluene	< 99	mg/kg	11/16/95
2-Acetylaminofluorene	< 99	mg/kg	11/16/95
2-Chloronaphthalene	< 198	mg/kg	11/16/95
2-Chlorophenol	< 99	mg/kg	11/16/95
2-Methylnaphthalene	478.	mg/kg	11/16/95
2-Naphthylamine	< 99	mg/kg	11/16/95
2-Picoline (2-Methylpyridine)	< 168	mg/kg	11/16/95
2-Sec-Butyl-4,6-Dinitrophenol	< 216	mg/kg	11/16/95
3-Methylcholanthrene	< 99	mg/kg	11/16/95
4,4-Methylene-Bis-(2-Chloroaniline)	< 99	mg/kg	11/16/95
4,6-Dinitro-O-Cresol	< 390	mg/kg	11/16/95
4-Aminobiphenyl	< 99	mg/kg	11/16/95
4-Bromophenyl Phenyl Ether	< 99	mg/kg	11/16/95
4-Chlorophenyl Phenyl Ether	< 99	mg/kg	11/16/95
4-Nitrophenol	< 294	mg/kg	11/16/95
4-Nitroquinoline-N-Oxide	< 99	mg/kg	11/16/95
5-Nitro-O-Toluidine	< 99	mg/kg	11/16/95
7,12-Dimethylbenz(A)Anthracene	< 114	mg/kg	11/16/95
Acenaphthalene	< 99	mg/kg	11/16/95
Acenaphthene	< 99	mg/kg	11/16/95
Acetophenone	< 99	mg/kg	11/16/95
Acrylamide	< 315	mg/kg	11/16/95
Aniline	< 99	mg/kg	11/16/95
Anthracene	< 99	mg/kg	11/16/95
Aramite	< 99	mg/kg	11/16/95
Benzoic Acid	< 99	mg/kg	11/16/95
Benzo(A)Anthracene	< 99	mg/kg	11/16/95
Benzal Chloride (Dichloromethyl Benzene)	< 99	mg/kg	11/16/95
Benzo(A)Pyrene	< 102	mg/kg	11/16/95
Benzo(B)Fluoranthene	< 99	mg/kg	11/16/95
Benzo(G,H,I,)Perylene	< 105	mg/kg	11/16/95

Sample Id: 200090777 **Waste Profile No: SL-1** **Lab Asystant No:**

8270 EXTENDED SOLID (continued):	Result	Unit	Analysis Date
Benzo(K)Fluoranthene	< 99	mg/kg	11/16/95
Benzyl Alcohol	< 99	mg/kg	11/16/95
Benzyl Chloride (Chloromethyl Benzene)	< 99	mg/kg	11/16/95
Bis(2-Chloroethoxy) Methane	< 99	mg/kg	11/16/95
Bis(2-Chloroethyl) Ether	< 99	mg/kg	11/16/95
Bis(2-Chloroisopropyl) Ether	< 99	mg/kg	11/16/95
Bis(2-Ethylhexyl)Phthalate	< 249	mg/kg	11/16/95
Butyl Benzyl Phthalate	< 99	mg/kg	11/16/95
Chlorobenzilate	< 126	mg/kg	11/16/95
Chrysene	< 99	mg/kg	11/16/95
Di-N-Butyl Phthalate	< 99	mg/kg	11/16/95
Di-N-Octyl Phthalate	< 222	mg/kg	11/16/95
Di-N-Propylnitrosamine	< 105	mg/kg	11/16/95
Dibenzo(A,E)Pyrene	< 99	mg/kg	11/16/95
Dibenzo(A,H)Anthracene	< 99	mg/kg	11/16/95
Dibenzofuran	< 99	mg/kg	11/16/95
Diethyl Phthalate	< 99	mg/kg	11/16/95
Dimethyl Phthalate	< 99	mg/kg	11/16/95
Diphenylnitrosamine + Diphenylamine *	< 99	mg/kg	11/16/95
Ethyl Methane Sulfonate	< 99	mg/kg	11/16/95
Fluoranthene	< 99	mg/kg	11/16/95
Fluorene	< 99	mg/kg	11/16/95
Hexachlorobenzene	< 102	mg/kg	11/16/95
Hexachlorobutadiene	< 99	mg/kg	11/16/95
Hexachlorocyclopentadiene	< 99	mg/kg	11/16/95
Hexachloroethane	< 99	mg/kg	11/16/95
Hexachlorpropene	<	mg/kg	11/16/95
Indeno(1,2,3-C,D)Pyrene	< 108	mg/kg	11/16/95
Isodrin	< 99	mg/kg	11/16/95
Isophorone	< 99	mg/kg	11/16/95
Isosafrole	< 264	mg/kg	11/16/95
M-Dichlorobenzene	< 99	mg/kg	11/16/95
M-Nitroaniline	< 99	mg/kg	11/16/95
Methapyrilene (As Hydrochloride)	< 186	mg/kg	11/16/95
Methyl Methane Sulfonate	< 123	mg/kg	11/16/95
N-Nitroso-Di-N-Butylamine	< 105	mg/kg	11/16/95
N-Nitrosodiethylamine	< 123	mg/kg	11/16/95
N-Nitrosodimethylamine	< 198	mg/kg	11/16/95
N-Nitrosomethylethylamine	< 99	mg/kg	11/16/95
N-Nitrosomorpholine	< 126	mg/kg	11/16/95
N-Nitrosopiperidine	< 99	mg/kg	11/16/95
N-Nitrosopyrrolidine	< 141	mg/kg	11/16/95
Naphthalene	531.	mg/kg	11/16/95
Nitrobenzene	< 141	mg/kg	11/16/95
O-Cresol	114.	mg/kg	11/16/95
O-Dichlorobenzene	424.	mg/kg	11/16/95
O-Nitroaniline	< 99	mg/kg	11/16/95
O-Nitrophenol	< 108	mg/kg	11/16/95
O-Toluidine Hydrochloride	< 99	mg/kg	11/16/95
P-Chloro-M-Cresol	< 99	mg/kg	11/16/95
P-Chloroaniline	< 108	mg/kg	11/16/95
P-Cresol + M-Cresol	841.	mg/kg	11/16/95
P-Dichlorobenzene	150.	mg/kg	11/16/95
P-Dimethylaminoazobenzene	< 99	mg/kg	11/16/95
P-Nitroaniline	< 99	mg/kg	11/16/95

Sample Id: 200090777 **Waste Profile No: SL-1** **Lab Asystant No:**

8270 EXTENDED SOLID (continued):	Result	Unit	Analysis Date
Pentachlorobenzene	< 99	mg/kg	11/16/95
Pentachloroethane	< 99	mg/kg	11/16/95
Pentachloronitrobenzene	< 150	mg/kg	11/16/95
Pentachlorophenol	< 171	mg/kg	11/16/95
Phenacetin	< 99	mg/kg	11/16/95
Phenanthrene	< 99	mg/kg	11/16/95
Phenol	< 108	mg/kg	11/16/95
Pronamide	< 99	mg/kg	11/16/95
Pyrene	< 99	mg/kg	11/16/95
Pyridine	< 117	mg/kg	11/16/95
Safrole	< 99	mg/kg	11/16/95

COMMENTS:

* In GC/MS analysis, these compounds cannot be differentiated.

8260 EXTENDED SOLID	Result	Unit	Analysis Dat
Acetone	< 18000	mg/kg	11/14/95
Acetonitrile	< 100000	mg/kg	11/14/95
Acrolein	< 100000	mg/kg	11/14/95
Acrylonitrile	< 15000	mg/kg	11/14/95
Benzene	13600	mg/kg	11/14/95
Bromodichloromethane	< 10000	mg/kg	11/14/95
Bromoform	< 5000	mg/kg	11/14/95
Bromomethane (Methyl Bromide)	< 15000	mg/kg	11/14/95
N-Butyl Alcohol	< 148000	mg/kg	11/14/95
Carbon Disulfide	< 5000	mg/kg	11/14/95
Carbon Tetrachloride	< 7000	mg/kg	11/14/95
Chlorobenzene	< 5000	mg/kg	11/14/95
Chlorodibromomethane	< 5000	mg/kg	11/14/95
Chloroethane	< 10000	mg/kg	11/14/95
Chloroform	< 5000	mg/kg	11/14/95
Chloromethane (Methyl Chloride)	< 10000	mg/kg	11/14/95
3-Chloropropene (Allyl Chloride)	< 8000	mg/kg	11/14/95
Cyclohexanone	< 109000	mg/kg	11/14/95
1,2-Dibromoethane (Ethylene Dibromide)	< 5000	mg/kg	11/14/95
Dibromomethane	< 5000	mg/kg	11/14/95
1,2-Dibromo-3-Chloropropane	< 10000	mg/kg	11/14/95
Dichlorodifluoromethane	< 40000	mg/kg	11/14/95
1,1-Dichloroethane	< 5000	mg/kg	11/14/95
1,2-Dichloroethane	< 5000	mg/kg	11/14/95
1,1-Dichloroethene	< 5000	mg/kg	11/14/95
Cis-1,2-Dichloroethene	< 5000	mg/kg	11/14/95
Trans-1,2-Dichloroethene	< 5000	mg/kg	11/14/95
1,2-Dichloropropane	< 9000	mg/kg	11/14/95
Cis-1,3-Dichloropropene	< 9000	mg/kg	11/14/95
Trans-1,3-Dichloropropene	< 5000	mg/kg	11/14/95
1,4-Dioxane	< 89000	mg/kg	11/14/95
Ethyl Acetate	< 12000	mg/kg	11/14/95
Ethyl Benzene	< 5000	mg/kg	11/14/95
Ethyl Cyanide (Propanenitrile)	< 103000	mg/kg	11/14/95
Ethyl Ether	< 10000	mg/kg	11/14/95
Ethyl Methacrylate	< 10000	mg/kg	11/14/95

Sample Id: 200090777 **Waste Profile No:** SL-1 **Lab Asyatant No:**

8260 EXTENDED SOLID (continued):	Result	Unit	Analysis Date
2-Hexanone	< 10000	mg/kg	11/14/95
Iodomethane	< 5000	mg/kg	11/14/95
Iso-Butyl Alcohol	< 180000	mg/kg	11/14/95
Methacrylonitrile	< 31000	mg/kg	11/14/95
Methylene Chloride	< 6000	mg/kg	11/14/95
Methyl Ethyl Ketone	< 10000	mg/kg	11/14/95
Methyl Isobutyl Ketone	< 10000	mg/kg	11/14/95
Methyl Methacrylate	< 25000	mg/kg	11/14/95
2-Nitropropane	< 20000	mg/kg	11/14/95
Styrene	< 5000	mg/kg	11/14/95
1,1,1,2-Tetrachloroethane	< 6000	mg/kg	11/14/95
1,1,2,2-Tetrachloroethane	< 7000	mg/kg	11/14/95
Tetrachloroethene	< 6000	mg/kg	11/14/95
Toluene	52700	mg/kg	11/14/95
1,1,1-Trichloroethane	< 5000	mg/kg	11/14/95
1,1,2-Trichloroethane	< 5000	mg/kg	11/14/95
Trichloroethylene	25400	mg/kg	11/14/95
Trichloromonofluoromethane	< 5000	mg/kg	11/14/95
1,1,2-Trichloro-1,2,2-Trifluoroethane	< 8000	mg/kg	11/14/95
1,2,3-Trichloropropane	< 10000	mg/kg	11/14/95
Vinyl Acetate	< 60000	mg/kg	11/14/95
Vinyl Chloride	< 11000	mg/kg	11/14/95
Xylenes (Total)	< 5000	mg/kg	11/14/95

COMMENTS:

No 8260 EXTENDED SOLID Comments

Sample Id: 200090777 **Waste Profile No:** SL-1 **Lab Assistant No:**

This Report is intended for the use and benefit of Waste Management and its companies. No representation concerning significance of the reported data is made to any other person or entity.

CERTIFICATION: Except as explicitly noted, all analytical data reported above were obtained under my direction and supervision. For Chemical Waste Management, Inc. companies, sample preparation and analytical methods and analytical equipment specified or approved in the facility's waste analysis plan were used in conducting this analysis. This laboratory follows a quality assurance control program.

Report Date Dec 15, 1995

Approved: _____
Carl W. Armbruster, Asst Laboratory Manager

Attachment B

Tritium Statement
Former Zia Motor Pool Waste Oil Tank

Tritium Statement:

Based on my review of available information and my professional judgment, it is not necessary to sample for tritium because it is not a potential contaminant at the site.

12/14/95

Field Unit 1 Representative

CHARACTERIZATION STRATEGY FORM

OU Number	PRS/SWMU Numbers	Title
Field Unit 1, Former OU 1071	SWMU 0-032	Former Zia Motor Pool Waste Oil Tank

Name: Andrew Crowder	**Date:** 14 December, 1995
FPL: Garry Allen	**WMC:** Larry Maassen
Type of Activity: VCA - Removal of waste-oil UST and contents.	
Waste Stream: (1) Waste Oil Sludge (2) Waste Oil Tank (3) PPE/Disposable Sampling Equip.	

Site Description:

SWMU 0-032 is part of the Former Zia Motor Pool site that is currently under construction as an office complex. Most of the former Zia Motor Pool buildings and facilities have been removed. Previous RFI field work was conducted in 1994 to characterize the site and remove one underground storage tank (UST) from SWMU 0-032. The site characterization activities at SWMU 0-032 (Building 1 and Former Automotive Maintenance Hangar) were completed and a RCRA Facility Investigation Report was submitted to the EPA in May 1995. During recent construction activities, however, a 5000-gallon steel waste-oil UST was discovered on the western edge of the currently active construction site by the construction contractors. During the RFI field activities, all of the waste oil tanks could not be located due to inaccurate engineering drawings. This newly-discovered tank is assumed to be one of the tanks that could not be located during the RFI. The tank is on the west side of the recently constructed retaining wall and east of the current landowner's maintenance building near the southwest corner of the construction site. The Automotive Maintenance Hangar was decommissioned in 1962. The construction contractors found the tank manhole beneath the existing asphalt pavement indicating that the UST had been out of service for many years.

Investigation or Remediation Waste Description and Volume Estimate:

The waste-oil UST is estimated to have a capacity of 5000 gallons and is constructed of steel. The tank is approximately 5 feet in diameter and 19 feet long based on observations and known dimensions of the other waste-oil UST removed from the site during RFI activities. The top of the tank is approximately 4 feet below the ground surface and the manhole extends from the top of the tank to just below the asphalt. When discovered, the tank appeared to be approximately half-full with a mixture of oil, water, and sludge. At that time a clear bailer was lowered into the tank to examine the contents. These observations indicated the presence of approximately 1-foot of clear liquid (water) with a 1- to 2-inch layer of oil on the surface. The liquid contents of the tank were sampled, pumped out, and shipped off-site for incineration at an approved TSD facility by Chemical Waste Management (CWM). The remaining material in the tank is sludge. Prior to removal, the liquid contents of the tank were sampled twice for waste characterization. The first sample collected consisted of oil from the surface of the liquid in the tank and the second sample consisted of water from beneath the oil. The oil sample was submitted to First Recovery (Recycling Facility) and analyzed for polychlorinated biphenyls (PCBs), pH, total halogens, flashpoint, and base-sediment and water content (BSW). The results of this analysis indicated the presence of 1.68% total halogens, which disqualified the oil for recycling. The second sample (water) was submitted to CWM and analyzed for metals (by TCLP), volatile organic compounds (VOCs) by SW 846 Method 8260, semi-volatile organic compounds (SVOCs) by SW 846 Method 8270, and fingerprinting for chemical and physical properties. Analytical results indicated that the liquid contains a total trichloroethylene (TCE) concentration of 90.2 mg/L. All other analytes were below levels of

	PRS/SWMU Numbers	Title
Field Unit 1, Former OU 1071	SWMU 0-032	Former Zia Motor Pool Waste Oil Tank

regulatory concern (see attached analytical data). Because of the presence and concentration of TCE in the liquid within the tank, the contents of the tank were handled as hazardous waste. CWM pumped out the tank and transported the liquids to OSCO in Henderson, Colorado for treatment/disposal as a hazardous waste.

The sludge remaining in the tank after removal of the liquids is approximately 1-foot thick with a volume of approximately 650 gallons. Sludge samples were collected and submitted to CWM for waste characterization analysis. The sludge was analyzed for total metals by EPA SW 846 Methods 6010 and 7470 (Hg), VOCs by EPA SW 846 Method 8260, SVOCs by EPA SW 846 Method 8270, PCBs by EPA SW 846 Method 8080A, and fingerprinting for chemical and physical properties. Several RCRA constituents were detected in the sludge sample at elevated concentrations resulting in the classification of the sludge as a RCRA hazardous waste. RCRA compounds detected include benzene at a concentration of 13600 mg/kg, total cresols at a concentration of 955 mg/kg, 1,4-dichlorobenzene at a concentration of 150 mg/kg, TCE at a concentration of 25400 mg/kg, barium at a concentration of 807 mg/kg, cadmium at a concentration of 55.6 mg/kg, chromium at a concentration of 17 mg/kg, lead at a concentration of 3120 mg/kg, and mercury at a concentration of 0.139 mg/kg. Of these analytes detected, benzene, 1,4-dichlorobenzene, TCE, cadmium, and lead exceed 20 times their respective TCLP limit. Analytical results for flashpoint analysis indicate that the sludge has a flashpoint greater than 175 degrees Fahrenheit. Analytical results are presented in Attachment A. Based on these results, the sludge has been determined to be a RCRA hazardous waste and will be handled and treated accordingly.

The tank and contents will be removed and hauled off-site by Tank Management Services in conjunction with a licensed hazardous waste transporter with a valid EPA ID number (Envirosolve of Albuquerque) for hazardous waste transport and management. All hazardous waste transport and management activities will be conducted in accordance with applicable federal and state regulations, and LANL policies and procedures. The tank, with the sludge in it, will be transported to the Envirosolve 10-day transfer facility in Albuquerque. The sludge will be transferred to 55-gallon drums for subsequent transport to a LANL approved TSD facility for incineration. The cleaned tank will be salvaged as scrap metal. A provisional waste generator number (NMP360076677) has been issued by the state for the tank, sludge, and PPE/disposable sampling equipment.

A minimum of two confirmation soil samples will be collected from beneath the ends of the tank using a backhoe to determine if a release has occurred. If soil-staining is observed or field screening indicates the presence of contamination in the surrounding soils, additional samples will be collected. Samples collected from beneath and around the tank will be submitted to the mobile chemistry analytical laboratory (MCAL) for field determination of the extent of soil contamination, if any. MCAL analyses will include TPH, total VOCs, total SVOCs, and total metals by XRF. Final verification samples will be submitted to a fixed analytical lab. Verification samples will be analyzed for TPH, total VOCs, total SVOCs, and total metals.

Waste Types: The types of waste to be generated will include the sludge and rinse water from cleaning of the tank, the clean, empty, steel tank to be salvaged, and PPE/disposable sampling equipment. The PPE/sampling equipment will include disposable gloves, scoops, paper towels, a disposable beaker, and aluminum pans.

Waste Packaging: The sludge will remain in the waste-oil tank during transport to the Envirosolve facility in Albuquerque. The tank with sludge will be placed in a DOT-approved half-round trailer with an additional leak-tight liner for initial transport to Envirosolve. Envirosolve will

	PRS/SWMU Numbers	Title
Field Unit 1, Former OU 1071	SWMU 0-032	Former Zia Motor Pool Waste Oil Tank

be used as a 10-day transfer facility for cleaning the sludge out of the tank and placing it in DOT-approved 55-gallon steel drums for final transport to the TSD facility. PPE and sampling waste will be placed in a DOT-approved 55-gallon steel drum or smaller, more suitable-size container.

Characterization Strategy:

Sludge samples have been analyzed and the results will be used for waste characterization. A complete description of these samples is provided below. PPE and disposable sampling equipment will be characterized based on the analytical results of the material that it comes in contact with (e.g., sludge, soil) and acceptable knowledge.

Sludge

The sludge was analyzed for total metals by EPA SW 846 Methods 6010 and 7470 (Hg), VOCs by EPA SW 846 Method 8260, SVOCs by EPA SW 846 Method 8270, PCBs by EPA SW 846 Method 8080A, and fingerprinting for chemical and physical properties. Analytical results are presented in Attachment A. Based on these results, the sludge has been characterized as a RCRA hazardous waste and will be handled and treated accordingly. The final disposition of the sludge will be incineration at the Rollins TSD facility in Deer Park, Texas or the Clean Harbors TSD facility in Kimball, Nebraska. Both of these TSD facilities have been audited and approved by LANL CST-5 and ESH-19.

Empty Tank

The tank will be reclaimed following removal of the sludge and residue. The tank will be thoroughly cleaned to remove as much residue as possible. The tank will then be transported to an appropriate salvage facility and sold as scrap. A recycling certificate will be generated and submitted to LANL.

PPE and Sampling Waste

PPE and sampling waste will be characterized based on the results of the liquid, sludge, and soil samples collected from within and around the tank, and disposed of accordingly. Acceptable knowledge and field documentation will be used to assist in determining the disposition of these materials.

Preliminary RCRA Determination:

<90-Day Storage Area

PPE and disposable sampling equipment generated will immediately be shipped off site, under manifest, to an established <90-day storage area at TA-3, SM 271 until appropriate disposal can be determined and arranged. However, PPE and sampling equipment that does not come in direct contact with the hazardous materials within the tank will be profiled for disposal at the Los Alamos County Landfill.

The tank and sludge will be transferred directly off-site and will not require an on-site <90-day storage area. The Envirosolve facility will be used as a 10-day transfer facility for cleaning out the tank and transferring the sludge to drums for final transport to the TSD facility. The tank itself will be cleaned and transported to a salvage facility. The provisional EPA ID Number obtained from the state for the sludge, tank, and PPE/disposable sampling equipment is *NMP360076677*.

	PRS/SWMU Numbers	Title
Field Unit 1, Former OU 1071	SWMU 0-032	Former Zia Motor Pool Waste Oil Tank

Analyte Suite:

Analyte	Direct Sampling of Waste	Acceptable Knowledge		
		Existing Information		Data from Site Char.
		Present	Absent	
Volatile Compounds	X[1]			
Semi-Volatile Compounds	X[1]			
Organochlorine Pesticides & PCBs	X[1]			
Inorganic Compounds	X[1]			
High Explosive Compounds			X[2]	
Gross Alpha			X[2]	
Gross Beta			X[2]	
Gross Gamma			X[2]	
Asbestos			X[2]	
Tritium			X[3]	
TCLP: Metals	X[1]			
Organics[4]	NA[4]			
Pesticides, Herbicides, Fungicides			X[2]	

1. Direct sampling of the tank contents was conducted as described in the Characterization Strategy section of this form. The sludge sample was analyzed for total metals only.
2. Acceptable Knowledge indicates that these constituents are absent from the waste streams.
3. See Tritium Statement in Attachment B.
4. Analyses for total volatile and semi-volatile organics were performed instead of TCLP.

NA= Not analyzed

Signatures:

N/A AC
ER Waste Management Representative

Mary Jane Wenk
CST-17 Representative 12/18/95

Attachment A

Analytical Results
Former Zia Motor Pool Waste Oil Tank

006. LAST PAGE FOR THIS LOG #.

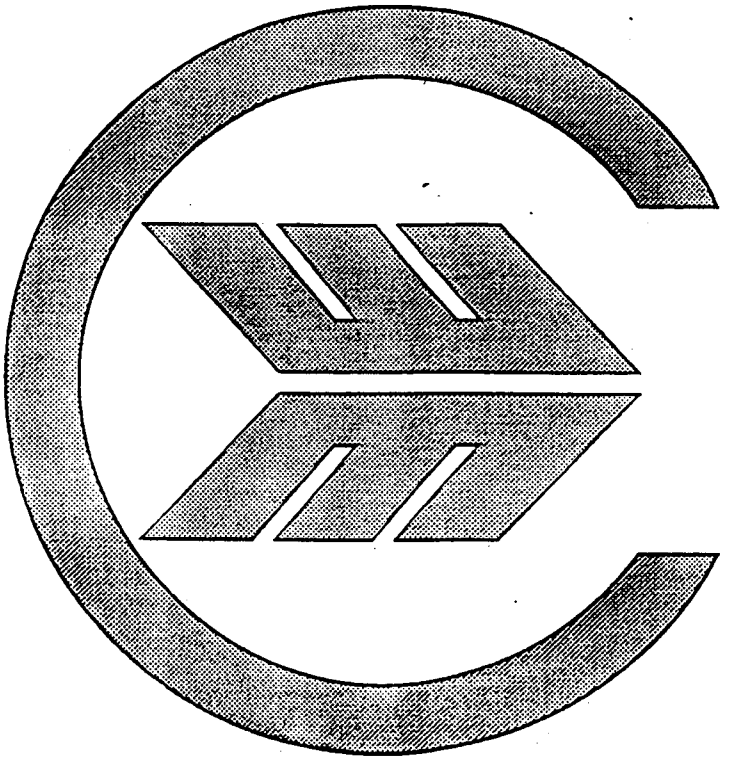
A P A L CHEM LAB SAMPLE MANAGEMENT SYSTEM LAB3

SAMPLE STATUS

LOG # 3134 TYPE EX

TEST #	TEST NAME		RESULT		DATE COMPLETED
0180	HALGN TOTL	HALGN TOTP	---	PPM	090595
		HALGN TOTW	1.68	%	
0460	PM - FL	FLASHF	192	F	090595
0850	PCBS	PCBP	<2.0	PPM	090595
0910	PH	PH	---		090595
1240	BSW	BSW	<0.05	%	090695

National Laboratory



Waste Analysis Report

Chemical Waste Management - Riverdale

Sample Id:	200090116
Date Sampled:	11-SEP-95
Date Logged:	15-SEP-95
Waste Profile Number:	
Source:	MIS
Generator Name:	CWM AETS
Generator Location:	LOS ALAMOS, NM
Waste Name:	OIL/WATER
Site Number:	0100-95-9431

Sample Id: 200090116 **Waste Profile No:** **Lab Asystant No:**

This Report is intended for the use and benefit of Waste Management and its companies. No representation concerning significance of the reported data is made to any other person or entity.

FINGERPRINT	Result	Analysis D
Odor Incidental	NONE	09/16/95
Layering	SINGLE PHASE	09/16/95
Pct Free Liquids	100	09/16/95
L1: Color	LT BROWN	09/16/95
L1: Physical State	LIQUID	09/16/95
L1: Further Descnp	<5% OIL-LIKE GLOBULES	09/16/95
L1: Viscosity	LOW	09/16/95
L1: Turbidity	CLOUDY	09/16/95
L1: H2O Solubility	SOLUBLE	09/16/95
L1: H2O Reactivity	NONREACTIVE	09/16/95
L1: Temp Change	0 DEG F	09/16/95
Visual Oil And Grease	P	09/16/95
Cyanide Screen	< 5 PPM CYANTESMO PAPER	09/16/95
Sulfide Screen	POSITIVE	09/16/95
Phenol Screen	< 10 PPM	09/16/95
pH	6.0	09/16/95
pH Meas. Method	PAPER	09/16/95
pH Method	10% SOLUTION	09/16/95
Oxidizer Screen	NEGATIVE	09/16/95
Flam. Potential	NEGATIVE	09/16/95
Radiation Level	AT BACKGROUND	09/16/95
Paint Filter	FAIL	09/16/95
Paint Filter Method	OBSERVED	09/16/95

COMMENTS:

No FINGERPRINT Comments

WET CHEMISTRY	Result	Unit	Analysis Da
Sulfides (Total)	<50	ppm	09/19/95

COMMENTS:

No WET CHEMISTRY Comments

SPECTROSCOPY	Result	Unit	Analysis Da
Arsenic - TCLP	<0.67	mg/L	09/18/95
Barium - TCLP	68.1	mg/L	09/18/95
Cadmium - TCLP	0.22	mg/L	09/18/95
Chromium - TCLP	<0.09	mg/L	09/18/95
Lead - TCLP	1.75	mg/L	09/18/95
Mercury - TCLP	<0.005	mg/L	09/18/95
Selenium - TCLP	<0.23	mg/L	09/18/95
Silver - TCLP	<0.08	mg/L	09/18/95
Start Date/Time - TCLP	9-15-95/6PM		09/16/95
Stop Date/Time - TCLP	9-15-95/6:05PM		09/16/95

COMMENTS:

No SPECTROSCOPY Comments

Sample Id: 200090116 Waste Profile No: Lab Asystant No:

8270D AQUEOUS	Result	Unit	Analysis Date
O-Cresol	< 100	mg/L	09/18/95
M-Cresol + P-Cresol	133.	mg/L	09/18/95
1,4-Dichlorobenzene	< 3.25	mg/L	09/18/95
2,4-Dinitrotoluene	< 0.065	mg/L	09/18/95
Hexachlorobenzene	< 0.065	mg/L	09/18/95
Hexachloro-1,3-Butadiene	< 0.25	mg/L	09/18/95
Hexachloroethane	< 1.5	mg/L	09/18/95
Nitrobenzene	< 1	mg/L	09/18/95
Pentachlorophenol	< 50	mg/L	09/18/95
Pyridine	3.66	mg/L	09/18/95
2.4,5-Trichlorophenol	< 200	mg/L	09/18/95
2,4,6-Trichlorophenol	< 1	mg/L	09/18/95

COMMENTS:

No 8270D AQUEOUS Comments

8260D AQUEOUS	Result	Unit	Analysis Date
Benzene	< 0.25	mg/L	09/20/95
Carbon Tetrachloride	< 0.25	mg/L	09/20/95
Chlorobenzene	< 50	mg/L	09/20/95
Chloroform	< 3	mg/L	09/20/95
1,2-Dichloroethane	< 0.25	mg/L	09/20/95
1,1-Dichloroethylene	< 0.35	mg/L	09/20/95
Methyl Ethyl Ketone (Mek)	< 100	mg/L	09/20/95
Tetrachloroethene	< 0.35	mg/L	09/20/95
Trichloroethene	90.2	mg/L	09/20/95
Vinyl Chloride	< 0.1	mg/L	09/20/95

COMMENTS:

ALL VOLATILE SURROGATES HIGH TWICE

Sample Id: 200090116 **Waste Profile No:** **Lab Asystant No:**

This Report is intended for the use and benefit of Waste Management and its companies No representation concerning significance of the reported data is made to any other person or entity.

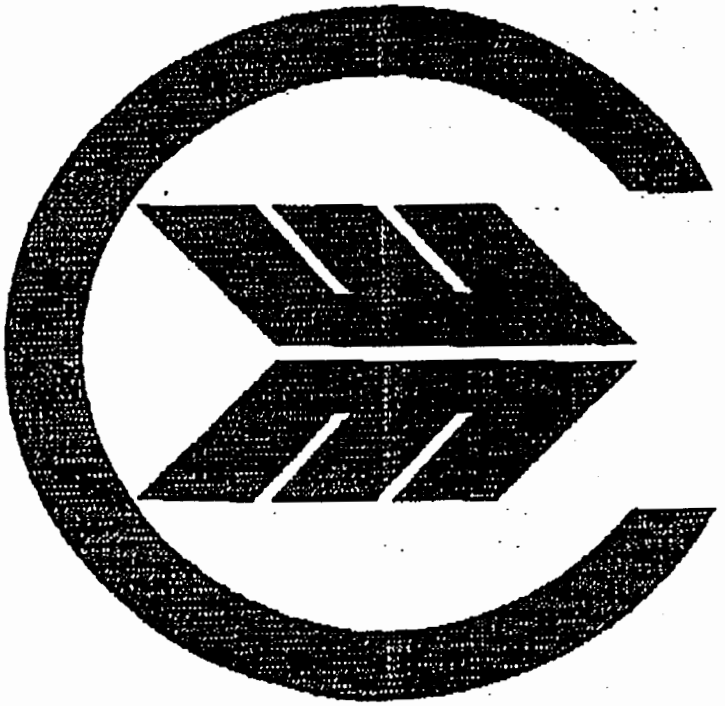
CERTIFICATION Except as explicitly noted all analytical data reported above were obtained under my direction and supervision For Chemical Waste Management, Inc. companies, sample preparation and analytical methods and analytical equipment specified or approved in the facility's waste analysis plan were used in conducting this analysis. This laboratory follows a quality assurance control program.

Report Date Sep 20, 1995

Approved _____

Carl W. Armbruster, Asst Laboratory Manager

National Laboratory



Waste Analysis Report

Chemical Waste Management - Riverdale

Sample Id:	200090777
Date Sampled:	08-NOV-95
Date Logged:	10-NOV-95
Waste Profile Number:	SL-1
Source:	MIS
Generator Name:	LOS ALAMOS NATIONAL LAB
Generator Location:	LOS ALAMOS, NM
Waste Name:	SLUDGE
Site Number:	

Sample Id: 200090777 Waste Profile No: SL-1 Lab Asystant No:

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FINGERPRINT	Result	Analysis Da
Odor Incidental	NONE	12/04/95
Layering	SINGLE PHASE	12/04/95
Pct Free Liquids	100	12/04/95
L1: Color	BLACK	12/04/95
L1: Physical State	LIQUID	12/04/95
L1: Further Descrip	SLUDGE	12/04/95
L1: Viscosity	MEDIUM	12/04/95
L1: Turbidity	OPAQUE	12/04/95
L1: H2O Solubility	INSOLUBLE	12/04/95
L1: Relative Density	BOTH HEAVIER AND LIGHTER	12/04/95
L1: H2O Reactivity	NONREACTIVE	12/04/95
L1: Temp Change	0 DEG F	12/04/95
Visual Oil And Grease	P	12/04/95
Cyanide Screen	< 5 PPM CYANTESMO PAPER	12/04/95
Sulfide Screen	< 3 PPM	12/04/95
Phenol Screen	< 10 PPM	12/04/95
pH	7.04	12/04/95
pH Meas. Method	METER	12/04/95
pH Method	10% SOLUTION	12/04/95
Oxidizer Screen	NEGATIVE	12/04/95
Flam. Potential	POSITIVE	12/04/95
Radiation Level	AT BACKGROUND	12/04/95
Hazard Class - 1	FLAMMABLE	12/04/95

COMMENTS:

No FINGERPRINT Comments

WET CHEMISTRY	Result	Unit	Analysis Date
Flash Point - Open Cup	>175	fahrenheit	12/13/95

COMMENTS:

No WET CHEMISTRY Comments

SPECTROSCOPY	Result	Unit	Analysis Date
Arsenic	<10.3	ppm	11/14/95
Cadmium	55.6	ppm	11/14/95
Chromium	17.0	ppm	11/14/95
Lead	3120	ppm	11/14/95
Selenium	<19.5	ppm	11/14/95
Silver	<1.21	ppm	11/14/95
Barium	807	ppm	11/14/95
Mercury	0.139	ppm	11/15/95

COMMENTS:

No SPECTROSCOPY Comments

Sample Id: 200090777 **Waste Profile No: SL-1** **Lab Asystant No:**

ORGANIC PCBS - LIMIT	Result	Unit	Analysis Date
Total Arochlors Is	< 36	ppm	12/01/95

COMMENTS:

No ORGANIC PCBS - LIMIT Comments

8270 EXTENDED SOLID	Result	Unit	Analysis Date
1,2,4,5-Tetrachlorobenzene	< 99	mg/kg	11/16/95
1,2,4-Trichlorobenzene	465.	mg/kg	11/16/95
1,3,5-Trinitrobenzene	< 150	mg/kg	11/16/95
1,2-Diphenylhydrazine	< 99	mg/kg	11/16/95
1,3-Dinitrobenzene	< 99	mg/kg	11/16/95
1,4-Dinitrobenzene	< 99	mg/kg	11/16/95
1,4-Naphthoquinone	< 99	mg/kg	11/16/95
1-Naphthylamine	< 99	mg/kg	11/16/95
2,3,4,6-Tetrachlorophenol	< 222	mg/kg	11/16/95
2,4,5-Trichlorophenol	< 141	mg/kg	11/16/95
2,4,6-Trichlorophenol	< 189	mg/kg	11/16/95
2,4-Dichlorophenol	< 99	mg/kg	11/16/95
2,4-Dimethylphenol	207.	mg/kg	11/16/95
2,4-Dinitrophenol	< 300	mg/kg	11/16/95
2,4-Dinitrotoluene	< 99	mg/kg	11/16/95
2,6-Dichlorophenol	< 105	mg/kg	11/16/95
2,6-Dinitrotoluene	< 99	mg/kg	11/16/95
2-Acetylaminofluorene	< 99	mg/kg	11/16/95
2-Chloronaphthalene	< 198	mg/kg	11/16/95
2-Chlorophenol	< 99	mg/kg	11/16/95
2-Methylnaphthalene	478.	mg/kg	11/16/95
2-Naphthylamine	< 99	mg/kg	11/16/95
2-Picoline (2-Methylpyridine)	< 168	mg/kg	11/16/95
2-Sec-Butyl-4,6-Dinitrophenol	< 216	mg/kg	11/16/95
3-Methylcholanthrene	< 99	mg/kg	11/16/95
4,4-Methylene-Bis-(2-Chloroaniline)	< 99	mg/kg	11/16/95
4,6-Dinitro-O-Cresol	< 390	mg/kg	11/16/95
4-Aminobiphenyl	< 99	mg/kg	11/16/95
4-Bromophenyl Phenyl Ether	< 99	mg/kg	11/16/95
4-Chlorophenyl Phenyl Ether	< 99	mg/kg	11/16/95
4-Nitrophenol	< 294	mg/kg	11/16/95
4-Nitroquinoline-N-Oxide	< 99	mg/kg	11/16/95
5-Nitro-O-Toluidine	< 99	mg/kg	11/16/95
7,12-Dimethylbenz(A)Anthracene	< 114	mg/kg	11/16/95
Acenaphthalene	< 99	mg/kg	11/16/95
Acenaphthene	< 99	mg/kg	11/16/95
Acetophenone	< 99	mg/kg	11/16/95
Acrylamide	< 315	mg/kg	11/16/95
Aniline	< 99	mg/kg	11/16/95
Anthracene	< 99	mg/kg	11/16/95
Aramite	< 99	mg/kg	11/16/95
Benzoic Acid	< 99	mg/kg	11/16/95
Benzo(A)Anthracene	< 99	mg/kg	11/16/95
Benzal Chloride (Dichloromethyl Benzene)	< 99	mg/kg	11/16/95
Benzo(A)Pyrene	< 102	mg/kg	11/16/95
Benzo(B)Fluoranthene	< 99	mg/kg	11/16/95
Benzo(G,H,I,)Perylene	< 105	mg/kg	11/16/95

Sample Id: 200090777 Waste Profile No: SL-1 Lab Asystant No:

8270 EXTENDED SOLID (continued):	Result	Unit	Analysis D
Benzo(K)Fluoranthene	< 99	mg/kg	11/16/95
Benzyl Alcohol	< 99	mg/kg	11/16/95
Benzyl Chloride (Chloromethyl Benzene)	< 99	mg/kg	11/16/95
Bis(2-Chloroethoxy) Methane	< 99	mg/kg	11/16/95
Bis(2-Chloroethyl) Ether	< 99	mg/kg	11/16/95
Bis(2-Chloroisopropyl) Ether	< 99	mg/kg	11/16/95
Bis(2-Ethylhexyl)Phthalate	< 249	mg/kg	11/16/95
Butyl Benzyl Phthalate	< 99	mg/kg	11/16/95
Chlorobenzilate	< 126	mg/kg	11/16/95
Chrysene	< 99	mg/kg	11/16/95
Di-N-Butyl Phthalate	< 99	mg/kg	11/16/95
Di-N-Octyl Phthalate	< 222	mg/kg	11/16/95
Di-N-Propylnitrosamine	< 105	mg/kg	11/16/95
Dibenzo(A,E)Pyrene	< 99	mg/kg	11/16/95
Dibenzo(A,H)Anthracene	< 99	mg/kg	11/16/95
Dibenzofuran	< 99	mg/kg	11/16/95
Diethyl Phthalate	< 99	mg/kg	11/16/95
Dimethyl Phthalate	< 99	mg/kg	11/16/95
Diphenylnitrosamine + Diphenylamine *	< 99	mg/kg	11/16/95
Ethyl Methane Sulfonate	< 99	mg/kg	11/16/95
Fluoranthene	< 99	mg/kg	11/16/95
Fluorene	< 99	mg/kg	11/16/95
Hexachlorobenzene	< 102	mg/kg	11/16/95
Hexachlorobutadiene	< 99	mg/kg	11/16/95
Hexachlorocyclopentadiene	< 99	mg/kg	11/16/95
Hexachloroethane	< 99	mg/kg	11/16/95
Hexachlorpropene	<	mg/kg	11/16/95
Indeno(1,2,3-C,D)Pyrene	< 108	mg/kg	11/16/95
Isodrin	< 99	mg/kg	11/16/95
Isophorone	< 99	mg/kg	11/16/95
Isosafrole	< 264	mg/kg	11/16/95
M-Dichlorobenzene	< 99	mg/kg	11/16/95
M-Nitroaniline	< 99	mg/kg	11/16/95
Methapyrilene (As Hydrochloride)	< 186	mg/kg	11/16/95
Methyl Methane Sulfonate	< 123	mg/kg	11/16/95
N-Nitroso-Di-N-Butylamine	< 105	mg/kg	11/16/95
N-Nitrosodiethylamine	< 123	mg/kg	11/16/95
N-Nitrosodimethylamine	< 198	mg/kg	11/16/95
N-Nitrosomethylethylamine	< 99	mg/kg	11/16/95
N-Nitrosomorpholine	< 126	mg/kg	11/16/95
N-Nitrosopiperidine	< 99	mg/kg	11/16/95
N-Nitrosopyrrolidine	< 141	mg/kg	11/16/95
Naphthalene	531.	mg/kg	11/16/95
Nitrobenzene	< 141	mg/kg	11/16/95
O-Cresol	114.	mg/kg	11/16/95
O-Dichlorobenzene	424.	mg/kg	11/16/95
O-Nitroaniline	< 99	mg/kg	11/16/95
O-Nitrophenol	< 108	mg/kg	11/16/95
O-Toluidine Hydrochloride	< 99	mg/kg	11/16/95
P-Chloro-M-Cresol	< 99	mg/kg	11/16/95
P-Chloroaniline	< 108	mg/kg	11/16/95
P-Cresol + M-Cresol	841.	mg/kg	11/16/95
P-Dichlorobenzene	150.	mg/kg	11/16/95
P-Dimethylaminoazobenzene	< 99	mg/kg	11/16/95
P-Nitroaniline	< 99	mg/kg	11/16/95

Sample Id: 200090777 Waste Profile No: SL-1 Lab Asystant No:

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8270 EXTENDED SOLID (continued):	Result	Unit	Analysis Date
Pentachlorobenzene	< 99	mg/kg	11/16/95
Pentachloroethane	< 99	mg/kg	11/16/95
Pentachloronitrobenzene	< 150	mg/kg	11/16/95
Pentachlorophenol	< 171	mg/kg	11/16/95
Phenacetin	< 99	mg/kg	11/16/95
Phenanthrene	< 99	mg/kg	11/16/95
Phenol	< 108	mg/kg	11/16/95
Pronamide	< 99	mg/kg	11/16/95
Pyrene	< 99	mg/kg	11/16/95
Pyridine	< 117	mg/kg	11/16/95
Safrole	< 99	mg/kg	11/16/95

COMMENTS:

* In GC/MS analysis, these compounds cannot be differentiated.

8260 EXTENDED SOLID	Result	Unit	Analysis Date
Acetone	< 18000	mg/kg	11/14/95
Acetonitrile	< 100000	mg/kg	11/14/95
Acrolein	< 100000	mg/kg	11/14/95
Acrylonitrile	< 15000	mg/kg	11/14/95
Benzene	13600	mg/kg	11/14/95
Bromodichloromethane	< 10000	mg/kg	11/14/95
Bromoform	< 5000	mg/kg	11/14/95
Bromomethane (Methyl Bromide)	< 15000	mg/kg	11/14/95
N-Butyl Alcohol	< 148000	mg/kg	11/14/95
Carbon Disulfide	< 5000	mg/kg	11/14/95
Carbon Tetrachloride	< 7000	mg/kg	11/14/95
Chlorobenzene	< 5000	mg/kg	11/14/95
Chlorodibromomethane	< 5000	mg/kg	11/14/95
Chloroethane	< 10000	mg/kg	11/14/95
Chloroform	< 5000	mg/kg	11/14/95
Chloromethane (Methyl Chloride)	< 10000	mg/kg	11/14/95
3-Chloropropene (Allyl Chloride)	< 6000	mg/kg	11/14/95
Cyclohexanone	< 109000	mg/kg	11/14/95
1,2-Dibromoethane (Ethylene Dibromide)	< 5000	mg/kg	11/14/95
Dibromomethane	< 5000	mg/kg	11/14/95
1,2-Dibromo-3-Chloropropane	< 10000	mg/kg	11/14/95
Dichlorodifluoromethane	< 40000	mg/kg	11/14/95
1,1-Dichloroethane	< 5000	mg/kg	11/14/95
1,2-Dichloroethane	< 5000	mg/kg	11/14/95
1,1-Dichloroethene	< 5000	mg/kg	11/14/95
Cis-1,2-Dichloroethene	< 6000	mg/kg	11/14/95
Trans-1,2-Dichloroethene	< 5000	mg/kg	11/14/95
1,2-Dichloropropane	< 9000	mg/kg	11/14/95
Cis-1,3-Dichloropropene	< 9000	mg/kg	11/14/95
Trans-1,3-Dichloropropene	< 5000	mg/kg	11/14/95
1,4-Dioxane	< 89000	mg/kg	11/14/95
Ethyl Acetate	< 12000	mg/kg	11/14/95
Ethyl Benzene	< 5000	mg/kg	11/14/95
Ethyl Cyanide (Propanenitrile)	< 103000	mg/kg	11/14/95
Ethyl Ether	< 10000	mg/kg	11/14/95
Ethyl Methacrylate	< 10000	mg/kg	11/14/95

Sample Id: 200090777 **Waste Profile No:** SL-1 **Lab Asyatant No:**

8260 EXTENDED SOLID (continued):	Result	Unit	Analysis Date
2-Hexanone	< 10000	mg/kg	11/14/95
Iodomethane	< 5000	mg/kg	11/14/95
Iso-Butyl Alcohol	< 180000	mg/kg	11/14/95
Methacrylonitrile	< 31000	mg/kg	11/14/95
Methylene Chloride	< 6000	mg/kg	11/14/95
Methyl Ethyl Ketone	< 10000	mg/kg	11/14/95
Methyl Isobutyl Ketone	< 10000	mg/kg	11/14/95
Methyl Methacrylate	< 25000	mg/kg	11/14/95
2-Nitropropane	< 20000	mg/kg	11/14/95
Styrene	< 5000	mg/kg	11/14/95
1,1,1,2-Tetrachloroethane	< 6000	mg/kg	11/14/95
1,1,2,2-Tetrachloroethane	< 7000	mg/kg	11/14/95
Tetrachloroethene	< 5000	mg/kg	11/14/95
Toluene	52700	mg/kg	11/14/95
1,1,1-Trichloroethane	< 5000	mg/kg	11/14/95
1,1,2-Trichloroethane	< 5000	mg/kg	11/14/95
Trichloroethylene	25400	mg/kg	11/14/95
Trichloromonofluoromethane	< 5000	mg/kg	11/14/95
1,1,2-Trichloro-1,2,2-Trifluoroethane	< 8000	mg/kg	11/14/95
1,2,3-Trichloropropane	< 10000	mg/kg	11/14/95
Vinyl Acetate	< 60000	mg/kg	11/14/95
Vinyl Chloride	< 11000	mg/kg	11/14/95
Xylenes (Total)	< 5000	mg/kg	11/14/95

COMMENTS:

No 8260 EXTENDED SOLID Comments

Sample Id: 200090777 **Waste Profile No: SL-1** **Lab Asystant No:**

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CERTIFICATION: Except as explicitly noted, all analytical data reported above were obtained under my direction and supervision. For Chemical Waste Management, Inc. companies, sample preparation and analytical methods and analytical equipment specified or approved in the facility's waste analysis plan were used in conducting this analysis. This laboratory follows a quality assurance control program.

Report Date Dec 13, 1995

Approved: _____
Carl W. Armbruster, Asst Laboratory Manager

Attachment B

Tritium Statement
Former Zia Motor Pool Waste Oil Tank

Tritium Statement:

Based on my review of available information and my professional judgment, it is not necessary to sample for tritium because it is not a potential contaminant at the site.

12/14/95

Field Unit 1 Representative

Annex 7.8 Field Work Approval Form

Voluntary Corrective Action (VCA)
Checklist and Fieldwork Authorization Form

PRS No. C-0-042 **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 JR Allen Date 10 April 96

FPC a. kock Date 4/10/96

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

FPL JR Allen Date 10 April 96

FPC a. kock Date 4/10/96

Through reviewing the VCA Plan, for site(s) C-0-042, and believing that the above criteria have been met, I authorize the fieldwork to proceed.

DOE ER Program Manager _____ Date 4/10/96

EM/ER:96-134

Annex 7.9
VCA Cost Estimate

Pre-Field Activities	
Plan Modification and Preparation	$16000
Field Preparation	2000
Field Activities	
Geodetic Surveys	250
Subcontractors (Excavation, lift, transportation, and disposal)	30,000
Personnel Costs	
Field Team (FTL, SSO)	2500
Analytical Costs	
Chem Van (assume shared cost)	1000
Verification Sampling: 4 samples x $1000	4000
Waste Characterization Samples: 2 x $ 1000	2000
Post Field Activities	
Acceptance inspection	1000
Report Preparation	2000
Total Estimated Cost	**$60,750**