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**LOS ALAMOS NATIONAL LABORATORY  
ENVIRONMENTAL RESTORATION PROJECT  
VOLUNTARY CORRECTIVE ACTION PLAN**

for

**SOLID WASTE MANAGEMENT UNIT**

**0-032**

**STORM WATER DRAIN LINE  
FORMER ZIA MOTORPOOL**

July 1995

Revision 0

Prepared by:

**ERM Program Management Company  
and  
Golder Federal Services, Inc.  
555 Oppenheimer Drive, Suite 100  
Los Alamos, New Mexico 87544**



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**DRAFT**  
**ERM/Golder Los Alamos Project Team**  
**July 6, 1995**

Voluntary Corrective Action Plan  
for Solid Waste Management Unit 0-032

## **1.0 INTRODUCTION**

The following potential release site (PRS) at Los Alamos National Laboratory (LANL) has been selected for voluntary corrective action (VCA) because its remedy is obvious and easily implemented. The tasks in this action plan include assessing possible contamination in a buried storm water drain and removal of the drain and concrete sump structures adjacent to the former Zia Motor Pool, Building One. Figure 1 illustrates the location of SWMU 0-032.

## **2.0 SITE TYPE AND DESCRIPTION**

SWMU 0-032 includes a storm water drain pipe that drained the west side of the former Vehicle Maintenance Shop, Building 1, for Zia Company (Figure 2). The building has been demolished and removed. Soil borings were drilled adjacent to storm water drainage sumps feeding the pipeline and an RFI Report was issued in May, 1995. Trace concentrations of Total Petroleum Hydrocarbons (TPH) were detected in soil samples collected from borings drilled adjacent to and beneath the drain sumps. The data were consistent with a relatively tight pipeline system.

The storm drain is estimated to be approximately 360 feet long and 15-inches in diameter and extends across the property. A piece of the pipe was excavated during current construction activities and confirms this description. The pipe appears to be a corrugated galvanized culvert material, and is buried about 12 to 15 feet below the surface. There is soil, gravel and black residue within the pipe from disposal and eroded soil washed into the pipe.

The concrete sump structures are believed to be non-reinforced concrete boxes that extend from the surface to approximately ten feet deep. The boxes are about four feet square in section with ten inch thick walls. The boxes appear to have soil and debris within them and have not been sampled.

The site is currently under construction and will be developed as office buildings.

## **3.0 PROPOSED REMEDY**

The potential release site is not listed in the Laboratory's Hazardous and Solid Waste Amendments (HSWA) permit. The site has been proposed for voluntary corrective action since the remedy is obvious and the contaminants are believed to involve non-hazardous chemicals (i.e., weathered petroleum hydrocarbons). The contaminant of concern is TPH, and is believed to be contained within the soil matrix inside the piping.

The proposed remedy is to excavate the pipe and remove it in sections with an excavator; experience has shown this to be a viable methodology. The pipe segments will be emptied as much as possible into roll off containers. Visually contaminated soil from the pipeline trench will also be removed and placed into the roll off containers.

A summary of the samples that will be collected for waste characterization is provided in Table 3.1. One composite sample from each roll off container will be prepared by mixing

equal parts by volume from four random locations in the container. The composite sample will be analyzed for the following parameters, if required by the disposal facility:

1. Free liquid by the Paint Filter Test, EPA Method 9095;
2. Ignitability, corrosivity, reactivity by EPA SW 846;
3. TCLP metals; and,
4. On-site screening for radioactivity (gross alpha, beta and gamma).

One grab soil sample from each roll off container will be analyzed for Total Petroleum Hydrocarbons by EPA SW 846 Modified Method 8015 or Method 418.1 and semi-volatile organic compounds by EPA SW 846 Method 8270. The grab sample will be collected from the soil that is visually identified as being the most contaminated. The sample will be field screened using a head space analysis, and if organic vapors are detected, the sample will also be analyzed for volatile organic compounds (VOCs) by EPA SW 846 Method 8240. If VOCs are detected at elevated concentrations, then the sample(s) will also be analyzed for TCLP VOCs. All samples will be collected using the Field Sampling and Analysis Plan utilized during RFI Phase I Field Investigation Activities. All site activities will follow the Site Specific Health and Safety Plan presented in Annex 8.2.

The fifteen inch diameter pipeline will be excavated and cut into lengths approximately six feet long using the excavating equipment. The pipeline trench will not be backfilled because the area is being removed for the basement of the new building.

Table 3.1 Samples for Waste Disposal Determination

Material to be Sampled	Number of Samples	Proposed Analyses
Soil from within the pipe and sump	1 grab per roll off container	TPH, volatiles (based on field screening), semi-volatiles, TCLP volatiles (if required)
Soil from within the pipe and sump	1 composite per roll off container	Free liquids, ICR, Radioactivity screening, TCLP metals

#### 4.0 JUSTIFICATION/RATIONALE

The storm drain pipeline is the last component in the demolition of the former Zia Motor Pool, Vehicle Maintenance Facility Building 1. Samples of the soil beneath and adjacent to the concrete stormwater sumps did not detect significant contamination during previous site investigation activities. The site is presently in the process of being graded prior to construction of an office building. Thus, this VCA is highly schedule driven. The removal of the pipeline, drain sump, and disposal of the soil from within the pipe and sumps is a best management practice for the abandoned pipeline.

ERM/GOLDER LOS ALAMOS PROJECT TEAM

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# Facsimile Cover Sheet

**To:** Dave Bradbury  
**Company:** EM/ER  
**Phone:** (505)665-6208  
**Fax:** (505)665-4747

**From:** Jayne Bradley  
**Company:** ERM/Golder  
**Phone:** (505) 661-6285  
**Fax:** (505) 661-6209

**Date:** 9 August 1995  
**Pages including this cover page:** 23

**Comments:**

## 5.0 ESTIMATED WASTE VOLUMES BY TYPE

Table 5.1 describes each waste type, waste description, estimated volume and anticipated disposal destination.

Table 5.1 Estimated Waste Volumes by Type

Waste Type	Waste Description	Estimated Volume	Disposal Container	Anticipated Disposal
Hydrocarbon Special Waste from the pipe	Oily soil from within the storm sewer pipeline	20 cu yds, assuming pipe is 1/3 full	Stockpiled in roll off containers, then to landfill	Depends upon analytical results
Soil	overexcavated soil if visual contamination is observed	5 cu yds	Stockpiled in roll off container, then to landfill	Depends upon analytical results
Scrap Steel	Corrugated storm water pipe	360 linear feet	Roll off containers	Landfill
Concrete	Concrete sumps	40 cu yd	Bulk material loaded on dump trucks	Landfill

## 6.0 DESCRIPTION OF CONFIRMATORY SAMPLING

Samples from soils beneath and adjacent to the concrete stormwater sumps did not detect significant contamination during previous site investigation activities. Confirmatory sampling will only be performed in the case that visual observations reveal an unanticipated release. If visually contaminated soils are identified, one sample will be collected after over-excavation of the impacted soils along the pipeline trench. The sample will be collected from the shovel of the excavator after approximately one foot of soil is removed from the excavation. The sample(s) will be analyzed for TPH and volatiles (depending on field screening results). Table 6.1 describes details of the confirmatory sampling.

Table 6.1 Description of Confirmatory Sampling

Location	Number of Samples	Depth	Analyses
Pipeline trench if contaminated soil is visually identified	1 at each site, collected from the shovel of the excavator	0-12 inches	TPH, VOCs (depending on field screening), TCLP metals

## 7.0 ESTIMATED SCHEDULE AND COST TO COMPLETE THE VCA

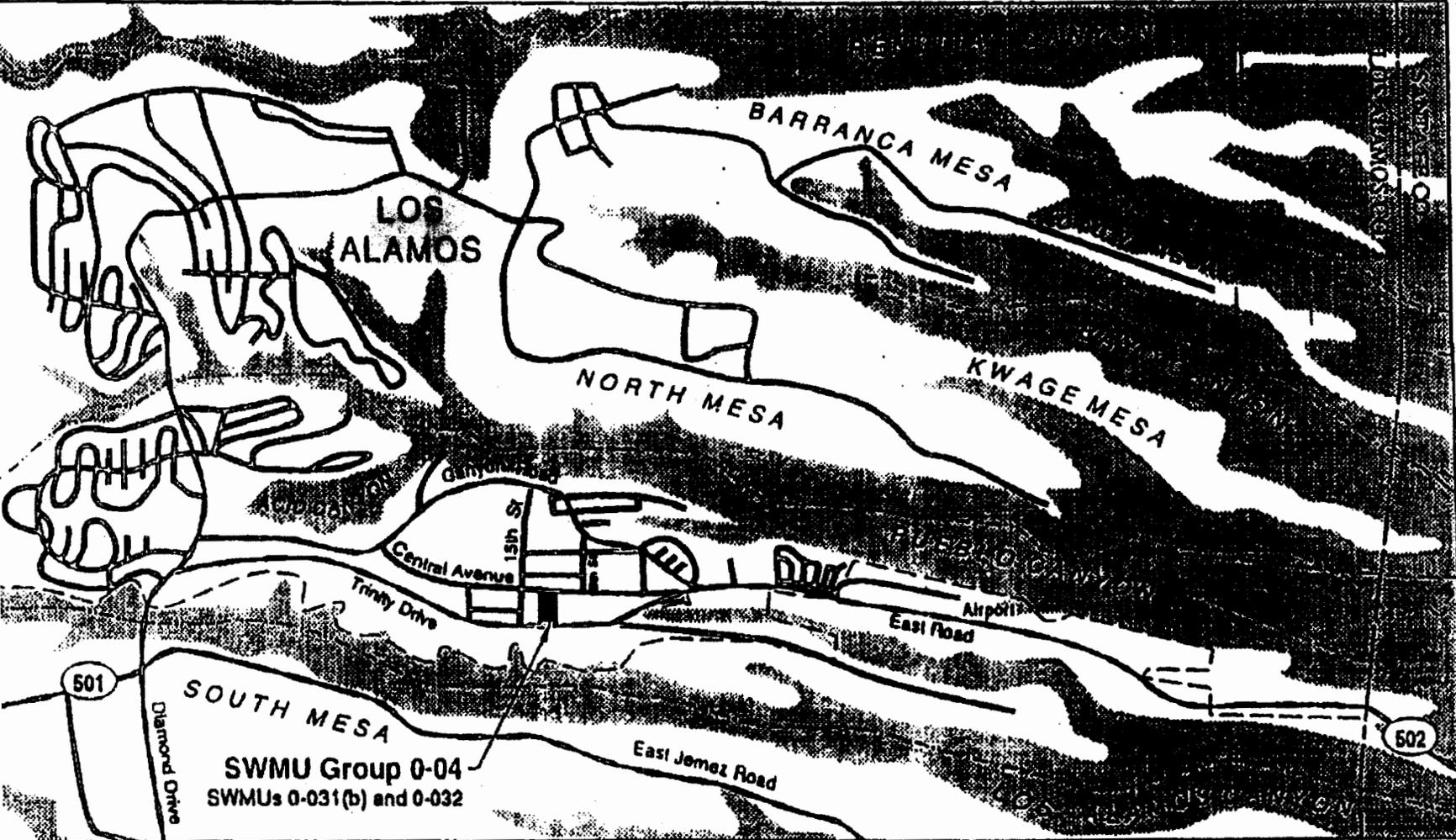
The estimate of costs in Table 7.1 assumes that the soils, concrete and steel excavated from SWMU 0-032 can be managed as special wastes or solid wastes and that these categories of waste can be disposed at landfills.

Table 7.1 Estimated Schedule and Cost to Complete the VCA

Activity	Proposed Start Date	Proposed Finish Date	Estimated Costs
Preparation of documents and field preparation	6/27/95	7/10/95	\$ 3,800
Excavate and remove pipeline. Store soil and piping in roll off containers.	7/10/95	7/11/95	\$ 5,400
Soil samples for waste manifest	7/10/95	7/12/95	\$ 4,200
Collect confirmatory samples (if required)	7/10/95	7/11/95	\$ 2,000
Dispose of pipe, soil and concrete	7/31/95	9/30/95	\$ 5,000
Preparation of Report	7/26/95	8/4/95	\$ 2,000
		<b>TOTAL</b>	<b>\$ 22,400</b>

## 8.0 ANNEXES

- 8.1 Site-Specific Health and Safety Plan (attached)
- 8.2 Characterization Strategy Form (attached)
- 8.3 Field Work Approval Form (attached)



eARTography by A. Kron 2/14/95

Fig. 1. General location of Former Zia Motorpool at TA-0, SWMU Group 0-04.

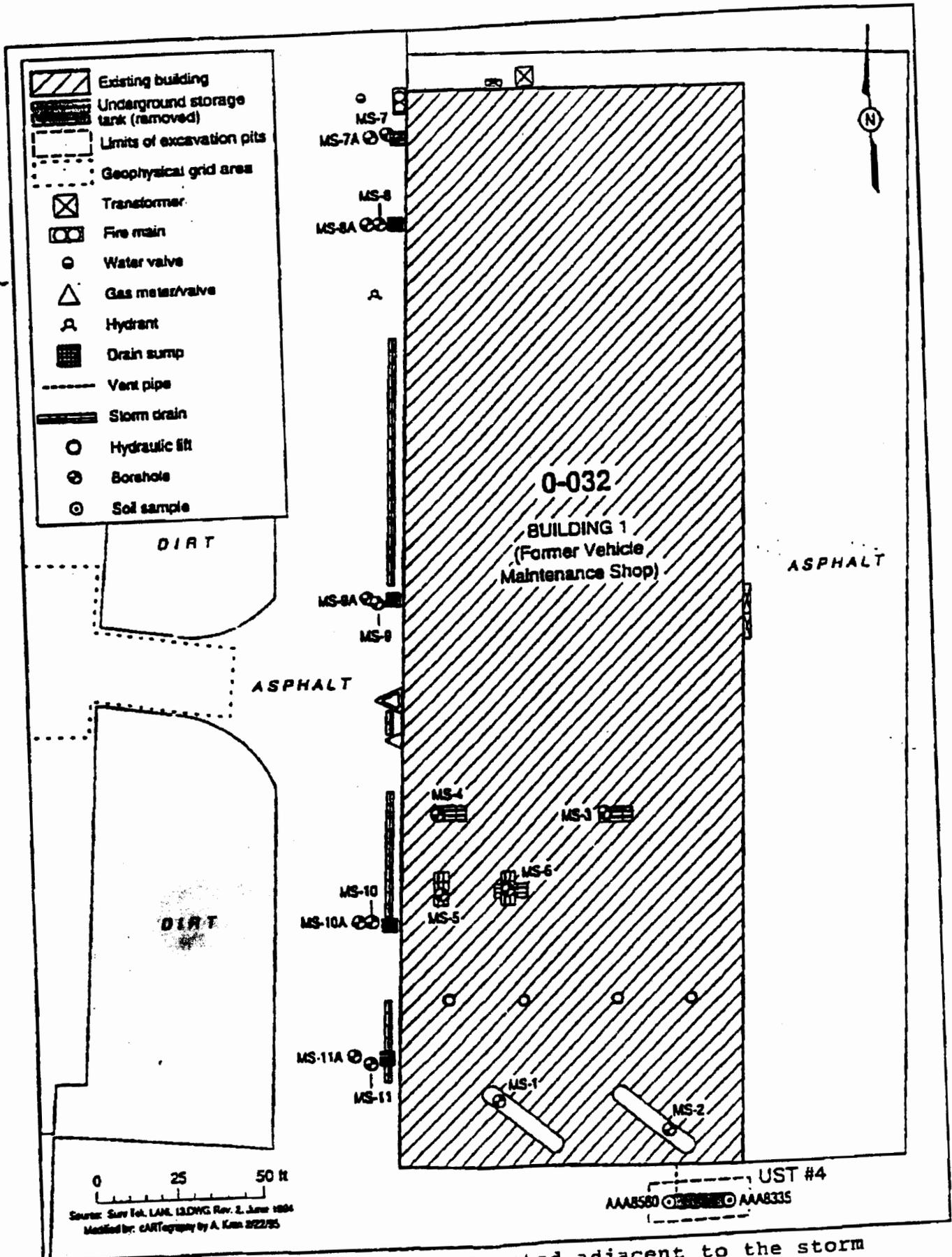


Fig. 2. Locations of samples collected adjacent to the storm

**ANNEX 8.1**

**SITE-SPECIFIC HEALTH AND SAFETY PLAN**

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 [Signature] Date 6-30-95

Field Unit HS Rep. Approval [Signature] 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 depth 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 of properly.

Hazard Analysis

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

Chemical: TPH (benzene, xylene, etc.), Asphalt/Tar, Silica. The hazard assessment rating (HAR) for each 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, LOTO, 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<sup>3</sup>

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 Training 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**

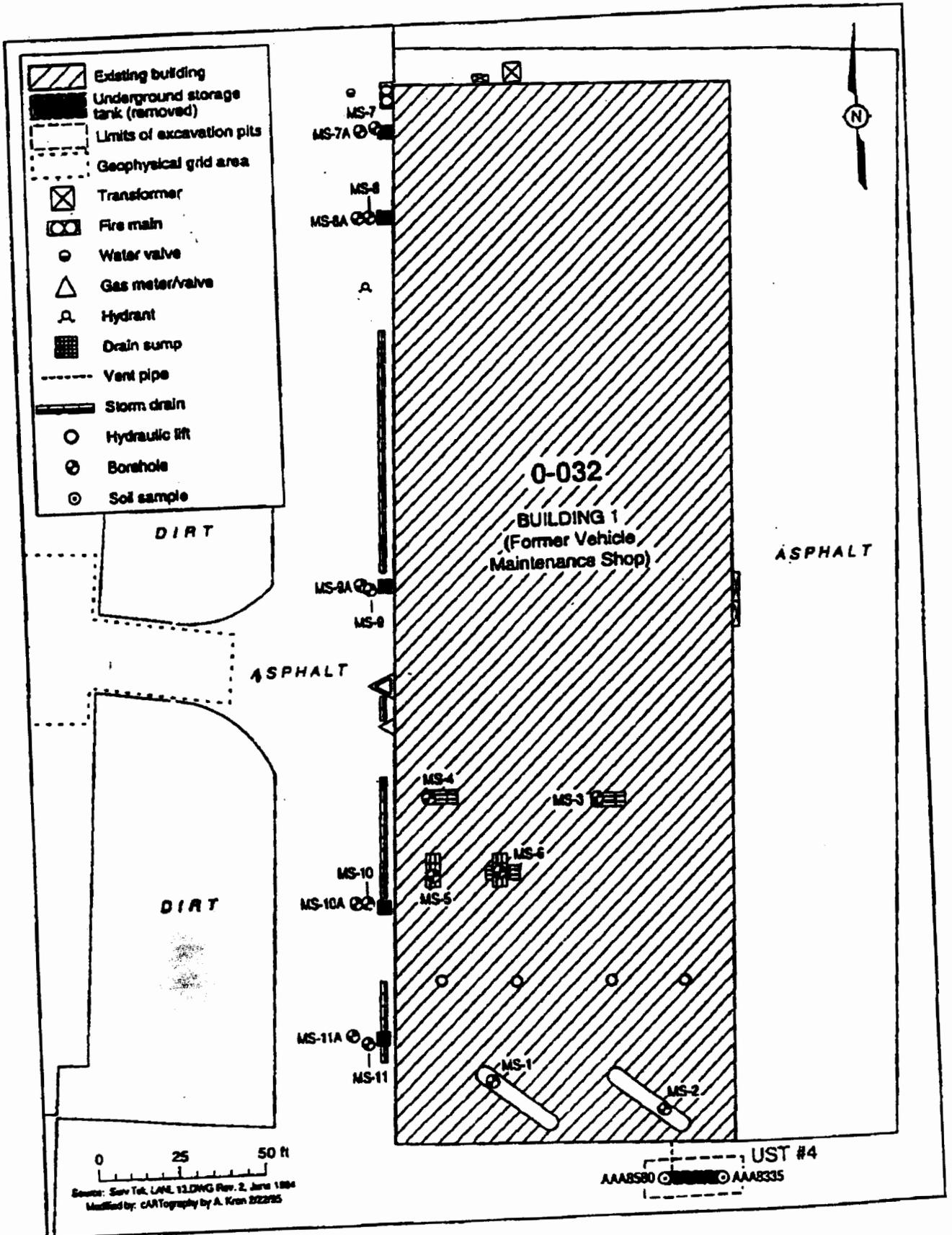
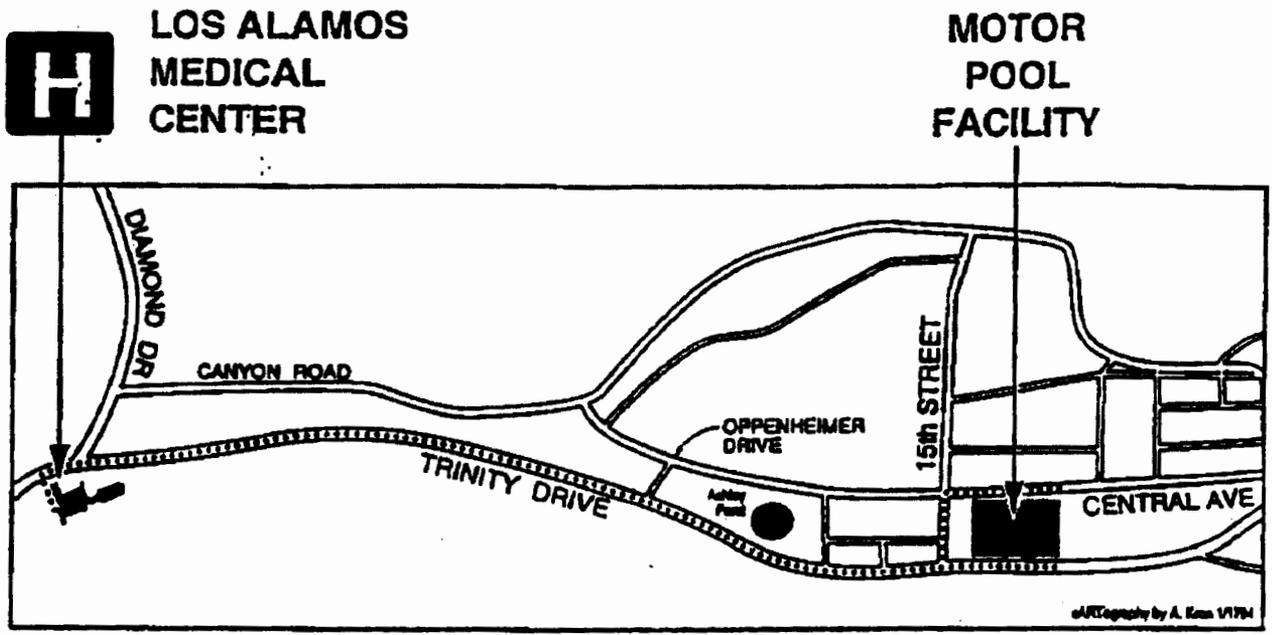


Figure 1. Location of SWMU 0-032, Former Zia Motor Pool.



..... Fastest route to hospital

0 0.25 0.5 mi

Figure 2. Route to Los Alamos Medical Center.

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 Specific	C	C	C	C	C
GET	C	C	C	C	C
HazCom	R	R	R	R	R
Conduct Oper	R	R	R	R	
Occurrence 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 and 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 8.2**

**WASTE CHARACTERIZATION STRATEGY FORM**

## Annex 8.3 Characterization Strategy Form

Field Unit/TA	PRS/SWMU Number	Title
Field Unit #1, TA-0	SWMU 0-032	Zia Storm Drain Pipe

Name: SWMU 0-032	Date: June 26, 1995
FPL: Garry Allen	WMC: Ted Norris
Type of Activity: Voluntary Corrective Action	

**Site Description:**

SWMU 0-032 includes a storm water drain pipe that drained the west side of the former vehicle maintenance shop for Zia Company. The building has been demolished and removed over the past several months. Soil borings were drilled adjacent to and beneath the sumps along the storm drain piping for Phase I site investigation activities. Total Petroleum Hydrocarbons (TPH) concentrations ranging from non-detect to 14 parts per million were detected in soil samples collected from these borings. The data were consistent with a relatively tight pipeline system. An RFI Report for the Phase I field investigation activities was issued in May, 1995

The storm drain piping is estimated to be approximately 360 feet long and 15 inches in diameter. A piece of the pipe was excavated during current construction activities and confirms this description. The pipe consists of corrugated galvanized culvert material and is buried about 12 to 15 feet below the surface. There is soil, gravel and black residue within the drain pipe.

The site is currently being graded and excavated for construction of an office building.

**Investigation or Remediation Waste Description and Volume Estimate:****Waste volumes:**

Estimated waste volumes listed are broken out by waste stream:

**Primary Waste streams -**

Hydrocarbon special waste: 20 cu yds  
 Soil: 5 cu yds  
 Recycle scrap steel pipe: 360 linear feet  
 Concrete Sumps: 40 cu yds

**Secondary Waste streams -**

PPE/Plastic: PPE/Plastic will be disposed with the hydrocarbon/special waste stream. Plastic sheeting will be used to cover the roll off containers prior to shipment. PPE will consist of Kleengard coveralls and latex or nitrile gloves as required in the SSHASP.

**Waste Type:** Soil contaminated with hydrocarbons.

**Waste Packaging:** Oil contaminated soil and piping to be contained in 30 yds<sup>3</sup> roll off containers. All other solid wastes will be bulked and disposed via dump truck.

**Characterization Strategy:**

Prior knowledge defines the contaminant of concern to be petroleum hydrocarbons. Analyses of the soil and residual materials adjacent to the sumps indicate a TPH concentration range between non-detect and 14 ppm.

**Waste Characterization**

One composite sample will be collected from each 30 yd<sup>3</sup> roll-off container and analyzed for TCLP metals. Each composite sample will be prepared by mixing equal parts by volume from four random locations in the roll-off container. One grab sample will be collected from each roll-off container and analyzed for TPH and SVOCs. The grab samples will also be screened in the field for VOCs using headspace analysis according to NMED UST Bureau regulations. If a positive reading is observed for a sample, then the sample will also be submitted for VOC analysis.

If stained soil is observed outside the piping, the area will be overexcavated until all visually stained soil has been removed. Then a confirmatory sample will be collected to verify that all contaminated soil has been removed from the area.

**X** No 90 Storage Requirement (non-RCRA)  
The waste materials are non-hazardous. The potentially oil contaminated soil will be stored on-site in 30 yd<sup>3</sup> roll off containers.

90-Day Storage Requirement (RCRA)  
Not required.

**Analyte Suite:**

Screening sampling sent to lab  
Nothing > bkgnd  
Hand holds

Analyte	Acceptable Knowledge	
	Direct Sampling	Present / Absent
Volatile Organic Compounds (only if positive field screening is observed)	X	
Semi-Volatile Organic Compounds	X	
Organochlorine Pesticides and PCBs		X
Inorganic Compounds		X
High Explosive Compounds		X
Gross Alpha		X
Gross Beta		X
Gross Gamma		X
Tritium		X
Asbestos		X
Total Petroleum Hydrocarbons	X	
TCLP:		
Metals	X	
Organics		X
Pesticides, herbicides, fungicides		X

Signatures: [Signature] 7-7-95  
 ER Waste Management Coordinator Date

[Signature] 7-6-95  
 QST-17 Representative Date

[Signature] 7-7-95  
 ESH-19 Representative Date

**ANNEX 83**

**FIELD WORK APPROVAL FORM**

ANNEX 8.3

FIELD WORK APPROVAL FORM

This form must be completed prior to starting remediation field work for Voluntary Corrective Action (VCA) that does not have an EPA-approved work plan.

I, Ted Taylor<sup>OK</sup>, DOE-LAAO, APPROVE the field work as proposed in the accompanying Voluntary Corrective Action Plan for SWMU 0-032.

I, \_\_\_\_\_, DOE-LAAO, DO NOT APPROVE the field work as proposed in the accompanying Voluntary Corrective Action Plan for SWMU 0-032.

The following reasons reflect the decision for disapproval:

Signed: [Signature] for Ted Taylor Date: 7/6/95