Nevada
Environmental
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Project

DOE/NV--931

National Nuclear Security Administration

Closure Report for Corrective Action Unit 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada

Controlled Copy No.: ___
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Division

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CLOSURE REPORT FOR CORRECTIVE ACTION UNIT 394: AREAS 12, 18, AND 29 SPILL/RELEASE SITES NEVADA TEST SITE, NEVADA

U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office
Las Vegas, Nevada

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CLOSURE REPORT FOR CORRECTIVE ACTION UNIT 394:
AREAS 12, 18, AND 29 SPILL/RELEASE SITES,
NEVADA TEST SITE, NEVADA

Approved by: Signature Approved Date: 9/24/03

Janet Appenzeller-Wing, Project Manager
Industrial Sites Project

Approved by: Signature Approved Date: 9/24/03

Runore C. Wycoff, Division Director
Environmental Restoration Division

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List of Acronyms and Abbreviations

AST	Aboveground storage tank
bgs	Below ground surface
CAS	Corrective Action Site
CAU	Corrective Action Unit
CFR	*Code of Federal Regulations*
CLP	Contract Laboratory Program
COC	Contaminant of concern
COPC	Contaminant of potential concern
CP	Control Point
CR	Closure Report
CSM	Conceptual site model
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DQI	Data Quality Indicator
DQO	Data Quality Objective
DRO	Diesel-range organics
EPA	U.S. Environmental Protection Agency
EPH	Extractable petroleum hydrocarbons
FADL	Field activity daily log
FD	Field duplicate
FFACO	*Federal Facility Agreement and Consent Order*
FI	Field instruction
FSL	Field-screening levels
FSR	Field-screening results
ft	Foot (feet)
GPS	Global Positioning System
GRO	Gasoline-range organics

List of Acronyms and Abbreviations *(Continued)*

HWAA	Hazardous Waste Accumulation Area
ICP	Inductively coupled plasma
IDL	Instrument detection limit
IDW	Investigation-derived waste
in.	Inch(es)
kg	Kilogram
LCS	Laboratory control sample
LCSD	Laboratory control sample duplicate
mi	Mile
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
MRL	Minimum reporting limits
MS	Matrix spike
MSD	Matrix spike duplicate
NAC	*Nevada Administrative Code*
ND	Normalized difference
NDEP	Nevada Division of Environmental Protection
NIST	National Institute for Standards and Technology
NNSA/NSO	U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office
NTS	Nevada Test Site
NTTR	Nevada Test and Training Range
PAL	Preliminary action level
PB	Preparation blanks
PCB	Polychlorinated biphenyl(s)
pCi/g	Picocuries per gram
pCi/L	Picocuries per liter
PPE	Personal protective equipment

List of Acronyms and Abbreviations (Continued)

ppm	Parts per million
PRG	Preliminary remediation goal
QA	Quality assurance
QAPP	Quality Assurance Project Plan
QC	Quality control
RCRA	*Resource Conservation and Recovery Act*
REC	Recognizable environmental condition
RPD	Relative percent difference
RSD	Relative standard deviation
SAA	Satellite Accumulation Area
SAFER	Streamlined Approach for Environmental Restoration
SC	Site characterization
SDG	Sample delivery group
SQP	Standard Quality Practice
SSHASP	Site-specific health and safety plan
SVOC	Semivolatile organic compound
TCLP	Toxicity characteristic leaching procedure
TPH	Total petroleum hydrocarbons
TSCA	*Toxic Substance Control Act*
TTR	Tonopah Test Range
UST	Underground storage tank
VOC	Volatile organic compound
VPH	Volatile petroleum hydrocarbons
µg/kg	Micrograms per kilogram
µg/L	Micrograms per liter
%R	Percent recovery

Executive Summary

This Closure Report (CR) presents information supporting a corrective action recommendation for Corrective Action Unit (CAU) 394: Area 12, 18, and 29 Spill/Release Sites, Nevada Test Site (NTS), Nevada. The NTS is approximately 65 miles northwest of Las Vegas, Nevada. This CR complies with the requirements of the *Federal Facility Agreement and Consent Order* that was agreed to by the State of Nevada, the U.S. Department of Energy, and the U.S. Department of Defense (FFACO, 1996). This CAU contains six Corrective Action Sites (CASs) located within Areas 12, 18, and 29 of the NTS. The six CASs that comprise CAU 394 are as follows:

- 12-25-04, UST 12-16-2 Waste Oil Release
- 18-25-01, Oil Spills
- 18-25-02, Oil Spills
- 18-25-03, Oil Spill
- 18-25-04, Spill (Diesel Fuel)
- 29-44-01, Fuel Spill

Corrective Action Site 29-44-01, a former Transmitter Station, has two distinct, recognizable environmental conditions (RECs) that necessitated the development of different conceptual site models and preferred closure alternatives. Subsequently, this CAS was divided into RECa and RECb sites so that they could be individually investigated as outlined in see Appendix A of the Streamlined Approach for Environmental Restoration (SAFER) Plan (DOE/NV, 2001). This CAS is located in Area 29 in the vicinity of the Shoshone Transmitter Station, the aboveground storage tank (AST) RECa was formerly located approximately 80 feet (ft) north of the transmitter station and the soil stain RECb is approximately 100 ft east of the station.

The purpose of this Closure Report is to provide documentation supporting recommendations of no further action and closure in place for CASs within CAU 394. To achieve this, the following actions were performed:

- Review the current site conditions, including the concentration and extent of contamination.
- Perform closure activities to address the presence of substances regulated by the *Nevada Administrative Code* 445A.2272 (2000a) and *Toxic Substances Control Act* regulations (CFR, 2000b).
- Document closure of CAU 394.

On September 5 and 10, and November 4 and 13, 2002; March 17, 22, and 23, 2003; June 30 through July 9, 2003; and August 11 through 13, 2003; closure activities were performed as set forth in the SAFER (DOE/NV, 2001). The purposes of the activities, as defined during the data quality objectives process, were:

- Identify the nature and extent of contaminants of potential concern at the CASs.
- Provide sufficient information and data to complete appropriate corrective actions for the CASs.

Analytes detected during the closure activities were evaluated against preliminary action levels to determine contaminants of concern for the CASs within CAU 394. Assessment of the data generated from closure activities indicated that preliminary action levels were exceeded in the soil of CAU 394 for total petroleum hydrocarbons and polychlorinated biphenyls. The concentrations of arsenic are considered representative of ambient at the NTS (NMBG, 1998; Moore, 1999). Therefore, no corrective action is necessary for the soil containing arsenic. Soil in CASs 18-25-02 and 18-25-03 containing PCBs exceeding the action levels established by the *Nevada Administrative Code* (NAC, 2000b) were removed for proper disposal. Remaining soil in CASs 18-25-02 and 18-25-03 contqaining petroleum hydrocarbons exceeding the action level was closed in place with use restrictions.

The U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office provides the following recommendations:

- No further corrective action is required at CAS 18-25-04.
- Closure in place is required at CASs 12-25-04, 18-25-01, 18-25-02, 18-25-03, and 29-44-01.
- No Corrective Action Plan is required for Corrective Action Unit 394.
- Use restrictions are required at CASs 12-25-04, 18-25-01, 18-25-02, 18-25-03, and 29-44-01.
- A Notice of Completion to U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, is requested from the NDEP for the closure of CAU 394.
- Corrective Action Unit 394 should be moved from Appendix III to Appendix IV of the *Federal Facility Agreement and Consent Order.*

1.0 Introduction

This Closure Report (CR) presents information supporting a closure recommendation for Corrective Action Unit (CAU) 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site (NTS), Nevada. The NTS is approximately 65 miles (mi) northwest of Las Vegas, Nevada. This CR complies with the requirements of the *Federal Facility Agreement and Consent Order* (FFACO) that was agreed to by the State of Nevada, the U.S. Department of Energy (DOE), and the U.S. Department of Defense (FFACO, 1996). This CAU contains six Corrective Action Sites (CASs) located within Areas 12, 18, and 29 of the NTS (Figure 1-1). The six CASs that comprise CAU 394 are as follows:

- 12-25-04, UST 12-16-2 Waste Oil Release
- 18-25-01, Oil Spills
- 18-25-02, Oil Spills
- 18-25-03, Oil Spill
- 18-25-04, Spill (Diesel Fuel)
- 29-44-01, Fuel Spill

Corrective Action Site 29-44-01, a former Transmitter Station, has two distinct, recognizable environmental conditions (RECs) that necessitated the development of different conceptual site models and preferred closure alternatives. Subsequently, this CAS was divided into RECa and RECb sites so that the RECs could be individually investigated as outlined in see Appendix A of the Streamlined Approach for Environmental Restoration (SAFER) Plan (DOE/NV, 2001). This CAS is located in Area 29 in the vicinity of the Shoshone Transmitter Station, the aboveground storage tank (AST) (a) was formerly located approximately 80 feet (ft) north of the transmitter station and the soil stain (b) is approximately 100 ft east of the station.

Corrective Action Site 12-25-04 is located in the southern section of Area 12 Camp east of the Building 12-16 foundation and is associated with a former underground storage tank (UST). Corrective Action Site 18-25-01 is located at the 17 Camp Gas Station, a former service station at the southwest corner of the Pahute Mesa Road and Road 18-B intersection. Corrective Action Sites 18-25-02 and 18-25-03 are located at 17 Camp Generator Shack, near the gate to the former Area 18 Control Point (CP) Security Compound. Corrective Action Site 18-25-04 is located north of the Pahute Mesa Air Strip at the location of a diesel and oil spill soil excavation/cleanup effort.

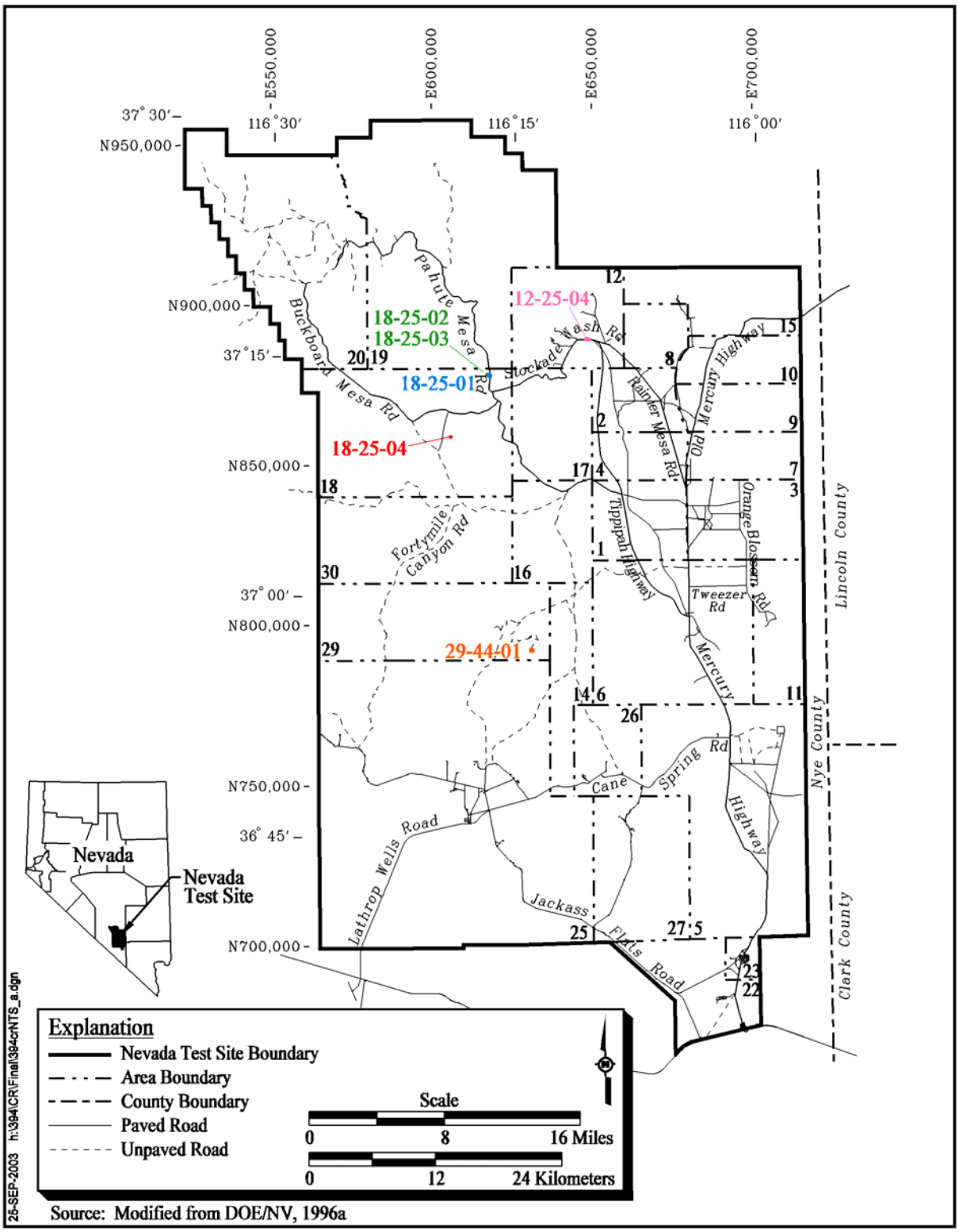


Figure 1-1
CAU 394 CAS Locations, Nevada Test Site, Nye County, Nevada

Additional information relating to the site history, planning, and scope of the investigation is presented in the SAFER Plan (DOE/NV, 2001).

1.1 Purpose

The purpose of the CAU 394 CR is to:

- Provide documentation of the closure activities completed in accordance with the SAFER Plan (DOE/NV, 2001).
- Provide data confirming the corrective action.

The CAU 394 has a total of six CASs; one in Area 12, four in Area 18, and one in Area 29. The release or spill of oil or fuel to the surrounding soil is common to all the CASs in this CAU.

Corrective Action Site 12-25-04 was a release from a waste oil/solvent UST that was associated with a light duty shop that operated roughly from 1965 until the early to mid 1990s. The UST was removed in 1992. The CAS was investigated by drilling to determine the nature and extent of contamination to support closure in place.

Corrective Action Site 18-25-01 was the spills of oil and fuel (both gasoline and diesel) that were associated with the old Gas Station 17 Camp (excluding the USTs originally located to the southwest of the service station). The Gas Station 17 Camp began operations in 1964 or 1965 and it is unknown when its operations ceased. The CAS was investigated by direct-push and hand auger to determine the nature and extent of contamination to support closure in place.

Corrective Action Site 18-25-02 was the spills of oil and fuel associated with the old generator shack at the Pahute Mesa Control Point Security Compound that operated roughly from 1964 to 1970. The shack was demolished sometime between 1993 and 1997, but the curbing for the foundation and several concrete pads within the curbing were in place. Stained pea gravel was also located inside the curbing. The CAS was remediated by removing contaminated soil, concrete, and other debris to support closure in place.

Corrective Action Site 18-25-03 was the spill of diesel fuel associated with the ASTs for the generator at the Pahute Mesa Control Point Security Compound. It is assumed that the ASTs

operated during the same period that the generator shack was operated, roughly from 1964 to 1970. One AST (about 300-gallon capacity) was removed sometime between 1991 and 1997. All that remained of the other AST was a set of concrete cradles northeast of the first AST. The CAS was remediated by the removal of contaminated soil to support clean closure.

Corrective Action Site 18-25-04 was a spill of diesel fuel associated with a generator at the Pahute Mesa Airstrip. Contaminated soil was excavated and removed from the site in 1991 (REECo, 1991). Subsequent inspection indicated that contamination is still evident (REECo, 1991; Perkins, 2001). The CAS was investigated by drilling to support no further action.

Corrective Action Site 29-44-01 is a fuel spill that was associated with an AST approximately 80 ft north of the Shoshone Transmitter Station that was removed sometime prior to 1974 (Holmes & Narver, 1974). This CAS includes a soil stain about 100 ft east of the transmitter station. The CAS was investigated by hand sampling to support closure in place.

1.2 Scope

The scope of this CR is to summarize the investigation and closure activities at CAU 394. To achieve this scope, the following actions were implemented:

- Review the current site conditions, including the nature and extent of contamination.
- Perform closure activities to address the presence of substances regulated by the *Nevada Administrative Code* (NAC) 445A.2272 (NAC, 2000a) and *Toxic Substances Control Act* regulations (CFR, 2000c).
- Document the closure of CAU 394 under the FFACO.
- Clean-up criteria were the PALs as specified in the SAFER Plan (DOE/NV, 2001).

1.3 Closure Report Contents

This CR is divided into the following sections:

Section 1.0 - Introduction: summarizes the purpose, scope, and contents of this CR.

Section 2.0 - Closure Activities: summarizes the field activities and any deviations to the scope of work.

Section 3.0 - Waste Disposition: summarizes the wastes generated and disposition of those wastes generated as a result of field activities.

Section 4.0 - Closure Verification Results: summarizes the verification activities and results, and assesses the data quality.

Section 5.0 - Conclusions and Recommendations: recommends no further action and closure in place at CAU 394.

Section 6.0 - References: provides a list of referenced documents.

Appendix A - *DQOs as developed in the SAFER Plan for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada:* summarizes the analytical results as they meet the requirements set forth during the data quality objectives (DQOs) process.

Appendix B - *Closure Certification for SAFER Plan for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada*: provides analytical data sheets for verification samples collected during closure activities.

Appendix C - *As-Built Documentation for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada.*

Appendix D - *Confirmation Sampling Test Results for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada:* provides a description of the project's objectives, field closure and sampling activities, and closure results.

Appendix E - *Waste Disposition Documentation for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada:* provides disposal documentation of items removed during closure activities.

Appendix F - *Modifications to the Post-Closure Plan for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada.*

Appendix G - *Use Restriction for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada:* documents use restriction for CASs 12-25-04, 18-25-01, 18-25-02, 18-25-03, and 29-44-01.

Appendix H - *Evaluations of Risk for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada:* documents the evaluation for risk for CASs 12-25-04, 18-25-01, 18-25-02, 18-25-03, and 29-44-01.

1.3.1 Supporting Documentation

Closure activities were performed in accordance with the following documents:

- *Streamlined Approach for Environmental Restoration Plan for Corrective Action Unit 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada* (DOE/NV, 2001)
- *Industrial Sites Quality Assurance Project Plan* (QAPP) (DOE/NV, 1996b)
- *Federal Facility Agreement and Consent Order* (1996)
- *Project Management Plan* (DOE/NV, 1994)

1.3.2 Data Quality Objectives

The DQOs as identified in the SAFER Plan are as follows:

- Determine if contaminants of concern (COCs) are present.
- If COCs are present, determine the nature and extent of the COCs.
- Recommend preferred closure option.

- Based upon characterization results perform activities necessary to meet the preferred closure option.
- Properly manage, characterize, and dispose of investigation-derived waste (IDW).

The data quality indicators (DQIs) were achieved and are discussed in Appendix A. The DQOs established in the SAFER Plan were met.

2.0 Closure Activities

The following sections summarize the CAU 394 closure activities and any deviations from the original scope of work. Refer to Appendix A and Appendix B for details of the corrective action investigation and results.

2.1 Description of Corrective Action Activities

Field activities were performed as set forth in the CAU 394 SAFER Plan (DOE/NV, 2001) on July 26, 2002; August 27 through September 12, 2002; November 13, 2002; February 12, 2003; March 17, 2003; March 22 and 23, 2003; June 30 through July 9, 2003; and August 11 through 13, 2003. The activities at all CASs, unless specified, included:

- Prefield activities, including construction of decontamination pads and hazardous waste accumulation areas (HWAAs), and utility clearances.
- Radiological walk-over surveys.
- Pre-excavation sampling for waste management purposes at CASs 18-25-02 and 18-25-03.
- Field screen selected sample locations for characterization and health and safety purposes.
- Collect biased surface and subsurface soil samples, and subsequent laboratory analysis, to define lateral and vertical extent of COPCs.
- Excavation activities at CASs 18-25-02 and 18-25-03.
- Verification sampling for preferred closure options.
- Collect Global Positioning System (GPS) coordinates of sampling locations.

The following sections summarize the activities at each CAS (see Appendix A for additional details).

2.1.1 CAS 12-25-04, UST 12-16-2 Waste Oil Release

Five soil borings were advanced using hollow-stem auger drilling equipment. Seventeen subsurface soil samples were collected from biased locations (Figure 2-1) with depths ranging from 3.5 ft to 27.5 ft. Samples were field screened for volatiles and alpha and beta/gamma emitters, and submitted

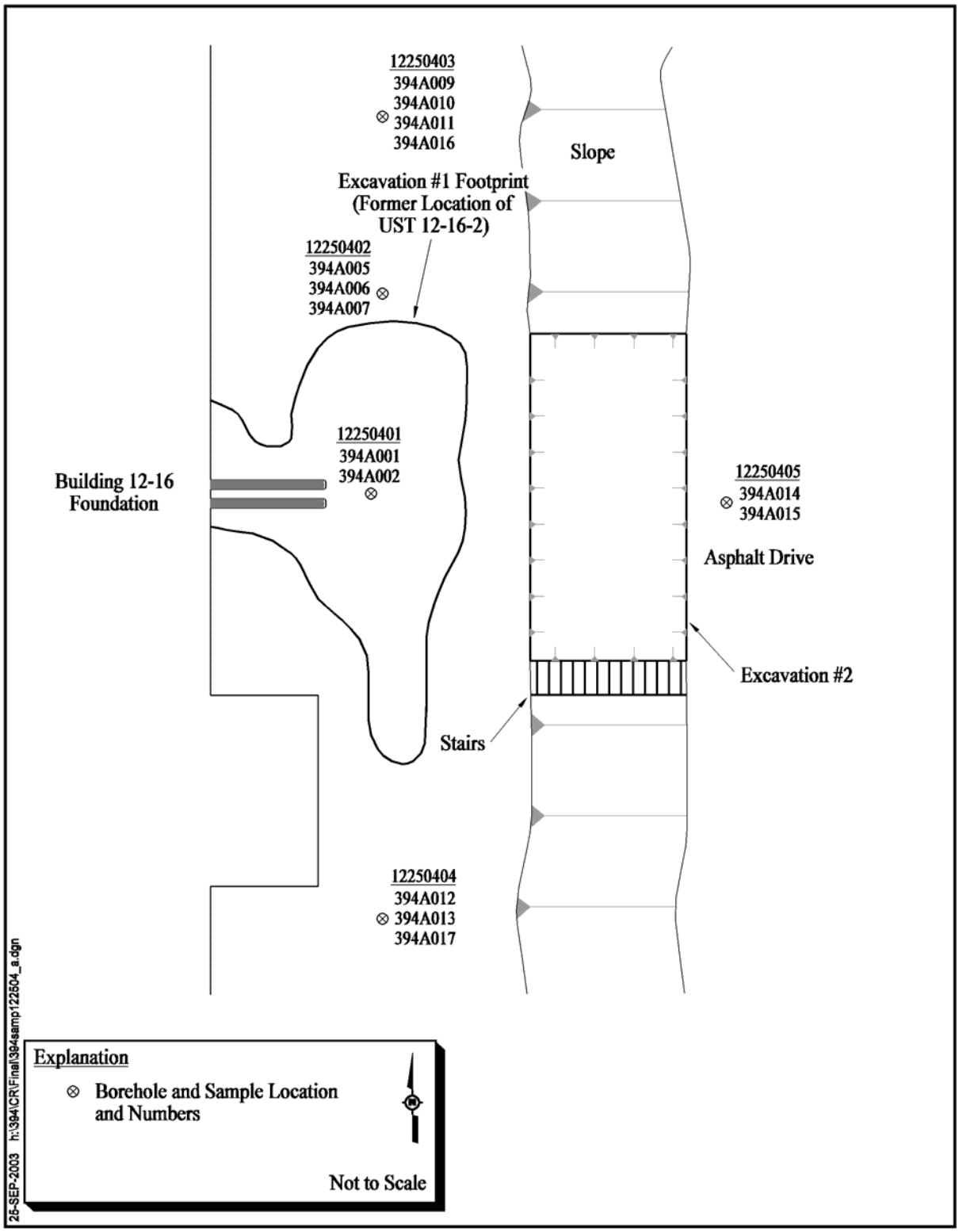


Figure 2-1
CAU 394, CAS 12-25-04, UST 12-16-2 Waste Oil Release
Borehole and Sample Locations

for laboratory analyses of contaminants of potential concern (COPCs) established during the DQO process and presented in the SAFER Plan.

2.1.2 CAS 18-25-01, Oil Spills

Thirteen soil borings were advanced using direct-push technology (Geoprobe®). Thirteen subsurface soil samples were collected at 4 ft below ground surface (bgs) from biased locations (Figure 2-2). Two subsurface samples were collected at 3 ft and 3.5 ft bgs from biased locations (Figure 2-2). Selected samples of asphalt located near the former gasoline and diesel pump islands were collected for background concentrations. Samples were field screened for total petroleum hydrocarbons (TPH) and alpha and beta/gamma emitters. Samples were and submitted for laboratory analyses of COPCs established during the DQO process and presented in the SAFER Plan.

2.1.3 CAS 18-25-02, Oil Spills

One hundred and twenty-four surface and subsurface soil samples were collected using scoops, a backhoe bucket, and a rotosonic drill rig during pre-excavation, characterization, and verification sampling activities. Soil samples were collected from biased locations (Figures 2-3, 2-4, and 2-5). Samples were field screened for alpha and beta/gamma emitters, and submitted for laboratory analyses of COPCs established during the DQO process and presented in the SAFER Plan.

2.1.4 CAS 18-25-03, Oil Spill

Eleven surface and subsurface soil samples were collected using scoops and a backhoe bucket during pre-excavation, characterization, and verification sampling activities. Samples were collected from biased locations, shown on Figure 2-6. Samples were field screened for alpha and beta/gamma emitters, and submitted for laboratory analyses of COPCs established during the DQO process and presented in the SAFER Plan.

2.1.5 CAS 18-25-04, Spill (Diesel Fuel)

Five soil borings were advanced at biased locations using hollow-stem auger drilling equipment. Fifteen subsurface soil samples were collected from these locations (Figure 2-7) located within the open excavation at depths ranging from 0.5 to 10 ft bgs. Samples were field screened for VOCs,

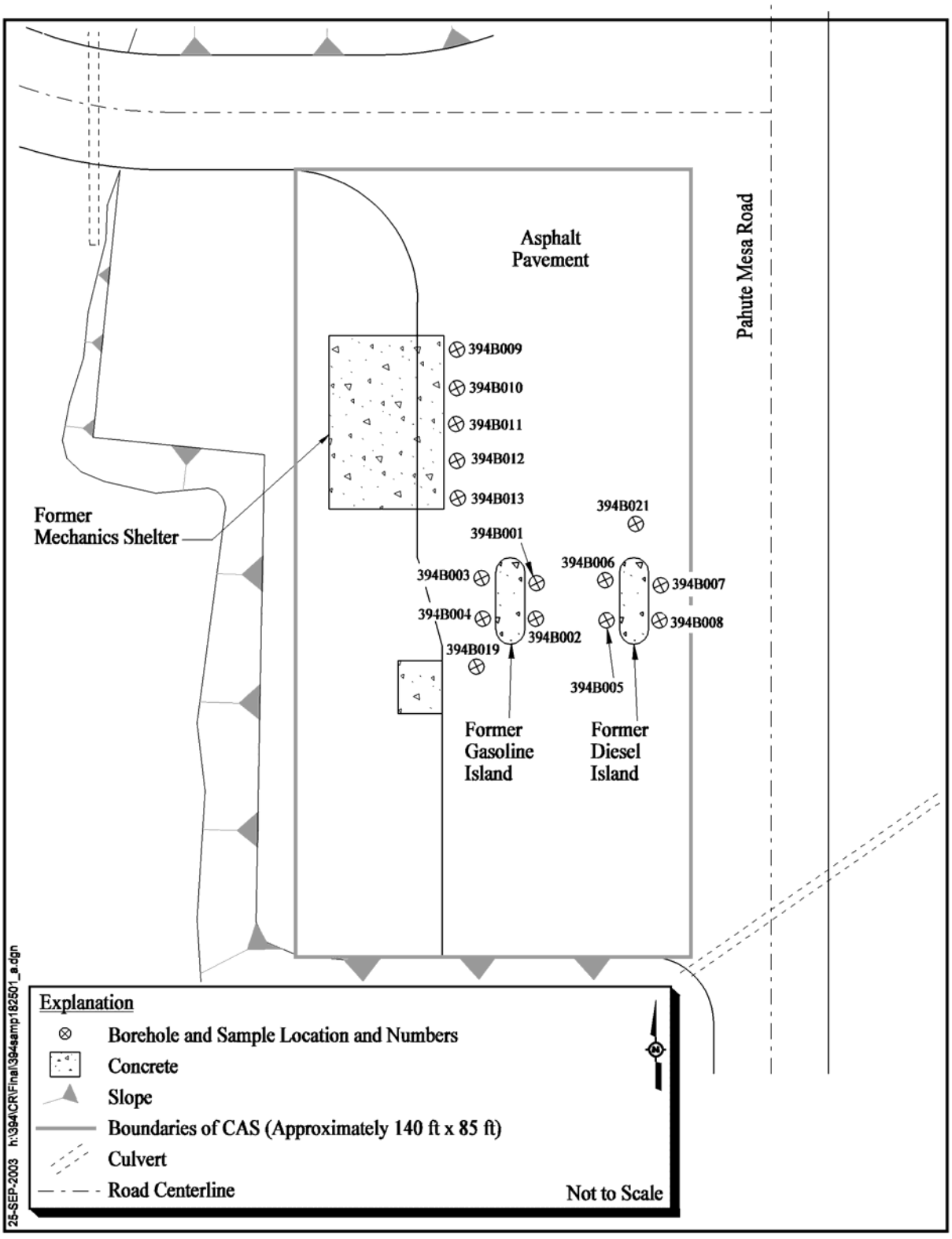


Figure 2-2
CAU 394, CAS 18-25-01, Oil Spills, Area 18 Service Station
Borehole and Sample Locations

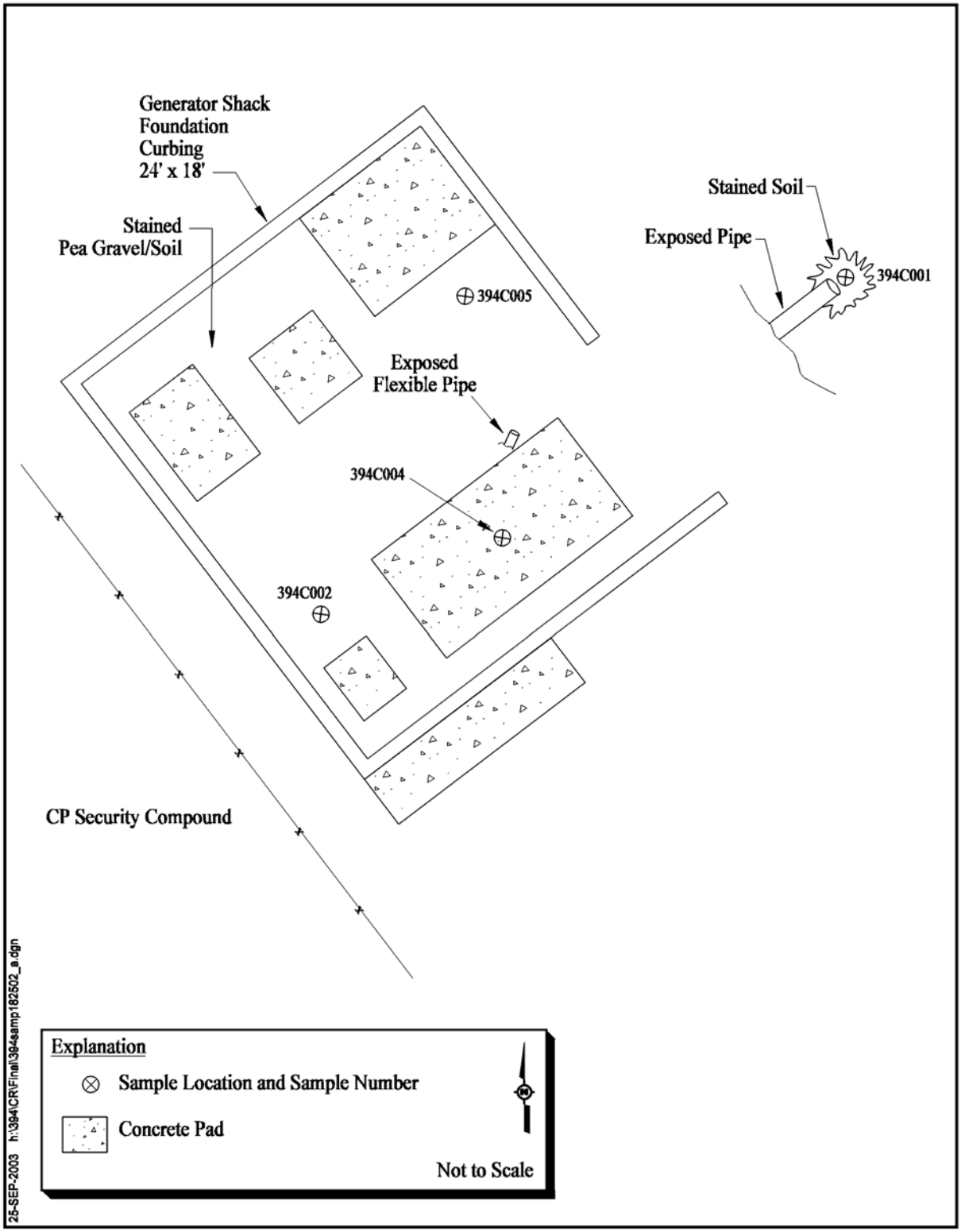


Figure 2-3
CAU 394, CAS 18-25-02, Oil Spills, Pre-Excavation Sample Locations

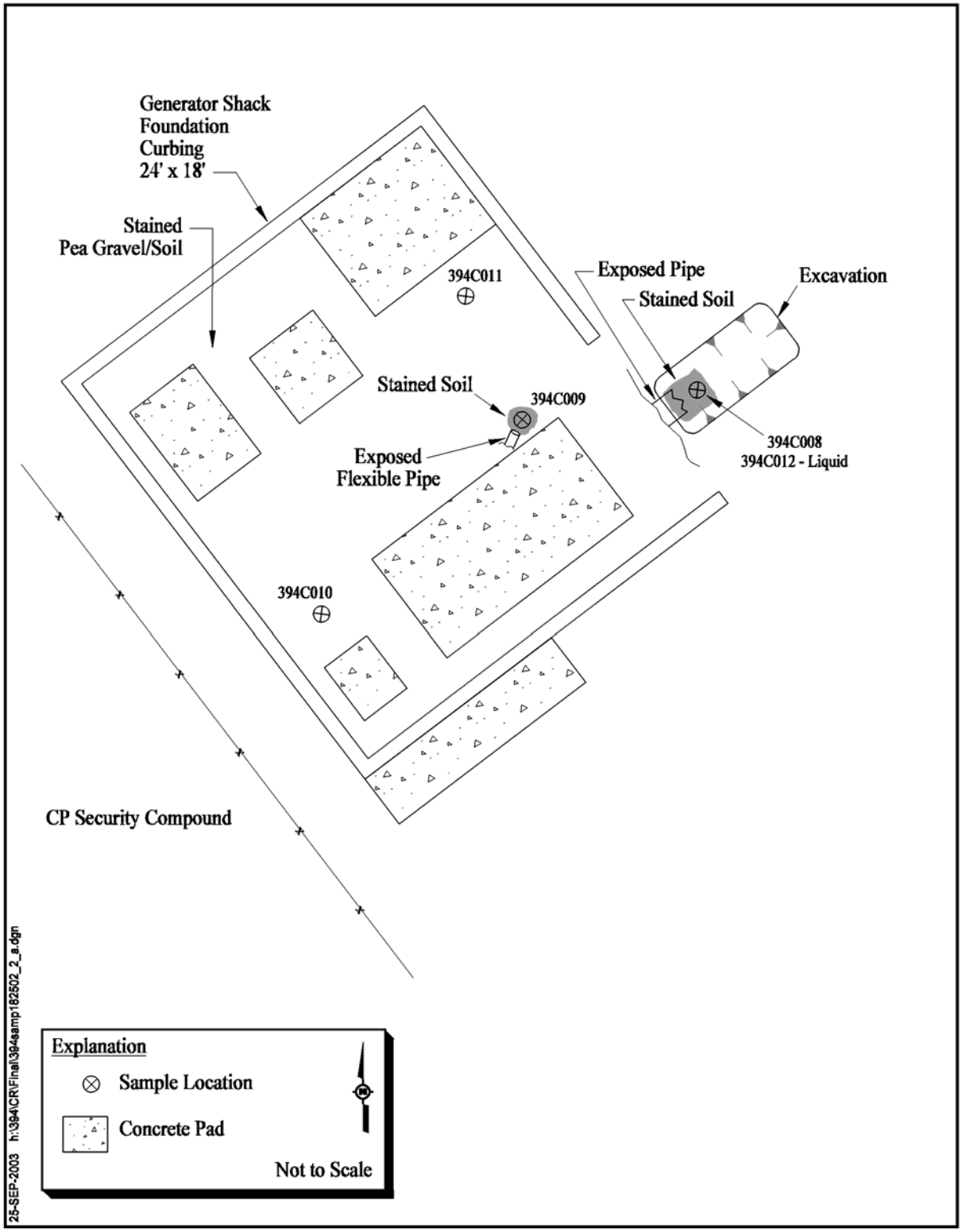
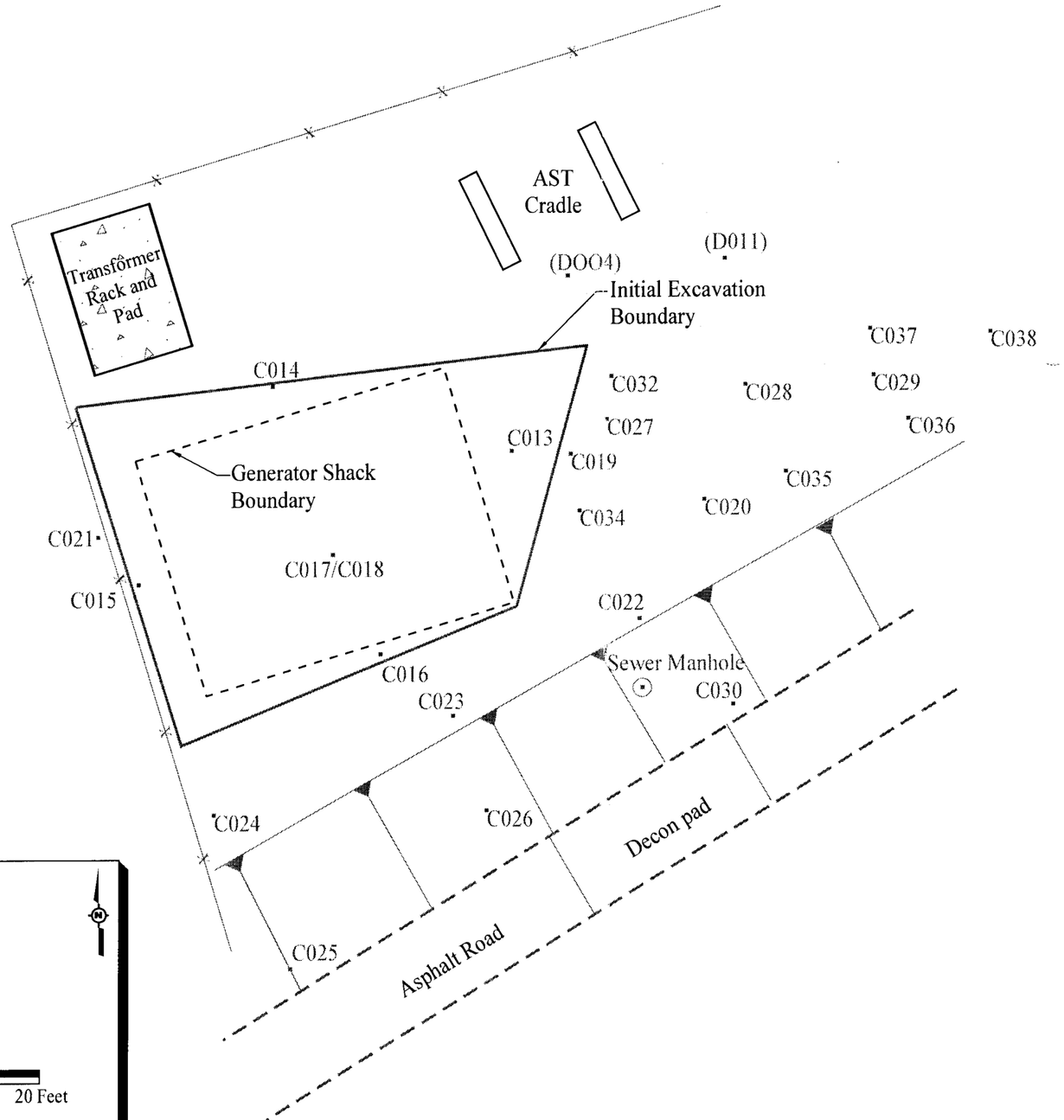


Figure 2-4
CAU 394, CAS 18-25-02, Oil Spills,
Area 18 Generator Shack Phase I Sample Location



Sample ID (Surface)	Analytical Results	
	PCBs (ppm)	TPH (mg/kg)
C013	0.61	7500
C014	0.038	230
C015	0.14	2700
C016	0.098	160
C017	10	15,000
C018	2.4	13,000
C019	270	2300
C020	6.4	1900
C021	0.012	ND
C022	0.98	76
C023	0.17	360
C024	0.02	35
C025	0.029	ND
C026	0.034	650
C027	59	1100
C028	0.57	ND
C029	14	17
C030	0.35	330
*		
C032	1.0	230
C033	0.17	230
C034	76	820
C035	0.069	84
C036	ND	21
C037	0.097	30
C038	ND	ND

Explanation
- Surface Sample Location
- Excavation Boundary
- Generator Shack Boundary

Scale
0 10 20 Feet
0 2 4 Meters

* - Skip in sample # sequence

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Figure 2-5
CAU 394, CAS 18-25-02, Oil Spills,
Initial Excavation, Verification Sampling,
and Additional Characterization Sampling

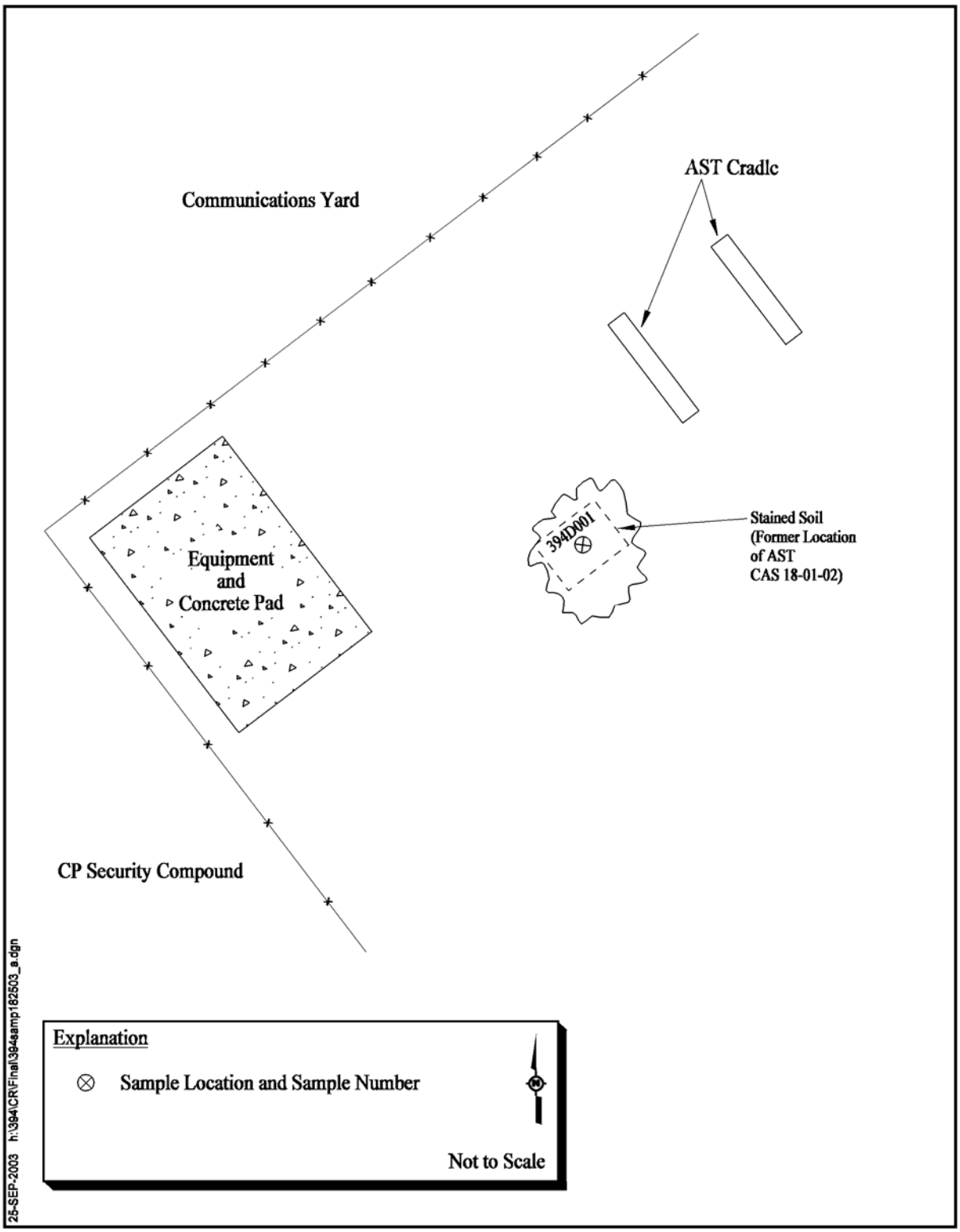

Figure 2-6
CAU 394, CAS 18-25-03, Oil Spill, Pre-Excavation Sample Locations

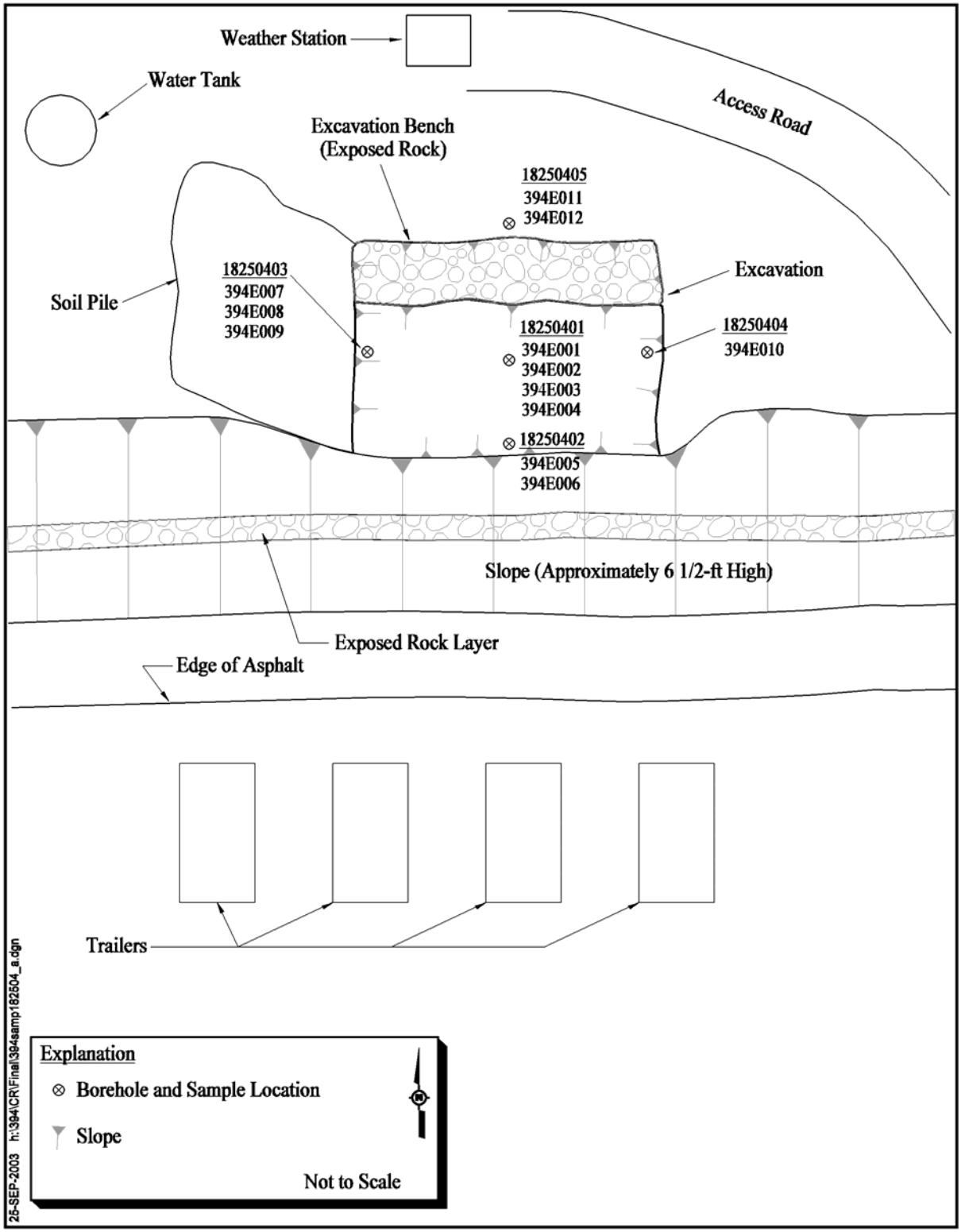

Figure 2-7
CAU 394, CAS 18-25-04, Spill (Diesel Fuel), Pahute Mesa Airstrip
Borehole and Sample Locations

TPH, and alpha and beta/gamma emitters, and submitted for laboratory analyses of COPCs established during the DQO process and presented in the SAFER Plan.

2.1.6 CAS 29-44-01, Fuel Spill

This CAS was categorized into two RECs, which are discussed in the following subsection.

2.1.6.1 CAS 29-44-01 Fuel Spill, RECa - Potential Former AST Location

Eight surface and subsurface soil samples were collected by scoop and hand-auger methods from five biased locations within the AST and radio shack earthen pads (Figure 2-8). Samples were screened for TPH and alpha and beta/gamma emitters, and submitted for laboratory analyses of COC established during the DQO process and presented in the SAFER Plan.

2.1.6.2 CAS 29-44-01 Fuel Spill, RECb - Soil Stain

One surface sample was collected (Figure 2-9) from the center of the stained surface soil and submitted for laboratory analyses of the COPCs established during the DQO process and presented in the SAFER Plan. Removal of the contaminated soil was not successful due to shallow bedrock at 5 inches (in.) bgs. Three screening soil samples were collected from unstained soil locations beyond the perimeter of the visibly stained area. These soil samples were screened for TPH and alpha and beta/gamma emitters.

2.2 Deviations from SAFER Plan as Approved

This section provides a summary of the deviations that were made during SAFER Plan activities.

2.2.1 CAS 12-25-04, UST 12-16-2 Waste Oil Release

Capped piping associated with the UST was identified in the SAFER plan with the objective of cutting the piping flush with the foundation of the Building 12-16. The piping extends to the east from the foundation of Building 12-16 and protrudes within the excavation footprint. Prior to field activities, the open excavation had been backfilled and the piping was buried in place. The piping has not been used since at least the mid 1990s and was capped before the backfilling. Any residual TPH

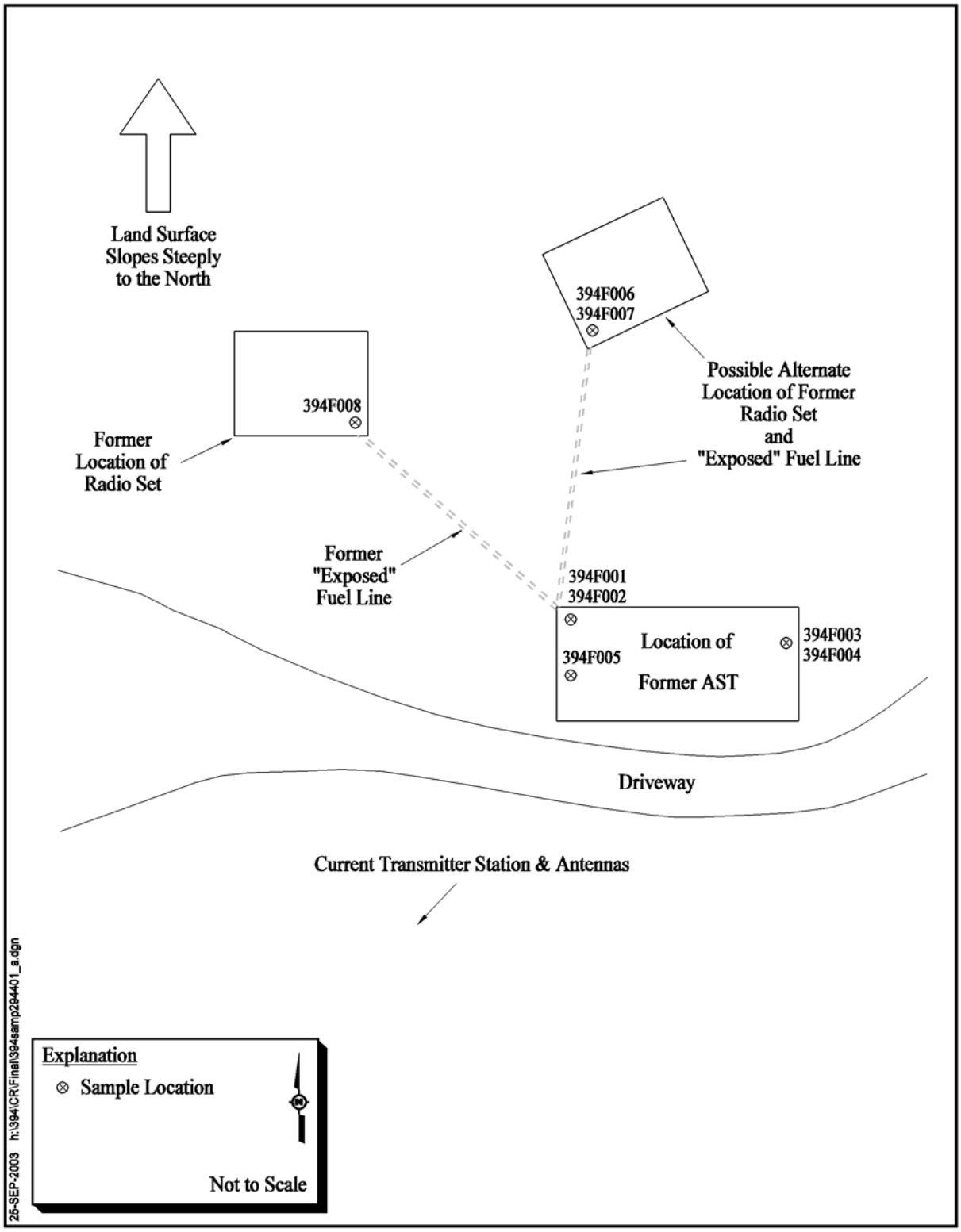

Figure 2-8
CAU 394, CAS 29-44-01, Fuel Spill, RECa Sample Locations

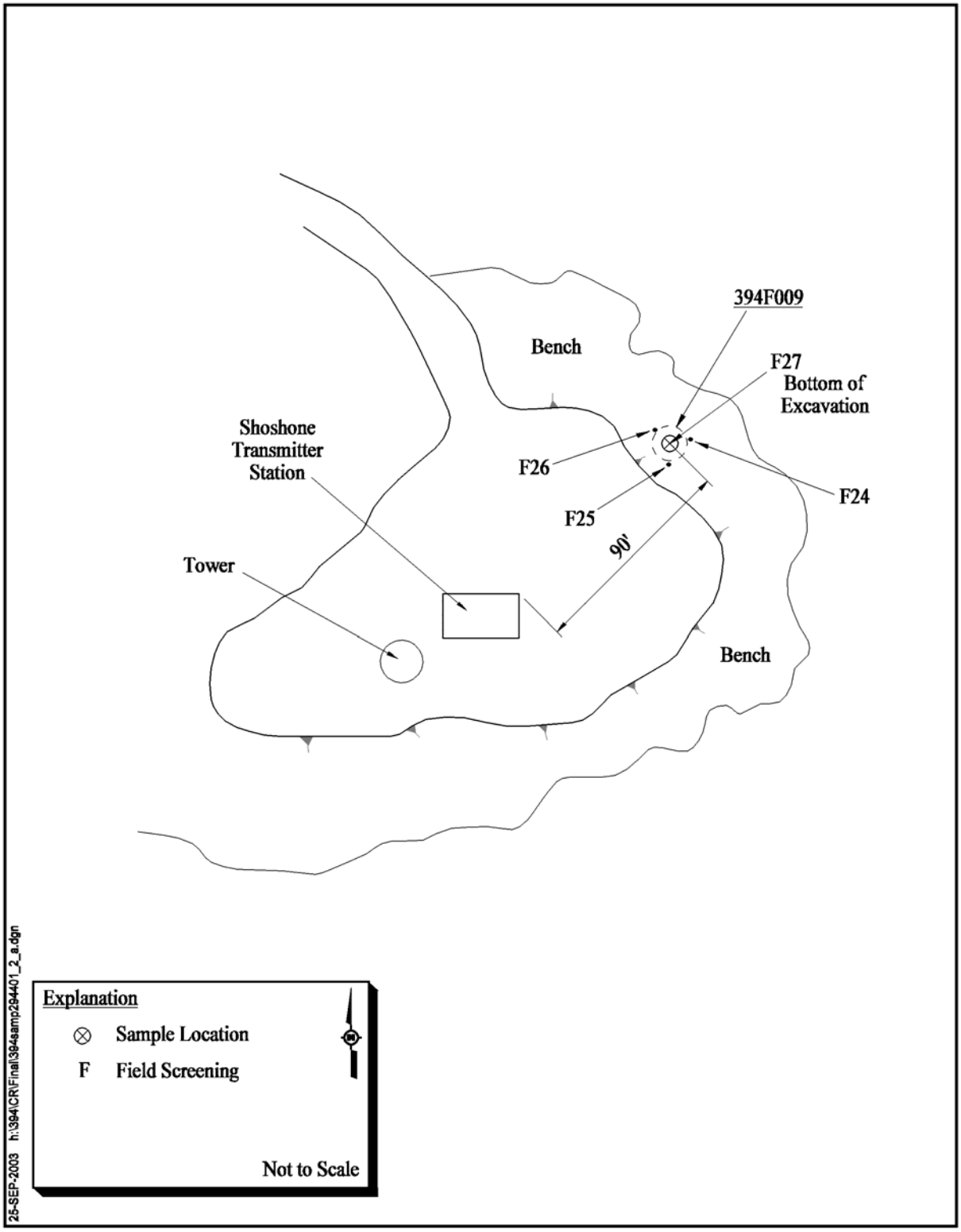

Figure 2-9
CAU 394, CAS 29-44-01, Fuel Spill, RECb Sample Location

is negligible and would biodegrade before posing a risk to anyone or the environment. Therefore, the piping was not investigated.

A metal drain box had been identified in the SAFER Plan. The drain box was located northwest of the former UST location. Prior to field activities, the drain box had been relocated east of the excavation and is no longer associated with this CAS.

2.2.2 CAS 18-25-01, Oil Spills

Corrective Action Site 18-25-01 was established as a Group 2 (no further action) site in the SAFER Plan. However, results from verification sampling indicated concentrations of COCs remained after remediation; therefore, promoting CAS 18-25-01 to Group 3 (close in place). Sufficient data was collected to determine the extent of contamination for closure in place.

2.2.3 CAS 18-25-02, Oil Spills

Corrective Action Site 18-25-02 was established as a Group 1 (clean closure) site in the SAFER Plan. However, results from verification samples indicated concentrations of COCs remained after remediation; therefore, promoting CAS 18-25-02 to Group 3 (close in place). Sufficient data was collected to determine extent of contamination for closure in place.

2.2.4 CAS 18-25-03, Oil Spill

Corrective Action Site 18-25-03 was established as a Group 1 (clean closure) in the SAFER Plan. However, results from verification sampling indicated concentrations of COCs remained after remediation; therefore, promoting CAS 18-25-03 to Group 3 (close in place). Sufficient data was collected to determine extent of contamination for closure in place.

2.2.5 CAS 18-25-04, Spill (Diesel Fuel)

There were no deviations at CAS 18-25-04 from the approved SAFER Plan.

2.2.6 CAS 29-44-01, Fuel Spill

2.2.6.1 CAS 29-44-01, Fuel Spill, RECa - Potential Former AST Location

Corrective Action Site 29-44-01, Fuel Spill, RECa was established as a Group 2 (no further action) site in the SAFER Plan. The Plan stated that samples would be collected at biased locations where staining and/or TPH field-screening results (FSRs) indicated contamination. However, due to the remote location of the site, the field-screening apparatus could not be transported on site, and based on visual observations there was no evidence of a release or contamination. Therefore, the minimum amount of characterization samples were collected and submitted for analysis (Figure 2-8). Subsequent to field activities, TPH screening results indicated that the FSL was exceeded at two screening sample locations that were not submitted for analysis.

2.2.6.2 CAS 29-44-01, Fuel Spill, RECb - Soil Stain

Corrective Action Site 29-44-01, Fuel Spill, RECb was established as a Group 1 (clean closure) site in the SAFER Plan. However, the contaminated material could not be remediated due the presence of shallow bedrock at 5 in. bgs. Results from samples indicated concentrations of COCs above the preliminary action level (PAL) remained after remediation; therefore, CAS 29-44-01, RECb was moved to Group 3 (close in place). Based on minimal risk for contamination migration and health and safety concerns for personnel, mobilizing heavy excavation equipment to the top of the mountain was not pursued. Soil samples were collected to define the extent of lateral contamination by TPH screening. These samples were not submitted to the laboratory for analysis.

2.3 Corrective Action Schedule as Completed

Closure activities were completed as follows:

- Pre-excavation sampling activities at CASs 18-25-02 and 18-25-03 - July 26, 2002.
- Phase I and Phase II sampling activities - August 13 to September 16, 2002.
- Excavation activities at CAS 18-25-03 - September 10, 2002.
- Excavation and verification sampling activities at CAS 18-25-02 - November 4 and November 13, 2002; March 17, 2003; March 22 and 23, 2003; June 30 through July 9, 2003; and August 11 through 13, 2003.

- Phase II sampling activities - January 10, 2003; and February 12, 2003.
- Drilling activities at CAS 18-25-02 - August 11 through 13, 2002.

2.4 Site Plans/Survey Plat

Site plans of CAU 394 CASs are shown in Figure 2-1 through Figure 2-9. Corrective Actions Sites 18-25-02 and 18-25-03 after implementation of the SAFER Plan are shown combined in Appendix C, Figure C.1-3.

3.0 Waste Disposition

Investigation-derived waste was generated during the field activities at CAU 394. The waste streams include decontamination rinse water, disposable personal protection equipment (PPE), field screening, disposable sampling equipment, contaminated soil, and sample screening waste. The types, amounts, and disposal of the wastes are detailed in the following subsections. Newly generated wastes such as rinsate and PPE/sampling debris (plastic/glass) have been characterized based on the associated soil samples and knowledge of the waste generating process. For waste drums not sampled directly and characterized, they were characterized based on process knowledge, and analytical results of the corresponding soil samples. There were no listed constituents except for CAS 12-25-04 (Table 3-1). Site controls were in place to prevent the introduction of hazardous constituents to these waste streams.

Table 3-1
Listed Chemicals for CAS 12-25-04

Chemical Constituent	Chemical Abstract Service Number
Tetrachloroethylene	127-18-4
1,1,1-Trichloroethane	71-55-6

3.1 Waste Minimization

Corrective Action Unit 394 integrated waste minimization into the field activities. The IDW was segregated to the greatest extent possible. Controls were in place to minimize the use of hazardous materials and unnecessary generation of hazardous and/or mixed waste. Decontamination activities were planned and executed to minimize the volume of rinsate generated.

3.1.1 Characterization

Analytical results for each drum of waste or associated samples were reviewed against federal regulations; state regulations; DOE Directives, Policies, and Guidance; Waste Disposal Criteria; and Shaw standard quality practices.

- The IDW generated by site characterization activities at CAU 394 is a solid waste according to Title 40 *Code of Federal Regulations* (CFR) Part 261.2.

- 40 CFR 261.3(a)(2)(iv), 261.4, and 261.6(a)(3) were reviewed to determine if the waste was excluded from regulation as a solid waste or hazardous waste. The waste is not excluded from regulation as a solid waste or hazardous waste.

- Analytical results and knowledge of the waste were used to determine if the waste met criteria as a hazardous waste in Subpart C "Characteristics of Hazardous Waste," as per 40 CFR 261.24, are considered "characteristic" not "listed."

- The F-coded wastes discussed in 40 CFR 261.31, "Hazardous Waste From Non-Specific Sources," are applicable to one of these sites. A historical site record review revealed documentation and process knowledge indicating that "listed" solvent waste was disposed of or released during routine operations at CAS 12-25-04. As a result, the U.S. Environmental Protection Agency (EPA) waste code F002 will be applied to CAS 12-25-04 for detected organic compounds as detailed in Table 3-1.

- K-codes as discussed in 40 CFR 261.32, "Hazardous Wastes From Specific Sources," are not applicable to these sites.

- The P- and U-codes as discussed in 40 CFR 261.33, "Discarded Commercial Chemical Products, Off-Specification Species, Container Residues, and Spill Residues Thereof," are not applicable to these sites.

- The *Toxic Substances Control Act* (TSCA) regulation governs the storage and disposal of PCB waste. Analytical results show regulated PCB levels greater than 50 milligrams per kilograms (mg/kg) as defined at 40 CFR 761.3 were found in the source of the site investigation at CASs 18-25-02/18-25-03.

- Waste mixtures (e.g., PCB waste that also contains a RCRA hazardous waste), were managed in compliance with the applicable regulations of both TSCA and RCRA in accordance with the most restrictive regulation as per 40 CFR 761.1(e).

- The State of Nevada has set a regulatory action limit for hydrocarbon-impacted soils of 100 mg/kg. The TPH-DRO analytical results for each sample are compared to the regulatory limit.

- Soil grab samples were collected and analyzed at background areas surrounding the CASs to establish CAS-specific radiological field screening levels. At least 25 percent of the samples from each CAS were submitted to the laboratory for waste characterization purposes to be analyzed for gamma-emitting radionuclides (uranium-234, uranium-235, plutonium-238, plutonium-239, plutonium-240, and strontium-90).

3.1.2 Waste Streams

The IDW that was generated by site characterization activities at CAU 394 was segregated into the following waste streams:

- PPE and disposable equipment
- Debris including, but not limited to: waste not visible contaminated (visual absence of dirt), such as PPE, sampling equipment, glass/plastic sample jars, sampling scoops, aluminum foil, etc. and other debris such as plastic sheeting, boxes, plastic bags, sand bags, etc.
- Hydrocarbon solids (e.g., soil, PPE, and debris)
- Decontamination rinsate
- Spent methanol (from PCB screening kits)
- PCB remediation waste

3.1.3 Waste Sampling

Waste determinations were made utilizing process knowledge and media sample association. Direct sampling was performed to confirm the regulatory status of the IDW.

3.2 Storage

The IDW generated was managed within four Hazardous Waste Accumulation Areas (HWAAs), and five Satellite Accumulation Areas (SAAs). Potentially, hazardous waste generated during the investigation was packed in 55-gallon U.S. Department of Transportation (DOT) specification steel drums, labeled as "Hazardous Waste - Pending Analysis." The amount, type, and source of waste placed into each drum was recorded in waste management logbooks at each location. All waste is traceable to associated sample media. Waste accumulation areas were inspected regularly as required by federal regulation and internal procedures (CFR, 2000a).

3.3 Waste Disposal

A total of 28 drums were generated during this investigation:

- Three drums were characterized as PCB-contaminated (remediation) waste. In addition, approximately 590,000 kg of PCB-contaminated waste was sent off for off-site disposal as bulk waste. All PCB-contaminated waste was generated from investigation activities at CASs 18-25-02/18-25-03. Waste manifests are included in Appendix E.

- Seven drums were characterized as sanitary PPE/debris. Pickup and disposal request for this waste stream is intended for the industrial waste landfill.

- Two drums were characterized as hydrocarbon soil, and PPE/debris. Pickup and disposal request for this waste stream is intended for the hydrocarbon waste landfill.

- Twelve drums were characterized as sanitary rinsate waste from the decontamination process. Pickup and disposal request for this waste stream is intended for the sanitary lagoon.

- Three drums were characterized as hydrocarbon rinsate waste from the decontamination process. The phases are intended to be separated by the oil/water separator where the oil will be recycled and the water discharged to the lagoon.

- One drum of hazardous waste was generated due to spent methanol from the PCB screening kits. Pickup and disposal request for this waste stream is intended for the Treatment, Storage, and Disposal Facility.

4.0 Closure Verification Results

Summary characterization data from the closure activities (Appendix A) are provided in Section 4.1. This information satisfies the information requirements identified by the DQOs and identifies those COPCs that exceed PALs (DOE/NV, 2001). Section 4.1.8 summarizes the data quality assessment, which determines whether the data collected supports their intended use in the decision making process. Section 4.2 summarizes the land-use restrictions for each CAS.

Chemical results for characterization sample concentrations exceeding PALs and radiological results for characterization sample concentrations greater than, and statistically distinguishable from, background concentrations are summarized below for each CAS and presented in Appendix B.

Laboratory analyses for samples collected typically included total volatile organic compounds (VOCs), total semivolatile organic compounds (SVOCs), total *Resource Conservation and Recovery Act* (RCRA) metals, and TPH (diesel-range organics [DRO] and gasoline-range organics [GRO]), and PCBs. Additional analysis for Toxicity Characteristic Leaching Procedure (TCLP) VOC, TCLP RCRA metals, gamma spectrometry, isotopic plutonium, and isotopic uranium were performed to support waste management decisions.

Arsenic was detected above the PAL of 2.7 milligram per kilogram (mg/kg) in many of the soil samples analyzed from this CAU. Arsenic concentrations ranged from not detected above the minimum reporting limits to 11.4 mg/kg. There is one higher concentration detected, 57.2 mg/kg, but this sample was consisted of soil, rust, and metal scraped from the top of a concrete pad and is not a representative soil sample. The mean concentration of arsenic in silt from the Nevada Test and Training Range (NTTR) (formerly the Nellis Air Force Range) ranges from 7 to 8 mg/kg (NBMG, 1998; Moore, 1999). Arsenic concentrations in samples from CAU 394 are considered representative of ambient conditions at the site; therefore, arsenic is not considered to be a COC for soil at this CAU.

4.1 Data Quality Assessment

An assessment of CAU 394 closure results was performed to determine whether the data collected met the DQOs and could support their intended use in the decision-making process. The assessment,

provided in Appendix A, includes the evaluation of the DQIs to determine the degree of acceptability and usability of the reported data in the decision-making process. Additionally, a reconciliation of the data with the conceptual site model (CSM) established for this project was conducted. Conclusions were validated based on the results of the quality assurance (QA)/quality control (QC) measurements provided in Appendix B.

Meeting the DQI goals supports acceptance of the CAU 394 datasets for meeting the DQOs established for this project and the subsequent use of this data in the decision-making process.

The CSM presented in the CAU 394 SAFER Plan was the basis for the sample collection designs used for the closure. If information generated during the closure had required a significant change in the CSM, the sampling design may not have been adequate to meet the DQOs. The reconciliation of CAU 394 closure results to the established CSMs supports the assumptions documented in the models and demonstrates representativeness. The sampling configuration generated sufficient information required to support the corrective action decision.

Chemical results for characterization sample concentrations exceeding PALs and radiological results for characterization sample concentrations greater than and distinguishable from background concentrations (DOE/NV, 1998; DOE/NV, 2001) are summarized below for each CAS.

4.1.1 CAS 12-25-04, UST 12-16-02 Waste Oil Release

The SAFER Plan was implemented through the collection and analyses of 16 subsurface soil samples from 5 boreholes, defining the extent of contamination.

Arsenic and TPH-DRO were the only COCs present at the CAS with concentrations above the PALs. The concentrations of arsenic were above the PAL, but were within the range considered representative of ambient conditions at the site; therefore, arsenic is not considered to be a COC for soil at this CAU.

Verification sampling in the center of the backfilled excavation indicated that concentrations of TPH-DRO that exceeded PAL at a depth of 6 ft bgs. Verification samples confirm that the extent of contamination does not extend laterally beyond 30 ft north and 35 ft south of the center of the excavation. Contamination does not appear to be present below 20 ft bgs. There was a TPH

concentration exceeding the PAL in the borehole 75 ft north of the excavation at a depth of 8 ft bgs, but is believed to be from a source not associated with this CAS, the former UST. The source of the release has been removed. Removal of Building 12-16 and the backfilling of the open excavation has also reduced infiltration of storm water and increased precipitation runoff; therefore, limiting any contamination migration.

The DQIs, as discussed in Appendix A, were achieved. The DQOs established in the SAFER Plan and summarized in Section 1.3.2 of this CR were met.

4.1.2 CAS 18-25-01, Oil Spills, Area 18 Service Station

The SAFER Plan was implemented through the collection and analyses of 15 subsurface samples and associated QC samples at CAS 18-25-01.

Verification sampling at 3 of the 15 locations indicated that concentrations of TPH-DRO exceeded the PAL at the sample depth 3.0 to 4.0 ft bgs. Additional verification samples, from step-out locations, confirmed that the extent of contamination does not extend laterally to the north or south of the step-out sample locations. The extent of contamination was defined. The preferred closure alternative was determined to be closure in place with use restrictions because there is moderate contamination several feet below ground surface and there is a layer of asphalt at the surface. The TPH-DRO contamination will pose only minimal risk.

The DQIs, as discussed in Appendix A, were achieved. The DQOs established in the SAFER Plan and summarized in Section 1.3.2 of this CR were met.

4.1.3 CAS 18-25-02, Oil Spills, Area 18 Generator Shack

The SAFER Plan was implemented through the collection and analyses of surface and subsurface soil samples, excavation of the COCs, and collection of verification samples to confirm the removal of the COCs. Analytical results from the verification samples indicated concentrations of PCB and TPH exceeding the PALs. Additional step-out location samples were collected and analyzed, defining the extent of contamination for the COCs. Further excavation of the COCs at CAS 18-25-02 was conducted and the analytical results from the verification samples collected indicated that PCBs exceeding the PAL was removed. However, TPH contamination remains above the PAL. Because

CASs 18-25-02 and 18-25-03 are contiguous, the remaining TPH contamination will require close in place with one use restriction applying to both CASs 18-25-02 and 18-25-03.

The DQIs, as discussed in Appendix A, were achieved. The DQOs established in the SAFER Plan and summarized in Section 1.3.2 of this CR were met.

4.1.4 CAS 18-25-03, Oil Spill, Area 18 Generator Shack AST

The SAFER Plan was implemented through the collection and analyses of nine surface soil samples, excavation of the stained soil, and collection of verification samples and associated QC samples at CAS 18-25-03.

The concentration of arsenic was above the PAL in one of the nine soil samples taken, but was within the range considered representative of ambient conditions at the site; therefore, arsenic is not considered to be a COC for soil at this CAU.

Verification sampling at two of the seven locations indicated that concentrations of TPH-DRO exceeded the PAL. At one location where soil was excavated, the sample was taken at a depth of 1.7 to 2.0 ft bgs. All the other samples were taken at the surface, 0 to 0.5 ft bgs. Therefore, two additional verification samples were taken from step-out locations and confirmed that the extent of contamination does not extend laterally and down gradient of the contamination. The extent of contamination was defined. The preferred closure alternative was determined to be closure in place with use restrictions because there is moderate contamination several feet below ground surface and the TPH-DRO contamination will pose only minimal risk. Because CASs 18-25-02 and 18-25-03 are contiguous, the remaining TPH contamination will be closed in place with one use restriction applying to both CASs 18-25-02 and 18-25-03.

The DQIs, as discussed in Appendix A, were achieved. The DQOs established in the SAFER Plan and summarized in Section 1.3.2 of this CR were met.

4.1.5 CAS 18-25-04, Spill (Diesel Fuel), Pahute Mesa Airstrip

The SAFER Plan was implemented through the collection and analyses of 10 subsurface samples from 5 soil borings and associated QC samples at CAS 18-25-04.

Verification sampling of the locations indicated that concentrations of TPH-DRO did not exceed the PAL.

The DQIs, as discussed in Appendix A, were achieved. The DQOs established in the SAFER Plan and summarized in Section 1.3.2 of this CR were met.

4.1.6 CAS 29-44-01, Fuel Spill

4.1.6.1 CAS 29-44-01, Fuel Spill, RECa - Shoshone Transmitter Station AST

The SAFER Plan was implemented through the collection and analyses of eight surface and subsurface samples and associated QC samples at CAS 29-44-01 RECa.

Verification sampling at one of the eight locations indicated that concentrations of TPH-DRO exceeded the PAL at the surface. The extent of contamination was defined. The preferred closure alternative was determined to be closure in place with use restrictions because there is moderate contamination at the surface and the TPH-DRO contamination will pose only minimal risk.

The DQIs, as discussed in Appendix A, were achieved. The DQOs established in the SAFER Plan and summarized in Section 1.3.2 of this CR were met.

4.1.6.2 CAS 29-44-01, Fuel Spill, RECb - Shoshone Transmitter Station Soil Stain

The SAFER Plan was implemented through the collection and analyses of one surface sample and soil screening samples at CAS 29-44-01 RECb.

The concentration of arsenic was above the PAL, but was within the range considered representative of ambient conditions at the site; therefore, arsenic is not considered to be a COC for soil at this CAU.

Verification sampling at center of the stain indicated that concentrations of TPH-DRO exceeded the PAL at the surface. The lateral and vertical extent of contamination was defined by the three soil screening samples taken at the edge of the stain and the shallow bedrock, 5 in. bgs. The preferred closure alternative was determined to be closure in place with use restrictions because there is moderate contamination at the surface and the TPH-DRO contamination will pose only minimal risk.

The DQIs, as discussed in Appendix A, were achieved. The DQOs established in the SAFER Plan and summarized in Section 1.3.2 of this CR were met.

4.1.7 Data Quality Assessment Summary

An assessment of CAU 394 investigation results was performed to determine whether the data collected met the DQOs and could support their intended use in the decision-making process. The assessment, provided in Appendix A, includes an evaluation of the DQIs to determine the degree of acceptability and usability of the reported data in the decision-making process. Additionally, an evaluation of the data with the CSMs established for this project was conducted. Conclusions were validated based on the results of the QA/QC measurements provided in Appendix A.

The results of the assessment indicate that the DQI goals for precision, accuracy, completeness, representativeness, comparability, and sensitivity have been achieved, except for TPH completeness for benzene in asphalt samples at CAS 18-25-01 (discussed in Section A.1.1.3). Precision and accuracy of the datasets were demonstrated to be high. Evaluation of completeness indicates that sufficient information was collected to support decisions and meet the DQOs.

Representativeness of site characteristics was achieved by sampling according to the SAFER Plan. Comparability of CAU 394 results to PAL databases was ensured through the use of standard analytical methods and QA requirements. The quantitation limits and detection limits reported by the laboratory were validated during the data validation process and were at low enough concentrations to meet sensitivity requirements. Meeting DQI goals supports acceptance of the CAU 394 datasets for meeting the DQOs established for this project and the subsequent use of this data in the decision-making process.

The CSMs presented in the CAU 394 SAFER Plan were the basis for determining sample location and collection for the investigation. The evaluation of CAU 394 investigation results to the established CSMs supports the assumptions documented in the models and demonstrates representativeness. Sufficient information was generated by the sampling plan to support the corrective action decision.

4.2 Use Restrictions

Analytes detected in soil during the corrective action activities at CAS 18-25-04 were evaluated against PALs and it was determined that no COCs were present. Therefore, no further action is necessary for soil at this CAS in CAU 394 and no use restriction is required.

Risk evaluations (a-k) NAC 459.9973 (NAC, 2000c) were completed for CASs 12-25-04, 18-25-01, 18-25-02, 18-25-03, and 29-44-01 (a and b) and are in Appendix H. Specific information and map location relating to the imposed use restriction for each CAS is in Appendix G.

Use restriction signs for CAU 394 will read: "Warning, underground petroleum hydrocarbon contamination. Contact Environmental Restoration (295-7946) before working in this area. FFACO CAU 394."

4.2.1 CAS 12-25-04, UST 12-16-02 Waste Oil Release

Subsurface contamination associated with a former UST has been identified and exceeds the PALs for TPH at a depth of 6 ft bgs. Sufficient verification sampling indicated that the TPH-contaminated soil is contained, both laterally and vertically, in the CAS. The TPH soil contamination of this CAS, in borehole 12250403 at 8 ft bgs, is believed to have originated from a source not associated with this CAS. Two use restriction signs, each mounted on a permanent post/pole, will be placed at selected locations around the contamination. The use restriction for CAS 12-25-04 is in Appendix G.

4.2.2 CAS 18-25-01, Area 18 Service Station, Oil Spills

Subsurface contamination associated with the former gasoline and diesel islands has been identified and exceeds the PAL for TPH-DRO at a depth of 3 to 4 ft bgs. Verification samples from step-out locations confirm that the extent of contamination is contained within this CAS. A single use restriction sign was mounted on a permanent post/pole and placed at a selected location within the CAS. The use restriction for CAS 18-25-01 is in Appendix G.

4.2.3 CAS 18-25-02, Area 18 Generator Shack, Oil Spills

Subsurface contamination associated with a former generator shack, transformer pad and rack, and stained soil from AST cradles has been identified and exceeds the PAL for TPH-DRO. The

contaminated areas of the CASs are associated with and adjacent to each other and will be combined under a single use restriction. Two sides of the combined area are bounded by chain-link fencing. Two use restriction signs, each mounted on a permanent post/pole, were placed at the unfenced sides of the CASs.

4.2.4 CAS 18-25-03, Area 18 Generator Shack AST, Oil Spills

Surface and subsurface contamination associated with the former AST has been identified and exceeds the PAL for TPH-DRO at a depth of 1.7 to 2 ft bgs at one location and at the surface at another location. Verification samples from step-out locations confirm that the extent of TPH contamination is contained within this CAS. The use restriction for CAS 18-25-02 is in Appendix G.

4.2.5 CAS 29-44-01, Fuel Spill

4.2.5.1 CAS 29-44-01, Fuel Spill, RECa - AST Fuel Spill, Shoshone Transmitter Station

Surface contamination associated with a potential former AST has been identified and exceeds the PAL for TPH-DRO at one location. The extent of contamination is contained within this CAS. A single use restriction sign was mounted on a permanent post/pole and placed at a selected location within the earthen AST pad. The use restriction for CAS 29-44-01 RECa is in Appendix G for CAS 29-44-01 (i.e., consolidated with RECb).

4.2.5.2 CAS 29-44-01, Fuel Spill, Soil Stain RECb-Shoshone Transmitter Station

Surface contamination associated with stained soil has been identified and exceeds the PAL for TPH-DRO. The extent of contamination is contained within this CAS. A single use restriction sign was mounted on a permanent post/pole and placed directly in the center of the stained soil. The use restriction for CAS 29-44-01 RECb is in Appendix G for CAS 29-44-01 (i.e., consolidated with RECa).

5.0 Conclusions and Recommendations

Based on the results of the closure activities discussed in Appendix A, no further cleanup activities are necessary for CAU 394.

The U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office (NNSA/NSO) provides the following recommendations:

- No further corrective action is required at CAS 18-25-04.
- Closure in place is required at CASs 12-25-04, 18-25-01, 18-25-02, 18-25-03, and 29-44-01.
- No Corrective Action Plan is required for CAU 394.
- Use restrictions are required at CASs 12-25-04, 18-25-01, 18-25-02, 18-25-03, and 29-44-01.
- A Notice of Completion is requested from the Nevada Division of Environmental Protection (NDEP) for the closure of CAU 394.
- Corrective Action Unit 394 should be moved from Appendix III to Appendix IV of the *Federal Facility Agreement and Consent Order.*

5.1 Justification for No Further Action

Sample results for CAS 18-25-04 from the center and the surrounding edges of the excavation verified that COCs were not present in concentrations exceeding PALs. Therefore, the closure option of no further action is recommended.

5.2 Justification for Closure in Place

For CASs 12-25-04, 18-25-01, 18-25-02, 18-25-03, and 29-44-01 COCs were detected in concentrations exceeding the PAL for TPH-DRO. The nature, extent, and concentration of TPH-DRO were bounded by sampling and shown to be within the CSM boundaries.

5.2.1 CAS 12-25-04, UST 12-16-02 Waste Oil Release

Sample results from the location of the former UST verified that the TPH-DRO was present in concentrations that exceeded the PAL. The criteria for the closure option of no further action was not

met. Sampling successfully defined the nature and extent of TPH-DRO contamination. The criteria for closure in place with an use restriction have been met.

5.2.2 CAS 18-25-01, Oil Spills, Area 18 Service Station

Sample results from the location of the former pump islands verified that TPH-DRO was present in concentrations that slightly exceeded the PAL. The criteria for the closure option of no further action was not met. Sampling successfully defined the nature and extent of TPH-DRO contamination. The criteria for closure in place with an use restriction have been met.

5.2.3 CAS 18-25-02, Oil Spills; and CAS 18-25-03, Oil Spill, Generator Shack

Sample results from the verification samples within the excavation and at various step-out sample locations verified that TPH-DRO is present in concentrations that exceeded the PALs. The criteria for the closure option of clean closure was not met. Therefore, CASs 18-25-02 and 18-25-03 were moved to Group 3 and the extent of contamination defined.

5.2.4 CAS 18-25-04, Spill (Diesel Fuel), Pahute Mesa Airstrip

Sample results from various depths at borehole locations in and around the excavation of TPH-DRO contaminated soils verified that concentrations in remaining soil do not exceed the PAL. The criteria for the closure option of no further action was met.

5.2.5 CAS 29-44-01, Fuel Spill, Shoshone Transmitter Station AST and Soil Stain

Sample results from the earthen AST pads verified that TPH-DRO is present in concentrations that exceed the PAL. The criteria for the closure option of no further action was not met. Sampling successfully defined the nature and extent of the TPH-DRO contamination; therefore, the criteria for closure in place with an use restriction have been met.

Sample results from the stained soil verified that TPH-DRO is present in concentrations that exceed the PAL. The criteria for the closure option of no further action was not met. Sampling successfully defined the nature and extent of the TPH-DRO contamination; therefore, the criteria for closure in place with an use restriction have been met.

6.0 References

CFR, see *Code of Federal Regulations.*

Code of Federal Regulations. 2000a. 40 CFR 260-268, "Hazardous Waste Management." Washington, DC: U.S. Government Printing Office.

Code of Federal Regulations. 2000b. 40 CFR Part 761, "Polychlorinated biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibition." Washington, DC: U.S. Government Printing Office.

Code of Federal Regulations. 2000c. 49 CFR 172, "Hazardous Materials Table, Special Provisions, Hazardous Material Communications, Emergency Response Information, and Training Requirements." Washington, DC: U.S. Government Printing Office.

Federal Facility Agreement and Consent Order. 1996 (as amended). Agreed to by the State of Nevada, the U.S. Department of Energy, and the U.S. Department of Defense.

Holmes & Narver, Inc. 1974. As-built engineering drawing 029-077-E1.2, entitled, "Nevada Test Site - Area 29, Xmtr./Rcvr. & Gen. Facil., Shoshone Mtn. Site Plans," 31 October. Las Vegas, NV.

Moore, J., Science Applications International Corporation. 1999. Memorandum to M. Todd (SAIC), entitled, "Background Concentrations for NTS and TTR Soil Samples," 3 February. Las Vegas, NV: IT Corporation.

Nevada Administrative Code. 2000a. NAC 445A.2272, "Contamination of Soil: Establishment of Action Levels." Carson City, NV.

Nevada Administrative Code. 2000b. NAC 445A.945, "Waste Containing PCBs." Carson City, NV.

Nevada Administrative Code. 2000c. NAC 459.9973, "Presence of Excessive Petroleum in Soil: Evaluation, Assessment of Risk; Corrective Action." Carson City, NV.

Nevada Bureau of Mines and Geology. 1998. *Mineral and Energy Resource Assessment of the Nellis Air Force Range,* Open-File Report 98-1. Prepared by J.V. Tingley, S.B. Castor, S.I. Weiss, L.J. Garside, J.G. Price, D.D. LaPointe, H.F. Bonham, and T.P. Lugaski. Reno, NV.

Perkins, B., IT Corporation. 2001. Record of meeting with Robert Boehlecke (ITLV) concerning CAS 18-25-04, Pahute Mesa Airstrip Diesel Spill, 2 April. Las Vegas, NV.

REECo, see Reynolds Electrical & Engineering Co., Inc.

Reynolds Electrical & Engineering Co., Inc. 1991. *Excerpt from a log kept by an unidentified REECo employee for calendar year 1991.* Available from the Shaw Technical Information Center, Reference 9702. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1994. *Project Management Plan*, Rev. 0. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1996a. *Final Environmental Impact Statement for the Nevada Test Site and Offsite Locations in the State of Nevada*, DOE/EIS--0243. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1996b. *Industrial Sites Quality Assurance Project Plan, Nevada Test Site, Nevada*, Rev. 1, DOE/NV--372. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1998. *Nevada Test Site Resources Management Plan,* DOE/NV--518. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 2001. *Streamlined Approach for Environmental Restoration (SAFER) Plan for Corrective Action Unit 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada,* DOE/NV--755. Las Vegas, NV.

Appendix A

DQOs as Developed in the SAFER Plan for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada

A.1.0 Data Assessment

This appendix provides a summary of the assessment of CAU 394 data validation results for each DQI. In addition, an evaluation of the data with generalized CSMs established for this project is provided.

A.1.1 Statement of Acceptability and Usability

This section provides an evaluation of the DQIs in determining the degree of acceptability and usability of the reported data in the decision-making process.

Data were evaluated against specific criteria to verify the achievement of DQI goals established to meet the project DQOs as provided in the Industrial Sites QAPP (DOE/NV, 1996) and the CAU 394 SAFER Plan (DOE/NV, 2001). The DQIs for this project include precision, accuracy, completeness, representativeness, and comparability.

A.1.1.1 Precision

Precision is a measure of agreement among a replicate set of measurements of the same property under similar conditions. This agreement is expressed as the relative percent difference (RPD) between duplicate measurements (EPA, 1996). The RPD is determined by dividing the difference between the replicate measurement values by the average measurement value and multiplying the result by 100, or:

$$RPD = \{*a_1 - a_2*/[(a_1 + a_2)/ 2]\} \times 100,$$

where

a_1 = the sample value, and
a_2 = the duplicate sample value.

Determinations of precision can be made for field samples, laboratory duplicates, or both. For field samples, duplicates are collected simultaneously with a sample from the same source under similar conditions in separate containers. The duplicate sample is treated independently of the original

sample in order to assess field impacts and laboratory performance on precision through a comparison of results. Laboratory precision is evaluated as part of the required laboratory internal QC program to assess performance of analytical procedures. The laboratory sample duplicates are an aliquot or subset of a field sample generated in the laboratory. They are not a separate sample but portions of an existing sample. Typically, other laboratory duplicate QC samples include matrix spike duplicate (MSD) and laboratory control sample duplicate (LCSD) samples.

The variability in the results from the analysis of field duplicates is generally greater than the variability in the results of laboratory duplicates. This higher variability for field duplicates results from the increased potential to introduce factors influencing the analytical results during sampling, sample preparation, containerization, handling, packaging, preservation, and environmental conditions before the samples reach the laboratory. Laboratory QC samples assess only the variability of results introduced by sample handling and preparation in the laboratory and by the analytical procedure, which also impacts field duplicates. In addition, the variability in duplicate results is expected to be greater for soil samples than water samples, primarily due to the inherent nonhomogeneous nature of soil samples, despite sample preparation methods that include mixing to improve sample homogeneity.

A.1.1.1.1 Precision for Chemical Analysis

The RPD criteria used for assessment of laboratory sample duplicate precision for analytical results of samples collected at CAU 394 were established as follows: Inorganic analysis RPD criteria is obtained from the U.S. Environmental Protection Agency (EPA) *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA, 1994); Organic analysis RPD criteria is established by the laboratory to evaluate precision for MSD and LCSD analyses. The control limits are evaluated at the laboratory on a quarterly basis by monitoring the historical data and performance for each method. No review criteria for organic field duplicate RPD comparability have been established; therefore, the laboratory MSD RPD criteria is applied for precision evaluation of field duplicates.

Precision values for organic and inorganic analysis that are within the established control criteria indicate that analytical results for associated samples are valid. Laboratory duplicate RPD values that are outside the criteria for organic analysis do not necessarily result in the qualification of analytical

data. It is only one factor in making an overall judgement about the quality of the reported analytical results. Inorganic laboratory duplicate RPD values outside the established control criteria do result in the qualification of associated analytical results as estimated. Field Duplicate RPD values that are outside the criteria for organic and inorganic analyses do not result in the qualification of analytical data. Out of control RPD values do not necessarily indicate that the data is not useful for the purpose intended; however, it is an indication data precision should be considered for the overall assessment of the data quality and potential impact on data application in meeting project site characterization objectives. Method-specific precision as RPD is determined by taking the number of measurements within criteria, dividing that by the number of measurements analyzed, and multiplying by 100.

For the purpose of determining data precision of sample analyses for CAU 394, all water and soil samples, including field QC samples (i.e., trip blanks, equipment rinsate samples, field blanks) were evaluated and incorporated into the precision calculation.

Precision for the measurement of target compounds or analytes collected at CAU 394 was determined for RCRA metals and beryllium, TCLP metals, SVOCs, VOCs, TCLP VOCs, PCBs, and TPH-DRO, and TPH-GROs.

Table A.1-1 and Table A.1-2 provide the field and laboratory duplicate precision analysis results.

Inorganic laboratory duplicate RPD values outside the established control criteria result in estimation for that measurement of all associated samples in the sample delivery group (SDG). For example, if a laboratory duplicate had an RPD value for lead outside the established control criteria, lead results for all of the samples in that SDG would be qualified as estimated.

Out of control RPD values do not necessarily indicate that the data is not useful for the purpose intended. It does indicate that precision should be considered for the overall assessment of the data quality and impact to the application of associated data to meeting the project's objectives.

A.1.1.1.2 Precision for Radiological Analysis

The precision of radiochemical measurements is evaluated by measuring two aliquots of a sample and comparing the results. A laboratory duplicate is measured with every batch of samples analyzed by the laboratory. Field duplicate data is available when two aliquots of a sample are submitted to the

Table A.1-1
Chemical Precision Measurements for CAU 394

	Organics					Inorganics	
	VOCs	SVOCs	TPH-DRO	TPH-GRO	PCBs	Metals[a]	Mercury
Matrix Spike Duplicate (MSD) Precision							
Total Number of MSD Measurements	45	77	16	7	28	14	2
Total Number of RPDs within Criteria	44	77	16	7	28	14	2
MSD% Precision	97.78	100	100	100	100	100	100
Laboratory Control Sample Duplicate (LCSD) Precision							
Total Number of LCSD Measurements	129	88	13	14	36	70	11
Total Number of RPDs within Criteria	129	87	13	14	36	70	11
LCSD% Precision	100	98.86	100	100	100	100	100
Field Duplicate (FD) Precision							
Total Number of FD Measurements	259	323	14	3	98	35	5
Total Number of RPDs within Criteria	257	323	13	3	94	28	5
FD% Precision	99.23	100	92.86	100	95.92	80.00	100
Laboratory Sample Duplicate (Lab-Dup) Precision							
Total Number of Lab-Dup Measurements	NA	NA	NA	NA	NA	49	7
Total Number of RPDs within Criteria	NA	NA	NA	NA	NA	49	7
Lab-Dup% Precision	NA	NA	NA	NA	NA	100	100

[a]Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver
NA = Not applicable

laboratory for analysis. Laboratory control sample duplicates are measured by the laboratory when there is insufficient sample to measure a duplicate of a field sample. Matrix spike duplicates, also used to evaluate precision, are performed by the laboratory upon request. The MSDs were not included in CAU 394.

The duplicate precision is evaluated using the RPD or normalized difference. The RPD is applicable when both the sample and its duplicate have concentrations of the target radionuclide exceeding five times their minimum detectable concentration. This excludes many measurements because the

Table A.1-2
TCLP Chemical Precision Measurements for CAU 394

	Organics	Inorganics	
	TCLP VOCs	TCLP Metals[a]	TCLP Mercury
TCLP Matrix Spike Duplicate (MSD) Precision			
Total Number of MSD Measurements	4	0	0
Total Number of RPDs within Criteria	4	0	0
MSD% Precision	100	NA	NA
TCLP Laboratory Control Sample Duplicate (LCSD) Precision			
Total Number of LCSD Measurements	4	21	3
Total Number of RPDs within Criteria	4	21	3
LCSD% Precision	100	100	100
TCLP Field Duplicate (FD) Precision			
Total Number of FD Measurements	11	14	2
Total Number of RPDs within Criteria	11	14	2
FD% Precision	100	100	100
TCLP Laboratory Sample Duplicate (Lab-Dup) Precision			
Total Number of Lab-Dup Measurements	NA	28	5
Total Number of RPDs within Criteria	NA	28	5
Lab-Dup% Precision	NA	100	100

[a]Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver
NA = Not applicable

samples contain nondetectable or low levels of the target radionuclide. In situations where the RPD does not apply, duplicate results are evaluated using the normalized difference which is expressed by:

$$\text{Normalized Difference} = \frac{S - D}{\sqrt{(TPU_S)^2 + (TPU_D)^2}}$$

where:

S	=	Sample Results
D	=	Duplicate Result
TPU	=	Total Propagated Uncertainty
TPUs	=	2σ TPU of the sample
TPU_D	=	2σ TPU of the duplicate
σ	=	Standard deviation

The control limit for the normalized difference is -1.96 to 1.96, which represent a confidence level of 95 percent. Depending on the sample concentration, only one duplicate evaluation needs to be performed.

Samples are qualified based on laboratory prepared duplicates, but not field duplicates or MSDs.

A duplicate comparison that is outside control limits does not necessarily indicate that the data is not useful for the purpose intended; however, it is an indication data precision should be considered for the overall assessment of the data quality and potential impact on data application in meeting project site characterization objectives.

For the purpose of determining data precision of sample analyses for CAU 394, all water and soil duplicates were evaluated and incorporated into Table A.1-3 and Table A.1-4.

The isotopic gamma analysis provides results for 22 or 23 radionuclides. Only two or three of these radionuclides are usually present in sufficient concentrations to allow the determination of their RPDs. The duplicate data for the remaining radionuclides is compared using the normalized difference. The isotopic uranium measurement provides results for three radionuclides while isotopic plutonium, gross alpha, and gross beta measurements provide one result each.

A.1.1.1.3 Precision Summary

Overall, the precision for CAU 394 measurements were within DQI specifications. The laboratory precision tests for all the measurements, except isotopic uranium for SDG 21073, were within the control limits. All duplicate comparison for this SDG were from LCSD samples while the other two SDGs utilized field sample duplicates. The uranium precision for SDG 21073 could not be evaluated

Table A.1-3
Laboratory Duplicate Precision for CAU 394

	Gamma	Isotopic Uranium	Isotopic Plutonium	Gross Alpha	Gross Beta
RPD					
No. Performed	6	2	1	1	1
No. within Limits	6	2	1	1	1
Percent within Limits	100	100	100	100	100
Normalized Differences					
No. Performed	130	1	2	0	0
No. within Limits	130	1	2	0	0
Percent within Limits	130	100	100	NA	NA

NA = Not applicable

Table A.1-4
Field Duplicate Precision for CAU 394

	Gamma	Gross Alpha	Gross Beta
RPD			
No. Performed	1	1	1
No. within Limits	1	1	1
Percent within Limits	100	100	100
Normalized Differences			
No. Performed	21	0	0
No. within Limits	21	0	0
Percent within Limits	100	NA	NA

NA = Not applicable

because the tracer and spike recoveries for both the LCS and LCSD were unacceptably low at less than three percent. This resulted in unusable duplicate data. Because the duplicate data was useless, the associated field samples were qualified as estimated even though their tracer recoveries were satisfactory.

The thorium-227 results for nine soil samples, the europium-152 result for one sample, and the radium-226 results for five soils were rejected. Although the reported results exceeded the detection limit, the laboratory indicated that radionuclides did not meet spectral identification requirements. No field sample results were rejected because of unacceptable precision.

A.1.1.2 Accuracy

Accuracy is a measure of the closeness of an individual measurement or the average of a number of measurements to the true value. Accuracy includes a combination of random error (precision) and systematic error (bias) components that result from sampling and analytical operations.

A.1.1.2.1 Accuracy for Chemical Analysis

Accuracy is determined by analyzing a reference material of known pollutant concentration or by reanalyzing a sample to which a material of known concentration or amount of pollutant has been added (spiked). Accuracy is expressed as percent recovery (% R) for the purposes of evaluating the quality of data reported for CAU 394.

Matrix spike (MS) samples are prepared by adding a known concentration of a target analyte to a specified amount of MS sample for which an independent estimate of the target analyte concentration is available. Spiked samples are used to determine the laboratory's overall efficiency by comparing the percent recovered to the known true value. For example, a sample that is spiked with 10 parts per million (ppm) of a known analyte should produce a reported result of 10 ppm greater than the value of the sample itself. Consequently, the accuracy for this analysis would be reported as 100 percent. Matrix spike recoveries within the specified criteria for organic and inorganic analyses indicate the laboratory is operating within established controls and producing valid, quality results. Matrix spike results outside the control limits for organic analyses may not result in qualification of the data. An assessment of the entire analytical process is performed to determine the quality of the data and whether qualification is necessary.

Laboratory control samples (LCSs) are generated to provide accuracy of analytical methods and laboratory performance. They are prepared, extracted (as required by method), analyzed and reported once per SDG, per matrix. For organic analyses, laboratory control limits are used to evaluate the

accuracy of all analyses. The control limits are evaluated at the laboratory quarterly by monitoring the historical data and performance for each method. The acceptable limits for inorganic analyses are established in the EPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA, 1994). Sample results within established control ranges for organic and inorganic analyses show that the analytical method is accurate and the data provided are valid.

Surrogates (system monitoring compounds) are used to assess the method performance for each sample analyzed for organic analyses. Control limits established by the laboratory are used to evaluate the accuracy of the surrogate recoveries. Factors beyond the laboratory's control, such as sample matrix effects, can cause the measured values to be outside of the established criteria. Therefore, the entire sampling and analytical process must be evaluated when determining the quality of the analytical data provided.

Table A.1-5 and Table A.1-6 identify the number of MS, LCS, and surrogate measurements performed for CAU 394. The tables present the total number of measurements analyzed, the number of measurements within the specified criteria, and the percent-accuracy of each method. Method-specific accuracy is determined by taking the number of measurements within criteria, dividing that by the total number of measurements analyzed, and multiplying by 100. For organic analyses, each sample had surrogates analyzed; therefore, the number of surrogates is significantly greater than the number of MS and LCS.

The MS accuracy results for organic analyses in Table A.1-5 and Table A.1-6 include the total number of MS measurements per analysis and the number of MS measurements within criteria. All samples for organic analyses within the associated SDG are not qualified, only the native sample in which the spike was added. Inorganic MS results outside of the established control criteria do result in data qualified as estimated for all the samples in that batch. However, only the analyte(s) outside of control requires qualification.

Table A.1-5 and Table A.1-6 include the total number of LCS measurements per analysis and the number of LCS measurements within criteria. Laboratory control samples within the specified criteria for organic and inorganic analyses indicate the laboratory is producing valid data. Laboratory control samples outside of the established criteria result in the qualification of inorganic data and may result in the qualification of organic data. For organic analyses, an evaluation of the overall analytical

Table A.1-5
Laboratory Chemical Accuracy Measurements for CAU 394

	Organics					Inorganics	
	VOCs	SVOCs	TPH-DRO	TPH-GRO	PCBs	Metals[a]	Mercury
Matrix Spike (MS) Accuracy							
Total Number of MS Measurements	90	154	32	14	56	63	9
Total Number of MS Measurements within Criteria	83	146	28	11	50	62	9
% Acceptable MS Measurements	92.22	94.81	87.50	78.57	89.29	98.41	100
Laboratory Control Sample (LCS) Accuracy							
Total Number of LCS Measurements	258	209	34	28	82	140	22
Total Number of LCS Measurements within Criteria	258	209	34	28	82	140	22
% Acceptable LCS Measurements	100	100	100	100	100	100	100
Surrogate Accuracy							
Total Number of Measurements Analyzed	6321	6151	199	70	1386	NA	NA
Total Number of Measurements not affected by Out-of-Control Surrogates	6298	5773	175	69	1113	NA	NA
% Acceptable Surrogate Measurements	99.64	93.85	87.94	98.57	80.30	NA	NA

[a]Arsenic, Barium, Boron, Cadmium, Chromium, Lead, Lithium, Selenium, Silver, Tantalum
NA = Not applicable

process is performed to determine if data qualification is necessary. Inorganic LCS recoveries outside of established controls require data to be qualified for the individual analyte out of control. If the LCS criteria are not met, the laboratory performance and method accuracy are in question.

Surrogates reported within established control criteria indicate good laboratory method performance and the absence of matrix influences on the samples and result in quality, valid data. Table A.1-5 and Table A.1-6 include the total number of sample measurements performed for each method and the total number of sample measurements qualified for surrogate recoveries exceeding criteria. The estimated organic data in this CAU do not necessarily indicate the data is not useful. Data

Table A.1-6
TCLP Laboratory Accuracy Measurements for CAU 394

	Organics		Inorganics
	TCLP VOCs	TCLP SVOCs	TCLP Metals[a]
TCLP Matrix Spike (MS) Accuracy			
Total Number of MS Measurements	8	28	5
Total Number of MS Measurements within Criteria	8	28	5
% Acceptable MS Measurements	100	100	100
TCLP Laboratory Control Sample (LCS) Accuracy			
Total Number of LCS Measurements	8	42	6
Total Number of LCS Measurements within Criteria	8	42	6
% Acceptable LCS Measurements	100	100	100
TCLP Surrogate Accuracy			
Total Number of Measurements Analyzed	33	NA	NA
Total Number of Measurements not Affected by Out-of-Control Surrogates	33	NA	NA
% Acceptable Surrogate Measurements	100	NA	NA

[a]Arsenic, Barium, Boron, Cadmium, Chromium, Lead, Lithium, Selenium, Silver, Tantalum
NA = Not applicable

qualification is one factor to be considered in the overall assessment of the data quality and the impact to the project's objectives.

Accuracy for the measurement of target analytes collected at CAU 394 was determined for RCRA metals, TCLP metals, SVOCs, VOCs, TCLP VOCs, PCBs, and TPH-DRO and TPH-GRO.

For the purpose of determining data accuracy of sample analysis for CAU 394, all water and soil samples including field QC samples (i.e., trip blanks, equipment rinsate samples, field blanks) were evaluated and incorporated into the accuracy calculation.

A.1.1.2.2 Accuracy for Radiological Analysis

Laboratory control samples and MS samples are used to determine the accuracy of radio analytical measurements. The LCS is prepared by adding a known concentration of the radionuclide being measured to a sample that does not contain radioactivity (i.e., distilled water). This sample is analyzed with the field samples using the same sample preparation, reagents, and analytical methods employed for the samples. One LCS is prepared with each batch of samples for analysis by a specific measurement. Matrix spike samples are prepared by adding a known concentration of the target radionuclide to a specified field sample with a measured concentration. No MS analyses were performed for CAU 394.

The accuracy of the LCS determination is expressed as a percent recovery by the following:

$$\%\text{Recovery}(\,{}^{o}\!/_{o}\,R) = \frac{\text{Amount of Analyte Measured}}{\text{Amount of Analyte Added}} \times 100$$

If the LCS results are outside acceptable control limits, qualifiers will be added to the field samples analyzed with the LCS.

Table A.1-7 gives the number of LCS, including soil and water matrices, measured for each radiochemical measurement for CAU 394. The percent accuracy for the procedure is determined as the number of LCS measurements that are within the control limits divided by the total number LCS analyses, multiplied by 100.

Table A.1-7
Laboratory Radiological Accuracy Measurements for CAU 394

	Gamma	Isotopic Uranium	Isotopic Plutonium	Gross Alpha	Gross Beta
Total Number	11	3[a]	2	1	1
Total Number within Criteria	11	3	2	1	1
LCS% Accuracy	100	100	100	100	100

[a]LCS recovery for SDG21073 could not be evaluated due to low tracer recovery

Laboratory control samples within the specified criteria for radiological analyses indicate the laboratory is producing valid data. If the LCS criteria are not met, the laboratory performance and method accuracy are in question. Radiological LCS recoveries outside of established controls require data to be qualified for the individual radionuclide out of control.

A.1.1.2.3 Accuracy Summary

The LCS recoveries were within the control limits, except for uranium for SDG 21073, for all analyses. Because tracer recovery was extremely low for the uranium LCS, the data was unusable and the results for the associated six water samples were estimated. No results were rejected because of unacceptable accuracy.

A.1.1.3 Completeness

Completeness is defined as the acquisition of sufficient data of the appropriate quality to satisfy DQO decision data requirements. A measure of completeness is the amount of data that are judged to be valid. Percent completeness for sample analyses was determined by dividing the total number of samples analyzed (per method) by the total number of samples sent to the laboratory and multiplied by 100. Percent completeness for measurement usability (not rejected) was determined by dividing the total number of nonrejected measurements by the total number measurements (per method) and multiplied by 100. All measurement for completeness include reanalyses. Table A.1-8, Table A.1-9, and Table A.1-10 each contain results of completeness per analytical method.

The specified sampling locations were used as planned and all samples were collected as specified in the CAU 394 SAFER (DOE/NV, 2001). No analyses were compromised as a result of sample containers not reaching the laboratory intact. One mercury sample (394COG5) was not analyzed due to a laboratory oversite.

In accordance with the CAU 394 SAFER (Table 6-1), 100 percent completeness of critical analytes has been met with the exception of CAS 18-25-01, which had three samples rejected for Benzene and CAS 18-25-02 which had 1 sample rejected for anthracene. Eighty percent completeness of noncritical analytes has been met.

Table A.1-8
Chemical Completeness for CAU 394

Completeness Parameters	Organics					Inorganics	
	VOCs	SVOCs	TPH-DRO	TPH-GRO	PCBs	Metals[a]	Mercury
Sample Analysis Completeness							
Total Samples Sent to Laboratory	120	88	196	70	176	87	87
Total Samples Analyzed	120	88	196	70	176	87	86
Total Samples Not Analyzed by Laboratory	0	0	0	0	0	0	0
Percent Completeness	100	100	100	100	100	100	98.85
Measurement Usability Completeness							
Total Measurements[b]	6321	6151	199	70	1386	609	86
Total Measurements Rejected - Field	0	0	0	0	0	0	0
Total Measurements Rejected - Laboratory/Matrix	187	55	0	0	0	0	0
Percent Completeness	97.04	99.11	100	100	100	100	100

[a]Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver
[b]Measurements include re-analyses

A.1.1.3.1 Rejected Data

Data identified as unusable and qualified as rejected "R" during Tier II data validation is presented in Table A.1-11.

A.1.1.3.2 Completeness Summary

Overall project completeness, as can be seen from the percent completeness presented in Tables A.1-8, A.1-9, and A.1-10, meets project requirements. Individual data points which were identified as incomplete or rejected were determined to not create decisional gaps in the project data. Therefore, the measurements performed for CAU 394 are considered valid in regard to completeness.

A.1.1.4 Representativeness

A seven-step DQO process was utilized to identify CAU 394 requirements. During the process, locations were selected which enabled the samples collected to be representative of the media being evaluated. Samples were collected as planned. Quality control blanks are used as a way of

Table A.1-9
TCLP Completeness for CAU 394

Completeness Parameters	Organics	Inorganics	
	TCLP VOCs	TCLP Metals[a]	TCLP Mercury
Sample Analysis Completeness			
Total Samples Sent to Laboratory	3	13	13
Total Samples Analyzed	3	13	13
Total Samples Not Analyzed by the Laboratory	0	0	0
Percent Completeness	100	100	100
Measurement Usability Completeness			
Total Measurements[b]	33	91	13
Total Measurements Rejected - Field	0	0	0
Total Measurements Rejected - Laboratory/Matrix	0	0	0
Percent Completeness	100	100	100

[a]Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver
[b]Measurements include re-analyses

measuring outside factors that could impact sample results. No data was rejected due to QC blanks. Therefore, the analytical data acquired during the CAU 394 investigation are representative of site characteristics.

A.1.1.5 Comparability

Field sampling activities were performed and documented in accordance with approved procedures that are comparable to standard industry practices. Approved standardized analytical methods and procedures were used to analyze, report, and validate the data. Therefore, datasets within this project are comparable to all other datasets generated using standardized quality procedures.

A.1.2 Reconciliation of DQOs and Conceptual Site Models

This section provides a reconciliation of the data collected and analyzed during this investigation, with the preliminary CSMs established in the DQO process.

Table A.1-10
Radiological Completeness for CAU 394

Completeness Parameters	Gamma	ISOU	Gross Alpha/Beta	UGTAISOPU
Sample Analysis Completeness				
Total Samples Requested for Analysis	39	17	6	17
Total Samples Analyzed	39	17	6	17
Total Samples Not Analyzed by the Laboratory	0	0	0	0
Percent Completeness	100	100	100	100
Measurement Usability Completeness				
Total Measurements[a]	880	51	12	34
Total Measurements Rejected - Field	0	0	0	0
Total Measurements Rejected - Laboratory/Matrix	14	0	0	0
Percent Completeness	98.41	100	100	100

[a]Measurements include re-analyses

A.1.2.1 Initial Conceptual Site Model

General CSMs were developed for CAU 394, and are presented in the SAFER (DOE/NV, 2001) based on historical information, previous sample analysis, and process knowledge. This data assessment reconciles the investigation results with the conceptual model.

A general CSM was applied at CAS 12-25-04. The model assumed if any contamination was present it would be located in the subsurface soils beneath the former waste oil UST. The extent of the impact would be dependent on COPCs present and the geologic conditions.

A general CSM was applied at CAS 18-25-01. The model assumed if any contaminant was present it would be located around the pump islands and/or around the mechanics shelter. The extent of the impact would be in the subsurface soil underneath the asphalt.

A general CSM was applied at CASs 18-25-02, 18-25-03, and 29-44-01 RECb. The model assumed if any contaminant was present it would be located in surface and subsurface soil, and concrete, if

Table A.1-11
CAU 394 Rejected Data
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Sample Number	Laboratory Method	Parameter	Sample Matrix
CAS 18-25-01			
394B016	SW8260B	1,1,2,2-Tetrachloroethane	Solid
394B016	SW8260B	1,1,2-Trichloroethane	Solid
394B016	SW8260B	1,2-Dichloroethane	Solid
394B016	SW8260B	1,2-Dichloropropane	Solid
394B016	SW8260B	2-Hexanone	Solid
394B016	SW8260B	4-Methyl-2-Pentanone	Solid
394B016	SW8260B	Benzene	Solid
394B016	SW8260B	Bromoform	Solid
394B016	SW8260B	Carbon Tetrachloride	Solid
394B016	SW8260B	Chlorobenzene	Solid
394B016	SW8260B	Cis-1,3-Dichloropropene	Solid
394B016	SW8260B	Dibromochloromethane	Solid
394B016	SW8260B	Ethylbenzene	Solid
394B016	SW8260B	M/P-Xylenes	Solid
394B016	SW8260B	O-Xylene	Solid
394B016	SW8260B	Styrene	Solid
394B016	SW8260B	Tetrachloroethene	Solid
394B016	SW8260B	Toluene	Solid
394B016	SW8260B	Trans-1,3-Dichloropropene	Solid
394B016	SW8260B	Trichloroethene	Solid
394B017	SW8260B	1,1,2,2-Tetrachloroethane	Solid
394B017	SW8260B	1,1,2-Trichloroethane	Solid
394B017	SW8260B	1,2-Dichloroethane	Solid
394B017	SW8260B	1,2-Dichloropropane	Solid
394B017	SW8260B	2-Hexanone	Solid
394B017	SW8260B	4-Methyl-2-Pentanone	Solid
394B017	SW8260B	Benzene	Solid
394B017	SW8260B	Bromodichloromethane	Solid
394B017	SW8260B	Bromoform	Solid
394B017	SW8260B	Carbon Tetrachloride	Solid
394B017	SW8260B	Chlorobenzene	Solid
394B017	SW8260B	Cis-1,3-Dichloropropene	Solid
394B017	SW8260B	Dibromochloromethane	Solid
394B017	SW8260B	Ethylbenzene	Solid
394B017	SW8260B	M/P-Xylenes	Solid

Table A.1-11
CAU 394 Rejected Data
(Page 2 of 8)

Sample Number	Laboratory Method	Parameter	Sample Matrix
394B017	SW8260B	O-Xylene	Solid
394B017	SW8260B	Styrene	Solid
394B017	SW8260B	Tetrachloroethene	Solid
394B017	SW8260B	Toluene	Solid
394B017	SW8260B	Trans-1,3-Dichloropropene	Solid
394B017	SW8260B	Trichloroethene	Solid
394B018	SW8260B	1,1,2,2-Tetrachloroethane	Solid
394B018	SW8260B	1,1,2-Trichloroethane	Solid
394B018	SW8260B	1,2-Dichloroethane	Solid
394B018	SW8260B	1,2-Dichloropropane	Solid
394B018	SW8260B	2-Hexanone	Solid
394B018	SW8260B	4-Methyl-2-Pentanone	Solid
394B018	SW8260B	Benzene	Solid
394B018	SW8260B	Bromodichloromethane	Solid
394B018	SW8260B	Bromoform	Solid
394B018	SW8260B	Carbon Tetrachloride	Solid
394B018	SW8260B	Chlorobenzene	Solid
394B018	SW8260B	Cis-1,3-Dichloropropene	Solid
394B018	SW8260B	Dibromochloromethane	Solid
394B018	SW8260B	Ethylbenzene	Solid
394B018	SW8260B	M/P-Xylenes	Solid
394B018	SW8260B	O-Xylene	Solid
394B018	SW8260B	Styrene	Solid
394B018	SW8260B	Tetrachloroethene	Solid
394B018	SW8260B	Toluene	Solid
394B018	SW8260B	Trans-1,3-Dichloropropene	Solid
394B018	SW8260B	Trichloroethene	Solid
394B013	RICHRC5017	Thorium-227	Soil
394B014	RICHRC5017	Thorium-227	Soil
CAS 18-25-02			
394C002	SW8260B	Acetone	Soil
394C003	SW8260B	Acetone	Soil
394C004	SW8260B	Acetone	Soil
394C005	SW8260B	Acetone	Soil
394C005RE	SW8260B	Acetone	Soil
394C004	SW8270C	4-Nitrophenol	Soil

Table A.1-11
CAU 394 Rejected Data
(Page 3 of 8)

Sample Number	Laboratory Method	Parameter	Sample Matrix
394C004	SW8270C	Pentachlorophenol	Soil
394C001	RICHRC5017	Radium-226	Soil
394C003	RICHRC5017	Radium-226	Soil
394C003	RICHRC5017	Thorium-227	Soil
394C005	RICHRC5017	Radium-226	Soil
394C007	RICHRC5017	Thorium-227	Soil
394C009	RICHRC5017	Thorium-227	Soil
394C011	RICHRC5017	Thorium-227	Soil
394C123	PAI713R8	Europium-152	Soil
394C113	SW8260	Acetone	Soil
394C117	SW8260	Acetone	Soil
394C120	SW8260	Acetone	Soil
394C123	SW8260	Acetone	Soil
394C124	SW8260	Acetone	Soil
394C052	SW8270	2,3,4,6-Tetrachlorophenol	Soil
394C052	SW8270	3,3'-Dichlorobenzidine	Soil
394C052	SW8270	4,6-Dinitro-2-Methylphenol	Soil
394C052	SW8270	4-Bromophenyl Phenyl Ether	Soil
394C052	SW8270	Anthracene	Soil
394C052	SW8270	Benzo(A)Anthracene	Soil
394C052	SW8270	Benzo(A)Pyrene	Soil
394C052	SW8270	Benzo(B)Fluoranthene	Soil
394C052	SW8270	Benzo(G,H,I)Perylene	Soil
394C052	SW8270	Benzo(K)Fluoranthene	Soil
394C052	SW8270	Bis(2-Ethylhexyl)Phthalate	Soil
394C052	SW8270	Butyl Benzyl Phthalate	Soil
394C052	SW8270	Carbazole	Soil
394C052	SW8270	Chrysene	Soil
394C052	SW8270	Di-N-Butyl Phthalate	Soil
394C052	SW8270	Di-N-Octyl Phthalate	Soil
394C052	SW8270	Dibenzo(A,H)Anthracene	Soil
394C052	SW8270	Fluoranthene	Soil
394C052	SW8270	Hexachlorobenzene	Soil

Table A.1-11
CAU 394 Rejected Data
(Page 4 of 8)

Sample Number	Laboratory Method	Parameter	Sample Matrix
394C052	SW8270	Indeno(1,2,3-CD)Pyrene	Soil
394C052	SW8270	N-Nitrosodiphenylamine	Soil
394C052	SW8270	Pentachlorophenol	Soil
394C052	SW8270	Phenanthrene	Soil
394C052	SW8270	Pyrene	Soil
394C055	SW8270	Benzo(A)Pyrene	Soil
394C055	SW8270	Benzo(B)Fluoranthene	Soil
394C055	SW8270	Benzo(G,H,I)Perylene	Soil
394C055	SW8270	Benzo(K)Fluoranthene	Soil
394C055	SW8270	Dibenzo(A,H)Anthracene	Soil
394C055	SW8270	Indeno(1,2,3-CD)Pyrene	Soil
394C056	SW8270	3,3'-Dichlorobenzidine	Soil
394C056	SW8270	Benzo(A)Anthracene	Soil
394C056	SW8270	Benzo(A)Pyrene	Soil
394C056	SW8270	Benzo(B)Fluoranthene	Soil
394C056	SW8270	Benzo(G,H,I)Perylene	Soil
394C056	SW8270	Benzo(K)Fluoranthene	Soil
394C056	SW8270	Bis(2-Ethylhexyl)Phthalate	Soil
394C056	SW8270	Butyl Benzyl Phthalate	Soil
394C056	SW8270	Chrysene	Soil
394C056	SW8270	Di-N-Octyl Phthalate	Soil
394C056	SW8270	Dibenzo(A,H)Anthracene	Soil
394C056	SW8270	Indeno(1,2,3-CD)Pyrene	Soil
394C056	SW8270	Pyrene	Soil
CAS 18-25-03			
394D001	SW8260B	Acetone	Soil
394D002	SW8260B	1,1,2,2-Tetrachloroethane	Soil
394D002	SW8260B	Bromoform	Soil
394D007	SW8260B	1,1,1-Trichloroethane	Soil
394D007	SW8260B	1,1,2,2-Tetrachloroethane	Soil
394D007	SW8260B	1,1,2-Trichloroethane	Soil
394D007	SW8260B	1,1-Dichloroethane	Soil
394D007	SW8260B	1,1-Dichloroethene	Soil

Table A.1-11
CAU 394 Rejected Data
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Sample Number	Laboratory Method	Parameter	Sample Matrix
394D007	SW8260B	1,2-Dichloroethane	Soil
394D007	SW8260B	1,2-Dichloropropane	Soil
394D007	SW8260B	2-Butanone	Soil
394D007	SW8260B	2-Hexanone	Soil
394D007	SW8260B	4-Methyl-2-Pentanone	Soil
394D007	SW8260B	Benzene	Soil
394D007	SW8260B	Bromochloromethane	Soil
394D007	SW8260B	Bromodichloromethane	Soil
394D007	SW8260B	Bromoform	Soil
394D007	SW8260B	Bromomethane	Soil
394D007	SW8260B	Carbon Disulfide	Soil
394D007	SW8260B	Carbon Tetrachloride	Soil
394D007	SW8260B	Chlorobenzene	Soil
394D007	SW8260B	Chloroethane	Soil
394D007	SW8260B	Chloroform	Soil
394D007	SW8260B	Chloromethane	Soil
394D007	SW8260B	Cis-1,2-Dichloroethene	Soil
394D007	SW8260B	Cis-1,3-Dichloropropene	Soil
394D007	SW8260B	Dibromochloromethane	Soil
394D007	SW8260B	Ethylbenzene	Soil
394D007	SW8260B	M/P-Xylenes	Soil
394D007	SW8260B	MTBE	Soil
394D007	SW8260B	O-Xylene	Soil
394D007	SW8260B	Styrene	Soil
394D007	SW8260B	Tetrachloroethene	Soil
394D007	SW8260B	Toluene	Soil
394D007	SW8260B	Trans-1,2-Dichloroethene	Soil
394D007	SW8260B	Trans-1,3-Dichloropropene	Soil
394D007	SW8260B	Trichloroethene	Soil
394D007	SW8260B	Vinyl Acetate	Soil
394D007	SW8260B	Vinyl Chloride	Soil
394D007RE	SW8260B	1,1,1-Trichloroethane	Soil
394D007RE	SW8260B	1,1,2-Trichloroethane	Soil
394D007RE	SW8260B	1,1-Dichloroethane	Soil
394D007RE	SW8260B	1,1-Dichloroethene	Soil
394D007RE	SW8260B	1,2-Dichloroethane	Soil

Table A.1-11
CAU 394 Rejected Data
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Sample Number	Laboratory Method	Parameter	Sample Matrix
394D007RE	SW8260B	1,2-Dichloropropane	Soil
394D007RE	SW8260B	2-Butanone	Soil
394D007RE	SW8260B	2-Hexanone	Soil
394D007RE	SW8260B	4-Methyl-2-Pentanone	Soil
394D007RE	SW8260B	Acetone	Soil
394D007RE	SW8260B	Benzene	Soil
394D007RE	SW8260B	Bromochloromethane	Soil
394D007RE	SW8260B	Bromodichloromethane	Soil
394D007RE	SW8260B	Bromomethane	Soil
394D007RE	SW8260B	Carbon Disulfide	Soil
394D007RE	SW8260B	Carbon Tetrachloride	Soil
394D007RE	SW8260B	Chlorobenzene	Soil
394D007RE	SW8260B	Chloroethane	Soil
394D007RE	SW8260B	Chloroform	Soil
394D007RE	SW8260B	Chloromethane	Soil
394D007RE	SW8260B	CIS-1,2-Dichloroethene	Soil
394D007RE	SW8260B	CIS-1,3-Dichloropropene	Soil
394D007RE	SW8260B	Dibromochloromethane	Soil
394D007RE	SW8260B	Ethylbenzene	Soil
394D007RE	SW8260B	M/P-Xylenes	Soil
394D007RE	SW8260B	MTBE	Soil
394D007RE	SW8260B	O-Xylene	Soil
394D007RE	SW8260B	Styrene	Soil
394D007RE	SW8260B	Tetrachloroethene	Soil
394D007RE	SW8260B	Toluene	Soil
394D007RE	SW8260B	Trans-1,2-Dichloroethene	Soil
394D007RE	SW8260B	Trans-1,3-Dichloropropene	Soil
394D007RE	SW8260B	Trichloroethene	Soil
394D007RE	SW8260B	Vinyl Acetate	Soil
394D007RE	SW8260B	Vinyl Chloride	Soil
394D001	RICHRC5017	Radium-226	Soil
394D001	RICHRC5017	Thorium-227	Soil
CAS 18-25-04			
394E001	RICHRC5017	Thorium-227	Soil
CAS 29-44-01			
394F009	SW8260B	1,1,1-Trichloroethane	Soil

Table A.1-11
CAU 394 Rejected Data
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Sample Number	Laboratory Method	Parameter	Sample Matrix
394F009	SW8260B	1,1,2,2-Tetrachloroethane	Soil
394F009	SW8260B	1,1,2-Trichloroethane	Soil
394F009	SW8260B	1,1-Dichloroethane	Soil
394F009	SW8260B	1,1-Dichloroethene	Soil
394F009	SW8260B	1,2-Dichlorooethane	Soil
394F009	SW8260B	1,2-Dichloropropane	Soil
394F009	SW8260B	2-Hexanone	Soil
394F009	SW8260B	4-Methyl-2-Pentanone	Soil
394F009	SW8260B	Benzene	Soil
394F009	SW8260B	Bromochloromethane	Soil
394F009	SW8260B	Bromodichloromethane	Soil
394F009	SW8260B	Bromoform	Soil
394F009	SW8260B	Bromomethane	Soil
394F009	SW8260B	Carbon Disulfide	Soil
394F009	SW8260B	Carbon Tetrachloride	Soil
394F009	SW8260B	Chlorobenzene	Soil
394F009	SW8260B	Chloroethane	Soil
394F009	SW8260B	Chloroform	Soil
394F009	SW8260B	Chloromethane	Soil
394F009	SW8260B	Cis-1,2-Dichloroethene	Soil
394F009	SW8260B	Cis-1,3-Dichloropropene	Soil
394F009	SW8260B	Dibromochloromethane	Soil
394F009	SW8260B	Ethylbenzene	Soil
394F009	SW8260B	M/P-Xylenes	Soil
394F009	SW8260B	MTBE	Soil
394F009	SW8260B	O-Xylene	Soil
394F009	SW8260B	Styrene	Soil
394F009	SW8260B	Tetrachloroethene	Soil
394F009	SW8260B	Toluene	Soil
394F009	SW8260B	Trans-1,2-Dichloroethene	Soil
394F009	SW8260B	Trans-1,3-Dichloropropene	Soil
394F009	SW8260B	Trichloroethene	Soil
394F009	SW8260B	Vinyl Acetate	Soil
394F009	SW8260B	Vinyl Chloride	Soil
394F009	SW8270C	4,6-Dinitro-2-Methylphenol	Soil
394F009	SW8270C	4-Bromophenyl-Phenyl Ether	Soil

Table A.1-11
CAU 394 Rejected Data
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Sample Number	Laboratory Method	Parameter	Sample Matrix
394F009	SW8270C	Anthracene	Soil
394F009	SW8270C	Di-N-Butylphthalate	Soil
394F009	SW8270C	Fluoranthene	Soil
394F009	SW8270C	Hexachlorobenzene	Soil
394F009	SW8270C	N-Nitrosodiphenylamine	Soil
394F009	SW8270C	Pentachlorophenol	Soil
394F009	SW8270C	Phenanthrene	Soil
394F009	RICHRC5017	Thorium-227	Soil

applicable. The extent of the impact would be dependent of COPCs present and the geologic conditions.

A general CSM was applied to CAS 18-25-04. The model assumed that if any contaminant was present after excavation in 1991, it would be located in the subsurface and the extent would be limited to the geologic conditions.

A general CSM was applied to CAS 29-44-01 RECa. The model assumed that if any contamination was present after removal of the former AST, the extent would be limited to vertical migration to the north.

A.1.2.2 Investigation Design and Contaminant Identification

The CSMs were used as the basis for developing the investigation design, which includes identifying appropriate sampling strategies and data collection methods.

To coincide with the CSMs, surface and subsurface samples were collected for analyses using a biased sampling strategy. This strategy was developed to focus the investigation of areas of potential contamination. The investigation was designed to define the extent of the COPCs identified in the SAFER.

A.1.2.3 Contaminant Nature and Extent

The models assumed that the contamination would be limited to the boundaries of the site due to the minimal potential for migration based on the geological and historical information for the site.

The investigation was performed according to design concepts and has shown the extent of the contamination did not exceed the boundaries of the CASs.

A.1.3 Conclusions

The DQIs (e.g., precision, accuracy, completeness, representativeness, and comparability) were all evaluated for quality and impact to the data. All of the data, except data qualified as rejected, can be used in project decisions.

A.2.0 References

DOE/NV, see U.S. Department of Energy, Nevada Operations Office.

EPA, see U.S. Environmental Protection Agency

U.S. Department of Energy, Nevada Operations Office. 1996. *Industrial Site Quality Assurance Project Plan, Nevada Test Site, Nevada*, Rev. 1, DOE/NV-372. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 2001. *Streamlined Approach for Environmental Restoration (SAFER) Plan for Corrective Action Unit 394: Area 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada,* DOE/NV--755. Las Vegas, NV.

U.S. Environmental Protection Agency. 1994. *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, EPA 540-R-94/013. Washington, DC.

U.S. Environmental Protection Agency. 1996. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW-846 CD ROM PB97-501928GEI, which contains updates for 1986, 1992, 1994, and 1996. Washington, DC.

Appendix B

Closure Certification for SAFER Plan for CAU 394: Area 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada

B.1.0 Closure Certification

The following sections document closure activities completed for CAU 394 at CAS 18-25-02 and CAS 18-25-03. Closure activities (i.e., excavation) were not completed at the other CASs and are not discussed in this Appendix.

B.1.1 CAS 18-25-02 Closure Activities

The concrete curbing, interior pads, and foundation at CAS 18-25-02 were demolished by using ram-hoe equipment on November 4, 2002. On November 13, 2002, the concrete debris and associated piping were removed with a front-end loader and samples were taken at the bottom of the excavation. Additional samples were taken in January and February 2003, in an effort to define the extent of PCB and TPH contamination. A front-end loader was used again on March 17, 2003, to excavate soil and concrete debris. Samples were taken in March using a rotosonic drill rig to determine whether there was any remaining contamination. The samples indicated that the PCBs and TPH were still above PALs. More soil and debris were excavated from June 30 through July 9, 2003, and verification samples were taken at the bottom of the excavation. One of the samples had a PCB concentration greater than the PAL and the soil at that location was excavated on August 13, 2003. A sample was taken at the bottom of the August 13 excavation and the results indicated that the PCB concentration was below the PALs. Some of the TPH concentrations in the samples at CAS 18-25-02 remained above the PALs, but the drilling and sampling in August 2003 around the site indicated that there was no vertical or lateral migration of contaminants.

Contaminated surface and subsurface soils were excavated from an area approximately 65 x 80 x 6 ft. All wastes including soil, concrete, and metal piping were loaded into end-dump or roll-off boxes and disposed of off site as PCB remediation waste at Clean Harbors of Grassy Mountain, Utah. The manifests for this waste are provided in Appendix E.

Verification samples were collected from the surface of the excavation at various depths below the original surface and are in Table B.1-1. Verification sample analytical results showed that residual TPH contamination remains above the PRG and are in Table B.1-1.

Table B.1-1
Verification Samples from CAS 18-25-02, Oil Spills and CAS 18-25-03, Oil Spill

Sample Number	Sample Location/Description	Depth (ft bgs)	Contaminants of Potential Concern		
			Aroclor 1260 (μg/kg)	Diesel Range Organics (mg/kg)	Gasoline Range Organics (mg/kg)
Preliminary Action Levels			**1000[a]**	**100[b]**	**100[b]**
394C085	North wall toe of slope	6 - 7	--	4,000 (J)[c]	--
394C091	West wall toe of slope	3 - 4	--	360 (J)[c]	--
394C092	Due south west corner (surface)	0 - 1	330 (J)[d]	63 (J)[c]	--
394C093	South side (surface)	0 - 1	250 (J)[e]	64 (J)[c]	--
394C094		0 - 1	43 (J)[f]	390 (J)[c]	--
394C095	Floor of excavation	6 - 7	--	2,300 (J)[c]	--
394C096		6 - 7	--	1,200 (J)[c]	--
394C097	Bottom of excavation	6 - 7	160 (J)[e]	1,700 (J)[c]	--
394C098	Floor of excavation	6 - 7	180 (J)[e]	450 (J)[c]	--
394C099		6 - 7	480 (J)[e]	150 (J)[c]	--
394C100		6 - 7	400 (J)[e]	100 (J)[c]	--
394C101		4 - 6	170 (J)[e]	--	--
394C104	Southerly outfall of C.M.P. drain line	0 - 1	40 (J)[e]	81 (J)[c]	--
394C105	Deepest point of excavation	10 - 12	--	16,000 (J)[g]	--
394C106	Floor of excavation eastern section	2 - 4	--	25 (J)[c]	--
394C107	Floor of excavation eastern end	2 - 4	290 (J)[e]	--	--
394C110	Inlet to C.M.P. drain line	0 - 1	75 (J)[e]	63 (J)[c]	--
394C121	Boring C09	9 - 10	--	18,000 (J)[h]	820 (H)
394C122		14 - 15	--	53 (D, H)	--
394C123		19 - 20	--	28 (D, H)	--
394C124	Boring C14	0 - 0.5	73	--	--

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs) (*EPA, 2000)
[b]Based on *Nevada Administrative Code;* Contamination of soil; Establishment of action levels (NAC, 2000)
[c]Qualifier added to laboratory data; record accepted. Sample temperature exceeded and/or not document. Total extractable petroleum hydrocarbons result quantitated from diesel standard calibration.
[d]Qualifier added to laboratory data; record accepted. Sample temperature exceeded and/or not documented. Surrogate recovery exceeded the lower limits.
[e]Qualifier added to laboratory data; record accepted. Sample temperature exceeded and/or not documented.
[f]Qualifier added to laboratory data; record accepted. %D between columns >25. Sample temperature exceeded and/or not documented.
[g]Qualifier added to laboratory data; record accepted. Surrogates diluted out. Sample temperature exceeded and/or not document. Total extractable petroleum hydrocarbons result quantitated from diesel standard calibration.
[h]Qualifier added to laboratory data; record accepted. Surrogates diluted out.

D = Indicates that a pattern resembling diesel was detected in the sample.
H = The fuel pattern was in the heavier end of the retention time window for analyte of interest.
J = Estimated value.
ft bgs = Feet below ground surface
μg/kg = Micrograms per kilogram
mg/kg = Milligram per kilogram

B.1.2 CAS 18-25-03 Closure Activities

With the excavation of the PCB-contaminated soils at CAS 18-25-02, the adjacent CAS 18-25-03 was necessarily incorporated into the remediation due to the required sloping of the sidewalls of the excavation. Verification samples for the CAS 18-25-02 excavation are used to indicate that the PCB concentrations are below PRGs and the TPH concentrations are above the PALs for both CAS 18-25-02 and CAS 18-25-03. Both CASs 18-25-02 and 18-25-03 have been incorporated into one closure in place with use restrictions.

Verification samples were collected from the surface of the excavation at various depths below the original surface and are in Table B.1-1. These samples are the same samples used as verification samples for CAS 18-25-02. Verification analytical results showed that residual TPH contamination remains above the PRG and are in Table B.1-1.

Appendix C

As-Built Documentation for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada

C.1.0 Introduction

As-Built drawings for each CAS are as follows:

CAS 12-25-04	See Figure C.1-1
CAS 18-25-01	See Figure C.1-2
CAS 18-25-02	See Figure C.1-3
CAS 18-25-03	See Figure C.1-3
CAS 18-25-04	See Figure C.1-4
CAS 29-44-01	See Figures C.1-5

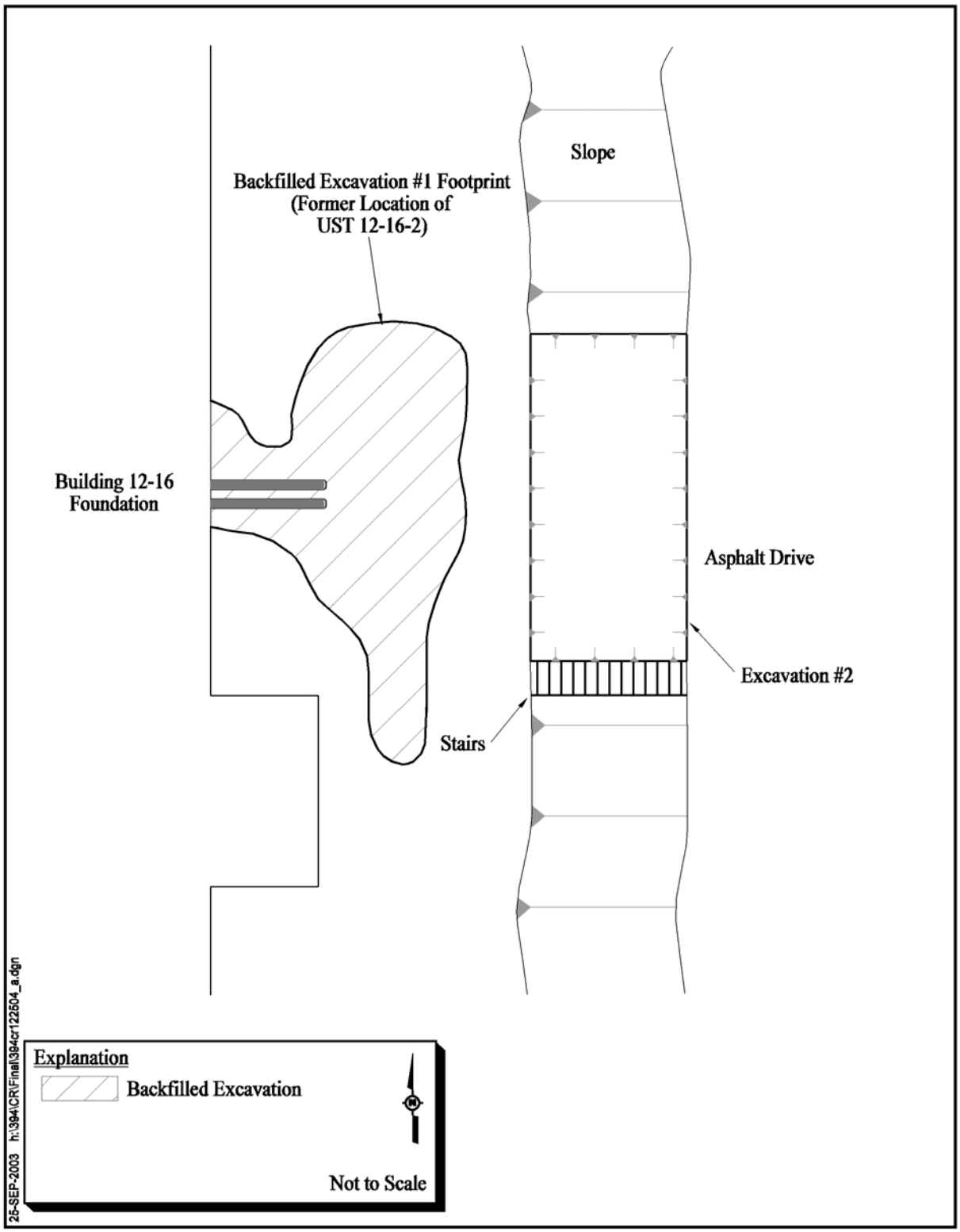


Figure C.1-1
CAS 12-25-04, UST 12-16-2 Waste Oil Release
As Built Drawings

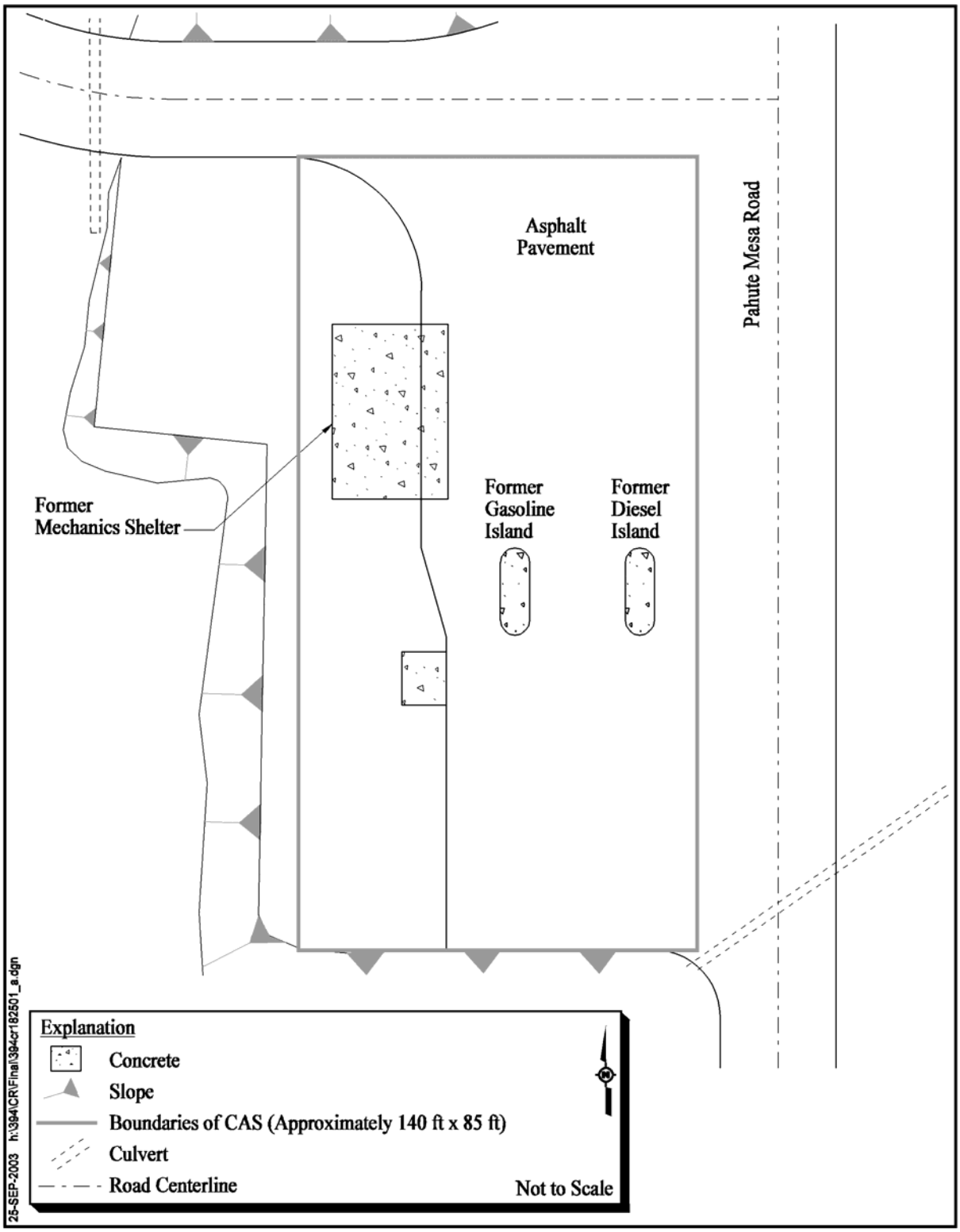


Figure C.1-2
CAS 18-25-01, Oil Spills, Area 18 Service Station
As Built Drawings

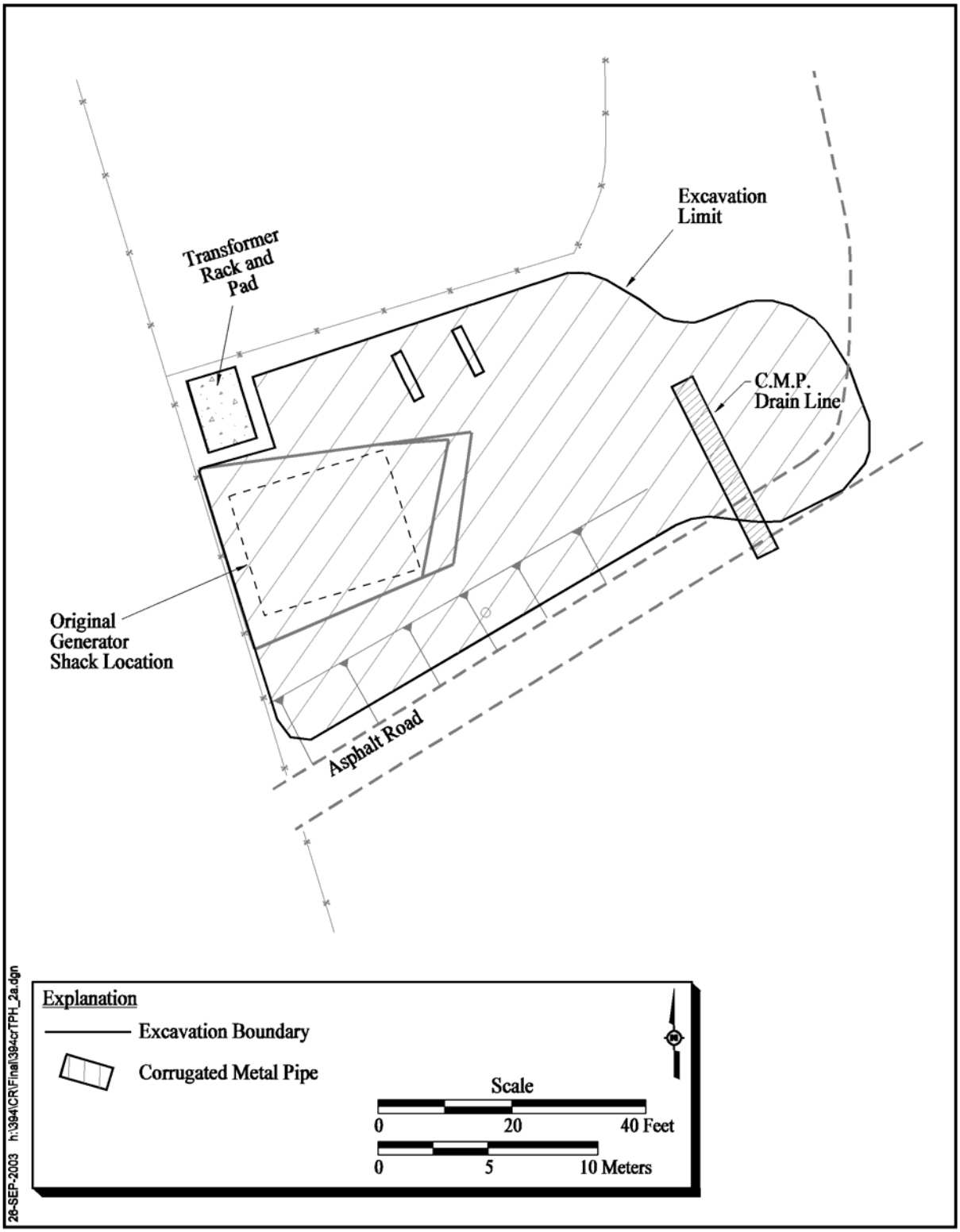


Figure C.1-3
CAS 18-25-02, Oil Spills, Generator Shack &
CAS 18-25-03, Oil Spill, Generator Shack AST, As-Built Drawings

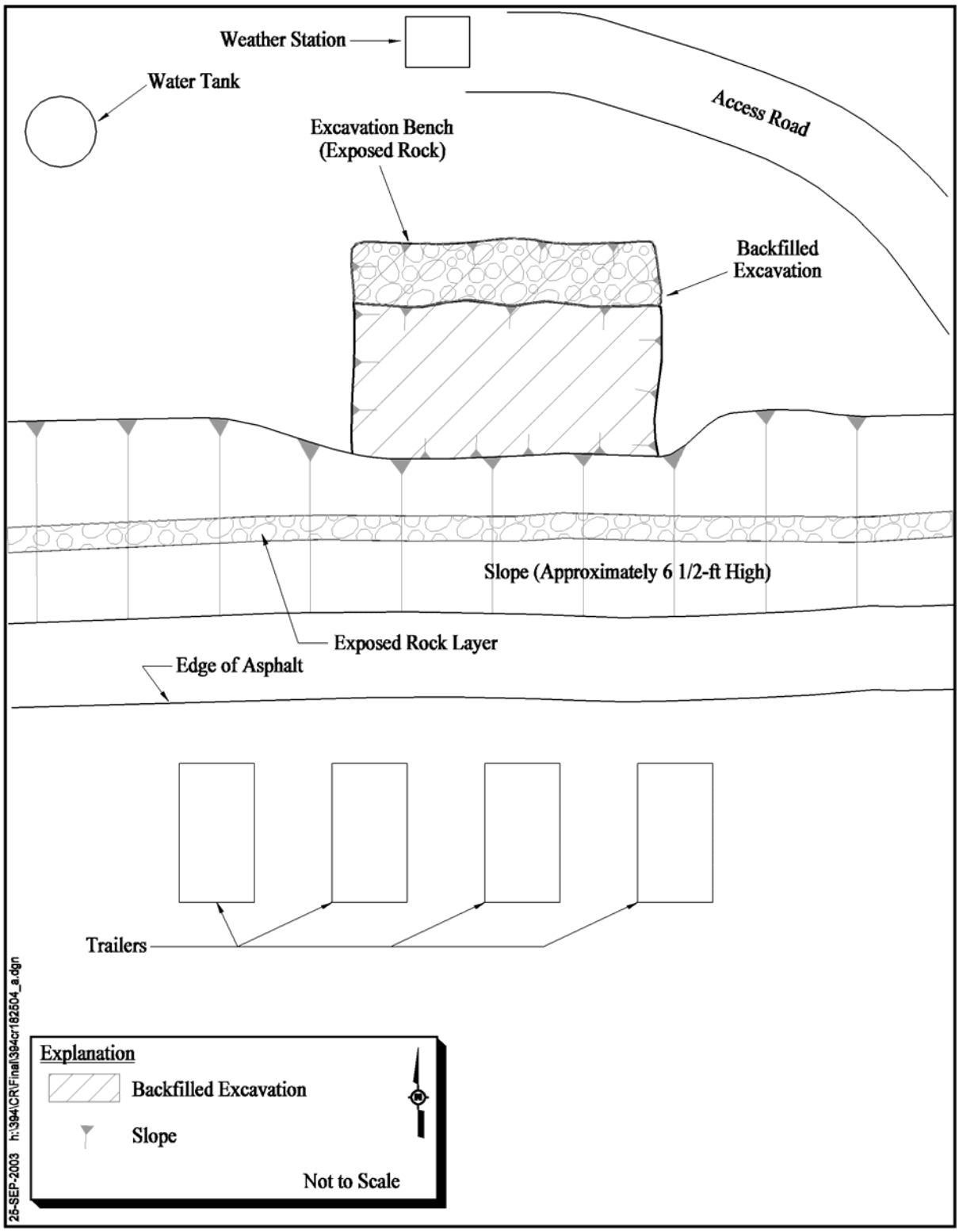


Figure C.1-4
CAS 18-25-04, Spill (Diesel Fuel), Pahute Mesa Airstrip Spill
As-Built Drawing

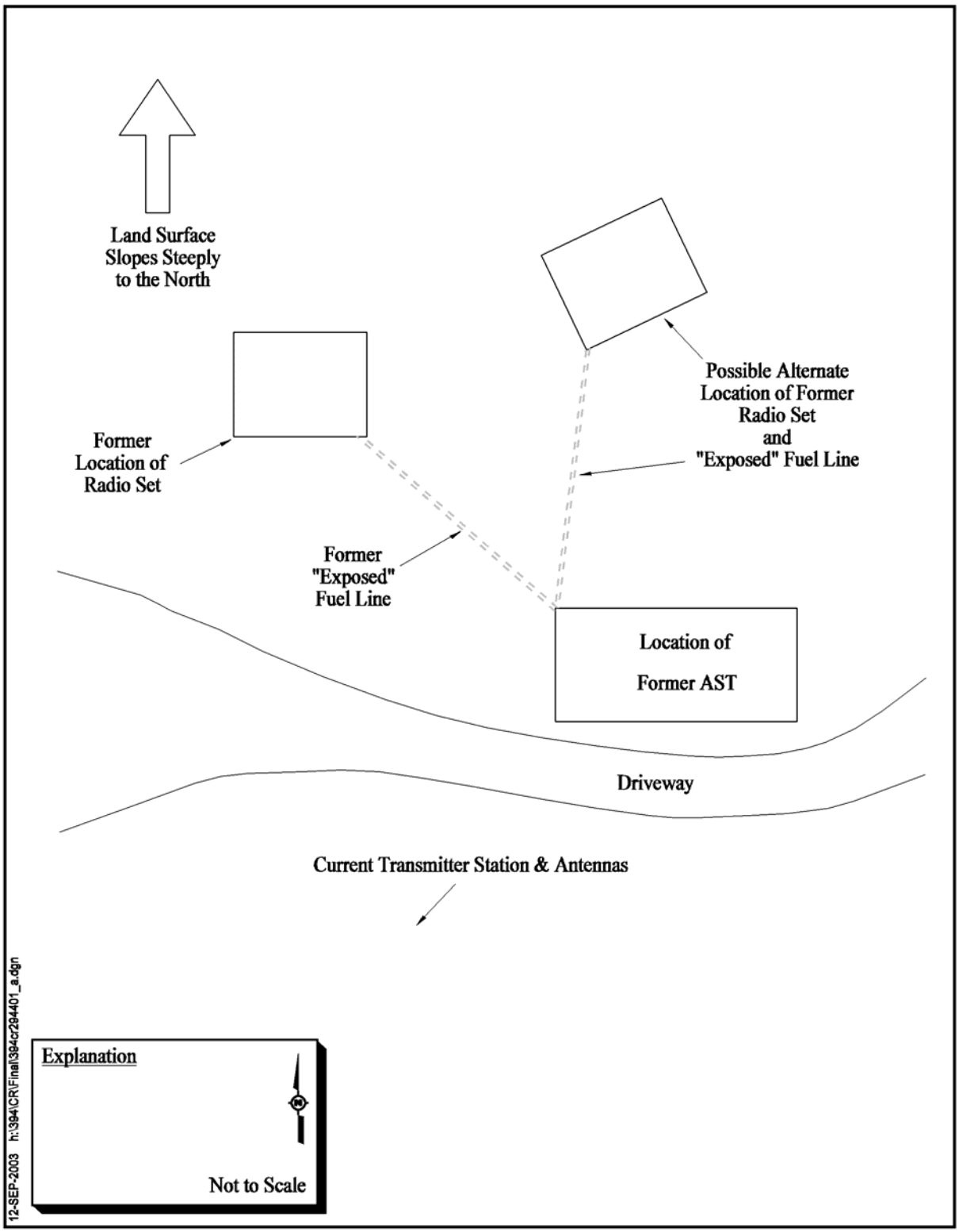


Figure C.1-5
CAS 29-44-01, Fuel Spill, As-Built Drawing

Appendix D

Confirmation Sampling Test Results for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada

D.1.0 Introduction

This appendix details SAFER activities and analytical results for CAU 394. This CAU is located within Areas 12, 18, and 29 of the NTS, and is comprised of six potentially contaminated CASs (main document, Figure 1-1):

- 12-25-04, UST 12-16-2 Waste Oil Release
- 18-25-01, Oil Spills
- 18-25-02, Oil Spills
- 18-25-03, Oil Spill
- 18-25-04, Spill (Diesel Fuel)
- 29-44-01, Fuel Spill

The investigation was conducted in accordance with the SAFER Plan for CAU 394 (DOE/NV, 2001) as developed under the FFACO (1996).

Corrective Action Site 29-44-01 has been divided into two RECs (RECa and RECb). The first is a potential spill associated with a former AST located northwest of the transmitter station and is designated RECa. The second, is a soil stain located northeast of the transmitter station and is designated RECb.

Additional information regarding the history of each site, planning, and the scope of the investigation is presented in the SAFER Plan.

D.1.1 Objectives

The primary objectives of the investigation were to:

- Identify the presence and nature of COPCs.
- Characterize the extent of identified COCs.
- Remediate soils with identified COCs, if determined necessary.
- Provide sufficient data to achieve preferred options for closure.

D.1.2 Appendix Content

This appendix contains information and data in sufficient detail to support the recommendations for closure in place and no further action in the CR. The contents of this appendix are as follows:

- Section D.1.0 introduces the investigation background, objectives, and appendix contents.
- Section D.1.3 provides an investigation overview.
- Section D.2.0 through Section D.8.0 provide CAS-specific information regarding field activities, sampling methods, and laboratory analyses results from the investigation samples.
- Section D.9.0 discusses the QA and QC procedures that were followed and the results of the QA/QC activities.
- Section D.10.0 lists the cited references.

Complete field documentation and laboratory data, including field activity daily logs (FADLs), investigation results, sample collection logs, soil sample descriptions, analysis request/chain-of-custody forms, laboratory certificates of analyses, and analytical results are retained in project files

D.1.3 Investigation Overview

Pre-excavation field-work was conducted on July 26, 2002. The SAFER Plan Phase I sampling activities were conducted from August 13 through September 16, 2002. Phase II sampling activities continued until August 13, 2003. Excavation and verification sampling was conducted between November 4, 2002, and August 13, 2003. The investigation was managed in accordance with the requirements set forth in the SAFER Plan. Field activities were performed in accordance with the approved site-specific health and safety plan (SSHASP), which is consistent with the DOE Integrated Safety Management System. Samples were collected and documented following approved protocols and procedures indicated in the SAFER Plan. Quality control samples (e.g., field blanks, equipment rinsate blanks, trip blanks, and field duplicates) were collected as required by the Industrial Sites QAPP (DOE/NV, 1996b) and approved procedures. During the SAFER Plan field activities, waste minimization practices were followed according to approved procedures, including segregation of waste by waste stream.

Section D.1.4 through Section D.1.9 provide the investigation methodology, site geology and hydrology, and laboratory information. The CAS-specific investigation details are provided in Section D.2.0 through Section D.8.0.

D.1.4 Preliminary Conceptual Model

The site-specific conceptual models are provided in Appendix A of the SAFER Plan. A discussion of conceptual model reconciliation is in Appendix A, Section A.1.2.

D.1.5 Sample Locations

Investigation locations selected for sampling were based on historical information, interpretation of engineering drawings, interviews with former and current site employees, site conditions, and process knowledge. The CAU 394 sampling locations were accessible and remained relative to anticipated CAS boundaries. Proposed biased sample locations are shown in Figures A.3-1, 3-2, 4-1, 4-2, and 5-1 of the SAFER Plan. Actual characterization sample locations collected with corresponding sample numbers are shown in the figures contained in Section D.2.0 through Section D.8.0. Actual sample locations may have been offset slightly from proposed sample locations due to field conditions and observations. Actual sample locations were designated with appropriately labeled wooden stakes, and locations were surveyed using a GPS instrument.

Phase I confirmatory samples were collected to define the nature (presence) of COCs. If COCs were determined to be present, Phase II characterization samples were collected to determine the extent of the contamination.

D.1.6 Field-Screening Methodology

Field screening for VOCs, TPH, and alpha and beta/gamma radiation were performed as specified in the SAFER Plan. The field-screening level (FSL) for VOC headspace was established at 20 ppm or 1.5 times background, whichever was greater. The site-specific FSLs for alpha and beta/gamma radiation were defined as the mean background activity level plus two times the standard deviation of readings from 20 background locations. The radiation FSLs are instrument-specific and were established for each instrument prior to use. Field screening was conducted using a flame ionization detector for VOCs and an NE Technologies Electra for alpha and beta/gamma radiation.

D.1.7 Geology

Surficial geology at the Area 12 base camp consists of Quanternary alluvium and colluvium which is comprised of unconsolidated to moderately cemented deposits. The thickness of the Quaternary deposits is approximately 60 to 100 ft. The base camp is located on the upper plate of a thrust fault that exists to the east. The surficial Quaternary units sit unconformable on two Paleozoic unit comprised of younger siltstone, quartzite, and limestone, and an older unit of carbonate rock (USGS, 1990).

Area 18 lies within the northeastern part of the Timber Mountain caldera moat, which is made up of the Rainier Mesa Member and the Ammonia Tanks Member volcanic units. The Rainier Mesa Member of the Timber Mountain tuff was erupted from vents above a magma chamber within Timber Mountain caldera. The eruption deposited the ash-flow tuff of the Rainier Mesa inside the caldera at a thickness of greater than 2,000 ft. The debris flows and breccia from the Rainier Mesa Member are a mixture of dense, hard rhyolite lava and welded tuff blocks in a matrix of porous, soft, ashy tuff, now altered largely to clay. The maximum known thickness is 850 ft.

The Area 29 site is near the transmitter station located on top of a peak in the Shoshone Mountain Range that is approximately 6,800 ft above sea level. Tiva Canyon runs to the west of the transmitter station. There is not much soil on top of the peak and bedrock is extremely close to the surface. The transmitter station sits on the Ammonia Tanks Member of the Timber Mountain Tuff which is Miocene in age. This unit consists of a rhyolitic to quartz-latitic ash-flow tuff. The Ammonia Tanks member is underlain by the Rainier Mesa Member of the Timber Mountain Tuff and then the Tiva Canyon Member of the Miocene Paintbrush Tuff which are both ash-flow tuffs as well. All of the underlying geology is highly normal faulted. (USGS, 1985)

D.1.8 Hydrology

The Area 12 regional water table is located approximately 3,000 to 3,500 ft beneath the mesa surface or 1,500 to 2,000 ft below the tunnels in the lower carbonate (Paleozoic) aquifer. The groundwater probably flows generally southward in the widespread lower carbonate aquifer, eventually discharging into the Ash Meadows discharge basin which is approximately 25 miles southwest of Mercury, Nevada (DNA, 1990; DOE, 1988).

Water Well 8 is located north of the Area 18 airstrip and the static water level was reported to be at 1,078 ft below land surface. (DOE/NV, 1996a).

The groundwater in Area 29 generally flows southward in the widespread lower carbonate aquifer, eventually discharging hundreds of thousands of years later into the Ash Meadows discharge basin which is approximately 25 miles southwest of Mercury, Nevada. (DNA, 1990; DOE, 1988)

As indicated on drawing number NRDS-SF.-F.L/C-1, Well # J-11 is located south of Shoshone Mountain near the northeast corner of Cane Springs Road and First Street in Jackass Flats (SNPO, 1970). The most recent groundwater level measurements found for this well were identified in 1993. Records indicate that in 1993 the water level in Well J-11 was approximately 1,040 ft below land surface (USGS, 1993).

D.1.9 Laboratory Analytical Information

Chemical analyses were performed by EMAX Laboratories in Torrance, California; and radiological analyses were performed by Severn Trent Laboratories in Richland, Washington, and Paragon Laboratory in Fort Collins, Colorado. The analytical parameters and laboratory analytical methods used to analyze CAU 394 investigation samples are listed in Table D.1-1. Organic and inorganic analytical, as well as radiochemical results are compared to the PALs established in the SAFER Plan.

The analytical results of samples collected from the CAU 394 investigation have been compiled and evaluated to determine nature and extent of contamination in the soil. Analytical results reported above the minimum reporting limits (MRLs) are summarized and those results exceeding PALs are identified in Section D.2.0 through Section D.8.0. The complete laboratory data packages are available in the project files.

The analytical parameters were selected through the application of site process knowledge according to the EPA's *Guidance for the Data Quality Objects Process* (EPA, 1994). The PALs for off-site laboratory analytical methods (EPA, 1999) were determined during the DQO process (EPA, 1994) and are documented in the SAFER Plan (DOE/NV, 2001). Analytical results that are detected above PALs are termed COCs. If COCs are present, a corrective action must be determined.

Table D.1-1
Laboratory Analytical Parameters and Methods, CAU 394 Investigation Samples

Analytical Parameter	Analytical Method
Total volatile organic compounds	SW-846 8260B[a]
Total semivolatile organic compounds	SW-846 8270C[a]
Total petroleum hydrocarbons - gasoline-range organics	SW-846 8015B (modified)[a]
Total petroleum hydrocarbons - diesel-range organics	SW-846 8015B (modified)[a]
Polychlorinated biphenyls	SW-846 8082[a]
Total RCRA metals	Water - SW-846 6010B/7470A[a] Soil - SW-846 6010B /7471A[a]
TCLP volatile organic compounds	SW-846 1311/8260B[a]
TCLP RCRA metals	SW-846 1311/6010B/7470A[a]
Gamma spectrometry	Water and Soil EPA 901.1/HASL 300[b]
Isotopic uranium	Water and Soil ASTM D3972-02/C1000-00[c]
Gross Alpha/Beta	EPA 900/HASL 300[d]
Isotopic plutonium	Water and Soil ASTM D3865-02/C1001-90[e]

[a]EPA *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, 3rd Edition, Parts 1-4, SW-846 (EPA, 1996).
[b]Standard Operating Procedure RICH-RC-5017 is a variant of and incorporates all the intentions of EPA Procedure 901.1 and DOE/Environmental Measurements Laboratory, Procedure 4.5.2.3.
[c]Standard Operating Procedure RICH-RC-5079 is similar to American Society for Testing and Materials procedures D3872-02 (water) and C1000-00 (soil)
[d]Standard Operating Procedure RICH-RC-5014 meets the requirements of EPA Procedure 900.0.
[e] Standard Operating Procedure RICH-RC-5010 is similar to American Society for Testing and Materials procedures D3865-02 (water) and C1001-90 (soil).

The analytical method TPH DRO, also referred to as extractable petroleum hydrocarbons (EPH), includes the carbon range C_{10} - C_{38}. The TPH GRO, also referred to as volatile petroleum hydrocarbons (VPH), includes the carbon range from C_6 - C_{10}. When TPH is used without further designation, it refers to TPH in general and may be used in conjunction with sampling and/or field-screening methodology.

D.2.0 CAS 12-25-04, UST 12-16-2 Waste Oil Release

Corrective Action Site 12-25-04 consists of a documented release of waste oil from UST 12-16-2 at Building 12-16 in Area 12. The UST was used from 1965 to the early mid-1990s. The UST was excavated and removed in 1991 by Reynolds Electrical & Engineering Co., Inc.

The second excavation (intended to be used for the construction of a concrete AST pad) existed 10 ft to the east of the former UST excavation. Stained soil was discovered within this excavation and a sample was collected from the center. Results indicated an exceedance of the regulatory limits for oil (Burhoe, 1993).

Two excavations/contaminated soil, a steel filter drain box, and two pipes protruding from the west side of the UST 12-16-2 excavation were identified as part of the CAS in the SAFER Plan.

The steel filter drain box was removed either during the UST excavation, or the backfilling of the excavation, or when Building 12-16 was removed. Before any SHAW field activities began the excavation was backfilled and the associated piping was capped and buried. The filter drain box is no longer associated with the UST 12-16-2 and CAS 12-25-04.

D.2.1 SAFER Investigation

Twenty-one soil samples and associated QC samples were collected and analyzed during closure activities conducted at CAS 12-25-04 and are listed in Table D.2-1. Actual characterization sample locations are shown in Figure D.2-1.

Five boreholes were completed by hollow-stem auger drilling. As the auger advanced the borehole, a 2-in. diameter split-spoon barrel collected the core. Core samples were continuously collected. The barrel was first screened for radiation, then split open. The site geologist visually inspected the core sample and selected the sampling interval based on visual observation and screening results. The sample interval was placed in a decontaminated stainless-steel bowl and field screened. Sample aliquots were collected and containerized in accordance with the FI and applicable Standard Quality Practices (SQPs).

Table D.2-1
Samples Collected from CAS 12-25-04
(Page 1 of 2)

Sample Number	Sample Location/Description	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
394A001	Borehole 12250401 Center of excavation #1 footprint	3.5 - 4	Soil	SC	Set 1
394A002	Borehole 12250401 Center of excavation #1 footprint,	5.5 - 6	Soil	SC	Set 1
394A005	Borehole 12250402 North of excavation #1 footprint, 30 ft from Borehole 12250401	8 - 8.5	Soil	SC	Set 1
394A006	Borehole 12250402 North of excavation #1 footprint, 30 ft from Borehole 12250401	9.5 - 10	Soil	SC	Set 1
394A007	Borehole 12250402 North of excavation #1 footprint, 30 ft from Borehole 12250401	14.5 - 15	Soil	SC	Set 1
394A009	Borehole 12250403 North of excavation #1 footprint, 75 ft from Borehole 12250401	8 - 8.5	Soil	SC	Set 1
394A010	Borehole 12250403 North of excavation #1 footprint, 75 ft from Borehole 12250401	8 - 8.5	Soil	Field Duplicate of 394A009	Set 1
394A011	Borehole 12250403 North of excavation #1 footprint, 75 ft from Borehole 12250401	14.5 - 15	Soil	SC	Set 1
394A012	Borehole 12250404 South of excavation #1 footprint, 35 ft from Borehole 12250401	7.5 - 8	Soil	SC	Set 1
394A013	Borehole 12250404 South of excavation #1 footprint, 35 ft from Borehole 12250401	17 - 17.5	Soil	SC, Lab QC	Set 1
394A014	Borehole 12250405 East of excavation #1 and #2 footprints with a 7 ft downgrade	4 - 4.5	Soil	SC	Set 1
394A015	Borehole 12250405 East of excavation #1 and #2 footprints with a 7 ft downgrade	12 - 12.5	Soil	SC	Set 1
394A016	Borehole 12250403 North of excavation #1 footprint, 75 ft from Borehole 12250401	26.5 - 27	Soil	SC	Set 1
394A017	Borehole 12250404 South of excavation #1 footprint, 35 ft from Borehole 12250401	25 - 25.5	Soil	SC	Set 1

Table D.2-1
Samples Collected from CAS 12-25-04
(Page 2 of 2)

Sample Number	Sample Location/Description	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
394A301	NA	NA	Water	Trip Blank	VOC
394A302	NA	NA	Water	Field Blank	Set 1
394A303	NA	NA	Water	Equipment Rinsate Blank	Set 1 and Set 2
394A304	NA	NA	Water	Field Blank, associated with 394A302	VOCs

ft bgs = Feet below ground surface
SC = Site characterization
QC = Quality control
NA = Not applicable

Set 1 = VOCs, SVOCs, RCRA Metals, TPH (DRO-DRO), PCBs
Set 2 = Gamma Spectrometry, Isotopic Uranium, Isotopic Plutonium

D.2.1.1 SAFER Plan Implementation

The following field activities were conducted at CAS 12-25-04 to meet SAFER Plan requirements:

- Collected biased soil samples from locations within and adjacent to the excavation #1 footprint.
- Field screened soil samples for VOCs, TPH, and alpha and beta/gamma radiation
- Submitted select samples for off-site laboratory analysis.

D.2.1.2 Deviations from the SAFER Plan

The open excavation left from the former UST removal had been backfilled before SAFER investigation activities began. Therefore, identified associated piping was not visible and not investigated. However, the pipes had been previously capped and subsequently limit any further introduction of contamination to the soil. The steel oil filter drain box had been removed and relocated east of the excavation and is no longer associated with this CAS.

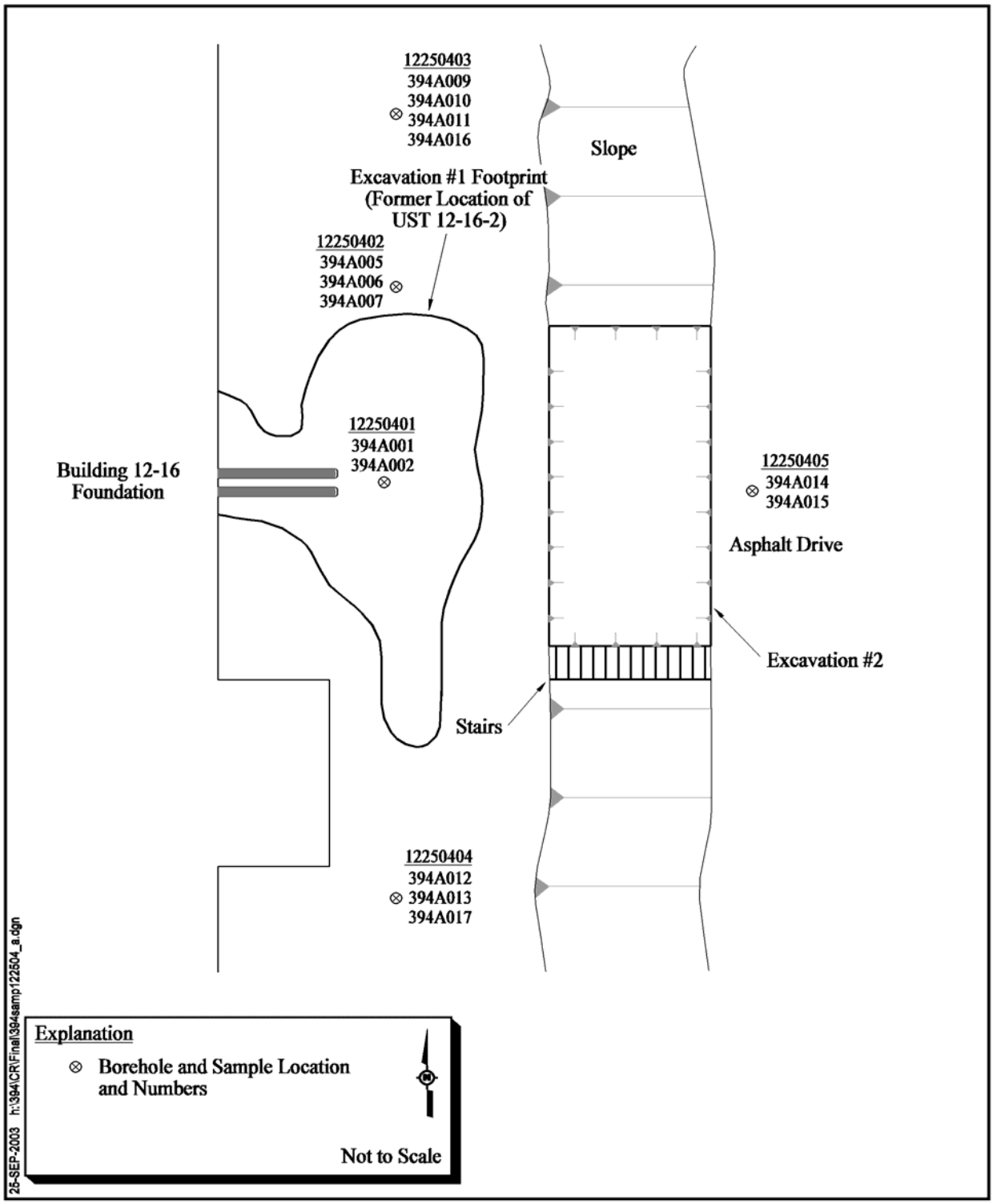


Figure D.2-1
CAS 12-25-04, UST 12-16-2 Waste Oil Release
Borehole and Sample Locations

Relocation of the sampling location (borehole 12250405) proposed at the center of the second excavation was made due to overhead utility lines which compromised safe drilling activities. The location was relocated approximately 10 ft to the east.

D.2.2 Investigation Results

The following subsections provide CAS-specific field-screening and sample analysis results.

D.2.2.1 Field-Screening Results

Soil samples were field-screened for VOCs, TPH, and alpha and beta/gamma emitters. The FSLs for VOCs and radiological emitters were not exceeded in any of the samples. Total petroleum hydrocarbon FSL was exceeded in eight soil samples (394A002, 394A006, 394A007, 394A009, 394A10, 394A11, 394A13, and 394A14).

D.2.2.2 Sample Analyses

Select soil samples were analyzed for CAS-specified COPCs which included total VOCs, total SVOCs, total RCRA metals, TPH (DRO and GRO), and PCBs. Additionally, soil samples were analyzed for TCLP RCRA metals for waste management determinations.

The analytical parameters and laboratory analytical methods used to analyze the investigation samples are listed in Table D.1-1. Table D.2-1 lists the sample-specific analytical parameters.

D.2.2.3 Analytes Detected Above Minimum Reporting Limits

Samples with results greater than MRLs or PALs are presented in the following sections.

D.2.2.3.1 Total Volatile Organic Compound Analytical Results for Soil Samples

Table D.2-2 lists the soil samples that have VOC concentrations above the MRLs. Total VOCs were not detected in soil samples at concentrations exceeding the PAL established in the SAFER Plan.

Table D.2-2
Soil Sample Results for Total VOCs Detected
Above Minimum Reporting Limits at CAS 12-25-04

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (µg/kg)
			Acetone
Preliminary Action Levels			6,200,000
394A009	Borehole 12250403	8 - 8.5	34
394A010		8 - 8.5	50

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
µg/kg = Micrograms per kilogram

D.2.2.3.2 Total Semivolatile Organic Compound Analytical Results for Soil Samples

Total SVOCs were not detected in soil samples at concentrations exceeding the MRLs as established in the SAFER Plan.

D.2.2.3.3 Total Petroleum Hydrocarbon Analytical Results for Soil Samples

Table D.2-3 lists the soil samples that have TPH-DRO concentrations above the MRLs established in the SAFER Plan. Results from sample 394A002, collected from the center of the excavation #1 footprint, indicated an exceedance of the PAL. Sample 394A009 (and duplicate 394A010) was collected from stepout borehole 12250403, north of the excavation #1 footprint and results indicate concentrations above the PAL.

D.2.2.3.4 Total RCRA Metals Analytical Results for Soil Samples

Total RCRA metals detected in soil samples at concentrations exceeding MRLs are listed in Table D.2-4. Only arsenic exceeded the PAL of 2.7 mg/kg for RCRA metals established in the SAFER Plan. However, the mean concentration of arsenic in silt from the NTTR is 7 to 8 mg/kg (NBMG, 1998; Moore, 1999). The arsenic concentrations presented in Table D.2-4 are considered representative of ambient conditions at the site and do not exceed the RCRA Hazardous Waste regulatory limit of 5 mg/L. Therefore, a corrective action will not be required (DOE/NV, 2001).

Table D.2-3
Soil Sample Results for TPH- DRO
Detected Above Minimum Reporting Limits at CAS 12-25-04

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (mg/kg)
			Diesel Range Organics
Preliminary Action Levels			**100**
394A001	Borehole 12250401	3.5 - 4	39
394A002		5.5 - 6	780 (J)
394A005	Borehole 12250402	8 - 8.5	67
394A006		9.5 - 10	29
394A009	Borehole 12250403	8 - 8.5	200
394A010		8 - 8.5	220
394A012	Borehole 12250404	7.5 - 8	56
394A014	Borehole 12250405	4 - 4.5	66

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
mg/kg = Milligrams per kilogram
J = Estimated value. Qualifier added to laboratory data; record accepted. Surrogate recovery exceeded the upper limits. Matrix effects may exist.

Table D.2-4
Soil Sample Results for Total RCRA Metals
Detected Above Minimum Reporting Limits at CAS 12-25-04

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential (mg/kg)			
			Arsenic	Barium	Chromium	Lead
Preliminary Action Levels[a]			**2.7**	**100,000**	**450**	**750**
394A001	Borehole 12250401	3.5 - 4	2.91	148	4.64	16.6
394A002		5.5 - 6	5.7	110	5.1	15.7
394A005	Borehole 12250402	8 - 8.5	3.87	124	9.97	14.4
394A006		9.5 - 10	4.53	101	8.65	13.7
394A007		14.5 - 15	2.1	71.5	1.84	7.03
394A009	Borehole 12250403	8 - 8.5	2.86	83.6	3.32	7.53
394A010		8 - 8.5	2.75	96	3.45	9.92
394A011		14.5 - 15	1.97	73.9	1.35	7.21
394A012	Borehole 12250404	7.5 - 8	2.62	80.6	3.24	12.3
394A013		17 - 17.5	2.1	60.3	2.2	4.84
394A014	Borehole 12250405	4 - 4.5	3.78	179	6.65	25.2
394A015		12 - 12.5	3.18	94.1	1.36	5.95
394A016	Borehole 12250403	26.5 - 27	1.92	65.3	1.16	4.87
394A017	Borehole 12250404	25 - 25.5	1.81	79.3	1.49	10.1

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
mg/kg = Milligrams per kilogram

D.2.2.3.5 Polychlorinated Biphenyl Results for Soil Samples

Table D.2-5 lists PCB soil sample analytical results that exceeded the MRLs established in the SAFER Plan. One sample exceeded the MRL, but does not exceed the PAL. The concentration of Aroclor-1260 was reported at 110 μg/kg in soil sample 394A002.

Table D.2-5
Soil Sample Results for PCBs Detected
Above Minimum Reporting Limits at CAS 12-25-04

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (μg/kg)
			Aroclor-1260
Preliminary Action Levels[a]			1,000
394A002	Borehole 12250401	5.5 - 6	110

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
μg/kg = Micrograms per kilogram

D.2.2.4 Contaminants of Concern

The contaminant of concern at this CAS is TPH. Two samples and the field duplicate exceeded the TPH PAL of 100 mg/kg.

D.2.3 Nature and Extent of Contamination

Sample results verify that the soil collected from the backfilled excavation #1 had concentrations of TPH-DRO that exceed the PAL. Sample 394A002 was collected from the center of the excavation at a depth of 6 ft bgs. Samples greater than 6 ft bgs were not collected from that location due to auger refusal. Analytical results from stepout sampling locations south, east, and north of the excavation footprint indicated that concentrations of TPH-DRO did not exceed PAL.

Results from samples collected from borehole 12250402 did not exceed regulatory limits. However, based on TPH field-screening results from this sample location, an additional stepout location was completed approximately 75 feet north from the center of the excavation. At this location, sample 394A009 (duplicate 394A010) was collected and the associated analytical results indicate TPH

concentrations exceed the PAL at 8 ft bgs. However, sample 394A016 was collected at 16.5 ft bgs, approximately 8 ft below sample 394A009, with TPH concentrations below the MRL. This elevated concentration is believed to be from a separate source and not associated with the former UST. Analytical results indicated that TPH concentrations decreased to below the MRL away from the center of the excavation #1 footprint. Additionally, the sampling location is approximately 75 ft north of the excavation and extends beyond the boundaries of the CAS.

Verification samples confirm that the extent of TPH contamination originating from the center of the excavation does not extend laterally beyond 30 ft north and 35 ft south. Any contamination that may exist within the excavation to the east does not extend beyond the eastern boundary of the excavation. Contamination does not appear to be present below 20 ft bgs. The nature and extent of TPH were identified and defined for CAS 12-25-04.

D.2.4 Revised Conceptual Model

Variations to the conceptual site model were not identified.

D.3.0 CAS 18-25-01, Oil Spills

Corrective Action Site 18-25-01, the 17 Camp Gas Station, consists of two pump islands and a mechanics shelter in Area 18.

The service station was in operation in the mid-1960s and it is unknown when operations ceased. Both gasoline and diesel fuels were dispensed during operations. Underground storage tanks that supplied the pumps were located southwest of the service station and are not associated with this CAS.

The mechanics shelter is located to the northwest of the pump islands and may have been for vehicle maintenance and potential oil/fuel releases may have occurred.

D.3.1 SAFER Investigation

Twenty-three soil samples and associated QC samples were collected and analyzed from 15 locations during closure activities conducted at CAS 18-25-01 and are listed in Table D.3-1. The proposed sample locations are shown on Figure A.4-1 of the SAFER Plan. The actual characterization sample locations are shown in Figure D.3-1.

Samples were collected using Geoprobe® direct-push sampling method. The core barrels were lined with 2-in. diameter liners and boreholes were advanced at 4-ft intervals. The core barrel was retrieved from the borehole and screened for radiation. The liner was then removed from the core barrel, cut open, and the soil core was screened for radiation. The core was inspected and soil samples were collected for TPH field screening from 2, 4, and 6 ft bgs. Based on the lack of biasing factors from field-screening results and visual indications of staining, the minimum confirmation sample at the 4-ft bgs interval was sent off site for analysis.

D.3.1.1 SAFER Plan Implementation

The following field activities were conducted at CAS 18-25-01 to meet SAFER Plan requirements:

- Collected surface and subsurface samples at biased locations around each pump island and on the eastern side of the mechanics shelter.

Table D.3-1
Samples Collected from CAS 18-25-01
(Page 1 of 2)

Sample Number	Sample Location/Description	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
394B001	Borehole 18250101, Northeast of gasoline pump island	3 - 4	Soil	SC, WM	Set 1, Set 2, and Set 3
394B002	Borehole 18250102, Southeast of gasoline pump island	3 - 4	Soil	SC	Set 1
394B003	Borehole 18250103, Northwest of gasoline pump island	3 - 4	Soil	SC	Set 1
394B004	Borehole 18250104, Southwest of gasoline pump island	3 - 4	Soil	SC	Set 1
394B005	Borehole 18250105, Southwest of diesel pump island	3 - 4	Soil	SC	Set 1
394B006	Borehole 18250106, Northwest of diesel pump island	3 - 4	Soil	SC	Set 1
394B007	Borehole 18250107, Northeast of diesel pump island	3 - 4	Soil	SC	Set 1
394B008	Borehole 18250108, Southeast of diesel pump island	3 - 4	Soil	SC	Set 1
394B009	Borehole 18250109, East of the mechanics shelter	3 - 4	Soil	SC	Set 1
394B010	Borehole 18250110, East of the mechanics shelter	3 - 4	Soil	SC	Set 1
394B011	Borehole 18250111, East of the mechanics shelter	3 - 4	Soil	SC	Set 1
394B012	Borehole 18250112, East of the mechanics shelter	3 - 4	Soil	SC	Set 1
394B013	Borehole 18250113, East of the mechanics shelter	3 - 4	Soil	SC	Set 1, Set 2, and Set 3
394B014	Borehole 18250113, East of the mechanics shelter	3 - 4	Soil	Field Duplicate of 394B013	Set 1, Set 2, and Set 3
*394B016	Adjacent to Borehole 18250111	0.0 - 0.1	Asphalt	SC	Set 1
394B017	Adjacent to Borehole 18250101	0.0 - 0.1	Asphalt	SC	Set 1
394B018	Adjacent to Borehole 18250104	0.0 - 0.1	Asphalt	SC	Set 1
394B019	South-southwest of gasoline pump island	3 - 3.5	Soil	SC, Lab QC	TPH-DRO
394B020	South-southwest of gasoline pump island	3- 3.5	Soil	Field Duplicate of 394B019	TPH-DRO
394B021	North of diesel pump island	3.5 - 4	Soil	SC	TPH-DRO
394B022	NA	NA	Water	Field Blank	TPH-DRO
394B301	NA	NA	Water	Trip Blank	VOC
394B302	NA	NA	Water	Trip Blank	VOC
394B303	NA	NA	Water	Field Blank	Set 1, Set 2

Table D.3-1
Samples Collected from CAS 18-25-01
(Page 2 of 2)

Sample Number	Sample Location/Description	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
394B304	NA	NA	Water	Source Blank	Set 1, Set 2
394B305	NA	NA	Water	Equipment Rinsate Blank	Set 1, Set 2
394B306	NA	NA	Water	Trip Blank	VOC
394B307	NA	NA	Water	Field Blank	TPH-DRO

*Skip in sample number sequence
ft bgs = Feet below ground surface
SC = Site characterization
QC = Quality control
NA = Not applicable
WM = Waste management

Set 1 = VOCs, SVOCs, RCRA metals, TPH (GRO and DRO), and PCBs
Set 2 = Gamma Spectrometry, Isotopic Uranium, Isotopic Plutonium
Set 3 = TCLP VOC, TCLP RCRA metals

- Field screened soil samples for TPH, and alpha and beta/gamma radiation.
- Perform step-out sampling, if necessary.
- Submitted selected samples for off-site laboratory analysis.

D.3.1.2 Deviations from the SAFER Plan

No deviations.

D.3.1.3 Investigation Results

The following subsections provide CAS-specific field-screening and sample analysis results.

D.3.1.4 Field-Screening Results

Soil samples were field screened at 2 ft, 4 ft, and 6 ft bgs for TPH and alpha and beta/gamma radiation. The FSRs were compared to FSLs to guide sampling decisions. Radiological FSRs did not exceed FSLs in any of the samples. Results from field-screening indicated TPH was exceeded at 4 ft bgs at three sample locations (394B004, 394B006, and 394B007).

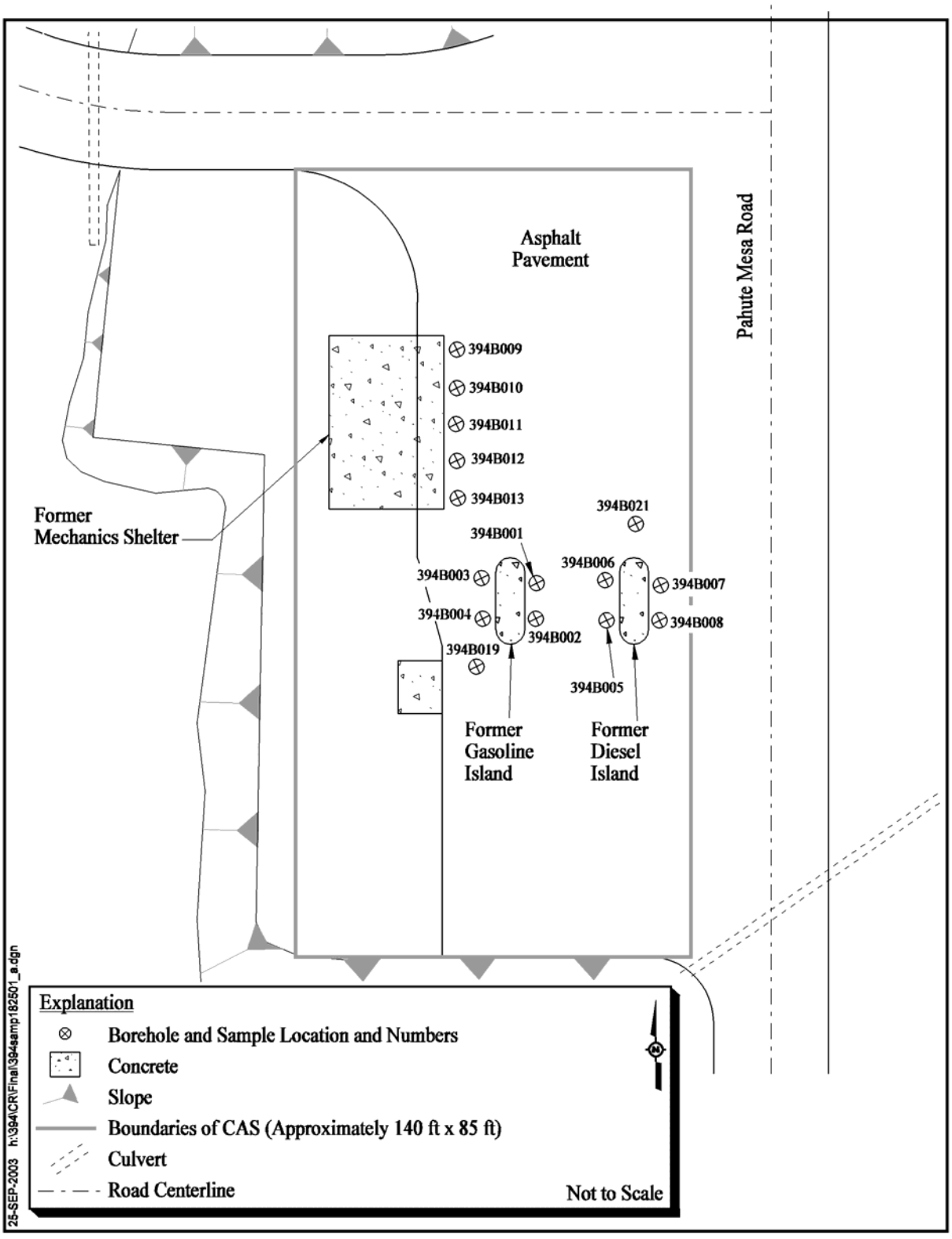


Figure D.3-1
CAS 18-25-01, Oil Spills, Area 18 Service Station
Borehole and Sample Locations

D.3.1.5 Sample Analyses

Investigation soil and solid (asphalt) samples were analyzed for the SAFER Plan-specified COPCs which included total VOCs, total SVOCs, total RCRA metals, TPH (DRO and GRO). Samples were analyzed for TCLP VOC, TCLP RCRA metals, isotopic uranium, isotopic plutonium, and gamma-emitting radionuclides for waste management purposes.

The analytical parameters and laboratory analytical methods used to analyze the investigation samples are listed in Table D.1-1. Table D.3-1 lists the sample-specific analytical parameters.

D.3.1.6 Analytes Detected Above Minimum Reporting Limits

Samples with results greater than MRLs or PALs are presented in the following sections.

D.3.1.6.1 Total Volatile Organic Compound Analytical Results for Soil Samples

There were no VOCs detected in soil samples at concentrations exceeding the MRLs that were established in the SAFER Plan.

D.3.1.6.2 Total Semivolatile Organic Compound Analytical Results for Soil Samples

Total SVOCs were not detected in soil samples at concentrations exceeding MRLs established in the SAFER Plan.

D.3.1.6.3 Total Petroleum Hydrocarbon Analytical Results for Soil Samples

Table D.3-2 lists the soil samples with detected TPH-DRO concentrations above the MRL as established in the SAFER Plan. Three sample results exceeded the PAL. Sample 394B004 was collect from the borehole located northwest of the gasoline pump island. Samples 394B006 and 394B007 were collected from the northeast and southeast boreholes of the diesel pump island. All three samples were collected at 3 to 4 ft bgs.

Table D.3-2
Soil Sample Results for TPH-DRO Detected
Above Minimum Reporting Limits at CAS 18-25-01

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (mg/kg)
			Diesel Range Organics
Preliminary Action Levels[a]			100
394B003	Borehole 18250103	3 - 4	57
394B004	Borehole 18250104	3 - 4	260
394B005	Borehole 18250105	3 - 4	92
394B006	Borehole 18250106	3 - 4	110
394B007	Borehole 18250107	3 - 4	220
394B008	Borehole 18250108	3 - 4	18
394B009	Borehole 18250109	3 - 4	34
394B019	South-southwest of gasoline pump island	3 - 3.5	5.5
394B020	South-southwest of gasoline pump island	3 - 3.5	5.5
394B021	North of diesel pump island	3.5 - 4	5.5

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
mg/kg = Milligrams per kilogram

D.3.1.6.4 Total RCRA Metals Results in Soil Samples

Total RCRA metals detected in soil samples at concentrations exceeding MRLs are listed in Table D.3-3. Total RCRA metals were not detected in soil samples at concentrations exceeding the PALs established in the SAFER Plan.

D.3.1.6.5 Gamma Spectrometry Results in Soil Samples

Gamma spectrometry was used to analyze select soil samples in support of IDW disposal and waste management decisions (Table D.3-4). The results did not indicate the presence of man-made radionuclides at concentrations greater than, or statistically distinguishable from, background concentrations (US Ecology and Atlan-Tech, 1991; McArthur and Miller, 1989).

Table D.3-3
Soil Sample Results for Total RCRA Metals
Detected Above Minimum Reporting Limits at CAS 18-25-01

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential (mg/kg)			
			Arsenic	Barium	Chromium	Lead
Preliminary Action Levels[a]			2.7	100,000	450	750
394B002	Borehole 18250102	3 - 4	--	50.2	2.92	4.74
394B003	Borehole 18250103	3 - 4	1.85	60.8	3.4	5.99
394B004	borehole 18250104	3 - 4	--	70.5	3.91	4.74
394B005	Borehole 18250105	3 - 4	--	66.3	4.19	5.81
394B006	Borehole 18250106	3 - 4	--	54.8	3.55	4.63
394B007	Borehole 18250107	3 - 4	--	56.6	2.38	4.94
394B008	Borehole 18250108	3 - 4	--	64.2	3.33	5.15
394B009	Borehole 18250109	3 - 4	--	49.3	2.88	4.32
394B010	Borehole 18250110	3 -4	--	49	2.4	4.5
394B011	Borehole 18250111	3 - 4	--	56.4	2.86	4.6
394B012	Borehole 18250112	3 - 4	--	49.9	2.76	4.32
394B013	Borehole 18250113	3 - 4	1.23	56.9	2.79	4.27
394B014		3 - 4	1.26	50.1	2.84	4.21

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
mg/kg = Milligrams per kilogram
-- = Not detected above minimum reporting limits

D.3.1.6.6 Isotopic Results for Soil Samples

Isotopic analyses were used to analyze select soil samples in support of waste management decisions (Table D.3-5). Soil sample results for isotopic plutonium indicated that concentrations did not exceed the MRL; therefore, no results are shown on Table D.3-5. The results did not indicate the presence of man-made radionuclides at concentrations greater than, or statistically distinguishable from, background concentrations (US Ecology and Atlan-Tech, 1991; McArthur and Miller, 1989).

D.3.1.6.7 Analytical Results for Solid Samples

Analytical results for SAFER Plan-specified COPCs of the asphalt were used for background determinations. COPCs detected in the asphalt at concentrations exceeding MRLs are listed in Table D.3-6. The results indicated that TPH-DRO concentrations exceeded the PAL as established in the SAFER Plan.

Table D.3-4
Soil Sample Results for Gamma-Emitting Radionuclides Detected Above Minimum Reporting Limits at CAS 18-25-01

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (pCi/g)					
			Actinium-228	Lead-212	Lead-214	Potassium-40	Thallium-208	Thorium-232
Preliminary Action Levels[a]			**3.64**	**3.64**	**3.47**	**97.7**	**3.38**	**3.64**
394B001	Borehole 18250101	3 - 4	2.49 ± 0.73	2.37 ± 0.43	1.11 ± 0.31	35.9 ± 5.8	0.879 ± 0.19	--
394B013	Borehole 18250113	3 - 4	--	1.89 ± 0.41	--	31.9 ± 6.2	0.723 ± 0.18	2.31 ± 0.84
394B014		3 - 4	3.04 ± 0.79	2.69 ± 0.55	1.79 ± 0.4	37.3 ± 6.0	0.83 ± 0.27	--

[a]Background concentration listed in Environmental Monitoring Report for the Proposed Ward Valley, California, Low-Level Radioactive Waste (LLRW) Facility (US Ecology and Atlan-Tech, 1991).

ft bgs = Feet below ground surface
pCi/g = Picocuries per gram
-- = Not detected above minimum reporting limits

Table D.3-5
Soil Sample Results for Isotopic Uranium Detected Above Minimum Reporting Limits at CAS 18-25-01

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (pCi/g)		
			Uranium-234	Uranium-235	Uranium-238
Preliminary Action Levels[a]			**3.47**	**0.07**	**3.47**
394B001	Borehole 18250101	3 - 4	1.09 ± 0.21	0.0466 ± 0.018 (J)	1.07 ± 0.21
394B013	Borehole 18250113	3 - 4	1.03 ± 0.25	--	1.22 ± 0.28
394B014		3 - 4	1.12 ± 0.23	--	1.17 ± 0.24

[a]Background concentration listed in *Environmental Monitoring Report for the Proposed Ward Valley, California, Low-Level Radioactive Waste (LLRW) Facility* (US Ecology and Atlan-Tech, 1991).

ft bgs = Feet below ground surface
pCi/g = Picocuries per gram
-- = Not detected above minimum reporting limits
J = Estimated value

Table D.3-6
Asphalt Sample Results Detected Above
Minimum Reporting Limits at CAS 18-25-01

Sample Number	Matrix	Parameter	Result	Units	Regulatory Limits
394B016	Solid	Barium	187	mg/kg	NA
394B016	Solid	Chromium	3.48	mg/kg	NA
394B016	Solid	Lead	14.2	mg/kg	NA
394B017	Solid	Barium	162	mg/kg	NA
394B017	Solid	Chromium	3.68	mg/kg	NA
394B017	Solid	Lead	7.01	mg/kg	NA
394B018	Solid	Barium	237	mg/kg	NA
394B018	Solid	Chromium	2.16	mg/kg	NA
394B018	Solid	Lead	6.43	mg/kg	NA
394B017	Solid	Acetone	58 (J)[a]	µg/kg	NA
394B017RE	Solid	Acetone	72	µg/kg	NA
394B018	Solid	Acetone	58 (J)[a]	µg/kg	NA
394B018RE	Solid	2-Butanone	25	µg/kg	NA
394B018RE	Solid	Acetone	95	µg/kg	NA
394B016	Solid	Diesel Range Organics	10,000 (J)[b]	mg/kg	100
394B017	Solid	Diesel Range Organics	9,000 (J)[b]	mg/kg	100
394B018	Solid	Diesel Range Organics	4,000 (J)[b]	mg/kg	100

[a]Qualifier added to laboratory data; record accepted. Internal standard area count exceeded the quality control limit. Surrogate recovery exceeded.
[b]Qualifier added to laboratory data; record accepted. Surrogates diluted out.

mg/kg = Milligrams per kilogram
µg/kg = Micrograms per kilogram
J = Estimated value

D.3.1.7 Contaminants of Concern

The COC at this site is TPH-DRO. Concentrations that were reported above the PAL from three sample locations ranged from 110 to 260 mg/kg.

D.3.1.8 Nature and Extent of Contamination

The nature and extent of contamination is defined for CAS 18-25-01. Two step out locations were sampled, one 10 ft to the south-southwest of the former gasoline pump island and one 10 ft to the

north of the former diesel pump island. Concentrations of TPH-DRO were not detected in soil samples exceeding the PAL in these step out locations.

TPH was not detected at concentrations exceeding the PAL below 4 ft bgs and based on screening levels, the extent of vertical contamination does not appear to extend beyond 6 ft bgs. The surface is comprised of highly-weathered asphalt and the subsurface is comprised of sand and gravel fill material, and may include road base on the southern side of the former diesel pump island. Concentrations of TPH-DRO within the asphalt surface at three select sample locations around the former pump islands exceed the PAL.

Analytical results indicate that there is no evidence of contamination along the eastern side of the mechanics shelter foundation.

D.3.1.9 Revised Conceptual Model

Variations to the conceptual model were not identified.

D.4.0 CAS 18-25-02, Oil Spills

Corrective Action Site 18-25-02, at the 17 Camp Generator Shack, consists of contaminated concrete, gravel, and soil in and around the shack foundation. The CAS is located in Area 18. The generator shack was in operation by the mid-1960's and operation at the 17 Camp ceased by 1970. The shack was demolished sometime between 1993 and 1997. The concrete curbing foundation, six concrete pads within the foundation, the contaminated soils and gravel, and associated piping were part of the CAS at the start of the characterization activities. Figure D.4-1 shows the foundation of the generator shack.

The exposed end of a partially-buried, rigid metal pipe (outside the curbing to the northeast of the shack) associated with the generator pad was located approximately 10 ft to the northeast from the northeastern edge of the concrete curbing. A small soil stain was visible at the pipe opening. Northwest of the large generator pad, a second, flexible pipe existed. The purpose of the two pipes is unknown.

With the excavation of the PCB-contaminated soils at CAS 18-25-02, the adjacent CAS 18-25-03 was necessarily incorporated into the remediation due to the required sloping of the sidewalls of the excavation. Verification samples for the CAS 18-25-02 excavation are used to indicate that the PCB concentrations are below PRGs and the TPH concentrations are above the PALs for both CASs 18-25-02 and 18-25-03. Both CASs 18-25-02 and 18-25-03 have been incorporated into one closure in place with use restrictions.

D.4.1 SAFER Investigation

Pre-excavation sampling activities were performed according to the SAFER Plan and are discussed in Section D.4.2. The proposed sample locations are shown in Figure A.3-1 of the SAFER Plan.

One hundred and twenty four surface and subsurface soil samples and associated QC samples were collected and analyzed during closure activities conducted at CAS 18-25-02 and are listed in

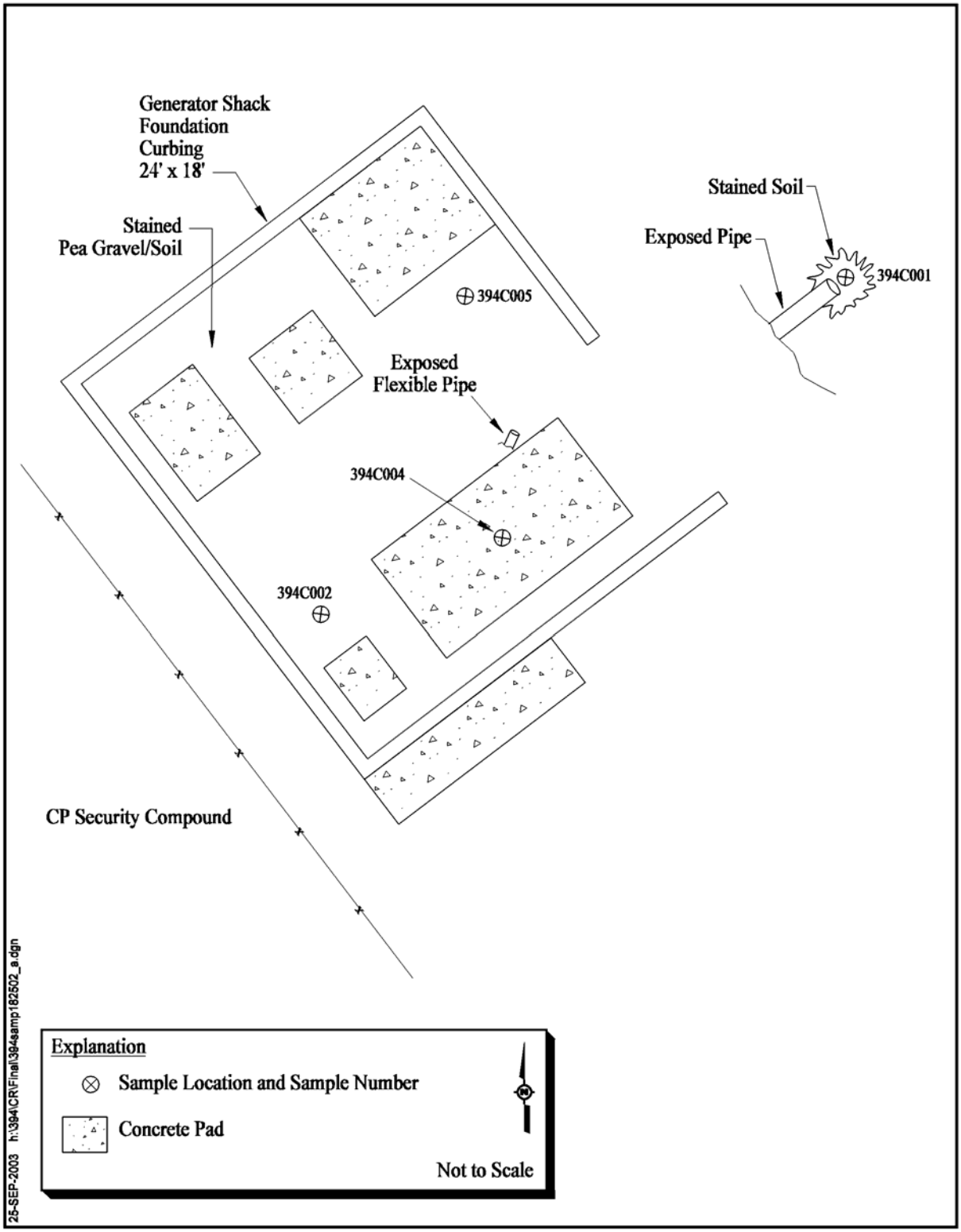


Figure D.4-1
CAS 18-25-02, Oil Spills, Pre-Excavation Sample Locations

Table D.4-1. The proposed sample locations are shown in Figure A.3-1 of the SAFER Plan. The actual characterization sample locations are shown in Figures D.4-1, D.4-2, D.4-3, D.4-4, and D.4-5.

During Phase I sampling activities, surface and subsurface samples were collected using hand scoop backhoe, track hoe, and drill rig sampling techniques, respectively.

The soil stain located at the rigid metal pipe opening was sampled as part of the pre-excavation activities then excavated using a backhoe. During excavation of the stained soil, the pipe cracked and approximately 2 gallons of liquid were released from the pipe. A sample of the liquid was collected and analyzed for PCBs, and the spill/release was cleaned up according to appropriate policies and procedures. At the moment the pipe initially cracked, liquid was also released from the flexible pipe located adjacent to the concrete generator pad. This suggests that there is some connection between the two pipes. The liquid and soil from the spill were cleaned up and properly disposed. A sample of the stained soil at this location was collected (394C009).

A series of excavations occurred between November 2002 and July 2003. In addition to contaminated soil, concrete foundation curbing, concrete pads, concrete tank saddles, and associated piping were excavated and disposed of as PCB waste. Subsequent verification sampling at the surface of the excavation indicated that the concentrations of the PCBs were below the PRGs. For details of the excavations and subsequent verification sampling activities refer to Section D.8.0.

D.4.1.1 SAFER Plan Implementation

The following field activities were conducted at CAS 18-25-02 to meet SAFER Plan requirements:

- Pre-excavation sampling was conducted for waste management purposes prior to characterization/investigation activities.
- Collected soil samples at biased locations within the concrete foundation curbing and at the end of the rigid metal pipe.
- Field screened soil samples for VOCs, TPH, and alpha and beta/gamma radiation.
- Submitted select samples for off-site laboratory analysis.

Table D.4-1
Samples Collected from CAS 18-25-02
(Page 1 of 7)

Sample Number	Sample Location/Description	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
394C001	Soil stain in and around pipe	0 - 0.5	Soil	WM	Set 2, Set 4, TCLP RCRA Metals
394C002	Within building foundation; near southwest corner	0 - 0.5	Soil	WM	Set 2, Set 4, TCLP RCRA Metals
394C003	Within building foundation; near southwest corner	0 - 0.5	Soil	Field Duplicate of 394C002	Set 2, Set 4, TCLP RCRA Metals
394C004	Soil on top of southern concrete pad	0.0 -0.2	Soil	WM	Set 2, Set 4, TCLP RCRA Metals
394C005	Within building foundation; near northeast corner	0 - 0.5	Soil	WM	Set 2, Set 4, TCLP RCRA Metals
394C006	Excavation east of exposed pipe	1.5 - 1.75	Soil	SC	Set 4
394C007	Excavation east of exposed pipe	1.5 - 1.75	Soil	SC	Set 2
394C008	Bottom of excavation; stained soil from fresh release	2 - 2.5	Soil	WM	Set 2, PCBs
394C009	Stain from end of exposed flexible pipe	0 - 0.5	Soil	WM	Set 2, PCBs
394C010	Within building foundation; sidewall southwest corner	1 - 1.5	Soil	SC, WM	Set 4, TCLP RCRA Metals
394C011	Within building foundation; near northeast corner	1 -1.5	Soil	SC, WM	Set 2, Set 4, TCLP RCRA Metals
394C012	Bottom of excavation, below exposed pipe	NA	Liquid	WM	PCBs
394C013	East-side surface of excavation (3 ft bgs of original surface)	0 - 0.5 (3 - 3.5)	Soil	SC	TPH-DRO, PCB
394C014	Northwest sidewall of excavation (4 ft bgs of original surface)	0 - 0.5 (4 - 4.5)	Soil	SC	TPH-DRO, PCB
394C015	Southwest sidewall of excavation (2 ft bgs of original surface)	0 - 0.5 (2 - 2.5)	Soil	SC	TPH-DRO, PCB
394C016	Southeast sidewall of excavation (2 ft bgs of original surface)	0 - 0.5 (2 - 2.5)	Soil	SC	TPH-DRO, PCB
394C017	Center of excavation (3 ft bgs of original surface)	0 -0.5 (3 - 3.5)	Soil	SC	TPH-DRO, PCB
394C018	Center of excavation (3 ft bgs of original surface)	0 - 0.5 (3 - 3.5)	Soil	Field Duplicate of 394C017	TPH-DRO, PCB
394C019	Location of former surface pipe	0 - 0.5	Soil	SC	TPH-DRO, PCB
394C020	East of excavation, on entrance into excavation	0 - 0.5	Soil	SC	TPH-DRO, PCB
394C021	West of excavation, along fenceline	0 - 0.5	Soil	SC	TPH-DRO, PCB
394C022	South of excavation, on slope above sewer manhole	0 - 0.5	Soil	SC	TPH-DRO, PCB

Table D.4-1
Samples Collected from CAS 18-25-02
(Page 2 of 7)

Sample Number	Sample Location/Description	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
394C023	South of excavation on slope to the west of sewer manhole	0 - 0.5	Soil	SC	TPH-DRO, PCB
394C024	Southwest (corner) of excavation on top of slope	0 - 0.5	Soil	SC	TPH-DRO, PCB
394C025	Southwest of excavation, at the bottom of slope	0 - 0.5	Soil	SC	TPH-DRO, PCB
394C026	South of excavation, at the bottom of slope near decontamination pad	0 - 0.5	Soil	SC	TPH-DRO, PCB
394C027	East of excavation, along entranceway into excavation	0.25 - 0.75	Soil	SC	TPH-DRO, PCB
394C028	East of excavation and 394C027, along entranceway into excavation	0 - 0.5	Soil	SC	TPH-DRO, PCB
394C029	East of excavation and 394C028, along entranceway into excavation	0 - 0.5	Soil	SC	TPH-DRO, PCB
394C030	South of sewer manhole at the bottom of the slope	0 - 0.5	Soil	SC	TPH-DRO, PCB
394C031	East of excavation, on entrance into excavation	0 - 0.5	Soil	Field Duplicate of 394C020	TPH-DRO, PCB
394C032	Northeast corner outside of excavation, northeast of C27 about 2 ft 3 in.	0.75 - 1	Soil	SC, Lab QC	TPH-DRO, PCB
394C033	Northeast corner outside of excavation, northeast of C27 about 2 ft 3 in.	0.75 - 1	Soil	Field Duplicate of 394C032	TPH-DRO, PCB
394C034	Outside and center of the east edge of the excavation, south of C27 about 2 ft 6 in.	0.75 - 1	Soil	SC	TPH-DRO, PCB
394C035	Southeast of excavation, south of C28 about 4 ft 9 in.	0.75 - 1	Soil	SC	TPH-DRO, PCB
394C036	East of excavation, south of C29 about 1 ft 10 in.	0.75 - 1	Soil	SC	TPH-DRO, PCB
394C037	East of excavation, north of C29 about 2 ft 3 in.	0.75 - 1	Soil	SC	TPH-DRO, PCB
394C038	East of excavation, east of C29	0.75 - 1	Soil	SC	TPH-DRO, PCB
394C039	In the center of the excavation	0 - 0.1 (4.5-4.6)	Soil	SC	TPH-DRO, PCB
394C040	In the center of the excavation	0 - 0.1 (4.5 - 4.6)	Soil	Field Duplicate of 394C039	TPH-DRO, PCB
394C041	Center of the Northeast edge of the excavation	0 - 0.5 (4 - 4.5)	Soil	SC	TPH-DRO, PCB

Table D.4-1
Samples Collected from CAS 18-25-02
(Page 3 of 7)

Sample Number	Sample Location/Description	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
394C042	Center of the Southwest edge of the excavation	0 - 0.5 (3.5 - 4)	Soil	SC	TPH-DRO, PCB
394C043	Center of the Southeast edge of the excavation	0 - 0.5 (2.5 - 3)	Soil	SC	TPH-DRO, PCB
394C044	Center of the Northwest edge of the excavation	0- 0.5 (4 - 4.5)	Soil	SC	TPH-DRO, PCB
394C045	10 ft East of the Northeast edge of the excavation	0 - 0.5	Soil	SC	TPH-DRO, PCB
394C046	20 ft East of the Northeast edge of the excavation	0 - 0.5	Soil	SC	TPH-DRO, PCB
394C047	35 ft East of the Northeast edge of the excavation	0 - 0.5	Soil	SC	TPH-DRO, PCB
394C048	Borehole C01 in the East corner of the excavation	1.5 - 2	Soil	SC	TPH-DRO, PCB
394C049	Borehole C01 in the East corner of the excavation	3.5 - 4	Soil	SC	TPH-DRO, PCB
394C050	Borehole C01 in the East corner of the excavation	5.5 - 6	Soil	SC	TPH-DRO, PCB
394C051	Borehole C02 in the center of the Northeastern edge of the excavation	3.5 - 4	Soil	SC	TPH-DRO, PCB
394C052	Borehole C02 in the center of the Northeastern edge of the excavation	5.5 - 6	Soil	SC	Set 1
394C053	Borehole C02 in the center of the Northeastern edge of the excavation	19.5 - 20	Soil	SC	Set 1
394C054	Borehole C02 in the center of the Northeastern edge of the excavation	24.5 - 25	Soil	SC	Set 1
394C055	Borehole C03 in the North corner of the excavation	3.5 - 4	Soil	SC	Set 1
394C056	Borehole C04 in the center of the Northeastern edge outside of the excavation	3.5 - 4	Soil	SC	Set 1
394C057	Borehole C04 in the center of the Northeastern edge outside of the excavation	7 - 7.5	Soil	SC	Set 1
394C058	Borehole C04 in the center of the Northeastern edge outside of the excavation	9.5 - 10	Soil	SC	Set 1

Table D.4-1
Samples Collected from CAS 18-25-02
(Page 4 of 7)

Sample Number	Sample Location/Description	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
394C059	Borehole C05 Northeast from the central outside edge of the excavation	3.5 - 4	Soil	SC	TPH-DRO, PCB
394C060	Borehole C05 Northeast from the central outside edge of the excavation	1.5 - 2	Soil	SC	TPH-DRO, PCB
394C061	Borehole C05 Northeast from the central outside edge of the excavation	5.5 - 6	Soil	SC	Set 1
394C062	Borehole C05 Northeast from the central outside edge of the excavation	9.5 - 10	Soil	SC	Set 1
394C063	Borehole C06 in the center of the excavation	1.5 - 2	Soil	SC	TPH-DRO, PCB
394C064	Borehole C06 in the center of the excavation	3.5 - 4	Soil	SC	TPH-DRO, PCB
394C065	Borehole C06 in the center of the excavation	5.5 - 6	Soil	SC	Set 1
394C066	Borehole C07 North of the East corner of the excavation	1.5 - 2	Soil	SC	TPH-DRO, PCB
394C067	Borehole C07 North of the East corner of the excavation	3.5 - 4	Soil	SC	TPH-DRO, PCB
394C068	Borehole C07 North of the East corner of the excavation	5.5 - 6	Soil	SC	TPH-DRO, PCB
394C069	Borehole C07 North of the East corner of the excavation	9.5 - 10	Soil	SC, Lab QC	Set 1
394C070	Borehole C08 inside the East corner of the excavation next to C01	1.5 - 2	Soil	SC	TPH-DRO, PCB
394C071	Borehole C08 inside the East corner of the excavation next to C01	3.5 - 4	Soil	SC	Set 1
394C072	Borehole C08 inside the East corner of the excavation next to C01	5.5 - 6	Soil	SC	Set 1
394C073	Borehole C08 inside the East corner of the excavation next to C01	9.5 - 10	Soil	SC	Set 1
394C074	Under Sewer Line (NNE of Manhole)	7 - 7.5	Soil	WM	TCLP VOCs, TCLP SVOCs; TCLP RCRA Metals
394C075	East corner of excavation on south wall	2 - 2.5	Soil	SC	TPH-DRO, PCB

Table D.4-1
Samples Collected from CAS 18-25-02
(Page 5 of 7)

Sample Number	Sample Location/Description	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
394C076	~8 ft west of east corner on south wall	3 - 3.5	Soil	SC	TPH-DRO, PCB
394C077	~16 ft from east corner on south wall	3 - 3.5	Soil	SC	TPH-DRO, PCB
394C078	~24 ft from the east corner on the south wall.	3.5 - 4	Soil	SC	TPH-DRO, PCB
394C079	~24 ft from east corner on west wall	3.5 - 4	Soil	Field Duplicate of #394C078	TPH-DRO, PCB
394C080	~8 ft from west corner on west wall	4 - 4.5	Soil	SC	TPH-DRO, PCB
394C081	~16 ft from west corner on west wall	3 - 3.5	Soil	MS/MSD	TPH-DRO, PCB
394C082	4 ft from manhole on east wall	4 - 4.5	Soil	SC	TPH-DRO, PCB
394C083	~8 ft from manhole (north) on west wall	3.5 - 4	Soil	SC	TPH-DRO, PCB
394C084	NA	NA	Water	Trip Blank	Total VOCs
394C085	North wall toe of slope	6 - 7	Soil	SC	TPH-DRO, PCB
394C086		6 - 7	Soil	SC	TPH-DRO, PCB
394C087		6 - 7	Soil	SC	TPH-DRO, PCB
394C088		6 - 7	Soil	SC	TPH-DRO, PCB
394C089	West wall toe of slope	3 - 4	Soil	SC	TPH-DRO, PCB
394C090		3 - 4	Soil	SC	TPH-DRO, PCB
394C091		3 - 4	Soil	SC	TPH-DRO, PCB
394C092	Due south west corner (surface)	0 - 1	Soil	SC	TPH-DRO, PCB
394C093	South side (surface)	0 - 1	Soil	SC	TPH-DRO, PCB
394C094		0 - 1	Soil	SC	TPH-DRO, PCB
394C095	Floor of excavation	6 - 7	Soil	SC	TPH-DRO, PCB
394C096		6 - 7	Soil	SC	TPH-DRO, PCB
394C097	Bottom of excavation	6 - 7	Soil	SC	TPH-DRO, PCB
394C098	Floor of excavation	6 - 7	Soil	SC	TPH-DRO, PCB
394C099		6 - 7	Soil	SC	TPH-DRO, PCB
394C100		6 - 7	Soil	SC	TPH-DRO, PCB
394C101		4 - 6	Soil	SC	TPH-DRO, PCB
394C102	Floor of excavation	4 - 6	Soil	SC	TPH-DRO, PCB
394C103		4 - 6	Soil	Field Duplicate of #394C102	TPH-DRO, PCB
394C104	Southerly outfall of C.M.P. drain line	0 - 1	Soil	SC	TPH-DRO, PCB
394C105	Deepest point of excavation	10 - 12	Soil	SC	TPH-DRO, PCB

Table D.4-1
Samples Collected from CAS 18-25-02
(Page 6 of 7)

Sample Number	Sample Location/Description	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
394C106	Floor of excavation eastern section	2 - 4	Soil	SC	TPH-DRO, PCB
394C107	Floor of excavation eastern end	2 - 4	Soil	SC	TPH-DRO, PCB
394C108	Easterly end - floor of excavation	2 - 4	Soil	SC	TPH-DRO, PCB
394C109	Floor of excavation at toe of slope	2 - 4	Soil	SC	TPH-DRO, PCB
394C110	Inlet to C.M.P. drain line	0 - 1	Soil	SC, MS/MSD	TPH-DRO, PCB
394C111	Boring C12	4 - 5	Soil	SC	Set 1, Gamma Spectrometry
394C112		4 - 5	Soil	Field Duplicate of #394C111	Set 1, Gamma Spectrometry
394C113		14 - 15	Soil	SC	Set 1, Gamma Spectrometry
394C114		19 - 20	Soil	SC	Set 1, Gamma Spectrometry
394C115	Boring C13	16 - 17	Soil	SC	Set 1, Gamma Spectrometry
394C116		21 - 22	Soil	SC	Set 1, Gamma Spectrometry
394C117	Boring C10	18 - 19	Soil	SC	Set 1, Gamma Spectrometry
394C118		22 - 23	Soil	SC	Set 1, Gamma Spectrometry
394C119	Boring C11	22 - 23	Soil	SC, Lab QC	Set 1, Gamma Spectrometry
394C120		27 - 28	Soil	SC	Set 1, Gamma Spectrometry
394C121	Boring C09	9 - 10	Soil	SC	Set 1, Gamma Spectrometry
394C122		14 - 15	Soil	SC	Set 1, Gamma Spectrometry
394C123		19 - 20	Soil	SC	Set 1, Gamma Spectrometry
394C124	Boring C14	0 - 0.5	Soil	SC	Set 1, Gamma Spectrometry
394C301	NA	NA	Water	Trip Blank	VOC
394C302	NA	NA	Water	Field Blank	TPH-DRO, PCB
394C303	NA	NA	Water	Trip Blank	VOC
394C305	NA	NA	Water	Field Blank	Set 1
394C306	NA	NA	Water	Equipment Rinsate Blank	Set 1
394C310	NA	NA	Liquid	Trip Blank	VOC

Table D.4-1
Samples Collected from CAS 18-25-02
(Page 7 of 7)

Sample Number	Sample Location/Description	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
394C310A	NA	NA	Water	Field Blank	TPH-DRO, PCBs
394C311	NA	NA	Water	Equipment Rinsate Blank	TPH-DRO, PCBs
394C312	NA	NA	Water	Trip Blank	Total VOCs
394C313	NA	NA	Water	Trip Blank	Total VOCs
394C314	NA	NA	Water	Field Blank	Set 1, Gamma Spectrometry
394C315	NA	NA	Water	Equipment Rinsate Blank	Set 1, Gamma Spectrometry
394C316	NA	NA	Water	Trip Blank	Total VOCs
394C501	NA	NA	Liquid	WM (Rinsate WM Drum)	PCBs
394C502	NA	NA	Liquid	WM (Rinsate WM Drum)	PCBs

ft bgs = Feet below ground surface
SC = Site characterization
MS/MSD = Matrix spike/matrix spike duplicate
NA = Not applicable
QC = Quality control
WM = Waste management

Set 1 = VOCs, SVOCs, RCRA metals, TPH (DRO-GRO), PCBs
Set 2 = Gamma Spectrometry, Isotopic Plutonium, Isotopic Uranium
Set 4 = VOCs, SVOCs, RCRA metals, TPH-DRO, PCBs

D.4.1.2 Deviations from the SAFER Plan

Pre-excavation samples were not collected from 12 to 18 in. bgs as established in the SAFER Plan; however, the samples were collected during the Phase I sampling activities.

D.4.2 Pre-Excavation Sample Activity

Pre-excavation sampling was completed on July 25, 2002, for waste management determinations and are listed in Table D.4-1. Five samples (394C001 through 394C005) were collected and analyzed for VOCs, SVOCs, RCRA metals, TPH (DRO), PCBs, gamma spectrometry, isotopic plutonium,

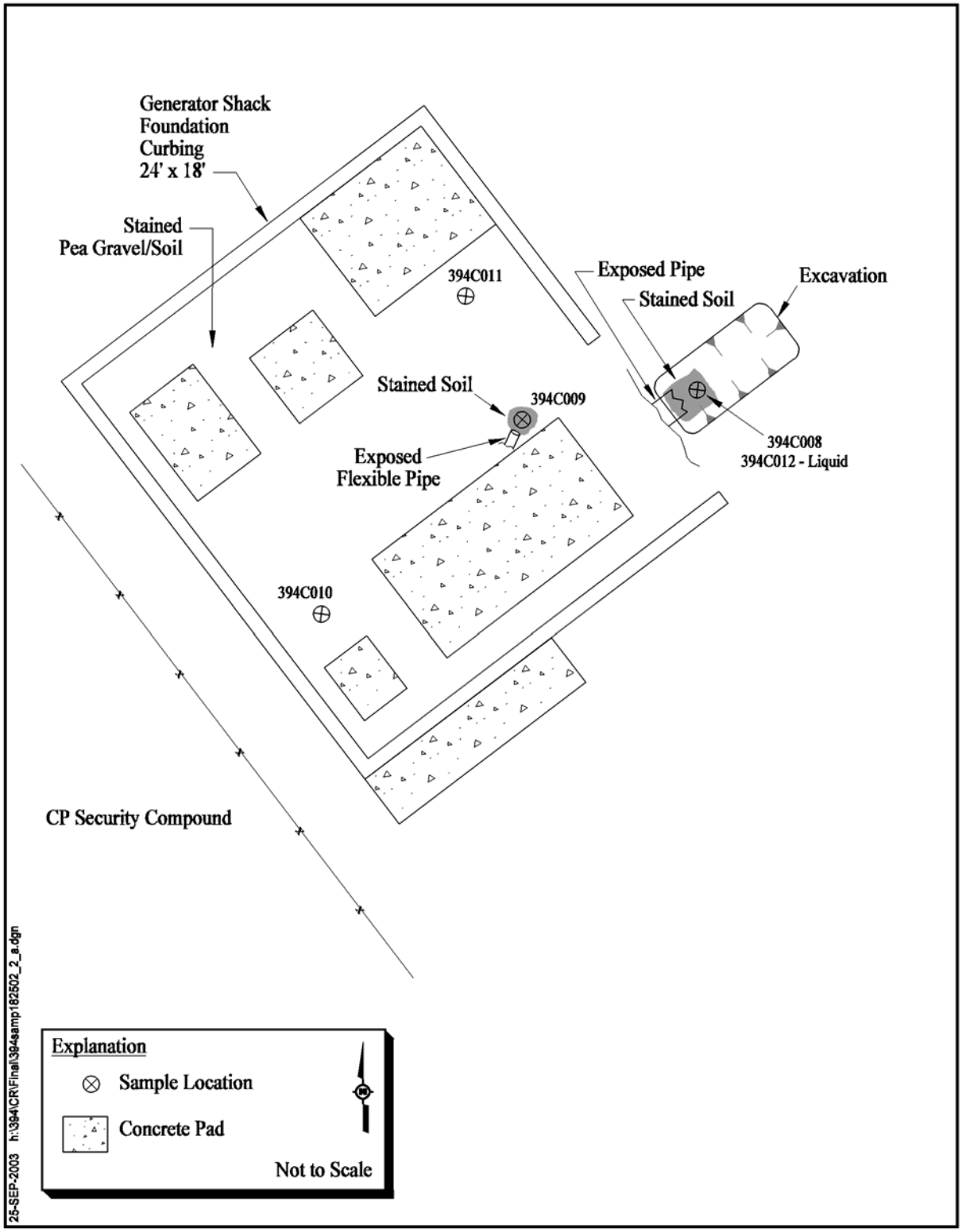
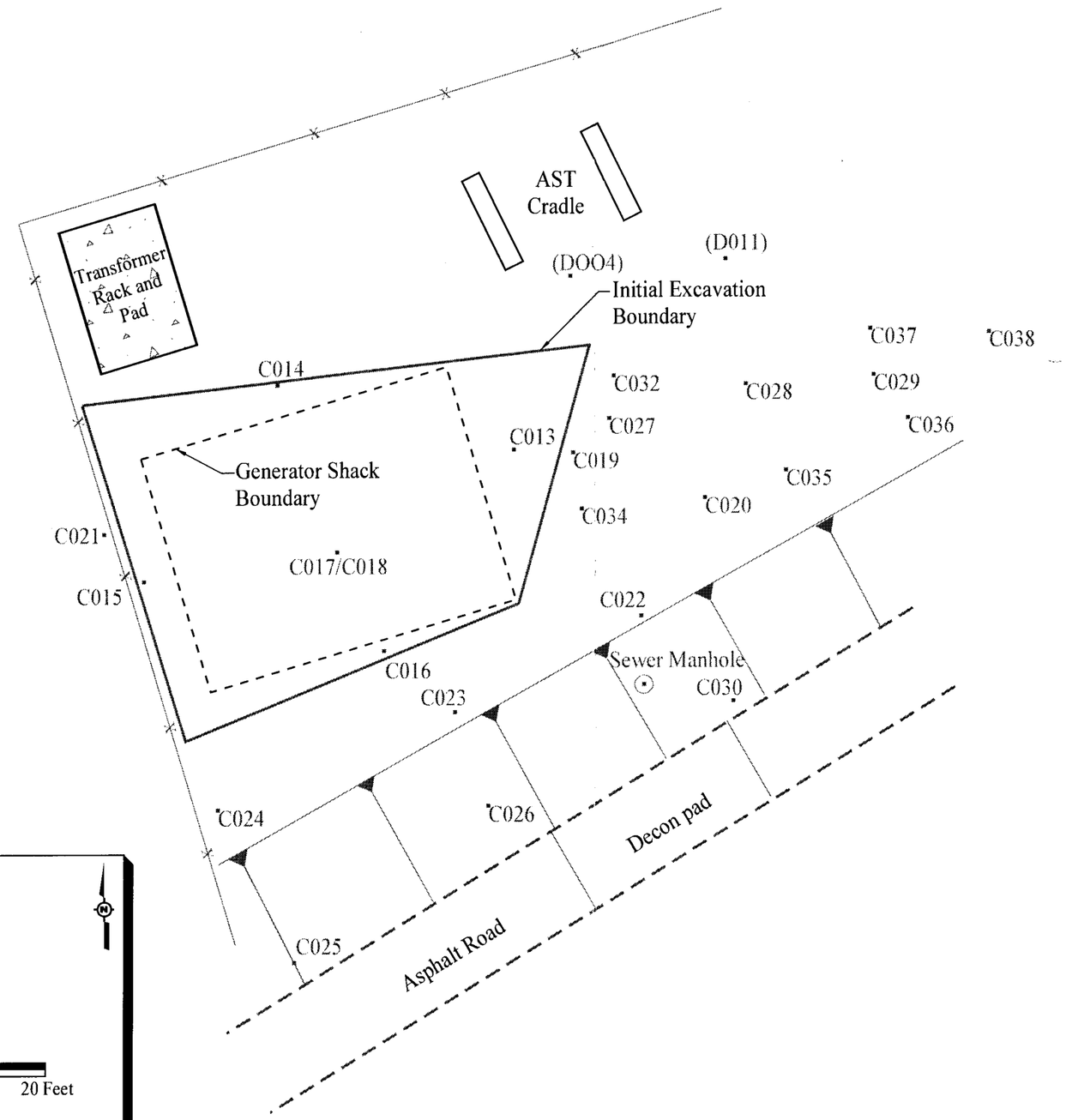


Figure D.4-2
CAS 18-25-02, Oil Spills, Area 18 Generator Shack Phase I Sample Location



Explanation

- Surface Sample Location
- Excavation Boundary
- Generator Shack Boundary

Scale

0 10 20 Feet

0 2 4 Meters

* - Skip in sample # sequence

Sample ID (Surface)	Analytical Results	
	PCBs (ppm)	TPH (mg/kg)
C013	0.61	7500
C014	0.038	230
C015	0.14	2700
C016	0.098	160
C017	10	15,000
C018	2.4	13,000
C019	270	2300
C020	6.4	1900
C021	0.012	ND
C022	0.98	76
C023	0.17	360
C024	0.02	35
C025	0.029	ND
C026	0.034	650
C027	59	1100
C028	0.57	ND
C029	14	17
C030	0.35	330
*		
C032	1.0	230
C033	0.17	230
C034	76	820
C035	0.069	84
C036	ND	21
C037	0.097	30
C038	ND	ND

Figure D.4-3
CAU 394 CAS 18-25-02, Oil Spills,
Initial Excavation, Verification Sampling,
and Additional Characterization Sampling

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Sample ID (Surface)	Analytical Results	
	PCBs (ppm)	TPH (mg/kg)
C039	.069	4300
C040	0.19	5300
C041	ND	ND
C042	1.3	390
C043	67	510
C044	ND	20
C045	1.1	1700
C046	0.062	41
C047	0.99	23

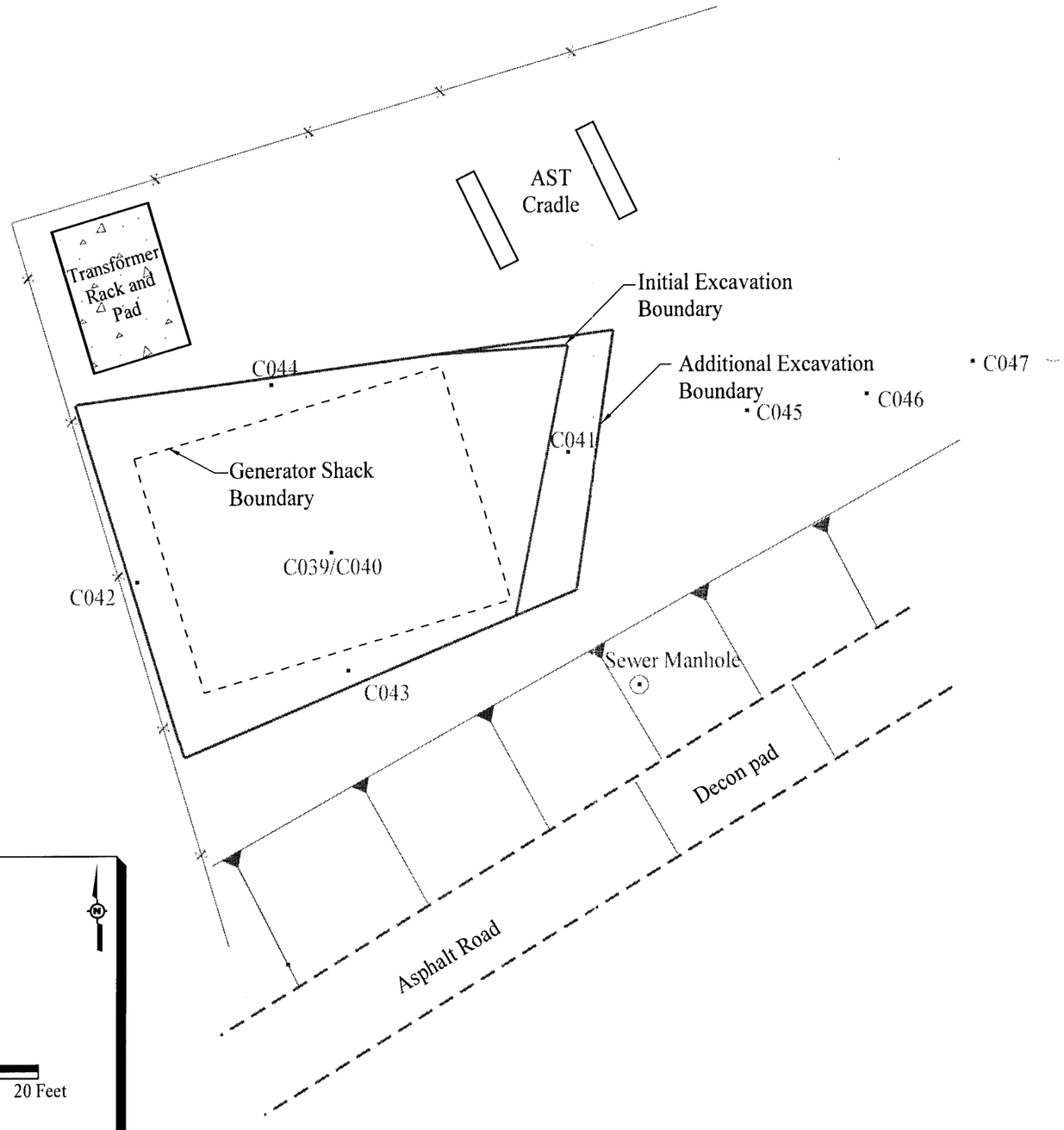

Figure D.4-4
CAU 394, CAS 18-25-02, Oil Spills,
Additional Excavation, Verification Sampling

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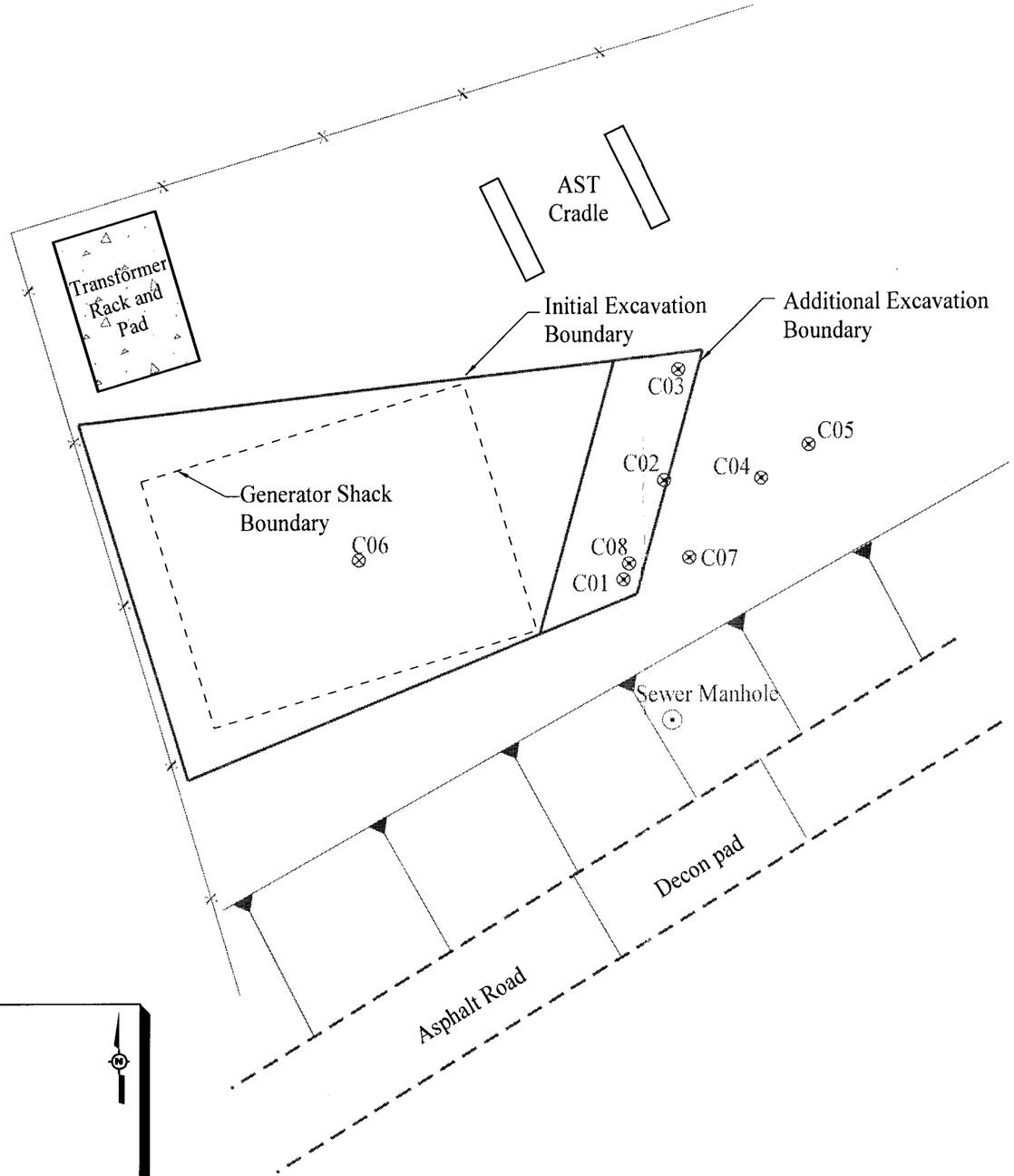

Borehole Sample ID	Depth (ft bgs)	Analytical Results	
		PCBs (ppm)	TPH (mg/kg)
Borehole - C01			
C048	1.5 - 2.0	450	2100
C049	3.5 - 4.0	1.3	ND
C050	5.5 - 6.0	0.039	ND
Borehole - C02			
C051	3.5 - 4.0	ND	7700
C052	5.5 - 6.0	ND	13,000
C053	19.5 - 20.0	ND	ND
C054	24.5 - 25.0	ND	ND
Borehole - C03			
C055	3.5 - 4.0	ND	2600
Borehole - C04			
C056	3.5 - 4.0	1.2	1700
C057	7.0 - 7.5	.090	120
C058	9.5 - 10.0	ND	ND
Borehole - C05			
C059	3.5 - 4.0	ND	ND
C060	1.5 - 2.0	ND	42
C061	5.5 - 6.0	ND	ND
C062	9.5 - 10.0	ND	ND
Borehole - C06			
C063	1.5 - 2.0	ND	ND
C064	3.5 - 4.0	ND	6.1
C065	5.5 - 6.0	ND	ND
Borehole - C07			
C066	1.5 - 2.0	ND	ND
C067	3.5 - 4.0	.047	5.6
C068	5.5 - 6.0	ND	ND
C069	9.5 - 10.0	ND	ND
Borehole - C08			
C070	1.5 - 2.0	7.7	77
C071	3.5 - 4.0	.65	ND
C072	5.5 - 6.0	9.8	270
C073	9.5 - 10.0	12	250

Figure D.4-5
CAU 394, CAS 18-25-02, Oil Spills,
Additional Characterization Sampling

isotopic uranium, and TCLP RCRA metals. Figure D.4-1 shows the pre-excavation sample locations for waste management purposed prior to characterization.

D.4.2.1 Pre-Excavation Sample Results

Analytical results and the PALs for the pre-excavation samples with concentrations that exceed the MRLs are listed in Table D.4-2 through Table D.4-8. Concentrations of VOCs and SVOCs did not exceed the PALs in any of the sample intervals. PCBs were detected at concentrations that exceeded the PALs in samples 394C001, 394C008, and 394C009. Sample number 394C004 had elevated metal concentrations with arsenic and chromium exceeding the PALs. Arsenic exceeded the PAL in all samples but was below the background concentrations range for the nearby NTTR, reported to be 7 to 8 mg/kg (NBMG, 1998, Moore, 1999), with the exception of sample 394C004 (Table D.4-5). Sample 394C004 also contains chrome concentrations at a level above the PAL (749 mg/kg). This sample was collected from the top of the generator pad and consisted of primarily soil and gravel with some metal and rust. All pre-excavation samples collected and analyzed for TPH-DRO indicated concentrations above the PAL (Table D.4-6).

D.4.3 Investigation Results

The following subsections provide CAS-specific field-screening and sample analysis results.

D.4.3.1 Field-Screening Results

Soil samples were field screened for alpha and beta/gamma radiation. The FSRs did not exceed FSLs in any of the samples.

D.4.3.2 Sample Analyses

Investigation samples were analyzed for the COPCs identified in the SAFER Plan, which included total VOCs, total SVOCs, total RCRA metals, TPH (DRO and GRO), PCBs, isotopic uranium, isotopic plutonium, gamma-emitting radionuclides, and TCLP RCRA metals.

The analytical parameters and laboratory analytical methods used to analyze the investigation samples are listed in Table D.1-1. Table D.4-1 lists the sample-specific analytical parameters.

D.4.3.3 Analytes Detected Above Minimum Reporting Limits

Samples with results greater than MRLs or PALs are presented in the following sections.

D.4.3.3.1 Total Volatile Organic Compound Analytical Results for Soil Samples

Table D.4-2 lists the soil sample results for total VOC concentrations above the MRLs. None of the fifteen identified VOCs concentrations exceeded their respective PALs.

D.4.3.3.2 Total Semivolatile Organic Compound Analytical Results for Soil Samples

Table D.4-3 lists total SVOC soil sample results that exceeded the MRLs. Total SVOCs in soil samples were not detected at concentrations that exceeded the PALs established in the SAFER Plan. One SVOC, 1,2,4-trichlorobenzene, was detected in sample 394C006 between 1.5 ft and 1.75 ft bgs. The reported concentration (580 µg/kg) is below the PAL of 3,000 µg/kg. Three SVOCs, 2-methylnaphthalene, naphthalene, and phenanthrene, were detected in sample 394C121 between 9 and 10 ft bgs. The reported concentrations were all below the PALs. No other SVOCs were detected at this CAS.

D.4.3.3.3 Polychlorinated Biphenyl Analytical Results for Soil Samples

Table D.4-4 lists the soil sample results with PCB concentrations exceeding the MRLs. PCBs were detected in numerous soil samples (collected before contaminated soils and debris were excavated) at concentrations exceeding the PAL (Table D.4-4). The PCB Aroclor-1260 was the only PCB that was detected in concentrations above the PAL. After excavation of the contaminated soils was complete, verification samples (samples 394C085 through 394C124 excluding 394C102 and 394C103) were collected from the surface soils within the excavation. All the verification sample results indicate that the concentrations of PCBs are below the PRGs of 1 ppm.

D.4.3.3.4 Total RCRA Metals Results in Soil Samples

The total RCRA metals detected in soil samples at concentrations exceeding MRLs are listed in Table D.4-5. As discussed in Section D.2.1, the pre-excavation sample results indicated that arsenic and chrome exceeded the PALs for RCRA metals established in the SAFER Plan. Arsenic was detected above the PAL of 2.7 mg/kg in the pre-excavation soil samples analyzed. The mean

Table D.4-2
Soil Sample Results for Total VOCs
Detected Above Minimum Reporting Limits at CAS 18-25-02
(Page 1 of 2)

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (μg/kg)					
			2-Butanone	2-Hexanone	1,2,4-Trichlorobenzene	Acetone	Methylene Chloride	Naphthalene
Preliminary Action Levels[a]			**NI**	**NI**	**3,000,000**	**6,200,000**	**21,000**	**190,000**
394C001	Soil stain in and around pipe	0 - 0.5	39	34	--	79 (J)[b]	--	--
394C006	Excavation east of exposed pipe	1.5 - 1.75	--	--	--	19	--	--
394C010RE	Within building foundation; sidewall southwest corner	1 - 1.5	--	--	--	27	--	--
394C056	Borehole C04 in the center of the northeastern edge outside of the excavation	3.5 - 4	--	--	--	31 (J)[c]	--	--
394C072RR1	Borehole C08 inside the East corner of the excavation next to C01	5.5 - 6	--	--	560 (J)[d]	--	--	--
394C112	Boring C12	4 - 5	--	--	--	26 (J)[e]	12 (B)	--
394C113		14 - 15	--	--	--	--	24 (B)	--
394C114		19 - 20	--	--	--	--	30 (B)	--
394C115	Boring C13	16 - 17	--	--	--	--	32 (B)	--
394C116		21 - 22	--	--	--	--	27 (B)	--
394C117	Boring C10	18 - 19	--	--	--	--	23 (B)	--
394C118		22 - 23	--	--	--	--	25 (B)	--
394C119	Boring C11	22 - 23	--	--	--	--	23 (B)	--
394C120		27 - 28	--	--	--	--	27 (B)	--
394C121	Boring C09	9 - 10	--	--	2,000 (J)[d]	600 (J)[e]	--	1,300 (J)[d]

Table D.4-2
Soil Sample Results for Total VOCs
Detected Above Minimum Reporting Limits at CAS 18-25-02
(Page 2 of 2)

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (µg/kg)					
			2-Butanone	2-Hexanone	1,2,4-Trichlorobenzene	Acetone	Methylene Chloride	Naphthalene
Preliminary Action Levels[a]			**NI**	**NI**	**3,000,000**	**6,200,000**	**21,000**	**190,000**
394C123	Boring C09	19 - 20	--	--	--	--	23 (B)	--
394C124	Boring C14	0 - 0.5	--	--	--	--	23 (B)	--

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).
[b]Qualifier added to laboratory data; record accepted. Relative response factor <0.05. Continuing calibration verification percent >25%.
[c]Qualifier added to laboratory data; record accepted. Calibration verification did not meet criteria or was not performed.
[d]Qualifier added to laboratory data; record accepted. Value exceeded linear/calibration range of instrument. The reported value is from the dilution run.
[e]Qualifier added to laboratory data; record accepted. Average relative response factor <0.05. Relative response factor <0.05.

ft bgs = Feet below ground surface
µg/kg = Micrograms per kilogram
-- = Not detected above minimum reporting limits
B = Value less than the instrument detection limit, but greater than or equal to the contract required detection limit.
NI = Not identified
RE = Laboratory re-analysis required
J = Estimated value.

concentration of arsenic in silt from the NTTR is 7 to 8 mg/kg (NBMG, 1998; Moore, 1999). Most arsenic concentrations presented in Table D.4-5 are below the PAL and are considered representative of ambient conditions at the site. Chrome exceeded the PAL in the pre-excavation sample of soil and gravel that was scraped off the top of the generator pad and contained some metal and rust. This sample was taken for waste management decisions and is not representative of the ambient soil conditions at the site. All other sample results indicate that concentrations of RCRA metals are below PALs.

Table D.4-3
Soil Sample Results for Total SVOCs
Detected Above Minimum Reporting Limits at CAS 18-25-02

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (µg/kg)	
			1,2,4-Trichlorobenzene	2-Methylnaphthalene
Preliminary Action Levels[a]			**3,000,000**	**NI**
394C006	Excavation east of exposed pipe	1.5 - 1.75	580	--
394C121	Boring C09	9 - 10	--	28,000 (J)

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
µg/kg = Micrograms per kilogram
NI = Not identified
J = Estimated value. Qualifier added to laboratory data; record accepted. Value exceeded the linear/calibration range of instrument. The reported value is from the dilution run.

D.4.3.3.5 Total Petroleum Hydrocarbon Analytical Results for Soil Samples

Table D.4-6 lists the soil sample results with TPH-DRO concentrations exceeding the MRLs and PALs. Concentrations of TPH-DRO exceeding the PAL were detected in all soil samples during the pre-excavation sampling activities. Samples 394C001 through 394C005 are samples collected during pre-excavation activities discussed in Section D.4.2 and were collected for waste determination. After excavation of PCB contaminated soils was complete, analytical results of the surface soil samples indicated that the TPH-DRO concentrations were exceeding the PALs for the area designated as use restricted area.

Table D.4-4
Soil Sample Results for PCBs
Detected Above Minimum Reporting Limits at CAS 18-25-02
(Page 1 of 3)

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (μg/kg)		
			Aroclor 1248	Aroclor 1254	Aroclor 1260
Preliminary Action Levels[a]			**1,000**	**1,000**	**1,000**
394C001	Soil stain in and around pipe	0 - 0.5	--	--	88,000 (J)[b]
394C002	Within building foundation; near southwest corner	0 - 0.5	--	--	150
394C003		0 - 0.5	--	--	110
394C004	Soil on top of southern concrete pad	0 - 0.2	--	--	270
394C005	Within building foundation; near northeast corner	0 - 0.5	130	--	--
394C008	Bottom of excavation; stained soil from fresh release	2 - 2.5	--	--	130,000 (J)[b]
394C009	Stain from end of exposed flexible pipe	0 - 0.5	--	--	92,000 (J)[b]
394C010	Within building foundation; sidewall southwest corner	12” - 18”	--	90	61
394C011	Within building foundation; near northeast corner	12” - 18”	--	74	66
394C013	East side surface of excavation (3 ft bgs of original surface)	0 - 0.5 (3 - 3.5)	--	--	610 (J)[c]
394C014	Northwest sidewall of excavation (4 ft bgs of original surface)	0 - 0.5 (4 - 4.5)	--	--	38 (J)[c]
394C015	Southwest sidewall of excavation (2 ft bgs of original surface)	0 - 0.5 (2 - 2.5)	--	--	140 (J)[c]
394C016	Southeast sidewall of excavation (2 ft bgs of original surface)	0 - 0.5 (2 - 2.5)	--	--	98 (J)[c]
394C017	Center of excavation (3 ft bgs of original surface)	0 - 0.5 (3 - 3.5	--	--	10,000 (J)[i]
394C018		0 - 0.5 (3 - 3.5)	--	--	2,400 (J)[i]
394C019	Location of former surface pipe	0 - 0.5	--	--	360,000 (J)[i]
394C032	Northeast corner outside of excavation, northeast of C27 about 2 ft 3 in.	0.75 - 1	--	--	1,000 (J)[b]
394C034	Outside and center of the east edge of the excavation, south of C27 about 2 ft 6 in.	0.75 - 1	--	--	76,000 (J)[b]
394C040	In the center of the excavation	0 - 0.1 (4.5 - 4.6)	--	--	190 (J)[d]

Table D.4-4
Soil Sample Results for PCBs
Detected Above Minimum Reporting Limits at CAS 18-25-02
(Page 2 of 3)

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (μg/kg)		
			Aroclor 1248	Aroclor 1254	Aroclor 1260
Preliminary Action Levels[a]			**1,000**	**1,000**	**1,000**
394C042	Center of the Southwest edge of the excavation	0 - 0.5 (3.5 - 4)	--	--	1,300 (J)[b]
394C043		0 - 0.5 (2.5 - 3)	--	--	67,000 (J)[b]
394C044	Center of the Northwest edge of the excavation	0 - 0.5 4 - 4.5)	--	--	48 (J)[e]
394C045	10 ft East of the Northeast edge of the excavation	0 - 0.5	--	--	1,100 (J)[b]
394C047	35 ft East of the Northeast edge of the excavation	0 - 0.5	--	--	990 (J)[b]
394C048	Borehole C01 in the East corner of the excavation	1.5 - 2	--	--	450,000 (J)[b]
394C049		3.5 - 4	--	--	1,300 (J)[b]
394C056	Borehole C04 in the center of the Northeastern edge outside of the excavation	3.5 - 4	--	--	1,200 (J)[b]
394C057		7 - 7.5	--	--	90 (J)[d]
394C070	Borehole C08 inside the East corner of the excavation next to C01	1.5 - 2	--	--	7,700 (J)[b]
394C071		3.5 - 4	--	--	650 (J)[b]
394C072		5.5 - 6	--	--	9,800 (J)[f]
394C073		9.5 - 10	--	--	12,000 (J)[d]
394C080	~ 8 ft from west corner on west wall	4 - 5	--	100 (J)[f]	--
394C082	4 ft from manhole on east wall	4 - 5	--	--	37 (J)[c]
394C083	~8 ft from manhole (north) on west wall	3.5 - 4	--	--	39 (J)[c]
394C092	Due southwest corner (surface)	0 - 1	--	--	330 (J)[g]
394C093	South side (surface)	0 - 1	--	--	250 (J)[c]
394C094		0 - 1	--	--	43 (J)[h]
394C097	Bottom of Excavation	6 - 7	--	--	160 (J)[c]
394C098	Floor of Excavation	6 - 7	--	--	180 (J)[c]
394C099		6 - 7	--	--	480 (J)[c]
394C100		6 - 7	--	--	400 (J)[c]
394C101		4 - 6	--	--	170 (J)[c]
394C102		4 - 6	--	--	2,000 (J)[i]
394C103		4 - 6	--	--	1,900 (J)[i]
394C104	Southerly outfall of C.M.P. drain line	0 - 1	--	--	40 (J)[c]
394C107	Floor of Excavation Eastern End	2 - 4	--	--	290 (J)[c]

Table D.4-4
Soil Sample Results for PCBs
Detected Above Minimum Reporting Limits at CAS 18-25-02
(Page 3 of 3)

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (µg/kg)		
			Aroclor 1248	Aroclor 1254	Aroclor 1260
Preliminary Action Levels[a]			**1,000**	**1,000**	**1,000**
394C110	Inlet to C.M.P. Drain Line	0 - 1	--	--	75 (J)[c]
394C124	Boring C14	0 - 0.5	--	--	73

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).
[b]Qualifier added to laboratory data; record accepted. Surrogates diluted out.
[c]Qualifier added to laboratory data; record accepted. Sample temperature exceeded and/or not documented.
[d]Qualifier added to laboratory data; record accepted. Surrogate recovery exceeded the lower limits.
[e]Qualifier added to laboratory data; record accepted. %D between columns >25.
[f]Qualifier added to laboratory data; record accepted. Matrix effects may exist. Surrogates diluted out.
[g]Qualifier added to laboratory data; record accepted. Sample temperature exceeded and/or not documented. Surrogate recovery exceeded the lower limits.
[h]Qualifier added to laboratory data; record accepted. %D between columns >25. Sample temperature exceeded and/or not documented.
[i]Qualifier added to laboratory data; record accepted. Surrogates diluted out. Sample temperature exceeded and/or not documented.

ft bgs = Feet below ground surface
µg/kg = Micrograms per kilogram
-- = Not detected above minimum reporting limits.
J = Estimated value

D.4.3.3.6 Gamma Spectrometry Results in Soil Samples

Gamma spectrometry was used to analyze select soil samples only in support of IDW disposal and waste management decisions (Table D.4-7). The results did not indicate the presence of man-made radionuclides at concentrations greater than, or statistically distinguishable from, background concentrations (US Ecology and Atlan-Tech, 1991; McArthur and Miller, 1989).

D.4.3.3.7 Isotopic Results for Soil Samples

Isotopic analytical results in soil samples detected above MRLs are listed in Table D.4-8. Isotopic plutonium soil sample results did not exceed MRLs. The results did not indicate the presence of man-made radionuclides at concentrations greater than and statistically distinguishable from background concentrations (US Ecology and Atlan-Tech, 1991; McArthur and Miller, 1989).

Table D.4-5
Soil Sample Results for Total RCRA Metals
Detected Above Minimum Reporting Limits at CAS 18-25-02
(Page 1 of 2)

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (mg/kg)					
			Arsenic	Barium	Cadmium	Chromium	Lead	Selenium
Preliminary Action Levels[a]			**2.7**	**100,000**	**450**	**450**	**750**	**10,000**
394C001	Soil stain in and around pipe	0 - 0.5	3.96	74	--	34	217	--
394C002	Within building foundation; near southwest corner	0 - 0.5	3.86	68.7	11.1	9.93	19.5	--
394C003		0 - 0.5	4.25	87	17.1	20.9	28.8	--
394C004	Soil on top of southern concrete pad	0 - 0.2	57.2	146	2.09	749	86.8	3.13
394C005	Within building foundation; near northeast corner	0 - 0.5	3.06	72.2	--	4.91	11.3	--
394C006	Excavation east of exposed pipe	1.5 - 1.75	--	57.3	--	3.04	16.3	--
394C010	Within building foundation; sidewall southwest corner	1 - 1.5	--	78.3	--	2.56	13.8	--
394C011	Within building foundation; near northeast corner	1 - 1.5	--	83.7	--	2.76	12.5	--
394C057	Borehole C04 in the center of the Northeastern edge outside of the excavation	7 - 7.5	--	--	--	9.2 (J)[b]	--	--
394C058		9.5 - 10	--	--	--	1.1 (J)[b]	--	--
394C061	Borehole C05 Northeast from the central outside edge of the excavation	5.5 - 6	--	--	--	1.2 (J)[b]	--	--
394C069	Borehole C07 North of the East corner of the excavation	9.5 - 10	--	--	--	5.3 (J)[b]	--	--
394C071	Borehole C08 inside the East corner of the excavation next to C01	3.5 - 4	--	--	--	2.8 (J)[b]	--	--
394C072		5.5 - 6	1.3 (J)[c]	--	--	3.9 (J)[b]	--	--

Table D.4-5
Soil Sample Results for Total RCRA Metals
Detected Above Minimum Reporting Limits at CAS 18-25-02
(Page 2 of 2)

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (mg/kg)					
			Arsenic	Barium	Cadmium	Chromium	Lead	Selenium
Preliminary Action Levels[a]			**2.7**	**100,000**	**450**	**450**	**750**	**10,000**
394C111	Boring C12	4 - 5	--	37	--	--	1.7	--
394C112		4 - 5	--	38	--	--	1.5	--
394C113		14 - 15	--	53	--	--	2.2	--
394C114		19 - 20	--	91	--	--	1.4	--
394C115	Boring C13	16 - 17	--	57	--	--	1	--
394C116		21 - 22	--	69	--	--	2.3	--
394C117	Boring C10	18 - 19	--	45	--	--	1.2	--
394C118		22 - 23	--	82	--	--	1.5	--
394C119	Boring C11	22 - 23	--	68	--	--	2.9	--
394C120		27 - 28	--	80	--	--	2.3	--
394C121	Boring C09	9 - 10	--	24	--	--	2.2	--
394C122		14 - 15	--	69	--	--	1.6	--
394C123		19 - 20	--	87	--	--	2.2	--
394C124	Boring C14	0 - 0.5	2.1	76	--	--	5.9	--

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).
[b]Qualifier added to laboratory data; record accepted. Serial dilution %D outside control limits. Matrix effects may exist.
[c]Qualifier added to laboratory data; record accepted. Negative bias found in continuing calibration/method blank.

ft bgs = Feet below ground surface
mg/kg = Milligrams per kilogram
-- = Not detected above minimum reporting limits.
J = Estimated value.

D.4.3.4 Contaminants of Concern

Based on the results of the analytical program and comparison to PALs referenced in the SAFER Plan, TPH and PCB (Aroclor 1260) have been identified as COCs at CAS 18-25-02.

Table D.4-6
Soil Sample Results for TPH-DRO
Detected Above Minimum Reporting Limits at CAS 18-25-02
(Page 1 of 3)

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (mg/kg)	
			Diesel Range Organics	Gasoline Range Organics
Preliminary Action Levels[a]			**100**	**100**
394C001	Soil stain in and around pipe	0 - 0.5	37,000 (J)[b]	--
394C002	Within building foundation; near southwest corner	0 - 0.5	29,000 (J)[b]	--
394C003		0 - 0.5	28,000 (J)[b]	--
394C004	Soil on top of southern concrete pad	0 - 0.2	26,000 (J)[c]	--
394C005	Within building foundation; near northeast corner	0 - 0.5	36,000 (J)[b]	--
394C006	Excavation east of exposed pipe	1.5 - 1.75	350	--
394C013	East side surface of excavation (3 ft bgs of original surface)	0 - 0.5 (3 - 3.5)	7,500 (J)[d]	--
394C014	Northwest sidewall of excavation (4 ft bgs of original surface)	0 - 0.5 (4 - 4.5)	230 (J)[e]	--
394C015	Southwest sidewall of excavation (2 ft bgs of original surface)	0 - 0.5 (2 - 2.5)	2,700 (J)[e]	--
394C016	Southeast sidewall of excavation (2 ft bgs of original surface)	0 - 0.5 (2 - 2.5)	160 (J)[e]	--
394C017	Center of excavation (3 ft bgs of original surface)	0 - 0.5 (3 - 3.5)	15,000 (J)[d]	--
394C018		0 - 0.5 (3 - 3.5)	13,000 (J)[d]	--
394C019	Location of former surface pipe	0 - 0.5	2,300 (J)[f]	--
394C032	Northeast corner outside of excavation, northeast of C27 about 2 ft 3 in.	0.75 - 1	230 (J)[g]	--
394C033		0.75 - 1	230 (J)[g]	--
394C034	Outside and center of the east edge of the excavation, south of C27 about 2 ft 6 in.	0.75 - 1	820 (J)[g]	--
394C035	Southeast of excavation, south of C28 about 4 ft 9 in.	0.75 - 1	84 (J)[g]	--
394C037	East of excavation, north of C29 about 2 ft 3 in.	0.75 - 1	30 (J)[g]	--
394C040	In the center of the excavation	0 - 0.1 (4.5 - 4.6)	5,300 (J)[g]	--
394C042	Center of the Southwest edge of the excavation	0 - 0.5 (3.5 - 4)	390 (J)[g]	--
394C043		0 - 0.5 (2.5 - 3)	510 (J)[g]	--

Table D.4-6
Soil Sample Results for TPH-DRO
Detected Above Minimum Reporting Limits at CAS 18-25-02
(Page 2 of 3)

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (mg/kg)	
			Diesel Range Organics	Gasoline Range Organics
Preliminary Action Levels[a]			**100**	**100**
394C045	10 ft East of the Northeast edge of the excavation	0 - 0.5	1,700 (J)[g]	--
394C046	20 ft East of the Northeast edge of the excavation	0 - 0.5	41 (J)[g]	--
394C048	Borehole C01 in the East corner of the excavation	1.5 - 2	2,100 (J)[g]	--
394C051	Borehole C02 in the center of the Northeastern edge of the excavation	3.5 - 4	7,700 (J)[h]	--
394C052		5.5 - 6	13,000 (J)[h]	130 (H)
394C055	Borehole C03 in the North corner of the excavation	3.5 - 4	2,600 (J)[g]	--
394C056	Borehole C04 in the center of the Northeastern edge outside of the excavation	3.5 - 4	1,700 (J)[g]	--
394C057		7 - 7.5	120 (J)[g]	--
394C060	Borehole C05 Northeast from the central outside edge of the excavation	1.5 - 2	42 (J)[g]	--
394C070	Borehole C08 inside the East corner of the excavation next to C01	1.5 - 2	77 (J)[g]	--
394C072		5.5 - 6	270 (J)[g]	--
394C073		9.5 - 10	250 (J)[g]	--
394C078	~24 ft from the east corner on the south wall.	3.5 - 4	59 (J)[i]	--
394C079	~24 ft from east corner on west wall	3.5 - 4	54 (J)[i]	--
394C081	~16 ft from west corner on west wall	3 - 3.5	140 (J)[i]	--
394C085	North wall toe of slope	6 - 7	4,000 (J)[i]	--
394C091	West wall toe of slope	3 - 4	360 (J)[i]	--
394C092	Due south west corner (surface)	0 - 1	63 (J)[i]	--
394C093	South side (surface)	0 - 1	64 (J)[i]	--
394C094		0 - 1	390 (J)[i]	--
394C095	Floor of excavation	6 - 7	2,300 (J)[i]	--
394C096		6 - 7	1,200 (J)[i]	--
394C097	Bottom of excavation	6 - 7	1,700 (J)[i]	--

Table D.4-6
Soil Sample Results for TPH-DRO
Detected Above Minimum Reporting Limits at CAS 18-25-02
(Page 3 of 3)

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (mg/kg)	
			Diesel Range Organics	Gasoline Range Organics
Preliminary Action Levels[a]			**100**	**100**
394C098	Floor of excavation	6 - 7	450 (J)[i]	--
394C099		6 - 7	150 (J)[i]	--
394C100		6 - 7	100 (J)[i]	--
394C102		4 - 6	74 (J)[i]	--
394C103		4 - 6	76 (J)[i]	--
394C104	Southerly outfall of C.M.P. drain line	0 - 1	81 (J)[i]	--
394C105	Deepest point of excavation	10- 12	16,000 (J)[j]	--
394C106	Floor of excavation eastern section	2 - 4	25 (J)[i]	--
394C110	Inlet to C.M.P. drain line	0 - 1	63 (J)[i]	--
394C121	Boring C09	9 - 10	18,000 (J)[k]	820 (H)
394C122		14 - 15	53 (D, H)	--
394C123		19 - 20	28 (D, H)	--

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).
[b]Qualifier added to laboratory data; record accepted. Surrogates diluted out.
[c]Qualifier added to laboratory data; record accepted. Surrogates diluted out. Matrix effects may exist.
[d]Qualifier added to laboratory data; record accepted. Surrogates diluted out. Sample temperature exceeded and/or not documented.
[e]Qualifier added to laboratory data; record accepted. Sample temperature exceeded and/or not documented.
[f]Qualifier added to laboratory data; record accepted. Sample temperature exceeded and/or not documented. Surrogate recovery exceeded the upper limits.
[g]Qualifier added to laboratory data; record accepted. Total extractable petroleum hydrocarbons result quantitated from diesel standard calibration.
[h]Qualifier added to laboratory data; record accepted. Surrogates diluted out. Total extractable petroleum hydrocarbons result quantitated from diesel standard calibration.
[i]Qualifier added to laboratory data; record accepted. Sample temperature exceeded and/or not document. Total extractable petroleum hydrocarbons result quantitated from diesel standard calibration.
[j]Qualifier added to laboratory data; record accepted. Surrogates diluted out. Sample temperature exceeded and/or not document. Total extractable petroleum hydrocarbons result quantitated from diesel standard calibration.
[k]Qualifier added to laboratory data; record accepted. Surrogates diluted out.

ft bgs = Feet below ground surface
mg/kg = Milligrams per kilogram
D = Indicates that a pattern resembling diesel was detected in the sample.
H = The fuel pattern was in the heavier end of the retention time window for analyte of interest.
J = Estimated value

Table D.4-7
Soil Samples for Gamma-Emitting Radionuclides Detected Above Minimum Reporting Limits at CAS 18-25-02
(Page 1 of 2)

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (pCi/g)						
			Actinium-228	Lead-212	Lead-214	Potassium-40	Radium-226	Thallium-208	Thorium-232
Preliminary Action Levels[a]			**3.64**	**3.64**	**3.47**	**97.7**	**3.47**	**3.38**	**3.64**
394C001	Soil stain in and around pipe	0 - 0.5	2.49 ± 0.93	2.33 ± 0.43	1.27 ± 0.43	27.1 ± 5.4	--	--	3.25 ± 1
394C002	Within building foundation; near southwest corner	0 - 0.5	3.18 ± 0.87	2.76 ± 0.47	1.37 ± 0.37	41.7 ± 6.5	1.68 ± 0.36	--	--
394C003		0 - 0.5	--	3.21 ± 0.55	1.48 ± 0.37	38 ± 6.1	--	--	2.28 ± 1.2
394C004	Soil on top of southern concrete pad	0 - 0.2	--	--	0.543 ± 0.2	5.75 ± 2.2	--	--	--
394C005	Within building foundation; near northeast corner	0 - 0.5	2.37 ± 0.79	2.77 ± 0.43	1.03 ± 0.35	34.9 ± 5.8	--	0.953 ± 0.22	2.76 ± 0.92
394C007	Excavation east of exposed pipe	1.5 - 1.75	--	2.32 ± 0.45	1.4 ± 0.5	37.8 ± 6.1	--	--	2.33 ± 0.96
394C008	Bottom of excavation; stained soil from fresh release	2 - 2.5	--	2.13 ± 0.48	1.04 ± 0.43	29.2 ± 5.9	--	--	--
394C009	Stain from end of exposed flexible pipe	0 - 0.5	--	2.13 ± 0.42	1.14 ± 0.37	22.9 ± 5	--	0.636 ± 0.22	--
394C010	Within building foundation; sidewall southwest corner	1 - 1.5	--	2.05 ± 0.43	1.63 ± 0.42	25.8 ± 5	1.05 ± 0.4	--	--
394C011	Within building foundation; near northeast corner	1 - 1.5	--	2.6 ± 0.52	--	24.4 ± 4.9	--	--	--
394C111	Boring C12	4 - 5	1.92 ± 0.78	--	2.12 ± 0.53	1.27 ± 0.41	28.9 ± 7.5	0.99 ± 0.31	--
394C112		4 - 5	2.21 ± 0.67	--	2.55 ± 0.55	1.81 ± 0.44	31.7 ± 7.0	0.92 ± 0.27	--
394C113		14 - 15	2.24 ± 0.81	--	2.58 ± 0.61	1.12 ± 0.35	31.8 ± 7.9	0.66 ± 0.28	--
394C114		19 - 20	--	--	2.41 ± 0.65	--	40 ± 11	--	--

Table D.4-7
Soil Samples for Gamma-Emitting Radionuclides
Detected Above Minimum Reporting Limits at CAS 18-25-02
(Page 2 of 2)

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (pCi/g)						
			Actinium-228	Lead-212	Lead-214	Potassium-40	Radium-226	Thallium-208	Thorium-232
Preliminary Action Levels[a]			**3.64**	**3.64**	**3.47**	**97.7**	**3.47**	**3.38**	**3.64**
394C115	Boring C13	16 - 17	2.1 ± 0.65	1.26 ± 0.42	2.39 ± 0.51	0.97 ± 0.30	27.9 ± 6.3	0.77 ± 0.24	--
394C116		21 - 22	2.2 ± 0.83	--	2.04 ± 0.54	1.07 ± 0.41	27.7 ± 7.8	0.82 ± 0.32	--
394C117	Boring C10	18 - 19	--	--	2.1 ± 0.56	1.33 ± 0.45	33.1 ± 8.6	0.91 ± 0.32	--
394C118		22 - 23	2.49 ± 0.76	0.95 ± 0.41	2.61 ± 0.60	1.25 ± 0.38	32.1 ± 7.5	0.81 ± 0.26	--
394C119	Boring C11	22 - 23	--	--	2.36 ± 0.59	--	27.4 ± 7.6	0.9 ± 0.33	--
394C120		27 - 28	2.18 ± 0.81	--	2.74 ± 0.62	1.35 ± 0.44	35 ± 8.3	0.65 ± 0.26	--
394C121	Boring C09	9 - 10	2.81 ± 0.96	1.34 ± 0.58	2.26 ± 0.56	1.49 ± 0.45	34.8 ± 8.5	0.6 ± 0.26	--
394C122		14 - 15	--	--	2.41 ± 0.56	1.25 ± 0.38	28.5 ± 7.4	0.87 ± 0.29	--
394C123		19 - 20	2.39 ± 0.89	--	2.25 ± 0.60	--	29.9 ± 8.4	0.6 ± 0.27	--
394C124	Boring C14	0 - 0.5	2.76 ± 0.91	--	2.22 ± 0.55	1.36 ± 0.41	28.9 ± 7.1	1.02 ± 0.34	--

[a]Background concentration listed in *Environmental Monitoring Report for the Proposed Ward Valley, California, Low-Level Radioactive Waste (LLRW) Facility* (US Ecology and Atlan-Tech, 1991).

ft bgs = Feet below ground surface
pCi/g = Picocuries per gram
-- = Not detected above minimum reporting limits

D.4.4 Nature and Extent of Contamination

Concentrations of TPH greater than PALs range from 350 to 18,000 mg/kg within the unconsolidated soil above the bedrock (0.5 to 10 ft bgs). PCB concentrations exceeding the PAL ranged between 1,000 and 450,000 µg/kg at 17 locations and were limited to the upper 10 ft of soil.

D.4.5 Revised Conceptual Model

Based on the results of this investigation the conceptual site model does accurately represent release and migration mechanisms and was revised.

Table D.4-8
Soil Sample Results for Isotopic Uranium
Detected Above Minimum Reporting Limits at CAS 18-25-02

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (pCi/g)		
			Uranium-234	Uranium-235	Uranium-238
Preliminary Action Levels[a]			**3.47**	**0.07**	**3.47**
394C007	Excavation east of exposed pipe	1.5 - 1.75	1.16 ± 0.22	0.051 ± 0.022	1.17 ± 0.22
394C008	Bottom of excavation; stained soil from fresh release	2 - 2.5	1.14 ± 0.23	0.0343 ± 0.018 (J)	1.08 ± 0.22
394C009	Stain from end of exposed flexible pipe	0 - 0.5	0.769 ± 0.26	0.0628 ± 0.063	0.832 ± 0.27
394C010	Within building foundation; sidewall southwest corner	1 - 1.5	1.23 ± 0.23	0.0533 ± 0.019	1.24 ± 0.23
394C011	Within building foundation; near northeast corner	1 - 1.5	1.52 ± 0.33	0.0702 ± 0.043	1.35 ± 0.3

[a]Background concentration listed in *Environmental Monitoring Report for the Proposed Ward Valley, California, Low-Level Radioactive Waste (LLRW) Facility* (US Ecology and Atlan-Tech, 1991).

ft bgs = Feet below ground surface
pCi/g = Picocuries per gram
J = Estimated value

D.5.0 CAS 18-25-03, Oil Spill

Corrective Action Site 18-25-03, 17 Camp Generator Shack, consists of contaminated soil at the former location of an AST. The former AST stored diesel fuel to supply a generator located south of the AST. Concrete AST cradles also exist east of the former AST location and had held the replacement diesel tank that fueled the generator.

D.5.1 SAFER Investigation

The soils associated with the samples taken at CAS 18-25-03 were subsequently excavated when the PCB-contaminated soils were removed for CAS 18-25-02. Some of the verification samples taken after the excavation was completed for CAS 18-25-02 were taken inside the boundaries of CAS 18-25-03.

The samples presented in this section are representative of conditions prior to the excavation of CAS 18-25-03. For samples that represent current conditions (i.e., verification samples) at this CAS refer to the CAS 18-25-02 samples in Section D.4.0. This section also discusses the contaminants of concern, nature and extent of contamination, and the conceptual site model pertinent to both CASs.

One soil sample was collected for waste management purposes and 11 soil samples and associated QC samples were collected during the field activities conducted at CAS 18-25-03. Table D.5-1 list the samples taken and Figure D.5-1 and Figure D.5-2 show the locations of the samples in relation to other site features. The proposed sample locations at CAS 18-25-03 are shown in Figure A.3-1 of the SAFER Plan.

The sample material was field screened, and sample aliquots were collected and containerized per the FI and applicable SQPs.

Table D.5-1
Samples Collected from CAS 18-25-03

Sample Number	Sample Location	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
394D001	Center of soil stain	0 - 0.5	Soil	WM	Set 2, Set 4, Gross Alpha/Beta, TCLP RCRA Metals
394D002	Northeast of AST cradle	0 - 0.5	Soil	SC	Set 4
394D003	Northwest of AST cradle	0 - 0.5	Soil	SC	Set 4
394D004	Southeast of AST cradle	0 - 0.5	Soil	SC	Set 4
394D005	North of soil stain, adjacent to fence	0 - 0.5	Soil	SC	Set 4
394D006	Upgradient from soil stain	0 - 0.5	Soil	SC	Set 4
394D007	Downgradient from soil stain	0 - 0.5	Soil	SC	Set 4
394D008	West of AST cradle at soil stain	1.7 - 2	Soil	SC, Lab QC	Set 4
394D009	West of AST cradle at soil stain	1.7 - 2	Soil	Field Duplicate of 394D008	Set 4
394D010	East of AST cradle	0.5 - 1	Soil	SC	TPH, PCB
394D011	East and downslope of AST cradle	0.5 - 1	Soil	SC	TPH, PCB
394D301	NA	NA	Water	Trip Blank	VOC
394D302	NA	NA	Water	Trip Blank	VOC
394D303	NA	NA	Water	Trip Blank	VOC

ft bgs = Feet below ground surface
SC = Site characterization
MS/MSD = Matrix spike/matrix spike duplicate
NA = Not applicable

Set 2 = Gamma Spectrometry, Isotopic Uranium, Isotopic Plutonium
Set 4 = VOCs, SVOCs, RCRA Metals, TPH (DRO), PCBs.

D.5.1.1 SAFER Plan Implementation

The following field activities were conducted at CAS 18-25-03 to meet SAFER Plan requirements:

- Pre-excavation sampling was conducted for waste management determination prior to investigation activities (394D001).
- Collected soil samples at biased locations around the soil stain, and around the concrete cradle.

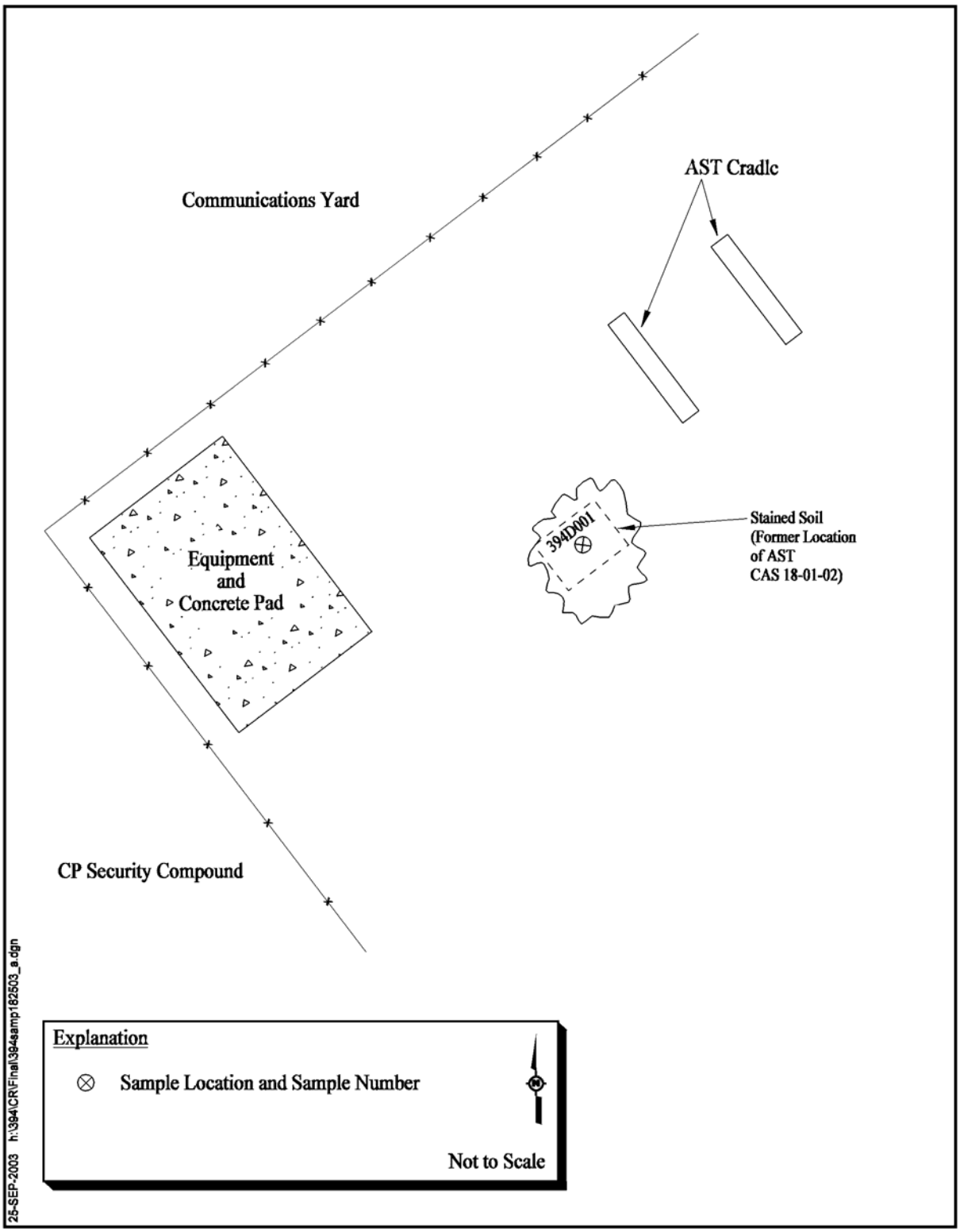

Figure D.5-1
CAS 18-25-03, Oil Spill, Pre-Excavation Sample Locations

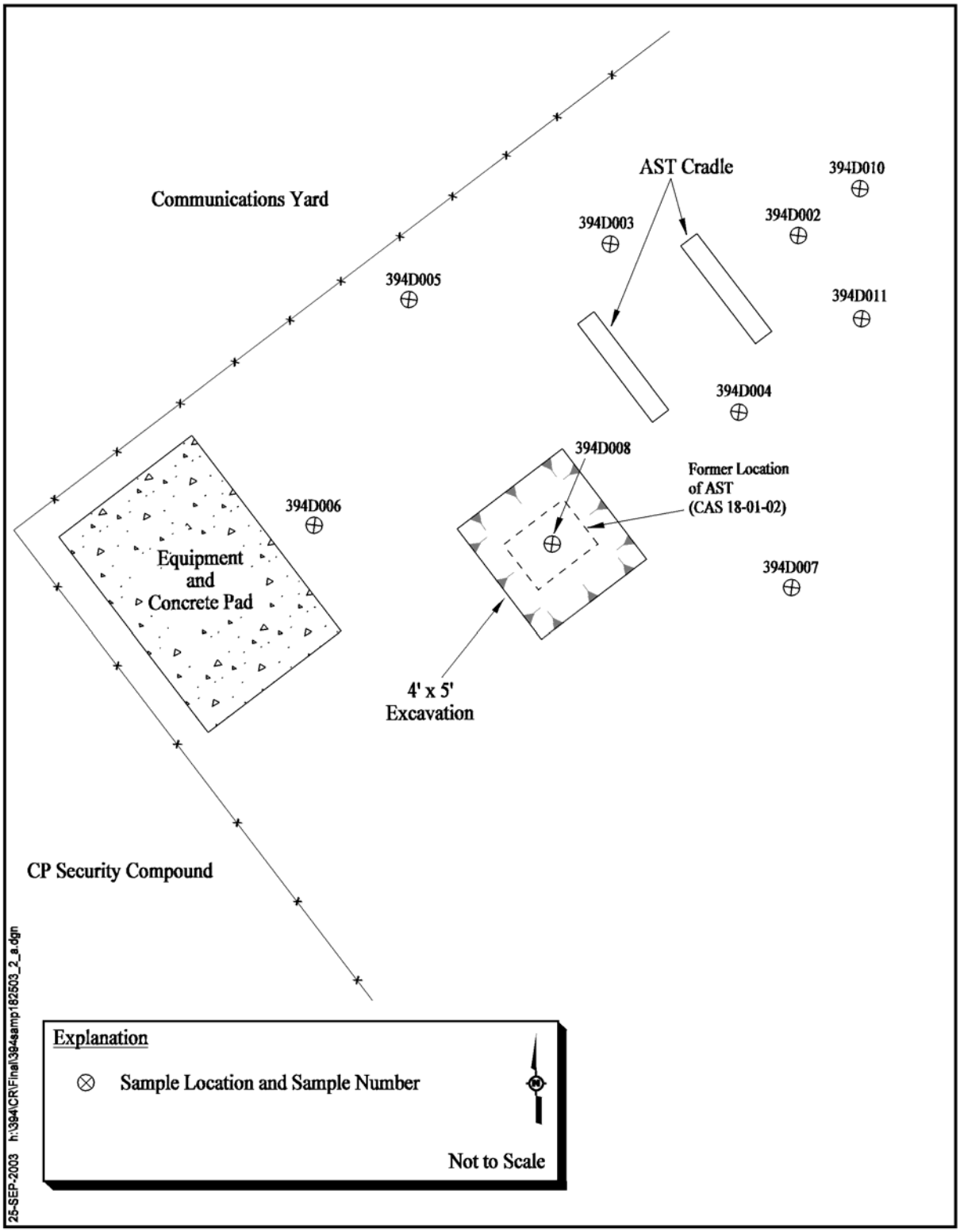

Figure D.5-2
CAS 18-25-03, Oil Spill, Area 18 Sample Locations

- Field screened soil samples for alpha and beta/gamma radiation.
- Submitted selected samples for off-site laboratory analysis.

D.5.1.2 Deviations from the SAFER Plan

With the excavation of contaminated soils at the adjacent CAS 18-25-02, most of CAS 18-25-03 was incorporated in the excavation due to sloping of the sidewalls of the excavation but also due to disposal of some stained soil. Verification samples indicate that the concentrations of PCBs in the soil in the excavation are below the PRGs. The concentrations of TPH-DRO in the soil are above the PALs in both CASs. Therefore, these CASs have been grouped together and will be closed in place with one use restrictions. For further discussion of the excavation and sample results see section Section D.4.0 and Section D.8.0.

D.5.2 Pre-Excavation Sample Activity

Pre-excavation sampling was completed on July 25, 2002, for waste management decisions. One sample (394D001) was collected and analyzed for VOCs, SVOCs, RCRA metals, TPH (DRO), PCBs, gamma spectrometry, isotopic plutonium, isotopic uranium, and TCLP RCRA metals. Figure D.5-1 shows the actual characterization sample location.

D.5.2.1 Pre-Excavation Sample Results

Analytical results with concentrations that exceed the MRLs are listed in Table D.5-3 through Table D.5-7. TPH (DRO), arsenic, PCBs (Aroclor 1260), lead-212, potassium-40, thallium-208, and thorium-232 were the only COPCs detected in sample 394D001. TPH-DRO and arsenic were the only COPCs detected in concentrations that exceeded there respective PAL. Arsenic concentrations, although detected at levels greater than the PAL, are within the arsenic concentration range reported for the NTS (NBMG, 1998, Moore, 1999).

D.5.3 Investigation Results

The following subsections provide CAS-specific field-screening and sample analysis results.

D.5.3.1 Field-Screening Results

Soil samples were field screened for alpha and beta/gamma radiation only. The FSLs were not exceeded in any of the samples collected.

D.5.3.2 Sample Analyses

Select investigation samples were analyzed for the SAFER Plan-specified COPCs which included total VOCs, total SVOCs, total RCRA metals, TPH (DRO and GRO), PCBs, isotopic uranium, isotopic plutonium, and gamma-emitting radionuclides. Sampled were also analyzed for gross alpha and gross beta to support waste management decisions.

The analytical parameters and laboratory analytical methods used to analyze the investigation samples are listed in Table D.1-1. Table D.5-1 lists the sample-specific analytical parameters.

D.5.3.3 Analytes Detected Above Minimum Reporting Limits

Samples with results greater than MRLs or PALs are presented in the following sections.

D.5.3.3.1 Total Volatile Organic Compound Analytical Results for Soil Samples

Table D.5-2 lists the soil samples that had total VOC concentrations above the MRLs established in the SAFER Plan. Various combinations of five VOCs (2-butanone, 2-hexanone, 4-methyl-2- pentanone, acetone, methylene chloride), were detected at five of the locations within CAS 18-25-03; however, none of the concentrations exceeded the respective PALs.

D.5.3.3.2 Total Semivolatile Organic Compound Analytical Results for Soil Samples

Total SVOCs were not detected in soil samples at concentrations exceeding the MRLs established in the SAFER Plan.

D.5.3.3.3 Total Petroleum Hydrocarbon Analytical Results for Soil Samples

Table D.5-3 lists the soil samples that have TPH-DRO concentrations above the MRLs established in the SAFER Plan. Samples 394D001, 394D002, 394D008, and duplicate 394D009 had reported concentrations that exceeded the PAL.

Table D.5-2
Soil Samples for Total VOCs Detected
Above Minimum Reporting Limits at CAS 18-25-03

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (µg/kg)				
			2-Butanone	2-Hexanone	4-Methyl-2-Pentanone	Acetone	Methylene Chloride
Preliminary Action Levels[a]			**NI**	**NI**	**NI**	**6,200,000**	**21,000**
394D002	East of AST cradle	0 - 0.5	220 (J)[b]	52 (J)[b]	25 (J)[b]	530 (J)[c]	--
394D002RE		0 - 0.5	160 (J)[d]	64 (J)[d]	21 (J)[d]	350 (J)[d]	--
394D004	South of AST cradle	0 - 0.5	--	--	--	16	--
394D005	North of soil stain, adjacent to fence	0 - 0.5	--	--	--	11	--
394D006	Upgradient from soil stain	0 - 0.5	--	--	--	49	--
394D007	Downgradient from soil stain	0 - 0.5	--	--	--	82 (J)[e]	21 (J)[b]

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).
[b]Qualifier added to laboratory data; record accepted. Surrogate recovery exceeded the upper limits. Matrix effects may exist.
[c]Qualifier added to laboratory data; record accepted. Surrogate recovery exceeded the upper limits. Value exceeded linear range of instrument. Matrix effects may exist.
[d]Qualifier added to laboratory data; record accepted. Surrogate recovery exceeded the upper limits. Standard area count outside control limits.
[e]Qualifier added to laboratory data; record accepted. Surrogate recovery exceeded the upper limits. Internal area response show extremely low count. Matrix effects may exist.

ft bgs = Feet below ground surface
µg/kg = Micrograms per kilogram
-- = Not detected above minimum reporting limits
NI = Not identified
RE = Laboratory re-analysis required
J = Estimated value

D.5.3.3.4 Total RCRA Metal Results in Soil Samples

The total RCRA metals detected in soil samples at concentrations exceeding MRLs are listed in Table D.5-4. Only arsenic exceeded the PALs for RCRA metals established in the SAFER Plan.

Arsenic was detected above the PAL of 2.7 mg/kg in most of the soil samples analyzed. The mean concentration of arsenic in silt from the NTTR is 7 to 8 mg/kg (NBMG, 1998; Moore, 1999). Arsenic

Table D.5-3
Soil Sample Results for TPH-DRO
Detected Above Minimum Reporting Limits at CAS 18-25-03

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (mg/kg)
			Diesel Range Organics
Preliminary Action Levels[a]			100
394D001	Center of soil stain	0 - 0.5	52,000 (J)
394D002	East of AST cradle	0 - 0.5	8,000 (J)
394D005	North of soil stain, adjacent to fence	0 - 0.5	28
394D006	Upgradient from soil stain	0 - 0.5	20
394D008	West of AST cradle at soil stain	1.7 - 2	530
394D009		1.7 - 2	590

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
mg/kg = Milligrams per kilogram
J = Estimated value; qualifier added to laboratory data; record accepted; surrogates diluted out

concentrations presented in Table D.5-4 exceed the PAL, but are considered representative of ambient conditions at the site.

D.5.3.3.5 Polychlorinated Biphenyl Results for Soil Samples

Polychlorinated biphenyl concentrations in soil samples above MRLs are listed in Table D.5-5. Although detected at these locations, none of the PCB concentrations exceeded the PAL.

D.5.3.3.6 Gamma Spectrometry Results in Soil Samples

Gamma spectrometry was used to analyze the one pre-excavation soil sample only in support of IDW disposal and waste management decisions (Table D.5-6). The results did not indicate the presence of man-made radionuclides at concentrations greater than, or statistically distinguishable from, background concentrations (US Ecology and Atlan-Tech, 1991; McArthur and Miller, 1989).

Table D.5-4
Soil Sample Results for Total RCRA Metals
Detected Above Minimum Reporting Limits at CAS 18-25-03

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (mg/kg)				
			Arsenic	Barium	Cadmium	Chromium	Lead
Preliminary Action Levels[a]			**2.7**	**100,000**	**450**	**450**	**750**
394D001	Center of soil stain	0 - 0.5	3.48	100	0.528	19.7	147
394D002	East of AST cradle	0 - 0.5	--	72.2	--	3	9.54
394D003	North of AST cradle	0 - 0.5	--	127	--	5.7	10.8
394D004	South of AST cradle	0 - 0.5	--	56.7	--	2.81	14.2
394D005	North of soil stain, adjacent to fence	0 - 0.5	--	87.2	--	3.96	19.6
394D006	Upgradient from soil stain	0 - 0.5	--	98.5	--	4.98	32.4
394D007	Downgradient from soil stain	0 - 0.5	--	61.4	--	2.18	12.3
394D008	West of AST cradle at soil stain	1.7 - 2	--	106	--	4.72	10.2
394D009		1.7 - 2	--	101	--	3.14	8.13

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
mg/kg = Milligrams per kilogram
-- = Not detected above minimum reporting limits

Table D.5-5
Soil Sample Results for PCBs
Detected Above Minimum Reporting Limits at CAS 18-25-03

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (μg/kg)
			Aroclor-1260
Preliminary Action Levels[a]			**1,000**
394D001	Center of soil stain	0 - 0.5	380
394D004	South of AST cradle	0 - 0.5	180
394D005	North of soil stain, adjacent to fence	0 - 0.5	34

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
μg/kg = Micrograms per kilogram

Table D.5-6
Soil Sample Results for Gamma-Emitting Radionuclides
Detected Above Minimum Reporting Limits at CAS 18-25-03

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (pCi/g)			
			Lead-212	Potassium-40	Thallium-208	Thorium-232
Preliminary Action Levels[a]			**3.64**	**97.7**	**3.38**	**3.64**
394D001	Center of soil stain	0 - 0.5	3.25 ± 0.56	31.5 ± 5.4	0.868 ± 0.21	3.55 ± 1.2

[a]Background concentration listed in *Environmental Monitoring Report for the Proposed Ward Valley, California, Low-Level Radioactive Waste (LLRW) Facility* (US Ecology and Atlan-Tech, 1991).

ft bgs = Feet below ground surface
pCi/g = Picocuries per gram

D.5.3.3.7 Isotopic Results for Soil Samples

Isotopic analytical results in soil sampled were not detected above the MRLs as established in the SAFER Plan. The results did not indicate the presence of man-made radionuclides at concentrations greater than, or statistically distinguishable from, background concentrations (US Ecology and Atlan-Tech, 1991; McArthur and Miller, 1989).

D.5.3.3.8 Alpha and Beta Results for Soil Samples

Analysis for gross alpha and beta was performed on sample 394D001only in support of IDW disposal and waste management decisions (Table D.5-7). The results did not indicate the presence of man-made radionuclides at concentrations greater than, or statistically distinguishable from, background concentrations (US Ecology and Atlan-Tech, 1991; McArthur and Miller, 1989).

D.5.3.4 Contaminants of Concern

The contaminant of concern at this CAS 18-25-03 is TPH-DRO. Four samples exceeded the TPH PAL of 100 mg/kg.

Table D.5-7
Soil Sample Results for Alpha/Beta
Detected Above Minimum Reporting Limits at CAS 18-25-03

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (pCi/g)	
			Alpha	Beta
Preliminary Action Levels[a]			NI	NI
394D001	Center of soil stain	0 - 0.5	9.1 ± 2.4	45.4 ± 6.4

[a]*Code of Federal Regulations*. 2002. Title 40 CFR 261, "Hazardous Waste Management." Washington, DC: U.S. Government Printing Office.

ft bgs = Feet below ground surface
NI = Not identified
pCi/g = Picocuries per gram

D.5.4 Nature and Extent of Contamination

The nature and extent of TPH-DRO has been defined at CAS 18-25-03. The vertical extent of contamination is limited to the welded tuff approximately 10 ft bgs. Concentrations of TPH were not detected in samples collected from the four borehole locations surrounding this CAS.

All soil samples were collected from borings northwest, northeast, southeast, and southwest have concentrations of TPH-DRO that were detected below the PAL. All soil samples collected below 10 ft in the excavation have TPH-DRO concentrations detected below the PAL. This indicates that the welded tuff underlying the site is a barrier to any vertical migration of TPH-DRO.

D.5.5 Revised Conceptual Model

Variations to the conceptual site model was not identified.

D.6.0 CAS 18-25-04, Spill (Diesel Fuel)

Corrective Action Site 18-25-04, Spill (Diesel Fuel), consists of a diesel and oil release north of the Pahute Mesa Air Strip. In 1991, sample results indicated high levels of both diesel and oil contamination. The contamination has since been removed by a prior excavation, several hundred cubic yards of material were removed). Site conditions at the time of the investigation showed a soil pile located west of the excavation. The soil pile is the remaining "clean" soil from the excavation that was segregated out from the contaminated soil during excavation activities.

D.6.1 SAFER Investigation

Fifteen soil samples and associated QC samples were collected and analyzed during closure activities conducted at CAS 18-25-04 and are listed in Table D.6-1. The proposed sample locations are shown on Figure A.3-2 of the SAFER Plan. The actual characterization sample locations are shown in Figure D.6-1.

Five boreholes were completed by hollow-stem auger drilling. As the auger advanced the borehole, a 2-in. diameter split-spoon barrel collected the core. Core samples were continuously collected. The barrel was first screened for radiation, then split open. The site geologist inspected the core sample and selected the sampling interval based on visual observation and screening results. The sample interval was placed in a decontaminated stainless-steel bowl and field screened. Sample aliquots were collected and containerized in accordance with the Field Instruction (FI) and applicable SQPs.

D.6.1.1 SAFER Plan Implementation

The following field activities were conducted at CAS 18-25-04 to meet SAFER Plan requirements:

- Collected soil samples at biased locations within the excavation
- Field screened soil samples for VOCs, TPH, and alpha and beta/gamma radiation.
- Submitted select samples for off-site laboratory analysis.
- Collected and field screened random soil samples from the spoils pile.

Table D.6-1
Samples Collected from CAS 18-25-04, Spill (Diesel Fuel)

Sample Number	Sample Location	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
394E001	Center/low point of excavation	0 - 0.5	Soil	SC, WM	Set 2, TPH-DRO, VOCs
394E002	Borehole 18250401 Center of excavation	2 - 2.5	Soil	SC	Set 2
394E003	Borehole 18250401 Center of excavation	4 - 4.5	Soil	SC	Set 2
394E004	Borehole 18250401 Center of excavation	9 - 9.5	Soil	SC	Set 2
394E005	Borehole 18250402 South end of excavation	2.5 - 3	Soil	SC	Set 2
394E006	Borehole 18250402 South end of excavation	5 - 5.5	Soil	SC	Set 2
394E007	Borehole 18250203 West end of excavation	3 - 3.5	Soil	SC	Set 2
394E008	Borehole 18250403 West end of excavation	5 - 5.5	Soil	SC	Set 2
394E009	Borehole 18250403 West end of excavation	5 - 5.5	Soil	Field Duplicate of 394E008	Set 2
394E010	Borehole 18250404 East end of excavation	5 - 6	Soil	SC, Lab QC	Set 2
394E011	Borehole 18250405 North end of excavation, on bench	6 - 7	Soil	SC, WM	Set 2, TPH-DRO, VOCs
394E012	Borehole 18250405 North end of excavation, on bench	9.5 - 10	Soil	SC	Set 2
394E301	NA	NA	Water	Background	VOC
394E302	NA	NA	Water	Field Blank	Set 2, TPH-DRO, VOCs
394E303	NA	NA	Water	Trip Blank	VOC

ft bgs = Feet below ground surface
SC = Site characterization
WM = Waste Management
NA = Not applicable
QC = Quality control

Set 2 = Gamma Spec, Isotopic Uranium, Isotopic Plutonium

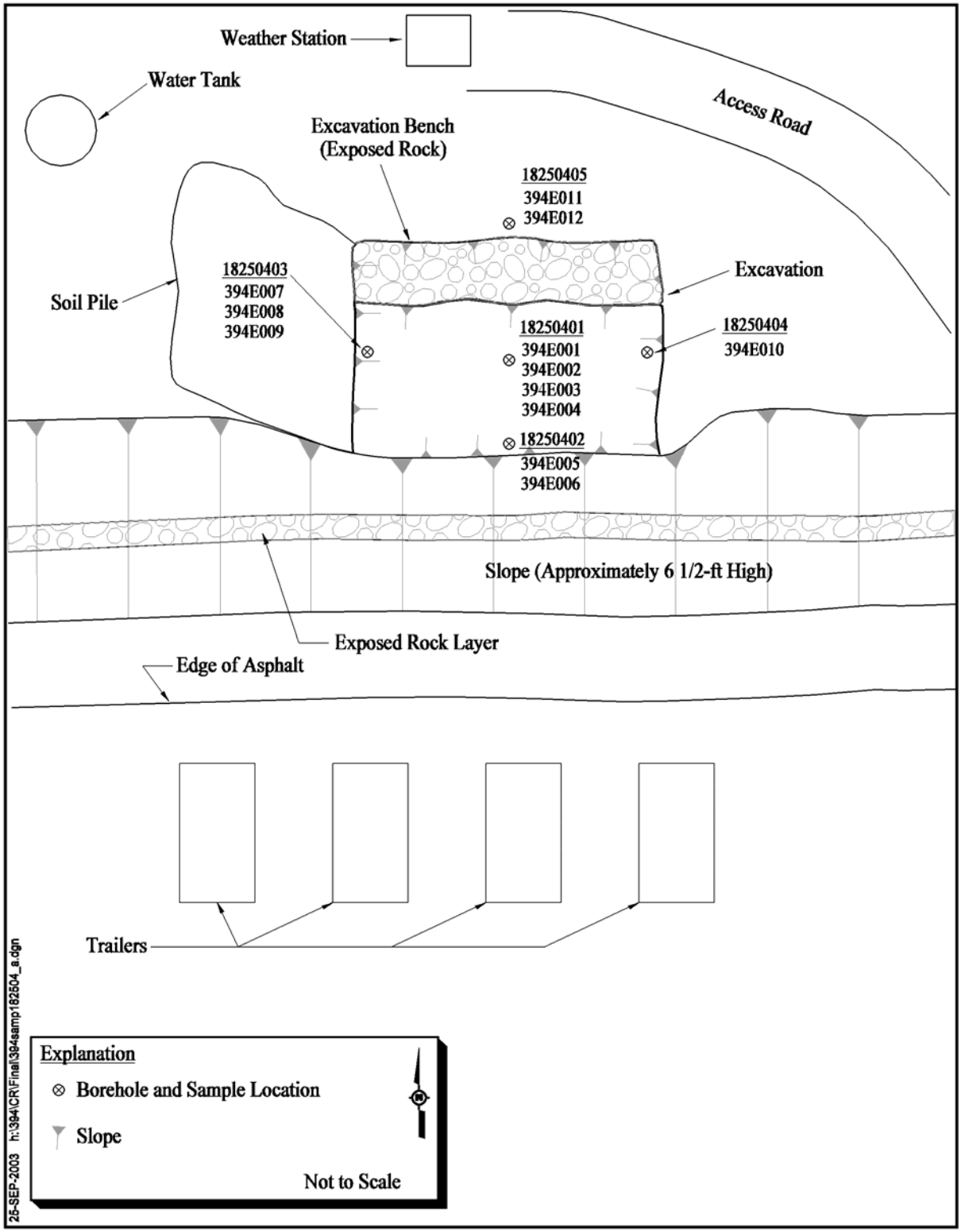

Figure D.6-1
CAS 18-25-04, Spill (Diesel Fuel), Pahute Mesa Airstrip Spill
Borehole and Sample Locations

D.6.1.2 Deviations from the SAFER Plan

Ten random soil samples were collected for TPH field screening from the spoils pile west of the excavation (see Section D.6.2.1). Field screening results from two samples collected on the eastern edge of the spoils pile indicated concentrations of TPH that exceeded the PAL. The SAFER Plan states that contaminated soil would be segregated from the spoil pile before it was used to backfill the excavation. However, the exceedance of the PAL was less than 50 percent and represented a small percentage of the total matrix. Screening results from the other eight samples collected were at an order of magnitude less than the PAL.

D.6.2 Investigation Results

The following subsections provide CAS-specific field-screening and sample analysis results.

D.6.2.1 Field-Screening Results

Soil samples were field screened for VOCs, TPH, and alpha and beta/gamma radiation. The FSRs were compared to FSLs to guide sampling decisions. Random samples were collected from the spoil pile located west of the open excavation and were screened for TPH only. Field-screening results from two samples collected on the eastern edge of the spoils pile indicated concentrations of TPH that exceeded the FSL and PAL.

One sample (394E001) slightly exceeded the FSL of 75 ppm. The sample was collected from the center of the excavation at ft bgs.

D.6.2.2 Sample Analyses

Investigation soil samples were analyzed for the SAFER Plan-specified COPCs which included total VOCs and TPH-DRO. Select samples were analyzed for isotopic uranium, isotopic plutonium, and gamma-emitting radionuclides for waste management purposes

The analytical parameters and laboratory analytical methods used to analyze the investigation samples are listed in Table D.1-1. Table D.6-1 lists the sample-specific analytical parameters.

D.6.2.3 Analytes Detected Above Minimum Reporting Levels

Samples with results greater than MRLs or PALs are presented in the following sections.

D.6.2.3.1 Total Volatile Organic Compound Analytical Results for Soil Samples

Table D.6-2 lists the sample results with total VOCs concentrations above the MRL established in the SAFER Plan. Total VOCs were not detected in soil samples at concentrations exceeding the PAL as established in the SAFER Plan.

Table D.6-2
Soil Sample Results for Total VOCs Detected
Above Minimum Reporting Limits at CAS 18-25-04

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (µg/kg)
			2-Hexanone
Preliminary Action Levels[a]			NI
394E006	Borehole 18250402	5 - 5.5	12

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
µg/kg = Micrograms per kilogram
NI = Not identified

D.6.2.3.2 Total Petroleum Hydrocarbon Analytical Results for Soil Samples

Table D.6-3 lists the samples results with TPH concentrations above the MRL established in the SAFER Plan. Total petroleum hydrocarbons were not detected in soil samples at concentrations exceeding the PAL as established in the SAFER Plan.

D.6.2.3.3 Gamma Spectrometry Results in Soil Samples

Gamma spectrometry was used to analyze select soil samples only in support of IDW disposal and waste management decisions (Table D.6-4). The results did not indicate the presence of man-made radionuclides at concentrations greater than, or statistically distinguishable from, background concentrations (US Ecology and Atlan-Tech, 1991; McArthur and Miller, 1989).

Table D.6-3
Soil Sample Results for TPH-DRO
Detected Above Minimum Reporting Limits at CAS 18-25-04

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (mg/kg)
			Diesel Range Organics
Preliminary Action Levels[a]			**100**
394E001	Center/low point of excavation	0 - 0.5	26
394E008	Borehole 18250403	5 - 5.5	33
394E009		5 - 5.5	29
394E010	Borehole 18250404	5 - 6	12

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
mg/kg = Milligrams per kilogram

Table D.6-4
Soil Sample Results for Gamma-Emitting Radionuclides
Detected Above Minimum Reporting Limits at CAS 18-25-04

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (pCi/g)					
			Actinium-228	Lead-212	Lead-214	Potassium-40	Thallium-208	Thorium-232
Preliminary Action Levels[a]			**3.64**	**3.64**	**3.47**	**97.7**	**3.38**	**3.64**
394E001	Center/low point of excavation	0 - 0.5	--	2.79 ± 0.52	--	29.2 ± 6	0.629 ± 0.18	--
394E011	Borehole 18250405	6 - 7	2.21 ± 0.58	2.17 ± 0.44	1.2 ± 0.28	34.2 ± 5.6	--	2.24 ± 0.91

[a]Background concentration listed in *Environmental Monitoring Report for the Proposed Ward Valley, California, Low-Level Radioactive Waste (LLRW) Facility* (US Ecology and Atlan-Tech, 1991).

ft bgs = Feet below ground surface
pCi/g = Picocuries per gram
-- = Not detected above minimum reporting limits.

D.6.2.3.4 Isotopic Results for Soil Samples

Table D.6-5 lists the soil sample results with isotopic concentrations detected above the MRLs as established in the SAFER Plan. The results did not indicate the presence of man-made radionuclides at concentrations greater than, or statistically distinguishable from, background concentrations (US Ecology and Atlan-Tech, 1991; McArthur and Miller, 1989).

Table D.6-5
Soil Sample Results for Isotopes Detected
Above Minimum Reporting Limits at CAS 18-25-04

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (pCi/g)			
			Uranium-234	Uranium-235	Uranium-238	Plutonium-239/240
Preliminary Action Levels			**3.47[a]**	**0.07[a]**	**3.47[a]**	**0.106[b]**
394E001	Center/low point of excavation	0 - 0.5	0.999 ± 0.19	0.0445 ± 0.018 (J)	1.01 ± 0.2	--
394E011	Borehole 18250405	6 - 7	1.16 ± 0.22	0.0359 ± 0.017 (J)	1.11 ± 0.21	0.243 ± 0.079 (J)[c]

[a]Based on background concentration listed in *Environmental Monitoring Report for the Proposed Ward Valley, California. Low-Level Radioactive Waste (LLRW) Facility* (US Ecology and Atlan-Tech, 1991).
[b]Based on background concentration listed or derived in *Off-Site Radiation Exposure Review Project, Phase II Soil Program* (McArthur and Miller, 1989).
[c]Qualifier added to laboratory data; record accepted. Chemical yield below control limits.

ft bgs = Feet below ground surface
pCi/g = Picocuries per gram
J = Estimated value
-- = Not detected above minimum reporting limits

D.6.2.4 Contaminants of Concern

Concentrations of contaminants of concern did not exceed the PALs at this CAS.

D.6.3 Nature and Extent of Contamination

Concentrations of contaminants of concern did not exceed the PALs at this CAS.

D.6.4 Revised Conceptual Model

Variations to the conceptual model were not identified.

D.7.0 CAS 29-44-01 Fuel Spill

Corrective Action Site 29-44-01, Transmitter Station, consists of two separate RECs and have been subcategorized into sites RECa and site RECb. RECa is located northwest of the Shoshone Transmitter Station in Area 29 and consists of a former AST, pipeline, and Radio Set Power Shelter (Figure D.7-1). RECb is located northeast of the Shoshone Transmitter Station and consists of a 4-ft diameter soil stain of unknown origin (Figure D.7-2).

For ease of discussion each site will be discussed individually.

D.7.1 SAFER Investigation

Eleven soil samples and associated QC samples were collected and analyzed during closure activities conducted at CAS 29-44-01. The proposed sample locations for CAS 29-44-01 are shown on Figure A.4-2 of the SAFER Plan.

D.7.1.1 SAFER Investigation of CAS 29-44-01, Fuel Spill, RECa-Potential Former AST Location

Soil samples were collected at 23 locations by hand augering and scoop to depths of 6 and 12 in. bgs, where possible. Sampling locations were within the AST and Radio Shack earthen pads, and at the distal end of the former fuel line, because of a discrepancy between the engineering drawings and visual observations. Some uncertainty exists as to the former fuel line and radio shack locations. Therefore, one sample was collected for analysis at both possible locations of the distal end of the former fuel line. All samples were screened for TPH and alpha and beta/gamma radiation. A total of eight soil samples from five locations were sent for analysis (Figure D.7-1).

D.7.1.1.1 SAFER Plan Implementation

The following field activities were conducted at RECa to meet SAFER Plan requirements:

- Collected samples at biased locations within the AST and radio shack earthen pads.
- Field screened soil samples for TPH and alpha and beta/gamma radiation.
- Submitted select samples for off-site laboratory analysis.

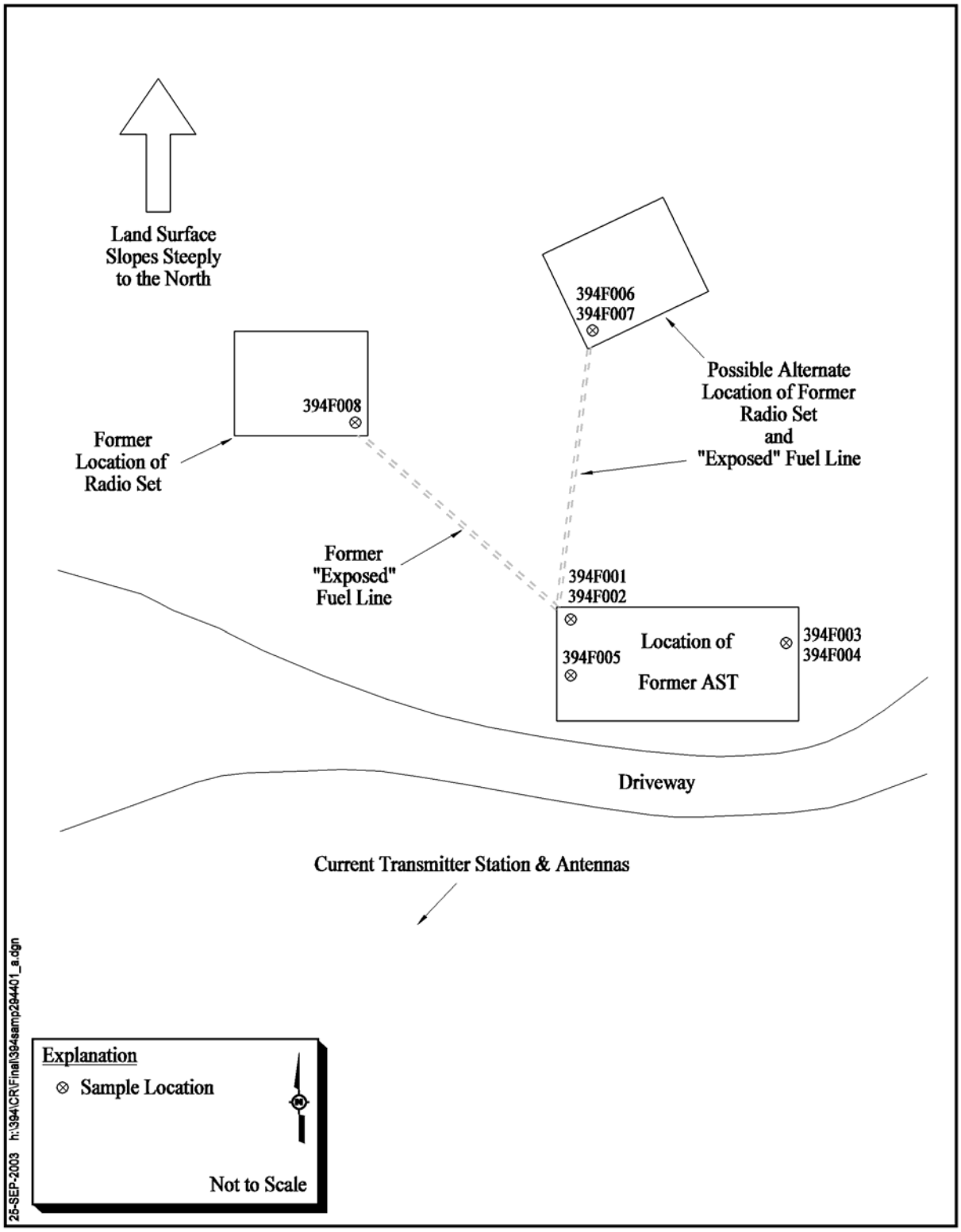

Figure D.7-1
CAS 29-44-01, Fuel Spill, RECa Sample Locations

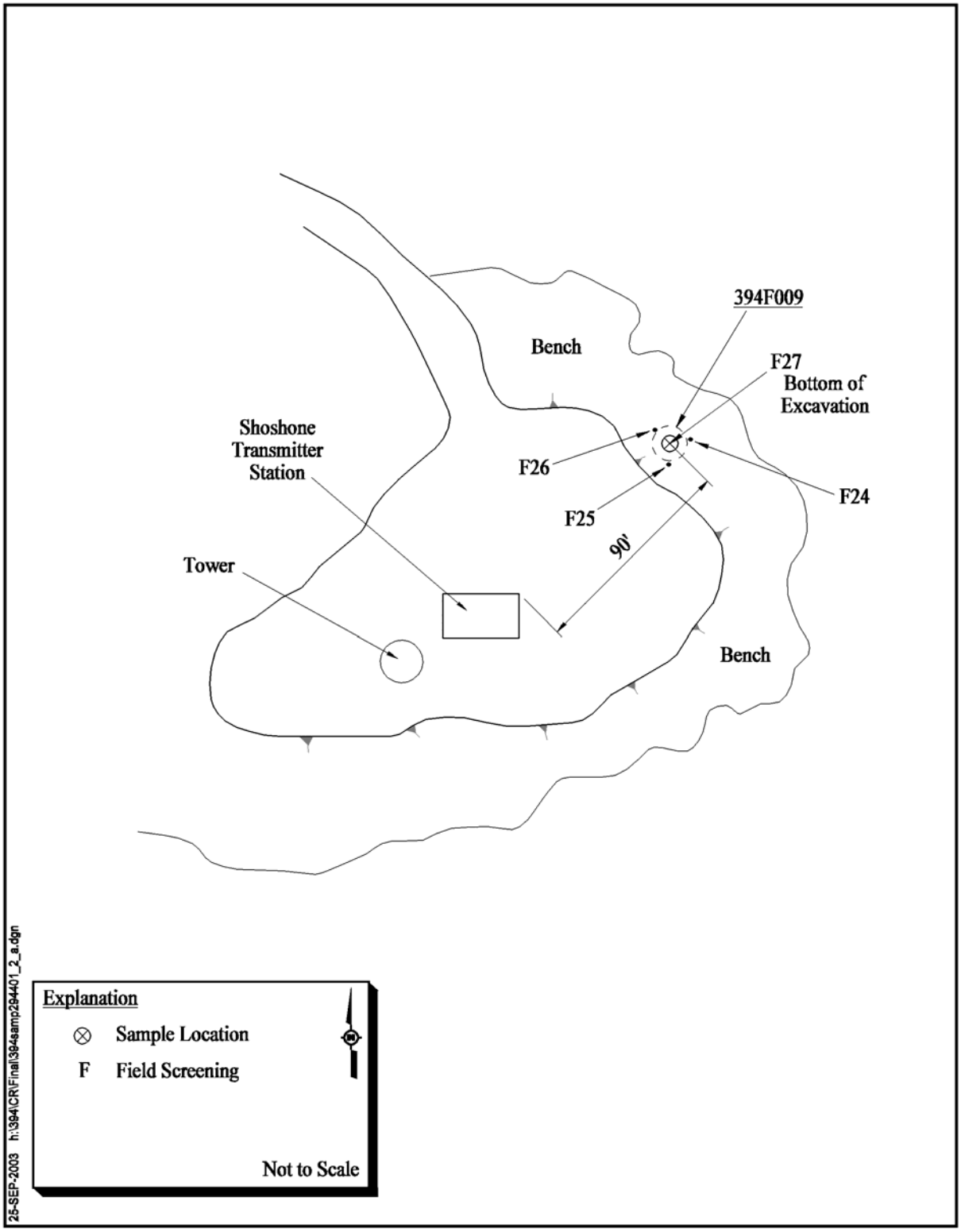

Figure D.7-2
CAS 29-44-01, Fuel Spill, RECb Sample Location

D.7.1.2 Deviations from the SAFER Plan

Determination of sample collection was not based on TPH screening levels during the initial SAFER Plan activities because of the sensitivity of the screening equipment and the remote location of the CAS. Visual observations were used to select sampling locations. When there was no evidence of a release or contamination, the minimum number of characterization samples were collected and submitted for analysis (Figure D.7-1). Subsequent to field activities, samples were screened for TPH and the results indicated that the FSL was exceeded at two sample locations that were not submitted for analysis. Two screening samples were collected from the center and south side of the AST earthen pad.

D.7.1.3 Investigation Results

The following subsections provide CAS-specific field-screening and sample analysis results.

D.7.1.4 Field-Screening Results

Soil samples were field screened for TPH and alpha and beta/gamma emitters. Radiological FSLs were not exceeded in any of the samples. There was a deviation to the TPH screening. This deviation is discussed in Section D.9.1.3.

D.7.1.5 Sample Analyses

Investigation samples were analyzed for the SAFER Plan-specified COPC of TPH-DRO. The analytical parameters and laboratory analytical methods used to analyze the investigation samples are listed in Table D.1-1. Table D.7-1 lists the sample-specific analytical parameters.

D.7.1.6 Analytes Detected Above Minimum Reporting Levels

Samples with results greater than the MRLs are presented in the following table.

D.7.1.6.1 Total Petroleum Hydrocarbon Analytical Results for Soil Samples

Table D.7-2 lists the soil samples that have TPH-DRO concentrations above the MRLs established in the SAFER Plan. Analytical results from sample 394F001 indicate that TPH-DRO concentrations at 0.5 ft bgs slightly exceed the established PAL.

Table D.7-1
Samples Collected from CAS 29-44-01, Fuel Spill

Sample Number	Sample Location	Depth (ft bgs)	Sample Matrix	Purpose	Analyses
CAS 29-44-01, RECa					
394F001	West corner of AST earthen pad	0 - 0.5	Soil	SC	TPH-DRO
394F002	West corner of AST earthen pad	0.75 - 1.0	Soil	SC	TPH-DRO
394F003	East side of AST earthen pad	0 - 0.5	Soil	SC	TPH-DRO
394F004	East side of AST earthen pad	0.75 - 1.0	Soil	SC	TPH-DRO
394F005	Southwest side of AST earthen pad	0 - 0.5	Soil	SC	TPH-DRO
394F006	South corner of initial radio shack	0 - 0.5	Soil	SC	TPH-DRO
394F007	South corner of initial radio shack	0.75 - 1.0	Soil	SC	TPH-DRO
394F008	Southeast corner of believed radio shack	0 - 0.5	Soil	SC	TPH-DRO
394F301	NA	NA	Water	Trip Blank	VOC
394F302	NA	NA	Water	Field Blank	Set 1, Set 2
CAS 29-44-01, RECb					
394F009	Center of stained soil	0 - 0.5	Soil	SC, WM, Lab QC	Set 1, Set 2

ft bgs = Feet below ground surface
SC = Site characterization
QC = Quality control samples
WM = Waste management
NA = Not applicable

Set 1 = VOC, SVOC, RCRA Metals, TPH (GRO and DRO), PCB
Set 2 = Gamma Spectrometry, Isotopic Uranium, Isotopic Plutonium

D.7.1.6.2 Contaminants of Concern

The contaminants of concern for this CAS is TPH-DRO. One sample, 394F001, exceeded the PAL for TPH-DRO of 100 mg/kg.

Table D.7-2
Soil Sample Results for TPH
Detected Above Minimum Reporting Limits

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (mg/kg)
			Diesel Range Organics
Preliminary Action Levels[a]			100
CAS 29-44-01, RECa			
394F001	West corner of AST earthen pad	0 - 0.5	110
394F002		9" - 12"	43
394F003	East side of AST earthen pad	0 - 0.5	20
394F004		9" - 12"	15
394F005	West side of AST earthen pad	0 - 0.5	22
394F008	Southeast corner of believed radio shack	0 - 0.5	39
CAS 29-44-01, RECb			
394F009	Center of stained soil	0 - 0.5	23,000 (J)

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
mg/kg = Milligrams per kilogram
J = Estimated value. Qualifier added to laboratory data; record accepted. Surrogates diluted out.

D.7.1.6.3 Nature and Extent of Contamination

Surface sample results from the northwest corner of the AST earthen pad indicated the COC concentration slightly above PAL. The vertical extent of contamination is limited to 1 ft bgs. The lateral extent of contamination does not extend downslope.

D.7.1.6.4 Revised Conceptual Model

Variations to the conceptual model were not identified.

D.7.1.7 SAFER Investigation of CAS 29-44-01, Fuel Spill, RECb Soil Stain

One soil sample was collected from the center of the stained surface soil to confirm the presence of contamination. Three soil samples were collected from the perimeter of the contamination where staining was not visually observed and screened for TPH. Removal of the stained soil was unsuccessful due to bedrock encountered at 5 in. bgs.

D.7.1.7.1 SAFER Plan Implementation

The following field activities were conducted at RECb to meet SAFER Plan requirements:

- Excavate the stained soil area.
- Collect verification samples after excavation of contaminated soil.
- Submit select samples for off-site laboratory analysis

D.7.1.7.2 Deviations from the SAFER Plan

Removal/excavation of the contaminated soil as specified in the SAFER Plan was unsuccessful. Shovels were used to remove the stained soil but soil development was poor and bedrock was encountered at 5 in. bgs. The risk of contamination migration is minimal and does not present an unacceptable threat to human health or the environment.

D.7.1.7.3 Investigation Results

The following subsections provide CAS-specific field-screening and sample analysis results.

D.7.1.8 Field-Screening Results

Soil samples were field screened for TPH and alpha and beta/gamma emitters. TPH screening was completed the four locations shown on Figure D.7-2. Three step out soil samples were collected for TPH screening from around the perimeter of the stained soil area. Results from F25 and F26 indicate concentrations below PAL. Results from screening sample F24 indicate concentrations slightly above. Screening concentration of TPH from a soil sample taken from the surface of the shallow excavation was 1,143 ppm which exceeds the PAL. Radiological FSL for beta emitters were exceeded slightly from a direct reading of the stained soil at sample location 394F009.

D.7.1.9 Sample Analyses

Investigation samples were analyzed for the SAFER Plan-specified COPCs which included total VOCs, total SVOCs, total RCRA metals, TPH (DRO and GRO), and PCBs. Analysis for radiological isotopes and gamma-emitting radionuclides was completed for waste management determinations.

D.7.1.10 Analytes Detected Above Minimum Reporting Levels

Samples with results greater than MRLs are presented in the following sections.

D.7.1.10.1 Total Volatile Organic Compound Analytical Results for Soil Samples

Table D.7-3 lists the sample that had a total VOC concentration above the MRLs established in the SAFER Plan. Soil sample concentrations did not exceed PALs.

Table D.7-3
Soil Sample Results for Total VOCs Detected
Above Minimum Reporting Limits at CAS 29-44-01

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (µg/kg)		
			2-Butanone	Acetone	Methylene Chloride
Preliminary Action Levels[a]			NI	6,200,000	21,000
394F009	Center of stained soil	0 - 0.5	82 (J)	500 (J)	10 (J)

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
µg/kg = Micrograms per kilogram
-- = Not detected above minimum reporting limits
NI = Not identified
J = Estimated value. Qualifier added to laboratory data; record accepted. Internal area response show extremely low count. Surrogate recovery exceeded the upper limits. Matrix effects may exist.

D.7.1.10.2 Total Semivolatile Organic Compound Analytical Results for Soil Samples

Table D.7-4 lists the sample that had total SVOC concentrations above the MRLs established in the SAFER Plan. Total SVOCs were not detected for soil samples at concentrations exceeding the PAL as established in the SAFER Plan.

D.7.1.10.3 Total Petroleum Hydrocarbon Analytical Results for Soil Samples

Table D.7-2 lists the soil samples that have TPH-DRO concentrations above the MRLs established in the SAFER Plan. Analytical results from sample 394F009 indicate that concentrations exceeded the PAL.

Table D.7-4
Soil Sample Results for Total SVOCs Detected
Above Minimum Reporting Limits at CAS 29-44-01

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (µg/kg)
			Pyrene
Preliminary Action Levels[a]			**54,000,000**
394F009	Center of stained soil	0 - 0.5	1,800
394F009DL		0 - 0.5	2,300

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
µg/kg = Micrograms per kilogram

D.7.1.10.4 Total RCRA Metal Results in Soil Samples

The total RCRA metals detected in soil samples at concentrations exceeding MRLs are listed in Table D.7-5 and are discussed below. Only arsenic exceeded the PALs for RCRA metals established in the SAFER Plan but the concentrations considered representative of ambient conditions at the site.

Table D.7-5
Soil Sample Results for Total RCRA Metals
Detected Above Minimum Reporting Limits at CAS 29-44-01

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (mg/kg)					
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury
Preliminary Action Levels[a]			**2.7**	**100,000**	**450**	**450**	**750**	**610**
394F009	Center of stained soil	0 - 0.5	11.4	130	5.13	8.49	53.5	.183

[a]Based on U.S. Environmental Protection Agency, *Region 9 Preliminary Remediation Goals (PRGs)* (EPA, 2000).

ft bgs = Feet below ground surface
mg/kg = Milligrams per kilogram

D.7.1.10.5 Polychlorinated Biphenyl Results for Soil Samples

Polychlorinated biphenyls were not detected in soil samples at concentrations exceeding the MRLs established in the SAFER Plan.

D.7.1.10.6 Gamma Spectrometry Results in Soil Samples

Gamma spectrometry was used to analyze select soil samples only in support of IDW disposal and waste management decisions. Table D.7-6 lists the soil sample results with concentrations above the MRLs as established in the SAFER Plan. The results did not indicate the presence of man-made radionuclides at concentrations greater than, or statistically distinguishable from, background concentrations (US Ecology and Atlan-Tech, 1991; McArthur and Miller, 1989).

Table D.7-6
Soil Sample Results for Gamma-Emitting Radionuclides
Detected Above Minimum Reporting Limits at CAS 29-44-01

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (pCi/g)					
			Actinium-228	Lead-212	Lead-214	Potassium-40	Thallium-208	Thorium-232
Preliminary Action Levels[a]			**3.64**	**3.64**	**3.47**	**97.7**	**3.38**	**3.64**
394F009	Center of stained soil	0 - 0.5	2.65 ± 0.8	2.73 ± 0.49	1.39 ± 0.39	28.3 ± 5.4	0.881 ± 0.25	3.02 ± 1.1

[a]Background concentration listed in *Environmental Monitoring Report for the Proposed Ward Valley, California, Low-Level Radioactive Waste (LLRW) Facility* (US Ecology and Atlan-Tech, 1991).

ft bgs = Feet below ground surface
pCi/g = Picocuries per gram

D.7.1.10.7 Isotopic Results for Soil Samples

Isotopic analytical results in soil samples with concentrations exceeding MRLs are provided in Table D.7-7. Soil sample results did not exceed PALs established in the SAFER Plan. The results did not indicate the presence of man-made radionuclides at concentrations greater than, or statistically distinguishable from, background concentrations (US Ecology and Atlan-Tech, 1991; McArthur and Miller, 1989).

D.7.1.11 Contaminants of Concern

The contaminant of concern at this site CAS is TPH-DRO. One sample, 394F009, exceeded the TPH PAL of 100 mg/kg.

Table D.7-7
Soil Sample Results for Isotopes Detected
Above Minimum Reporting Limits at CAS 29-44-01

Sample Number	Sample Location	Depth (ft bgs)	Contaminants of Potential Concern (pCi/g)			
			Uranium-234	Uranium-235	Uranium-238	Plutonium-239/240
Preliminary Action Levels			**3.47[a]**	**0.07[a]**	**3.47[a]**	**0.106[b]**
394F009	Center of stained soil	0 - 0.5	1.09 ± 0.21	0.032 ± 0.015 (J)	1.18 ± 0.23	0.299 ± 0.069

[a]Based on background concentration listed in *Environmental Monitoring Report for the Proposed Ward Valley, California. Low-Level Radioactive Waste (LLRW) Facility* (US Ecology and Atlan-Tech, 1991).
[b]Based on background concentration listed or derived in *Off-Site Radiation Exposure Review Project, Phase II Soil Program* (McArthur and Miller, 1989).

ft bgs = Feet below ground surface
pCi/g = Picocuries per gram
J = Estimated value

D.7.2 Nature and Extent of Contamination

The extent of vertical contamination is the depth to bedrock (5 in. bgs). The lateral extent of contamination appears to be within a 2-ft radius from the center of the stained soil surface. Results from the TPH screening on soil samples collected at three locations where stained soil was not observed indicated concentrations of TPH below or just slightly above the PAL which indicates that concentrations decrease from the stained surface area.

D.7.3 Revised Conceptual Model

Variations to the conceptual model were not identified.

D.8.0 Excavation and Verification Sampling Activities

The following sections discuss excavation and verification sampling activities that were performed to identify the preferred closure options of clean closure for CAS 18-25-02 and 18-25-03. An attempt to remove the soil stain at CAS 29-44-01 by hand shovel was unsuccessful and is briefly discussed in Section D.7.0.

D.8.1 CAS 18-25-02 Closure Activities

A series of excavations occurred between November 2002 and July 2003 removing the PCB and TPH-DRO contaminated soils at the former Area 18 generator shack. The removed waste included associated piping and concrete debris from the equipment pads, generator shack foundation, at the and aboveground storage tank cradle. The waste was placed in roll-off boxes and end-dumps and transported offsite to the Clean Harbors Grassy Mountain landfill in Utah. The material was disposed of as PCB waste. Both a front-end loader and a track hoe were used in the excavation of the PCB waste. The excavation is approximately 65 x 80 x 6 ft. Approximately 480,000 kilograms of waste were removed in July 2003.

Verification samples for PCB and TPH-DRO analyses were collected from the surface after the excavation was complete and samples were taken with a drill rig at depth to define the boundaries of the TPH-DRO contamination. When the excavation was completed, samples were taken at the surface of the excavation to verify that the concentrations of PCBs were below the PRGs established in the SAFER (i.e., less than 1 ppm). Where TPH-DRO concentrations exceeded the PALs established in the SAFER, the site will be closed in place with use restrictions. On four sides of the excavation, samples were taken at depth to determine if there has been any lateral migration of TPH-DRO. In addition, a soil boring was advanced in the excavation to determine the depth of contamination of TPH-DRO. The samples at depth and on the four sides of the excavation indicated that there is no migration laterally beyond the CAS boundaries or vertically beyond the underlying welded tuff bedrock.

D.8.2 CAS 18-25-03 Closure Activities

CAS 18-25-03 is adjacent to CAS 18-25-02. When CAS 18-25-02 was excavated most of CAS 18-25-03 was also excavated. For all practical purposes these two CASs can be considered to be one excavated area. Samples were taken at the surface of the excavation and analyzed for PCBs and TPH-DRO. The PCB concentrations were below the PRGs established in the SAFER (i.e., less than 1 ppm). Where TPH-DRO concentrations exceeded the PALs established in the SAFER (i.e., 100 ppm), the area will be closed in place with use restrictions. The soil borings for CAS18-25-02 indicate that there is no lateral migration of contaminants beyond the CAS boundaries or vertical migration beyond the underlying welded tuff bedrock.

D.9.0 Quality Assurance

This section contains a summary of the QA/QC process implemented during the CAU 394 SAFER. Laboratory analyses were conducted for samples used in the decision-making process to provide a quantitative measurement of any COPCs present. The QA/QC process was implemented for all laboratory samples including documentation, data verification and validation of analytical results, and affirmation of DQI requirements related to laboratory analyses. Detailed information regarding the QA program is contained in the Industrial Sites QAPP (DOE/NV, 1996b). A discussion of the DQIs, including the datasets, is provided in Appendix A.

D.9.1 Data Validation

Data validation was performed in accordance with the Industrial Sites QAPP (DOE/NV, 1996b) and approved procedures. Laboratory data from samples collected and analyzed for CAU 394 were evaluated for data quality according to the EPA Functional Guidelines (EPA, 1994 and 1999) and method-specific QC requirements. These guidelines are implemented in a tiered process and are presented in Sections D.9.1.1 through D.9.1.3. Data were reviewed to ensure that samples were appropriately processed and analyzed, and the results passed data validation criteria. Documentation of the data qualifications resulting from these reviews is retained in project files as a hard copy and electronic media.

One hundred percent of the data analyzed as part of this closure were subjected to Tier I and Tier II evaluations. A Tier III evaluation was performed on 10 percent of the samples.

D.9.1.1 Tier I Evaluation

Tier I evaluation for both chemical and radiological analysis examined, but was not limited to:

- Sample count/type consistent with chain of custody
- Analysis count/type consistent with chain of custody
- Correct sample matrix
- Significant problems stated in cover letter or case narrative
- Completeness of certificates of analysis
- Completeness of Contract Laboratory Program (CLP) or CLP-like packages
- Completeness of signatures, dates, and times on chain of custody

- Requested analyses performed on all samples
- Date received/analyzed given for each sample
- Correct concentration units indicated
- Electronic data transfer supplied
- Results reported for field and laboratory QC samples
- Whether or not the deliverable met the overall objectives of the project
- Proper field documentation accompanies project packages

D.9.1.2 Tier II Evaluation

Tier II evaluation for both chemical and radiological analysis examines, but is not limited to:

Chemical:

- Correct detection limits achieved
- Sample date, preparation date, and analysis date for each sample
- Holding time criteria met
- Quality control batch association for each sample
- Cooler temperature upon receipt
- Sample pH for aqueous samples, as required
- Detection limits properly adjusted for dilution, as required
- Blank contamination evaluated and applied to sample results/qualifiers
- MS/MSD, percent recovery (%R), and RPDs evaluated and applied to laboratory results/qualifiers
- Field duplicate RPDs evaluated using professional judgement and applied to laboratory results/qualifiers
- Laboratory duplicate RPDs evaluated and applied to laboratory results/qualifiers
- Surrogate %Rs evaluated and applied to laboratory results/qualifiers
- Laboratory control sample %R evaluated and applied to laboratory results/qualifiers
- Initial and continuing calibration evaluated and applied to laboratory results/qualifiers
- Internal standard evaluated and applied to laboratory results/qualifiers
- Mass spectrometer tuning criteria
- Organic compound quantitation
- Inductively coupled plasma (ICP) interference check sample evaluation
- Graphite furnace atomic absorption quality control
- Inductively coupled plasma serial dilution effects
- Recalculation of 10 percent of laboratory results from raw data

Radioanalytical:

- Correct detection limits achieved
- Blank contamination evaluated and applied to sample results/qualifiers
- Certificate of analysis consistent with data package documentation

- Quality control sample results (duplicates, laboratory control samples, laboratory blanks) evaluated and applied to laboratory result qualifiers
- Sample results, error, and minimum detectable activity evaluated and applied to laboratory result qualifiers
- Detector system calibrated to National Institute for Standards and Technology (NIST)-traceable sources
- Calibration sources preparation was documented, demonstrating proper preparation and appropriateness for sample matrix, emission energies, and concentrations
- Detector system response to daily, weekly, and monthly background and calibration checks, which may include peak energy, peak centroid, peak full-width half-maximum, and peak efficiency, depending on the detection system
- Tracers NIST-traceable, appropriate for the analysis performed, and recoveries that met QC requirements
- Documentation of all QC sample preparation complete and properly performed
- QC sample results (e.g., calibration source concentration, %R, and RPD) verified
- Spectra lines, emissions, particle energies, peak areas, and background peak areas that support the identified radionuclide and its concentration
- Recalculation of 10 percent of laboratory results from raw data

D.9.1.3 Tier III Review

Tier III evaluations examine a limited portion of data reviewed during Tier II validation. The Tier III review includes the additional evaluations.

Chemical:

- Recalculation of laboratory results from raw data

Radioanalytical:

- Radionuclides and their concentration appropriate considering their decay schemes and half-lives
- Each identified line in spectra verified against emission libraries and calibration results
- Independent identification of spectra lines, area under the peaks, and quantification of radionuclide concentration in a random number of sample results
- Recalculation of laboratory results from raw data

A Tier III review of approximately 10 percent of the samples is being conducted. Tier II and Tier III results were compared and, where differences were noted, data was reviewed and changes made accordingly.

D.9.2 Quality Control Samples

There were 9 (7) trip blanks, 5 field blanks, 1 source blank, 4 (2) equipment rinsate blanks, 7 MS/MSD, and 9 (5) field duplicates (numbers without parentheses are total numbers and in parentheses are excluding CASs 18-25-02 and 18-25-03) associated with soil samples collected and submitted for laboratory analysis. The quality control samples were assigned individual sample numbers and sent to the laboratory "blind." Additional samples were selected by the laboratory to be analyzed as laboratory duplicates.

D.9.2.1 Field Quality Control Samples

Review of the field-blank analytical data for the CAU 356 soil sampling indicates that cross-contamination from field methods did not occur during sample collection. Field, equipment rinsate, and source blanks were analyzed for the parameters listed in Table D.1-1 and trip blanks were analyzed for VOCs only. Several different contaminants were detected in some of the samples, but they were below or slightly above the contract-required detection limits.

During the sampling events, eight field duplicate soil samples were sent as blind samples to the laboratory to be analyzed for the closure parameters listed in Table D.1-1. For these samples, the duplicate results precision (i.e., RPDs between the environmental sample results and their corresponding field duplicate sample results) were evaluated to the guidelines set forth in *EPA Functional Guidelines* (EPA, 1994).

D.9.2.2 Laboratory Quality Control Samples

Analysis of method QC blanks were performed on each SDG for inorganics. Analysis for surrogate spikes and preparation blanks (PBs) were performed on each SDG for organics only. Initial and continuing calibration and LCS were performed for each SDG. The results of these analyses were used to qualify associated environmental sample results according to *EPA Functional Guidelines* (EPA, 1994 and 1999). Documentation of data qualifications resulting from the application of these guidelines is retained in project files as both hard copy and electronic media.

D.9.3 Field Nonconformances

During the corrective action investigation Shaw QA representatives provided field guidance and oversight to verify that sampling activities were performed in accordance with applicable requirements. A nonconformance was identified during the tier one data validation process. The nonconformance resulted from sample team members being inaccurately identified on a chain-of-custody. The custody of the samples were not impacted and no impacts to data quality were identified during the data qualification process.

D.9.4 Laboratory Nonconformances

Laboratory nonconformances are due to inconsistencies in analytical instrumentation operation, sample preparations, extractions, missed holding times, and fluctuations in internal standard and calibration results. Nonconformances were issued by the laboratory that resulted in qualifying data and have been accounted for during the data qualification process.

D.10.0 References

Burhoe, C., Reynolds Electrical & Engineering Co. 1993. Memorandum to R. Miller (REECo) entitled "Disposal of Hydrocarbon Contaminated Soil At the Area 12 Fleet Operations Facility," 1 September. Las Vegas, NV.

CFR, see *Code of Federal Regulations*.

Code of Federal Regulations. 2002. Title 40 CFR Parts 260 - 282, "RCRA Regulations." Washington, DC: U.S. Government Printing Office.

DOE, see U.S. Department of Energy.

DOE/NV, see U.S. Department of Energy, Nevada Operations Office.

DNA, see Defense Nuclear Agency.

Defense Nuclear Agency. 1990. *DNA Waste Management Planning Document for DNA Activities at the Nevada Test Site*, June. Las Vegas, NV.

EPA, see U.S. Environmental Protection Agency.

FFACO, see *Federal Facility Agreement and Consent Order.*

Federal Facility Agreement and Consent Order. 1996 (as amended). Agreed to by the State of Nevada, the U.S. Department of Energy, and the U.S. Department of Defense.

McArthur, R.D., and R.L. Miller, Jr. 1989. *Off-Site Radiation Exposure Review Project, Phase II Soil Program*, DOE/NV/10384-23. Las Vegas, NV: Desert Research Institute.

Moore, J., Science Applications International Corporation. 1999. Memo to M. Todd (SAIC), entitled, "Background Concentrations for NTS and TTR Soil Samples," 3 February. Las Vegas, NV.

NBMG, see Nevada Bureau of Mines and Geology.

Nevada Bureau of Mines and Geology. 1998. *Mineral and Energy Resource Assessment of the Nellis Air Force Range*, Open-File Report 98-1. Reno, NV.

SNPO, see Space Nuclear Propulsion Office.

Space Nuclear Propulsion Office. 1970. *NRDS Master Plan, 1969 to 1970*. Las Vegas, NV.

US Ecology and Atlan-Tech. 1991. *Environmental Monitoring Report for the Proposed Ward Valley, California, LLRW Facility.* Rosewell, GA.

U.S. Department of Energy. 1988. *Environmental Survey Preliminary Report*, April. Washington, DC: Environment, Safety and Health Office of Environmental Audit.

U.S. Department of Energy, Nevada Operations Office. 1996a. *Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada*, DOE/EIS 0243. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1996b. *Industrial Sites Quality Assurance Project Plan, Nevada Test Site, Nevada*, Rev. 1, DOE/NV--372. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 2001. *Streamlined Approach for Environmental Restoration (SAFER) Plan for Corrective Action Unit 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada*, DOE/NV–755. Las Vegas, NV.

U.S. Environmental Protection Agency. 1994. *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, EPA/540/R-94/013. Washington, DC.

U.S. Environmental Protection Agency. 1996. *Test Method for Evacuating Solid Waste Physical/Chemical Methods*, SW-846, 3rd Edition, CD-ROM PB97-501928GEI. Washington, DC.

U.S. Environmental Protection Agency. 1999. *Contract Laboratory Program National Functional Guidelines for Organic Data Review*, EPA 540/R-99/008. Washington, DC.

U.S. Environmental Protection Agency. 2000. Memorandum from S.J. Smucker to PRG table mailing list regarding Region IX Preliminary Remediation Goals (PRGs), 1 August. San Francisco, CA.

USGS, see U.S. Geological Survey.

U.S. Geological Survey. 1985. Geologic Map of the Jackass Flats Area, Nye County, Nevada, Miscellaneous Investigations Series, Map I-1519, 1:48,000 scale. Prepared by F. Maldonado. Denver, CO.

U.S. Geological Survey. 1990. Geologic Map of the Nevada Test Site, Southern Nevada, Miscellaneous Investigations Series, Map I-2046, 1:100,000 scale. Prepared by V.A. Frizzell, Jr. and J. Shulters. Denver, CO.

U.S. Geological Survey. 1993. *Selected Ground-Water Data for Yucca Mountain Region, Southern Nevada and Eastern California, Calendar Year 1993*, Open-File Report 95-158.

Appendix E

Waste Disposition Documentation for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada

(39 Pages)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 | Manifest Document No. 0 3 0 0 3 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name
MP Environmental Services, Inc.

6. US EPA ID Number
C A T 0 0 0 6 2 4 2 4 7

C. State Transporter's ID

D. Transporter's Phone ~~(877) 800 - 5111~~

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID ( ) -

F. Transporter's Phone ( ) -

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number
U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID ( ) -

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	DT	5445	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0012; Out of Service Date 9/10/02

K. Handling Codes for Wastes Listed Above
CR
FS
OFFC

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required
(MO # 021075)

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month Day Year
Troy J. Belka	Troy J. Belka	11/13/02

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Greg Moore	Greg Moore	11/13/02

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

19. Discrepancy Indication Space
AR040410

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
[illegible]	[illegible]	11/22/02

Received 11/22/02

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ORIGINAL-RETURN TO GENERATOR

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Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 — Manifest Document No. 0 3 0 0 4 — 2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: MP Environmental Services, Inc.

6. US EPA ID Number: C A T 0 0 0 6 2 4 2 4 7

C. State Transporter's ID

D. Transporter's Phone (877) 800 - 5111

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone ( ) -

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	RQ Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III		1	DT	12163	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0013; Out of Service Date 9/11/13/02

K. Handling Codes for Wastes Listed Above

CR	
FS	
OFFC	

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name	Signature	Month	Day	Year
Troy S. Belka	Troy S. Belka	11	13	02

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Curt Hansen	Curt Hansen	11	13	02

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space
4049 gallons

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year

Received 11/26/02

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ORIGINAL-RETURN TO GENERATOR

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Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 — Manifest Document No. 0 3 0 0 5

2. Page 1 of 1 — Information in the shaded area is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name
MP Environmental Services, Inc.

6. US EPA ID Number
C A T 0 0 0 6 2 4 2 4 7

C. State Transporter's ID

D. Transporter's Phone ~~(877) 800 - 511~~

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone ( ) -

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number
U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 890

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III		1	DT	14118	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0014; Out of Service Date 11/13/02

K. Handling Codes for Wastes Listed Above

CR	
FS	
OFFC	

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name: Troy S. Belka — Signature: Troy S. Belka — Month Day Year: 11/13/02

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: MONTY MONSERRET — Signature: [signature] — Month Day Year: 11/13/02

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space
AA2004048

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: LINDA CHILES — Signature: [signature] — Month Day Year: 11/14/02

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Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 — Manifest Document No. 0 3 0 0 6

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: MP Environmental Services, Inc.

6. US EPA ID Number: C A T 0 0 0 6 2 4 2 4 7

C. State Transporter's ID

D. Transporter's Phone (877) 800 - 5111

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone ( ) -

9. Designated Facility Name and Site Address: Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III		1	DT	14054	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above: A: ERG171; CH22908B; BN-NTS-03-0015; Out of Service Date 11/13/02

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

CR	
FS	
OFFC	

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name	Signature	Month Day Year
Troy S. Belka	Troy S. Belka	11 13 02

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Jeffrey N Cornelius Sr	Jeffrey N Cornelius	11 13 02

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

FACILITY

19. Discrepancy Indication Space: AHA04851

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
John Mims	John Mims	11 14 02

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12KK 573 D5

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NV3890090001 Manifest Document No. 03007

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295-0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: MP Environmental Services, Inc.

6. US EPA ID Number: CAT000624247

C. State Transporter's ID

D. Transporter's Phone (877) 800-5111

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone ( ) -

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number: UTD991301748

G. State Facility's ID

H. Facility's Phone (801) 323-8900

	HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	RQ	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	1	DT	15990	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0016; Out of Service Date 11/13/02

K. Handling Codes for Wastes Listed Above

CR	N
FS	C
OFFC	

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name: Troy S Belka | Signature: [signature] | Month Day Year: 11/13/02

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Donn Scott | Signature: [signature] | Month Day Year: 11/13/02

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Month Day Year

19. Discrepancy Indication Space
GAGEC4461 7

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Anita Chavez | Signature: [signature] | Month Day Year: 11/14/02

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

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ORIGINAL: RETURN TO GENERATOR

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Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 Manifest Document No. 0 3 0 0 8

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: MP Environmental Services, Inc.

6. US EPA ID Number: C A T 0 0 0 6 2 4 2 4 7

C. State Transporter's ID

D. Transporter's Phone ~~(877) 860 - 5111~~

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone ( ) -

9. Designated Facility Name and Site Address: Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	RQ	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	1	DT	14145	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above

A: ERG171; CH22908B; BN-NTS-03-0017; Out of Service Date 11/13/02

US11673

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

CR	
FS	
OFFC	

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name: Troy S. Belka | Signature: Troy S Belka | Month Day Year: 11 13 02

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Ted Cracraft | Signature: Ted Cracraft | Month Day Year: 11 13 02

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space

AU02004050

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: [illegible] | Signature: [illegible] | Month Day Year: [illegible]

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ORIGINAL-RETURN TO GENERATOR

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
N V 3 8 9 0 0 9 0 0 0 1	0 3 0 1 6		

GENERATOR

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: **MP Environmental Services, Inc.**

6. US EPA ID Number: C A T 0 0 0 6 2 4 2 4 7

C. State Transporter's ID

D. Transporter's Phone: **(877) 800 - 5111**

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone ( ) -

9. Designated Facility Name and Site Address: **Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029**

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone: **(801) 323 - 8900**

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	DT	20064	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above: A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 3/17/03

K. Handling Codes for Wastes Listed Above: CR B; FS B; OFFC B

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

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Printed/Typed Name	Signature	Month Day Year
Troy S. Belka	Troy S. Belka	09/17/03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Curt Hansen	Curt Hansen	09/17/03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

FACILITY

19. Discrepancy Indication Space: 200300955

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
Bobbi Kessinger	Bobbi Kessinger	09/18/03

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
N V 3 8 9 0 0 9 0 0 0 1	0 3 0 1 7		

GENERATOR

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: **MP Environmental Services, Inc.**

6. US EPA ID Number: C A T 0 0 0 6 2 4 2 4 7

C. State Transporter's ID

D. Transporter's Phone ~~(877) 800 - 5111~~

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone ( ) -

9. Designated Facility Name and Site Address: **Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029**

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	DT	14036	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above: A: ERG171; CH22908B; BN-NTS-03-0123; Out of Service Date 3/17/03

K. Handling Codes for Wastes Listed Above: CR, FS, OFFC

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name	Signature	Month	Day	Year
Troy S. Belka	T S. Belka	0 3	1 7	0 3

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Jeffrey N Cornelius Sr		0 3	1 7	0 3

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space: 200300957

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Bobbi Kessinger	Bobbi Kessinger	0 3	1 8	0 3

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Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
NV3890090001	03018		

GENERATOR

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name
MP Environmental Services, Inc.

6. US EPA ID Number
CAT000624247

C. State Transporter's ID

D. Transporter's Phone (877) 800 - 5111

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone ( ) -

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number
UTD991301748

G. State Facility's ID

H. Facility's Phone
(801) 323 - 8900

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	DT	7991	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0124; Out of Service Date 3/17/03

K. Handling Codes for Wastes Listed Above
CR
FS
OFFC

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR**, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month Day Year
TROY S. BELKA	Troy S Belka	03 17 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
MONTY MONSERRET		03 17 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

FACILITY

19. Discrepancy Indication Space
2003000956

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
Bobbi Kessinger	Bobbi Kessinger	03 18 03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

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ORIGINAL-RETURN TO GENERATOR

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 — Manifest Document No. 0 3 0 2 7 — 2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: **MP Environmental Services, Inc.**

6. US EPA ID Number: C A T 0 0 0 6 2 4 2 4 7

C. State Transporter's ID

D. Transporter's Phone (877) 800-5111

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address: **Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029**

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	DT	21200	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above: A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 6/30/03 0286 TB

K. Handling Codes for Wastes Listed Above: CR, FS, OFFC

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name: TROY S. BELKA — Signature: Troy S Belka — Month Day Year: 06 30 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: RICHARD BOGAN — Signature: Richard Bogan — Month Day Year: 06 30 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space: 20030022A9

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Carlos Chaves — Signature: Carlos Chaves — Month Day Year: 07 01 03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

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ORIGINAL-RETURN TO GENERATOR

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NV3890090001 Manifest Document No. 03028

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295-0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: TRIAD Transport, Inc.

6. US EPA ID Number: OKD981588791

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address:
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number: UTD991301748

G. State Facility's ID

H. Facility's Phone (801) 323-8900

	HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	RQ	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	1	DT	20390	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0~~122~~ 0287 ~~33~~; Out of Service Date ______

K. Handling Codes for Wastes Listed Above

CB	
FS	
OFFC	

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name: Troy S. Belka Signature: [signature] Month Day Year: 06 30 03

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Clyde Bates Signature: Clyde Bates Month Day Year: 06 30 03

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name Signature Month Day Year

19. Discrepancy Indication Space: Out of Service Date 06-30-03 per Troy Belka / A Romero 07-01-03
2003002207

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: [signature] Signature: [signature] Month Day Year: 07 01 03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 — Manifest Document No. 0 3 0 2 9

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name
TRIAD Transport, Inc.

6. US EPA ID Number O K D 9 8 1 5 8 8 7 9 1

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	DT	17154	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 0288 TSB

K. Handling Codes for Wastes Listed Above
CR
FS
OFFC

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name: Troy S. Belka — Signature: Troy S. Belka — Month Day Year: 06 30 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Leland F. Hatch — Signature: Leland F. Hatch — Month Day Year: 06 30 03

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space Out of Service Date 06-30-03 per Troy Belka/A. Romero 7-01-03
2M3002A08

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Mike Cares — Signature: Mike Cares — Month Day Year: 07 01 03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolet

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NV3890090001 Manifest Document No. 03030

2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: MP Environmental Services

6. US EPA ID Number: CAT000624247

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number: UTD991301748

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	DT	18918	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B: BN-NTS-03-0122; Out of Service Date 7/1/03
0289 TB

K. Handling Codes for Wastes Listed Above
CR
FS
OFFC

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name	Signature	Month Day Year
TROY S. BELKA	T S. Belka	07/10/03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
LON STEWART		07/10/03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

FACILITY

19. Discrepancy Indication Space
20180013024

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
John Cairns	John Cairns	07/10/03

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NV3890090001 — Manifest Document No. 03031

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295-0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: MP Environmental Services

6. US EPA ID Number: CAT000624247

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address: Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029

10. US EPA ID Number: UTD991301748

G. State Facility's ID

H. Facility's Phone (801) 323-8900

	HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	RQ	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	1	DT	18918	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above

A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 07/01/03

273966 0290

K. Handling Codes for Wastes Listed Above

CR ✓
FS ✓
OFFC

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name: Troy S. Belka — Signature: [signature] — Month Day Year: 07 01 03

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: [handwritten name] — Signature: [signature] — Month Day Year: 07/01/03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Month Day Year

19. Discrepancy Indication Space

200300303

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: [handwritten name] — Signature: [signature] — Month Day Year: 07 10 03

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EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

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ORIGINAL-RETURN TO GENERATOR

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Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 — Manifest Document No. 0 3 0 3 2

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: MP Environmental Services

6. US EPA ID Number: C A T 0 0 0 6 2 4 2 4 7

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address: Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	DT	20973	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above: A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 07/01/03 0291/75B

K. Handling Codes for Wastes Listed Above: CR, FS, OFFC

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

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GENERATOR — Printed/Typed Name: Troy J. Belka — Signature: Troy J. Belka — Month Day Year: 07 01 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials — Printed/Typed Name: Jim Self — Signature: Jim Self — Month Day Year: 07 01 03

18. Transporter 2 Acknowledgement of Receipt of Materials — Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space: 2003072303

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. — Printed/Typed Name: Julie Cares — Signature: Julie Cares — Month Day Year: 07 01 03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

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ORIGINAL-RETURN TO GENERATOR

Received 7/8/03

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Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NV3890090001 Manifest Document No. 03033

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: TRIAD TRANSPORT

6. US EPA ID Number: OKD981588791

C. State Transporter's ID

D. Transporter's Phone: 800 364 1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number: UTD991301748

G. State Facility's ID

H. Facility's Phone: (801) 323 - 8900

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	CM	12832	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0292; Out of Service Date 6/30/03 ~~0122~~ 738

K. Handling Codes for Wastes Listed Above
CR
FS
OFFC

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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GENERATOR

Printed/Typed Name: TROY S. BELKA — Signature — Month 07 Day 01 Year 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: HAL STEELY — Signature — Month 07 Day 01 Year 03

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space
20030729

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: JANET CAIRES — Signature — Month 07 Day 29 Year 03

Style CF 17 LABELMASTER. AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

Received 7/8/0

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Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 — Manifest Document No. 0 3 0 3 4

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: Triad Transport

6. US EPA ID Number: OKD981588791

C. State Transporter's ID

D. Transporter's Phone 800 364 1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

GENERATOR

	HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	RQ	Environmentally hazardous substances, solid. n.o.s. (soil contaminated with PCBs), 9, UN3077, III	1	CM	12505	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-~~0122~~ 0293 75B; Out of Service Date 07/21/03

K. Handling Codes for Wastes Listed Above

GR FS OFFC

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR**, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Troy S. Belka — Signature: [signature] — Month Day Year: 07 01 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Roger Adams — Signature: [signature] — Month Day Year: 07 01 03

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space

2013002290

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: [signature] — Signature: [signature] — Month Day Year: [illegible]

Style CF 17 LABELMASTER. AN AMERICAN LABELMARK CO.. CHICAGO. IL 60646 (800)621-5808

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

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ORIGINAL - RETURN TO GENERATOR

Received 7/8/03

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Form Approved. OMB No. 2050-0039.

~~UNIF~~ORM HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. NV3890090001	Manifest Document No. 03035	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295-0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: TriAd Transport Inc

6. US EPA ID Number: OKD981588791

C. State Transporter's ID

D. Transporter's Phone 800 364 1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address: Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029

10. US EPA ID Number: UTD991301748

G. State Facility's ID

H. Facility's Phone (801) 323-8900

	HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	RQ	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	1	CM	11295	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above

A: ERG171; CH22908B; BN-NTS-03-~~0122~~ 0294; Out of Service Date 7/1/03

75B

K. Handling Codes for Wastes Listed Above

CR
FS
OFFC

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name	Signature	Month Day Year
Troy S. Belka	[signature]	07 01 03

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Tony Anderson	[signature]	07 01 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

19. Discrepancy Indication Space

20030294

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
[signature]	[signature]	07 07 03

Style CF 17 LABELMASTER. AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

Received 7/8/03

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Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 — Manifest Document No. 0 3 0 3 6

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: TRIAD TRANSPORT — 6. US EPA ID Number: OKD981588791

C. State Transporter's ID

D. Transporter's Phone: 800 364 1139

7. Transporter 2 Company Name — 8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address: **Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029** — 10. US EPA ID Number: UTD991301748

G. State Facility's ID

H. Facility's Phone: (801) 323 - 8900

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	CM	12659	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above: A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 07/01/03

0295752

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name: TROY S. BELKA — Signature: Troy S. Belka — Month Day Year: 07 01 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: DAVID C LEMMON — Signature: David C Lemmon — Month Day Year: 07 01 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name — Signature — Month Day Year

ORIGINAL - RETURN TO GENERATOR

Received 7/8/03

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Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 | Manifest Document No. 0 3 0 3 7

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name
MP Environmental Services

6. US EPA ID Number
C A T 0 0 0 6 2 4 2 4 7

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number
U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	DT	17718	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 7/1/03
029675B

K. Handling Codes for Wastes Listed Above
CR
FS
OFFC

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name: TROY S. BELKA | Signature: Troy S. Belka | Month Day Year: 07/01/03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Terrance Horn | Signature: [signature] | Month Day Year: 07/01/03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space
20030030L

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: [illegible] | Signature: [signature] | Month Day Year: 07/01/03

Style CF 17 LABELMASTER. AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

Received 7/8/03

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Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 — Manifest Document No. 0 3 0 3 8

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name
TRIAD Transport, Inc.

6. US EPA ID Number
O K D 9 8 1 5 8 8 7 9

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number
U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	DT	18234	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 7/2/03
0297 TSB

K. Handling Codes for Wastes Listed Above

CR
FS
OFFC

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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GENERATOR

Printed/Typed Name: Troy S Belka — Signature: Troy S. Belka — Month 07 Day 02 Year 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Clyde Bates — Signature: Clyde Bates — Month 07 Day 02 Year 03

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space
7003007311

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Becky Fields — Signature — Month 07 Day 30 Year 03

Received 7/8/03

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 | Manifest Document No. 0 3 0 3 9 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: TRIAD Transport, Inc.

6. US EPA ID Number: O K D 9 8 1 5 8 8 7 9 1

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	DT	15495	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 7/2/03
0298 752

K. Handling Codes for Wastes Listed Above

CR
FS
OFFC

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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GENERATOR

Printed/Typed Name: Troy S. Belka | Signature: T S. Belka | Month Day Year: 07 02 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Leland T Hatch | Signature: Leland T Hatch | Month Day Year: 07 02 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space
7003002310

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Becky Fields | Signature | Month Day Year: 07 03 03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

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ORIGINAL - RETURN TO GENERATOR

Received 7/8/03

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Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 | Manifest Document No. 0 3 0 4 0 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name
MP Environmental Services

6. US EPA ID Number
C A T 0 0 0 6 2 4 2 4 7

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number
U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III		1	CM	12393	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 7/2/03
0299 TB

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable International and national government regulations.
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GENERATOR

Printed/Typed Name: Troy S. Belka | Signature: Troy S. Belka | Month Day Year: 07 02 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Richard Bogan | Signature: Richard Bogan | Month Day Year: 07 02 03

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space
2003C0312

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Gina Gaines | Signature: Gina Gaines | Month Day Year: 07 03 03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

ORIGINAL - RETURN TO GENERATOR

7/14/03

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: N V 3 8 9 0 0 9 0 0 0 1 | Manifest Document No.: 0 3 0 4 1

2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: MP Environmental Services

6. US EPA ID Number: C A T 0 0 0 6 2 4 2 4 7

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	HM RQ Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	1	CM	12336	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 7/2/03
0300 TB

K. Handling Codes for Wastes Listed Above

CR	
FS	MWL
OFFC	

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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GENERATOR

Printed/Typed Name	Signature	Month	Day	Year
Troy S. Belka	Troy S. Belka	07	03	03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
BARY HILL	Bary Hill	07	03	03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space
Item 20: Per Tc with Clean Harbors grassy mtn (Becky Fields) correct Date is 7/7/03
200300233 BSD 7/14/03

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Wendy Riddle	Wendy Riddle	07	07	03 BS

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ORIGINAL-RETURN TO GENERATOR

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Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: N V 3 8 9 0 0 9 0 0 0 1 | Manifest Document No.: 0 3 0 4 2

2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: TRIAD Transport, Inc.

6. US EPA ID Number: O K D 9 8 1 5 8 8 7 9

C. State Transporter's ID

D. Transporter's Phone: (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone: (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	CM	12218	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 7/1/03
0301

K. Handling Codes for Wastes Listed Above

CR	
FS	WM
OFFC	

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR**, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name	Signature	Month	Day	Year
Troy S. Belka	Troy S. Belka	07	02	03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Von Goodwin	Von Goodwin	07	03	03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space
2003002323

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Wendy Riddle	Wendy Riddle	07	07	03

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ORIGINAL-RETURN TO GENERATOR

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 | Manifest Document No. 0 3 0 4 3 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name
TRIAD Transport, Inc.

6. US EPA ID Number
O K D 9 8 1 5 8 8 7 9

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number
U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	CM	13882	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 7/4/03
0302 TB

K. Handling Codes for Wastes Listed Above

CR	
FS	WM
OFFC	

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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GENERATOR

Printed/Typed Name: TROY S. BELKA | Signature: Troy S. Belka | Month 07 Day 03 Year 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: PAUL STEELY | Signature: Paul Steely | Month 07 Day 03 Year 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space
Per Carlos at Bechtel - Changed Generator & Transporter date to 2003.
Wendy Riddle 7/7/03 2003002325

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Wendy Riddle | Signature: Wendy Riddle | Month 07 Day 07 Year 03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

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ORIGINAL-RETURN TO GENERATOR

7/14/03

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 Manifest Document No. 0 3 0 4 4

2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: TRIAD Transport, Inc.

6. US EPA ID Number: O K D 9 8 1 5 8 8 7 9

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address: Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	CM	1439	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above: A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 7/4/03 0303 TB

K. Handling Codes for Wastes Listed Above: CR; FS; OFFC

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name	Signature	Month	Day	Year
Troy S. Belka	Troy S. Belka	07	30	03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Roger Adams	Roger Adams	07	30	03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space: 2003002321

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Wendy Riddle	Wendy Riddle	07	30	03

Received 7/14/03

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: N V 3 8 9 0 0 9 0 0 0 1 | Manifest Document No.: 0 3 0 4 5 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: TRIAD Transport, Inc. | 6. US EPA ID Number: O K D 9 8 1 5 8 8 7 9 | C. State Transporter's ID | D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name | 8. US EPA ID Number | E. State Transporter's ID | F. Transporter's Phone

9. Designated Facility Name and Site Address: Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029 | 10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8 | G. State Facility's ID | H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	HM RQ Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	1	CM	12727	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above

A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 7/1/03
0304 TSB

B-936

K. Handling Codes for Wastes Listed Above

CR	
FS	[illegible]
OFFC	

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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GENERATOR

Printed/Typed Name: TROY S. BELKA | Signature: Troy S. Belka | Month Day Year: 07 03 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: DAVID C Lemmon | Signature: David C Lemmon | Month Day Year: 07 03 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space

2003002324

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Wendy Riddle | Signature: Wendy Riddle | Month Day Year: 07 07 03

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2r 215 B 1138 Received 3/14/03

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
N V 3 8 9 0 0 9 0 0 0 1	0 3 0 4 6		

GENERATOR

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: TRIAD Transport, Inc.

6. US EPA ID Number: O K D 9 8 1 5 8 8 7 9 1

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address: **Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029**

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	CM	13091	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above: A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 7/1/03 0305 TB

K. Handling Codes for Wastes Listed Above

CR	
FS	WL
OFFC	

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name	Signature	Month	Day	Year
Troy S. Belka	Troy S. Belka	0 7	3 0	0 3

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Anthony M Anderson	Anthony M Anderson	0 7	0 3	0 3

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space: 2003002322

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Wendy Riddle	Wendy Riddle	0 7	1 0	0 3

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NV3890090001 Manifest Document No. 03047

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295-0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: **MP Environmental Services**

6. US EPA ID Number: CAT000624247

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address:
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number: UTD991301748

G. State Facility's ID

H. Facility's Phone (801) 323-8900

GENERATOR

	HM	11. US DOT Description (*Including Proper Shipping Name, Hazard Class and ID Number*)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	RQ	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	1	DT	21391	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; Out of Service Date 07/07/03
BN-NTS-03-0306
TX 3110

K. Handling Codes for Wastes Listed Above
CR
FS
OFFC

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR**, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Troy S. Belka | Signature: [signature] | Month Day Year: 07 07 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Gary Hill | Signature: [signature] | Month Day Year: 07 07 03

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space
IDX300535

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: [handwritten name] | Signature: [signature] | Month Day Year: [handwritten date]

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NV3890090001	Manifest Document No. 03048	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193	A. State Manifest Document Number
4. Generator's Phone (702) 295-0311 Attn: Troy Belka	B. State Generator's ID
5. Transporter 1 Company Name: MP Environmental Services — 6. US EPA ID Number: CAT000624247	C. State Transporter's ID; D. Transporter's Phone (800) 324-1139
7. Transporter 2 Company Name — 8. US EPA ID Number	E. State Transporter's ID; F. Transporter's Phone
9. Designated Facility Name and Site Address: Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029 — 10. US EPA ID Number: UTD991301748	G. State Facility's ID; H. Facility's Phone (801) 323-8900

	HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	RQ	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	1	DT	19645	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above

A: ERG171; CH22908B; Out of Service Date 07/07/03

BN-NTS-03-0307

K. Handling Codes for Wastes Listed Above

OR
FS
OFFC

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name	Signature	Month Day Year
Troy S. Belka	[signature]	07 07 03

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Neal Anderton	[signature]	07 07 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

19. Discrepancy Indication Space

20030336

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
[signature]	[signature]	07 08 03

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7/14/03

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 | Manifest Document No. 0 3 0 4 9 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name
TRIAD Transport, Inc.

6. US EPA ID Number
O K D 9 8 1 5 8 8 7 9 1

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number
U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	HM RQ Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	1	DT	18327	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; Out of Service Date 07/07/03
BN-NTS-03-0308

K. Handling Codes for Wastes Listed Above
CR
FS
OFFC

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR**, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name: TROY S. BELKA | Signature: Troy S Belka | Month Day Year: 07 07 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Clyde Bates | Signature: Clyde Bates | Month Day Year: 07 07 03

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space
AN800338

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: JANET CAINES | Signature: Janet Caines | Month Day Year: 07 08 03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

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Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 | Manifest Document No. 0 3 0 5 0 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas. NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name
TRIAD Transport, Inc.

6. US EPA ID Number
O K D 9 8 1 5 8 8 7 9 1

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number
U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	DT	19036	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; Out of Service Date 07/07/03
BN-NTS-03-0309

K. Handling Codes for Wastes Listed Above
OR
FS
OFFC

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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GENERATOR

Printed/Typed Name: TROY S. BELKA | Signature: Troy S. Belka | Month 07 Day 07 Year 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: LELAND J HATCH | Signature: Leland J Hatch | Month 07 Day 07 Year 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space
AM3N3337

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: ANNE CAMES | Signature: Anne Cames | Month 07 Day 08 Year 03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
N V 3 8 9 0 0 9 0 0 0 1	0 3 0 5 1		

GENERATOR

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas. NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name
TRIAD Transport, Inc.

6. US EPA ID Number
O K D 9 8 1 5 8 8 7 9

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number
U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone
(801) 323 - 8900

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ Environmentally hazardous substances. solid. n.o.s. (soil contaminated with PCBs). 9. UN3077. III		1	CM	1249	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: ERG171: CH22908B: BN-NTS-03~~-0122~~ Out of Service Date 07/07/03
0310 758

K. Handling Codes for Wastes Listed Above

CR	
FS	
OFFC	

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name	Signature	Month Day Year
IROY S. BELKA	Troy S. Belka	07/08/03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Von Goodwin	Von Goodwin	07/08/03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

FACILITY

19. Discrepancy Indication Space
20030255

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
David Chavez	David Chavez	07/08/03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

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ORIGINAL-RETURN TO GENERATOR

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NV3890090001 | Manifest Document No. 03052 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas. NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: TRIAD Transport, Inc.

6. US EPA ID Number: OKD981588791

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number: UTD991301748

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	CM	12636	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0122: Out of Service Date 7/7/08
0315 752

K. Handling Codes for Wastes Listed Above
CR
FS
OFFC

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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GENERATOR

Printed/Typed Name: TROY S. BELKA | Signature: T S. Belka | Month Day Year: 07 08 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: ROGER ADAMS | Signature: Roger Adams | Month Day Year: 07 08 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space
2003003554

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Janice Caires | Signature: Janice Caires | Month Day Year: 07 08 03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: N V 3 8 9 0 0 9 0 0 0 1 | Manifest Document No.: 0 3 0 5 3 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: **TRIAD Transport, Inc.**

6. US EPA ID Number: O K D 9 8 1 5 8 8 7 9 1

C. State Transporter's ID

D. Transporter's Phone: (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address: **Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029**

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone: (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	CM	13782	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above

A: ERG171; CH22908B; BN-NTS-03-0122; Out of Service Date 07/07/03

0311 738

K. Handling Codes for Wastes Listed Above

CR	
FS	
OFFC	

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name: Troy S. Belka | Signature: Troy S. Belka | Month Day Year: 07 08 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: David C Lemmon | Signature: David C Lemmon | Month Day Year: 07 08 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: John Caires | Signature: John Caires | Month Day Year: 07 10 03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

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7/14/03

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: N V 3 8 9 0 0 9 0 0 0 1

Manifest Document No.: 0 3 0 5 4

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

A. State Manifest Document Number

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

B. State Generator's ID

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

5. Transporter 1 Company Name: TRIAD Transport, Inc.

6. US EPA ID Number: O K D 9 8 1 5 8 8 7 9 1

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address: Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	RQ	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	1	CM	13718	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above

A: ERG171; CH22908B; BN-NTS-03-~~0122~~ 0312; Out of Service Date 07/07/03 7/3

K. Handling Codes for Wastes Listed Above

OR	
FS	
OFFC	

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name: Troy S. Belka — Signature: [signature] — Month Day Year: 07 08 03

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Tony Anderson — Signature: [signature] — Month Day Year: 07 08 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Month Day Year

19. Discrepancy Indication Space

200300235L

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name — Signature — Month Day Year

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 | Manifest Document No. 0 3 0 5 5 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address: Bechtel Nevada for US DOE, PO Box 98521 M/S NTS110, Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: TRIAD Transport, Inc.

6. US EPA ID Number: O K D 9 8 1 5 8 8 7 9 1

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address: **Clean Harbors Grassy Mountain, LLC, Exit 41 Off I-80 3 miles E, 7 miles N of Knolls, Grassy Mountain, UT 84029**

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	CM	13482	K	NONE
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above: A: ERG171; CH22908B; BN-NTS-03-~~0122~~0313; Out of Service Date 7/7/03

K. Handling Codes for Wastes Listed Above: CR, FS, OFFC

15. Special Handling Instructions and Additional Information

24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

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Printed/Typed Name: Troy S. Belka | Signature: T S Belka | Month Day Year: 07 09 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: for TRIAD Jerry Southwood | Signature | Month Day Year: 07 09 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space: 200LBS

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Janet Chaves | Signature | Month Day Year: 07 10 03

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N V 3 8 9 0 0 9 0 0 0 1 | Manifest Document No. 0 3 0 5 6 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Bechtel Nevada for US DOE
PO Box 98521 M/S NTS110
Las Vegas, NV 89193

4. Generator's Phone (702) 295 - 0311 Attn: Troy Belka

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: TRIAD Transport, Inc.

6. US EPA ID Number: O K D 9 8 1 5 8 8 7 9

C. State Transporter's ID

D. Transporter's Phone (800) 324-1139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain, LLC
Exit 41 Off I-80 3 miles E, 7 miles N of Knolls
Grassy Mountain, UT 84029

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8

G. State Facility's ID

H. Facility's Phone (801) 323 - 8900

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Environmentally hazardous substances, solid, n.o.s. (soil contaminated with PCBs), 9, UN3077, III	RQ	1	CM	13864	K	NONE
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: ERG171; CH22908B; BN-NTS-03-0314; Out of Service Date 07/07/03

K. Handling Codes for Wastes Listed Above

CR	JC
FS	JC
OFFC	

15. Special Handling Instructions and Additional Information
24-hour emergency contact # (702) 295-0311 Collect
Use Proper PPE when handling containers
Certificate of Destruction is required

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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GENERATOR

Printed/Typed Name: TROY S. BELKA | Signature: Troy S. Belka | Month Day Year: 07 09 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: RICHARD STANLEY | Signature: Richard Stanley | Month Day Year: 07 09 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space
AM3003806

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: JANE CAMES | Signature: Jane Cames | Month Day Year: 07 10 03

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

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Appendix F

Modifications to the Post-Closure Plan for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada

F.1.0 Modifications to the Post-Closure Plan for CAU 394

There were no modifications to the Post-Closure Plan.

Appendix G

Use Restriction for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada

(8 Pages)

CAU Use Restriction Information

CAU Number/Description: CAU 394, Areas 12, 18, and 29 Spill/Release Sites

Applicable CAS Numbers/Descriptions: CAS 18-25-01, Oil Spills, Area 18 Service Station

Contact (organization/project): NNSA/NSO Environmental Restoration Division, Industrial Sites Project Manager

Surveyed Area (UTM, Zone 11, NAD 27, meters):

Northing - 4112806.84 Easting - 565561.79
Northing - 4112806.84 Easting - 565572.44
Northing - 4112794.99 Easting - 565572.44
Northing - 4112794.99 Easting - 565561.79

Survey Date: 2/12/03 **Survey Method (GPS, etc.):** GPS

Site Monitoring Requirements: None

Required Frequency (quarterly, annually?): Not Applicable

If Monitoring Has Started, Indicate Last Completion Date: Not Applicable

Use Restrictions

The future use of any land related to this Corrective Action Unit (CAU), as described by the above surveyed location, is restricted from any DOE or Air Force activity that may alter or modify the containment control as approved by the state and identified in the CAU Closure Report or other CAU documentation unless appropriate concurrence is obtained in advance.

Comments: The Use Restriction is for subsurface contamination. There is no monitoring or inspection requirements associated with this Use Restriction. See the Closure Report for additional information on the condition of the site.

Submitted By: Sabine Curtis **Date:** 9/24/03
Sabine Curtis, NNSA/NSO ERD IS Task Manager

cc with copy of survey map (paper and digital (.dgn) formats):
CAU Files (2 copies)

CAU Use Restriction Information

CAU Number/Description: CAU 394, Areas 12, 18, and 29 Spill/Release Sites

Applicable CAS Numbers/Descriptions: CAS 12-25-04, UST 12-16-2 Waste Oil Release

Contact (organization/project): NNSA/NSO Environmental Restoration Division, Industrial Sites Project Manager

Surveyed Area (UTM, Zone 11, NAD 27, meters):
Northing - 4116294.76 Easting - 574817.19
Northing - 4116273.60 Easting - 574817.73
Northing - 4116284.97 Easting - 574829.59
Northing - 4116287.97 Easting - 574811.89

Survey Date: 8/30/02 **Survey Method (GPS, etc.):** GPS

Site Monitoring Requirements: None

Required Frequency (quarterly, annually?): Not Applicable

If Monitoring Has Started, Indicate Last Completion Date: Not Applicable

Use Restrictions

The future use of any land related to this Corrective Action Unit (CAU), as described by the above surveyed location, is restricted from any DOE or Air Force activity that may alter or modify the containment control as approved by the state and identified in the CAU Closure Report or other CAU documentation unless appropriate concurrence is obtained in advance.

Comments: The Use Restriction is for subsurface contamination. There is no monitoring or inspection requirements associated with this Use Restriction. See the Closure Report for additional information on the condition of the site.

Submitted By: Sabine Curtis **Date:** 9/24/03
Sabine Curtis, NNSA/NSO ERD IS Task Manager

cc with copy of survey map (paper and digital (.dgn) formats):
CAU Files (2 copies)

CAU Use Restriction Information

CAU Number/Description: CAU 394, Areas 12, 18, and 29 Spill/Release Sites

Applicable CAS Numbers/Descriptions: CAS 29-44-01, Fuel Spill, Shoshone Transmitter Station Soil Stain

Contact (organization/project): NNSA/NSO Environmental Restoration Division, Industrial Sites Project Manager

Surveyed Area (UTM, Zone 11, NAD 27, meters):
One meter radius around point Northing - 4086696.82 Easting - 569606.61
One meter radius around point Northing - 4086691.98 Easting - 569566.60

Survey Date: 9/5/02 **Survey Method (GPS, etc.):** GPS

Site Monitoring Requirements: None

Required Frequency (quarterly, annually?): Not Applicable

If Monitoring Has Started, Indicate Last Completion Date: Not Applicable

Use Restrictions

The future use of any land related to this Corrective Action Unit (CAU), as described by the above surveyed location, is restricted from any DOE or Air Force activity that may alter or modify the containment control as approved by the state and identified in the CAU Closure Report or other CAU documentation unless appropriate concurrence is obtained in advance.

Comments: The Use Restriction is for subsurface contamination. There is no monitoring or inspection requirements associated with this Use Restriction. See the Closure Report for additional information on the condition of the site. The restricted area is identified by postings.

Submitted By: Sabine Curtis **Date:** 9/24/03
Sabine Curtis, NNSA/NSO ERD IS Task Manager

cc with copy of survey map (paper and digital (.dgn) formats):
CAU Files (2 copies)

CAU Use Restriction Information

CAU Number/Description: CAU 394, Areas 12, 18, and 29 Spill/Release Sites

Applicable CAS Numbers/Descriptions: CASs 18-25-02 Oil Spills and 18-25-03, Oil Spill, Area 18 Generator Shack

Contact (organization/project): NNSA/NSO Environmental Restoration Division, Industrial Sites Project Manager

Surveyed Area (UTM, Zone 11, NAD 27, meters):
Northing - 4112905.39 Easting - 565343.00
Northing - 4112900.21 Easting - 565325.85
Northing - 4112879.54 Easting - 565332.09
Northing - 4112891.24 Easting - 565351.04

Survey Date: 9/11/03 **Survey Method (GPS, etc.):** GIS

Site Monitoring Requirements: None

Required Frequency (quarterly, annually?): Not Applicable

If Monitoring Has Started, Indicate Last Completion Date: Not Applicable

Use Restrictions

The future use of any land related to this Corrective Action Unit (CAU), as described by the above surveyed location, is restricted from any DOE or Air Force activity that may alter or modify the containment control as approved by the state and identified in the CAU Closure Report or other CAU documentation unless appropriate concurrence is obtained in advance.

Comments: The Use Restriction is for subsurface contamination. There is no monitoring or inspection requirements associated with this Use Restriction. See the Closure Report for additional information on the condition of the site.

Submitted By: Sabine Curtis **Date:** 9/24/03
Sabine Curtis, NNSA/NSO ERD IS Task Manager

cc with copy of survey map (paper and digital (.dgn) formats):
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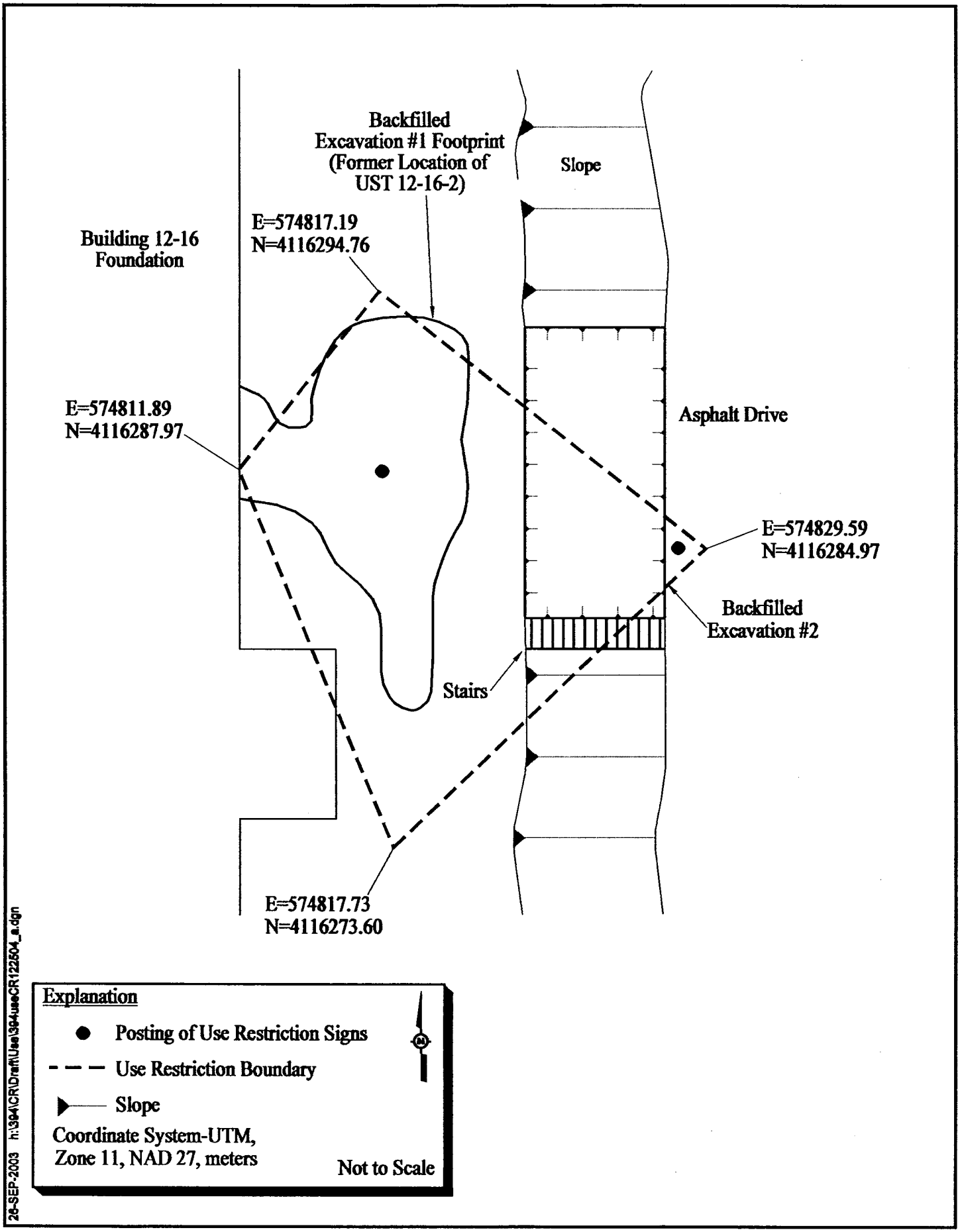
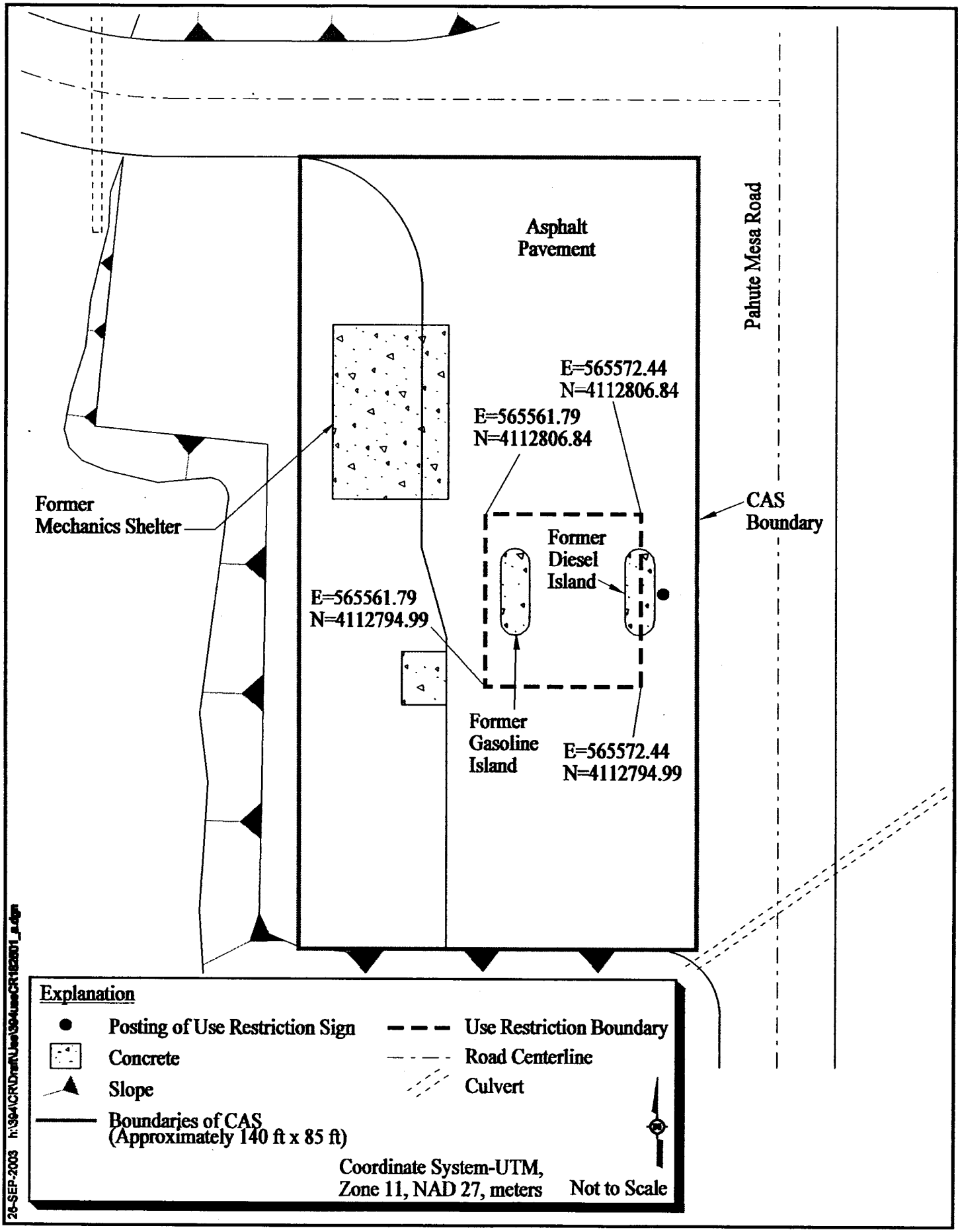
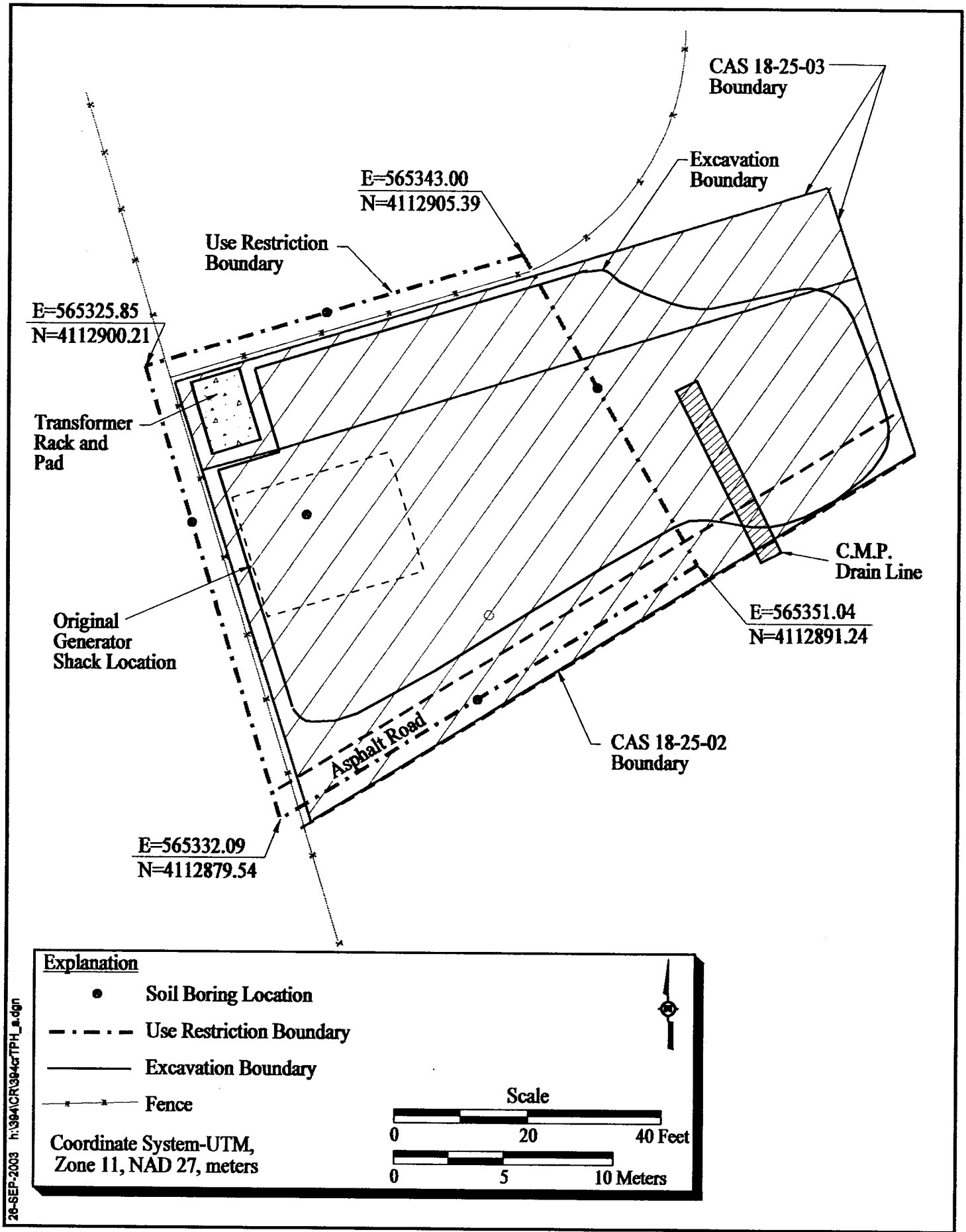


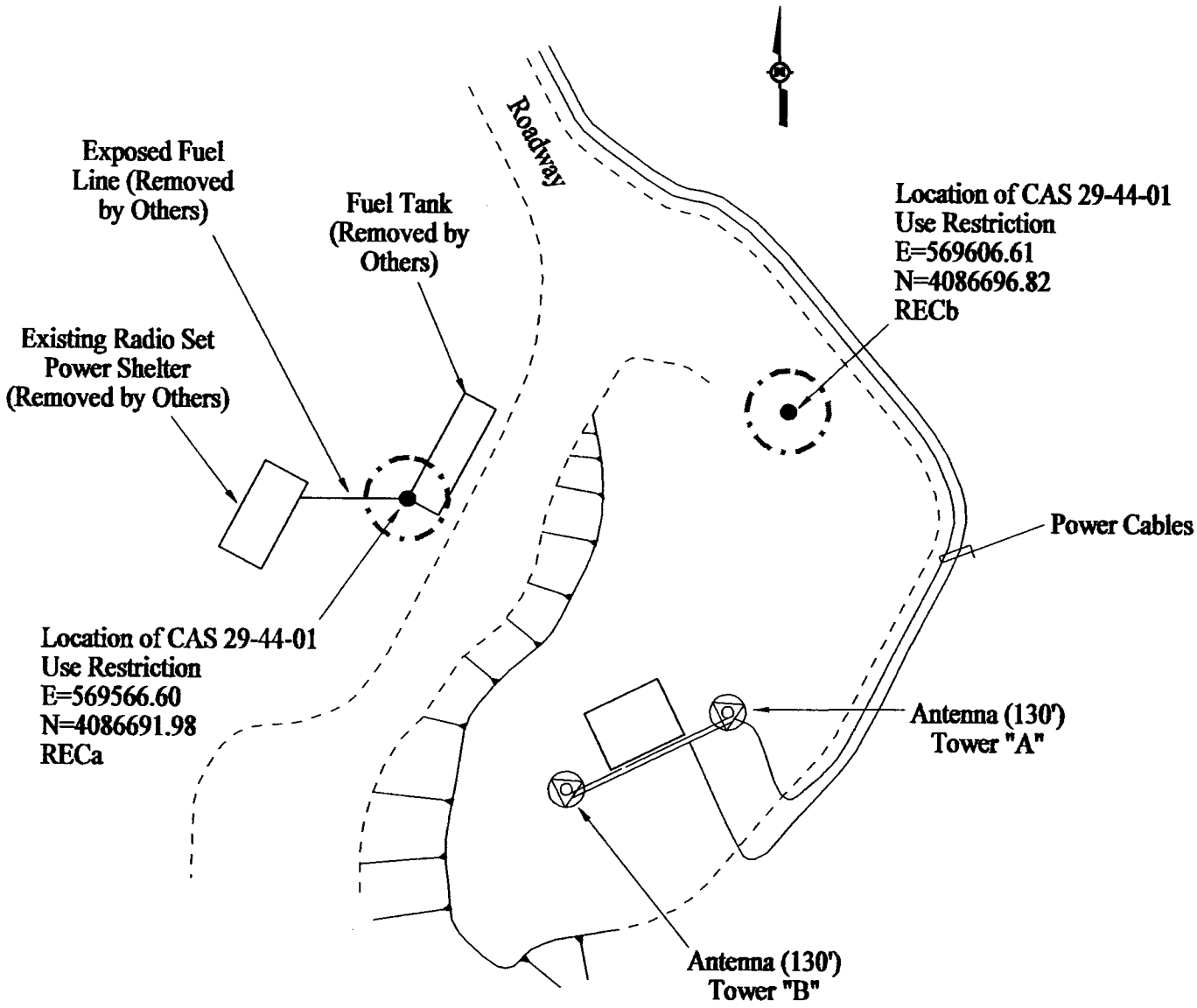
CAU 394, Areas 12, 18, and 29 Spill/Release Sites, CAS 12-25-04,
UST 12-16-2 Waste Oil Release
Use Restriction



CAU 394, Areas 12, 18, and 29 Spill/Release Sites, CAS 18-25-01, Oil Spills, Area 18 Service Station
Use Restriction



CAU 394, Areas 12, 18 and 29 Spill/Release Sites CAS 18-25-02 Oil Spills, & CAS 18-25-03, Oil Spill, Area 18 Generator Shack Use Restriction



Explanation

Use Restriction Boundary 1 meter radius

Slope

Coordinate System-UTM, Zone 11, NAD27, meters

Figure Not to Scale

28-SEP-2003 h:\394\CR\394cr294401_2_a.dgn

Source: BN, 1999; IT, 2001; Holmes & Narver Inc, 1974

CAU 394, Areas 12,18 and 29 Spill/Release Sites,
CAS 29-44-01, Fuel Spill
Use Restrictions

Appendix H

Evaluation of Risk for CAU 394: Areas 12, 18, and 29 Spill/Release Sites, Nevada Test Site, Nevada

H.1.0 Evaluation of Risk

The following are evaluation of risk for TPH concentrations in soil at CASs 12-25-04, 18-25-01, 18-25-02, 18-25-03, and 29-44-01. Based on the following information, TPH concentrations do not pose a risk to human health or the environment.

H.1.1 CAS 12-25-04, UST 12-16-02 Waste Oil Release

The following evaluation of NAC 459.9973 (1) (a-k) (NAC, 2000) supports the corrective action alternative of closure in place at CAU 394 CAS 12-25-04.

a. The depth to groundwater at CAS 12-25-04 has not been determined. Regional water table is located approximately 3,000 to 3,500 ft beneath the mesa surface in the lower carbonate (Paleozoic) aquifer. The groundwater flows generally southward in the widespread lower carbonate aquifer, eventually discharging into the Ash Meadows discharge basin which is approximately 25 miles southwest of Mercury, Nevada (DNA, 1990; DOE, 1988).

b. The closest active water-supply wells to Area 12 include water wells WW-2 and WW-8. Water Well 2 (USGS HTH #2) is located approximately 4.2 miles southeast of CAS 12-25-04. Water Well 8 (USGS HTH #8) is located north of the Pahute Airstrip in Area 18 and is approximately 9.7 miles southwest of CAS 12-25-04. The mean groundwater depth is 1,075.6 ft bgs (USGS, 2002). The likelihood of any impact to these wells are minimal based on depth to groundwater, distance to the wells, direction of groundwater flow and concentration of contaminants.

c. Soil encountered at CAS 12-25-04 consists of moderately sorted sand with gravel and clay.

d. Average annual precipitation at raingauge Rainier Mesa 2 is 12.82 in. for the observation period of 1960 to 1995 and 11.33 in. for the observation period of 1998 to 2002 (NOAA, 2003). The station is located approximately 3.2 miles west of CAS 12-25-04.

e. The type of regulated substance released is TPH-DRO.

f. The vertical extent of the contamination is approximately 20 ft bgs in the area of the former AST and excavation area. The lateral extent of the contamination does not exceed the boundaries of the CAS. Operations at this site have ceased, eliminating the source of contamination. An excavation of the UST and surrounding soil was conducted in October 1992.

g. Corrective Action Site 12-25-04 is located within a government-controlled facility. The NTS is a restricted area that is guarded on a 24-hour, 365 day-per-year basis; unauthorized

personnel are not admitted to the facility. Corrective Action Site 12-25-04 is contained within a restricted use zone classified as a "Nuclear and High Explosives Test Zone" (DOE/NV, 1998). This zone is designated for small-scale research and development projects and demonstrations; pilot projects; outdoor tests; and experiments for the development, quality assurance, or reliability of material and equipment under controlled conditions. This zone includes compatible defense and nondefense research, development, and testing projects and activities (DOE/NV, 1998).

h. Preferred routes of migration are limited since the release source has been eliminated and the open excavation has been backfilled. Driving forces for contaminant migration are not significant at CAS 12-25-04. Precipitation (regional negative water balance) is not available to mobilize COCs; therefore, vertical migration is limited.

i. This CAS is located with in the Area 12 basecamp. Currently, the basecamp is not in operation. This CAS is located adjacent to Building 12-16s concrete foundation (the building was removed in 2002).

j. The potential for a hazard related to fire, vapor or explosion is virtually nonexistent for the COC at CAS 12-25-04.

k. No other site-specific factors are known at this time.

H.1.2 CAS 18-25-01, Oil Spills

The following evaluation of NAC 459.9973 (1) (a-k) (NAC, 2000) supports the corrective action alternative of closure in place at CAU 394 CAS 18-25-01.

a. The depth to groundwater at CAS 18-25-01 has not been determined. Area 18 lies within the northeastern part of the Timber Mountain caldera moat, which is made up of the Rainier Mesa Member and the Ammonia Tanks Member volcanic units. The Rainier Mesa Member of the Timber Mountain tuff was erupted from vents above a magma chamber within Timber Mountain caldera. The eruption deposited the ash-flow tuff of the Rainier Mesa inside the caldera at a thickness of greater than 2,000 ft. The maximum known thickness is 850 ft (USGS, 1981).

b. The closest active water-supply well to Area 18 is Water Well 8 located north of the Area 18 airstrip. The static water level was reported to be at 1,078 ft below land surface (DOE/NV, 1996). Water Well 8 is located approximately 1.4 miles east of CAS 18-25-01.

c. Soils encountered at CAS 18-25-01 consist of silty sand at surface to poorly sorted gravel and sand with depth.

d. Average annual precipitation at raingauge Station Little Feller 2 is 8.01 in. for the observation period of 1977 to 2002 (NOAA, 2003). The station is located approximately 3.7 miles southwest of CAS 10-25-01.

e. The type of regulated substance released is TPH-DRO.

f. The vertical extent of the contamination is limited to the hardpan surface at a depth of 4.5 ft bgs. The lateral extent of the contamination does not exceed the boundaries of the CAS.

g. Corrective Action Site 18-25-01 is located within a government-controlled facility. The NTS is a restricted area that is guarded on a 24-hour, 365 day-per-year basis; unauthorized personnel are not admitted to the facility. Corrective Action Site 18-25-01 is contained within a restricted use zone classified as a "Reserved Zone" (DOE/NV, 1998). This zone includes land and facilities that provide widespread flexible support for diverse short-term testing and experimentation. The zone is also used for short duration exercises and training such as nuclear emergency response and Federal Radiological Monitoring and Assessment Center training and U.S. Department of Defense land-navigation exercises and training (DOE/NV, 1998).

h. Preferred routes of vertical migration are limited since the release sources have been eliminated and contributing factors are not significant. Driving forces for contaminant migration are not significant at CAS 18-25-01. Precipitation (regional negative water balance) is not available to mobilize COCs; therefore, vertical migration is limited.

i. Structures that remain within the location of CAS 18-25-01 consist of the concrete foundations of the gasoline and diesel pump islands and the foundation of the mechanics shelter as well as the asphalt pavement for the service station.

j. The potential for a hazard related to fire, vapor or explosion is virtually nonexistent for the COC at CAS 18-25-01.

k. No other site-specific factors are known at this time.

H.1.3 CAS 18-25-02, Oil Spills and CAS 18-25-03, Oil Spill

The following evaluation of NAC 459.9973 (1) (a-k) (NAC, 2000) supports the corrective action alternative of closure in place at CAU 394 CASs 18-25-02 and 18-25-03. These two CASs are related and adjacent to each other, and for ease of discussion, will be considered as one site in regards to risk evaluation.

a. The depth to groundwater at CASs 18-25-02 and 18-25-03 has not been determined. Area 18 lies within the northeastern part of the Timber Mountain caldera moat, which is made up of the Rainier Mesa Member and the Ammonia Tanks Member volcanic units. The Rainier

Mesa Member of the Timber Mountain tuff was erupted from vents above a magma chamber within Timber Mountain caldera. The eruption deposited the ash-flow tuff of the Rainier Mesa inside the caldera at a thickness of greater than 2,000 ft. The maximum known thickness is 850 ft (USGS, 1981).

b. The closest active water-supply well to Area 18 is Water Well 8 located north of the Area 18 airstrip. The static water level was reported to be at 1,078 ft below land surface (DOE/NV, 1996). Water Well 8 is located approximately 1.4 miles west of CASs 18-25-02 and 18-25-03.

c. Soils encountered at CASs 18-25-02 and 18-25-03 consist of silty sand at surface to poorly sorted gravel and sand with depth.

d. Average annual precipitation at raingauge Station Little Feller 2 is 8.01 in. for the observation period of 1977 to 2002 (NOAA, 2003). The station is located approximately 3.7 miles southwest of CASs 18-25-02 and 18-25-03.

e. The type of regulated substance released is TPH-DRO.

f. The vertical extent of the contamination is limited to the hardpan surface at a depth of 4.5 ft bgs within the excavation. The lateral extent of the contamination does is not to exceed the boundaries of the CAS.

g. Corrective Action Sites 18-25-02 and 18-25-03 are located within a government-controlled facility. The NTS is a restricted area that is guarded on a 24-hour, 365 day-per-year basis; unauthorized personnel are not admitted to the facility. Corrective Action Sites 18-25-02 and 18-25-03 are contained within a restricted use zone classified as a "Reserved Zone" (DOE/NV, 1998). This zone includes land and facilities that provide widespread flexible support for diverse short-term testing an dexperimentation. The zone is also used for short duration exercises and training such as nuclear emergency response and Federal Radiological Monitoring and Assessment Center training and U.S. Department of Defense land-navigation exercises and training (DOE/NV, 1998).

h. Preferred routes of vertical migration are limited since the release sources have been eliminated and contributing factors are not significant. Driving forces for contaminant migration are not significant at CASs 18-25-02 and 18-25-03. Precipitation (regional negative water balance) is not available to mobilize COCs; therefore, vertical migration is limited.

i. Structures that remain within the location of CAS 18-25-02 and 18-25-03 consist of an empty transformer rack.

j. The potential for a hazard related to fire, vapor or explosion is virtually nonexistent for the COC at CASs 18-25-02 and 18-25-03.

k. No other site-specific factors are known at this time.

H.1.4 CAS 29-44-01, Fuel Spill, Shoshone Transmitter Station AST & Soil Stain

The following evaluation of NAC 459.9973 (1) (a-k) (NAC, 2000) supports the corrective action alternative of closure in place at CAU 394 CAS 29-44-01.

a. The depth to groundwater at CAS 29-44-01 has not been determined. The groundwater generally flows southward in the widespread lower carbonate aquifer, eventually discharging hundreds of thousands of years later into the Ash Meadows discharge basin which is approximately 25 miles southwest of Mercury, Nevada (DNA, 1990; DOE, 1988).

b. Well # J-11 is located south of Shoshone Mountain near the northeast corner of Cane Springs Road and First Street in Jackass Flats (SNPO, 1970). Records indicate that in 1993 the water level in Well J-11 was approximately 1,040 ft bgs (USGS, 1993). Well # J-11 is located approximately 10.4 miles southwest of CAS 29-44-01.

c. Soil encountered at CAS 29-44-01 consists of poorly sorted silty sand and gravel.

d. Average annual precipitation at raingauge station Mid Valley is 8.96 in. for the observation period of 1965 to 2002 (NOAA, 2003). The station is located approximately 4.1 miles northeast of CAS 29-44-01.

e. The type of regulated substance released is TPH-DRO.

f. The vertical extent of the contamination is limited to the bedrock surface at 5 in. bgs. The lateral extent of the contamination is 4-ft radius around the center of the stained soil.

g. Corrective Action Site 29-44-01 is located within a government-controlled facility. The NTS is a restricted area that is guarded on a 24-hour, 365 day-per-year basis; unauthorized personnel are not admitted to the facility. Corrective Action Site 29-44-01 is contained within a restricted use zone classified as a “Reserved Zone” (DOE/NV, 1998). This zone includes land and facilities that provide widespread flexible support for diverse short-term testing an dexperimentation. The zone is also used for short duration exercises and training such as nuclear emergency response and Federal Radiological Monitoring and Assessment Center training and U.S. Department of Defense land-navigation exercises and training (DOE/NV, 1998).

h. Preferred routes of vertical migration are limited since the source of the release is not present. Driving forces for contaminant migration are not significant at CAS 29-44-01. Precipitation (regional negative water balance) is not available to mobilize COCs. The area surrounding the stained soil is generally flat and limits opportunity for surface contaminant migration.

i. The transmitter station and antennas are located approximately 90 ft to the southwest of the CAS.

j. The potential for a hazard related to fire, vapor or explosion is virtually nonexistent for the COC at CAS 29-44-01.

k. No other site-specific factors are known at this time.

H.2.0 References

DNA, see Defense Nuclear Agency.

DOE, see U.S. Department of Energy.

DOE/NV, see U.S. Department of Energy, Nevada Operations Office.

Defense Nuclear Agency. 1990. *DNA Waste Management Planning Document for DNA Activities at the Nevada Test Site*, June. Las Vegas, NV.

NAC, see Nevada Administrative Code.

NOAA, see National Oceanic and Atmospheric Administration.

National Oceanic and Atmospheric Administration. 2003. "Precipitation Summary." As accessed at http://www.sord.nv.doe.gov/home_climate.htm on 14 January.

Nevada Administrative Code. 2000. NAC 459, "Hazardous Materials." Carson City, NV.

SNPO, see Space Nuclear Propulsion Office.

Space Nuclear Propulsion Office. 1970. *NRDS Master Plan, 1969 to 1970*. Las Vegas, NV.

USGS, see U.S. Geological Survey.

U.S. Department of Energy. 1988. *Environmental Survey Preliminary Report*, April. Washington, DC: Environment, Safety, and Health Office of Environmental Audit.

U.S. Department of Energy, Nevada Operations Office. 1996. *Nevada Test Site-Supply Wells,* May. Prepared by D. Gillespie, D. Donithan, and P. Seaber (DRI). Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1998. *Nevada Test Site Resource Management Plan*, DOE/NV--518. Las Vegas, NV.

U.S. Geological Survey. 1981. *Geology of Drill Hole UE18t and Area 18, Timber Mountain Caldera Moat, Nevada Test Site*, USGS-474-312. Prepared for DOE/NV. Denver, CO.

U.S. Geological Survey. 1993. *Selected Ground-Water Data for Yucca Mountain Region, Southern Nevada and Eastern California, Calendar Year 1993*. Open-File Report 95-158.

U.S. Geological Survey. 2002. USGS/DOE Cooperative Studies in Nevada web page. As accessed at http://nevada.usgs.gov/doe_nv/ntsmap.htm on 21 February 2003.

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