

Nevada
Environmental
Restoration
Project

DOE/NV--984



Closure Report for Corrective
Action Unit 396: Area 20 Spill
Sites, Nevada Test Site, Nevada

Controlled Copy No.: _____

Revision: 0

June 2004

Environmental Restoration
Division

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

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**CLOSURE REPORT
FOR CORRECTIVE ACTION UNIT 396:
AREA 20 SPILL SITES,
NEVADA TEST SITE, NEVADA**

**Prepared for:
U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office
Work Performed Under Contract No. DE-AC08-96NV11718**

Controlled Copy No. ____

Revision: 0

June 2004

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**SAFER CLOSURE REPORT FOR CORRECTIVE
ACTION UNIT 396: AREA 20 SPILL SITES,
NEVADA TEST SITE, NEVADA**

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
BMP	Best Management Practice
BN	Bechtel Nevada
CAS	Corrective Action Site
CAU	Corrective Action Unit
COC	Contaminant(s) of concern
COPC	Contaminant(s) of potential concern
CR	Closure Report
CSM	Conceptual Site Model
DOE	U.S. Department of Energy
DOE/NV	U.S. Department of Energy, Nevada Operations Office
DQO	Data Quality Objectives
EPA	U.S. Environmental Protection Agency
ft	foot (feet)
ft ³	cubic foot (feet)
FFACO	Federal Facility Agreement and Consent Order
IT	International Technology Corporation
m	meter(s)
m ³	cubic meter(s)
mg/kg	milligram(s) per kilogram
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NNSA/NSO	U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office
NNSA/NV	U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office
NTS	Nevada Test Site
PA	preliminary assessment
PCB	polychlorinated biphenyl(s)
pCi/g	picoCuries(s) per gram
PRG	Preliminary Remediation Goal(s)
RCRA	Resource Conservation and Recovery Act
RSN	Raytheon Services Nevada
SAFER	Streamlined Approach For Environmental Restoration
SDG	Sample Delivery Group
SVOC	Semivolatile organic compound(s)
TPH	Total Petroleum Hydrocarbon(s)
yd ³	cubic yard(s)
VOC	Volatile organic compound(s)
µg/kg	microgram(s) per kilogram

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EXECUTIVE SUMMARY

Corrective Action Unit (CAU) 396, Area 20 Spill Sites, is located on the Nevada Test Site (NTS) approximately 105 kilometers (65 miles) northwest of Las Vegas, Nevada. CAU 396 is listed in Appendix III of the Federal Facility Agreement and Consent Order (FFACO) of 1996 and consists of the following four Corrective Action Sites (CASs) located in Area 20 of the NTS:

- CAS 20-25-01, Oil Spills (2)
- CAS 20-25-02, Oil Spills
- CAS 20-25-03, Oil Spill
- CAS 20-99-08, Spill

Closure activities for CAU 396 were conducted in accordance with the FFACO and the Nevada Division of Environmental Protection-approved Streamlined Approach for Environmental Restoration (SAFER) Plan for CAU 396 (U.S. Department of Energy National Nuclear Security Administration, Nevada Site Office, 2003). CAU 396 SAFER closure activities consisted of the following:

- **CAS 20-25-01, Oil Spills (2)**, was clean closed by excavation and disposal of impacted soil. Site characterization results showed that total petroleum hydrocarbons (TPH) was the only contaminant of concern (COC) present above action levels. The site was clean closed by removing and disposing approximately 16 cubic meters (m^3) (21 cubic yards [yd^3]) of TPH-impacted soil from two locations. Verification samples were collected from the sidewalls and bottom of the excavations and submitted for TPH analysis. Once analytical results for the verification samples showed TPH concentrations less than 100 milligrams per kilogram (mg/kg), the excavations were backfilled with native fill.
- **CAS 20-25-02, Oil Spills**, was clean closed as a best management practice. Site characterization results showed TPH was the only COC present at levels near the action level. The site was closed by removing and disposing of approximately 0.03 m^3 (0.04 yd^3) of soil. Verification samples were collected from the sidewall and bottom of the excavation and submitted for TPH analysis. Once analytical results for the verification samples showed TPH concentrations less than 100 mg/kg, the excavations were backfilled with native fill.
- **CAS 20-25-03, Oil Spill**, was clean closed by excavation and disposal of impacted soil. Site characterization results showed TPH was the only COC present above action levels. The site was clean closed by removing and disposing of approximately 55.2 m^3 (72.6 yd^3) of TPH-impacted soil from two locations. Verification samples were collected from the sidewalls and bottom of the excavations and submitted for TPH analysis. Once analytical results for the verification samples showed TPH concentrations less than 100 mg/kg, the excavations were backfilled with native fill.
- **CAS 20-99-08, Spill**, no further action was taken since characterization results indicated no COC present above action levels.

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1.0 INTRODUCTION

This Closure Report (CR) documents the closure activities performed at Corrective Action Unit (CAU) 396: Area 20 Spill Sites. CAU 396 closure activities were conducted in accordance with the Federal Facility Agreement and Consent Order (FFACO, 1996), and the Nevada Division of Environmental Protection (NDEP) approved Streamlined Approach for Environmental Restoration (SAFER) Plan for CAU 396 (U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office [NNSA/NSO], 2003). CAU 396 is located at the Nevada Test Site (NTS) approximately 105 kilometers (65 miles) northwest of Las Vegas, Nevada (Figure 1). CAU 396 consists of the following 4 Corrective Action Sites (CASs) located in Area 20 of the NTS (Figure 1):

- CAS 20-25-01, Oil Spills (2)
- CAS 20-25-02, Oil Spills
- CAS 20-25-03, Oil Spill
- CAS 20-99-08, Spill

1.1 PURPOSE

CAU 396 is comprised of four CASs located in Area 20 of the NTS. The sites are believed to be associated with historic drilling operations. Three of the CASs were clean closed by removal of impacted soil, and no further action was conducted at the remaining site since no contaminants of concern (COCs) were found to be present above action levels. See Section 2.0 for more details on closure activities.

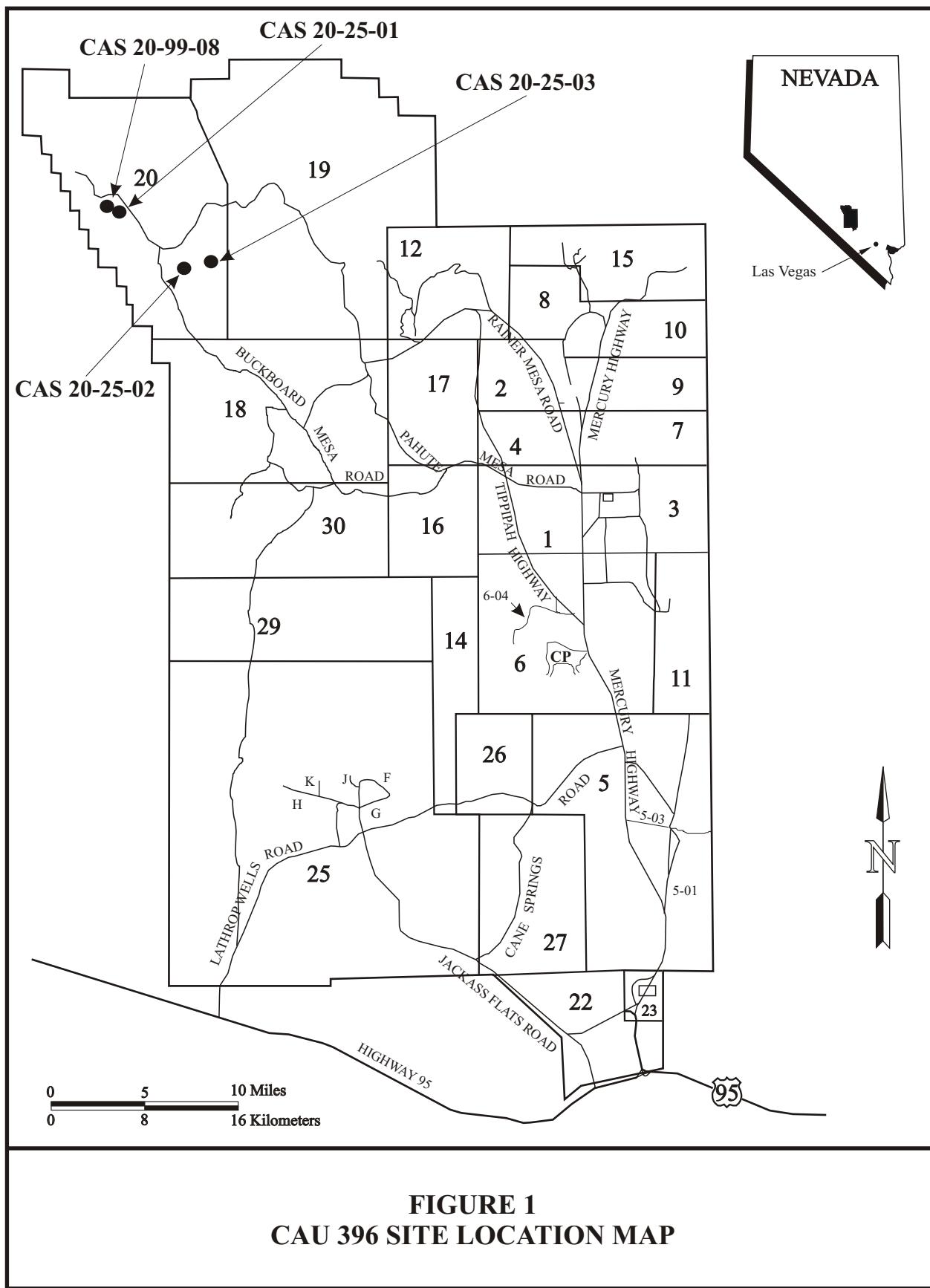
The purpose of this CR is to document that the closure activities conducted at CAU 396 complied with all of the closure requirements as stated in the NDEP-approved SAFER Plan for CAU 396 (NNSA/NSO, 2003).

1.2 SCOPE

Previous site characterization work done in 2003 found no COCs above action levels at two of the CASs (CAS 20-25-02 and CAS 20-99-08), and total petroleum hydrocarbons (TPH) as the only COCs found at concentrations greater than action levels at the remaining CASs (CAS 20-25-01 and CAS 20-25-03) (International Technology [IT], 2001).

The closure strategy for CAU 396 was specified in the NDEP-approved SAFER Plan (NNSA/NSO, 2003) as follows:

- CAS 20-25-01, Oil Spills (2) – Clean closure
- CAS 20-25-02, Oil Spills – Clean closure as a best management practice
- CAS 20-25-03, Oil Spill – Clean closure
- CAS 20-99-08, Spill – No further action



Three CASs were clean closed by removing all TPH-impacted soil and transporting it to the NTS Area 6 Hydrocarbon Landfill for disposal. Soil verification samples were collected from the bottom and sidewalls of the excavations and submitted for laboratory analysis to verify that all soil with TPH concentration greater than the 100 milligrams per kilogram (mg/kg) TPH action level (Nevada Administrative Code [NAC], 2002) has been removed from the sites. The excavations were backfilled with clean fill and returned to the approximate original site grade.

1.3 CLOSURE REPORT CONTENTS

This CR is divided into the following sections:

- Section 1.0 - Introduction
- Section 2.0 - Closure Activities
- Section 3.0 - Waste Disposition
- Section 4.0 - Closure Verification Results
- Section 5.0 - Conclusions and Recommendations
- Section 6.0 - References
- Appendix A - Data Quality Objectives for CAU 396
- Appendix B - Closure Certification
- Appendix C - As Built Documentation
- Appendix D - Sample Analytical Results
- Appendix E - Waste Disposition Documentation
- Appendix F - Modifications
- Appendix G - Photographs of Closure Activities
- Library Distribution List

The following Appendices listed in the FFACO Closure Report outline do not apply to the CAU 396 closure:

- Appendix B - Closure Certification (Not applicable).
- Appendix C - As-Built Documentation (Not applicable, no engineered structures were constructed).
- Appendix F - Modifications to the Post-Closure Plan (Not applicable, no Post-Closure Plan is required for a site that is clean closed).

This report was developed using information and guidance from the following documents:

- *Corrective Action Unit 396 Preliminary Assessment Information: Area 20 Spill Sites. Nevada Test Site, Nevada, (IT, 2001).*
- *Streamlined Approach For Environmental Restoration Plan for Corrective Action Unit 396: Area 20 Spill Sites. Nevada Test Site, Nevada, (NNSA/NSO, 2003).*
- *Nevada Environmental Restoration Project, Industrial Sites Quality Assurance Project Plan, Nevada Test Site, Nevada, Revision 3 (NNSA/NV, 2002)*

1.3.1 Data Quality Objectives

The data quality objectives (DQOs) used for closure of CAU 396 were presented in Appendix A1 of the CAU 396 SAFER Plan (NNSA/NSO, 2003), and are included in Appendix A of this report.

The general conceptual model as presented in the SAFER Plan (NNSA/NSO, 2003) was applied to all the CAs in CAU 396 and assumed that any surface contamination was the result of surface releases. The extent of the potential contamination was dependent on such variables as release volume, system design, geologic conditions, and nature of contamination.

CAU 396 closure activities determined that actual site conditions were in agreement with the conceptual model. Details of the DQO assessment are included in Section 4.1 of this report.

2.0 CLOSURE ACTIVITIES

This section details the specific closure activities completed at CAU 396: Area 20 Spill Sites. Copies of the analytical data reports for all verification samples are included in Appendix D.

2.1 DESCRIPTION OF CORRECTIVE ACTION ACTIVITIES

2.1.1 Preplanning and Site Preparation

Closure activities for CAU 396 were completed using the NDEP-approved SAFER Plan for CAU 396 (NNSA/NSO, 2003). Prior to beginning closure activities, the following pre-field activities were completed:

- Preparation of a National Environmental Policy Act documentation (checklist).
- Preparation of a Field Management Plan.
- Preparation of a Site-Specific Health and Safety Plan.
- Preparation of a Real Estate/Operations Permit.
- Preparation of a Bechtel Nevada (BN) Work Permits.
- Performing a utility and radiological survey prior to beginning excavation activities.

2.1.2 Summary of CAU 396 Site History

The site history for CAU 396 is provided in the SAFER Plan (NNSA/NSO, 2003). The site history is briefly summarized below.

CAS 20-25-01, Oil Spills (2): Historical information for this CAS is limited. It is believed that these oil spills are associated with drilling operations at the U-20bc post-test cellar, which was drilled between November 6, 1989 and November 7, 1989 (Raytheon Services Nevada [RSN], 1991).

CAS 20-25-02, Oil Spills: Historical information for this CAS is limited. The oil spills are believed to be associated with drilling operations at the U-20ax emplacement hole between June 19, 1987 and August 18, 1987 (RSN, 1991). During the site visit on August 1, 2001, it was determined that the spills may have been backfilled and covered with pea-size gravel.

CAS 20-25-03, Oil Spill: Historical information for this CAS is limited. These oil spills are believed to be associated with drilling operations at the U-20az post-test hole between December 14, 1990 and December 16, 1990 (RSN, 1991).

CAS 20-99-08, Spill: Historical information for this CAS is limited. This spill is believed to be associated with drilling operations of the U-20bc between April 5, 1988 and June 28, 1988, or from the U-20bc post-test hole between November 5, 1989 and November 6, 1989 (RSN, 1991). During a site visit on August 28, 1997, it was noted that the spill is surrounded on three sides by a large bermed area.

2.1.3 Summary of CAU 396 Site Characterization Activities and Results

The CAU 396 site characterization was completed in December 2001 and the results reported in the SAFER Plan (NNSA/NSO, 2003). At each of the four CASs, soil samples were collected using either a direct-push (Geoprobe[®]) method or hand sampling, and were submitted to an off-site laboratory for analysis. Site characterization results are briefly summarized below.

CAS 20-25-01, Oil Spills (2): Soil samples were analyzed for volatile organic compounds (VOCs), semi volatile organic compounds (SVOCs), total Resource Conservation and Recovery Act (RCRA) metals, total petroleum hydrocarbons (TPH), gamma spectroscopy and polychlorinated biphenyls (PCBs). TPH was the only COC found to be present at concentrations greater than action levels (NAC, 2002). The SAFER Plan (NNSA/NSO, 2003) provides the results of this CAS characterization investigation.

CAS 20-25-02, Oil Spills: Soil samples were analyzed for VOCs, SVOCs, total RCRA metals, TPH, gamma spectroscopy and PCBs. TPH was the only COC found to be present above the laboratory detection limit but was not greater than the action level (NAC, 2002). The SAFER Plan (NNSA/NSO, 2003) provides the results of this CAS characterization investigation.

CAS 20-25-03, Oil Spill: Soil samples were analyzed for VOCs, SVOCs, total RCRA metals, TPH, gamma spectroscopy and PCBs. TPH was the only COC found to be present at concentrations greater than action levels (NAC, 2002). The SAFER Plan (NNSA/NSO, 2003) provides the results of this CAS characterization investigation.

CAS 20-99-08, Spill: At this site, a preliminary site assessment was conducted in August 1997. Sample ERS00178 was collected and analyzed for PCBs, SVOCs, RCRA metals, and radionuclides. PCB results for ERS00178 were 99 micrograms per kilogram. These results were incorrectly reported in the CAU 396 SAFER Plan as 99 mg/kg (NNSA/NSO, 2003). As a result, seven additional waste characterization samples were collected from the site in August 2003, and analyzed for PCBs, and RCRA metals. These results established that PCBs were not present at concentrations above action levels (EPA, 2001); no COCs were found to be present at concentration above action levels at this site. As a result, this site was closed by taking no further action. A copy of the PCB results for sample ERS00178 and the seven samples collected in August 2003 (sample numbers 20-99-08-1 through 20-99-08-7) are included in Appendix D.

2.1.4 CAS 20-25-01, Oil Spills (2) Closure Activities

CAS 20-25-01, Oil Spills (2), was clean closed by removing and disposing of approximately 16 cubic meters (m^3) (21 cubic yards [yd^3]) of TPH-impacted soil. Closure activities began on March 16, 2004, and were completed on April 15, 2004. Two excavations were made at CAS 20-25-01, Using a front-end loader both measured approximately 3.6 meters (m) (12 feet [ft]) in length, 3.6 m (12 ft) in width and were 0.6 m (2 ft) deep. Both the removed soil and the excavations were examined visually for staining or discoloration due to the presence of hydrocarbons. Excavation activities were guided by field screening with PetroFLAG[®] hydrocarbon field screening test kits. Initially, five verification samples were collected from each excavation. Verification samples results for excavation #2 were all below the action levels. At excavation #1, results for 2 verification samples were slightly higher than the TPH action level. For this reason, an additional 0.3 m (1 ft) of soil was removed from the north sidewall and

from the bottom of excavation #1 and two additional verification samples were collected. Results for the additional verification samples showed TPH concentrations were less than the action level.

All TPH-impacted soil removed was loaded into end-dumps and transported to the Area 6 Hydrocarbon Landfill for disposal. The excavation was backfilled with NTS native fill on April 15, 2004, compacted by wheel rolling with the front-end loader, and graded to the original site contours. All remaining fencing and debris were removed from the site.

2.1.5 CAS 20-25-02, Oil Spills Closure Activities

CAS 20-25-02, Oil Spills, was clean closed by removing and disposing of approximately 0.03 m³ (0.04 yd³) of TPH-impacted soil. Excavation activities began and were completed on March 17, 2004. A small area measuring approximately 0.33 m (1 ft) by 0.3 m (1 ft), and 0.3 m (1 ft) deep was excavated by hand using a shovel. All removed TPH-impacted soil was placed into a 5-gallon bucket and transported to the Area 6 Hydrocarbon Landfill for disposal. The TPH-impacted soil was removed from this CAS as a best management practice (BMP).

Both the removed soil and the excavations were examined visually for staining or discoloration due to the presence of hydrocarbons. Once the excavations reached 0.3 m (1 ft) in depth, field-screening samples were collected from the bottom and sidewalls of each excavation. Each field screening sample was analyzed for TPH using a PetroFLAG® hydrocarbon field screening test kit. The TPH concentration decreased with increasing depth, and once TPH field-screening sample results were less than 75 parts per million, excavation activities ceased and soil verification samples were collected. Analytical results for the verification samples are discussed in Section 4.0.

2.1.6 CAS 20-25-03, Oil Spill Closure Activities

CAS 20-25-03, Oil Spill, was clean closed by removing and disposing of approximately 55.2 m³ (72.6 yd³) of TPH-impacted soil. Excavation activities began on March 17, 2004, and were completed on April 19, 2004. Two areas were excavated at this CAS. Using a front-end loader the first area measured approximately 3.6 m (12 ft) by 3.6 m (12 ft) and was 0.9 m (3 ft) deep. The other area measured approximately 10.2 m (34 ft) by 4.5 m (15 ft) and was 0.9 m (3 ft) deep. Both the removed soil and the excavations were examined visually for staining or discoloration due to the presence of hydrocarbons. Excavation activities were guided by field screening with PetroFLAG hydrocarbon field screening test kits. Initially, nine verification samples were collected from excavation #1 (E1), and sixteen verification samples were collected from excavation #2 (E2) including 1 blind duplicate sample. Verification sample results for two samples, one from each excavation (20-25-03 E1 V9 and 20-25-03 E2 V5), had TPH concentrations above the action level. For this reason, additional material was removed from both excavations. At E1 a hoe ram was used to break up the bottom of the excavation, and approximately 25.4 centimeters (10 inches) of weathered bedrock was removed. At E2 an additional 0.3 m (1 ft) of soil was removed from the western sidewall. Two additional verification samples were collected from the expanded excavations and submitted for TPH analysis to an off-site laboratory. Results for the additional verification samples showed TPH concentration were less than the action level.

All removed TPH-impacted soil was loaded into end-dumps and transported to the Area 6 Hydrocarbon Landfill for disposal. The excavations were backfilled with NTS native fill on April 19, 2004, compacted by wheel rolling with the front-end loader, and graded to the original site contours. All remaining fencing and debris were removed from the site.

2.1.7 CAS 20-99-08, Spill Closure Activities

At CAS 20-99-08 no COC at concentrations above action levels were identified (NNSA/NSO, 2003), and no further action was taken.

2.2 DEVIATIONS FROM SAFER PLAN AS APPROVED

There were no deviations from the approved scope of work as outlined in the CAU 396 SAFER Plan (NNSA/NSO, 2003).

2.3 CORRECTIVE ACTION SCHEDULE AS COMPLETED

The corrective action field activities began on March 10, 2004, and were completed on April 19, 2004. A corrective action schedule as completed is provided in Table 1.

2.4 SITE PLAN/SURVEY PLAT

Because this is a clean closure, survey data are not required for this CR. Because engineered construction was not required as part of this closure, as-built drawings are not included in this CR.

TABLE 1 - CORRECTIVE ACTION SCHEDULE AS COMPLETED

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3.0 WASTE DISPOSITION

Wastes generated during the closure of CAU 396 consisted of TPH-impacted soil and sanitary waste. All TPH-impacted soil generated during the closure of CAU 396 was transported to the NTS Area 6 Hydrocarbon Landfill. Approximately 77,511 kilograms (173,024 pounds) of TPH-impacted soil from CAU 396 were transported and disposed of in the NTS Area 6 Hydrocarbon Landfill. All sanitary waste was disposed in the NTS Sanitary Landfill. Table 2 provides the dates and weights of TPH-impacted soil transported to the Area 6 hydrocarbon landfill for disposal. Copies from the Waste Management System database and copies of the NTS Onsite Load Verification Forms are provided in Appendix E.

**TABLE 2: TPH WASTE QUANTITIES GENERATED DURING
CLOSURE OF CAU 396**

DATE	KILOGRAMS	POUNDS
3/16/2004	1590.9	3,500
3/17/2004	17390.9	38,260
3/18/2004	18800.9	41,362
3/22/2004	20650.9	45,432
3/23/2004	16804.6	36,970
4/15/2004	2272.7	5,000
4/19/2004	1136.4	2,500
Total	78,647.3	173,024

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4.0 CLOSURE VERIFICATION RESULTS

Site closure was verified by collecting soil verification samples from each excavated area within CAS 20-25-01, CAS 20-25-02, and CAS 20-25-03. The following number of verification samples as specified in the SAFER Plan (NNSA/NSO, 2003) were collected from the indicated sites verifying that the sites have been clean closed:

- CAS 20-25-01 12 verification samples (including two resamples)
- CAS 20-25-02 3 verification samples (including one blind duplicate)
- CAS 20-25-03 23 verification samples (including one blind duplicate and two resamples)
- CAS 20-99-08 0 verification samples

All verification samples were collected with decontaminated disposable scoops, placed in appropriately labeled sample containers, and secured with custody seals. All samples were labeled with a unique sample number, placed on ice in coolers, and transported under chain-of-custody to the BN Analytical Services Group for shipment to an off-site laboratory. All samples were analyzed for TPH full scan.

CAS 20-25-01, Oil Spills (2). At this site TPH-impacted soil was removed from two locations. Originally ten soil verification samples were collected on March 18, 2004, five from excavation #1 (E1), and five from excavation #2 (E2). Four samples were collected from the sidewalls and one from the bottom of E1 and E2 respectfully, and submitted to an off-site laboratory for TPH analysis (Figure 2). Analytical results for all samples from E2 and for three of the samples from E1 were less than the TPH action level. Analytical results for two samples collected from the north sidewall and the bottom of E1 were greater than the TPH action level. For this reason, an additional 0.3 m (1 ft) of soil was removed from the north sidewall and 0.15 m (0.5 ft) from the bottom of E1. Two additional verifications samples were collected on April 7, 2004, from the north sidewall and from the bottom of the expanded E1, and submitted to an off-site laboratory for TPH analysis. Analytical results for these additional verification samples were less than the TPH action level; verifying that TPH-impacted soil in excess of the action level was removed from the site. Verification sample results are summarized in Table 3 and analytical data are included in Appendix D.

CAS 20-25-02, Oil Spills. Three soil verification samples (including one blind duplicate) were collected from the sidewall and the bottom of the excavation and submitted to an off-site laboratory for TPH analysis (Figure 3). Analytical results for the verification samples show that TPH-impacted soil in excess of the action level was removed. Verification samples results are summarized in Table 3, and analytical data is included in Appendix D.

CAS 20-25-03, Oil Spill. At this site, TPH-impacted soil was removed from two locations. Originally 23 soil verification samples (including one duplicate) were collected from the sidewalls and the bottom of the two excavations, E1 and E2. Nine samples were collected from E1, and 14 samples were collected from E2 on March 22 and 23, 2004 respectively and submitted to an off-site laboratory for TPH analysis (Figure 4). Analytical results for all samples

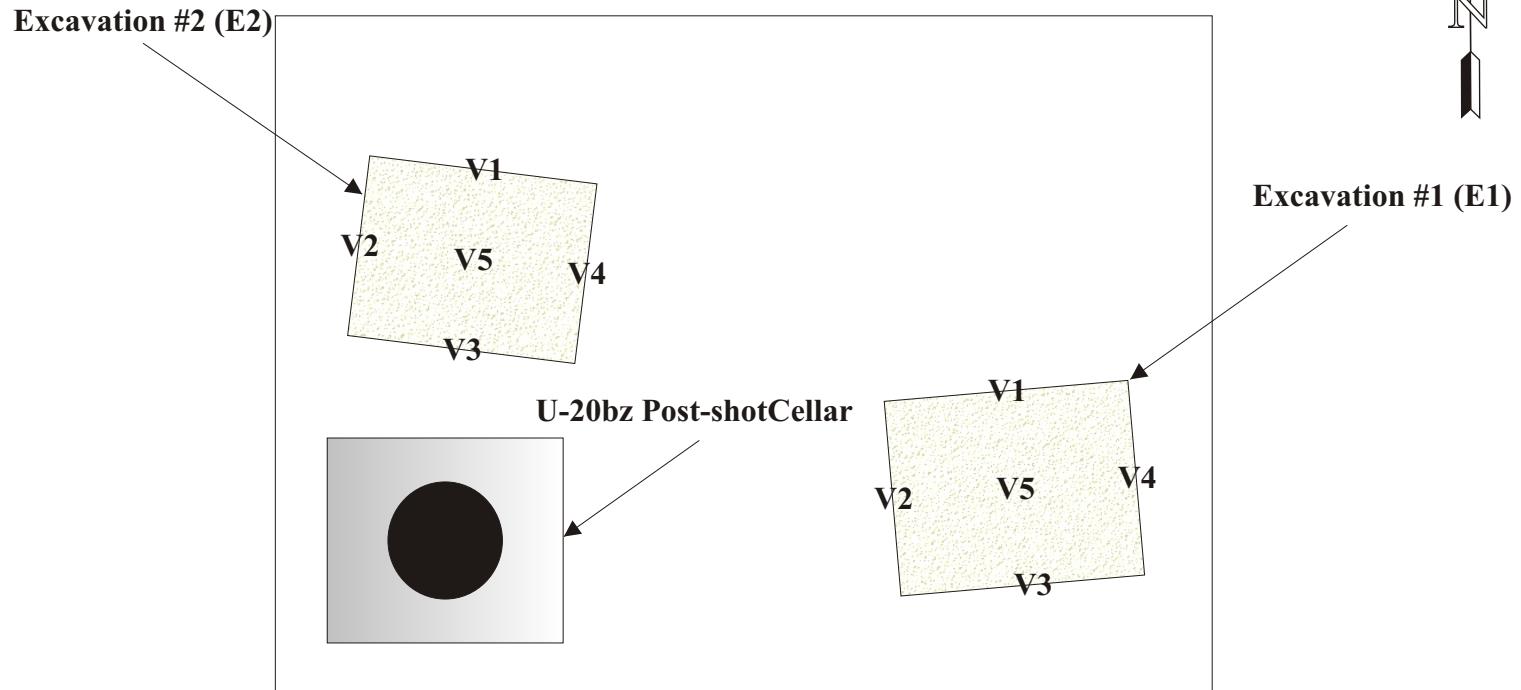


Figure not to scale

FIGURE 2
CAS 20-25-01, OIL SPILLS (2), VERIFICATION SAMPLE LOCATIONS

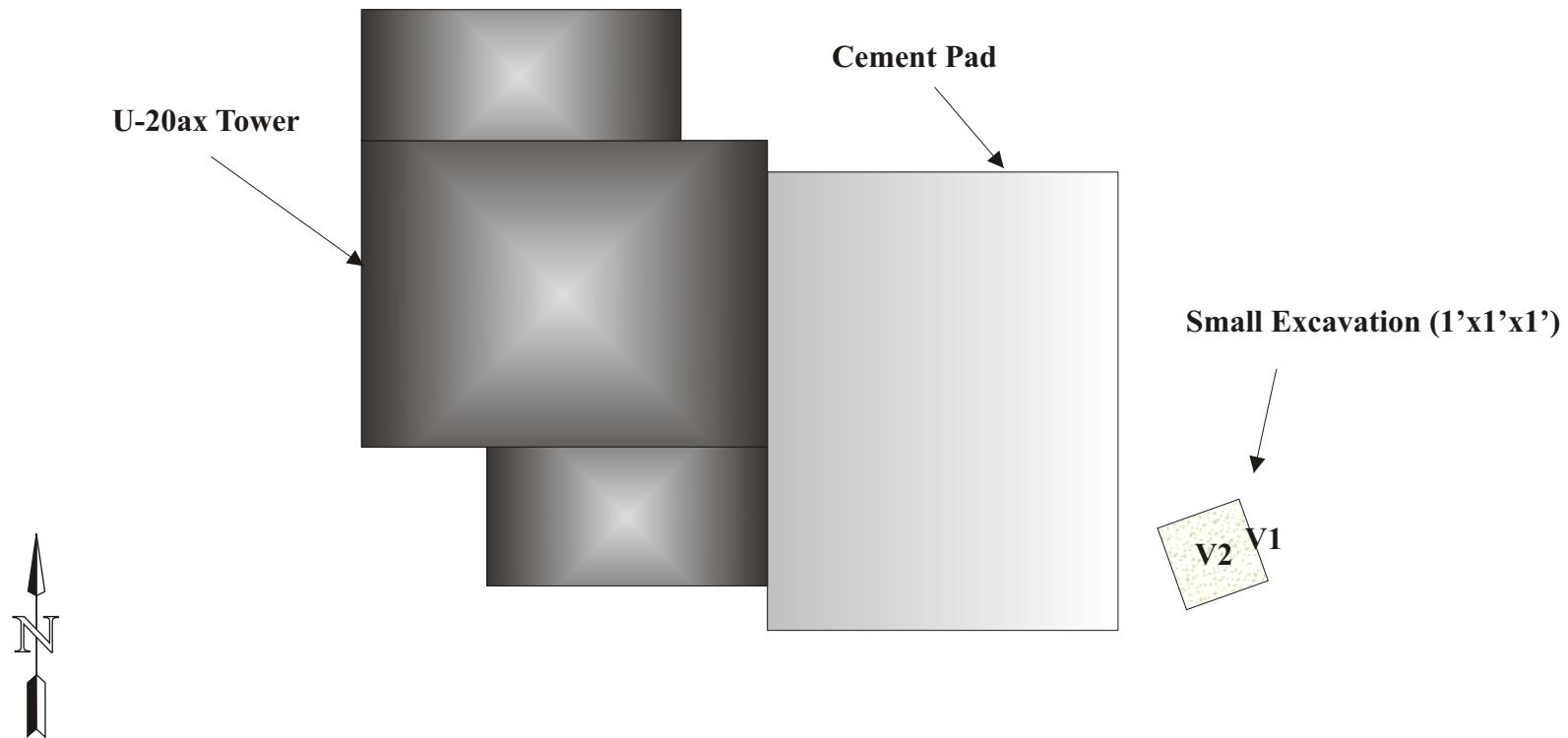


Figure not to scale

FIGURE 3
CAS 20-25-02 OIL SPILLS, VERIFICATION SAMPLE LOCATIONS

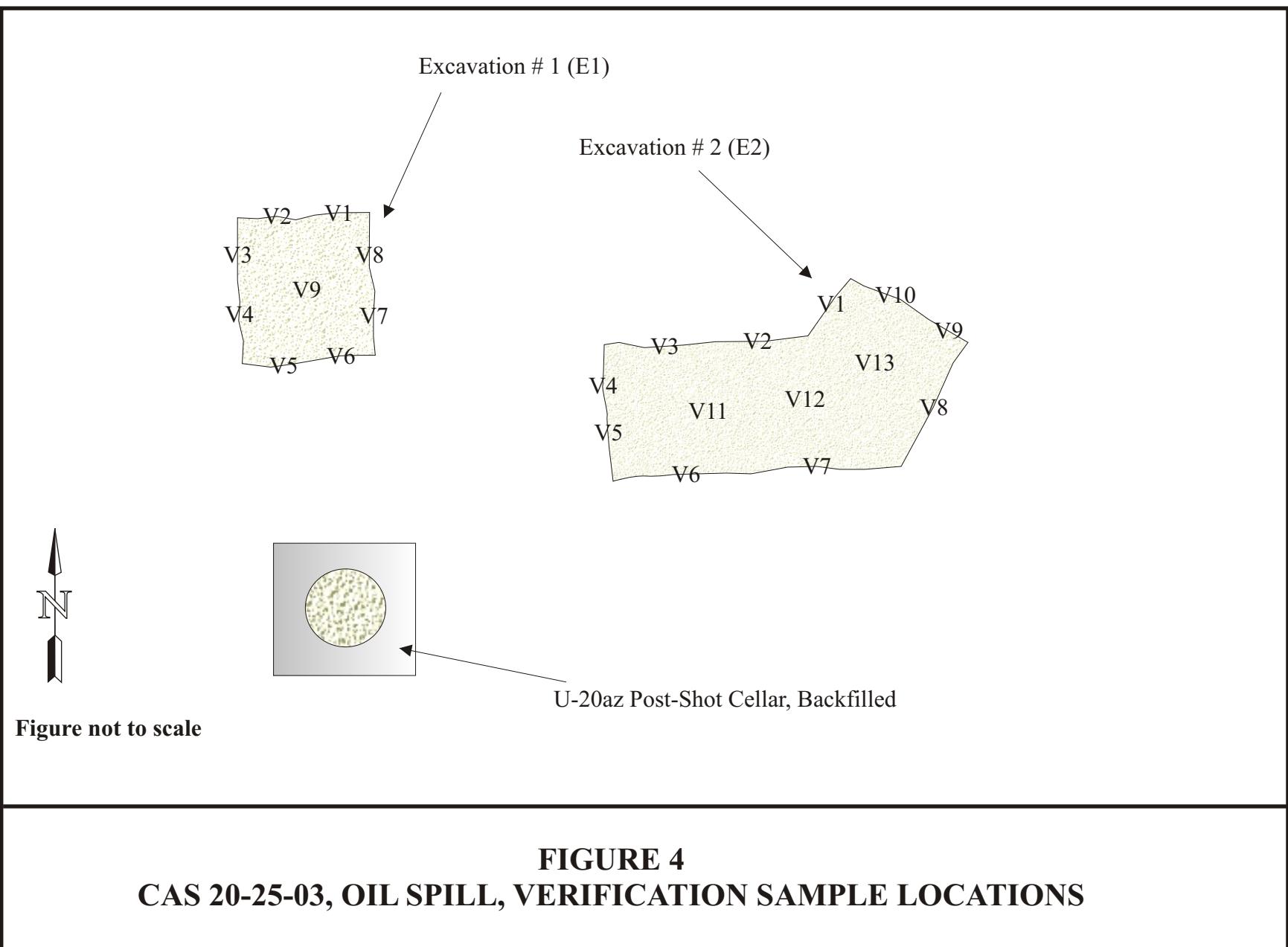


TABLE 3: CAU 396 VERIFICATION SAMPLE RESULTS

SAMPLE NUMBER	DATE COLLECTED	DEPTH (FEET BGS ^A)	DIESEL RANGE ^B (mg/kg) ^C	GASOLINE RANGE ^B (mg/kg) ^C	OIL RANGE ^B (mg/kg) ^C	TOTAL PETROLEUM HYDROCARBONS ^B (mg/kg) ^C
Action Level^D			100	100	100	100
CAS 20-25-01, Oil Spills (2) - SDG^E V2232 and V2243						
20-25-01 E1 V1	03/18/2004	1	ND	ND	110	110
20-25-01 E1 V2	03/18/2004	1	ND	ND	ND	ND
20-25-01 E1 V3	03/18/2004	1	ND	ND	ND	ND
20-25-01 E1 V4	03/18/2004	1	ND	ND	ND	ND
20-25-01 E1 V5	03/18/2004	1.5	ND	ND	110	110
20-25-01 E2 V1	03/18/2004	1	ND	ND	ND	ND
20-25-01 E2 V2	03/18/2004	1	ND	ND	ND	ND
20-25-01 E2 V3	03/18/2004	1	ND	ND	ND	ND
20-25-01 E2 V4	03/18/2004	1	ND	ND	ND	ND
20-25-01 E2 V5	03/18/2004	1.5	ND	ND	ND	ND
20-25-01 E1 V1 (resample of E1 V1)	04/07/2004	1	ND	ND	ND	ND
20-25-01 E1 V5 (resample of E1 V5)	04/07/2004	2	ND	ND	ND	ND
CAS 20-25-02, Oil Spills - SDG^E V2232						
20-25-02 V1	03/22/2004	0.5	ND	ND	ND	ND
20-25-02 V2	03/22/2004	1	ND	ND	ND	ND
20-25-02 V3 (duplicate of V2)	03/22/2004	1	ND	ND	ND	ND
CAS 20-25-03, Oil Spill - SDG^E V2232 and V2243						
20-25-03 E1 V1	03/22/2004	3	ND	ND	ND	ND
20-25-03 E1 V2	03/22/2004	3	ND	ND	ND	ND
20-25-03 E1 V3	03/22/2004	3	ND	ND	ND	ND
20-25-03 E1 V4	03/22/2004	3	ND	ND	ND	ND
20-25-03 E1 V5	03/22/2004	3	ND	ND	ND	ND
20-25-03 E1 V6	03/22/2004	3	ND	ND	ND	ND
20-25-03 E1 V7	03/22/2004	3	ND	ND	ND	ND
20-25-03 E1 V8	03/22/2004	3	ND	ND	ND	ND
20-25-03 E1 V9	03/22/2004	3	130	ND	2400	2500
20-25-03 E1 V9 (resample of E1 V9)	04/07/2004	3.5	ND	ND	ND	ND

^A bgs = below ground surface

^B Total Petroleum Hydrocarbons full scan analysis by EPA method 8015 modified (EPA, 1996).

^C mg/kg = milligrams per kilogram

^D Total Petroleum Hydrocarbon action level of 100 mg/kg established by the State of Nevada (NAC, 2002).

^E SDG - Sample Delivery Group. Used to identify a group of samples submitted for analysis.

ND = Not detected above the laboratory minimum reporting limit.

TABLE 3: CAU 396 VERIFICATION SAMPLE RESULTS (continued)

SAMPLE NUMBER	DATE COLLECTED	DEPTH (FEET BGS ^A)	DIESEL RANGE ^B (mg/kg) ^C	GASOLINE RANGE ^B (mg/kg) ^C	OIL RANGE ^B (mg/kg) ^C	TOTAL PETROLEUM HYDROCARBONS ^B (mg/kg) ^C
Action Level ^D			100	100	100	100
CAS 20-25-03, Oil Spill - SDG^E V2232 and V2243						
20-25-03 E2 V1	03/23/2004	3	ND	ND	ND	ND
20-25-03 E2 V2	03/23/2004	3	ND	ND	ND	ND
20-25-03 E2 V3	03/23/2004	2	ND	ND	ND	ND
20-25-03 E2 V4	03/23/2004	2	ND	ND	ND	ND
20-25-03 E2 V5	03/23/2004	2	300	ND	140	430
20-25-03 E2 V6	03/23/2004	2	ND	ND	ND	ND
20-25-03 E2 V7	03/23/2004	3	ND	ND	ND	ND
20-25-03 E2 V8	03/23/2004	3	ND	ND	ND	ND
20-25-03 E2 V9	03/23/2004	3	ND	ND	ND	ND
20-25-03 E2 V10	03/23/2004	3	ND	ND	ND	ND
20-25-03 E2 V11	03/23/2004	2	ND	ND	ND	ND
20-25-03 E2 V12	03/23/2004	3.5	ND	ND	ND	ND
20-25-03 E2 V13	03/23/2004	3.5	ND	ND	ND	ND
20-25-03 E2 V14 (duplicate of E2 V12)	03/22/2004	3.5	ND	ND	ND	ND
20-25-03 E2 V5 (resample of E2 V5)	04/07/2004	2.5	ND	ND	ND	ND

^A bgs = below ground surface

^B Total Petroleum Hydrocarbons full scan analysis by EPA method 8015 modified (EPA, 1996).

^C mg/kg = milligrams per kilogram

^D Total Petroleum Hydrocarbon action level of 100 mg/kg established by the State of Nevada (NAC, 2002).

^E SDG - Sample Delivery Group. Used to identify a group of samples submitted for analysis.

ND = Not detected above the laboratory minimum reporting limit.

except two were less than the TPH action level. The samples collected from the bottom of E1 at location V9 and from the western sidewall of E2 at location V5 exceeded the TPH action level. For this reason additional material was removed from both excavations. At E1 approximately 0.15 m (0.5 ft) of weathered bedrock was removed from the excavation bottom, and at E2 approximately 0.3 m (1 ft) of additional soil was removed from the western sidewall. Additional verification samples were collected from the center of the expanded E1 and the western sidewall of the expanded E2 on April 7, 2004 and submitted to an off-site laboratory for analysis. Analytical results for these additional verification samples were less than the TPH action level; verifying that TPH-impacted soil in excess of the action level was removed from the site. Verification samples results are summarized in Table 3 and analytical data is included in Appendix D.

CAS 20-99-08, Spill. As discussed in Section 2.1.3, no further action was taken since no COCs above action levels were found at this site.

4.1 DATA QUALITY ASSESSMENT

CAU 396 closure activities were performed to the criteria specified in the NDEP-approved SAFER Plan (NNSA/NSO, 2003). The approved corrective action alternatives as implemented did not result in any deviation with the conceptual model as presented in the SAFER Plan (NNSA/NSO, 2003) and included in Appendix A of this report.

All verification samples were analyzed for TPH by off-site contract laboratories. All quality assurance/quality control samples required by the BN analytical laboratories' contracts were prepared and analyzed. In addition, duplicate samples were collected in the field and sent to the laboratory with unique sample numbers. Table 3 gives the results for all collected verification samples.

CAS 20-25-01, Oil Spills (2). As detailed in the CAU 396 SAFER plan, the primary conceptual site model (CSM) for this site assumes that TPH is the only COC present and that it was released to the ground surface. The dimensions of the two spill sites were originally estimated from analytical results for one waste characterization sample collected during site preliminary assessment performed in 1997 (NNSA/NSO, 2003). Based on the site preliminary assessment (PA) results, the spill sites were estimated to measure approximately 10.8 by 21.6 m (36 by 72 ft) and 6 by 6 m (20 by 20 ft). To better define the lateral and vertical extent of the spill sites, additional waste characterization samples were collected using direct push techniques in August 2003. Based on results for these additional samples, the approximate size of both spill sites were reduced to 3.6 by 3.6 by 0.6 m (12 by 12 by 2 ft), and the only COC detected was TPH. Observations made during closure activities indicate that the spill site excavations approximated these dimensions. Based on these results and on field observations, the actual site conditions agreed with the primary CSM as stated in the SAFER Plan (NNSA/NSO, 2003).

CAS 20-25-02, Oil Spills. As detailed in the CAU 396 SAFER plan, the primary CSM for this site assumes that TPH is the only COC present and that it was released to the ground surface. The dimensions of the spill site was originally estimated from analytical results for one waste characterization sample collected during site preliminary assessment performed in 1997 (NNSA/NSO, 2003). Based on the PA results, the spill site was estimated to measure approximately 18 by 22.8 m (60 by 76 ft). To better define the lateral and vertical extent of the spill sites, additional waste characterization samples were collected using direct push techniques in August 2003. Based on results for these additional samples, the approximate size of the spill site was reduced to 0.3 by 0.3 by 0.3 m (1 by 1 by 1 ft), and the only COC detected was TPH. Observations made during closure activities indicate the spill site excavations approximated these dimensions. Based on these results and on field observations, the actual site conditions agreed with the primary CSM as stated in the SAFER Plan (NNSA/NSO, 2003).

CAS 20-25-03, Oil Spill. As detailed in the CAU 396 SAFER plan, the primary CSM for this site assumes that TPH is the only COC present and that it was released to the ground surface. The dimensions of the two spill sites were originally estimated from analytical results for four waste characterization samples collected during site preliminary assessment performed in 1997 (NNSA/NSO, 2003). Based on the PA results, the spill site was estimated to measure approximately 15 by 15 m (50 by 50 ft). To better define the lateral and vertical extent of the spill sites, additional waste characterization samples were collected using direct push techniques in August of 2003. Based on results for these additional samples it was determined that there

were two areas with TPH-impacted soil above the action level. The approximate sizes of both spill sites were determined to be 3.6 by 3.6 by 0.9 m (12 by 12 by 3 ft) and 10.2 by 4.5 by 0.9 m (34 by 15 by 3 ft), and the only COC detected was TPH. Observations made during closure activities indicate that the spill site excavations approximated these dimensions. Based on these results and on field observations, the actual site conditions agreed with the primary CSM as stated in the SAFER Plan (NNSA/NSO, 2003).

CAS 20-99-08, Spill. As detailed in the CAU 396 SAFER plan, the primary CSM for this site assumes that PCBs are the only COC present and that it was released to the ground surface. The dimensions of the spill site were originally estimated from analytical results for one waste characterization sample collected during site preliminary assessment performed in 1997 (NNSA/NSO, 2003). Based on the PA results, the spill site was estimated to measure approximately 37.5 by 37.5 m (125 by 125 ft). To better define the lateral and vertical extent of the spill site, additional waste characterization samples were collected using direct push techniques in August 2003. Based on results for these additional samples, the approximate size of the spill site was reduced to 0.3 by 0.3 by 0.3 m (1 by 1 by 1 ft). The only COC detected was PCBs at concentrations less than action levels, therefore no further action was taken. Based on these results and on field observations, the actual site conditions did not agree with the primary CSM as stated in the SAFER Plan (NNSA/NSO, 2003).

4.2 USE RESTRICTION

Since the corrective actions at CAU 396 were clean closure or no further action, no land use restrictions or post-closure monitoring requirements are applicable.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSION

The following site closure activities were completed at each site within CAU 396 and are documented in this report:

CAS 20-25-01, Oil Spills (2). TPH-impacted soil above the 100 mg/kg action level (NAC, 2002) was removed from the site and transported to the Area 6 Hydrocarbon Landfill for disposal. The site was backfilled with NTS native fill, compacted by wheel-rolling, and graded to the original site contours.

CAS 20-25-02, Oil Spills. TPH-impacted soil above the 100 mg/kg action level (NAC, 2002) was removed from the site by hand using a shovel and transported to the Area 6 Hydrocarbon Landfill for disposal. The small excavation was backfilled with NTS native fill, manually compacted, and graded to the original site contours.

CAS 20-25-03, Oil Spill. TPH-impacted soil above the 100 mg/kg action level (NAC 2002) was removed from the site and transported to the Area 6 Hydrocarbon Landfill for disposal. The site was backfilled with NTS native fill, compacted by wheel-rolling, and graded to the original site contours.

CAS 20-99-08, Spill. No COCs were found above action levels at this site, so no further action was taken.

5.2 RECOMMENDATIONS

Closure activities for CAU 396 were completed following the approved SAFER Plan (NNSA/NSO, 2003). Based on completion of site closure activities as documented by this CR, it is requested that a notice of completion be provided by the NDEP for CAU 396 and that the CAU be promoted from Appendix III to Appendix IV of the FFACO (1996), “Closed Corrective Action Units.”

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6.0 REFERENCES

BN, see Bechtel Nevada.

Bechtel Nevada. 2002. Field Management Plan for Corrective Action Unit 396: Area 20 Spill Sites, Nevada Test Site, Nevada, Las Vegas, NV.

Bechtel Nevada. 2002. Site-Specific Health and Safety Plan for Corrective Action Unit 396: Area 20 Spill Sites, Nevada Test Sites, Nevada, 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, U.S. Department of Energy, and U.S. Department of Defense.

IT, see International Technology Corporation.

International Technology Corporation. 2001. CAU 396: Area 20 Spill Sites, NTS, Project Files, Las Vegas, NV.

NAC, see Nevada Administrative Code.

Nevada Administrative Code. 2002. Section 445A.2272, "Contamination of soil: Establishment of Action Levels." Carson City, NV.

Nevada Environmental Restoration Project. 2002. Industrial Sites Quality Assurance Project Plan, Nevada Test Site, Nevada, Revision 3 (NNSA/NV, 2002)

NNSA/NSO, see U.S. Department of Energy, National Nuclear Security Administrations, Nevada Site Office.

NNSA/NV, see U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office.

RSN, see Raytheon Services Nevada.

Raytheon Services Nevada. 1991. Nevada Test Site Drilling and Mining Summary. Prepared for the U.S. Department of Energy, Nevada Operations Office. Las Vegas, NV.

U.S. Environmental Protection Agency. 1996. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846, Third Edition, Washington D.C.

US Department of Energy, National Nuclear Security Administration, Nevada Site Office. 2003. Streamlined Approach for Environmental Restoration Plan for Corrective Action Unit 396: Area 20 Spill Sites, Nevada Test Sites, Nevada, DOE/NV--884, Las Vegas, NV.

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APPENDIX A

DATA QUALITY OBJECTIVES FOR CAU 396*

* As presented (as Appendix A-1) in the approved Streamlined Approach For Environmental Restoration Plan for Corrective Action Unit 396: Area 20 Spill Sites, Nevada Test Site, Nevada, March 2003, DOE/NV--884, Rev. 0, Las Vegas, NV.

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ACRONYMS AND ABBREVIATIONS

BN	Bechtel Nevada
CAS	Corrective Action Site
CAU	Corrective Action Unit
cm	centimeter(s)
cm/y	centimeter(s) per year
COC	contaminant(s) of concern
COPC	contaminant(s) of potential concern
CSM	conceptual site model
DOE/NV	U.S. Department of Energy, Nevada Operations Office
DQO	Data Quality Objective
EPA	U.S. Environmental Protection Agency
FFACO	Federal Facility Agreement and Consent Order
ft	foot/feet
GC	Gas Chromatograph
in	inch(s)
in/y	inch(s) per year
IT	International Technology Corporation
km	kilometer(s)
m	meter(s)
mg/kg	milligram(s) per kilogram
mi	mile(s)
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NNSA/NSO	U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office
NNSA/NV	U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office
NTS	Nevada Test Site
PCB	polychlorinated biphenyls
pCi/g	picoCuries per gram
PRG	Preliminary Remediation Goals
RCRA	Resource Conservation and Recovery Act
RPD	relative percent difference
RSM	Radiological Safety Marker
RSN	Raytheon Services Nevada
SAFER	Streamlined Approach for Environmental Restoration
SDG	Sample Delivery Group
SVOC	Semivolatile organic compound
TPH	total petroleum hydrocarbon
VOC	volatile organic compound

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DATA QUALITY OBJECTIVES FOR CORRECTIVE ACTION UNIT 396: AREA 20 SPILL SITES

The information presented here is based on historical data generated from preliminary assessment activities for Corrective Action Unit (CAU) 396 at the Nevada Test Site (NTS). Data quality objective (DQO) worksheets follow the U.S. Environmental Protection Agency (EPA) DQO guidance outline (EPA, 2000). The steps systematically build on the data acquired during preliminary assessment work and background research. Copies of the preliminary assessment work are retained in the project files.

Members of the Scoping Team and Decision Teams are as follows:

1. Scoping Team
 - a. U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office (NNSA/NSO)
Kevin Cabble
 - b. Nevada Division of Environmental Protection (NDEP)
Ted Zaferatos
 - c. Bechtel Nevada (BN)
Thomas Fitzmaurice
Kraig Knapp
David Nacht
Glenn Richardson
2. Core Decision Team
Kevin Cabble
Glenn Richardson
3. Primary Decision Makers
Kevin Cabble

1.0 PROBLEM STATEMENT

1.1 State the problem

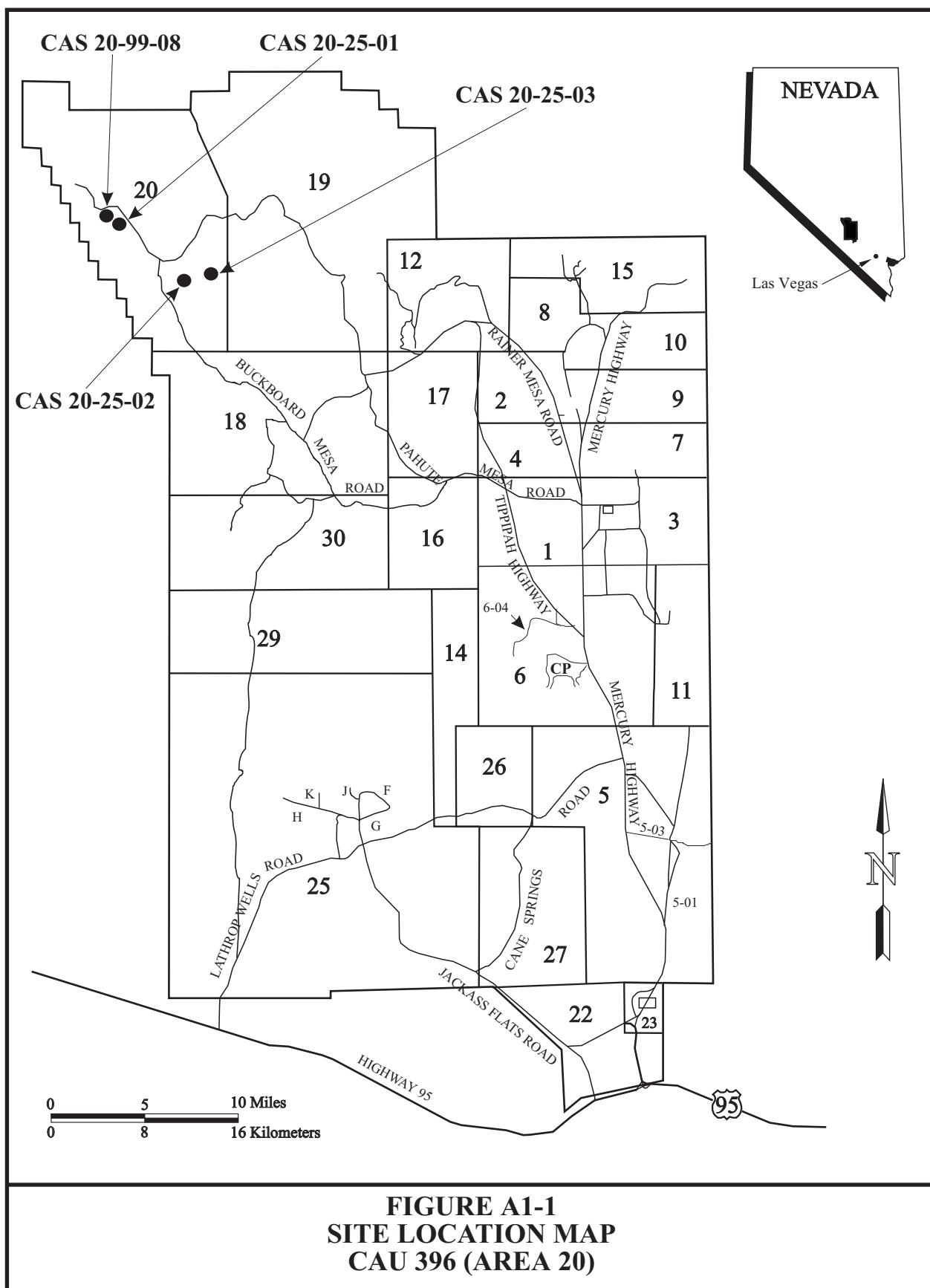
Four Corrective Action Sites (CASs) that comprise Corrective Action Unit (CAU) 396, have been identified for closure (Figure A1-1). In order to properly close these sites, current data and existing information will be evaluated and used to develop conceptual site models (CSMs). These data will also be used to develop closure alternatives. CAU 396 consists of sites located in Area 20 of the Nevada Test Site (NTS), and is currently listed in Appendix III of the Federal Facility Agreement and Consent Order (FFACO, 1996). One of the corrective action sites (CAS) within CAU 396 was not identified during the initial site visit. Based upon the original site description, (Reynolds Electrical and Engineering Co., Inc., 1991) and a site visit on February 4, 2003, it was determined that this CAS is located in a “potential crater area” and poses a potential safety risk to personnel working at the site. Therefore, an FFACO modification request to remove this CAS from CAU 396 and place it in CAU 544 will be prepared and submitted. Pending the approval of this FFACO modification, CAU 396 will consist of the following four CASs:

- CAS 20-25-01, Oil Spills (2)
- CAS 20-25-02, Oil Spills
- CAS 20-25-03, Oil Spill
- CAS 20-99-08, Spill

Upon approval of the FFACO modification request the following CAS 20-25-05, Oil Spills which is currently in CAU 396 will be moved to CAU 544: Cellars, Mud Pits, and Oil Spills

1.2 Summarize the problem - combine the relevant background information into a concise description of the problem to be resolved and known or suspected sources of disposed waste.

There were 828 underground nuclear tests conducted at the NTS between November 1951 and September 1992 (U.S. Department of Energy, Nevada Operation Office [DOE/NV], 2000). Several different types of holes were drilled into the ground for each test. Holes were drilled for exploratory purposes, device emplacement, and placement of instrumentation prior to the test. Holes were drilled after the test to collect samples of the affected media. Regardless of the purpose of the borehole, drill rigs and other equipment may have released contaminants into the environment. The contaminants of potential concern (COPCs) can include total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Resource Conservation and Recovery Act (RCRA) metals, and various radionuclides. The Mud Pit Strategy report provides the details on why these COPCs are possibly associated with drilling activities (DOE/NV, 2001). The problem that needs to be resolved is whether the spills identified in CAU 396 pose a significant risk to human health or the environment.



1.2.1 CAS 20-25-01, Oil Spills (2)

This CAS is located near Pahute Mesa Road on the Radiological Safety Marker (RSM) P 130 road, approximately 1.1 kilometers (km) (0.7 miles [mi]) from the intersection with Pahute Mesa Road. It is marked with the sign U-20bc cellar. One of the spill areas is located next to the cellar; the other spill area is located 9.1 meters (m) (30 feet [ft]) north of the cellar. The estimated length and width of the two major spill areas (each consisting of numerous spills) is 11 by 21.9 m (36 by 72 ft) and 6.1 by 6.1 m (20 by 20 ft).

Historical information for this CAS is limited. It is believed that these oil spills are associated with drilling operations at the U-20bc post-test cellar, which was drilled between November 6, 1989 and November 7, 1989 (Raytheon Services Nevada [RSN], 1991). Unknown items include the volume of liquid spilled and the current dimensions of impacted soil.

Samples from sites in CAU 396 were collected between August 26, 1997 and August 28, 1997 by the International Technology Corporation (IT) Preliminary Assessment Group. One sample was collected from the spill area closest to the U-20bc cellar. The sample was analyzed for VOCs, SVOCs, TPH, PCBs, RCRA metals, and gamma-emitting radionuclides. The sample showed a TPH concentration of 35,000 milligrams per kilogram (mg/kg), and an arsenic concentration above the EPA Region IX preliminary remediation goals (PRG's) for industrial soils. Although the arsenic level exceeds the PRG's, the concentration measured is consistent with background levels normally found at the NTS.

1.2.2 CAS 20-25-02, Oil Spills

This CAS is located by traveling west on Buckboard Mesa Road. Turn right (east) on Pahute Mesa Road and proceed approximately 2.7 km (1.7 mi) to a dirt road on the south (right). The spill area is just north east of the U-20ax tower. During a site visit on August 1, 2001, it was determined that the spills may have been backfilled and covered with pea size gravel.

Historical information for this CAS is limited. It is believed that these spills are associated with drilling operations of the U-20ax emplacement hole, between June 19, 1987 and August 18, 1987 (RSN, 1991). Unknown items include the volume of liquid spilled and the current dimensions of impacted soil.

Samples from sites in CAU 396 were collected between August 26, 1997 and August 28, 1997 by the IT Preliminary Assessment group. One sample was collected approximately 50 ft north the U-20ax drilling tower. The sample was analyzed for VOCs, SVOCs, TPH, PCBs, total RCRA metals, and gamma-emitting radionuclides. The only COPC present was arsenic. Although the arsenic level exceeds the PRG's, the concentration measured is consistent with background levels normally found at the NTS.

1.2.3 CAS 20-25-03, Oil Spill

This CAS is located by proceeding west on Pahute Mesa Road to the UE-20bh1 sign. Turn left (south) on the dirt road across from the sign and follow the dirt road to the U-20az cellar. The oil spill area consists of numerous spills, that are located around the U-20az post-test cellar.

Historical information for this CAS is limited. It is believed that these spills are associated with drilling operations of the U-20az post test hole, between December 14, 1990 and December 16, 1990 (RSN, 1991). Unknown items include the volume of liquid spilled and the current dimensions of impacted soil.

Samples from sites in CAU 396 were collected between August 26, 1997 and August 28, 1997 by the IT Preliminary Assessment group. Four samples, including two duplicates, were collected from the spills located around the U-20az post test cellar. These samples were analyzed for VOCs, SVOCs, TPH, PCBs, RCRA metals, and gamma-emitting radionuclides. All of the samples showed TPH concentrations greater than 50,000 mg/kg. The highest sample value found was 70,000 mg/kg. Arsenic was also measured above the PRG's, but the concentrations measured are consistent with background levels normally found at the NTS.

1.2.4 CAS 20-99-08, Spill

This CAS is located by proceeding west on Pahute Mesa Road. Turn left (west) on Airport Road, and proceed to Pahute Mesa Road. Turn left (northwest) on Pahute Mesa Road and proceed to RSM P 130. Turn left (west) on the dirt road and proceed 0.8 km (0.5 mi) to the fork. Turn left (west) at the fork and proceed about 0.3 km (0.2 mi) past U-20bc. The spill is located near the U-20bc emplacement hole, south of the U-20bc post test cellar. During a site visit on August 28, 1997, it was noted that the spill is surrounded on three sides by a large bermed area.

Historical information for this CAS is limited. It is believed that this spill is associated with drilling operations of the U-20bc, between April 5, 1988 to June 28, 1988, or from the U-20bc post-test hole that was drilled between November 5, 1989 to November 6, 1989 (RSN, 1991). Unknown items include the volume of liquid spilled, and the current dimensions of impacted soil.

Samples from sites in CAU 396 were collected between August 26, 1997 and August 28, 1997 by the IT Preliminary Assessment group. One composite sample was collected near the U-20bc emplacement hole, south of the U-20bc post test cellar. The sample was analyzed for VOCs, SVOCs, TPH, PCBs, RCRA metals, and gamma-emitting radionuclides. The sample showed a PCB concentration of 99 mg/kg and an arsenic concentration above the PRGs. Although arsenic exceeds the PRGs, the concentration measured is consistent with background levels normally found at the NTS.

1.3 Develop and Refine the Conceptual Site Model

The CSMs are considered the most probable scenarios for current conditions at the CAU 396 sites. Available information from which the CSMs are based were derived from process knowledge, related sites, site investigation, and environmental sampling analysis results. All of the sites are expected to fit the basic CSMs which pertain to that particular CAS with minor variations.

An important element of a CSM is the expected fate and transport of contaminants as they move through site media, and where they can be expected in the environment. The expected fate and transport is based on distinguishing physical characteristics of the contaminants and media, such as solubility of the contaminant, density, and particle size of the media. Ultimately, migration of contaminants to groundwater is limited by the geophysical properties such as permeability, porosity, and hydrologic conductivity. Groundwater contamination is not considered a likely scenario at CAU 396 based on the following information.

1.3.1 Primary CSMs

The following primary CSMs have been developed for CAU 396.

- For CAS 20-25-01, Oil Spills (2): The primary CSM assumes that only petroleum hydrocarbons were released to the soil. It also assumes that the vertical extent of contamination can be defined within the capability of a geoprobe 3.1 to 4.6 m (10 to 15 ft) max depth (Figure A1-2). The estimated length and width of the two major spill areas (each consisting of numerous spills) is 11 by 21.9 m (36 by 72 ft) and 6.1 by 6.1 m (20 by 20 ft).
- For CAS 20-25-02, Oil Spills: The primary CSM assumes that only petroleum hydrocarbons were released to the soil. It also assumes that the vertical extent of contamination can be defined within the capability of a geoprobe 3.1 to 4.6 m (10 to 15 ft) max depth, and that these spills have not been excavated and are located below an estimated 25.4 centimeters (cm) (10 inches [in]) layer of pea sized gravel and fill material (Figure A1-3). The estimated length and width of this spill area is 18.3 by 23.2 m (60 by 76 ft).
- For CAS 20-25-03, Oil Spill: The primary CSM assumes that only petroleum hydrocarbons were released to the soil. It also assumes that the vertical extent of contamination can be defined within the capability of a geoprobe 3.1 to 4.6 m (10 to 15 ft) max depth (Figure A1-2). The estimated length and width of this spill area is 15.2 by 15.2 m (50 by 50 ft).

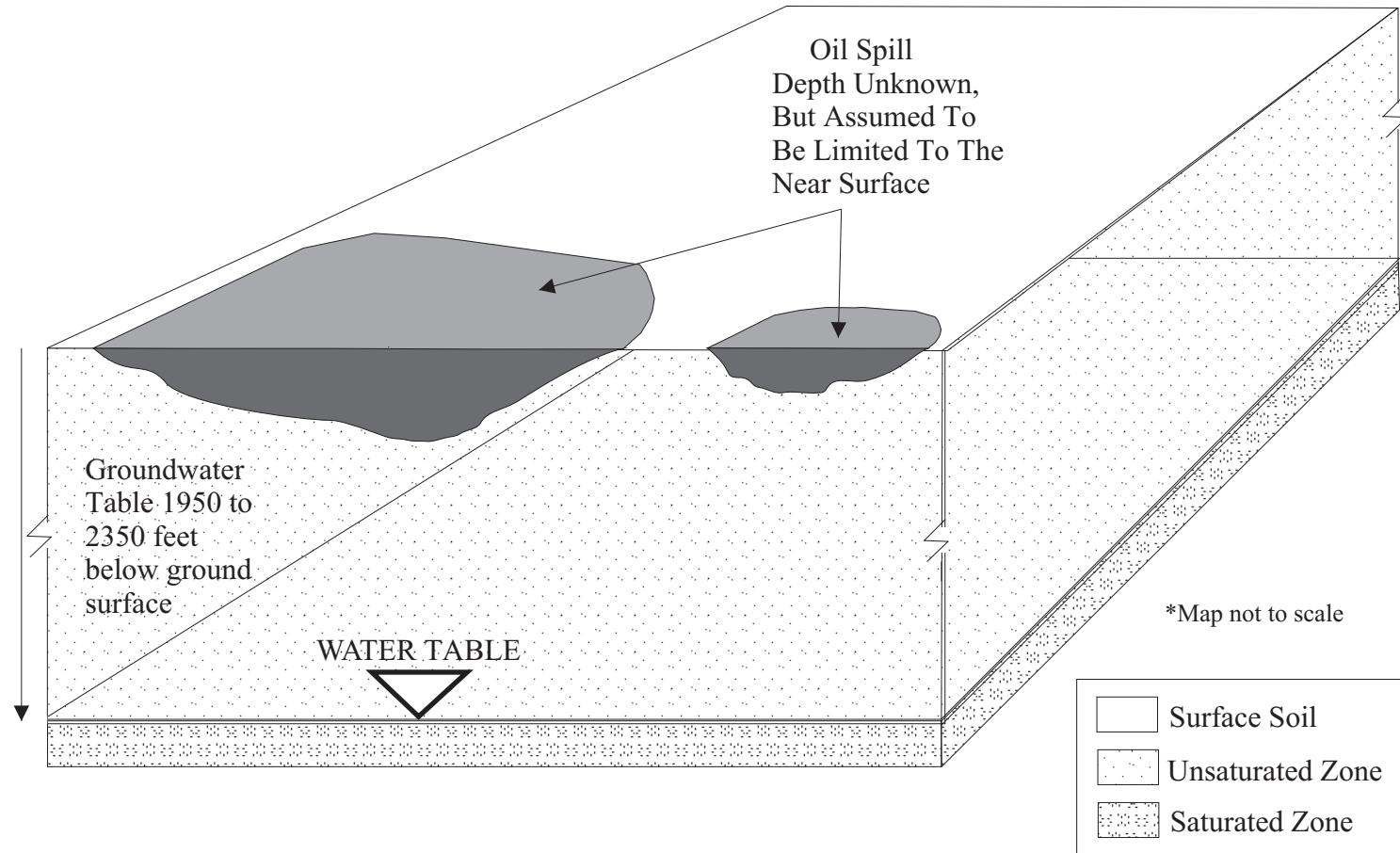


FIGURE A1-2
CAU 396 SURFACE OIL CONCEPTUAL SITE MODEL,
APPLICABLE TO CASs 20-25-01 & 20-25-03

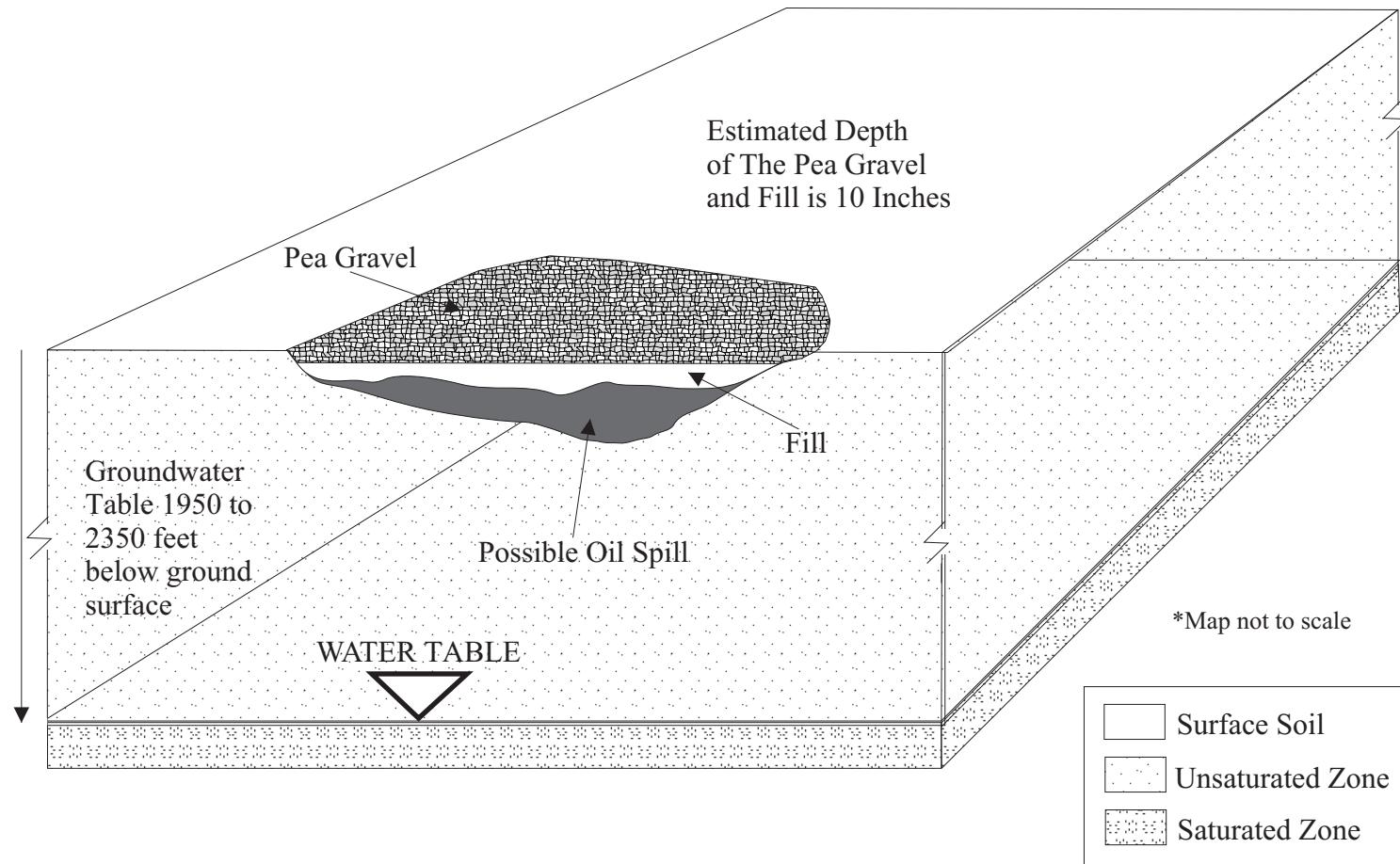


FIGURE A1-3
CAU 396 SUB-SURFACE OIL SITE CONCEPTUAL MODEL
APPLICABLE TO CAS 20-25-02

- For CAS 20-99-08, Spill: The primary CSM assumes that only PCB's were released to the soil. It also assumes that the vertical extent of contamination can be defined within the capability of a geoprobe 3.1 to 4.6 m (10 to 15 ft) max depth (Figure A1-4). The estimated length and width of this spill is 38.1 by 38.1 m (125 by 125 ft).

These CSMs include the following information that applies to all of the sites:

The CASs within CAU 396 are all located within Area 20. Area 20 was added to the NTS in 1963 to provide an area where deep underground weapon tests could be conducted (DOE/NV, 1988). Because of the unique nature of the historic activities performed at these sites, access will likely be further controlled from any use other than weapons testing. Therefore, contact with the CASs in CAU 396 by members of the public will not occur, and there will be no uncontrolled contact with these CASs by NTS personnel.

Area 20 of the NTS is located in the Pahute Mesa, which includes a broad volcanic plateau underlain by tuffs and lavas from the Timber Mountain Oasis Valley caldera complex and the Silent Canyon and Black Mountain calderas north of Timber Mountain. This Miocene, rhyolitic, eruptive center produced an overlapping complex of fault-controlled calderas in the general area of Timber Mountain and Pahute Mesa (DOE/NV, 1996). The mesa is an area of relatively low relief, with altitudes ranging from about 1676 to 2134 m (5,500 to 7,000 ft) above sea level (DOE/NV, 1988).

Static water levels for the Pahute Mesa inside the caldera range from 594 to 716 m (1,950 to 2,350 ft) beneath the ground surface. Outside the caldera, the depth of the groundwater decreases to around 259 m (850 ft) in the extreme northwest corner of the NTS. The permeability of the rock is generally low; groundwater movement is primarily through fractures in the rock. Groundwater flow is generally south to southwest to the Oasis Valley, about 20 miles away (DOE/NV, 1988).

The NTS is one of the most arid regions of the United States. No surface water features or expression of erosional activity exist at any of the CASs. The annual average precipitation for area 20, Pahute Mesa, is 20.02 centimeter per year (cm/y) (7.88 inches per year [in/y]) (Pahute Mesa 1 monitoring station). This station has been monitored since 1964.

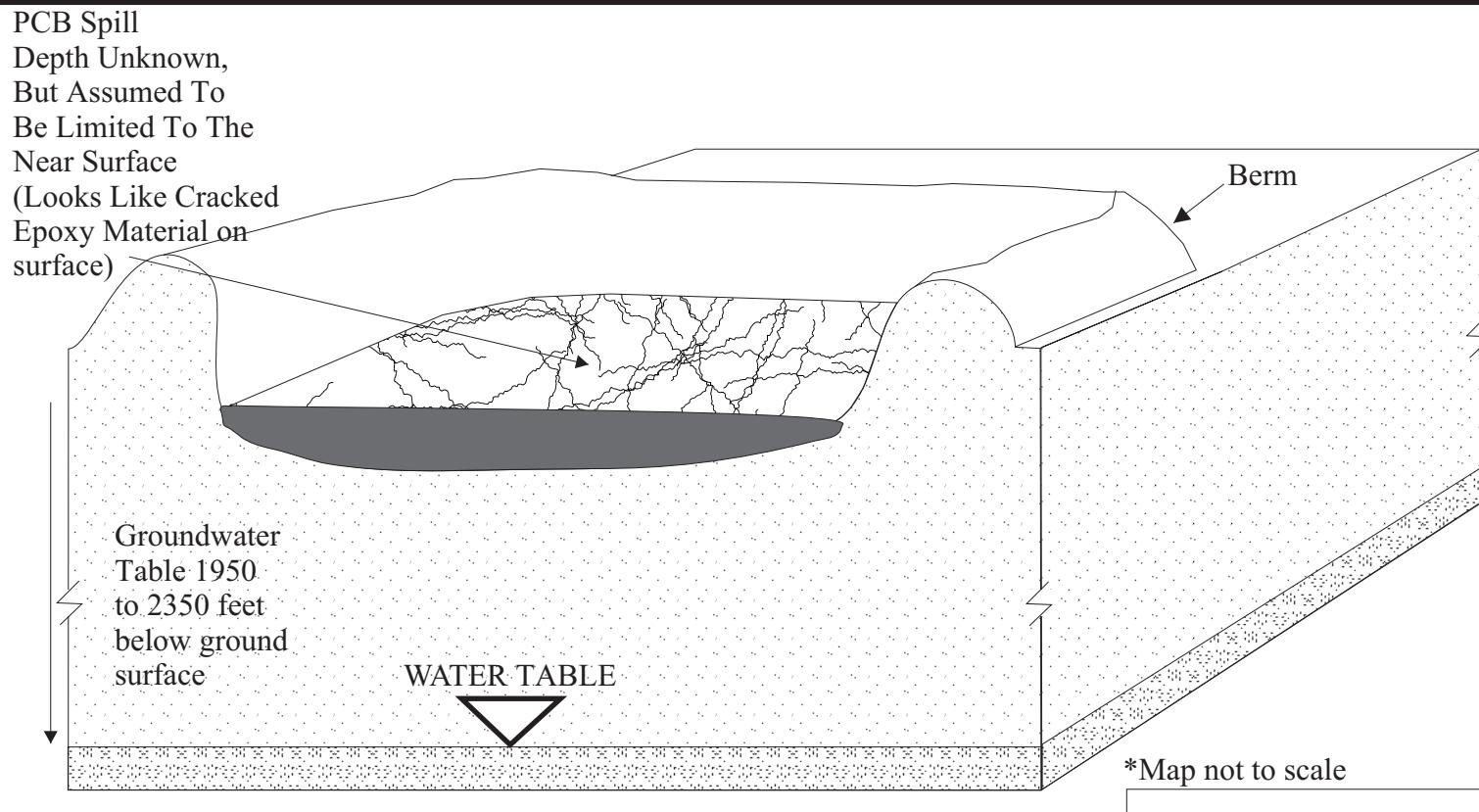


FIGURE A1-4
CAU 396 SPILL CONCEPTUAL SITE MODEL,
APPLICABLE to CAS 20-99-08

1.3.2 CAS Specific Variations to the Primary CSMs

Table A1 summarizes the basic variations to the primary CSMs for all of the sites.

TABLE A1 - SUMMARY OF CAU 396 CAS STATUS

CAS	COVERED BY GRAVEL AND BACKFILL	SPILLS		
		ON SURFACE	TPH CONTAMINATION	PCB CONTAMINATION
20-25-01		X	X	
20-25-02	X			
20-25-03		X	X	
20-99-08		X		X

Note: An X indicates that this is applicable to this CAS.

1.3.3 Alternate CSMs

- The conditions under the alternate CSM are considered less likely than conditions outlined in the primary CSMs. The alternate CSM for all of the CAs in CAU 396 are listed below:
- For CAS 20-25-01, Oil Spills (2): The alternate CSM provides for a release of other contaminants of concern (COCs) found in conjunction with the waste oil. If these COCs are above the action level, TPH field screening will be used to determine the boundaries of the TPH impacted soil. It also provides for a petroleum hydrocarbon release with a vertical extent of contamination deeper than can be defined within the capability of a geoprobe. Methods capable of obtaining deeper samples will be evaluated such as using a drill rig.
- For CAS 20-25-02, Oil Spills: The alternate CSM provides for a release of other COCs found in conjunction with the waste oil. If these COCs are above the action level, TPH field screening will be used to determine the boundaries of the TPH impacted soil. It also provides for a petroleum hydrocarbon release with a vertical extent of contamination deeper than can be defined within the capability of a geoprobe. Methods capable of obtaining deeper samples will be evaluated such as using a drill rig.

- For CAS 20-25-03, Oil Spill: The alternate CSM provides for a release of other COCs found in conjunction with the waste oil. If these COCs are above the action level, TPH field screening will be used to determine the boundaries of the TPH impacted soil. It also provides for a petroleum hydrocarbon release with a vertical extent of contamination deeper than can be defined within the capability of a geoprobe. Methods capable of obtaining deeper samples will be evaluated such as using a drill rig.
- For CAS 20-99-08, Spill: The alternate CSM provides for a release of other COCs found in conjunction with the PCB impacted material. If these COCs are above the action level, sampling (Dexsil field screening or Gas Chromatograph [GC] method) will be used to determine the boundaries of the PCB impacted soil/material. It also provides for a PCB release with a vertical extent of contamination deeper than can be defined within the capability of a geoprobe. Methods capable of obtaining deeper samples will be evaluated such as using a drill rig.

2.0 IDENTIFY THE DECISION

In this step, the principal study question will be made into a decision statement that will address the problem as previously described.

2.1 Identify the Principal Study Question

The principal study question is, “Does any CAS within CAU 396 pose an unacceptable risk to human health/environment?”

2.2 Alternative Actions that Could Result from Resolving the Principal Study Question

The possible actions that may result include:

- Clean closure of the site based on unacceptable risk to human health or the environment.
- No further action with administrative controls based on unacceptable risk to human health for potential future site workers.
- No further action based on an acceptable risk to human health and the environment.

2.3 Decision Statement

Combining the principal study question with the alternative actions generates the following decision statement:

“Determine if the CASs within CAU 396 have a risk to human health or the environment and thus require some type of corrective action.”

3.0 IDENTIFY THE INPUTS TO THE DECISION

3.1 Information Required to Resolve the Decision Statement

Relevant information that bears on the decision statement will be defined on a case to case basis. The relevant information will clarify the nature and extent of COCs at each site. This information will include process knowledge, information from similar sites, and analytical sampling using an appropriate analytical method for potential COCs at each CAS. The future land use and potential receptors must be identified. Any missing data relevant to the decision statement must also be identified.

General information that applies to each CAS includes the PRGs (EPA, 2002) for industrial soils to aid in the determination of risk to human health and the environment, The Nevada Administrative Code (NAC) 445A.2272 for action levels for petroleum hydrocarbons (NAC, 2002), and Title 40 CFR 761, “Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and use Prohibitions” (EPA, 2001).

All of these CASs are in Area 20 of the NTS which is designated as a weapons test zone. Because of the unique nature of the historic activities performed at these sites, access will likely be further controlled from any use other than weapons testing.

3.1.1 CAS 20-25-01, Oil Spills (2) and 20-25-03, Oil Spill

Total petroleum hydrocarbons in the oil range were found at both of these CASs. Previous work on TPH impacted soils at the NTS have demonstrated that TPH infiltration is relatively slow (NNSA/NSO, 2003) due to the low annual precipitation that the NTS receives as described in section 1.3.1. These spills are also thought to be associated with drilling activities that took place for only a few days to just over two months. Because of these factors, it is thought that the vertical extent of these spills are shallow and can be determined with a geoprobe 3.1 to 4.6 m (19 to 15 ft) max depth as stated in section 1.3.1. At CAS 20-25-01, only one sample was taken with in the larger spill area. At CAS 20-25-03, only two of the spills in the spill area were sampled. Because of these data gaps for the spill areas that have not been sampled, their nature is not known.

3.1.2 20-25-02, Oil Spills

It is believed that the spills in this area were covered up with 25.4 cm (10 in) of pea gravel and fill material, and that the gravel cover is about the same size as the spill area (90 by 114 ft). Although no COPCs were found, the sample collected at this site on August 26, 1997 was collected at a depth of 15.2 cm (6 in), and may not have been sampled deep enough to reach any contaminates. The data is also in question because the holding time for VOC's and SVOC's was exceeded, and the surrogate recovery for waste oil and diesel were outside the limits.

3.1.3 CAS 20-99-08, Spill

Polychlorinated biphenyl (Aroclor-1248) was found at this CAS. Usually PCB's bind to soil particles and are thought to be relatively immobile. Because of this factor, it is thought that the vertical extent of this spill can be determined with a geoprobe 3.1 to 4.6 m (10 to 15 ft) max depth as stated in section 1.3.1. Only one mixed sample of the epoxy like material and soil was taken within this large spill area, and there was poor duplicate precision for RCRA metals. Because of this data gap, it is not known if the underlying soil is impacted.

3.2 List types of COCs and Affected Media

Only two COPCs were detected at CAU 396 sites. They were TPH in the oil range, and the PCB Aroclor1248. For all CASs except 20-99-08, the affected media is soil. At CAS 20-99-08 the affected media is soil and an epoxy like material on the surface. Table A2 provides a summary of the sample analytical data.

3.3 Identify Potential Sampling Approaches and Appropriate Analytical Methods

3.3.1 CAS 20-25-01: Oil Spills (2)

The nature of both spill areas are not fully defined in this CAS. Their nature can be determined by taking one sample from spill area 1, and two samples from spill area 2. These samples will be analyzed by using EPA approved methods for VOCs (8260B), SVOCs (8270C), TPH (8015B), PCBs (8082), RCRA metals (6010B 7000 series), and gamma-emitting radionuclides (HASL 300, 4.5.2.3).

If TPH is the only COC found, the horizontal extent of each spill area will be identified on four sides by the following method. Samples will be collected from the apparent edge of the spill outward at 0.3 m (1 ft) intervals. These samples will be analyzed using a field screening method (developed by PetroFLAG®) until two consecutive samples are found at or below the 100 mg/kg action level for TPH. The PetroFLAG® field screening method has been used extensively on other CASs at the NTS and produces conservative results for the presence of petroleum hydrocarbons in soil. The vertical extent of each spill will be determined by using a geoprobe to collect a sample from the center of each spill area. These samples will also be analyzed at one foot intervals with PetroFLAGs® until two consecutive samples are found at or below the 100 mg/kg action level for TPH. If a geoprobe is inadequate to determine the vertical extent of the spill, other options will be evaluated such as using a drill rig.

Once the estimated volume of impacted soil has been excavated, a number of verification samples will be collected and screened for TPH (PetroFLAG® or equivalent) to determine if all of the TPH impacted soil has been removed from the site. When PetroFLAG® screening indicates that TPH concentrations are at or below 100 mg/kg, excavation activities will be suspended and verification samples will be collected. After all of the contaminated soil that is above the action limit has been excavated, confirmatory samples will be collected and analyzed

for TPH (using analytical method 8015B modified EPA, 1996) to confirm the PetroFLAG® results and verify that the impacted soils have been removed.

If other COCs are found in conjunction with the waste oil, oil will be assumed to be the carrier. PetroFLAG® TPH field screening will be used to determine the boundaries of TPH impacted soil. Once the extent is determined, a confirmatory sample will be collected and analyzed for TPH and any other COCs previously identified. The confirmatory sample method can be found in Table 1 of the SAFER.

3.3.2 CAS 20-25-02: Oil Spills

The nature and extent of the spills in this area are not defined. In order to determine if there is contaminated soil in this area, three exploratory holes will be excavated through the pea gravel and fill material and analyzed using EPA approved methods for VOCs (8260B), SVOCs (8270C), TPH (8015B), PCBs (8082), RCRA metals (6010B 7000 series), and gamma-emitting radionuclides (HASL 300, 4.5.2.3). In addition to the three biased samples, a 3 by 3 m (10 by 10 ft) grid sampling approach will be used. The boundaries of this grid will be the spill area as defined by the original spill dimensions of 18.3 by 23.2 m (60 by 76 ft). Twenty randomly chosen samples will be taken from the center of these squares and analyzed using PetroFLAGS®.

If TPH is the only COC found, the horizontal extent of the spill area will be identified on four sides by the following method. Samples will be collected 1.5 m (5 ft) inside the original dimensions of the spill area and outward at 0.3 m (1 ft) intervals. These samples will be analyzed using the PetroFLAG® screening method until two consecutive samples are found at or below the 100 mg/kg action level for TPH. The vertical extent of each spill will be determined by using a geoprobe to collect a sample from the center of each spill area. These samples will also be analyzed at 0.3 m (1 ft) intervals with PetroFLAGS® until two consecutive samples are found at or below the 100 mg/kg action level for TPH. If a geoprobe is inadequate to determine the vertical extent of the spill, other options will be evaluated such as using a drill rig.

Once the estimated volume of impacted soil has been excavated, a number of verification samples will be collected and screened for TPH PetroFLAG® or equivalent) to determine if all of the TPH impacted soil has been removed from the site. When PetroFLAG® screening indicates that TPH concentrations are at or below 100 mg/kg, excavation activities will be suspended and verification samples will be collected. After all of the contaminated soil that is above the action limit has been excavated, confirmatory samples will be collected and analyzed for TPH (using analytical method 8015B modified EPA, 1996) to confirm the PetroFLAG® results and verify that the impacted soils have been removed.

TABLE A2 - CAU 396 SAMPLE ANALYTICAL RESULTS

SAMPLE IDENTIFICATION NUMBER	DIESEL (mg/kg) ^a	OIL (mg/kg)	TPH ^b (mg/kg)	VOCs ^c (µg/kg) ^d	SVOC ^e (µg/kg)	Total RCRA ^f METALS (mg/kg)	PCBs ^g (mg/kg)	GAMMA SPECTROSCOPY (pCi/g) ^h
ANALYSIS METHOD	EPA 8015	EPA 8015	EPA 8015	EPA 8260A	EPA 8270	EPA 6010 & 7460	EPA 8082	HASL 300 SM 7110
ACTION LEVEL	100 mg/kg ⁱ	100 mg/kg ⁱ	100 mg/kg ⁱ	EPA PRGs ^j	EPA PRGs ^j	EPA PRGs ^j	TSCA ^o	NTS Background ^k
CAS 20-25-01 (SDG^l 15718)								
ERS00079	ND ^m	35,000	35,000	< Action levels	< Action levels	< Action levels ⁿ	< Action levels	NTS Background levels
CAS 20-25-02 (SDG 15718)								
ERS00080	ND	ND	ND	< Action levels	< Action levels	< Action levels ⁿ	< Action levels	NTS Background levels
CAS 20-25-03 (SDG 15720)								
ERS00173	ND	50,000	50,000	< Action levels	< Action levels	< Action levels ⁿ	< Action levels	NTS Background levels
ERS00174 (DUP 173)	ND	63,000	63,000					
ERS00175	ND	70,000	70,000					
RS00176 (DUP 175)	ND	57,000	57,000					
CAS 20-99-08 (SDG 15720)								
ERS00178	ND	ND	ND	< Action levels	< Action levels	< Action levels ⁿ	99	NTS Background levels

^amilligrams per kilogram

^bTotal petroleum hydrocarbons

^cVolatile organic compounds

^dMicrograms per kilogram

^eSemivolatile organic compounds

^fResource Conservation and Recovery Act

^gPolychlorinated biphenyls

^hpicocuries per gram

ⁱNevada State Action Level for hydrocarbons (NAC, 2002)

^jU.S. EPA Region IX Preliminary Action Goals for industrial soil (EPA, 2002)

^kBackground levels established in McArthur and Miller, 1989.

^lSample Delivery Group

^mNot detected at the laboratory reporting limit

ⁿAlthough arsenic exceeds the PRGs, the concentration measured is consistent with background levels normally found at the NTS.

^oU.S. Environmental Protection Agency. 2001. Title 40 Code of Federal Regulations 761, "Polychlorinated Biphenyls Manufacturing, Processing, Distribution in Commerce, and use Prohibitions." Washington, D.C.

DUP = duplicate

If other COCs are found in conjunction with the waste oil, oil will be assumed to be the carrier. PetroFLAG® TPH field screening will be used to determine the boundaries of TPH impacted soil. Once the extent is determined, a confirmatory sample will be collected and analyzed for TPH and any other COCs previously identified. The confirmatory sample method can be found in Table 1 of the SAFER.

3.3.3 CAS 20-25-03: Oil Spill

The nature of two of the spills in this area are partially defined, however the others are not. Their nature can be determined by taking a sample, from each spill, and analyzing them using EPA approved methods for VOCs (8260B), SVOCs (8270C), TPH (8015B), PCBs (8082), RCRA metals (6010B 7000 series), and gamma-emitting radionuclides (HASL 300, 4.5.2.3). If the first sample does not show any COCs a second sample will be collected and analyzed for the full range of COPCs described above.

If TPH is the only COC found, the horizontal extent of each spill area will be identified on four sides by the following method. Samples will be collected from the apparent edge of the spill outward at 0.3 m (1 ft) intervals. These samples will be analyzed using the PetroFLAG® field screening method, until two consecutive samples are found at or below the 100 mg/kg action level for TPH. The vertical extent of each spill will be determined by using a geoprobe to collect a sample from the center of each spill area. These samples will also be analyzed at one foot intervals with PetroFLAGs®, until two consecutive samples are found at or below the 100 mg/kg action level for TPH. If a geoprobe is inadequate to determine the vertical extent of the spill, other options will be evaluated such as using a drill rig.

Once the estimated volume of impacted soil has been excavated, a number of verification samples will be collected and screened for TPH (PetroFLAG® or equivalent) to determine if all of the TPH impacted soil has been removed from the site. When PetroFLAG® screening indicates that TPH concentrations are at or below 100 mg/kg, excavation activities will be suspended and verification samples will be collected. After all of the contaminated soil that is above the action limit has been excavated, confirmatory samples will be collected and analyzed for TPH (using analytical method 8015B modified EPA, 1996) to confirm the PetroFLAG® results and verify that the impacted soils have been removed.

If other COCs are found in conjunction with the waste oil, oil will be assumed to be the carrier. PetroFLAG® TPH field screening will be used to determine the boundaries of TPH impacted soil. Once the extent is determined, a confirmatory sample will be collected and analyzed for TPH and any other COCs previously identified. The confirmatory sample method can be found in Table 1 of the SAFER.

3.3.4 CAS 20-99-08: Spill

The nature and extent of this spill is not fully defined. The nature can be determined by taking three soil samples, and three samples of the material on the surface from this spill area, and analyzing them using EPA approved methods for PCBs (8082) and RCRA metals (6010B 7000 series).

If PCB is the only COC found, the horizontal extent of this spill will be identified on four sides by the following method. Samples will be collected from the apparent edge of the spill outward at 0.3 m (1 ft) intervals. These samples will be analyzed using a field screening method developed by the Dexsil Corporation, or a GC method. The samples will be analyzed until two consecutive samples are found at or below the 25 mg/kg action level for PCB bulk remediation waste in low occupancy areas (EPA, 2001). The vertical extent of this spill will be determined by using a geoprobe to collect a sample from the center of the spill. These samples will also be analyzed at 0.3 m (1 ft) intervals using a field screening method developed by the Dexsil Corporation, or a GC method until two consecutive samples are found at or below the 25 mg/kg action level for PCB bulk remediation waste in low occupancy areas (EPA, 2001). If a geoprobe is inadequate to determine the vertical extent of the spill, other options will be evaluated such as using a drill rig.

Once the estimated volume of soil/material has been excavated, a number of verification samples will be collected and screened for PCBs (Dexsil or GC method) to determine if all of the PCB impacted soil/material has been removed from the site. When the screening indicates that PCB concentrations are at or below 25 mg/kg excavation activities will be suspended and verification samples will be collected. After all of the contaminated soil/material that is above the action limit has been excavated, verification samples will be collected by following all of the EPA regulations that are stated in Title 40 CFR 761.130 , “Sampling Requirements.” (EPA, 2001). If other COCs are found in conjunction with the PCB impacted material, the material will be assumed to be the carrier. PCB field screening or a GC method will be used to determine the boundaries of the PCB impacted soil. Once the extent is determined, confirmatory samples will be collected and analyzed for PCB and any other COCs previously identified. The confirmatory sample method can be found in Table 1 of the SAFER.

4.0 DEFINE THE BOUNDARIES OF THE STUDY

4.1 Define the Geographic Areas of the Field Investigation

All of the CASs within CAU 396 are located within Area 20 of the NTS. The geographic areas of the field investigation are those areas of each CAS which are impacted by COCs as identified by the CSM in section 1.3.1. Descriptions of each area are found in Section 1.2 of this report. The boundaries in all cases are limited to the FFACO CAS description.

4.1.1 Define the Geographic Area Within Which all Decisions Must Apply

The geographic areas of the field investigation are those areas of each CAS which are impacted by COCs as identified by the CSM in section 1.3.1. Descriptions of each area are found in Section 1.2 of this report. The boundaries in all cases are limited to the FFACO CAS description.

4.1.2 Specify the Characteristics that Define the Population of Interest

The population of interest is the concentration of COCs associated with each CAS and its associated risk to human health and the environment.

4.2 Define the Time Frame of the Decision

4.2.1 Determine the Time Frame to Which the Study Data Apply

- The study data should be relevant to the length of time allowed by the Streamlined Approach for Environmental Restoration (SAFER) process under the FFACO (FFACO, 1996).
- Migration (if occurring) is assumed to be imperceptibly slow. This is based on minimal surface water infiltration for TPH, and PCB's affinity to bind with soil particles.

4.2.2 Determine When to Collect Data

Field activities are scheduled to take place after approval of the final SAFER Plan. A date for field activities has not been formally determined. Field activities will be conducted at times that meet the security and safety constraints of the NTS.

4.2.3 Define Relevant Time Constraints

The FFACO deadline for delivery of the final SAFER Plan is March 31, 2003. The FFACO deadline of delivery for the final Closure Report has not been formally determined.

4.3 Identify any Practical Constraints on Data Collection

- Approval of the DQO process and the SAFER Plan by the NDEP
- Site operations - NTS operational and security constraints
- Equipment and personnel access
- Severe meteorological conditions
- Availability of resources (personnel and equipment)
- Health and safety of workers

5.0 DEVELOP A DECISION RULE-DEFINE A LOGICAL BASIS FOR CHOOSING AMONG ALTERNATIVE ACTIONS

5.1 Specify the Action Level or Preliminary Action Level for the Decision

The action level is 100 mg/kg for TPH based on NAC 445A.2272 (NAC, 2002). All other action levels are based on the EPA Region IX PRGs for Industrial Soils (EPA, 2002). Chemical concentrations above the action levels do not automatically trigger a response action.

5.2 Basis for Choosing Alternative Actions

Alternative actions will be based on whether a COC exceeds an action level as described in Section 5.1. If an action level is exceeded, then future land use and potential impact to human health and the environment will be considered. If COCs exceed action levels and future land use indicates an exposure potential, then the action alternative will be clean closure. If COCs exceed action levels, future land use limits exposure, and there is limited risk to human health and the environment, then closure in place will be recommended. If COCs are not present above action levels, then no further action will be required.

6.0 SPECIFY LIMITS ON THE DECISION ERRORS

6.1 Sources of Potential Decision Error

Measurement error is influenced by imperfections in the measurement and analysis system. Random and systematic measurement errors can be introduced in the measurement process during physical sample collection, sample handling, sample preparation, sample analysis, and data reduction.

Errors introduced during sample collection and handling are minimized by developing a sampling and analysis plan. BN Environmental Restoration sampling plans are compliant with approved operational instructions for sample collection, field documentation, and equipment decontamination. Arsenic samples are collected, each sample is identified with a unique number. A custody seal is placed on the container. The “Services Request & Chain of Custody Record” form is filled out and maintained.

Sample preparation and analysis errors are minimized by using an EPA-approved analytical method. Additionally, quality control samples are added to maintain the following:

- Accuracy - Closeness of a measurement or the mean of a set of results to the true value. Accuracy measures the bias of the measurement system. Indicators for measurement are based on the percent recoveries associated with the laboratory analytical control spikes, surrogate spikes, or matrix spikes.

- Comparability - A qualitative judgement which expresses the confidence with which one set can be compared to another. Items used to determine comparability include the analytical method and reporting units.
- Completeness - Indicators for this measurement are the amount of valid data obtained from a measurement system compared to the amount that was expected and needed to be obtained to meet the project data goals.
- Precision - A measurement which represents the repeatability of the analytical system. Indicators for measurement are based on the relative percent difference (RPD) between field duplicates, laboratory splits, or laboratory replicate analysis. It is usually expressed as the RPD or standard deviation.
- Representativeness - A qualitative judgement which refers to a sample or group of samples that reflect the characteristics of the media at the sampling point. It also includes how well the sampling point represents the actual parameter variations which are under study.

6.2 Limits on Decision Errors

The proposed future sampling at CAU 396 will use a biased sampling approach. The biased sampling approach does not allow for the assessment of whether or not specific decision error rate limits have been attained. Therefore, for biased sampling, a decision error rate cannot be established. Because an error rate cannot be established, the discussion of Type I (false rejection of the null hypothesis) and Type II (false acceptance of the null hypothesis) is not meaningful. A valid null hypothesis, however, for each CAS in CAU 396 would be that COCs pose an unacceptable risk to human health and the environment.

7.0 OPTIMIZE THE DESIGN - OUTLINE A SAMPLING DESIGN, SPECIFYING THE OPERATION DETAILS OF THE SAMPLING PLAN WHICH FALLS WITHIN THE PROJECTS CONSTRAINTS

7.1 Develop General Sampling and Analysis Design Alternatives

Additional sampling will be conducted as described in section 3.3 in order to define the nature and extent of the spills in CAU 396.

7.2 Select the Most Resource-effective Design that Satisfies All of the DQOs

Additional samples will be collected as stated in section 3.3 of this document in order to define the nature and extent of the spills in CAU 396.

7.3 Document the Operational Details and Theoretical Assumptions of the Selected Design in the Sampling and Analysis Plan

Detailed documentation of sampling and analysis is in the main body of this SAFER plan.

REFERENCES

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

EPA, see U.S. Environmental Protection Agency.

FFACO, see Federal Facility Agreement and Consent Order.

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U.S. Environmental Protection Agency. 2002. Region IX Preliminary Remediation Goals (PRGs). October. San Francisco, CA.

APPENDIX B
CLOSURE CERTIFICATION*

*Appendix B of the standardized outline for a Federal Facility Agreement and Consent Order Closure Report, Closure Certification, is not required for CAU 396. This appendix is not applicable to CAU 396: Area 20 Spill Sites.

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APPENDIX C

AS-BUILT DOCUMENTATION*

*Appendix C of the standardized outline for a Federal Facility Agreement and Consent Order Closure Report, As-Built Documentation, is not required for CAU 396. This appendix is not applicable to CAU 396: Area 20 Spill Sites.

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APPENDIX D
SAMPLE ANALYTICAL RESULTS

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NEL LABORATORIES

Las Vegas Laboratory
4208 Arcata Way, Suite A
N. Las Vegas, NV 89030
Phone: 702.657.1010
Fax: 702.657.1577

Friday, April 02, 2004

Ted Redding
Bechtel Nevada
P.O. Box 98521, M/S NTS273
Las Vegas, NV 89193-8521

TEL: 702-295-7220
FAX: (702) 295-3069

RE Project: **V2232**

Order No.: **L0403337**

Dear Ted Redding:

NEL Laboratories, Las Vegas received 40 samples on 3/24/04 5:30:00 PM for the analyses presented in the following report.

The case narrative for the project listed above specifies all quality assurance deficiencies associated with the data. Data that is not qualified in the case narrative has met or exceeded the US-EPA or laboratory specifications for the analytical method.

If you have any questions regarding these tests results, please feel free to call.

John Witherspoon
John Witherspoon
Organic Supervisor

4-2-04
Date

Certifications:

Washington	C325
Idaho	NV052
Nevada	NV052
California	2002



NEL LABORATORIES

Las Vegas Laboratory
4208 Arcata Way, Suite A
N. Las Vegas, NV 89030
Phone: 702.657.1010
Fax: 702.657.1577

CLIENT: Bechtel Nevada
Project: V2232
Lab Order: L0403337

CASE NARRATIVE

Date: 02-Apr-04

Attached are the analytical results for samples in support of the above referenced project.

The samples submitted for this project were not sampled by NEL. Should you have any questions or comments, please feel free to contact our Client Services Department.

Analytical Comments:

SW846 8015B Mod.

F3: Hydrocarbons eluted within the Diesel Range (C12-C22). However, the hydrocarbon pattern is atypical of diesel.

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-001

Client Sample ID: 20-25-01 E1 V1
 Collection Date: 3/18/04 1:00:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	110	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	110	20		mg/Kg	1	4/1/04
Surrogate: n-Octacosane	68.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-002

Client Sample ID: 20-25-01 E1 V2
 Collection Date: 3/18/04 1:03:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH			SW8015M			Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	70.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-003

Client Sample ID: 20-25-01 E1 V3
 Collection Date: 3/18/04 1:06:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	72.1	34.8-139		%REC	1	4/1/04
Analyst: FAS-L						

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT:	Bechtel Nevada	Client Sample ID:	20-25-01 EI V4
Lab Order:	L0403337	Collection Date:	3/18/04 1:09:00 PM
Project:	V2232		
Lab ID:	L0403337-004	Matrix:	SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH			SW8015M			Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	58.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT:	Bechtel Nevada	Client Sample ID:	20-25-01 E1 V5
Lab Order:	L0403337	Collection Date:	3/18/04 1:12:00 PM
Project:	V2232		
Lab ID:	L0403337-005	Matrix:	SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	110	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	110	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	63.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

NEL Laboratories, Las Vegas**Date: 02-Apr-04**

CLIENT:	Bechtel Nevada	Client Sample ID:	20-25-01 E2 V1
Lab Order:	L0403337	Collection Date:	3/18/04 1:15:00 PM
Project:	V2232		
Lab ID:	L0403337-006	Matrix:	SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH				SW8015M		Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	3/31/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	3/31/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	3/31/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	3/31/04
Surrogate: n-Octacosane	63.1	34.8-139		%REC	1	3/31/04

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT:	Bechtel Nevada	Client Sample ID:	20-25-01 E2 V2
Lab Order:	L0403337	Collection Date:	3/18/04 1:18:00 PM
Project:	V2232		
Lab ID:	L0403337-007	Matrix:	SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
		SW8015M				Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	3/31/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	3/31/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	3/31/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	3/31/04
Surrogate: n-Octacosane	59.1	34.8-139		%REC	1	3/31/04

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
Lab Order: L0403337
Project: V2232
Lab ID: L0403337-008

Client Sample ID: 20-25-01 E2 V3
Collection Date: 3/18/04 1:21:00 PM
Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH			SW8015M			Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	66.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada Client Sample ID: 20-25-01 E2 V4
 Lab Order: L0403337 Collection Date: 3/18/04 1:24:00 PM
 Project: V2232
 Lab ID: L0403337-009 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH		SW8015M				Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	68.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-010

Client Sample ID: 20-25-01 E2 V5
 Collection Date: 3/18/04 1:27:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
		SW8015M				Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C6-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	57.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-011

Client Sample ID: 20-25-01 TB
 Collection Date: 3/18/04 9:00:00 AM
 Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS						
Gasoline Range Organics (C6-C10)	SW8015M	0.25		mg/L	1	3/25/04
Surr: Trifluorotoluene	102	70-130		%REC	1	3/25/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
Lab Order: L0403337
Project: V2232
Lab ID: L0403337-012

Client Sample ID: 20-25-02 V1
Collection Date: 3/22/04 2:20:00 PM
Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
		SW8015M				Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C6-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	45.0	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-013

Client Sample ID: 20-25-02 V2
 Collection Date: 3/22/04 2:23:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
		SW8015M				Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	54.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT:	Bechtel Nevada	Client Sample ID:	20-25-02 V3
Lab Order:	L0403337	Collection Date:	3/22/04 2:26:00 PM
Project:	V2232		
Lab ID:	L0403337-014	Matrix:	SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	65.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
Lab Order: L0403337
Project: V2232
Lab ID: L0403337-015

Client Sample ID: 20-25-03 E1 V1
Collection Date: 3/22/04 1:33:00 PM
Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
		SW8015M				Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	58.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada Client Sample ID: 20-25-03 E1 V2
Lab Order: L0403337 Collection Date: 3/22/04 1:36:00 PM
Project: V2232
Lab ID: L0403337-016 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surrogate: n-Octacosane	60.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-017

Client Sample ID: 20-25-03 E1 V3
 Collection Date: 3/22/04 1:39:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH		SW8015M				Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surrogate: n-Octacosane	71.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-018

Client Sample ID: 20-25-03 E1 V4
 Collection Date: 3/22/04 1:42:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH		SW8015M				Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	69.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-019

Client Sample ID: 20-25-03 E1 V5
 Collection Date: 3/22/04 1:45:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
		SW8015M				Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	67.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-020

Client Sample ID: 20-25-03 E1 V6
 Collection Date: 3/22/04 1:48:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	57.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT:	Bechtel Nevada	Client Sample ID:	20-25-03 E1 V7
Lab Order:	L0403337	Collection Date:	3/22/04 1:51:00 PM
Project:	V2232		
Lab ID:	L0403337-021	Matrix:	SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH				SW8015M		Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	65.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-022

Client Sample ID: 20-25-03 E1 V8
 Collection Date: 3/22/04 1:54:00 PM

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	62.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 L - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-023

Client Sample ID: 20-25-03 E1 V9
 Collection Date: 3/22/04 1:57:00 PM

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	130	20	F3	mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	2400	500		mg/Kg	10	4/2/04
Total Petroleum Hydrocarbons	2500	200		mg/Kg	10	4/2/04
Surr: n-Octacosane	58.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada

Client Sample ID: 20-25-03 TB

Lab Order: L0403337

Collection Date: 3/22/04 9:00:00 AM

Project: V2232

Lab ID: L0403337-024

Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed	Analyst: GHP-I
GASOLINE RANGE ORGANICS		SW8015M					
Gasoline Range Organics (C6-C10)	ND	0.25		mg/L	1	3/25/04	
Surrogate: Trifluorotoluene	103	70-130		%REC	1	3/25/04	

Qualifiers: ND - Not Detected at the Reporting Limit
L - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
Lab Order: L0403337
Project: V2232
Lab ID: L0403337-025

Client Sample ID: 20-25-03 E2 VI
Collection Date: 3/23/04 1:33:00 PM
Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surrogate: n-Octacosane	50.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-026

Client Sample ID: 20-25-03 E2 V2
 Collection Date: 3/23/04 1:36:00 PM

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	61.1	34.8-139		%REC	1	4/1/04
Analyst: FAS-L						

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-027

Client Sample ID: 20-25-03 E2 V3
 Collection Date: 3/23/04 1:39:00 PM

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	57.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-028

Client Sample ID: 20-25-03 E2 V4
 Collection Date: 3/23/04 1:42:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	53.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-029

Client Sample ID: 20-25-03 E2 V5
 Collection Date: 3/23/04 1:45:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
		SW8015M				Analyst: FAS-L
Diesel Range Organics (C12-C22)	300	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	140	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	430	20		mg/Kg	1	4/1/04
Surrogate: n-Octacosane	73.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-030

Client Sample ID: 20-25-03 E2 V6
 Collection Date: 3/23/04 1:48:00 PM

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	58.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-031

Client Sample ID: 20-25-03 E2 V7
 Collection Date: 3/23/04 1:51:00 PM

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surrogate: n-Octacosane	59.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
Lab Order: L0403337
Project: V2232
Lab ID: L0403337-032

Client Sample ID: 20-25-03 E2 V8
Collection Date: 3/23/04 1:54:00 PM
Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed	Analyst: FAS-L
TOTAL EXTRACTABLE TPH							
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04	
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04	
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04	
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04	
Surrogate: n-Octacosane	61.1	34.8-139		%REC	1	4/1/04	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-033

Client Sample ID: 20-25-03 E2 V9
 Collection Date: 3/23/04 1:57:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surrogate: n-Octacosane	69.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-034

Client Sample ID: 20-25-03 E2 V10
 Collection Date: 3/23/04 9:00:00 AM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
		SW8015M				Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surrogate: n-Octacosane	68.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-035

Client Sample ID: 20-25-03 E2 V11
 Collection Date: 3/23/04 1:33:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
		SW8015M				Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	69.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-036

Client Sample ID: 20-25-03 E2 V12
 Collection Date: 3/23/04 1:36:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surrogate: n-Octacosane	70.1	34.8-139		%REC	1	4/1/04

Qualifiers: ND - Not Detected at the Reporting Limit
 L - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-037

Client Sample ID: 20-25-03 E2 V13
 Collection Date: 3/23/04 1:39:00 PM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surr: n-Octacosane	57.1	34.8-139		%REC	1	4/1/04
Analyst: FAS-L						

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-038

Client Sample ID: 20-25-03 E2 V14
 Collection Date: 3/23/04 10:42:00 AM
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	20		mg/Kg	1	4/1/04
Gasoline Range Organics (C8-C12)	ND	20		mg/Kg	1	4/1/04
Oil Range Organics (C22-C34)	ND	50		mg/Kg	1	4/1/04
Total Petroleum Hydrocarbons	ND	20		mg/Kg	1	4/1/04
Surrogate: n-Octacosane	68.1	34.8-139		%REC	1	4/1/04
						Analyst: FAS-L

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada

Client Sample ID: CAU 396 RB

Lab Order: L0403337

Collection Date: 3/23/04 11:45:00 AM

Project: V2232

Lab ID: L0403337-039

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed	Analyst	GHP-I
GASOLINE RANGE ORGANICS		SW8015M						
Gasoline Range Organics (C6-C10)	ND	0.25		mg/L	1	3/25/04		
Sur: Trifluorotoluene	100	70-130		%REC	1	3/25/04		

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

NEL Laboratories, Las Vegas

Date: 02-Apr-04

CLIENT: Bechtel Nevada
 Lab Order: L0403337
 Project: V2232
 Lab ID: L0403337-040

Client Sample ID: CAU 396 RB
 Collection Date: 3/23/04 11:45:00 AM

Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
TOTAL EXTRACTABLE TPH						
Diesel Range Organics (C12-C22)	ND	0.50		mg/L	1	3/29/04
Gasoline Range Organics (C8-C12)	ND	0.50		mg/L	1	3/29/04
Oil Range Organics (C22-C34)	ND	0.50		mg/L	1	3/29/04
Total Petroleum Hydrocarbons	ND	0.50		mg/L	1	3/29/04
Surr: n-Octacosane	86.0	56.6-139		%REC	1	3/29/04

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

Bechtel Nevada**ANALYTICAL LABORATORY
SERVICES REQUEST & CHAIN OF CUSTODY RECORD**Page 1 of 5

PROJECT/CLIENT INFORMATION		REPORT & TURNAROUND INFORMATION				SAMPLE INFORMATION	
Project: CAU 396	BN Org #: 502	Send Report to: Kevin Campbell		Phone: 702-295-6087	Fax: 702-295-7761	M/S: NTS 306	Sampling Site: CAU 396
Charge Number: 5H09HZ50		Turnaround: <input type="checkbox"/> Standard - 14 days (H) <input type="checkbox"/> 28 days Non-radi Env, 45 Days Rad Env, (IH)				The samples submitted are plain (check); <input checked="" type="checkbox"/> Hazardous (list): <input type="checkbox"/> Radioactive (list): <input type="checkbox"/>	
Project Manager: Jeff Smith	Phone: 702-295-7775	Fax: 702-295-7761	M/S: NTS 30	Turnaround: <input type="checkbox"/> Rush Preliminary by: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 7 <input type="checkbox"/> 14 <input type="checkbox"/> 28 (non-Rad Env) <input type="checkbox"/> 1 <input type="checkbox"/> 7 <input type="checkbox"/> 14 <input type="checkbox"/> 28 (Radiological Env)			
Samples submitted are associated with a signed Project SOW <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A							
Analyses entered here agree with the SOW <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A							
If not, identify the variation: _____							
Subcontract Lab(s) used for this work: _____							
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	EST. VOL	MD	QC
Q1	3-18-04	1300	Soil	1	250		MSD
Q2	3-18-04	1303	Soil	1	250		
Q3	3-18-04	1306	Soil	1	250		
Q4	3-18-04	1309	Soil	1	250		
Q5	3-18-04	1312	Soil	1	250		
Q6	3-18-04	1315	Soil	1	250		
Q7	3-18-04	1318	Soil	1	250		
Q8	3-18-04	1321	Soil	1	250		
Q9	3-18-04	1324	Soil	1	250		
Q10	3-18-04	1327	Soil	1	250		
CUSTODY TRANSFER							
Sampled/Relinquished (print)	Signature	Date/Time	Received by (print)	Signature Date/Time			
Reginald Asuncion		3/18/04 - 1500	Refridgerator	3/23/04			
Reginald Asuncion		3/24/04 1420	Kevin Campbell	3/24/04 1420			
Kevin Campbell	Kevin Campbell	3/24/04 1730	Kevin Campbell	3/24/04 1730			

Bechtel Nevada**ANALYTICAL LABORATORY
SERVICES REQUEST & CHAIN OF CUSTODY RECORD**

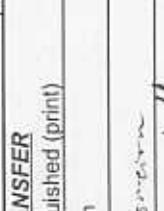
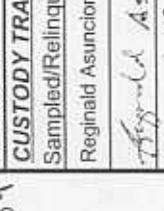
Page 2 of 5

PROJECT/CLIENT INFORMATION		REPORT & TURNAROUND INFORMATION		SAMPLE INFORMATION	
Project: CAU 396	BN Org #: 502	Send Report to: Kevin Campbell	Phone: 702-295-6087	Fax: 702-295-7761	M/S: NTS 306
Charge Number: 5H09HZ50		Turnaround: <input type="checkbox"/> Standard - 14 days IH, 28 days Non-rad Env, 45 Days Rad Env, <input type="checkbox"/> Rush Preliminary by: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 7 <input type="checkbox"/> 14 <input type="checkbox"/> 28 (non-Rad Env) <input type="checkbox"/> 1 <input type="checkbox"/> 7 <input type="checkbox"/> 14 <input type="checkbox"/> 28 (Radiological Env)		Sampling Site: CAU 396 The samples submitted <input type="checkbox"/> TPH (check) <input checked="" type="checkbox"/> Hazardous (list) - <input type="checkbox"/> Radioactive (list) - <input type="checkbox"/> Unknown contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.	
SAMPLE MANAGEMENT INFORMATION					
SDG: <input type="checkbox"/> (IH) <input type="checkbox"/> (Non-Rad Env) <input type="checkbox"/> (Rad Env)	Samples submitted are associated with a signed Project SOW <input type="checkbox"/> Yes <input type="checkbox"/> No	Analyses entered here agree with the SOW <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Pay Item, Analysis, Method		
If not, identify the variation: _____					
Subcontract Lab(s) used for this work: _____					
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	QC
11 20-25-01 TB	3-18-04	900	Water	1	40 <i>OK to clean glass, w/HNO3</i>
12 20-25-02 V1	3-22-04	1420	Soil	1	250 <i>OK to clean glass, w/HNO3</i>
13 20-25-02 V2	3-22-04	1423	Soil	1	250 <i>OK to clean glass, w/HNO3</i>
14 20-25-02 V3	3-22-04	1426	Soil	1	250 <i>OK to clean glass, w/HNO3</i>
15 20-25-03 E1 V1	3-22-04	1333	Soil	1	250 <i>OK to clean glass, w/HNO3</i>
16 20-25-03 E1 V2	3-22-04	1336	Soil	1	250 <i>OK to clean glass, w/HNO3</i>
17 20-25-03 E1 V3	3-22-04	1339	Soil	1	250 <i>OK to clean glass, w/HNO3</i>
18 20-25-03 E1 V4	3-22-04	1342	Soil	1	250 <i>OK to clean glass, w/HNO3</i>
19 20-25-03 E1 V5	3-22-04	1345	Soil	1	250 <i>OK to clean glass, w/HNO3</i>
20 20-25-03 E1 V6	3-22-04	1348	Soil	1	250 <i>OK to clean glass, w/HNO3</i>
CUSTODY TRANSFER					
Sampled/Relinquished (print)	Signature	Date/Time	Received by (print)	Signature	Date/Time
Reginald Asuncion	<i>Reginald Asuncion</i>	3/18/04 - 1500	Refridgerator	<i>Reginald Asuncion</i>	3/23/04
Kevin Campbell	<i>Kevin Campbell</i>	3/24/04 - 1420	Kevin Campbell	<i>Kevin Campbell</i>	3/24/04 1420
Mark Scully	<i>Mark Scully</i>	3/24/04 1730	Mark Scully	<i>Mark Scully</i>	3/24/04 1730

Bechtel Nevada

ANALYTICAL LABORATORY SERVICES REQUEST & CHAIN OF CUSTODY RECORD

Page 4 of 5

PROJECT/CLIENT INFORMATION		REPORT & TURNAROUND INFORMATION						SAMPLE INFORMATION					
Project: CAU 396	BN Org #: 502	Send Report to: Kevin Campbell	Fax:	M/S:	Sampling Site:	CAU 396							
Charge Number: 5H09HZ50	Phone: 702-295-7775	702-295-6087	702-295-7761	NB 306	The samples submitted are plain (check):								
Project Manager: Jeff Smith		Turnaround: <input type="checkbox"/> Standard -14 days IH, 28 days Non-rad Env, 45 Days Rad Env, <input type="checkbox"/> Rush Preliminary: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 7 <input type="checkbox"/> 14 <input type="checkbox"/> 14 <input type="checkbox"/> 28 (Radiological Env) <input type="checkbox"/> (IH)						<input checked="" type="checkbox"/> Hazardous (list): _____					
Phone: 702-295-7775 Fax: 702-295-7761		M/S: NTS 30							<input type="checkbox"/> Radioactive (list): _____				
									<input type="checkbox"/> Unknown contamination.				
									<input type="checkbox"/> If Known, identify contaminants.				
									<input type="checkbox"/> This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.				
SAMPLE MANAGEMENT INFORMATION										Pay Item, Analysis, Method			
SDC: <input type="checkbox"/> (IH) <input type="checkbox"/> (Non-Rad Env) <input type="checkbox"/> (Rad Env)	Samples submitted are associated with a signed Project SOW	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	TPH	TPH				
	Analyses entered here agree with the SOW										FULL	GAS	
	If not, identify the variation:										SCAN		
Subcontract Lab(s) used for this work:		SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	EST. VOL	MD	QC	MS	MSD	Pres - Analy eg. HCl - Vo		
31	20-25-03 E2 V7	3-23-04	1351	Soil	1	250					4 C	<input checked="" type="checkbox"/>	
32	20-25-03 E2 V8	3-23-04	1354	Soil	1	250					4 C	<input checked="" type="checkbox"/>	
33	20-25-03 E2 V9	3-23-04	1357	Soil	1	250					4 C	<input checked="" type="checkbox"/>	
34	20-25-03 E2 V10	3-23-04	0900	Soil	1	250					4 C	<input checked="" type="checkbox"/>	
35	20-25-03 E2 V11	3-23-04	1333	Soil	1	250					4 C	<input checked="" type="checkbox"/>	
36	20-25-03 E2 V12	3-23-04	1336	Soil	1	250					4 C	<input checked="" type="checkbox"/>	
37	20-25-03 E2 V13	3-23-04	1339	Soil	1	250					4 C	<input checked="" type="checkbox"/>	
38	20-25-03 E2 V14	3-23-04	1342	Soil	1	250					4 C	<input checked="" type="checkbox"/>	
39	20-25-03 E2 V15	3-23-04	1345	Water	1	40					4 C	<input checked="" type="checkbox"/>	
40	CAU 396 RB	3-23-04	1145	Water	1	40							
CUSTODY TRANSFER												Signature	
Sampled/Relinquished (print)		Signature		Date/Time		Received by (print)		Signature		Date/Time			
Reginald Asuncion				3/18/04 - 1500		Refridgerator				3/23/04			
Reginald Asuncion				3/24/04 1420		Kevin Campbell				3/24/04 1730			

NEL Laboratories, Las Vegas

Sample Receipt Checklist

Client Name	BECNEV	Date and Time Receive	3/24/04 5:30:00 PM
Work Order Number	L0403337	Received by	ARF-LV
Checklist completed by	<u>David Hunt</u>	Reviewed by	<u>PC</u>
Signature	<u>3/26/04</u>	Initials	<u>3/29/04</u>
Date		Date	
Matrix	Carrier name <u>Kevin Campbell</u>		
Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Water - VOA vials have zero headspace?	No VOA vials submitted <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Adjusted?	<u>NO</u>	Checked by	<u>JR</u>

Any No and/or NA (not applicable) response must be detailed in the comments section below

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by _____ Regarding _____

Comments: _____

Corrective Action _____

NEL LABORATORIES



Las Vegas Laboratory
4208 Arcata Way, Suite A
N. Las Vegas, NV 89030
Phone: 702.657.1010
Fax: 702.657.1577

Friday, April 09, 2004

Ted Redding
Bechtel Nevada
P.O. Box 98521, M/S NTS273
Las Vegas, NV 89193-8521

TEL: 702-295-7220
FAX: (702) 295-3069

RE Project: V2243

Order No.: L0404096

Dear Ted Redding:

NEL Laboratories, Las Vegas received 4 samples on 4/8/04 9:30:00 AM for the analyses presented in the following report.

The case narrative for the project listed above specifies all quality assurance deficiencies associated with the data. Data that is not qualified in the case narrative has met or exceeded the US-EPA or laboratory specifications for the analytical method.

If you have any questions regarding these tests results, please feel free to call.

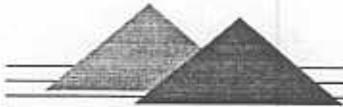
John Witherspoon
John Witherspoon
Organic Supervisor

4-9-04
Date

Certifications:

Washington	C325
Idaho	NV052
Nevada	NV052
California	2002

NEL LABORATORIES



Las Vegas Laboratory
4208 Arcata Way, Suite A
N. Las Vegas, NV 89030
Phone: 702.657.1010
Fax: 702.657.1577

CLIENT: Bechtel Nevada
Project: V2243
Lab Order: L0404096

CASE NARRATIVE

Date: 09-Apr-04

Attached are the analytical results for samples in support of the above referenced project.

The samples submitted for this project were not sampled by NEL. Should you have any questions or comments, please feel free to contact our Client Services Department.

Analytical Comments: None.

NEL Laboratories, Las Vegas

Date: 09-Apr-04

CLIENT: Bechtel Nevada
 Project: V2243

Lab Order: L0404096

Lab ID: L0404096-001 Collection Date: 4/7/04 9:55:00 AM

Client Sample ID: 20-25-01 E1 V1 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

TOTAL EXTRACTABLE TPH	SW8015M					Analyst: FAS-L
Gasoline Range Organics (C8-C12)	ND	20	mg/Kg	1	4/8/04	
Diesel Range Organics (C12-C22)	ND	20	mg/Kg	1	4/8/04	
Oil Range Organics (C22-C34)	ND	50	mg/Kg	1	4/8/04	
Total Petroleum Hydrocarbons	ND	20	mg/Kg	1	4/8/04	
Surr: n-Octacosane	62.1	34.8-139	%REC	1	4/8/04	

Lab ID: L0404096-002 Collection Date: 4/7/04 10:00:00 AM

Client Sample ID: 20-25-01 E1 V5 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

TOTAL EXTRACTABLE TPH	SW8015M					Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20	mg/Kg	1	4/8/04	
Gasoline Range Organics (C8-C12)	ND	20	mg/Kg	1	4/8/04	
Oil Range Organics (C22-C34)	ND	50	mg/Kg	1	4/8/04	
Total Petroleum Hydrocarbons	ND	20	mg/Kg	1	4/8/04	
Surr: n-Octacosane	70.1	34.8-139	%REC	1	4/8/04	

Lab ID: L0404096-003 Collection Date: 4/7/04 1:00:00 PM

Client Sample ID: 20-25-03 E1 V9 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

TOTAL EXTRACTABLE TPH	SW8015M					Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	22	mg/Kg	1	4/8/04	
Gasoline Range Organics (C8-C12)	ND	22	mg/Kg	1	4/8/04	
Oil Range Organics (C22-C34)	ND	54	mg/Kg	1	4/8/04	
Total Petroleum Hydrocarbons	ND	22	mg/Kg	1	4/8/04	
Surr: n-Octacosane	66.1	34.8-139	%REC	1	4/8/04	

Lab ID: L0404096-004 Collection Date: 4/7/04 12:30:00 PM

Client Sample ID: 20-25-03 E2 V5 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

TOTAL EXTRACTABLE TPH	SW8015M					Analyst: FAS-L
Diesel Range Organics (C12-C22)	ND	20	mg/Kg	1	4/8/04	
Gasoline Range Organics (C8-C12)	ND	20	mg/Kg	1	4/8/04	
Oil Range Organics (C22-C34)	ND	50	mg/Kg	1	4/8/04	
Total Petroleum Hydrocarbons	ND	20	mg/Kg	1	4/8/04	
Surr: n-Octacosane	74.1	34.8-139	%REC	1	4/8/04	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits

J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank E - Value above quantitation range

* - Value exceeds Maximum Contaminant Level

NEL Laboratories, Las Vegas

Sample Receipt Checklist

Client Name	BECNEV	Date and Time Receive	4/8/04 9:30:00 AM
Work Order Number	L0404096	Received by	ARF-LV
Checklist completed by	<u>SL Floyd</u>	Reviewed by	<u>TC</u>
Signature	<u>4/8/04</u>	Initials	<u>4-8-04</u>
Date		Date	
Matrix	Carrier name <u>Mike Floyd</u>		
Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Water - VOA vials have zero headspace?	No VOA vials submitted <input checked="" type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Adjusted?	<u>Y/N</u>	Checked by	<u>N/A</u>

Any No and/or NA (not applicable) response must be detailed in the comments section below

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action: _____

CAS 20-99-08, SPILL

WASTE CHARACTERIZATION RESULTS

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To: Ronald Jackson
cc: Robert Bull
FFACO File
From: Frank M. Forsgren *fmf*
Subject: CAU 396, CAS 20-99-08 Sampling Report
Date: March 20, 1998

MEMORANDUM

Corrective Action Unit (CAU) 396, Corrective Action Site (CAS) 20-99-08, Spill, is located on the northeast edge of U-20bc in Area 20 of the Nevada Test Site (NTS). Sample team visits suggest the site consists of a bermed wash down area near the crater. An area estimated to be 200 feet squared is covered with a hard, brittle, gray material which the team suggested was a cement-based hardener or epoxy.

Sample ERS00178 was collected on August 28, 1997. The sample consisted of soil and chips of the unidentified gray material. The intent of the sampling was to collect soil considered most likely to be contaminated to determine the identity of potential contaminants of concern (PCOCs). The soil samples were analyzed as total concentrations by Quanterra Environmental Services.

Review of the analytical results indicate some analyses are present at concentrations above detection limits, including:

- total Semivolatile Organic Compounds (SVOCs)
- total Polychlorinated Biphenyls (PCBs)
- total *Resource Conservation and Recovery Act* (RCRA)-8 Metals
- Radionuclides

Two PCOCs have been identified based on the comparison of the analytical results with the various regulatory guidelines, including both screening levels and action levels, as shown on Table F-1. Only those analytes which exceeded detection limits were compared to the regulatory guidelines.

Aroclor-1248 and Arsenic have been identified as PCOCs. Aroclor-1248 exceeds the U.S. (EPA) Preliminary Remediation Goal (PRG) for residential soils. Arsenic exceeds the U.S. EPA Generic Soil Screening Level (SSL) for ingestion.

IT digital photograph 209908p1 was taken of the site on September 16, 1997.

Attachments:

Attachment A - Sample Collection Log
Attachment B - Field Activities Daily Log
Attachment C - Analytical Results
Attachment D - IT Tier I and Tier II Data Verification Results
Attachment E - Radiological Data Review Results
Attachment F - Potential Contaminants of Concern and Criteria Table

CAU 396, CAS 20-99-08 Total Polychlorinated Biphenyl Analysis
(by EPA Method 8015)

03-Apr-98

SAMPLE NUMBER	SAMPLE DATE	PARAMETER	RESULT	UNITS	DETECTION LIMIT	LAB QUALIFIER	IT QUALIFIER
ERS00178	8/28/97	Aroclor-1016	33	UG/KG	33	U	
ERS00178	8/28/97	Aroclor-1221	33	UG/KG	33	U	
ERS00178	8/28/97	Aroclor-1232	33	UG/KG	33	U	
ERS00178	8/28/97	Aroclor-1242	33	UG/KG	33	U	
ERS00178	8/28/97	Aroclor-1248	99	UG/KG	33		
ERS00178	8/28/97	Aroclor-1254	33	UG/KG	33	U	
ERS00178	8/28/97	Aroclor-1260	33	UG/KG	33	U	

Bechtel Nevada

ANALYTICAL LABORATORY SERVICES REQUEST & CHAIN OF CUSTODY RECORD

PROJECT/CLIENT INFORMATION

Project: CAN 396 BN Org #: 502 Send Report to: David Nacht
 Change Number: 5409H720 Phone: 5-5577 Fax: 5-7761 M/S: 445 306
 Project Manager: Glenn Richardson Turnaround: Standard - 14 days Non-rad Env, 45 Days Rad Env, (H)
 Phone: 5-5361 Fax: 5-7761 M/S: 445 Rush Preliminary by: 1 2 7 14 28 (Radiological Env)
5-5361 7 14 28 (Radiological Env)

REPORT & TURNAROUND INFORMATION

Sampling Site: CAN 396 20-99-08
 The samples submitted contain (check):
 Hazardous (list) -
 Radioactive (list) -
 Unknown contamination.
 If known, identify contaminants.
 This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.

SAMPLE MANAGEMENT INFORMATION

SDG: (H) V2059 (Non-Rad Env) Yes No
 Samples submitted are associated with a signed Project SOW Yes No N/A
 Analyses entered here agree with the SOW
 If not, identify the variation: TCI metals analysis added
 Subcontract Lab(s) used for this work: Lionville

ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	QC			Pres - Analysis eg HCl - VOCs
					Est. Vol	MD	MS	
20-99-08-1	8-4-03	9:30	white material					X X X
20-99-08-2	8-4-03	9:40	Soil					X X X
20-99-08-3	8-4-03	10:00	white material					X X X
20-99-08-4	8-4-03	10:10	Soil					X X X
20-99-08-5	8-4-03	10:20	white material					X X X
20-99-08-6	8-4-03	10:30	Soil					X X X
20-99-08-7	8-4-03	10:40	Soil					X X X
LASI ITEM								

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	Date/Time	Received by (print)	Signature	Date/Time
David Nacht	<u>David Nacht</u>	8/18/03 10:05	CANCERWEA	<u>John Hernandez</u>	8/18/03 10:06
John Hernandez	<u>John Hernandez</u>	8/18/03 10:05	Felix Hernandez	<u>Felix Hernandez</u>	8/18/03 10:06
Tom	<u>Tom</u>	8/19/03 10:35	Factor Hernandez	<u>Factor Hernandez</u>	8/19/03 10:35

Retention Code: ENV 5-cf1

DM-0732 (04/02)
 4.80

Lionville Laboratory, Inc.

RFW Batch Number: 0308L229

Report Date: 09/15/03 08:37
PCBs by GC

Client: BECHTEL NEVADA V2059 Work Order: 60052001001 Page: 1

Sample Information	Cust ID:	20-99-08-1	20-99-08-2	20-99-08-3	20-99-08-4	20-99-08-5	20-99-08-6
RFW#:	001	002	003	004	005	006	006
Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene Decachlorobiphenyl	85 % 90 %	125 % 130 %	90 % 100 %	85 % 90 %	85 % 90 %	85 % 90 %
Aroclor-1016		39 U	35 U	39 U	34 U	39 U	35 U
Aroclor-1221		39 U	35 U	39 U	34 U	39 U	35 U
Aroclor-1232		39 U	35 U	39 U	34 U	39 U	35 U
Aroclor-1242		39 U	35 U	39 U	34 U	39 U	35 U
Aroclor-1248		39 U	35 U	39 U	34 U	39 U	35 U
Aroclor-1254		39 U	35 U	39 U	34 U	39 U	35 U
Aroclor-1260		39 U	35 U	39 U	34 U	39 U	35 U

Sample Information	Cust ID:	20-99-08-6	20-99-08-7	PBLKCV	PBLKCV BS
RFW#:	006 MS	006 MSD	007	03LE1015-MB1	03LE1015-MB1
Matrix:	SOLID	SOLID	SOLID	SOIL	SOIL
D.F.:	1.00	1.00	1.00	1.00	1.00
Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene Decachlorobiphenyl	155 % 160 %	75 % 80 %	80 % 85 %	115 % 120 %
Aroclor-1016		121 %	71 %	35 U	33 U
Aroclor-1221		35 U	35 U	35 U	33 U
Aroclor-1232		35 U	35 U	35 U	33 U
Aroclor-1242		35 U	35 U	35 U	33 U
Aroclor-1248		35 U	35 U	35 U	33 U
Aroclor-1254		35 U	35 U	35 U	33 U
Aroclor-1260		136 %	73 %	35 U	33 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported.
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. MS= Not spiked.
 *= Outside of EPA CLP QC

100% | 100%

APPENDIX E
WASTE DISPOSITION DOCUMENTATION

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SWO USE (Circle One Area) AREA

23

6

9

LANDFILL

For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.

REQUIRED: WASTE GENERATOR INFORMATION

(This form is for roll-offs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Ricardo AsuncionLocation / Origin: CA1 3961 NTS 20-25-01 Phone Number: 5-5412

Waste Category: (check one)

 Commercial Industrial

Waste Type:

 NTS

(check one)

 Non-Putrescible Putrescible FFACCO-onsite WAC Exception Asbestos Containing Material FFACCO-offsite Historic DOE/NV

Pollution Prevention Category: (check one)

 Environmental management Defense Projects YMP

Pollution Prevention Category: (check one)

 Clean-Up Routine

Method of Characterization: (check one)

 Sampling & Analysis Process Knowledge Contents

Prohibited Waste at all three NTS landfills: Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels; and Medical wastes (needles, sharps, bloody clothing).

Additional Prohibited Waste Sewage Sludge; Animal carcasses; Wet garbage (food waste); and Friable asbestos at the Area 9 U10c Landfill:

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

NOTE: Waste disposed at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulic; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.

Acceptable waste at any NTS landfill:

 Paper Rocks / unaltered geologic materials Empty containers Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)Additional waste accepted at the Area 23 Mercury Landfill: Office waste Food Waste Animal Carcasses Asbestos: Friable Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

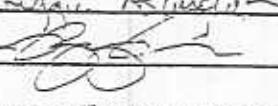
 Non-friable asbestos Drained automobiles and military vehicles Solid fractions from sand/oil/water separators Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Hydrocarbons (contact SWO) Other TanksAdditional waste accepted at the Area 6 Hydrocarbon Landfill: Other _____ Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-ferne plated oil filters Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: RJ (If initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management Area (CWMA) and to the best of my knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those site. I have verified this through the waste characterization method identified prohibited and allowable waste items.

Print Name: Ricardo AsuncionSignature: Date: 3/16/04

Note: Food waste, office trash and/or animal carcasses are considered not to contain a radiological clearance.

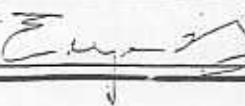
Radiation Survey Release for Waste Disposal

RCT Initials

 This container/load is free of external radioactive contamination. This container/load is exempt from survey due to process knowledge and origin. This container/load is free of radioactive contamination based on radioanalysis.SIGNATURE: Ricardo Asuncion DATE 3/16/04

BN-0548 (02/03)

SWO USE ONLY

Load Weight (net from scale or estimate): 3,500Signature of Certifier: 

Bechtel Nevada**NTS Landfill Load Verification**

(Waste definitions are available on page 2)

SWO USE (Circle One Area) AREA

23

8-6

9

LANDFILL

For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7892.

REQUIRED: WASTE GENERATOR INFORMATIONWaste Generator: Rigali Asuncion (BN ER)Phone Number: 5-5419Location / Origin: CAV 394 CAS 20-25-03

Waste Category: (check one)

 Commercial IndustrialWaste Type:
(check one) NTS Putrescible FFACO-onsite WAC Exemption Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NV

Pollution Prevention Category: (check one)

 Environmental management Defense Projects YMP

Pollution Prevention Category: (check one)

 Clean-Up Routine

Method of Characterization: (check one)

 Sampling & Analysis Process Knowledge ContentsProhibited Waste
at all three NTS landfills: Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels-, and Medical wastes (needles, sharps, bloody clothing).Additional Prohibited Waste
at the Area 9 U10c Landfill: Sewage Sludge; Animal carcasses-, Wet garbage (food waste); and Friable asbestos**REQUIRED: WASTE CONTENTS ALLOWABLE WASTES**

Check all allowable wastes that are contained within this load:

NOTE: Waste disposed at the Area 5 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.

Acceptable waste at any NTS landfill:

 Paper Rocks / unaltered geologic materials Empty containers Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)Additional waste accepted at the Area 23 Mercury Landfill: Office waste Food Waste Animal Carcasses
 Asbestos: Friable Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

 Non-friable asbestos Drained automobiles and military vehicles Solid fractions from sand/oil/water separators
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground
 Hydrocarbons (contact SWO) Other Tanks

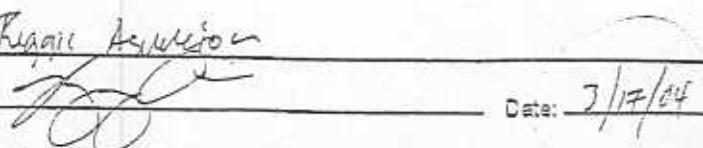
Additional waste accepted at the Area 6 Hydrocarbon Landfill:

 Septic sludge Rags Drained fuel filters (gas & diesel) Other _____
 Plants Soil Sludge from sand/oil/water separators Crushed non-ferrous plated oil filters
 PCBs below 50 parts per million**REQUIRED: WASTE GENERATOR SIGNATURE**Initials: RA

(If initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management Area (CWMA) and to the best of my knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those materials. I have verified this through the waste characterization method identified at prohibited and allowable waste items.

Print Name: Rigali AsuncionSignature: Date: 3/17/07

Note: Food waste, office trash and/or animal carcasses are considered not to contain radiological clearance.

**Radiation Survey Release for Waste Disposal
RCT Initials** This container/load is free of external radioactive contamination. This container/load is exempt from survey due to process knowledge and origin. This container/load is free of radioactive contamination based on radioanalysis.SIGNATURE: Ron Salvato DATE: 3-17-07 BN-0446 (05/95)**SWO USE ONLY**Load Weight (net from scale or estimate): 38260Signature of Certifier: 

Bechtel Nevada**NTS Landfill Load Verification**

(Waste definitions are available on page 2)

SWO USE (Circle One Area) AREA

23

6

9

LANDFILL

For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.

REQUIRED: WASTE GENERATOR INFORMATIONWaste Generator: Bechtel Nevada

(This form is for roll-offs, dump trucks, and other onsite disposal of materials.)

Location / Origin: 1000 3rdCAS 10-35-01Phone Number: 5-7419

Waste Category: (check one)

 Commercial Industrial

Waste Type: (check one)

 NTS Putrescible FFACO-onsite WAC Exception Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NV

Pollution Prevention Category: (check one)

 Environmental management Defense Projects YMP

Pollution Prevention Category: (check one)

 Clean-Up Routine

Method of Characterization: (check one)

 Sampling & Analysis Process Knowledge Contents

Prohibited Waste at all three NTS landfills: Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels; and Medical wastes (needles, sharps, bloody clothing).

Additional Prohibited Waste at the Area 9 U10c Landfill: Sewage Sludge; Animal carcasses; Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES
Check all allowable wastes that are contained within this load:

NOTE: Waste disposed at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.

Acceptable waste at any NTS landfill:

 Paper Rocks / unaltered geologic materials Empty containers Metal Wood Soil Rubber (excluding tires) Demolition debris Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)Additional waste accepted at the Area 23 Mercury Landfill: Office waste Food Waste Animal Carcasses Asbestos: Friable Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

 Non-friable asbestos Drained automobiles and military vehicles Solid fractions from sand/oil/water separators Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Hydrocarbons (contact SWO) Other Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

 Septic sludge Rags Drained fuel filters (gas & diesel) Other Plants Soil Sludge from sand/oil/water separators Crushed non-ferrous plated oil filters PCBs below 50 parts per million**REQUIRED: WASTE GENERATOR SIGNATURE**Initials: RA (If initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management Area (CWMA) and to the best of my knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those materials I have verified this through the waste characterization method (identified above) prohibited and allowable waste items.

Print Name: Ronnie AguilarSignature: SGADate: 3/18/04**Radiation Survey Release for Waste Disposal
RCT Initials** This container/load is free of external radioactive contamination. This container/load is exempt from survey due to process knowledge and origin. This container/load is free of radioactive contamination based on radioassay results.SIGNATURE: John D. Taylor DATE: 3/18/04 BN-05414(0553)

Note: Food waste, office trash and/or animal carcasses are considered not to contain actual radioactivity, and therefore do not require a radiological clearance.

SWO USE ONLYLoad Weight (net from scale or estimate): 41.362Signature of Certifier: John D. Taylor

Bechtel Nevada**NTS Landfill Load Verification**

(Waste definitions are available on page 2)

SWO USE (Circle One Area) AREA

23

6

9

LANDFILL

For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.

REQUIRED: WASTE GENERATOR INFORMATIONWaste Generator: *Ramona Asuncion* (This form is for rolloffs, dump trucks, and other onsite disposal of materials.)Phone Number: *(702) 229-5427*Location / Origin: *NTS 23 25-C3*

Waste Category: (check one)

 Commercial Industrial*AS*

Waste Type: (check one)

 NTS Putrescible FFACO-onsite WAC Exception Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NV

Pollution Prevention Category: (check one)

 Environmental management Defense Projects YMP

Pollution Prevention Category: (check one)

 Clean-Up Routine

Method of Characterization: (check one)

 Sampling & Analysis Process Knowledge ContentsProhibited Waste
at all three NTS landfills:

Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels-, and Medical wastes (needles, sharps, bloody clothing).

Additional Prohibited Waste
at the Area 9 U10c Landfill: Sewage Sludge; Animal carcasses-; Wet garbage (food waste); and Friable asbestos**REQUIRED: WASTE CONTENTS ALLOWABLE WASTES**

Check all allowable wastes that are contained within this load:

NOTE: Waste disposed at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.

Acceptable waste at any NTS landfill:

 Paper Rocks / unaltered geologic materials Empty containers Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)Additional waste accepted at the Area 23 Mercury Landfill: Office waste Food Waste Animal Carcasses Asbestos: Friable Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

 Non-friable asbestos Drained automobiles and military vehicles Solid fractions from sand/oil/water separators Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Hydrocarbons (contact SWO) Other _____ Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

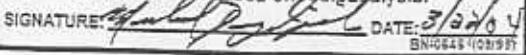
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-terne plated oil filters Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million**REQUIRED: WASTE GENERATOR SIGNATURE**Initials: *RR* (If initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management Area (CWMA) and to the best of my knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those site. I have verified this through the waste characterization method identified prohibited and allowable waste items.

Print Name: *Ramona Asuncion*Signature: Date: *3/27/01*

Note: Food waste, office trash and/or animal carcasses are considered not to contain radiological clearance.

**Radiation Survey Release for Waste Disposal
RCT Initials** This container/load is free of external radioactive contamination. This container/load is exempt from survey due to process knowledge and origin. This container/load is free of radioactive contamination based on radiogamma analysis.SIGNATURE:  DATE: *3/27/01*
BN-00484 (04/97)**SWO USE ONLY**Load Weight (net from scale or estimate): *50432*Signature of Certifier: 

SWO USE (Circle One Area) AREA

23

6

9

LANDFILL

For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.

REQUIRED: WASTE GENERATOR INFORMATION

Waste Generator: Reagie Asuncion (This form is for roll-offs, dump trucks, and other onsite disposal of materials.)Phone Number: 5-5719Location / Origin: NTS 2010: Area 20 Spill Sites CAS 10-25-01 : (AS 20-25-03)Waste Category: (check one) Commercial IndustrialWaste Type: (check one) NTS Putrescible FFACO-onsite WAC Exception
 Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NVPollution Prevention Category: (check one) Environmental management Defense Projects YMPPollution Prevention Category: (check one) Clean-Up RoutineMethod of Characterization: (check one) Sampling & Analysis Process Knowledge Contents

Prohibited Waste at all three NTS landfills: Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).

Additional Prohibited Waste at the Area 9 U10c Landfill: Sewage Sludge; Animal carcasses; Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

Gaseous (NG, benzene, (gas), jet fuel, diesel fuel, lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol).

Acceptable waste at any NTS landfill: Paper Rocks / unaltered geologic materials Empty containers
 Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris
 Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete
 Manufactured Items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)Additional waste accepted at the Area 9 U10c Landfill: Office waste Food waste Animal carcasses Asbestos: Friable Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

 Non-friable asbestos Drained automobiles and military vehicles Solid fractions from sand/oil/water separators
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground
 Hydrocarbons (contact SWO) Other Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

 Septic sludge Rags Drained fuel filters (gas & diesel) Other _____
 Plants Soil Sludge from sand/oil/water separators Crushed non-ferne plated oil filters
 PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: R.A. (If initiated, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management Area (CWMA) and to the best of my knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those site, I have verified this through the waste characterization method identified prohibited and allowable waste items.

Print Name: Reagie AsuncionSignature: [Signature]Date: 4/15/04

RCT Initials

This container/load is free of external radioactive contamination.

This container/load is exempt from survey due to process knowledge and origin.

This container/load is free of radioactive contamination based on radioanalysis.

SIGNATURE: [Signature] DATE: 4/15/04

Note: Food waste, office trash and/or animal carcasses are considered not to contain added radioactivity, and therefore do not require a radiological clearance.

SWO USE ONLY

Load Weight (net from scale or estimate): 5,000Signature of Certifier: W. Lawrence

Bechtel Nevada**NTS Landfill Load Verification**

(Waste definitions are available on page 2)

SWO USE (Circle One Area) AREA**23****6****9****LANDFILL**

For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7899.

REQUIRED: WASTE GENERATOR INFORMATIONWaste Generator: Reginald A. AsuncionLocation / Origin: AV 396CAS 2D-25-03Phone Number: 5-5410

Waste Category: (check one)

 Commercial Industrial

Waste Type:

 NTS Putrescible FFACO-onsite WAC Exception

(check one)

 Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NV

Pollution Prevention Category: (check one)

 Environmental management Defense Projects YMP

Pollution Prevention Category: (check one)

 Clean-Up Routine

Method of Characterization: (check one)

 Sampling & Analysis Process Knowledge Contents

Prohibited Waste

at all three NTS landfills: Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).

Additional Prohibited Waste: Sewage Sludge; Animal carcasses; Wet garbage (food waste); and Friable asbestos at the Area 9 U10c Landfill:

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

NOTE: Waste disposed at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.

Acceptable waste at any NTS landfill:

 Paper Rocks / unaltered geologic materials Empty containers Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)Additional waste accepted at the Area 23 Mercury Landfill: Office waste Food Waste Animal Carcasses Asbestos; Friable Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

 Non-friable asbestos Drained automobiles and military vehicles Solid fractions from sand/oil/water separators Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Hydrocarbons (contact SWO) Other Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

 Septic sludge Rags Drained fuel filters (gas & diesel) Other Plants Soil Sludge from sand/oil/water separators Crushed non-ferme plated oil filters PCBs below 50 parts per million**REQUIRED: WASTE GENERATOR SIGNATURE**Initials: RA (If initiated, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management Area (CWMA) and to the best of my knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those prohibited and allowable waste items.

Print Name: Reginald A. AsuncionSignature: RADate: 4/19/04

Note: Food waste, office trash and/or animal carcasses are considered not to contain radioactive materials, and therefore do not require a radiological clearance.

SWO USE ONLYLoad Weight (net from scale or estimate): 5.5 Tons Signature of Certifier: DL Gold

Radiation Survey Release for Waste Disposal	
RCT Initials	
<input type="checkbox"/>	This container/load is free of external radioactive contamination.
<input checked="" type="checkbox"/>	This container/load is exempt from survey due to process knowledge and origin.
<input type="checkbox"/>	This container/load is free of radioactive contamination based on radiodetection.
SIGNATURE: <u>Reginald A. Asuncion</u> DATE: <u>4/19/04</u>	
BN-0446 (08/99)	

APPENDIX F

MODIFICATIONS*

*Appendix F of the standardized outline for a Federal Facility Agreement and Consent Order Closure Report, Modifications, is not required for CAU 396. This appendix is not applicable to CAU 396: Area 20 Spill Sites.

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APPENDIX G
PHOTOGRAPHS OF CLOSURE ACTIVITIES

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PHOTOGRAPHIC LOG

PHOTOGRAPH NUMBER	DATE	DESCRIPTION
1	4/15/2004	CAS 20-25-01 Excavation #2 facing south.
2	4/15/2004	CAS 20-25-01 Excavation #2 facing east.
3	4/15/2004	CAS 20-25-01 Excavation #2 facing west.
4	4/15/2004	CAS 20-25-01 Excavation #2 facing south (backfilled).
5	4/15/2004	CAS 20-25-01 Excavation #2 facing east (backfilled).
6	4/15/2004	CAS 20-25-01 Excavation #2 facing west (backfilled).
7	4/15/2004	CAS 20-25-01 Excavation #1 facing south.
8	4/15/2004	CAS 20-25-01 Excavation #1 facing east.
9	4/15/2004	CAS 20-25-01 Excavation #1 facing west.
10	4/15/2004	CAS 20-25-01 Excavation #1 facing south (backfilled).
11	4/15/2004	CAS 20-25-01 Excavation #1 facing southwest (backfilled).
12	4/15/2004	CAS 20-25-01 Excavation #1 facing west (backfilled).
13	4/15/2004	CAS 20-25-01 Entire site facing Southwest.
14	5/13/2004	CAS 20-25-02 facing west.
15	5/13/2004	CAS 20-25-02 facing north.
16	5/13/2004	CAS 20-25-02 facing east.
17	5/13/2004	CAS 20-25-02 facing south.
18	5/13/2004	CAS 20-25-02 Entire site facing west.
19	4/15/2004	CAS 20-25-03 Excavation #2 facing east.
20	4/15/2004	CAS 20-25-03 Excavation #2 facing south.
21	4/15/2004	CAS 20-25-03 Excavation #2 facing west.
22	4/15/2004	CAS 20-25-03 Excavation #2 facing north.
23	4/15/2004	CAS 20-25-03 Excavation #2 facing east (backfilled).
24	4/15/2004	CAS 20-25-03 Excavation #2 facing north (backfilled).
25	4/15/2004	CAS 20-25-03 Excavation #2 facing south (backfilled).
26	4/15/2004	CAS 20-25-03 Excavation #2 facing west (backfilled).
27	4/19/2004	CAS 20-25-03 Excavation #1 facing west.

PHOTOGRAPHIC LOG (CONT.)

PHOTOGRAPH NUMBER	DATE	DESCRIPTION
28	4/19/2004	CAS 20-25-03 Excavation #1 bottom.
29	4/19/2004	CAS 20-25-03 Excavation #1 breaking bottom rock layer w/ hoe-ram.
30	4/19/2004	CAS 20-25-03 Excavation #1 breaking bottom rock layer w/ hoe-ram (2).
31	4/19/2004	CAS 20-25-03 Excavation #1 breaking bottom rock layer w/ hoe-ram (3).
32	4/19//2004	CAS 20-25-03 Excavation #1 facing north after hoe-ram activities.
33	4/19/2004	CAS 20-25-03 Excavation #1 bottom after hoe-ram activities.
34	4/19/2004	CAS 20-25-03 Excavation #1 facing south (backfilled).
35	4/19/2004	CAS 20-25-03 Excavation #1 facing north (backfilled).
36	4/15/2004	CAS 20-25-03 Excavation #2 facing east (backfilled).



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04 15 2004

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05 13 2004

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05-13-2004

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05-13-2004

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Manager, Northern Nevada FFACO
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