

Nevada
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DOE/NV--1215



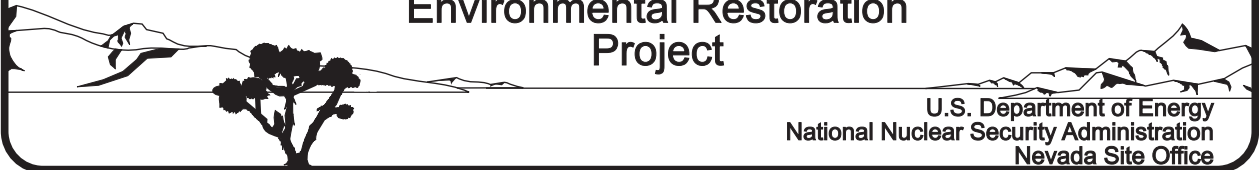
Closure Report for
Corrective Action Unit 536:
Area 3 Release Site
Nevada Test Site, Nevada

Controlled Copy No.: _____

Revision: 0

July 2007

Environmental Restoration
Project



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

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**CLOSURE REPORT
FOR CORRECTIVE ACTION UNIT 536:
AREA 3 RELEASE SITE
NEVADA TEST SITE, NEVADA**

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

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**CLOSURE REPORT
FOR CORRECTIVE ACTION UNIT 536:
AREA 3 RELEASE SITE
NEVADA TEST SITE, NEVADA**

Approved By: SIGNATURE APPROVED Date: 07/16/2007

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
BMP	best management practice
CADD	Corrective Action Decision Document
CAIP	Corrective Action Investigation Plan
CAP	Corrective Action Plan
CAS	Corrective Action Site
CAU	Corrective Action Unit
COC	contaminant of concern
CR	Closure Report
DOE	U.S. Department of Energy
DQO	data quality objective
FFACO	<i>Federal Facility Agreement and Consent Order</i>
ft	foot (feet)
gal	gallon(s)
LLW	low-level waste
NDEP	Nevada Division of Environmental Protection
NEPA	<i>National Environmental Policy Act</i>
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
NSTec	National Security Technologies, LLC
NTS	Nevada Test Site
PAH	polyaromatic hydrocarbons
pCi/g	picocurie(s) per gram
Pu	plutonium
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RWMC	Radioactive Waste Management Complex
TPH	total petroleum hydrocarbons

ACRONYMS AND ABBREVIATIONS (continued)

yd³ cubic yard(s)

EXECUTIVE SUMMARY

Corrective Action Unit (CAU) 536 is located in Area 3 of the Nevada Test Site. CAU 536 is listed in the *Federal Facility Agreement and Consent Order* of 1996 as Area 3 Release Site, and comprises a single Corrective Action Site (CAS):

- CAS 03-44-02, Steam Jenny Discharge

The Nevada Division of Environmental Protection (NDEP)-approved corrective action alternative for CAS 03-44-02 is clean closure. Closure activities included removing and disposing of total petroleum hydrocarbon (TPH)- and polyaromatic hydrocarbon (PAH)-impacted soil, soil impacted with plutonium (Pu)-239, and concrete pad debris.

CAU 536 was closed in accordance with the NDEP-approved CAU 536 Corrective Action Plan (CAP), with minor deviations as approved by NDEP. The closure activities specified in the CAP were based on the recommendations presented in the CAU 536 Corrective Action Decision Document (U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2004). This Closure Report documents CAU 536 closure activities.

During closure activities, approximately 1,000 cubic yards (yd³) of hydrocarbon waste in the form of TPH- and PAH-impacted soil and debris, approximately 8 yd³ of Pu-239-impacted soil, and approximately 100 yd³ of concrete debris were generated, managed, and disposed of appropriately. Additionally, a previously uncharacterized, buried drum was excavated, removed, and disposed of as hydrocarbon waste as a best management practice. Waste minimization techniques, such as the utilization of laboratory analysis to characterize and classify waste streams, were employed during the performance of closure work.

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1.0 INTRODUCTION

Corrective Action Unit (CAU) 536 is listed in Appendix III of the *Federal Facility Agreement and Consent Order* (FFACO), an agreement between the State of Nevada; the U. S. Department of Energy (DOE), Environmental Management; the U. S. Department of Defense; and DOE, Legacy Management, as Area 3 Release Site (FFACO, 1996; as amended August 2006). CAU 536 consists of a single Corrective Action Site (CAS) located in Areas 3 of the Nevada Test Site (NTS), which is located approximately 65 miles northwest of Las Vegas, Nevada. Figure 1 depicts the approximate CAS location within the NTS. Specifically, CAU 536 includes:

- CAS 03-44-02, Steam Jenny Discharge

The site reportedly included soils that exceeded clean-up criteria for total petroleum hydrocarbons (TPH), polyaromatic hydrocarbons (PAH), and plutonium (Pu)-239. Historical details of the CAS are provided in the CAU 536 Corrective Action Investigation Plan (CAIP) (U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office [NNSA/NSO], 2003) and the CAU 536 Corrective Action Decision Document (CADD) (NNSA/NSO, 2004).

The corrective actions described in the CAU 536 Corrective Action Plan (CAP) (NNSA/NSO, 2005) were implemented in January and February 2007. This Closure Report (CR) has been prepared for CAU 536 in accordance with the FFACO and the Nevada Division of Environmental Protection (NDEP)-approved CAP.

1.1 PURPOSE

The purpose of this CR is to document that the closure of CAU 536 complied with the NDEP-approved CAP closure requirements (NNSA/NSO, 2005). The closure activities specified in the CAP were based on the approved corrective action alternative presented in the CAU 536 CADD (NNSA/NSO, 2004).

1.2 SCOPE

The approved closure strategy for CAU 536 was specified in the CAU 536 CADD (NNSA/NSO, 2004). The approved closure alternative for CAS 03-44-02 was clean closure. The strategy for implementing this closure was presented in the CAU 536 CAP (NNSA/NSO, 2005).

Closure activities included:

- Removing and disposing of TPH-, PAH-, and Pu-239-impacted soil
- Breaking up adjacent concrete pads and disposing of the debris as sanitary waste
- Characterizing, excavating, and removing a rock-filled 55-gallon (gal) drum discovered during fieldwork as a best management practice (BMP)
- Collecting verification samples to verify clean-up criteria
- Backfilling and grading excavations to surrounding topographic contours

Detailed site-specific closure activities are presented in Section 2.0 of this report.

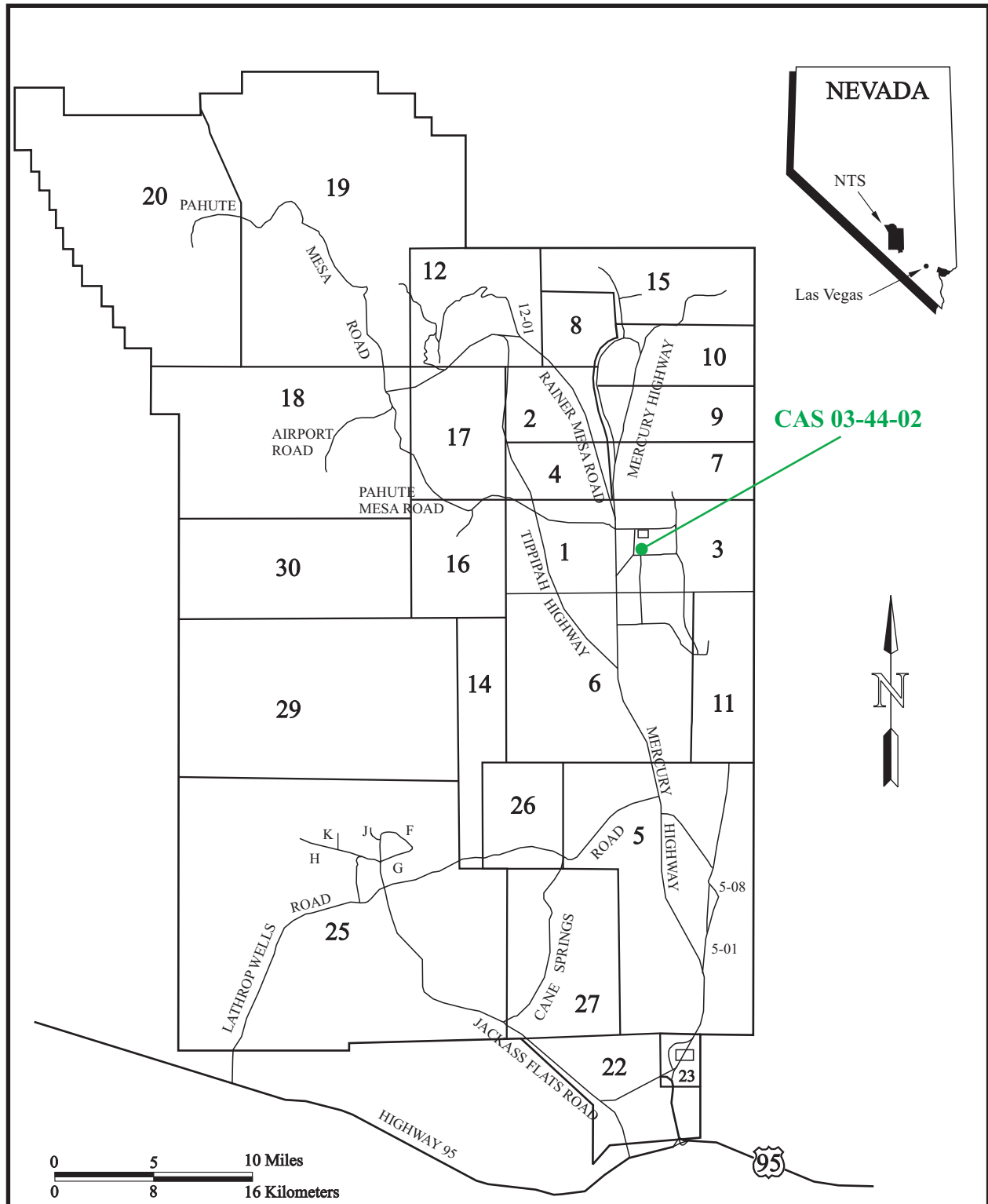


FIGURE 1
CAU 536 SITE LOCATION MAP

Data quality objectives (DQOs) were developed for the CAU 536 site characterization (NNSA/NSO, 2003) and are included in Appendix A of this report. Site closure was verified through inspections, sampling, observations, and documentation of waste disposal.

1.3 CLOSURE REPORT CONTENTS

This CR includes the following sections:

- Section 1.0, “Introduction,” presents the purpose, general scope, and an overview of report contents.
- Section 2.0, “Closure Activities,” describes the corrective actions completed, any deviations from the CAP, and the general closure schedule.
- Section 3.0, “Waste Disposition,” describes the wastes generated and documents waste disposition.
- Section 4.0, “Closure Verification Results,” describes the testing, inspections, and other measures used to confirm the completion of the corrective actions and the quality of results.
- Section 5.0, “Conclusions and Recommendations,” describes the results, completion of implementation of the CAP, and the post-closure monitoring requirements.
- Section 6.0, “References,” lists the supporting documents.

The appendices include relevant supporting documents:

- Appendix A, “Data Quality Objectives,” presents the DQOs developed in the CAU 536 CAIP (NNSA/NSO, 2003).
- Appendix B, “Analytical Results,” presents the summary analytical results for the soil verification samples collected at CAS 03-44-02.
- Appendix C, “Waste Disposition Documentation,” contains copies of the load verification forms and recycling forms.
- Appendix D, “Field Photographs,” contains photographs of the CAS taken prior to, during, and after closure activities.
- Appendix E, “*National Environmental Policy Act (NEPA) Environmental Evaluation Checklist*,” includes the checklist evaluating the environmental impact of site closure activities.
- Appendix F, “Nevada Division of Environmental Protection Comment Responses,” contains the Nevada Environmental Restoration Project document review sheet, which documents comment feedback and comment resolution as part of the draft document review process.

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2.0 CLOSURE ACTIVITIES

This section of the CR details the specific activities involved in the closure of CAU 536.

2.1 DESCRIPTION OF CORRECTIVE ACTION ACTIVITIES

Closure of CAU 536 was completed by the National Security Technologies, LLC (NSTec), Environmental Restoration Project using the approved CAP for CAU 536 (NNSA/NSO, 2005) in combination with deviations from the CAP as approved by NDEP. The CAP was based on the recommendations presented in the CAU 536 CADD (NNSA/NSO, 2004).

Prior to beginning closure activities, the following pre-field activities were completed:

- Preparation of a NEPA Checklist
- Preparation of a Field Management Plan for CAU 536 (NSTec, 2006a)
- Preparation of a Site-Specific Health and Safety Plan for closure activities at CAU 536 (NSTec, 2006b)
- Preparation of the work packages to control work
- Preparation of a Real Estate/Operations Permit to authorize the work
- Performance of utility surveys to ensure that all fieldwork would be conducted safely and without disruption of NTS infrastructure

Closure activities began on January 8, 2007, and were completed on February 6, 2007. The following sections detail the closure activities implemented for CAU 536.

2.1.1 CAS 03-44-02, Steam Jenny Discharge

Figure 2 shows the site plan for CAS 03-44-02, which was located approximately 220 feet (ft) north of the former magnetite storage hopper in the former Area 3 Camp near the eastern edge of Yucca Flat and was used for steam cleaning operations. The site included multiple areas of impacted soil; a 70- by 40-ft concrete pad; a sump located on the eastern side of the main pad; a smaller concrete pad adjacent to the western side of the larger pad; and a drainage ditch running along the southern edge of the CAS footprint, which led from the southeastern corner of the pad to the U3du crater approximately 500 ft to the east.

Results of the site characterization reported TPH, PAH, and Pu-239 as the contaminants of concern (COCs) at the CAU 536 site, which were present in the soil in adjacent and overlapping areas (NNSA/NSO, 2004). However, site information and process knowledge obtained during the performance of fieldwork indicated the source of TPH and PAH contamination to be asphalt present throughout the site to a depth of 3 ft below ground surface (bgs). Based on this information, it was recommended that the top 12 inches of surface material be excavated and disposed of at the Area 6 Hydrocarbon landfill, that no field screening for TPH or PAH be performed, and that the area be brought to grade using NTS native fill.

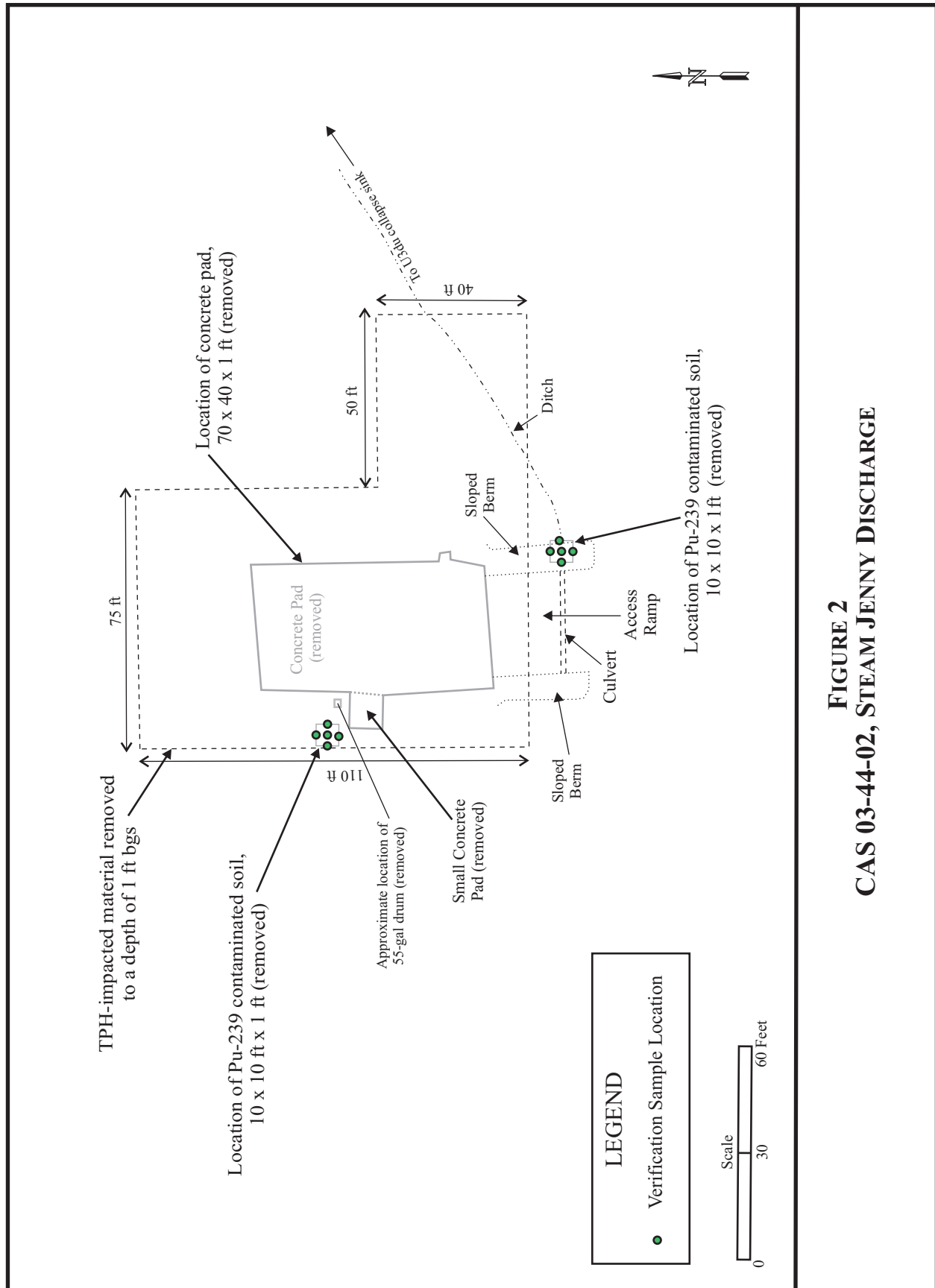


FIGURE 2
CAS 03-44-02, STEAM JENNY DISCHARGE

The CAS was clean closed by excavating, removing, and appropriately disposing of separate portions of TPH, PAH, and Pu-239-impacted soil, and by demolishing and disposing of the concrete pad. Initially, two areas of Pu-impacted soil amounting to approximately 16 cubic yards (yd³) were removed and disposed of at the NTS Area 5 Radioactive Waste Management Complex (RWMC). Five verification samples were collected from each excavation and submitted for laboratory analysis for Pu. Subsequently, the larger and smaller concrete pads were demolished and disposed of as approximately 275 yd³ of sanitary waste at the NTS Area 9 U10c Sanitary Landfill. Lastly, and in accordance with recommendations approved by NDEP, the uppermost 12 inches of surface material was removed from the site footprint and disposed of as approximately 400 yd³ of hydrocarbon waste at the Area 6 Hydrocarbon Landfill. As a BMP, a rock-filled 55-gal drum unearthed during the excavation was removed and disposed of at the Area 6 Hydrocarbon Landfill as hydrocarbon waste. Upon the receipt of verification sample analytical results for Pu that were below action levels (see Section 4.0), all excavations were backfilled with native material from an approved borrow source and graded to the approximate surrounding topographic contours.

2.2 DEVIATIONS FROM CORRECTIVE ACTION PLAN AS APPROVED

Site information and process knowledge obtained during the performance of fieldwork at CAU 536 indicated TPH and PAH contamination to be due to the presence of asphalt throughout the site to a depth of 3 ft bgs, suggesting that TPH and PAH were incorrectly identified as COCs in the CAP. Based on this information, and with NDEP approval, the uppermost 12 inches of surface material was removed from the site footprint and disposed of at the Area 6 Hydrocarbon Landfill, and clean fill was then used to grade the footprint to surrounding topographic contours. With TPH and PAH contamination being a result of pervasive asphalt and thereby invalidated as COCs, deeper excavations to remediate TPH and PAH contamination were not performed, and verification sampling for TPH and PAH contamination was no longer required.

Additionally, a previously unidentified 55-gal drum was uncovered during excavation activities at CAS 03-44-02. Deviations from the approved CAP performed during the implementation of the CAU 536 CAP include the excavation and disposal of the drum and drum contents as a BMP.

No other deviations from the approved CAP were necessary during field activities.

2.3 CORRECTIVE ACTION SCHEDULE AS COMPLETED

The completed closure field activities schedule is presented in Table 1.

TABLE 1. CAU 536 CLOSURE SCHEDULE

SITE	DATE CORRECTIVE ACTIONS COMPLETED*
CAS 03-44-02	February 6, 2007
Notes: * Corrective action activities do not include post-closure photo documentation site visits. Post-closure site visits were completed February 8, 2007.	

2.4 SITE PLAN / SURVEY PLAT

No engineering “as-built” drawings were required for closure activities conducted at CAU 536.

3.0 WASTE DISPOSITION

Waste generated during CAU 536 closure activities included hydrocarbon waste, low-level waste (LLW), and sanitary waste/construction debris. All waste was managed according to federal and state regulations, DOE orders, and NSTec procedures. Some waste required sampling to verify the appropriate waste disposition. Waste was containerized, as needed, for proper disposal in an approved landfill. Table 2 summarizes disposition of each waste stream. Waste disposition documentation is included in Appendix C of this report.

TABLE 2. DISPOSITION OF WASTE

CAS	MATERIAL	VOLUME ESTIMATE	DISPOSITION
03-44-02	TPH-impacted soil/debris	400 yd ³	NTS Area 6 Hydrocarbon Landfill
	Miscellaneous sanitary waste/ concrete debris	275 yd ³	NTS Area 9 U10c Sanitary Landfill
	Pu-impacted soil	16 yd ³	NTS Area 5 RWMC

3.1 WASTE MINIMIZATION

Industry standard waste minimization practices were applied throughout the course of field activities. These practices included using laboratory analysis to characterize and classify waste streams.

3.2 HYDROCARBON WASTE

Approximately 400 yd³ of TPH-impacted soil were excavated and removed from CAU 536 CAS 03-44-02, which were disposed of at the Area 6 Hydrocarbon Landfill. Waste disposal documentation is included in Appendix C of this report. Additionally, a rock-filled drum located 6 inches beneath the soil surface was unearthed during the excavation of TPH-impacted soil and, with NDEP approval, was disposed of with the hydrocarbon waste stream as a BMP.

3.3 LOW-LEVEL RADIOACTIVE WASTE

Approximately 16 yd³ of LLW in the form of Pu-239-impacted soil were excavated and removed from two separate areas at CAS 03-44-02, which were disposed of at the NTS Area 5 RWMC. Waste disposal documentation is included in Appendix C of this report.

3.4 SANITARY WASTE

Approximately 275 yd³ of sanitary waste, such as sanitary trash, personal protective equipment, and concrete construction debris, was disposed of at the Area 9 U10c Sanitary Landfill. Waste disposal documentation is included in Appendix C of this report.

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4.0 CLOSURE VERIFICATION RESULTS

Site closure was verified by the collection and analysis of verification samples, photographic documentation, and visual inspections.

At CAS 03-44-02, ten verification samples and one blind duplicate sample were collected from the bottom and base of the sidewalls of the southern and western excavations (see Figure 2). Samples were collected on January 11, 2007, and were analyzed for isotopic Pu. Results were below action levels, verifying that the site was clean closed.

All samples were handled according to the Industrial Sites Quality Assurance Project Plan (QAPP) (U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office [NNSA/NV, 2002]). The samples were shipped under chain of custody to an approved offsite laboratory for analysis of isotopic Pu. Table 3 and Appendix B summarize the results. The analytical results for soil verification samples collected from the excavations were below the action levels.

Criteria for verification sampling and backfilling were provided in the approved CAU 536 CAP (NNSA/NSO, 2005), though NDEP-approved deviations from the verification sampling plan were followed as a result of site information that became available during the performance of fieldwork (see Section 2.2).

TABLE 3. VERIFICATION SAMPLE ANALYTICAL RESULTS

SAMPLE ID	DATE COLLECTED	RESULTS	
		Pu-238 (pCi/g)	Pu-239/240 (pCi/g)
		Action Level = 7.78	Action Level = 7.62
034402-RW1	01/11/2007	ND	0.362
034402-RW2	01/11/2007	0.092	2.93
034402-RW3	01/11/2007	0.134	5.19
034402-RW4	01/11/2007	0.125	1.62
034402-RW5	01/11/2007	0.074	5.94
034402-RW6	01/11/2007	1.27	6.76
034402-RS1	01/11/2007	0.031	0.61
034402-RS2	01/11/2007	0.010	0.183
034402-RS3	01/11/2007	0.610	2.66
034402-RS4	01/11/2007	0.073	2.16
034402-RS5	01/11/2007	0.013	0.593

Notes:
 ND = not detected above analytical limits
 pCi/g = picocuries per gram

4.1 DATA QUALITY ASSESSMENT

Accurate and defensible analytical data were collected to verify that wastes were properly characterized, managed, and disposed, and to verify that clean-up criteria were met. The following sections describe the quality assurance/quality control (QA/QC) procedures, data validation process, and reconciliation of the conceptual site model with the observations and findings during the closure activities.

4.1.1 Quality Assurance/Quality Control Procedures

Detailed information about the QA/QC program can be found in the Industrial Sites QAPP (NNSA/NV, 2002). One blind duplicate verification sample per twenty samples, or one blind duplicate sample per sampling event was collected and submitted blind to the laboratory for analysis. In addition, one equipment rinsate sample was collected per sampling event and submitted for analysis. Results showed no contamination resulted from the decontaminated sampling equipment. Analytical results for waste characterization samples were validated by the laboratory with respect to the data quality indicators. Matrix spikes, matrix spike duplicates, recoveries, and other standard QA/QC procedures were followed. The laboratory reports and validation reports indicate no problems with the usability of the data.

4.1.2 Data Validation

Data validation was performed according to the Industrial Sites QAPP (NNSA/NV, 2002). All sample data were internally validated using Tier I criteria. No anomalies were discovered in the data that would discredit any of the waste classification or verification samples collected and analyzed for CAU 536. Summary laboratory QA/QC data for verification samples are presented in Appendix B of this report. The complete data set and verification reports are available on request. These data are maintained in NSTec project files located in the Environmental Restoration project offices at the NTS.

4.1.3 Conceptual Site Model

There were no discrepancies between the conceptual site model presented in the DQOs (Appendix A of this report) and that observed in the field.

4.2 USE RESTRICTIONS

The preferred closure alternative for CAU 536 was clean closure, and as a result no Use Restrictions were required or implemented during the closure of CAU 536.

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5.0 CONCLUSIONS AND RECOMMENDATIONS

CAU 536 was closed according to the FFACO and the NDEP-approved CAP for CAU 536 (NNSA/NSO, 2005), in combination with deviations from the CAP as approved by NDEP. Closure of CAU 536 was accomplished by completing the following tasks:

- Removing and disposing of TPH-, PAH-, and Pu-239-impacted soil
- Breaking up adjacent concrete pads and removing and disposing of the concrete debris as sanitary waste
- Characterizing, excavating, and removing a rock-filled 55-gal drum discovered during fieldwork as a BMP
- Collecting verification samples to verify clean-up criteria
- Backfilling and grading excavations to surrounding topographic contours

5.1 POST-CLOSURE MONITORING REQUIREMENTS

5.1.1 Inspections

Since no Use Restrictions were implemented, no post-closure inspections are required for CAU 536.

5.2 NOTICE OF COMPLETION

Based upon the completion of site activities, it is requested that a “Notice of Completion” be provided by NDEP for CAU 536. Upon closure approval, CAU 536 will be moved from Appendix III to Appendix IV, “Closed Corrective Action Units,” of the FFACO.

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6.0 REFERENCES

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

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

National Security Technologies, LLC, 2006a. *Field Management Plan for Corrective Action Unit 536: Area 3 Release Site, Nevada Test Site, Nevada*. Las Vegas, NV.

National Security Technologies, LLC, 2006b. *Site-Specific Site Health and Safety Plan for Corrective Action Unit 536: Area 3 Release Site, Nevada Test Site, Nevada*. Las Vegas, NV.

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

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

NSTec, see National Security Technologies, LLC.

U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office, 2002. *Industrial Sites Quality Assurance Project Plan, Nevada Test Site, Nevada*, Rev. 3. DOE/NV--372. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2003. *Corrective Action Investigation Plan for Corrective Action Unit 536: Area 3 Release Site, Nevada Test Site, Nevada*, Rev. 0. DOE/NV--900. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2004. *Corrective Action Decision Document for Corrective Action Unit 536: Area 3 Release Site, Nevada Test Site, Nevada*, Rev. 0. DOE/NV--1021. Las Vegas, NV.

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APPENDIX A

DATA QUALITY OBJECTIVES*

- * As previously published in the approved Corrective Action Investigation Plan for Corrective Action Unit 536: Septic Systems and Discharge Points, Nevada Test Site, Nevada, Rev. 0. DOE/NV--889. Las Vegas, NV.

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Appendix A.1

Data Quality Objectives

A.1 Seven-Step DQO Process for CAU 536 Investigation

The DQO process described in this appendix is a seven-step strategic planning approach based on the scientific method used to plan data collection activities at CAU 536, Area 3 Release Site. The DQOs are designed to ensure that the data collected will provide sufficient and reliable information to identify, evaluate, and technically evaluate the recommended corrective actions (i.e., no further action, closure in place, or clean closure). Existing information about the nature and extent of contamination at the CAS in CAU 536 is insufficient to evaluate and select preferred corrective actions; therefore, a CAI will be conducted.

The CAU 536 investigation will be based on the DQOs presented in this appendix as developed by representatives of the NDEP and the NNSA/NSO. The seven steps of the DQO process for CAU 536 and presented in [Sections A.1.2](#) through [A.1.8](#) were developed based on the CAS-specific information presented in [Section A.1.1](#) and in accordance with *EPA Guidance for Quality Assurance Project Plans* (EPA, 2002a). This document identifies and references the associated EPA quality system document for DQOs entitled *Data Quality Objectives Process for Hazardous Waste Site Investigations* (EPA, 2000), upon which the DQO process is based.

A.1.1 CAS-Specific Information

Corrective Action Unit 536 consists of one CAS (03-44-02, Steam Jenny Discharge), and is located in Area 3 of the NTS as shown in [Figure A.1-1](#). The following section presents a summary of the history of the CAS.

Physical Setting and Operational History - Corrective Action Site 03-44-02 was first identified during a review of the *Environmental Survey Preliminary Report, Nevada Test Site, Mercury, Nevada* (DOE, 1988). Currently CAS 03-44-02 is identified as a 70- by 40-ft concrete decontamination pad located at the NTS on the eastern half of Yucca Flat in the Area 3 Camp. The site is approximately 216 ft north of the magnetite storage hut and hopper and approximately 640 ft west of the U3du crater. The site is reported to have been used to steam clean equipment contaminated during the maintenance activities conducted in the Area 3 Camp, but it is currently inactive and abandoned. Decontamination activities also were conducted in this area prior to the installation of this pad. There

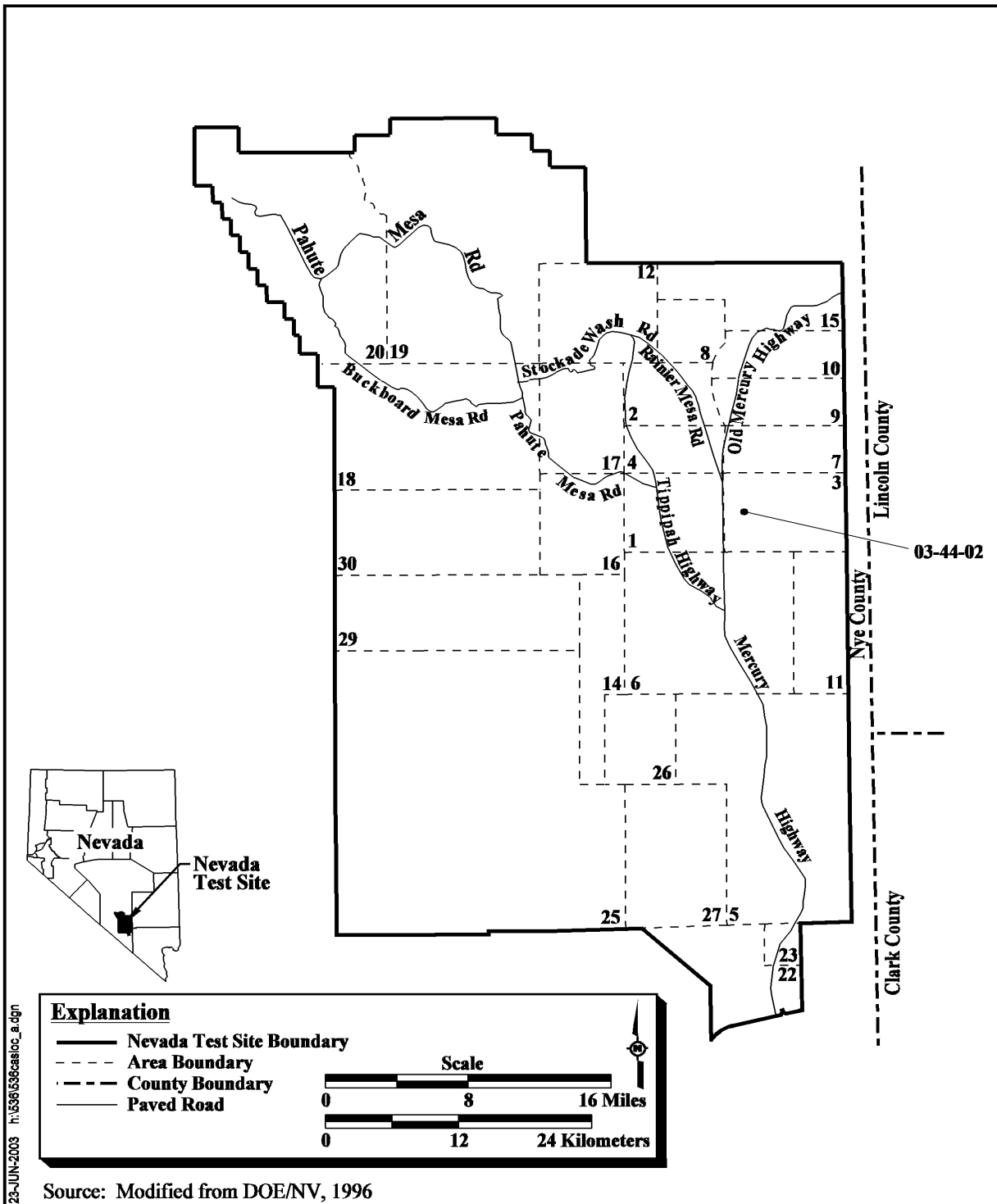


Figure A.1-1
 CAU 536, CAS 03-44-02 Location

are no known uses of this area prior to the steam-cleaning operation, nor is there a confirmed record of dates of operation.

A 1974 aerial photograph shows a disturbed area that is suspected to be the location of initial steam-cleaning activities. Sometime after 1974, a small, flat concrete pad was constructed, but reportedly no means of controlling the discharge of wastewater and potential associated contaminants were included with the pad. The most referenced method for wastewater disposal was allowing surface runoff and infiltration at the location where the steam cleaning was conducted.

By mid-July 1989, the small concrete pad had been removed and replaced with the 70- by 40-ft concrete pad currently present at the site (REECo, 1995). This pad was better suited to controlling the waste generated during steam-cleaning operations. Reports indicate that there is a sump located in the southern third of the pad with the surface of the pad sloped to direct wastewater and sediments into the sump. Documentation also indicates that the decontamination liquids and sediments were collected in the sump, pumped out, transferred, and treated prior to discharge at a permitted facility (REECo, 1995). A January 2003 site visit confirmed the presence of a sump in the southern third of the pad and another structure located on the eastern side of the pad that may also have been a sump. It is possible that these two structures are connected with an underground pipe. An overflow of a sump along the eastern side of the pad was reported to have occurred during the early life of the pad (REECo, 1995). This further supports the premise that there were two sumps associated with the pad. Currently, both structures are filled with concrete so there is no way to visually determine if a drain or piping exists. It is suspected that the liquids and solids from the steam-cleaning process were collected in the center feature and then flowed through an underground pipe to the structure along the eastern side of the pad where they were pumped from the collection system and transported to a permitted facility for disposal. The 1989 construction date of the pad also supports collection of the decontamination wastewater rather than an unpermitted release onto or into the ground (Radack, 1989). A geophysical survey conducted during the preliminary site assessment did not identify a drain or piping beyond the concrete pad; however, the reinforcing metal in the pad masked the features below the concrete (SAIC, 2001).

Also associated with the decontamination pad is a small drainage ditch that diverts runoff from areas west of the pad to the U3du crater approximately 640 ft to the east. As part of the drainage feature, a

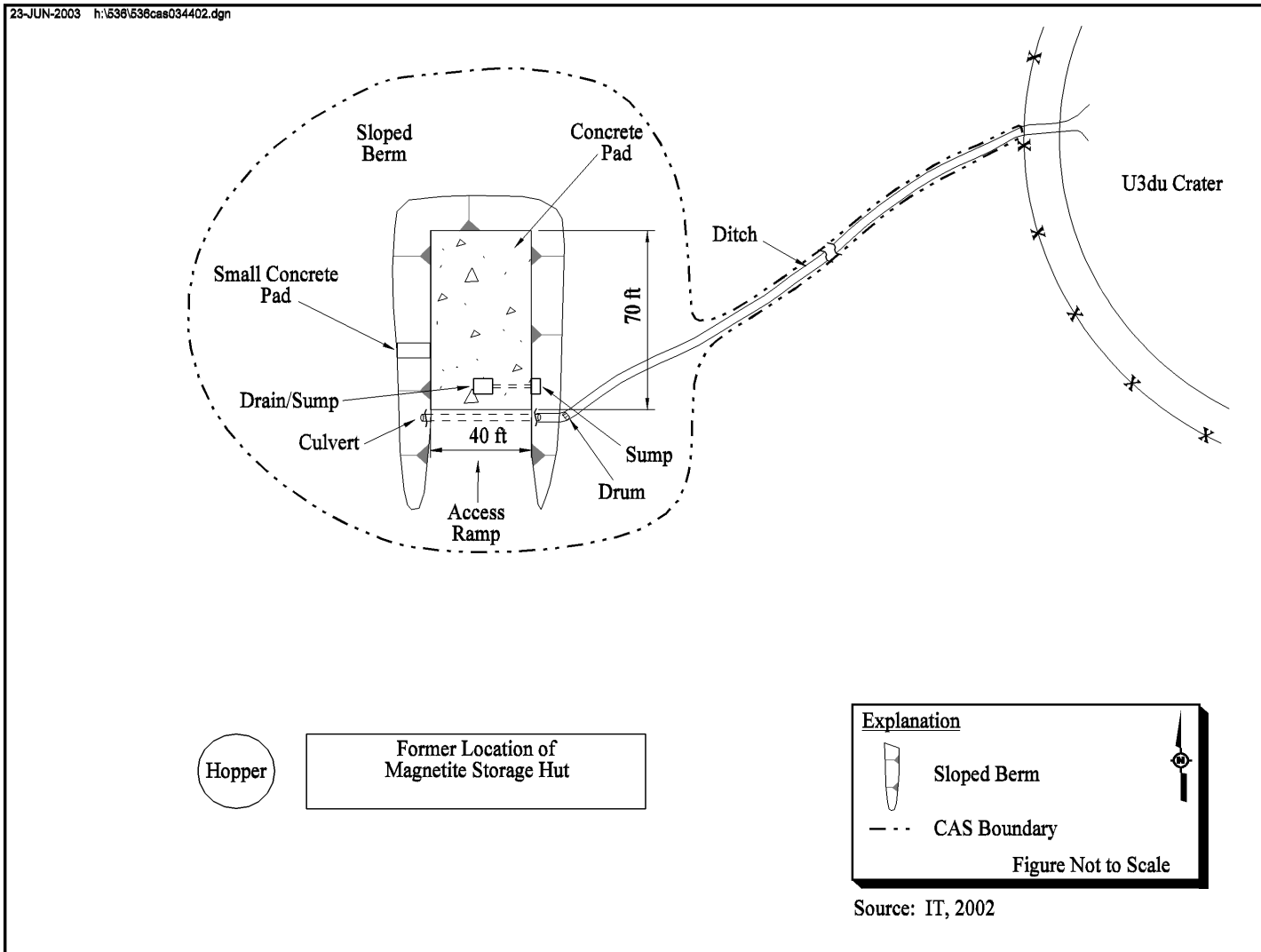


Figure A.1-2
CAU 536, CAS 03-44-02 Site Diagram

metal culvert underlies a soil access ramp that is located adjacent to the south side of the pad (Figure A.1-2). This drainage ditch does not appear to have been part of the decontamination operations based on the current configuration of the site. There are no other sites or CAUs known to be near the concrete pad that would interfere with the identification of potential contamination.

Sources of Potential Contamination - It is suspected that wastewater was allowed to flow directly onto the ground and infiltrate into the surrounding soil prior to the construction of the current pad. Although the current concrete pad and sump are considered to have collected the majority of the decontamination liquids and sediments, no structures are present at the pad that would prevent overspray and overflows of the sump from leaving the pad. The overflow from the sump would flow onto the surrounding soil, or if enough water was present, into the drainage ditch located near the southern end of the pad.

Previous Investigation Results - A geophysical survey conducted at CAS 03-44-02 during the preliminary assessment of the site did not identify a drain or piping; however, the reinforcing metal in the pad masked the features below the concrete. In addition to the geophysical survey, a soil sample was collected from the surface soil beneath a drum found in the ditch next to the pad. Gamma spectroscopic analysis indicated the presence of 1.65 ± 0.29 pCi/g of americium-241, 1.01 ± 0.13 pCi/g of cesium-137, and 31.1 ± 3.6 of potassium-40 in the soil. Diesel- and oil-range petroleum hydrocarbons were also detected at 25 and 180 mg/kg, respectively. Barium, chromium, and lead were detected in the soil sample at total concentrations of 200, 12, and 10 mg/kg, respectively. Methylene chloride and di-n-butyl phthalate, detected at relatively low concentrations, appear to represent laboratory artifacts. The soil sample was also analyzed for PCBs; the results were all below detection. It is unclear if the contamination originated from the contents of the drum or runoff from the decontamination pad. The sample did not provide information on the lateral or vertical extent of the detected contamination. In addition, during the initial preliminary assessment site visit an orange-colored stain was identified near the center of the pad. However, there was no visible stain present on the pad during the site visit conducted in December 2002.

Potential Contamination - Contaminants suspected of being present at CAS 03-44-02 include unspecified solvents, petroleum hydrocarbons, metals, radionuclides, and PCBs potentially

originating from steam-cleaning activities associated with the maintenance activities conducted in Area 3 Camp during the nuclear testing era.

The investigation of radiological contamination will be limited to the area within the CAS boundary. Radiological contamination associated with atmospheric testing will be addressed by the Soils Project. However, it is possible the equipment cleaned at the site may have been contaminated with radioactive material, and any radiological contamination encountered during the investigation will be included in the CAU 536 investigation. Additional background information is presented in the [Section 1.1.1](#) of the CAIP.

A.1.2 Step 1 – State the Problem

This initial step of the DQO process identifies the planning team members and decision-makers, describes the problem that has initiated the CAU 536 CAI, and develops the CSMs.

A.1.2.1 Planning Team Members

The DQO planning team consists of representatives from NDEP, NNSA/NSO; Shaw Environmental, Inc. (Shaw), and Bechtel Nevada (BN). The primary decision-makers for this CAI are representatives from NDEP and NNSA/NSO. [Table A.1-1](#) lists representatives from each organization in attendance at the DQO meeting on February 4, 2003.

A.1.2.2 Describe the Problem

Corrective Action Unit 536 is being investigated because CAS 03-44-02 is an inactive and abandoned concrete decontamination pad, surrounded by soil, and includes a drainage ditch that has not been properly closed and may not comply with the requirements for future use. In addition, wastes generated during the use of the pad may be present without appropriate controls (i.e., use restrictions).

As a result of the activities performed at the decontamination pad, hazardous and or radioactive constituents may be present at this CAS at concentrations that could potentially pose a threat to human health and the environment. The problem statement for CAU 536 is, “Existing information on the nature and extent of potential contamination is insufficient to evaluate and recommend corrective action alternatives for CAS 03-44-02.”

**Table A.1-1
DQO Meeting Participants**

Participant	Affiliation
Sabine Curtis	NNSA/NSO
Greg Raab	NDEP
Allison Urbon	BN
Orin L. Haworth	BN
David Schrock	Shaw
Amber Steed	SAIC
Jeanne Wightman	Shaw
Joe Hutchinson	SAIC
Lynn Kidman	Shaw
John M. Fowler	Shaw
TerryLynn C. Foley	Shaw
Robert Sobocinski	Shaw
Al Wickline	SAIC

BN – Bechtel Nevada
Shaw - Shaw Environmental, Inc.
NDEP – Nevada Division of Environmental Protection
NNSA/NSO – DOE, National Nuclear Security Administration Nevada Site Office

A.1.2.3 Develop Conceptual Site Models

Conceptual site models describe the most probable scenario for current conditions at a CAS and define the assumptions that are the basis for identifying appropriate sampling strategies and data collection methods. They are the basis for assessing how contaminants could reach receptors in the present and future by addressing contaminant nature and extent, transport mechanisms and pathways, potential receptors, and potential exposures to those receptors. Accurate CSMs are important because they serve as the starting point for all subsequent inputs and decisions throughout the DQO process. Different CSMs for a single CAS or CAU are not dependent on the types of contaminants suspected, geographic location, or being part of an engineered system; rather, they are dependent on the release mechanism and potential migration pathways and potential receptors that may influence the sampling strategies.

As a result of the pad construction and containment of wastewater, the potential release mechanisms and potential location of contamination are included in two CSMs for CAS 03-44-02. The CSMs have been developed using information from the physical setting, potential contaminant sources, knowledge from similar sites, release information, historical background information, and physical and chemical properties of the potentially affected media and COPCs. The two CSMs represent the location of contamination/release, affected media, transport mechanisms, and the potential migration pathways for the period of activity before and after the installation of the concrete pad in 1989. The CSMs are termed Before Pad Construction (CSM #1) and After Pad Construction (CSM #2). The two CSMs are discussed in the following sections and depicted in [Figure A.1-3](#) and [Figure A.1-4](#).

An important element of a CSM is the expected fate and transport of contaminants, which dictate how contaminants move through site media and where they can be expected in the environment. The expected fate and transport is based on distinguishing physical and chemical characteristics of the suspected contaminants and media. Contaminant characteristics include solubility, density, and affinity for nonmobile particles (adsorption). Media characteristics include permeability, porosity, hydraulic conductivity, chemical composition, and adsorption coefficients. In general, contaminants with low solubility and high density can be expected to be found relatively close to release points. Contaminants with high solubility and low density can be expected to be found further from release points or in areas where settling may occur.

Contaminants migrating to regional aquifers are not considered a likely scenario at CAU 536 based on the low annual average precipitation rates, high potential evapotranspiration, and low mobility of expected COPCs (e.g., SVOCs, PCBs, petroleum hydrocarbons, radionuclides, and metals).

Contamination directly caused by atmospheric nuclear tests (i.e., fallout) is outside the scope of CAU 536 ([Section A.1.1](#)) but is included in CAU 104, South Yucca Flat Atmospheric Tests. However, within the spatial boundaries of CAS 03-44-02, this contamination will be investigated to the extent necessary to determine the nature and extent and to evaluate corrective action alternatives.

Currently, the potential for exposure to contamination at CAS 03-44-02 is limited to other industrial and construction workers as well as military personnel conducting training in the area (DOE/NV, 1998). These human receptors may be exposed to COPCs through oral ingestion, inhalation, and dermal contact (absorption) from soil and/or debris (e.g., equipment, concrete) due to

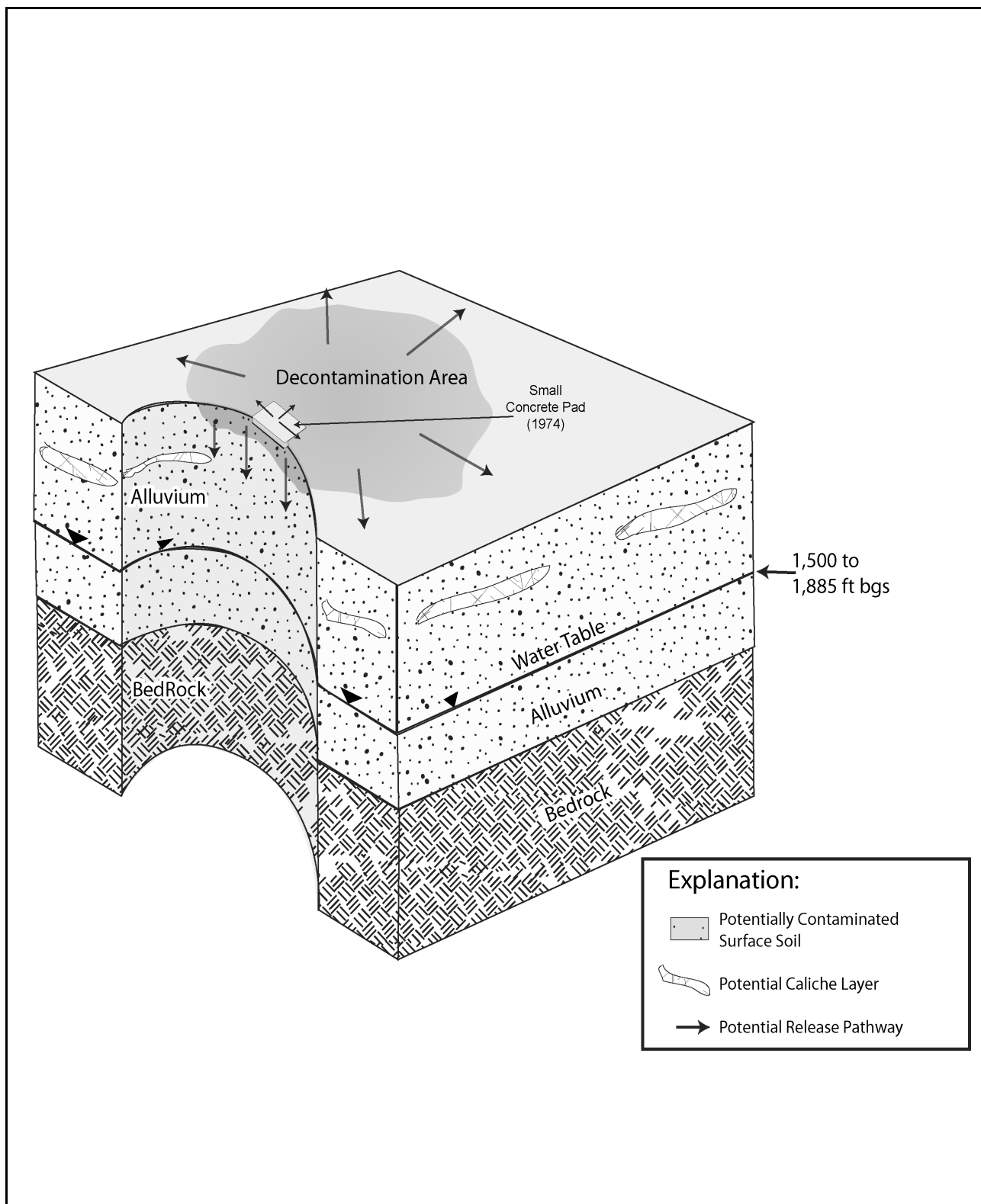


Figure A.1-3
CAU 536, Area 3 Release Site - Conceptual Site Model #1,
Before Pad Construction

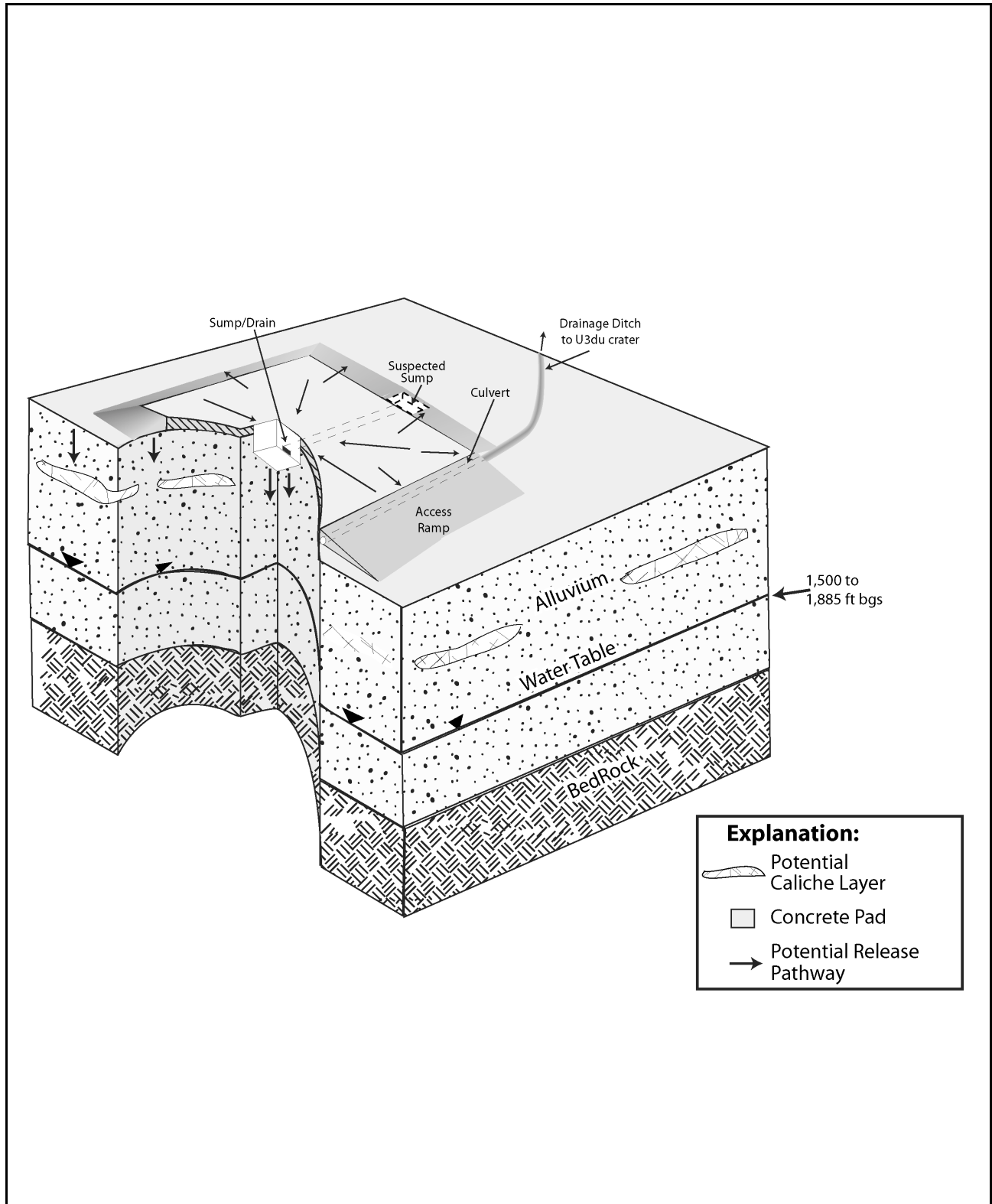


Figure A.1-4
CAU 536, Area 3 Release Site - Conceptual Site Model #2,
After Pad Construction

inadvertent disturbance of these materials or irradiation by radioactive material(s). The future land-use scenario limits use of the CAU to various nonresidential activities (i.e., industrial uses) and include defense and nondefense research, development, and testing activities, and commercial-use capabilities. The future land-use scenario for CAU 536 is presented in [Table A.1-2](#).

**Table A.1-2
 Future Land-Use Scenario for CAU 536, CAS 03-44-02**

Land Use Zone	Zone Description
Nuclear and High-Explosives Test	This area is designated within the Nuclear Test Zone for additional underground nuclear weapons tests and outdoor high-explosive tests. This zone includes compatible defense and nondefense research, development, and testing activities (DOE/NV, 1998).

A.1.2.3.1 CSM #1 - Before Pad Construction

The Before Pad Construction CSM applies to CAS 03-44-02 for activities before the construction of the current pad in 1989. [Figure A.1-3](#) shows a generalized representation of CSM #1. During the early decontamination activities at CAS 03-44-02, no known facilities were present to control or contain the wastewater or solids generated during the steam cleaning of equipment. Sometime between the suspected initiation of decontamination activities in 1974 and 1989, a small flat concrete pad was installed. This pad may have been constructed to support the steam cleaner or other equipment. Even when the small concrete pad was in use, there were no known controls to prevent the decontamination wastes from moving off the pad onto the surrounding soil. The lack of a permanent location for conducting the decontamination efforts would also suggest that the actual location of cleaning activities may have been moved around the site. This would increase the area of surface contamination and infiltration. In addition, the aerial photographs that were taken before 1989 did not show the drainage ditch leading from the current decontamination pad to the U3du crater.

The following discussion of the CSM #1 parameters provide additional details to supplement this model.

Affected Media - The potentially affected media are the surface and shallow subsurface soil at the location where the steam cleaning process was conducted. Because there was not a dedicated

structure where the decontamination process was conducted (i.e., pad), the area potentially affected is expected to extend over a larger area than would have actually been needed for any one decontamination activity.

Location of Contamination/Release Points - Releases to the environment under CSM #1 would first occur directly onto the surface soil at the sites of the steam cleaning activity or at the edges of the small concrete pad. Under this CSM, the surface soil adjacent to the small pad or where large equipment decontamination took place is the most likely location of the contamination and points of release to the environment. Contamination may also be found in subsurface soils as a result of infiltration. The depth of contamination migration would be affected by the quantity of water used in a decontamination activity and precipitation pushing the contamination downward. Solid wastes would have remained at the release point with only minor lateral migration as a result of being initially suspended or dissolved in liquids. The construction of the small flat concrete pad would have done little to prevent the infiltration of wastewater into the soil. The permeability of the soil within this area of NTS combined with the low relief across the site would limit horizontal migration. In addition, the lack of the drainage ditch would eliminate or greatly reduce the potential of surface water flow to the U3du crater.

Transport Mechanisms - The primary transport mechanisms under CSM #1 are vertical infiltration driven by the water from the decontamination process and subsequent percolation of precipitation through the soil. These liquids would serve as a driving force for downward migration. Vertical migration will be influenced by the physical properties of the soil such as permeability, porosity, and conductivity. Migration of certain inorganic constituents (e.g., metals, radionuclides) may also be controlled by geochemical processes such as adsorption, ion exchange, and precipitation of solids from solution. The migration of organic constituents (e.g., petroleum hydrocarbons, PCBs, SVOCs, and VOCs) may be controlled by their affinity for sorption on organic material present in soil.

Because of the flat topography in the area, horizontal migration beyond the area of initial impact is expected to be limited, and liquids would have primarily infiltrated vertically into the soil at or near the point of release. Surface migration may have occurred as a result of storm events when precipitation rates exceeded infiltration rates (stormwater runoff). However, these events are

infrequent. The primary lateral migration pathways would be dispersion through the shallow soil and limited migration in the down slope direction. The land surface slopes very slightly to the southeast.

If an airborne release occurred during the steam-cleaning process, the VOCs would have dissipated and moved with the prevailing wind for deposition on the surrounding land surface. Because of the limited quantity of liquids used during the steam-cleaning process and the associated heat of the process, it is expected that negligible quantities of airborne VOC constituents impacted the surrounding area. Because of these factors, volatilization is not considered a viable transport mechanism and will not be evaluated.

Preferential Pathways - The only preferential pathway for CSM #1 is the possible presence of small gullies that may have served to channelize runoff from decontamination activities. This could have allowed decontamination wastewater containing contaminants to preferentially run off in certain areas and caused increased infiltration in these areas. This mechanism is thought to have had only a minor impact on the transport and distribution of contamination at CAS 03-44-02. The presence of relatively impermeable layers (e.g., concrete or caliche) may influence both lateral and vertical migration pathways.

Lateral and Vertical Extent of Contamination - Contamination is expected to be contiguous with release points, and concentrations are expected to decrease with distance both laterally and vertically from release points. Surface migration may have occurred as a result of storm events when precipitation rates exceeded infiltration rates (stormwater runoff). However, these events are infrequent and surface migration under CSM #1 is expected to be controlled by the frequency of decontamination activities and the quantities of water used in the decontamination processes. The lateral extent of contamination will be primarily limited to locations where the activities were conducted and the areas where surface runoff occurred. Surface migration is a biasing factor to be considered in the selection of sampling points.

The extent of vertical contaminant migration at CAS 03-44-02 is unknown because the volume of waste generated during a given decontamination event and frequency of the events are unknown. Also, low precipitation and high evapotranspiration rates at the NTS will limit the potential for continued vertical migration of contaminants subsequent to release.

Exposure Scenario - The CSM #1 shows that the exposure pathway to the industrial, construction or military workers would be through inadvertent ingestion, inhalation, or dermal contact (absorption) with soil and/or debris during excavation or other activities that would disturb the soils potentially contaminated during past decontamination activities. The future land use is shown in [Table A.1-2](#). An additional exposure pathway for workers is through external exposure to beta/gamma radiation if radiological contamination is present.

Groundwater contamination is not considered likely under CSM #1 due to the minimal precipitation, high evapotranspiration, limited vertical migration, and significant depth to groundwater. For example, static water levels beneath the eastern two-thirds of the Yucca Flat range from 1,500 to 1,885 ft bgs (DRI, 1988). Within Area 3, the approximate depth to groundwater is 1,610 ft bgs (Wueller, 1994).

In summary, CSM #1 predicts that the concentration of the contaminants would be highest in the immediate vicinity of a release during the decontamination activities and would decrease with distance (both horizontally and vertically). The area subjected to contamination is unknown and the quantities of release and potentially affected area are suspected to be larger because the decontamination activities may have been moved around the site. If additional elements are identified during the CAI that are inconsistent with the CSMs as presented, the DQOs will be reviewed and any significant deviation from the planned approach will be presented to the decision-makers for approval.

A.1.2.3.2 CSM #2 - After Pad Construction

The CSM #2 includes the 70- by 40-ft concrete pad that was constructed in 1989, the sump/drain located in the southern third of the pad along with the concrete structure adjacent to the eastern edge of the pad, the soil immediately surrounding the pad, the access ramp, and the soil within and adjacent to the drainage ditch running from the southern end of the pad toward U3du crater. This CSM predicts that contamination as a result of the steam-cleaning process may exist at the site and how the presence of the concrete pad, sump, and drainage ditch affected the potential release and migration of contaminants. There are no structures present at the pad to prevent overspray or runoff from the pad from impacting the adjacent soil and the drainage ditch leading to U3du crater. This CSM differs from CSM #1 because the decontamination pad would prevent significant vertical migration into the

soil below and adjacent to the point of release. Also, CSM #2 assumes that most decontamination wastewater was contained rather than indiscriminately discharged to the ground. [Figure A.1-4](#) shows CSM #2.

The following discussion of the CSM #2 parameters provides additional detail to further explain this model.

Affected Media - The potentially affected media under CSM #2 are the surface and shallow subsurface soil adjacent to the concrete pad, soil within and adjacent to the drainage ditch, and the subsurface soil immediately below the sump/drain. The potentially affected media will most likely be within a short distance from the pad or drainage ditch. For waste management purposes, the concrete pad and sumps may also be considered a potentially affected medium.

Location of Contamination/Release Points - Contaminants may have been released to the surface soil through overspray and runoff onto the soil adjacent to the concrete pad during the steam-cleaning operations. Contaminants may have also been released into the soil adjacent to the concrete pad or soil within and adjacent to the drainage ditch if the sump overflowed or if an accident occurred when the sumps were cleaned out. It is assumed that the sumps were open and functional during the active life of the decontamination pad. Subsurface releases would have occurred through cracks in the sumps or leaks in the pipe connecting the sumps, if present ([Figure A.1-4](#)). Therefore, contamination would be expected in the shallow subsurface soils beneath the sumps or pipe. The geophysical survey conducted during the preliminary site assessment did not identify any subsurface piping that extends beyond the edge of the concrete pad; however, the reinforcing steel in the pad masked the identification of any piping underneath the concrete. After the sumps were filled with concrete, contaminants on the pad may have been transported to the surrounding soil and the drainage ditch in runoff from precipitation events.

Limited disturbance of the contamination introduced to the surface soil prior to 1989 is expected to have occurred during the construction of the existing pad. The current concrete pad is constructed on the surface, and there is visible evidence that gravel has been used to level the current pad. There is also a gentle slope away from the pad on three sides. Therefore, it is expected that residual contamination from decontamination procedures conducted prior to pad construction would not have been removed.

Transport Mechanisms - The discussion of transport mechanisms presented for CSM #1 (Section A.1.2.3.1) also applies to CSM #2. The primary transport mechanisms under CSM #2 are vertical infiltration driven by the water from the decontamination process and percolation of precipitation through the soil. These liquids would serve as a driving force for downward migration. Runoff resulting from the overflow of the sumps could cause lateral migration of the decontamination liquid into the soil adjacent to the pad and through the drainage ditch toward the U3du crater prior to infiltrating. Currently the pad sumps are filled with concrete, eliminating additional infiltration from precipitation.

Because the concrete pad is sloped toward the sump in the center, contaminated wastewater would only have entered the ditch during times when the sump overflowed; therefore, it is not suspected that there was a continuous release to the ditch. A culvert, located beneath the access ramp adjacent to the southern end of the pad, allows surface runoff from upslope areas to flow into the ditch, preventing erosion of the ramp. As a result, surface runoff from surrounding areas may have moved contaminants in the ditch further downstream toward the U3du crater. Surface migration is a biasing factor to be considered in the selection of sampling points. Also, infiltration may have transported contamination into the shallow subsurface below the ditch.

The concrete pad will reduce the vertical migration of contamination released to the soil prior to the construction of the pad. The pad will similarly reduce the migration of contamination that possibly leaked from the bottom of the sump/pipe by limiting the infiltration of precipitation that would be the primary mechanism to carry the shallow subsurface contaminants to deeper intervals in the soil.

Preferential Pathways - The preferential lateral pathway for contaminant migration under CSM #2 is runoff within the drainage ditch that extends from the pad ramp to the U3du crater. Preferential vertical pathways are focused infiltration along the bottom of the drainage ditch, and infiltration below the base of the pad sumps and the pipe connecting the two sumps, if present. The presence of relatively impermeable layers (e.g., concrete or caliche) may influence both lateral and vertical migration.

Lateral and Vertical Extent of Contamination - The CSM #2 suggests that the concentration of contaminants would be localized in the surface and shallow subsurface along the edges of the pad, on the ramp, and in the drainage ditch near the pad. In addition, contaminants may be in the subsurface

at the base of the sumps and beneath the pipe, if present. Contamination is expected to be contiguous with release points, and concentrations are expected to decrease with distance both laterally and vertically from release points. Identical to CSM #1, groundwater contamination is not considered a likely scenario under the CSM #2.

Exposure Scenario - The CSM shows that the exposure pathway to the industrial or construction workers would be through inadvertent ingestion, inhalation, or dermal contact (absorption) with soil adjacent to the concrete pad or soil within and adjacent to the drainage ditch during excavation or other activities that would disturb the soil. Another possible exposure pathway is through dermal contact with residual contaminants on the concrete pad. An additional exposure pathway for workers is through external exposure to beta/gamma radiation if radiological contamination is present.

In summary, the lateral and vertical extent of contamination is assumed to be limited based on the limited quantity of liquid generated during the steam-cleaning activities, the slope of the pad and sump system for collection of liquids, and the low precipitation and high evapotranspiration rates at the NTS. The CSM #2 indicates that downward contaminant transport is expected to be the primary pathway; however, below the concrete pad, the pad itself would limit this mechanism. If additional elements are identified during the CAI that are inconsistent with the CSMs as presented, the DQOs will be reviewed and any significant deviation from the planned approach will be presented to the primary decision-makers for approval.

A.1.3 Step 2 – Identify the Decision

Step 2 of the DQO process identifies the decisions that require new environmental data to resolve the potential contamination problem. This step develops decision statements and defines alternative actions. Also presented in this section is the decision logic for the entire process.

A.1.3.1 Develop Decision Statements

The primary problem statement is, “An insufficient amount of information is available concerning the nature and extent of contamination potentially released at CAS 03-44-02 to determine if there is an unacceptable risk to human health and the environment.” Because existing information at this CAS is insufficient to resolve the problem statement, the following two decision statements have been established as criteria for determining the adequacy of the data collected during the CAI.

The Decision I statement is, “Is a contaminant present within the CAS at a concentration that could pose an unacceptable risk to human health and the environment?” Any contaminant detected at a concentration exceeding the corresponding PAL as defined in [Section A.1.4.2](#) will be considered a COC. The presence of a contaminant within the CAS is defined as the analytical detection of a COC. Samples used to resolve Decision I are identified as Phase I samples.

The Decision II statement is, “If a COC is present, is sufficient information available to evaluate appropriate corrective action alternatives?” Sufficient information is defined as the data needs identified in this DQO process to define the lateral and vertical extent of all COCs within the CAS. Samples used to resolve Decision II are identified as Phase II samples.

A.1.3.2 Alternative Actions to the Decision

For each decision identified in the previous section there is an alternate decision.

The alternate for Decision I is: If a COC is not present, further assessment of the CAS is not required. If a COC is present, resolve Decision II.

The alternate for Decision II is: If the extent of a COC is defined in both the lateral and vertical direction, further assessment of the CAS is not required. If the extent of a COC is not defined, re-evaluate site conditions and collect additional samples.

A.1.4 Step 3 – Identify the Inputs to the Decisions

This step identifies the information needed, determines sources for information, determines the basis for establishing action levels, and identifies sampling and analysis methods that can meet the data requirements. To determine if a COC is present, each sample result is compared to a PAL (defined in [Section A.1.4.2](#)). If any sample result is greater than the PAL, then the CAS is advanced to Decision II (define the lateral and vertical extent) for that parameter. This approach does not use a statistical mean/average for comparison to the PALs, but rather a point-by-point comparison to identify COCs.

A.1.4.1 Information Needs and Information Sources

In order to determine if a COC is present at CAS 03-44-02, sample data must be collected and analyzed following these two criteria: (1) samples must be collected in areas most likely to be contaminated, and (2) the analytical suite selected must be sufficient to detect any contamination present in the samples. Biasing factors to support Criterion #1 include:

- Documented process knowledge on source and location of release
- Field observations
- Historical sample results
- Radiological survey results
- Geophysical survey results
- Experience and data from investigations of similar sites
- Professional judgment

To determine the extent of a COC for Decision II, Phase II samples will be collected from locations to bound the lateral and vertical extent. The data required to satisfy the information needs for Decision II for each COC is a sample concentration that is below the corresponding PAL. Step-out locations identified for Decision II sampling will be selected based on the CSM, biasing factors, and existing data. For Phase II sampling, analytical suites will only include those parameters that exceed PALs (i.e., COCs) in prior samples. Biasing factors to support information needs may include the factors previously listed and Phase I analytical results.

[Table A.1-3](#) lists the information needs, the source of information for each need, and the proposed methods to collect the data needed to resolve Decisions I and II. The last column addresses the QA/QC data type and associated metric. The data type is determined by the intended use of the resulting data in decision making.

Data types are discussed in the following text. All data to be collected are classified into one of three measurement quality categories: quantitative, semiquantitative, and qualitative. The categories for measurement quality are defined below.

Quantitative Data

Quantitative data measure the quantity or amount of a characteristic or component within the population of interest. These data require the highest level of QA/QC in collection and measurement

Table A.1-3
Information Needs to Resolve Decisions I and II
(Page 1 of 3)

Information Need	Information Source	Collection Method	Biasing Factors to Consider	Data Type/Metric
Decision I (Phase I): Determine if a COC is present.				
Criteria I: Samples must be collected in areas most likely to contain a COC.				
Source and location of release points	Process knowledge, preliminary site assessment, historical documentation, and previous investigations of similar sites	Information documented in CSM and public reports – no additional data needed	None	Qualitative - CSM has not been shown to be inaccurate
	Field observations	Conduct site visits and document field observations	Visible evidence of contamination, topographic lows, gullies	Qualitative - CSM has not been shown to be inaccurate
	Aerial photographs	Review and interpret aerial photographs	Disturbed areas	Semiquantitative - Sampling based on biasing criteria stipulated in DQO Step 3
	Radiological surveys	Review and interpret radiological surveys	Areas of elevated radiation ("hot spots")	Semiquantitative - Sampling based on biasing criteria stipulated in DQO Step 3
	Field screening	Review and interpret field-screening results	Bias sample locations/intervals based on elevated field-screening results (FSRs)	Semiquantitative - Sampling based on biasing criteria stipulated in DQO Step 3
Nature of contamination	Biased samples	Collect samples from locations/depths based on biasing factors	Send samples with highest survey/screening results to laboratory	Semiquantitative - Sampling based on survey and screening results
	Biased samples	Collect samples from additional locations near CAS features	Worst-case locations such as edge of pad, base of sump, bottom of drainage ditch	Semiquantitative - Sampling based on CAS features

Table A.1-3
Information Needs to Resolve Decisions I and II
(Page 2 of 3)

Information Need	Information Source	Collection Method	Biasing Factors to Consider	Data Type/Metric
Decision I (Phase I): Determine if a COC is present.				
Criteria 2: Analyses must be sufficient to detect any COCs in samples.				
Identification of all potential contaminants	Process knowledge and previous investigations of similar sites; use analytical suite in Table A.1-4 .	Information documented in CSM and public reports – no additional data needed; comprehensive analytical suite developed to account for uncertainty	None	Qualitative - CSM has not been shown to be inaccurate
Analytical results	Data packages from biased samples	Appropriate sampling techniques and approved analytical methods will be used; minimum reporting limits (MRLs) and minimum detectable activities (MDAs) are sufficient to provide quantitative results for comparison to PALs	None	Quantitative - Validated analytical results will be compared to PALs
Decision II (Phase II): Determine the extent of a COC.				
Criteria: Sample collection and analysis methods must be sufficient to bound extent of COC.				
Identification of applicable COCs	Data packages of prior samples	Review analytical results and compare to PALs to select COCs	None	Quantitative - Only COCs identified will be analyzed in future sampling events
Extent of Contamination	Field observations	Document field observations	Visible evidence of contamination	Qualitative - CSM has not been shown to be inaccurate
	Field screening	Conduct field screening using appropriate methods	Bias sample locations/intervals based on FSRs	Semiquantitative - FSRs will be compared to field-screening levels
	Step-out samples	Generate locations based on previous sampling results and biasing factors	Locations selected based on the initial sampling results for both horizontal and vertical sampling	Semiquantitative - Sampling based on previous results and biasing factors
	Data packages of analytical results	Appropriate sampling techniques and approved analytical methods will be used to bound COCs; MRLs and MDAs are sufficient to provide quantitative results for comparison to PALs	None	Quantitative - Validated analytical results will be compared to PALs to determine COC extent

Table A.1-3
Information Needs to Resolve Decisions I and II
(Page 3 of 3)

Information Need	Information Source	Collection Method	Biasing Factors to Consider	Data Type/Metric
Decision: Determine if sufficient information exists to characterize waste. Criteria: Analyses must be sufficient to allow disposal options to be accurately identified and estimated.				
Radiological data for comparison to unrestricted release criteria	Radiological surveys and swipe measurement	Perform radiological surveys and swipe measurements using appropriate methods	Bias locations based on areas of visible or likely surface spills/leaks or areas of accumulation	Semiquantitative - Locations based on biasing criteria stipulated in DQO Step 7
Analytical results	Data packages of analytical results; use analytical suite in Table A.1-4 ; require TCLP if results are >20X TCLP limits	Appropriate sampling techniques and approved analytical methods will be used; MRLs and MDAs are sufficient to provide quantitative results for comparison to disposal requirements	Sufficient material must be available for analysis	Quantitative - Validated analytical results will be compared to disposal criteria

systems because the intended use of the data is to resolve primary decisions (i.e., Decision I or Decision II) and/or verifying that closure standards have been met. Laboratory analytical data are generally considered quantitative.

Semiquantitative Data

Semiquantitative data indirectly measure the quantity or amount of a characteristic or component. Inferences are drawn about the quantity or amount of a characteristic or component because a correlation has been shown to exist between the indirect measurement and the results from a quantitative measurement. The QA/QC requirements on semiquantitative collection and measurement systems are high but not as rigorous as the requirements for a quantitative measurement system. Semiquantitative data contribute to decision making but are not used alone to resolve primary decisions. Field-screening data are generally considered semiquantitative. The data are often used to guide investigations toward quantitative data collection.

Qualitative Data

Qualitative data identify or describe the characteristics or components of the population of interest. The QA/QC requirements are the least rigorous for data collection methods and measurement systems. The intended use of the data is for information purposes, to refine conceptual models, and guide investigations rather than resolve primary decisions. This measurement of quality is typically assigned to historical information and data where QA/QC may be highly variable or not known. Professional judgment is often used to generate qualitative data.

Metrics provide a tool to determine if the collected data support decision making as intended. Metrics tend to be numerical for quantitative and semiquantitative data, and descriptive for qualitative data.

A.1.4.2 Determine the Basis for the Preliminary Action Levels

Industrial Site workers, construction/remediation workers, and military personnel may be exposed to contaminants through oral ingestion, inhalation, external (radiological), or dermal contact (absorption) of soil. Laboratory analytical results for soil will be compared to the following PALs to evaluate if COCs are present:

- EPA Region 9 Risk-Based PRGs for chemical constituents in industrial soils (EPA, 2002c)
- Background concentrations for RCRA metals will be used instead of PRGs when natural background exceeds the PRG, as is often the case with arsenic on the NTS. Background is considered the mean plus two times the standard deviation of the mean for sediment samples collected by the Nevada Bureau of Mines and Geology throughout the Nevada Test and Training Range (NBMG, 1998; Moore, 1999).
- For detected chemical COPCs without established PRGs, a similar protocol to that used by EPA Region 9 will be used in establishing action levels for those COPCs listed in IRIS (EPA, 2002b).
- The TPH action limit of 100 mg/kg per the NAC 445A.2272 (NAC, 2002)
- The PALs for radiological contaminants are isotope-specific and are defined as the maximum concentration for each isotope found in environmental samples taken from undisturbed background locations in the vicinity of the NTS (McArthur and Miller, 1989; US Ecology and Atlan-Tech, 1991). The US Ecology and Atlan-Tech reference is used because soil samples have not been collected from undisturbed background locations of the NTS and analyzed for their radionuclide concentrations. Therefore, data is needed on the concentration of radionuclides in soil at undisturbed background locations located in the vicinity of the NTS.

Based upon the Ward Valley climatology, geology, and radionuclide concentration data, the use of *Environmental Monitoring Report for the Proposed Ward Valley California Low Level Radioactive Waste (LLRW) Facility* (US Ecology and Atlan-Tech, 1991) is appropriate for use in defining PAL concentrations based on background. The PALs are expressed in units of pCi/g for solid media or picocuries per liter (pCi/L) and are provided in [Table 3-3](#).

At locations such as CAS 03-44-02 in the Yucca Flat area, surface soil radionuclide concentrations greater than PALs may not be a concern if the concentrations are associated with fallout from atmospheric nuclear testing. As discussed in [Section A.1.1](#), potential contamination of soil within this CAS that is related to atmospheric testing will be addressed by the Soils Project.

Solid media such as concrete and/or structures may only pose a potential radiological exposure risk to site workers. Surface radiological surveys of the solid media will be compared to the unrestricted-release criteria, as defined in the *NV/YMP Radiological Control Manual* (DOE/NV, 2000), to determine if radiological COPCs are present at levels that may pose an unacceptable risk to human health and/or the environment.

A.1.4.3 Potential Sampling Techniques and Appropriate Analytical Methods

As discussed in [Section A.1.4.1](#), the collection, measurement, and analytical methods will be selected so results will be generated for all of the suspected contaminants (critical analytes, [Section A.1.4.3.3](#)) as well as all other possible contaminants at CAS 03-44-02. This effort will include field screening, soil sampling, and laboratory analysis to determine the presence of COPCs and extent of identified COCs.

At CAS 03-44-02, both site characterization and waste characterization efforts are proposed. Site characterization sampling and analysis are the focus of the DQO process. However, waste characterization sampling and analysis has been included to support the decision-making process for waste management, and to ensure an efficient field program. Specific analyses required for the disposal of IDW are identified in [Section 5.0](#) of the CAIP.

A.1.4.3.1 Field Screening

Field-screening activities may be conducted for the following analytes and/or parameters:

- Alpha and Beta/Gamma Radiation - a handheld radiological survey instrument or method may be used based on the possibility that radiologically contaminated equipment may have been decontaminated at CAS 03-44-02. On-site gamma spectrometry may also be used to screen samples.
- VOCs - a Photoionization Detector (PID), or an equivalent instrument or method, may be used to conduct headspace analysis because VOCs are a common concern at the NTS and have not been ruled out based upon process knowledge at CAU 536.
- TPH - a gas chromatograph, or equivalent equipment or method, may be used at CAS 03-44-02 because TPH is a common concern at the NTS and has not been ruled out based upon process knowledge.

Based on the results of previous CAU investigations and common NTS practices, the aforementioned field-screening techniques may be applied during the Phase I and II sampling at CAS 03-44-02. These field-screening techniques will provide semiquantitative data that can be used to guide soil sampling activities.

A.1.4.3.2 Sampling and Measurement Methods

Surface soil samples will be collected by hand. Augering, direct-push, excavation, drilling, or other appropriate sampling methods will be used to collect subsurface soil samples. Sample collection and handling activities will be conducted in accordance with approved procedures. Radiological surveys and swipe collection and measurement will also follow standard procedures.

A.1.4.3.3 Analytical Program

The analytical program for CAU 536 is presented in [Table A.1-4](#). The analytical program was developed based on the suspected-contaminant information presented in [Section A.1.1](#). Because complete information regarding activities performed at this site, as well as throughout the NTS, is not well documented, some uncertainty exists regarding the complete list of suspected contaminants at CAU 536. Due to this uncertainty, additional constituents have been included in the analytical program for the investigation.

Based on process knowledge information for steam-cleaning/degreasing operations, certain analytes are suspected to be present at CAS 03-44-02. These analytes, referred to as critical analytes, are given greater importance in the decision-making process relative to other COPCs. For this reason,

**Table A.1-4
 Analytical Program for CAU 536
 (Includes Site and Waste Characterization Analyses)**

Analyses ^a	CAS 03-44-02
Organics	
Total Petroleum Hydrocarbons (Diesel-, and Gasoline-Range Organics)	X
Polychlorinated Biphenyls	X
Semivolatile Organic Compounds	X
Volatile Organic Compounds	X
Metals	
<i>Resource Conservation and Recovery Act Metals^b</i>	X
Beryllium	X
Radionuclides	
Gamma Spectrometry ^c	X
Isotopic Uranium	X
Isotopic Plutonium	X
Strontium-90	X

^aIf the volume of material is limited, prioritization of the analyses will be necessary.

^bMay also include Toxicity Characteristic Leaching Procedure metals if sample is collected for waste management purposes.

^cIf americium-241 is detected above the minimum detectable activity, isotopic americium-241 analysis may also be performed on sample.

more stringent performance criteria are specified for critical analyte data quality indicators (Section 6.0 of the CAIP). Table A.1-5 identifies the critical analytes to define the nature of contamination (Decision I).

For sampling performed to define the extent of contamination (Decision II) at CAS 03-44-02, samples will be collected and analyzed only for those COCs identified in samples collected to resolve Decision I. However, if extent samples are collected prior to nature-of-contamination data becoming available, the extent samples will be analyzed for the full list parameters given for the CAS in Table A.1-4. For samples collected to define the extent of contamination, critical analytes are the

**Table A.1-5
 Critical Analytes for Nature of Contamination (Decision I) Sampling**

Chemical	Radiological
Common Solvents and Degreasers ^a : - dichlorobenzene - ethyl benzene - naphthalene - tetrachloroethylene - toluene - 1,1,1-trichloroethane - trichloroethylene - xylene TPH (DRO and GRO)	None

^aAcetone and methylene chloride are common degreasers, but are also common laboratory artifacts. Because they are common laboratory artifacts, they are not included as critical analytes.

DRO = Diesel-range organics
 GRO = Gasoline-range organics
 TPH = Total petroleum hydrocarbons

COCs identified during the Decision I activities. These critical analytes may be different than those listed for CAS 03-44-02 in [Table A.1-5](#).

[Section 3.0](#) and [Section 6.0](#) of the CAIP provide the analytical methods and laboratory requirements (e.g., detection limits, precision, and accuracy) to be followed during this CAI. Sample volumes are laboratory- and method-specific and will be determined in accordance with laboratory requirements.

Analytical requirements (e.g., methods, detection limits, precision, and accuracy) are specified in the Industrial Sites QAPP (NNSA/NV, 2002), unless superseded by the CAIP. These requirements will ensure that laboratory analyses are sufficient to detect contamination in samples at concentrations exceeding the MRL. Specific analyses required for the disposal of IDW are identified in [Section 5.0](#) of the CAIP.

A.1.5 Step 4 - Define the Study Boundaries

The purpose of this step is to define the target population of interest, specify the spatial and temporal features of that population that are pertinent for decision making, determine practical constraints on data collection, and define the scale of decision making relevant to target populations for Decision I and Decision II.

A.1.5.1 Define the Target Population

Decision I target populations represent locations within the CAS that contain COCs, if present. Decision II target populations are areas within the CAS where COC concentrations are less than PALs and are contiguous to areas of COC contamination. The target populations are dependent upon the CSMs developed for CAS 03-44-02. These target populations represent locations within the CAS that, when sampled, will provide sufficient data to resolve the primary problem statement ([Section A.1.3.1](#)).

A.1.5.2 Identify the Spatial and Temporal Boundaries

The geographic (spatial) boundaries are defined as the vertical or horizontal boundaries beyond which the CSM and/or the scope of the investigation will require reevaluation. Intrusive activities are not intended to extend into the boundaries of neighboring areas of environmental concern (e.g., other CASs). The spatial boundaries for CAS 03-44-02 are listed in [Table A.1-6](#). The horizontal boundaries at CAS 03-44-02 reflect the uncertainty in the locations where the decontamination processes were conducted prior to the installation of the concrete decontamination pad in 1989. As discussed in [Section A.1.1](#), even though contamination related to atmospheric nuclear testing may have been “superimposed” on CAS 03-44-02, it will not be investigated during the CAU 536 effort. It will be addressed by the Soils Project.

**Table A.1-6
 Spatial Boundaries Investigation**

Feature	Spatial Boundary	
	Horizontal	Vertical
Decontamination Pad	A maximum of 100-ft buffer around the decontamination pad	A maximum of 20 ft bgs
Drainage Ditch	A maximum of 10-ft buffer on either side of drainage ditch; downstream to the edge of the U3du crater	A maximum of 20 ft bgs

Temporal boundaries are time constraints due to time-related phenomena such as weather conditions, seasons, or activity patterns. Significant temporal constraints due to weather conditions are not expected; however, snow events may affect site activities during winter months. Moist weather may place constraints on sampling and field screening of contaminated soils because of the attenuating

effect of moisture in samples. There are no time constraints on collecting samples as environmental conditions at the site will not significantly change in the near future, and conditions would have stabilized over the years since the sites were last used.

A.1.5.3 Identify Practical Constraints

Nevada Test Site activities may affect the ability to characterize the CAS, although the site is inactive and abandoned. The primary practical constraints to be encountered at CAS 03-44-02 would be the presence of underground utilities and the need to core through the concrete pad to gain access to soil sampling locations. Utility constraints are subject to change as additional information is collected prior to the commencement of investigation activities, and will be appropriately documented. The CAS will be surveyed for utilities prior to field activities in accordance with the SSHASP. Standing water on the pad (as observed during recent site visit) may temporarily affect the performance of certain investigation activities.

A.1.5.4 Define the Scale of Decision Making

For CAS 03-44-02, the scale of decision making for Decision I is defined as the CAS. The scale of decision making for Decision II is defined as the extent of COC contamination originating from the CAS. Additionally, the scale of decision making for an unrestricted release determination for the concrete pad is individual areas of contamination if only hot spots are present. Otherwise, the scale of decision making is the entire object/structure (e.g., concrete pad) radiologically surveyed.

A.1.6 Step 5 – Develop a Decision Rule

This step integrates outputs from the previous steps, with the inputs developed in this step into a decision rule (“*If..., then...*”) statement. This rule describes the conditions under which possible alternative actions would be chosen.

A.1.6.1 Specify the Population Parameter

The population parameter for Phase I data collected from biased sample locations is the maximum observed concentration of each COC within the target population.

The population parameter for Phase II data will be the observed concentration of each unbounded COC in any sample.

A.1.6.2 Choose an Action Level

Action levels are defined as the PALs, which are defined in [Section A.1.4.2](#). As appropriate, action levels may also be the unrestricted release criteria given in the *NV/YMP Radiological Control Manual* (DOE/NV, 2000).

A.1.6.3 Decision Rule

If the concentration of any COPC in a target population exceeds the PAL for that COPC in a Phase I sample, then that COPC is identified as a COC, and the extent of contamination (Phase II) sampling will be conducted. If the Site Supervisor determines that an indicator of contamination (e.g., staining) is present, then Phase II sampling may be conducted before the results of Phase I sampling are available. If all COPC concentrations are less than the corresponding PALs, then the decision will be no further action.

If the observed population parameter of any COC in a Phase II sample exceeds the PALs, then additional samples will be collected to complete the Phase II evaluation. If all observed COC population parameters are less than PALs, then the decision will be that the extent of contamination has been defined in the lateral and vertical directions.

If contamination is inconsistent with the CSM or extends beyond the identified spatial boundaries, then work will be suspended and the investigation strategy will be reevaluated. If contamination is consistent with the CSM and is within spatial boundaries, then the decision will be to continue sampling until the extent is defined.

A.1.7 Step 6 – Specify the Tolerable Limits on Decision Errors

The sampling approach for the investigation relies on biased sampling locations; therefore, statistical analysis is not appropriate. Only validated analytical results (quantitative data) will be used to

determine if COCs are present (Phase I) or the extent of a COC (Phase II), unless otherwise stated.

The baseline condition (i.e., null hypothesis) and alternative condition for Phase I are:

- Baseline condition – A COC is present.
- Alternative condition – A COC is not present.

The baseline condition (i.e., null hypothesis) and alternative condition for Phase II are:

- Baseline condition – The extent of a COC has not been defined.
- Alternative condition – The extent of a COC has been defined.

Decisions and/or criteria have an alpha (false negative) or beta (false positive) error associated with their determination (discussed in the following subsections). Since quantitative data are compared to action levels on a point-by-point basis, statistical evaluations of the data such as averages or confidence intervals are not appropriate.

A.1.7.1 False Negative (Rejection) Decision Error

The false negative (rejection of the null or alpha) decision error would mean one of the following:

- Deciding that a COC is not present when it is (Decision I)
- Deciding that the extent of a COC has been defined when it has not (Decision II)

In both cases, this would result in an increased risk to human health and the environment.

For Decision I, a false negative decision error (where the consequences are more severe) is controlled by meeting the following criteria:

- Having a high degree of confidence that the sample locations selected will identify COCs if present anywhere within the CAS.
- Having a high degree of confidence that analyses selected will be sufficient to detect any COCs present in the sampled media, and that the detection limits are adequate to ensure an accurate quantification of the COCs.

For Decision II, the false negative decision error is reduced by:

- Having a high degree of confidence that the sample locations selected will identify the extent of COCs.

- Having a high degree of confidence that analyses conducted will be sufficient to detect any COCs present in the samples.
- Having a high degree of confidence that the dataset is of sufficient quality and completeness.

To satisfy the first criterion for both decisions, Phase I samples will be collected in areas most likely to be contaminated by any COCs, and Phase II samples will be collected in areas that represent the lateral and vertical extent of contamination. The following characteristics are considered during both phases to accomplish the first criterion:

- Source and location of release
- Chemical nature and fate properties
- Physical properties and migration/transport pathways
- Hydrologic drivers

These characteristics were considered during the development of the CSMs. The biasing factors listed in [Table A.1-3](#) and [Section A.1.8.1](#) will be used to further ensure that these criteria are met.

To satisfy the second criterion for Decision I, all samples used to define the nature of contamination will be analyzed for the chemical and radiological parameters listed in [Section A.1.4.3.3](#) using analytical methods that are capable of producing quantitative data at concentrations below or equal to PALs (unless stated otherwise in the CAIP). The PALs, which are derived from the EPA Region IX PRGs, are the basis of the DQOs. To satisfy the second criterion for Decision II, Phase II samples will be analyzed for those chemical and radiological parameters that identified unbounded COCs.

To satisfy the third criterion for Decision II, the entire dataset as well as individual sample results will be assessed against the DQIs of precision, accuracy, comparability, completeness, and representativeness defined in the Industrial Sites QAPP (NNSA/NV, 2002). The goal for the DQI of completeness is that 90 percent of the critical COPC results are valid for every sample. Critical COPCs are defined as those contaminants that are known or expected to be present within a CAS ([Section A.1.4.3.3](#)). In addition, sensitivity has been included as a DQI for laboratory analyses. Site-specific DQIs are discussed in more detail in [Section 6.0](#) of the CAIP. Strict adherence to established procedures and QA/QC protocols also protects against false negatives.

A.1.7.2 False Positive Decision Error

The false positive (acceptance of the null or beta) decision error would mean one of the following:

- Deciding that a COC is present when it is not (Decision I)
- Accepting that the extent of a COC has not been defined when it really has (Decision II)

These errors result in increased costs for unnecessary characterization or corrective actions.

The false positive decision error is controlled by protecting against false positive analytical results. False positive results are typically attributed to laboratory and/or sampling/handling errors. Quality assurance samples such as field blanks, trip blanks, laboratory control samples, and method blanks minimize the risk of a false positive analytical result. Other measures include proper decontamination of sampling equipment and using certified clean sample containers to avoid cross-contamination.

A.1.7.3 Quality Assurance/Quality Control

Radiological survey instruments and field-screening equipment, if used, will be calibrated and checked in accordance with the manufacturer's instructions or approved.

Quality control samples will be collected as required by the Industrial Sites QAPP (DOE/NV, 2002) and in accordance with established procedures. The required QA field samples include:

- Trip blanks (1 per sample cooler containing VOC environmental samples)
- Equipment blanks (1 per sampling event for each type of decontamination procedure)
- Source blanks (1 per source lot per sampling event)
- Field duplicates (minimum of 1 per matrix per 20 environmental samples, or 1 per CAS if less than 20 collected)
- Field blanks (minimum of 1 per 20 environmental samples, or 1 per CAS if less than 20 collected)
- Matrix spike/matrix spike duplicate (minimum of 1 per matrix per 20 environmental samples, or 1 per CAS if less than 20 collected; not required for all radionuclide measurements)

Additional QC samples may be submitted based on site conditions.

A.1.8 Step 7 – Optimize the Design for Obtaining Data

This section presents a resource-effective sampling and analysis design for generating data that are required to meet the project DQOs developed in the previous six steps. Because the types of suspected contaminants are similar and the two decontamination features are expected to be located within the same area, with the primary differences between the two CSMs being the potentially affected area and the release pathways, the investigation of CSM #1 and CSM #2 will be combined. The effort is planned to resolve the decision statements for CAU 536.

A.1.8.1 General Investigation Strategy

Following visual inspection and a radiological survey, intrusive soil sampling for field screening and laboratory analysis will be conducted at CAU 536. The selection of sample locations for CAU 536 will be biased by the following:

- Visual indicators (e.g., staining, drainage areas, topography, areas of preferential flow)
- Radiological survey results
- Geophysical survey results
- Existing site-specific data
- Physical and chemical characteristics of contaminants
- Known or suspected sources and locations of release
- Geologic and/or hydrologic conditions
- Process knowledge and experience at similar sites

The Site Supervisor has the discretion to modify the biased locations, but only if the modified locations meet the decision needs and criteria stipulated in [Section A.1.4](#).

Phase II (step-out) sampling locations at CAS 03-44-02 will be selected based on the outer boundary sample locations where COCs were detected, the CSM, and other biasing factors. If biasing factors indicate COCs extend beyond planned Phase II sample locations, planned locations may be modified or additional Phase II samples may be collected from incremental step-out locations. If field data generated during the course of collecting Phase I samples strongly indicate that contaminants are above PALs, Phase II data may be collected without the support of Phase I analytical results (e.g., the presence of VOCs is indicated by PID analysis, extensive staining).

Contaminants determined not to be present in Phase I samples will be eliminated from Phase II analytical suites. In general, samples submitted for off-site analysis would be those that define the expected lateral and vertical extent of COCs.

A.1.8.2 Detailed Investigation Strategy

A radiological screening survey will be conducted throughout CAS 03-44-02 prior to intrusive sampling. The survey will include the concrete pad, ground surface surrounding the pad, the ramp at the southern end of the pad, and the drainage ditch.

Following the radiological survey, the surface of the concrete pad, areas surrounding the pad extending throughout the area identified as being disturbed in the 1974 aerial photograph, and the length of the drainage ditch extending from the southeastern corner of the pad to, but not into, the U3du crater will be visually inspected and photodocumented. The visual inspection will focus on preferential pathways (e.g., small drainage systems) that may have transported or accumulated contamination associated with steam-cleaning operations prior to 1989 as well as more recent releases from the concrete pad.

Intrusive sampling will be conducted at CAS 03-44-02 to determine if COCs are present and, if present, to determine the extent. Initially, surface soil samples (<0.5 ft bgs) will be collected from biased locations based on the results of the previously conducted geophysical surveys, radiological surveys, the visual inspection, existing analytical data, and other biasing factors listed in [Table A.1-3](#). If biasing factors indicate that contamination may be present at the surface, samples will be collected for laboratory analysis at the potentially contaminated locations as well as along each side of the pad. Soil samples will be selected from biased locations focusing on contamination that may have migrated from the suspected source areas, considering the potential for lateral surface migration prior to infiltration.

If no biasing factors (e.g., staining, elevated radiological readings) are present to indicate potential contamination, then surface soil samples will be collected from locations along the edge of the pad and outward at 25-ft intervals to a maximum of 50 ft from each side of the concrete pad. It is expected that the concrete pad was constructed over all or part of the former decontamination area.

A minimum of three surface soil samples will be collected from the bottom of the drainage ditch. Locations will be based on biasing factors (e.g., stains, radiological hot spots, areas of accumulated sediment). If biasing factors are not present, the samples will be located 25 ft apart in the ditch, with the first sample collected just downstream of the culvert beneath the ramp adjacent to the south side of the pad.

Subsurface soil samples will be collected from locations adjacent to the sump in the center of the concrete pad and adjacent to the sump on the east side of the pad (Figure A.1-5). Three locations are expected to be sampled below the concrete pad. Sample collection will begin with the first material immediately beneath the base of these features. If the depth to the base of the sump in the center of the pad cannot be determined, it will be assumed to be the same as the depth to the base of the sump on the east side of the pad. Additionally, subsurface soil samples will be collected from surface soil locations where biasing factors (e.g., field-screening results) indicate the potential for contaminant concentrations greater than PALs.

The frequency of subsurface soil samples will be based on biasing factors such as presence of debris, staining, odor, field-screening results, or professional judgment. For subsurface sampling locations, generally two consecutive soil samples with field-screening results below field-screening action levels are required to define the vertical extent of contamination. Generally, the uppermost “clean” sample from each location is submitted for laboratory analysis.

Surface soil samples will be collected by hand according to approved procedures. Sonic drilling, hollow-stem auger drilling, direct-push, handheld augers, or excavation may be used, as appropriate, to access subsurface sample intervals for laboratory analysis at select locations.

A visual inspection of the concrete pad will be conducted of the area where a stain was reported during the preliminary site assessment. If unconsolidated material is available and, if appropriate, this material will be collected for laboratory analysis. This will not include material containing bird and other animal droppings. Based on the results of the radiological survey of the concrete pad surface, swipes may be collected and analyzed on site for removable radiological contamination. Scabbling of the concrete may be performed to collect samples, if necessary.

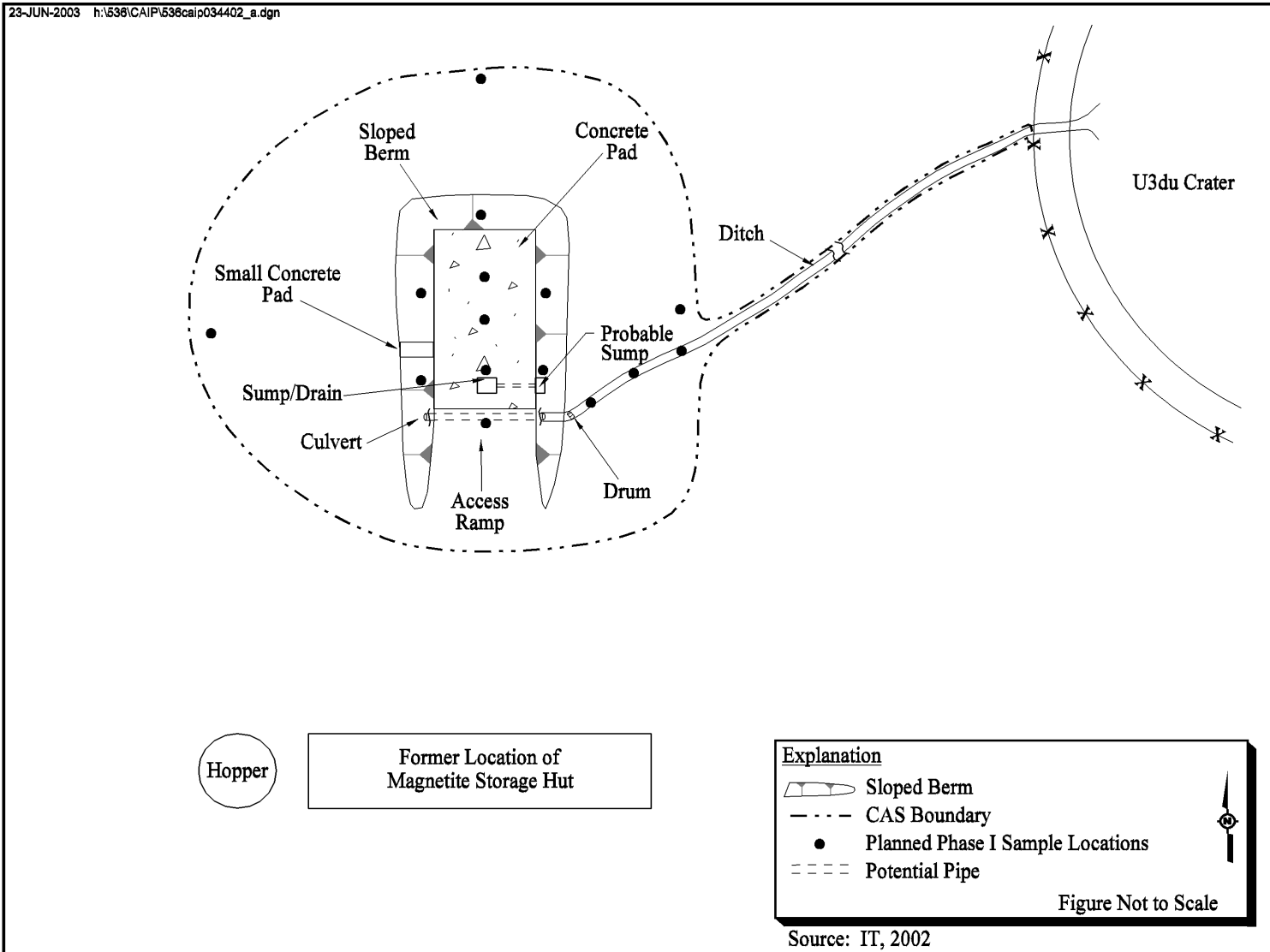


Figure A.1-5
CAU 536, CAS 03-44-02 - Planned Phase I Sample Locations

Samples for waste characterization purposes may also be collected from the various media at CAS 03-44-02 (e.g., soil, concrete, or material in the drainage ditch).

A.1.9 References

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APPENDIX B
ANALYTICAL RESULTS

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Certificate of Analysis Report for

NEVA002 National Security Technologies, LLC (30018)

Client SDG: V2841 GEL Work Order: 179526

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- ND The analyte concentration is not detected above the detection limit.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Martha Harrison.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : National Security Technologies,
LLC
Address : 2621 Losee Road
M/S NTS273
North Las Vegas, Nevada 89030-4134
Contact: Mr. Ted Redding
Project: Environmental Rad Analysis - No EDD

Report Date: January 30, 2007

Client Sample ID: 034402 - RW 1
Sample ID: 179526001
Matrix: Soil
Collect Date: 11-JAN-07
Receive Date: 24-JAN-07
Collector: Client
Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Pu, Solid</i>												
Plutonium-238	U	0.0027	+/-0.00649	0.0129	+/-0.00649	0.020	pCi/g		GXR1	01/26/07	1314	604485
Plutonium-239/240		0.362	+/-0.0437	0.0129	+/-0.0537	0.020	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	TMB1	01/24/07	1214	604471

The following Analytical Methods were performed

Method	Description
I	DOE EML HASL-300, Pu-11-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Plutonium-242	Alphaspec Pu, Solid	91	(15%-125%)

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the detection limit
- R Sample results are rejected

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Report Date: January 30, 2007

Client Sample ID: 034402 - RW 1
Sample ID: 179526001

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
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- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy—Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Report Date: January 30, 2007

Client Sample ID: 034402 – RW 2
Sample ID: 179526002
Matrix: Soil
Collect Date: 11-JAN-07
Receive Date: 24-JAN-07
Collector: Client

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Pu, Solid</i>												
Plutonium-238		0.0919	+/-0.0233	0.0113	+/-0.0246	0.020	pCi/g		GXR1	01/26/07	1314	604489
Plutonium-239/240		2.93	+/-0.129	0.0113	+/-0.286	0.020	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	TMB1	01/24/07	1214	604471

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Pu-11-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Plutonium-242	Alphaspec Pu, Solid	87	(15%–125%)

Notes:

The Qualifiers in this report are defined as follows :

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- > Result is greater than value reported
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- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the detection limit
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Project: Environmental Rad Analysis - No EDD

Report Date: January 30, 2007

Client Sample ID: 034402 - RW 2
Sample ID: 179526002

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
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UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Report Date: January 30, 2007

Client Sample ID: 034402 – RW 3
Sample ID: 179526003
Matrix: Soil
Collect Date: 11-JAN-07
Receive Date: 24-JAN-07
Collector: Client

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Pu, Solid</i>												
Plutonium-238		0.134	+/-0.0267	0.00416	+/-0.0292	0.020	pCi/g		GXR1	01/26/07	1314	604489
Plutonium-239/240		5.19	+/-0.166	0.00415	+/-0.479	0.020	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	TMB1	01/24/07	1214	604471

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Pu-11-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Plutonium-242	Alphaspec Pu, Solid	92	(15%-125%)

Notes:

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- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the detection limit
- R Sample results are rejected
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Report Date: January 30, 2007

Client Sample ID: 034402 – RW 3
Sample ID: 179526003

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch
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UI Gamma Spectroscopy—Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

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Report Date: January 30, 2007

Client Sample ID: 034402 – RW 4
Sample ID: 179526004
Matrix: Soil
Collect Date: 11-JAN-07
Receive Date: 24-JAN-07
Collector: Client

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Pu, Solid</i>												
Plutonium-238		0.125	+/-0.025	0.00393	+/-0.0272	0.020	pCi/g		GXR1	01/26/07	1314	604489
Plutonium-239/240		1.62	+/-0.0904	0.010	+/-0.166	0.020	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	TMB1	01/24/07	1214	604471

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Pu-11-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Plutonium-242	Alphaspec Pu, Solid	95	(15%–125%)

Notes:

The Qualifiers in this report are defined as follows :

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- ** Analyte is a surrogate compound
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- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the detection limit
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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Report Date: January 30, 2007

Client Sample ID: 034402 - RW 4
Sample ID: 179526004

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
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UI Gamma Spectroscopy—Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Report Date: January 30, 2007

Client Sample ID: 034402 – RW 5
Sample ID: 179526005
Matrix: Soil
Collect Date: 11-JAN-07
Receive Date: 24-JAN-07
Collector: Client

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Pu, Solid</i>												
Plutonium-238		0.0741	+/-0.0189	0.00377	+/-0.020	0.020	pCi/g		GXR1	01/26/07	1314	604489
Plutonium-239/240		5.94	+/-0.169	0.00377	+/-0.537	0.020	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	TMB1	01/24/07	1214	604471

The following Analytical Methods were performed

Method	Description
I	DOE EML HASL-300, Pu-11-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Plutonium-242	Alphaspec Pu, Solid	95	(15%–125%)

Notes:

The Qualifiers in this report are defined as follows :

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- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the detection limit
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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Report Date: January 30, 2007

Client Sample ID: 034402 - RW 5
Sample ID: 179526005

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch
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UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Report Date: January 30, 2007

Client Sample ID: 034402 - RW 6
Sample ID: 179526006
Matrix: Soil
Collect Date: 11-JAN-07
Receive Date: 24-JAN-07
Collector: Client

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Pu, Solid</i>												
Plutonium-238		1.27	+/-0.0842	0.00437	+/-0.139	0.020	pCi/g		GXR1	01/26/07	1314	604485
Plutonium-239/240		6.76	+/-0.195	0.014	+/-0.620	0.020	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	TMB1	01/24/07	1214	604471

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Pu-11-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Plutonium-242	Alphaspec Pu, Solid	95	(15%-125%)

Notes:

The Qualifiers in this report are defined as follows :

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- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the detection limit
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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Report Date: January 30, 2007

Client Sample ID: 034402 – RW 6
Sample ID: 179526006

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
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UI Gamma Spectroscopy—Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
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Report Date: January 30, 2007

Client Sample ID: 034402 - RS 1
Sample ID: 179526007
Matrix: Soil
Collect Date: 11-JAN-07
Receive Date: 24-JAN-07
Collector: Client

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Pu, Solid</i>												
Plutonium-238		0.0309	+/-0.0129	0.00421	+/-0.0132	0.020	pCi/g		GXR1	01/26/07	1314	604485
Plutonium-239/240		0.609	+/-0.0575	0.0134	+/-0.078	0.020	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	TMB1	01/24/07	1214	604471

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Pu-11-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Plutonium-242	Alphaspec Pu, Solid	90	(15%-125%)

Notes:

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- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
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Report Date: January 30, 2007

Client Sample ID: 034402 - RS 1
Sample ID: 179526007

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
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- UI Gamma Spectroscopy--Uncertain identification
 - X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
 - Y QC Samples were not spiked with this compound
 - ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
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Report Date: January 30, 2007

Client Sample ID: 034402 - RS 2
Sample ID: 179526008
Matrix: Soil
Collect Date: 11-JAN-07
Receive Date: 24-JAN-07
Collector: Client

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Pu, Solid</i>												
Plutonium-238		0.00596	+/-0.00584	0.00447	+/-0.00587	0.020	pCi/g		GXR1	01/26/07	1314	604489
Plutonium-239/240		0.183	+/-0.0327	0.0114	+/-0.0364	0.020	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	TMB1	01/24/07	1214	604471

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Pu-11-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Plutonium-242	Alphaspec Pu, Solid	87	(15%-125%)

Notes:

The Qualifiers in this report are defined as follows :

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- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
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Contact: Mr. Ted Redding
Project: Environmental Rad Analysis - No EDD

Report Date: January 30, 2007

Client Sample ID: 034402 - RS 2
Sample ID: 179526008

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch
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UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : National Security Technologies,
LLC
Address : 2621 Losee Road
M/S NTS273
North Las Vegas, Nevada 89030-4134
Contact: Mr. Ted Redding
Project: Environmental Rad Analysis - No EDD

Report Date: January 30, 2007

Client Sample ID: 034402 - RS 3
Sample ID: 179526009
Matrix: Soil
Collect Date: 11-JAN-07
Receive Date: 24-JAN-07
Collector: Client

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Pu, Solid</i>												
Plutonium-238		0.610	+/-0.0558	0.00398	+/-0.0766	0.020	pCi/g		GXR1	01/26/07	1314	604489
Plutonium-239/240		2.66	+/-0.117	0.0102	+/-0.257	0.020	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	TMB1	01/24/07	1214	604471

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Pu-11-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Plutonium-242	Alphaspec Pu, Solid	90	(15%-125%)

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the detection limit
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : National Security Technologies,
LLC
Address : 2621 Losee Road
M/S NTS273
North Las Vegas, Nevada 89030--4134
Contact: Mr. Ted Redding
Project: Environmental Rad Analysis - No EDD

Report Date: January 30, 2007

Client Sample ID: 034402 - RS 3
Sample ID: 179526009

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
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UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

GEL LABORATORIES LLC

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Certificate of Analysis

Company : National Security Technologies,
LLC
Address : 2621 Losee Road
M/S NTS273
North Las Vegas, Nevada 89030—4134
Contact: Mr. Ted Redding
Project: Environmental Rad Analysis – No EDD

Report Date: January 30, 2007

Client Sample ID: 034402 – RS 4
Sample ID: 179526010
Matrix: Soil
Collect Date: 11-JAN-07
Receive Date: 24-JAN-07
Collector: Client

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Pu, Solid</i>												
Plutonium-238		0.0727	+/-0.0199	0.00427	+/-0.0209	0.020	pCi/g		GXR1	01/26/07	1314	604485
Plutonium-239/240		2.16	+/-0.109	0.0109	+/-0.216	0.020	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	TMB1	01/24/07	1214	604471

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Pu-11-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Plutonium-242	Alphaspec Pu, Solid	87	(15%–125%)

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the detection limit
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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Certificate of Analysis

Company : National Security Technologies,
LLC
Address : 2621 Losee Road
M/S NTS273
North Las Vegas, Nevada 89030--4134
Contact: Mr. Ted Redding
Project: Environmental Rad Analysis - No EDD

Report Date: January 30, 2007

Client Sample ID: 034402 - RS 4
Sample ID: 179526010

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
-----------	-----------	--------	-------------	----	-----	----	-------	----	---------	------	------	-------

UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis

Company : National Security Technologies,
LLC
Address : 2621 Losee Road
M/S NTS273
North Las Vegas, Nevada 89030--4134
Contact: Mr. Ted Redding
Project: Environmental Rad Analysis – No EDD

Report Date: January 30, 2007

Client Sample ID: 034402 – RS 5
Sample ID: 179526011
Matrix: Soil
Collect Date: 11-JAN-07
Receive Date: 24-JAN-07
Collector: Client
Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Pu, Solid</i>												
Plutonium-238		0.0125	+/-0.00816	0.00416	+/-0.00823	0.020	pCi/g		GXR1	01/26/07	1314	604489
Plutonium-239/240		0.593	+/-0.0566	0.0153	+/-0.0764	0.020	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	TMB1	01/24/07	1214	604471

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Pu-11-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Plutonium-242	Alphaspec Pu, Solid	93	(15%–125%)

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the detection limit
- R Sample results are rejected

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : National Security Technologies,
LLC
Address : 2621 Losee Road
M/S NTS273
North Las Vegas, Nevada 89030--4134
Contact: Mr. Ted Redding
Project: Environmental Rad Analysis - No EDD

Report Date: January 30, 2007

Client Sample ID: 034402 - RS 5
Sample ID: 179526011

Project: NEVA00406
Client ID: NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch
-----------	-----------	--------	-------------	----	-----	----	-------	----	---------	------	------	-------

- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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QC Summary

Report Date: January 30, 2007
Page 1 of 2

Client : National Security Technologies,
LLC
2621 Losee Road
M/S NTS273
North Las Vegas, Nevada
Contact: Mr. Ted Redding
Workorder: 179526

Parname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	604489										
QC1201266377	179526001	DUP									
Plutonium-238		U	0.0027	U	0.00405	pCi/g	0.301	(0% - 100%)	GXR1	01/26/07	13:14
		Uncert:	+/-0.00649		+/-0.00592						
		TPU:	+/-0.00649		+/-0.00593						
Plutonium-239/240			0.362		0.367	pCi/g	0.128	(0% - 20%)			
		Uncert:	+/-0.0437		+/-0.0441						
		TPU:	+/-0.0537		+/-0.0544						
QC1201266378	LCS										
Plutonium-238				U	0.00654	pCi/g		(75%-125%)			
		Uncert:			+/-0.00906						
		TPU:			+/-0.00908						
Plutonium-239/240		2.65			2.82	pCi/g	106	(75%-125%)			
		Uncert:			+/-0.133						
		TPU:			+/-0.282						
QC1201266376	MB										
Plutonium-238				U	0.00156	pCi/g					
		Uncert:			+/-0.00306						
		TPU:			+/-0.00307						
Plutonium-239/240				U	0.00313	pCi/g					
		Uncert:			+/-0.00613						
		TPU:			+/-0.00613						

Notes:

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the detection limit
- R Sample results are rejected
Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 179526

Page 2 of 2

Paramname	NOM	Sample Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
U										
UI										
X										
Y										
^										
h										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

** Indicates analyte is a surrogate compound.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

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APPENDIX C

WASTE DISPOSITION DOCUMENTATION

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Shaughn Burnison / Mike Floyd Phone Number: 5-9328

Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge

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
 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: Sewago 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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Tanks
 Hydrocarbons (contact SWO) Other _____

Additional waste accepted at the Area 6 Hydrocarbon Landfill:
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 materia site. I have verified this through the waste characterization method identified above a prohibited and allowable waste items. I have contacted Property Management and ha is approved for disposal in the landfill.

Print Name: MIKE FLOYD

Signature: _____ Date: 2/1/07

Note: "Food waste, office trash and animal carcasses do not require a radiological cle: must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal RCT Initials

This container/load meets the criteria for no added man-made radioactive material
 This container/load meets the criteria for Radcon Manual Table 4.2 release limits.
 This container/load is exempt from survey due to process knowledge and origin.

SIGNATURE: _____ DATE: 2-1-07

SWO USE ONLY

Load Weight (net from scale or estimate): 42,000 Signature of Certifier: _____

(2)

SWO USE (Select One) 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 rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Shaughn Burnison / Mike Floyd Phone Number: 5-9328

Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge

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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above
 Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 materia site. I have verified this through the waste characterization method identified above a prohibited and allowable waste items. I have contacted Property Management and ha is approved for disposal in the landfill.

Print Name: Kevin Olson

Signature: _____ Date: 2-1-07

Note: "Food waste, office trash and animal carcasses do not require a radiological cle. must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

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

SIGNATURE: _____ DATE: 2-1-07

BN-0646 (10/05)

SWO USE ONLY

Load Weight (net from scale or estimate): 410,000 Signature of Certifier: _____

5

NSTec

08/23/06

Form

Rev. 0

FRM-0918

NTS LANDFILL LOAD VERIFICATION

Page 1 of 2

SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Shaughn Burnison / Mike Floyd Phone Number: 5-9328

Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge

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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above
 Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 materia site. I have verified this through the waste characterization method identified above : prohibited and allowable waste items. I have contacted Property Management and ha is approved for disposal in the landfill.

Print Name: Kevin Olson

Signature: _____ Date: 2-1-07

Note: "Food waste, office trash and animal carcasses do not require a radiological cle: must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

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

SIGNATURE: _____ DATE: 2-1-07

BN-0646 (10/05)

SWO USE ONLY

Load Weight (net from scale or estimate): 42,000 Signature of Certifier: _____

4

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Form
FRM-0918

08/23/06
Rev. 0
Page 1 of 2

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Kevin Olson Phone Number: 5-2941

Location / Origin: CA4536 Area 3 Release Site Steam Jersey

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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above
 Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill: _____
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 material: site. I have verified this through the waste characterization method identified above at prohibited and allowable waste items. I have contacted Property Management and has is approved for disposal in the landfill.

Print Name: Kevin Olson

Signature: _____ Date: 2-1-07

Note: "Food waste, office trash and animal carcasses do not require a radiological clear must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal RCT Initials

- _____ This container/load meets the criteria for no added man-made radioactive material
- This container/load meets the criteria for Radcon Manual Table 4.2 release limits.
- _____ This container/load is exempt from survey due to process knowledge and origin.

SIGNATURE: _____ DATE: 2-1-07

BN-0646 (10/05)

SWO USE ONLY

Load Weight (net from scale or estimate): 40,000 Signature of Certifier: _____

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Shaughn Burnison / Mike Floyd Phone Number: 5-9328

Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge

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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Decconned Underground and Above
 Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

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

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 site. I have verified this through the waste characterization method identified above an prohibited and allowable waste items. I have contacted Property Management and hav is approved for disposal in the landfill.

Print Name: MIKE FLOYD

Signature: _____

Date: 1/3/07

Radiological Survey Release for Waste Disposal RCT Initials

- This container/load meets the criteria for no added man-made radioactive material
- This container/load meets the criteria for Radcon Manual Table 4.2 release limits.
- This container/load is exempt from survey due to process knowledge and origin.

SIGNATURE: _____ DATE: 1-3-07

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. All other materials must have signed removal certification statement with Load Verification."

SWO USE ONLY

Load Weight (net from _____ or estimate): 42,000 Signature of Certifier: _____

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Shaughn Burnison / Mike Floyd Phone Number: 5-9328

Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge

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 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 disposal 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

Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above

Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters

Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 materia site. I have verified this through the waste characterization method identified above : prohibited and allowable waste items. I have contacted Property Management and he is approved for disposal in the landfill.

Print Name: Mike Floyd

Signature: _____ Date: 1/31/07

Note: "Food waste, office trash and animal carcasses do not require a radiological cle: must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal RCT Initials	
_____	This container/load meets the criteria for no added man-made radioactive material
<u> / </u>	This container/load meets the criteria for Radcon Manual Table 4.2 release limits.
_____	This container/load is exempt from survey due to process knowledge and origin.
SIGNATURE: _____	DATE: <u>1-31-07</u>

BN-0646 (10/05)

SWO USE ONLY

Load Weight (net from scale or estimate) 112,000 Signature of Certifier: _____

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NTS LANDFILL LOAD VERIFICATION

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SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Shaughn Burnison / Mike Floyd Phone Number: 5-9328

Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge

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/IV

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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Tanks
 Hydrocarbons (contact SWO) Other _____

Additional waste accepted at the Area 6 Hydrocarbon Landfill:
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 material site. I have verified this through the waste characterization method identified above a prohibited and allowable waste items. I have contacted Property Management and ha is approved for disposal in the landfill.

Print Name: Mike Floyd

Signature: _____ Date: 1/21/07

Note: "Food waste, office trash and animal carcasses do not require a radiological clea must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release llmits.

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

SIGNATURE: _____ DATE: 1-31-07

BN-0646 (10/05)

SWO USE ONLY

Load Weight (net from scale or estimate): 42,000 Signature of Certifier: _____

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Shaughn Burnison / Mike Floyd Phone Number: 5-9328

Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge

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 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 disposal 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

Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above

Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill: _____

Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters

Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 material site. I have verified this through the waste characterization method identified above a prohibited and allowable waste items. I have contacted Property Management and ha is approved for disposal in the landfill.

Print Name: Mike Floyd

Signature: _____ Date: 1/31/07

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. All other waste must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

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

SIGNATURE: _____

DATE: 1-31-07

BN-0646 (10/05)

SWO USE ONLY

Load Weight (net from scale or estimate): 42,000 Signature of Certifier: _____

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Shaughn Burnison / Mike Floyd Phone Number: 5-9328

Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge

Waste Category: (check one) Commercial Industrial

Waste Type: (check one) 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 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 disposal 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

Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Tanks

Hydrocarbons (contact SWO) Other _____

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters

Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 material site. I have verified this through the waste characterization method identified above a prohibited and allowable waste items. I have contacted Property Management and has approved for disposal in the landfill.

Print Name: Mike Floyd

Signature: _____ Date: 1/31/07

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal RCT Initials

- _____ This container/load meets the criteria for no added man-made radioactive material
- _____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.
- _____ This container/load is exempt from survey due to process knowledge and origin.

SIGNATURE: _____ DATE: 1-31-07

BN-0646 (10/05)

SWO USE ONLY

Load Weight (net from scale or estimate): 42,000 Signature of Certifier: _____

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Shaughn Burnison / Mike Floyd Phone Number: 5-9328

Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge

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 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 disposal 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

Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above

Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill: _____

Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters

Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 material site. I have verified this through the waste characterization method identified above a prohibited and allowable waste items. I have contacted Property Management and ha is approved for disposal in the landfill.

Print Name: Mike Floyd

Signature: _____ Date: 1/31/07

Note: "Food waste, office trash and animal carcasses do not require a radiological cle must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

_____ This container/load is exempt from survey due to _____'s knowledge and origin.

SIGNATURE: _____ DATE: 1-31-07

BN-0646 (10/05)

SWO USE ONLY

Load Weight (net from scale or estimate): 42,000 Signature of Certifier: _____

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Shaughn Burnison / Mike Floyd Phone Number: 5-9328

Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge

- 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/IV
- Pollution Prevention Category:** (check one) Environmental management Defense Projects YMP
- 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 disposal 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

Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Tanks

Hydrocarbons (contact SWO) Other _____

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters

Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 that are allowed for disposal at this site. I have verified this through the waste characterization method identified above and a review of the above-mentioned prohibited and allowable waste items. I have contacted Property Management and have verified that this material/equipment is approved for disposal in the landfill.

Print Name: MIKE FLOYD

Signature: _____ Date: 1/30/07

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance statement with Load Verification."

SWO USE ONLY

Load Weight (net from scale or estimate): 42,000 Signature of Certifier: _____

Radiological Survey Release for Waste Disposal RCT Initials

- This container/load meets the criteria for no added man-made radioactive material
- This container/load meets the criteria for Radcon Manual Table 4.2 release limits.
- This container/load is exempt from survey due to process knowledge and origin.

SIGNATURE: _____ DATE: 1-30-07

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Shaughn Burnison / Mike Floyd Phone Number: 5-9328

Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge

- 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 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 disposal 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

Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above

Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters

Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 that are allowed at this site. I have verified this through the waste characterization method identified above prohibited and allowable waste items. I have contacted Property Management and I is approved for disposal in the landfill.

Print Name: MIKE FLOYD

Signature: _____ Date: 1/30/07

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. They must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

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

SIGNATURE: _____ DATE: 1-30-07

BN-0646 (10/05)

SWO USE ONLY

Load Weight (net from _____ or estimate) 42,000 Signature of Certifier: _____ 1/30/07

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Shaughn Burnison / Mike Floyd Phone Number: 5-9328

Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge

- 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 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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above
 Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 that are allowed for disposal at this site. I have verified this through the waste characterization method identified above and a review of the above-mentioned prohibited and allowable waste items. I have contacted Property Management and ha is approved for disposal in the landfill.

Print Name: Mike Floyd

Signature: _____ Date: 1/30/07

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. They must have signed removal certification statement with Load Verification."

SWO USE ONLY

Load Weight (net from scale or estimate): 35,000

1/30/07

Signature of Certifier: _____

Radiological Survey Release for Waste Disposal RCT Initials

- _____ This container/load meets the criteria for no added man-made radioactive material
- _____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.
- This container/load is exempt from survey due to process knowledge and origin.

SIGNATURE: _____ DATE: 1-30-07

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NTS LANDFILL LOAD VERIFICATION

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SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Mike Floyd Phone Number: 5-6653

Location / Origin: CAC 536 CAC 03-44-02

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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Tanks
 Hydrocarbons (contact SWO) Other _____

Additional waste accepted at the Area 6 Hydrocarbon Landfill: _____
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (if initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those mat site. I have verified this through the waste characterization method identified above prohibited and allowable waste items. I have contacted Property Management and is approved for disposal in the landfill.

Print Name: Mike Floyd

Signature: _____ Date: 1/25/07

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

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

SIGNATURE: _____ DATE: 1/25/07

BN-0646 (10/05)

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."

SWO USE ONLY

Load Weight (net from scale or estimate): 39,420 Signature of Certifier: _____ Date: 1/25/07

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Mike FLOYD Phone Number: 5-6657

Location / Origin: CAL 536 CAS 03-44-02

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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Tanks
 Hydrocarbons (contact SWO) Other _____

Additional waste accepted at the Area 6 Hydrocarbon Landfill:
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 mater site. I have verified this through the waste characterization method identified above prohibited and allowable waste items. I have contacted Property Management and I is approved for disposal in the landfill.

Print Name: Mike FLOYD

Signature: _____ Date: 1/25/07

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

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

SIGNATURE: _____ DATE: 1/25/07

SWO USE ONLY

Load Weight (net from scale or estimate): 39,000 1/25/07 Signature of Certifier: _____

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Mike Floyd Phone Number: 5-6657

Location / Origin: CAC 53C CAC 03-44-02

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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Tanks
 Hydrocarbons (contact SWO) Other _____

Additional waste accepted at the Area 6 Hydrocarbon Landfill:
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 mater site. I have verified this through the waste characterization method identified above prohibited and allowable waste items. I have contacted Property Management and is approved for disposal in the landfill.

Print Name: Mike Floyd

Signature: _____ Date: 1/25/07

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material
 _____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.
 _____ This container/load is exempt from survey due to process knowledge and origin.

SIGNATURE: _____ DATE: 1/25/07

BN-0646 (10/05)

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."

SWO USE ONLY

Load Weight (net from scale or estimate): 11,260 1/25/07 Signature of Certifier: _____

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Mike FLOYD Phone Number: 5-6653

Location / Origin: CA 536 CAF 03-44-02

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 disposal 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

Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above

Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill: _____

Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters

Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 prohibited and allowable waste items. I have contacted Property Management and is approved for disposal in the landfill.

Print Name: Mike FLOYD

Signature: _____ Date: 1/23/07

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

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

SIGNATURE: _____ DATE: 1/23/07

BN-0646 (10/05)

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance, Freon-containing appliances must have signed removal certification statement with Load Verification."

SWO USE ONLY

Load Weight (net from scale or estimate): 34,400 Signature of Certifier: _____

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Mick FLOYD Phone Number: 5-6653

Location / Origin: CAF 536 CAF 03-44-02

- 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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Tanks
 Hydrocarbons (contact SWO) Other _____

Additional waste accepted at the Area 6 Hydrocarbon Landfill:
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (if initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those materials site. I have verified this through the waste characterization method identified above and prohibited and allowable waste items. I have contacted Property Management and have is approved for disposal in the landfill.

Print Name: Mick FLOYD

Signature: _____ Date: 1/24/07

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

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

SIGNATURE: _____ DATE: 1/24/07

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."

SWO USE ONLY

Load Weight (net from scale or estimate): 30,540 Signature of Certifier: _____

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Mike FLOYD Phone Number: 8-6653
Location / Origin: CA# 536 CAF 03-44-02

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/IV

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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Tanks
 Hydrocarbons (contact SWO) Other _____

Additional waste accepted at the Area 6 Hydrocarbon Landfill:
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (if initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Manager knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those material site. I have verified this through the waste characterization method identified above a prohibited and allowable waste items. I have contacted Property Management and ha is approved for disposal in the landfill.

Print Name: Mike FLOYD

Signature: _____ Date: 1/24/07

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

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

SIGNATURE: _____ DATE: 1/24/07

BN-0646 (10/05)

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."

SWO USE ONLY

Load Weight (net from scale or estimate): 42,000 Signature of Certifier: _____

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Mike Floyd Phone Number: 5-6653
Location / Origin: CAF 536 CAF 03-44-02

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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Tanks
 Hydrocarbons (contact SWO) Other _____

Additional waste accepted at the Area 6 Hydrocarbon Landfill:
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (if initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Managem knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those materi site. I have verified this through the waste characterization method identified above prohibited and allowable waste items. I have contacted Property Management and h is approved for disposal in the landfill.

Print Name: M. L. Floyd
Signature: _____ Date: 1/24/07

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

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

SIGNATURE: _____ DATE: 1/24/07

BN-0846 (10/05)

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance Freon-containing appliances must have signed removal certification statement with Load Verification."

SWO USE ONLY 1/24/07
Load Weight (net from scale or estimate): 40,400 Signature of Certifier: _____

1

NSTec
Form
FRM-0918

NTS LANDFILL LOAD VERIFICATION

08/23/06
Rev. 0
Page 1 of 2

SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Mike FLOYD Phone Number: 56653

Location / Origin: CAU 53C CAS 03-44-02

Waste Category: (check one) Commercial Industrial

Waste Type: (check one) 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 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 disposal 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

Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above

Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters

Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 materia site. I have verified this through the waste characterization method identified above a prohibited and allowable waste items. I have contacted Property Management and ha is approved for disposal in the landfill.

Print Name: Mike FLOYD

Signature: _____ Date: 7/25/07

Note: "Food waste, office trash and animal carcasses do not require a radiological clea must have signed removal certification statement with Load Verification."

Radiological Survey Release for Waste Disposal RCT initials

- _____ This container/load meets the criteria for no added man-made radioactive material
- _____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.
- _____ This container/load is exempt from survey due to process knowledge and origin.

SIGNATURE: _____ DATE: _____

BN-0646 (10/05)

SWO USE ONLY

Load Weight (net from scale or estimate): 26,300 Signature of Certifier: _____

7/25/07

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Mike FLOYD Phone Number: 5-6653

Location / Origin: CAUS36 CAS 03-44-02

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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Decconned Underground and Above
 Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (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 prohibited and allowable waste items. I have contacted Property Management and is approved for disposal in the landfill.

Print Name: Mike FLOYD

Signature: _____ Date: 1/30/07

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

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

SIGNATURE: _____ DATE: 1/29/07

BN-0646 (10/05)

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."

SWO USE ONLY

Load Weight (net from scale or estimate) 19,200 Signature of Certifier: _____ Date: 1/30/07 1-30-07

(4)

(14)

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08/23/06
Rev. 0
Page 1 of 2

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Mike Floyd Phone Number: 5-6653

Location / Origin: CAF 536 CAF 03-44-02

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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above
 Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill: _____
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (if initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those materials site. I have verified this through the waste characterization method identified above an prohibited and allowable waste items. I have contacted Property Management and hav is approved for disposal in the landfill.

Print Name: M. L. Floyd

Signature: _____ Date: 1/23/07

Radiological Survey Release for Waste Disposal RCT Initials

_____ This container/load meets the criteria for no added man-made radioactive material

_____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.

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

SIGNATURE: _____ DATE: 1/23/07

BN-0646 (10/05)

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."

SWO USE ONLY

Load Weight (net from scale or estimate): 41,500 Signature of Certifier: _____

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) 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 rolloffs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Mick Floyd Phone Number: 5-6653

Location / Origin: CA# 536 CAF 03-44-02

- 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 disposal 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
 Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Tanks
 Hydrocarbons (contact SWO) Other _____

Additional waste accepted at the Area 6 Hydrocarbon Landfill:
 Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

Initials: _____ (if initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those material: site. I have verified this through the waste characterization method identified above as prohibited and allowable waste items. I have contacted Property Management and has is approved for disposal in the landfill.

Print Name: Mick Floyd

Signature: _____ Date: 1/23/07

Radiological Survey Release for Waste Disposal RCT Initials

- _____ This container/load meets the criteria for no added man-made radioactive material
- _____ This container/load meets the criteria for Radcon Manual Table 4.2 release limits.
- _____ This container/load is exempt from survey due to professional knowledge and origin.

SIGNATURE: _____ DATE: 1/23/07

BN-0646 (10/05)

Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."

SWO USE ONLY

Load Weight (net from scale) or estimate: 42,140 Signature of Certifier: _____

NTS On-Site HazMat Transfer - Published

Tracking No: DPL07122

Mesa Number:

Carrier: NSTEC

Vehicle: E104363

Driver: HIRK FOREST

CDL: 4300161386 NV

Depart: 22-FEB-2007 13:00

Arrival: 22-FEB-2007 14:00

From: HERESA HALE

NSTEC

BASE CAMP

Area: 3

Bldg: CAU 536

Phone: 702-295-1672

Alt Phone:

Mobile: 702-875-6398

To: MERL SCHWARTZWALTER

NSTEC

BASE CAMP

MERCURY, NV 89023

Area: 05

Bldg: 007

Phone: 702-295-6807

Alt Phone: 702-295-8811

Mobile:

Entered By: BILL NICOSIA

Date Entered: 21-FEB-2007

Modified By: BILL NICOSIA

Date Modified: 22-FEB-2007

Shipped Material(s)	Package(s)	Unit(s)	Guide No.
UN/NA ----, NON-REGULATED WASTE WASTE PACKAGES 151453, 151434, 151482 TPH HYDROCARBON WASTE	3 BOX, METAL	21050.00 POUND(S) (GROSS)	--

24-Hr Emergency Response NAME

702-295-0311

DATE

2-22-07

Secondary Emergency Response Contact And/Or Comments
BILL NICOSIA 702-630-0223

NSTec RWP

EMERGENCY RESPONSE

In the event of an incident involving Hazardous Material:

By Phone
702-295-0311

By Radio
'MAYDAY - MAYDAY - MAYDAY'

1. Gather HazMat shipping papers and NAER Guidebook
2. Isolate the immediate area
3. Assess the situation:
 - a. Fire, Spill, or Leak?
 - b. People, Property, or the Environment at risk?
4. Contact On-site Emergency Response Personnel
5. Reference On-Site HazMat Transfer Tracking Number

This is to certify that the above-named materials are properly classified, described, packaged, marked, placarded, and labeled and are in proper condition for transportation according to the applicable regulations of the U.S Department of Transportation. As a signatory I certify that I have been trained and tested to the requirements of 49 CFR, Part 172-700 and is compliant with the NTS OTSD.

Authorized Signature: _____ Date: 2-22-07 Time: 1245

Received by: _____ Date: 2-22-07 Time: 1430

Certificate of Disposal

This is to certify that the, Waste Stream No., LRY5LLFY07002, package numbers 151434, 151453, and 151482 was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Technical Staff

Shipped by

Organization

Title

Signature

2-22-07

Date

Received by

NSTec
Organization

Operation Specialist
Title

Signature

2-22-07
Date

APPENDIX D
FIELD PHOTOGRAPHS

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PHOTOGRAPHIC LOG

IMAGE NUMBER	DATE	CORRECTIVE ACTION SITE	DESCRIPTION
1	08/25/1998	CAS 03-44-02	Concrete pad location prior to corrective action
2	01/11/2007	CAS 03-44-02	Soil location during excavation
3	01/11/2007	CAS 03-44-02	Concrete pad location during pad breakup
4	01/11/2007	CAS 03-44-02	Drum discovered during excavation
5	01/17/2007	CAS 03-44-02	Concrete pad location during corrective action
6	02/08/2007	CAS 03-44-02	Concrete pad location after corrective action

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Photograph 1: Concrete pad location prior to corrective action (08/25/1998)



Photograph 2: Soil location during excavation (01/11/2007)



Photograph 3: Concrete pad location during pad breakup (01/11/2007)



Photograph 4: Drum discovered during excavation (01/11/2007)



Photograph 5: Concrete pad location during corrective action (01/17/2007)



Photograph 6: Concrete pad location after corrective action (02/08/2007)

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APPENDIX E

***NATIONAL ENVIRONMENTAL POLICY ACT* ENVIRONMENTAL EVALUATION CHECKLIST**

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**U.S. DEPARTMENT OF ENERGY
NATIONAL NUCLEAR SECURITY ADMINISTRATION NEVADA SITE OFFICE
NEPA ENVIRONMENTAL EVALUATION CHECKLIST**

FOLLOW ATTACHED PROCEDURES FOR COMPLETING CHECKLIST	Date 11/27/06
A. Project/Activity Title (Attach a brief description of proposed project) CAU 536: Area 3 Release Site	Anticipated Start Date 01/14/2007

Project Location NTS Area 3	Proposed By (if other than NNSA/NSO)
NNSA/NSO Line Management Organization	NNSA/NSO Project/Program Manager John Jones

ENVIRONMENTAL CONSIDERATIONS: If any phase of the project/activity involves any of the following considerations, check yes and explain in project description. See NV-16A for consideration guidelines and examples.

CONSIDERATION	YES	NO	UNK	CONSIDERATION	YES	NO	UNK
WASTE				AIR EMISSIONS			
1 Non-Rad Solid Waste	X			1 Biological Material/Chemical Release		X	
2 Hazardous Waste		X		2 Dust/Particulate Matter	X		
3 Low-level Rad Waste	X			3 Explosives		X	
4 Mixed Waste		X		4 Diesel Generators		X	
5 TRU/Mixed TRU Waste		X		5 Open Burning		X	
6 Wastewater (domestic/industrial)		X					
				SITE LOCATION/OTHER			
HAZARDOUS MATERIALS				1 Environmental Restoration Site (CAU)	X		
1 Petroleum/Fuel (storage/use)	X			2 Excavation/Land Surface Disturbance	X		
2 Underground Storage Tanks		X		3 Off road travel		X	
3 Aboveground Storage Tanks		X		4 Biological/Tortoise Resource Area		X	
4 PCBs/Asbestos		X		5 Cultural/Historic Resource Area		X	
5 Pesticides/Herbicides		X		6 Change in Existing Drainage Pattern		X	
6 Radioactive Materials	X			7 Impact to Environmental Monitoring System		X	
7 Biological Materials/Simulants		X		8 Unexploded Ordnance Area		X	
8 Beryllium		X		9 Noise	X		
9 Chemical storage/use		X		10 Radiation controlled area		X	
10 Use of explosives/firearms		X		11 Drinking water system involvement		X	

DO NOT TYPE OR WRITE BELOW THIS LINE. FOR ESHD USE ONLY.

B. Is the project/activity included in the final NTS EIS and the ROD or other NEPA document?
 Yes (complete Sections C, D, and E) No (complete Sections D, E, and F)

C. This project/activity is included in the NTS EIS/ROD (or other NEPA document) under the following section and page no.:
 NTS EIS, section 3.1.3.3, Environmental Restoration Program Under Alternative 3, p. 3-12

D. Does the proposed project/activity require any local, state, or federal permits or notifications? Yes No

E. If, based on the project description and the preliminary environmental considerations noted above, the proposed action fits within a class of action listed in Subpart D of 10 CFR 1021, write in the space below, the paragraph number and short title from the appropriate table of contents of Subpart D, Appendix B, C, or D, for a CX, EA, or EIS. If the proposed action does not fit within any class of action, write "Not Listed" below.

F. NEPA COMPLIANCE OFFICER DETERMINATION OR RECOMMENDATION:
 I have determined that the impacts of the proposed action, described in item A, are adequately addressed in the NTS EIS. No additional analysis or documentation is required pursuant to NEPA. If changes are made to the proposed action, further NEPA review may be required.

_____ NNSA/NSO NEPA Compliance Officer	_____ Date
---	---------------

CAU 536: Area 3 Release Site

Project Description

Corrective Action Unit (CAU) 536, Area 3 Release Site, consists of a single CAS located in the Area 3 Camp comprised of a large concrete pad, a sump located on the eastern side of the pad, a smaller concrete pad adjacent to the western side of the main pad, a drainage ditch running along the southern edge of the site, and the surrounding soil. Results provided by the preliminary site characterization identified total petroleum hydrocarbons (TPH) as diesel-range organics and oil-range organics; polycyclic aromatic hydrocarbons (PAH); and Plutonium (Pu) -239 as contaminants of concern (COCs) present at concentrations greater than action levels. Four areas within the CAS have TPH contamination, and one area has Pu-239 contamination only (no TPH).

As stated in the CAU 536 CADD, the recommended corrective action for CAS 03-44-02 is clean closure. This will be accomplished by removing contaminated soil from depths ranging from 2 feet (ft) to 11 ft below ground surface (bgs) from the CAS footprint. As a best management practice, the concrete pad will be demolished and any other associated features (e.g., piping connecting the sumps) will be identified, removed, and disposed of appropriately. Soil samples will be collected from all excavations and analyzed for appropriate COCs to verify that clean up criteria have been met. All excavations will be backfilled with NTS native material, compacted, and graded to approximate surrounding contours.

Environmental Considerations

Waste

1. **Non-Rad Solid Waste:** Non-rad solid waste will be generated at CAU 536 as concrete debris from the demolition of the 108 cubic yard (CY) concrete pad. A hoe-ram or similar equipment will be utilized to break up the concrete pad. All debris will be disposed of at the Area 9 U-10C Construction Landfill.

Approximately 1,900 CY of soil contaminated with TPH and PAH will be excavated, stockpiled on plastic or placed directly into trucks, and transported to the Area 6 Hydrocarbon Landfill for disposal.

3. **Low-Level Rad Waste:** Low-level waste will be generated as Pu-239 impacted soil reported above action levels. The impacted soil will be excavated and placed into B25 boxes awaiting the generation of a WGS waste profile prior to onsite disposal. A water truck will be employed for dust suppression, and level C PPE (with respirator) will be required for all field support personnel during the excavation and packaging of the Pu impacted soil.

Hazardous Materials

1. **Petroleum/Fuel (storage/use):** During the excavation of soil, heavy equipment on site will use petroleum fuel. No fuel will be stored on site outside of the equipment. Absorbent pads will be used if equipment appears to be leaking petroleum.
6. **Radioactive Materials:** Radioactive materials may be encountered in the form of soil contaminated with Pu-239. Any material contaminated above action levels will be removed, packaged as low-level waste, profiled for disposal, and disposed of appropriately.

Air Emissions

2. **Dust/Particulate Matter:** Dust will be controlled during soil excavation by the use of water sprays.

Site Location/Other

1. **Environmental Restoration Site:** CAU 536 is included in the Federal Facility Agreement and Consent Order between the Department of Energy and the state of Nevada.
2. **Excavation/Land Surface Disturbance:** Excavation will be conducted based on site characterization analytical results. All excavations will be backfilled with clean fill from an approved borrow source and contoured to the surrounding grade.
3. **Noise:** Hearing protection will be required when working near heavy equipment.

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APPENDIX F

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION COMMENT RESPONSES

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NEVADA ENVIRONMENTAL RESTORATION PROJECT
DOCUMENT REVIEW SHEET

<p>Document Title/Number: Draft Closure Report for CAU 536, Area 3 Release Site</p> <p>Revision Number: 0</p> <p>Responsible NNSA/NSO ERP Federal Sub-Project Director: Kevin Cabble</p> <p>Review Criteria: Full</p> <p>Reviewer/Organization/Phone Number: Jeff MacDougall/NDEP/486-2850, ext.233</p>	<p>Document Date: July 2007</p> <p>Author/Organization: NSTec</p> <p>Date Comments Due: July 13, 2007</p> <p>Reviewer's Signature _____</p>
---	---

Comment Number/ Location	Type ^a	Comment	Recommendation/Alternative	Comment Response	Response Accepted (Initial)
1. Appendix A, page A-6 of A-44	S	The concentration unit (pCi/g) is missing from the potassium-40 value.	Include the missing concentration unit.	Because the comment location is in Appendix A of the closure report, which is excerpted from a previously- drafted, reviewed, and published document as published, no alterations are possible, and the missing concentration cannot be included.	

^a Comment Types: M = Mandatory, S = Suggested

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Southern Nevada Public Reading Facility c/o Nuclear Testing Archive P.O. Box 98521, M/S 400 Las Vegas, NV 89193-8521	2 (Uncontrolled, electronic copies)
Manager, Northern Nevada FFACO Public Reading Facility c/o Nevada State Library & Archives Carson City, NV 89701-4285	1 (Uncontrolled, electronic copy)

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