DOE/NV--1215

Nevada Environmental Restoration Project



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

Controlled Copy No.:_____

Revision: 0

July 2007



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

Controlled Copy No.____ Revision: 0 July 2007

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

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

Kevin J. Cabble

Federal Sub-Project Director Industrial Sites Sub-Project

Approved By: <u>SIGNATURE APPROVED</u> Date: <u>07/16/2007</u>

John B. Jones

Acting Federal Project Director Environmental Restoration Project

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CAU 536 Closure Report

Section: Acronyms & Abbreviations

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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 Federal Facility Agreement and Consent Order

ft foot (feet)
gal gallon(s)

LLW low-level waste

NDEP Nevada Division of Environmental Protection

NEPA National Environmental Policy Act

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

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ACRONYMS AND ABBREVIATIONS (continued)

 yd^3 cubic yard(s)

CAU 536 Closure Report Section: Executive Summary

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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.

CAU 536 Closure Report Section: Executive Summary Revision: 0 Date: July 2007

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).

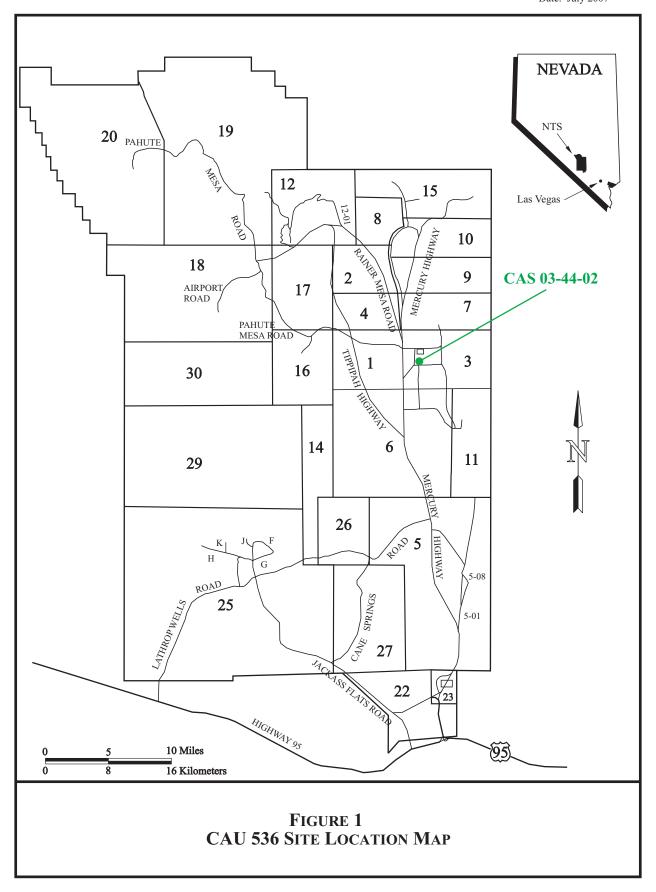
1.2 SCOPE

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.



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.

CAU 536 Closure Report Section: Closure Activities

Revision: 0 Date: July 2007

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:

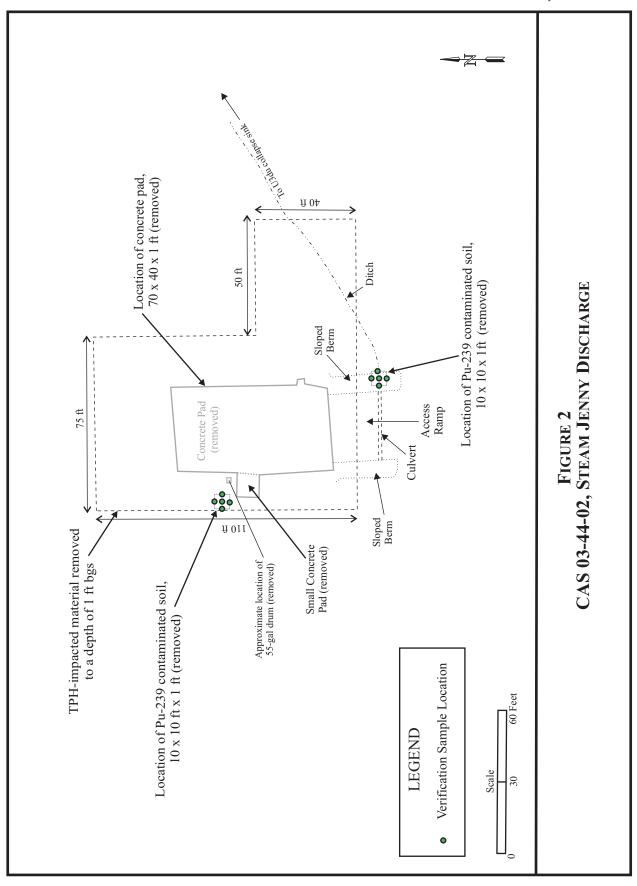
- Preparation of a NEPA Checklist
- Preparation of a Field Management Plan for CAU 536 (NSTec, 2006a)
- Preparation of a Site-Specific Health and Safety Plan for closure activities at CAU 536 (NSTec, 2006b)
- Preparation of the work packages to control work
- Preparation of a Real Estate/Operations Permit 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.



CAU 536 Closure Report Section: Closure Activities

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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.						

CAU 536 Closure Report Section: Closure Activities Revision: 0 Date: July 2007

2.4 SITE PLAN / SURVEY PLAT

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

CAU 536 Closure Report Section: Waste Disposition

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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.

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

TABLE 2. DISPOSITION OF WASTE

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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CAU 536 Closure Report Section: Closure Verification Results

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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).

CAU 536 Closure Report Section: Closure Verification Results

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TABLE 3. VERIFICATION SAMPLE ANALYTICAL RESULTS

	DATE COLLECTED	RESULTS	
SAMPLE ID		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.

CAU 536 Closure Report Section: Closure Verification Results

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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.

CAU 536 Closure Report Section: Closure Verification Results Revision: 0 Date: July 2007

Section: Conclusions/Recommendations

Revision: 0 Date: July 2007

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.

CAU 536 Closure Report Section: Conclusions/Recommendations Revision: 0 Date: July 2007

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.
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CAU 536 Closure Report Section: References Revision: 0 Date: July 2007

CAU 536 Closure Report Section: Appendix A Revision: 0 Date: July 2007

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.

CAU 536 Closure Report Section: Appendix A Revision: 0 Date: July 2007

CAU 536 CAIP Appendix A.1 Revision: 0 Date: 06/27/2003 Page A-1 of A-44

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

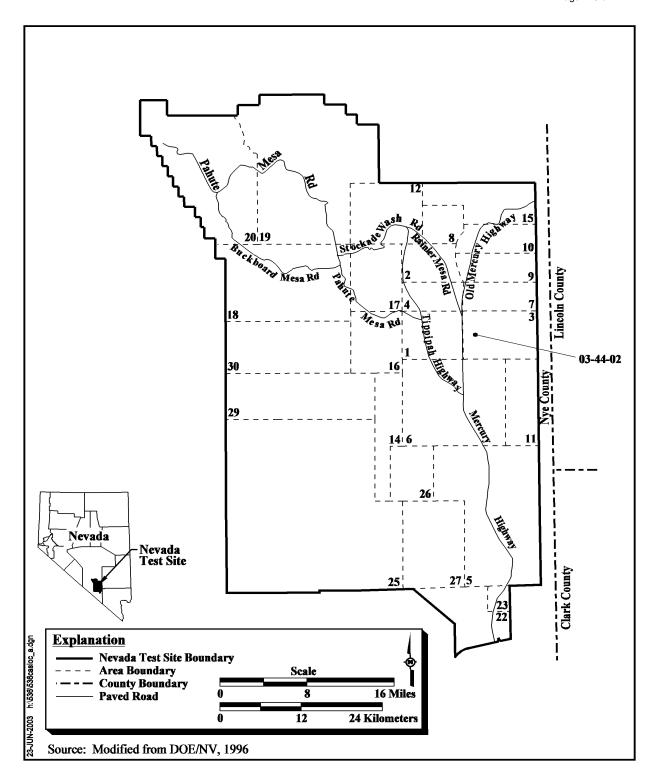


Figure A.1-1 CAU 536, CAS 03-44-02 Location

CAU 536 CAIP Appendix A.1 Revision: 0 Date: 06/27/2003 Page A-4 of A-44

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

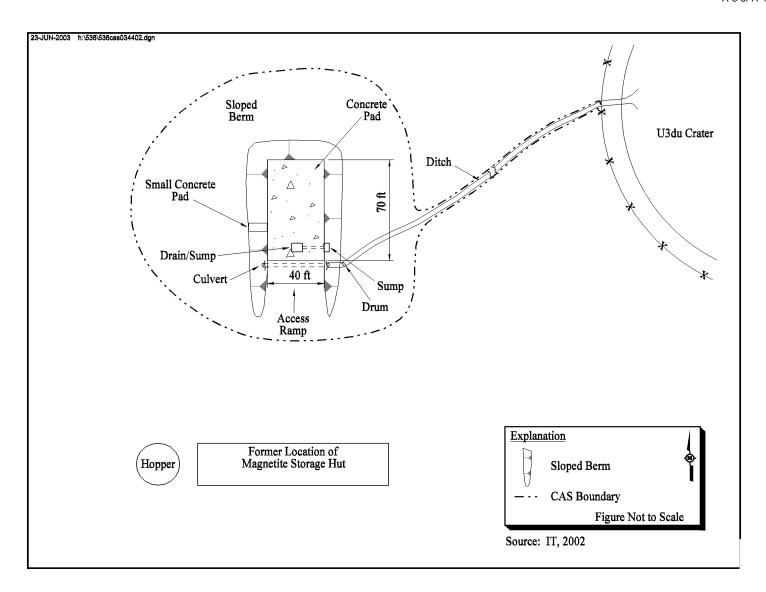


Figure A.1-2 CAU 536, CAS 03-44-02 Site Diagram

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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

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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."

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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.

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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

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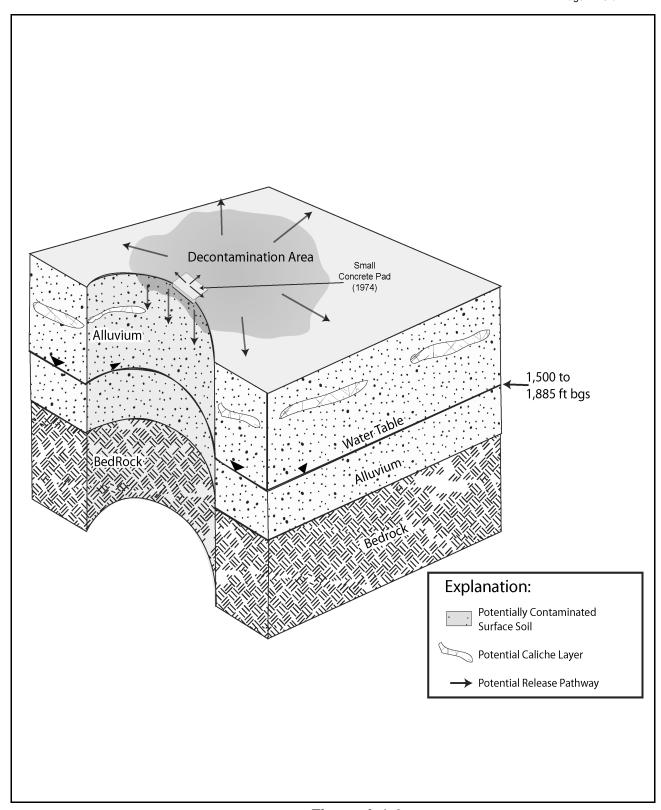


Figure A.1-3
CAU 536, Area 3 Release Site - Conceptual Site Model #1,
Before Pad Construction

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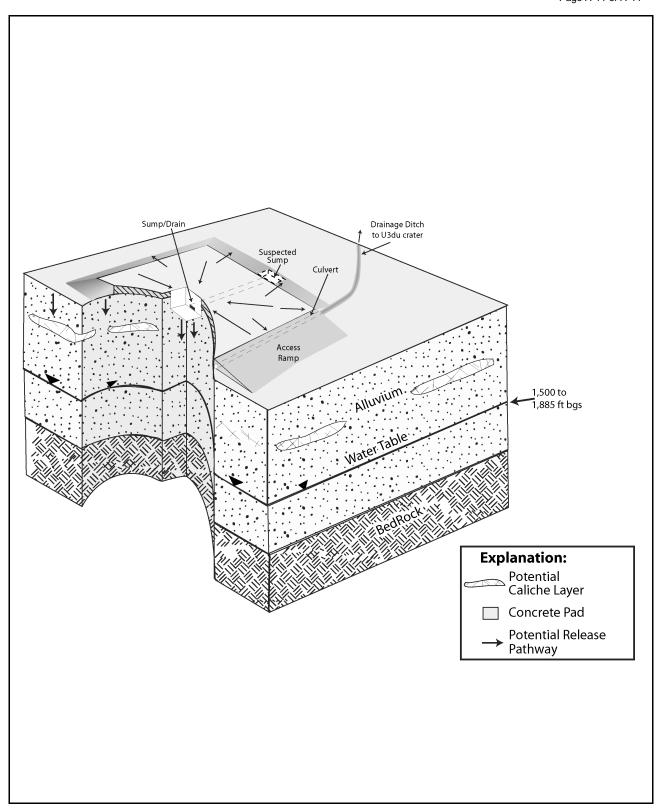


Figure A.1-4
CAU 536, Area 3 Release Site - Conceptual Site Model #2,
After Pad Construction

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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

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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

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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.

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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

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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.

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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

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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.

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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.

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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

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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
С	Decision I (Phase I): Determine if a COC is present. Criteria I: Samples must be collected in areas most likely to contain a COC.			
	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
Source and location of release points	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	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
contamination	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

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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
Criteria: S	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
	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
Extent of Contamination	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

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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.

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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.

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Based upon the Ward Valley climatography, 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:

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- 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,

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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)	Х		
Polychlorinated Biphenyls	Х		
Semivolatile Organic Compounds	X		
Volatile Organic Compounds	X		
Metals			
Resource Conservation and Recovery Act Metals ^b	Х		
Beryllium	Х		
Radionuclides			
Gamma Spectrometry ^c	X		
Isotopic Uranium	X		
Isotopic Plutonium	Х		
Strontium-90	Х		

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

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

^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.

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

Chemical	Radiological
Common Solvents and Degreasers ^a : - dichlorobenzene - ethyl benzene - napthalene - 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

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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.

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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

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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.

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- 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.

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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.

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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).

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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.

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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.

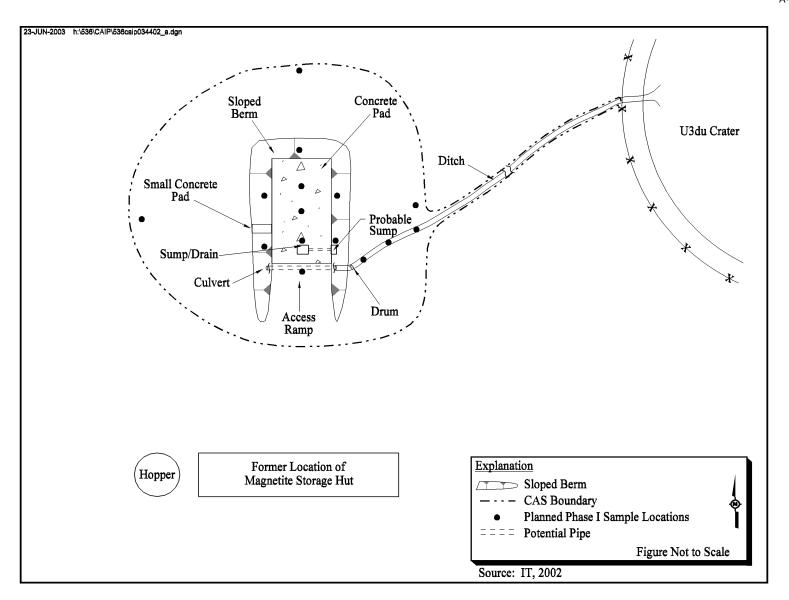


Figure A.1-5
CAU 536, CAS 03-44-02 - Planned Phase I Sample Locations

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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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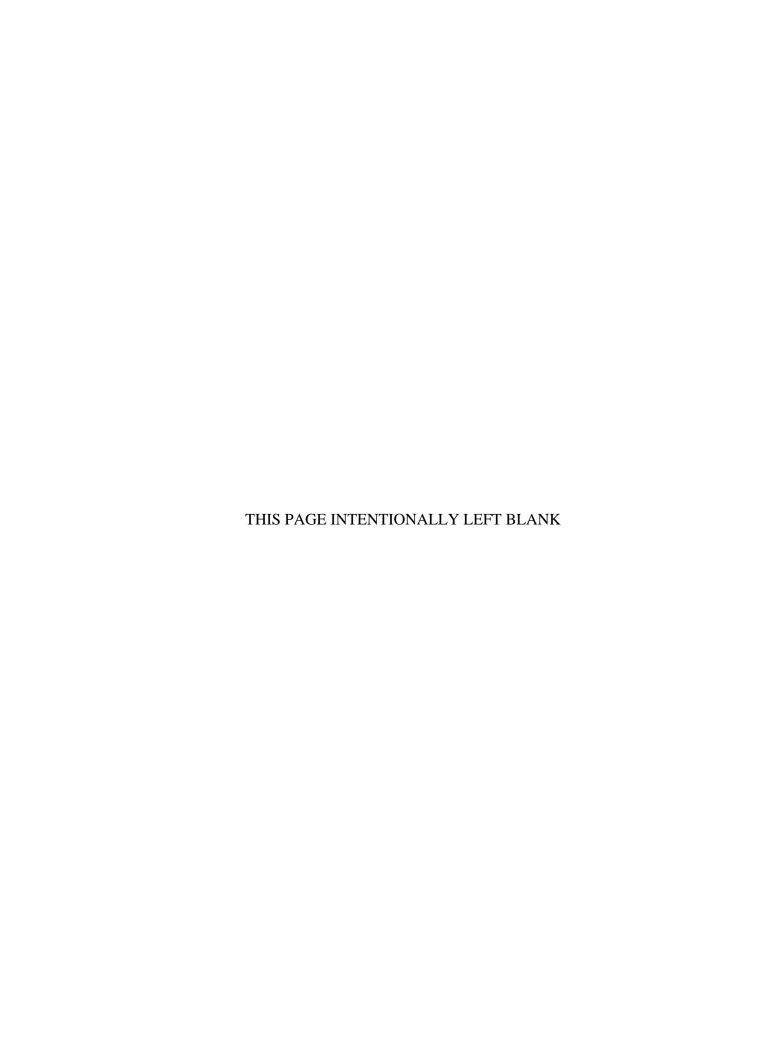
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CAU 536 CAIP Appendix A.1 Revision: 0 Date: 06/27/2003 Page A-40 of A-44

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CAU 536 Closure Report Section: Appendix B Revision: 0 Date: July 2007

APPENDIX B ANALYTICAL RESULTS



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

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	,	-/-	
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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

Client Sample ID:

Sample ID:

Matrix:

Collect Date: Receive Date: Collector:

034402 - RW 1

179526001 Soil

11-JAN-07 24-JAN-07

Client

Report Date: January 30, 2007

Project: Client ID: NEVA00406 NEVA002

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst Date	Time Batch
Rad Alpha Spec Analysis										
Alphaspec Pu, Solid										
Plutonium-238	U	0.0027	+/-0.00649	0.0129 + /-0	0.00649	0.020	pCi/g		GXR1 01/26/0	07 1314 604489
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

DOE EML HASL-300, Pu-11-RC Modified

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

Notes:

- 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
- For General Chemistry and Organic analysis the target analyte was detected in the associated blank. B
- BD Results are either below the MDC or tracer recovery is low
- Analyte has been confirmed by GC/MS analysis C
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- Value is estimated J
- 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
- Sample results are rejected

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Certificate of Analysis

Company:

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Address:

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M/S NTS273

North Las Vegas, Nevada 89030-4134

Contact:

Mr. Ted Redding

Project:

Environmental Rad Analysis - No EDD

Client Sample ID:

034402 - RW 1

Project: Client ID:

NEVA00406

Sample ID:

179526001

NEVA002

Report Date: January 30, 2007

Parameter

Qualifier

Result

Uncertainty

DL TPU RL

Units

DF Analyst Date **Time Batch**

Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

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

QC Samples were not spiked with this compound Y

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

Preparation or preservation holding time was exceeded

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Report Date: January 30, 2007

NEVA00406

NEVA002

Project:

Client ID:

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

Client Sample ID:

Sample ID:

Matrix:

Collect Date:

Receive Date:

Collector:

034402 - RW 2 179526002

Soil

11-JAN-07 24-JAN-07

Client

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst Date	Time Batch
Rad Alpha Spec Analysis					0. 100-11	1000000				
Alphaspec Pu, Solid										
Plutonium-238		0.0919	$\pm /\!\!-0.0233$	0.0113	+/-0.0246	0.020	pCi/g		GXR1 01/26/0	07 1314 60448
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

DOE EML HASL-300, Pu-11-RC Modified

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

Notes:

- 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
- The TIC is a suspected aldol-condensation product A
- В 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
- Analytical holding time was exceeded Н
- Value is estimated J
- 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
- Sample results are rejected R
- Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. U

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Certificate of Analysis

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Address:

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M/S NTS273

North Las Vegas, Nevada 89030-4134

Contact:

Mr. Ted Redding

Project:

Environmental Rad Analysis - No EDD

Client Sample ID:

034402 - RW 2

Project: Client ID:

NEVA00406

Sample ID:

179526002

NEVA002

Parameter

Qualifier

Result

Uncertainty

DL TPU RL

Units

DF Analyst Date

Report Date: January 30, 2007

Time Batch

UI Gamma Spectroscopy—Uncertain identification

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

OC Samples were not spiked with this compound Y

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

Preparation or preservation holding time was exceeded h

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Report Date: January 30, 2007

NEVA00406

NEVA002

Project:

Client ID:

Certificate of Analysis

Company:

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Address:

2621 Losee Road

M/S NTS273

North Las Vegas, Nevada 89030--4134

Contact:

Mr. Ted Redding

Project:

Environmental Rad Analysis - No EDD

Client Sample ID:

034402 - RW 3

179526003

Matrix:

Collect Date:

11-JAN-07 24-JAN-07

Receive Date:

Sample ID:

Collector:

Client

Soil

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst Date	Time Batch
Rad Alpha Spec Analysis	s									
Alphaspec Pu, Solid										
Plutonium-238		0.134	+/-0.0267	0.00416	+/-0.0292	0.020	pCi/g		GXR1 01/26/0	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

DOE EML HASL-300, Pu-11-RC Modified

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

Notes:

- 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
- The TIC is a suspected aldol-condensation product A
- For General Chemistry and Organic analysis the target analyte was detected in the associated blank. В
- BD Results are either below the MDC or tracer recovery is low
- Analyte has been confirmed by GC/MS analysis C
- D Results are reported from a diluted aliquot of the sample
- Analytical holding time was exceeded
- 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
- Sample results are rejected R
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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Contact:

Mr. Ted Redding

Project:

Environmental Rad Analysis - No EDD

Client Sample ID:

Sample ID:

034402 - RW 3

179526003

Project: Client ID: NEVA00406

NEVA002

Parameter

Qualifier

Result

Uncertainty

DL

TPU

RL

Units

DF Analyst Date

Report Date: January 30, 2007

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

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Report Date: January 30, 2007

NEVA00406

NEVA002

Project:

Client ID:

Certificate of Analysis

Company: National Security Technologies,

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Address:

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North Las Vegas, Nevada 89030--4134

Contact:

Mr. Ted Redding

Project:

Environmental Rad Analysis - No EDD

Client Sample ID:

034402 - RW 4

70526004

Sample ID: Matrix:

179526004 Soil

Collect Date:

11-JAN-07

Receive Date:

24-JAN-07

Collector:

Client

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch
Rad Alpha Spec Analysis	•					元格元 化		1,780,80			
Alphaspec Pu, Solid											
Plutonium-238		0.125	+/-0.025	0.00393	+/-0.0272	0.020	pCi/g		GXR1	01/26/0	7 1314 60448
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

DOE EML HASL-300, Pu-11-RC Modified

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

Notes:

- * 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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Contact:

Mr. Ted Redding

Project:

Environmental Rad Analysis - No EDD

Client Sample ID:

034402 - RW 4

Project: Client ID:

NEVA00406

Sample ID:

179526004

NEVA002

Parameter

Qualifier

Result

Uncertainty

DL

TPU

RL

Units

DF Analyst Date

Report Date: January 30, 2007

Time Batch

UI Gamma Spectroscopy--Uncertain identification

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

OC Samples were not spiked with this compound Y

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

Preparation or preservation holding time was exceeded h

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Company:

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Contact:

Mr. Ted Redding

Project:

Environmental Rad Analysis - No EDD

Client Sample ID:

Sample ID:

Matrix:

Collect Date:

Receive Date:

Collector:

034402 - RW 5

179526005 Soil

11-JAN-07

24-JAN-07 Client

NEVA00406

NEVA002

Project: Client ID:

Report Date: January 30, 2007

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch
Rad Alpha Spec Analysis											
Alphaspec Pu, Solid											
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	$\pm /\!\! -0.169$	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

DOE EML HASL-300, Pu-11-RC Modified

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

Notes:

- 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
- В 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
- Analyte has been confirmed by GC/MS analysis C
- D Results are reported from a diluted aliquot of the sample
- Analytical holding time was exceeded
- 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
- Sample results are rejected
- Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. U

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Contact:

Mr. Ted Redding

Project:

Environmental Rad Analysis - No EDD

Client Sample ID:

Sample ID:

034402 - RW 5

179526005

Project: Client ID:

NEVA00406

NEVA002

Parameter

Qualifier

Result

Uncertainty

DL

TPU

RL

Units

DF Analyst Date

Report Date: January 30, 2007

Time Batch

UI Gamma Spectroscopy--Uncertain identification

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

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

Report Date: January 30, 2007

NEVA00406

NEVA002

Project: Client ID:

Certificate of Analysis

Company:

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Address:

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M/S NTS273

North Las Vegas, Nevada 89030-4134

Contact:

Mr. Ted Redding

Project:

Environmental Rad Analysis - No EDD

Client Sample ID:

Sample ID:

Matrix:

Collect Date: Receive Date:. Collector:

034402 - RW 6 179526006

Soil

11-JAN-07 24-JAN-07

Client

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF Anal	yst Date	Time Batch
Rad Alpha Spec Analysis										
Alphaspec Pu, Solid										
Plutonium-238		1.27	+/-0.0842	0.00437	+/-0.139	0.020	pCi/g	GXR	.1 01/26/0	07 1314 604489
Plutonium-239/240		6.76	$\pm /-0.195$	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

DOE EML HASL-300, Pu-11-RC Modified

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

Notes:

- 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
- The TIC is a suspected aldol-condensation product A
- For General Chemistry and Organic analysis the target analyte was detected in the associated blank. B
- BD Results are either below the MDC or tracer recovery is low
- Analyte has been confirmed by GC/MS analysis C
- Results are reported from a diluted aliquot of the sample D
- Analytical holding time was exceeded H
- 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
- 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:

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Address:

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North Las Vegas, Nevada 89030-4134

Contact:

Mr. Ted Redding

Project:

Environmental Rad Analysis - No EDD

Client Sample ID:

034402 - RW 6

Project: Client ID:

NEVA00406 NEVA002

Sample ID:

179526006

TPU

Report Date: January 30, 2007

Parameter

Qualifier

Result

Uncertainty

DL

RL

Units

DF Analyst Date **Time Batch**

UI Gamma Spectroscopy--Uncertain identification Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier X

QC Samples were not spiked with this compound Y

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

Preparation or preservation holding time was exceeded h

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

Report Date: January 30, 2007

NEVA00406

NEVA002

Project: Client ID:

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

Client Sample ID:

Sample ID:

034402 - RS 1 179526007

Matrix:

Soil

Collect Date: Receive Date: 11-JAN-07 24-JAN-07

Collector:

Client

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF Analy	st Date	Time Batch
Rad Alpha Spec Analysis	i									
Alphaspec Pu, Solid										
Plutonium-238		0.0309	+/-0.0129	0.00421	+/-0.0132	0.020	pCi/g	GXR1	01/26/0	07 1314 60448
Plutonium-239/240		0.609	$\pm /-0.0575$	0.0134	+/-0.078	0.020	pCi/g			

The following Pren 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

DOE EML HASL-300, Pu-11-RC Modified

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

Notes:

- 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
- The TIC is a suspected aldol-condensation product A
- 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
- Analyte has been confirmed by GC/MS analysis C
- Results are reported from a diluted aliquot of the sample D
- Analytical holding time was exceeded H
- 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
- Sample results are rejected
- Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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Certificate of Analysis

Company: National Security Technologies,

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Address:

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North Las Vegas, Nevada 89030-4134

Contact:

Mr. Ted Redding

Project:

Environmental Rad Analysis - No EDD

Client Sample ID:

Sample ID:

034402 - RS 1

179526007

Project: Client ID:

NEVA00406

NEVA002

Parameter

Qualifier

Result

Uncertainty

DL

TPU

RL

Units

DF Analyst Date

Report Date: January 30, 2007

Time Batch

UI Gamma Spectroscopy--Uncertain identification

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

QC Samples were not spiked with this compound Y

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

Preparation or preservation holding time was exceeded

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

Report Date: January 30, 2007

NEVA00406

NEVA002

Project:

Client ID:

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

Client Sample ID:

Sample ID:

Matrix:

Collect Date:

Receive Date:

Collector:

034402 - RS 2179526008

Soil

11-JAN-07 24-JAN-07

Client

Parameter	Oualifier	Result	Uncertainty	DL TP	DII	RL	Units	DE	Analyst Date	Time Batch
1 at affecter	neter Qualifier Result Uncertainty DL TPU RL Units				Cinta	DI Allalyst Date Time B				
Rad Alpha Spec Analysis										
Alphaspec Pu, Solid										
Plutonium-238		0.00596	+/-0.00584	$0.00447 \pm /-0.00$	0.587 0.	.020	pCi/g		GXR1 01/26/	07 1314 604489
Plutonium-239/240		0.183	$\pm /\!-0.0327$	0.0114 +/-0.0	0364	.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

DOE EML HASL-300, Pu-11-RC Modified

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

Notes:

- 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
- The TIC is a suspected aldol-condensation product A
- For General Chemistry and Organic analysis the target analyte was detected in the associated blank. В
- BD Results are either below the MDC or tracer recovery is low
- Analyte has been confirmed by GC/MS analysis C
- D Results are reported from a diluted aliquot of the sample
- Analytical holding time was exceeded
- Value is estimated I
- 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

Client Sample ID:

034402 - RS 2

Project: Client ID:

NEVA00406

Sample ID:

179526008

NEVA002

Parameter

Qualifier

Result

Uncertainty

DL

TPU

RL

Units

DF Analyst Date

Report Date: January 30, 2007

Time Batch

UI Gamma Spectroscopy--Uncertain identification

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

QC Samples were not spiked with this compound Y

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

Preparation or preservation holding time was exceeded

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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

Client Sample ID:

034402 - RS 3

Project: Client ID:

NEVA00406 NEVA002

Report Date: January 30, 2007

Sample ID: Matrix:

179526009

Soil

Collect Date:

11-JAN-07 24-JAN-07

Receive Date:

Collector: Client

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

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

DOE EML HASL-300, Pu-11-RC Modified

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

Notes:

- 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
- The TIC is a suspected aldol—condensation product A
- For General Chemistry and Organic analysis the target analyte was detected in the associated blank. B
- 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
- Value is estimated J
- 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
- Sample results are rejected
- 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

Client Sample ID:

034402 - RS3

Project: Client ID:

NEVA00406

Sample ID:

179526009

NEVA002

Parameter

Qualifier

Result

Uncertainty

TPU DL

RL

Units

DF Analyst Date

Report Date: January 30, 2007

Time Batch

UI Gamma Spectroscopy--Uncertain identification

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

QC Samples were not spiked with this compound Y

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

Preparation or preservation holding time was exceeded h

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Report Date: January 30, 2007

NEVA00406

NEVA002

Project: Client ID:

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

Client Sample ID:

Sample ID:

Matrix: Collect Date:

Receive Date:

Collector:

034402 - RS 4 179526010

Soil

11-JAN-07 24-JAN-07

Client

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst Date	Time Batch
Rad Alpha Spec Analysis										
Alphaspec Pu, Solid										
Plutonium-238		0.0727	+/-0.0199	0.00427	+/-0.0209	0.020	pCi/g		GXR1 01/26/9	07 1314 604489
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

DOE EML HASL-300, Pu-11-RC Modified

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

Notes:

- 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
- The TIC is a suspected aldol-condensation product A
- 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
- Analyte has been confirmed by GC/MS analysis C
- Results are reported from a diluted aliquot of the sample D
- Analytical holding time was exceeded H
- 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
- Sample results are rejected
- Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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Certificate of Analysis

Company:

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Address:

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M/S NTS273

North Las Vegas, Nevada 89030-4134

Contact:

Mr. Ted Redding

Project:

Environmental Rad Analysis - No EDD

Client Sample ID:

034402 - RS 4

Project: Client ID:

NEVA00406

Sample ID:

179526010

NEVA002

Parameter

Qualifier

Result

Uncertainty

DL

TPU

RL

Units

DF Analyst Date

Report Date: January 30, 2007

Time Batch

UI Gamma Spectroscopy---Uncertain identification

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

Y QC Samples were not spiked with this compound

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

Preparation or preservation holding time was exceeded h

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Certificate of Analysis

Company:

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Address:

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M/S NTS273

North Las Vegas, Nevada 89030--4134

Contact:

Mr. Ted Redding

Project:

Environmental Rad Analysis - No EDD

Client Sample ID:

Sample ID:

179526011 Soil

Collect Date: Receive Date: 24-JAN-07

034402 - RS 5

Collector:

NEVA00406

NEVA002

Project: Client ID:

Report Date: January 30, 2007

Matrix:

11-JAN-07

Client

Parameter	Qualifier	Result	Uncertainty	DL TP	' U	RL	Units	DF Analys	t Date	Time Batch
Rad Alpha Spec Analysis	s									
Alphaspec Pu, Solid										
Plutonium-238		0.0125	+/-0.00816	0.00416 +/-0.00	0823	0.020	pCi/g	GXR1	01/26/0	7 1314 60448
Plutonium-239/240		0.593	+/-0.0566	0.0153 +/-0.0	764	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

DOE EML HASL-300, Pu-11-RC Modified

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

Notes:

- 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
- The TIC is a suspected aldol—condensation product A
- 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
- Analyte has been confirmed by GC/MS analysis C
- Results are reported from a diluted aliquot of the sample D
- Analytical holding time was exceeded H
- Value is estimated 1
- 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
- Sample results are rejected

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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

Client Sample ID:

034402 - RS 5

179526011

Project: Client ID: NEVA00406

NEVA002

Parameter

Qualifier

Sample ID:

Result

Uncertainty

DL TPU

RL

Units

DF Analyst Date

Report Date: January 30, 2007

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

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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

Parmname	NOM	Sample (Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
3atch 604489										
QC1201266377 179526001 DUP										
Plutonium-238	U	0.0027	U	0.00405	pCi/g	0.301		(0% - 100%)	3XR1	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	18		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.

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QC Summary

Workorder: 179526

Page 2 of 2

Parmname

NOM Sample Qual QC Units RER REC% Range Anlst Date Time

U

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
- A RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
- h Preparation or preservation holding time was exceeded

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 acceptence 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.

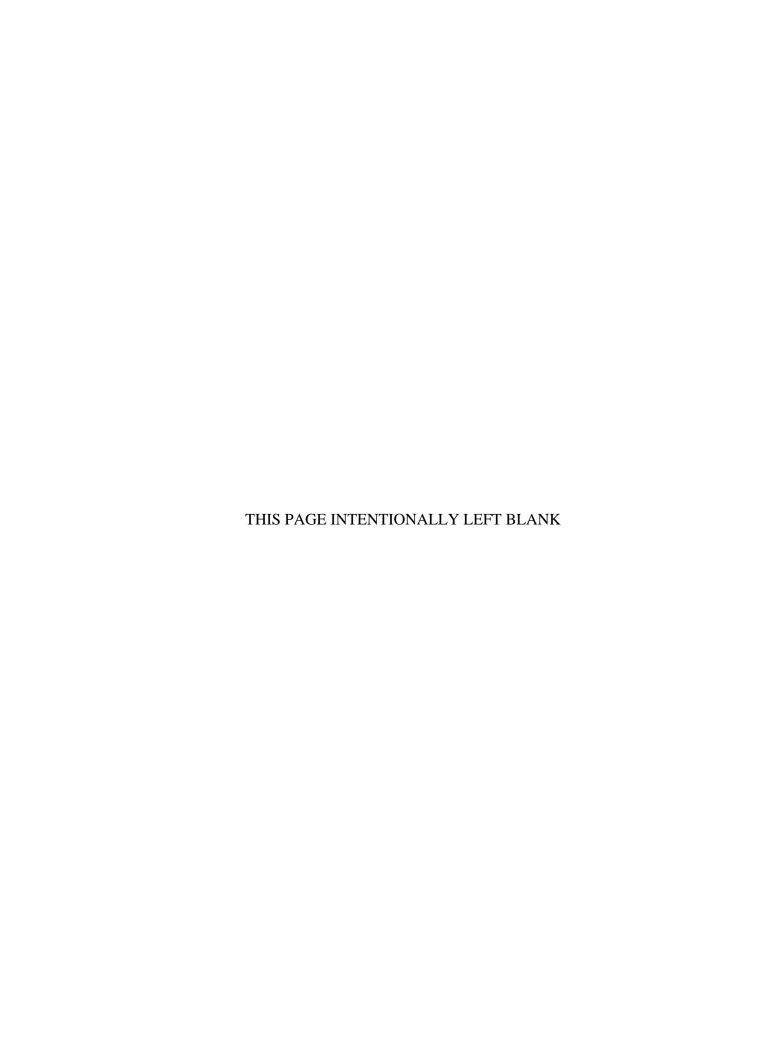
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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.



CAU 536 Closure Report Section: Appendix C Revision: 0 Date: July 2007

APPENDIX C WASTE DISPOSITION DOCUMENTATION



NSTec Form

FRM-0918

NTS LANDFILL LOAD VERIFICATION

08/23/06

Rev. 0

Page 1 of 2

For waste characterization, approval, and/or assistance, cortact Solid Waste Operation (SWO) at 5-7898. ROUIRED: WASTE GERRATOR INFORMATION (This form is for rollofts, dump trucks, and other onsite disposal of materials.)	SWO USE (Select One) AREA 23 X 6	9 X LANDFILL
REQUIRED: WASTE GERERATOR INFORMATION (This form is for rolloffs, dump trucks, and other onsite disposal of materials.) Naste Generator: Shauphn Burnison / Mike Floyd		<u> </u>
Vaste Generator: Shaughn Burnison / Mike Floyd Phone Number: S-9328	REQUIRED: WASTE GERERATOR INFORMAT	TION
Coation / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge	(This form is for rolloffs, dump trucks, and other onsite dispos	sal of materials.)
Vaste Category: (check one) Commercial C	Waste Generator: Shaughn Burnison / Mike Floyd P	Phone Number: <u>5-9328</u>
Naste Type: NTS	Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Dis	charge
Mon-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NV	Waste Category: (check one)	ndustrial
Collution Prevention Category: (check one) Environmental management Delense Projects YMP	Waste Type: ☐ NTS ☐ Putrescrible ☐ F	FACO-onsite
Routine Routine Routine Routine Routine Rethol of Characterization: (check one) Sampling & Analysis Process Knowledge Contents Contents Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing). Recommendation	(check one)	FACO-offsite
Method of Characterization: (check one) Sampling & Analysis Process Knowledge Contents Prohibited Waste at all three Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing). 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; OTE: 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. Ceptable waste at any NTS landfill; Paper Rocks / unaltered geologic malerials 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, carpel, electronic components, PPE, etc.) dditional waste accepted at the Area 23 Mercury Landfill: Office Waste Food Waste Animal Carcasses Asbestos Friable Non-Friable (contact SWO) if regulated load) Quantity: dditional waste accepted at the Area 9 U10c Landfill: Office Waste Food Waste Animal Carcasses Usin Holditional waste accepted at the Area 9 U10c Landfill: Deconned Underground and Above Hydrocarbons (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Ground Tanks Soil Soil Soil Soil Grained fuel filters (gas & diesel) Crushed non-teme plated oil filters Plants Soil Sludge from sandfoil/water separators PCBs below 50 parts per million REQUIRED; WASTE GENERATOR SIGNATURE Radiological Survey Release for Waste Disposa Recommendation of the post	Pollution Prevention Category: (check one) 🗵 Environmental management 🔲 D	Defense Projects
rohibited Waste at all three ITS landfills: Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and fills: weeks, and Medical wastes (needles, sharps, bloody clothing). Sewagu 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: OTE: 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 dycol. Ceeptable waste at any NTS landfill: Paper Rocks / unaltered geologic materials Empty containers Palastic Wire Cable Cloth Insulation (non-Asbestosform) Demolition debris Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.) dditional waste accepted at the Area 23 Mercury Landfill: Office Waste Rood Waste Animal Carcasses Non-friable asbestos Friable Non-friable (contact SWO) if regulated load) Quantity: dditional waste accepted at the Area 9 U10c Landfill: Non-friable asbestos Drained fuel filters (gas & diesel) Deconned Underground and Above Hydrocarbons (contact SWO) Other Ground Tanks dditional waste accepted at the Area 6 Hydrocarbon Landfill: Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters Waste Generators (contact SWO) Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters Septic sludge Rags Drained Recomenda	Pollution Prevention Category: (check one) ☐ Clean-Up ☐ R	Routine
Its landfills: levels, and Medical wastes (needles, sharps, bloody clothing). Sewagu Sludge, Animal carcasses, Wel garbage (food waste); and Friable asbestos REQUIRED: WASTE CONTENTS ALLOWABLE WASTES Check all allowable wastes that are contained within this load: OTE: 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. cceptable 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.) dditional waste accepted at the Area 23 Mercury Landfill: Office Waste Food Waste Animal Carcasses Asbestos Friable Non-Friable (contact SWO) if regulated load) Quantity: dditional waste accepted at the Area 9 U10c Landfill: Office Waste Solid fractions from sand/oil/water Light ballasts (contact SWO) Drained automobiles and military vehicles Solid fractions from sand/oil/water Hydrocarbons (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Hydrocarbons (contact SWO) Other Ground Tanks Groun		
REQUIRED: WASTE CONTENTS ALLOWABLE WASTES Check all allowable wasts that are contained within this load: OTE: 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 luel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol. cceptable waste at any NTS landfill:		
Check all allowable wastes that are contained within this load: OTE: 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. cceptable waste at any NTS landfill:	Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wel garbage (food	d waste); and Friable asbestos
OTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants, such as: gascaline (no benzene, leapt); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.		
coolants, such as: gasoline (no benzene, lead); jet iuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol. cceptable waste at any NTS landfill:		
petroleum hydrocarbon; and ethylene glycol. Coceptable waste at any NTS landfill:		
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.) dditional waste accepted at the Area 23 Mercury Landfill: Office Waste Frood Waste Animal Carcasses Asbestos Friable Non-Friable (contact SWO if regulated load) Quantity: dditional 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 Ground	petroleum hydrocarbon; and ethylene glycol.	
Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.) dditional waste accepted at the Area 23 Mercury Landfill: Office Waste Food Waste Animal Carcasses Asbestos Friable Non-Friable (contact SWO if regulated load) Quantity: dditional waste accepted at the Area 9 U10c Landfill: Office Waste Solid fractions from sand/oil/water Light ballasts (contact SWO) 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 Ground Tanks		
Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.) Additional waste accepted at the Area 23 Mercury Landfill:	— · · · · · · · · · · · · · · · · · · ·	-
dditional waste accepted at the Area 23 Mercury Landfill:		<u> </u>
Asbestos Friable Non-Friable (contact SWO if regulated load) Quantity:	Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components	***************************************
dditional waste accepted at the Area 9 U10c Landfill: Non-friable asbestos	,	
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		
Light ballasts (contact SWO) Drained fuel filters (gas & diesel) Deconned Underground and Above Hydrocarbons (contact SWO) Other Ground Tanks	· · · · · · · · · · · · · · · · · · ·	olid fractions from sand/oil/water
Hydrocarbons (contact SWO) Other Ground Tanks Odditional 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		,
Septic sludge		-
Septic sludge		
Plants Soil Sludge from sand/oil/water separators PCBs below 50 parts per million REQUIRED: WASTE GENERATOR SIGNATURE itials: (if initialed, no radiological clearance is necessary.) ne above mentioned waste was generated outside of a Controlled Waste Management Area (CWMA) and to the best of my nowledge, does not contain radiological materials. of the best of my knowledge, the waste described above contains only those materia to have verified this through the waste characterization method identified above a ohibited and allowable waste items. I have contacted Property Management and ha approved for disposal in the landfill. Into Name: MIA FWYD Genature: Date: 2/1/07 SIGNATURE: DATE: DATE:		Crushed non-teme plated oil filters
REQUIRED: WASTE GENERATOR SIGNATURE itials: (if initialed, no radiological clearance is necessary.) ne above mentioned waste was generated outside of a Controlled Waste Management Area (CWMA) and to the best of my nowledge, does not contain radiological materials. of the best of my knowledge, the waste described above contains only those materia to have verified this through the waste characterization method identified above a ohibited and allowable waste items. I have contacted Property Management and ha approved for disposal in the landfill. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survidue Approveds knowledge and origin. SIGNATURE: DATE: Date: 2/1/07		
Radiological Survey Release for Waste Disposal to the best of my knowledge, the waste described above contains only those materia to this through the waste characterization method identified above a container/load meets the criteria for added man-made radioactive material approved for disposal in the landfill. Intim Name: MIA MOLD Gnature: Date: 21/07 Badiological Survey Release for Waste Disposal RCT Initials — This container/load meets the criteria for 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 Approved for disposal in the landfill. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due Approved for disposal in the landfill. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due Approved for disposal in the landfill. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due Approved for disposal in the landfill. This container/load is exempt from survey due Approved for disposal in the landfill. This container/load is exempt from survey due Approved for disposal in the landfill.	<u></u>	
Radiological Survey Release for Waste Disposal to the best of my knowledge, the waste described above contains only those materia to this through the waste characterization method identified above a container/load meets the criteria for added man-made radioactive material approved for disposal in the landfill. Intim Name: MIA MOLD Gnature: Date: 21/07 Badiological Survey Release for Waste Disposal RCT Initials — This container/load meets the criteria for 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 Approved for disposal in the landfill. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due Approved for disposal in the landfill. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due Approved for disposal in the landfill. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due Approved for disposal in the landfill. This container/load is exempt from survey due Approved for disposal in the landfill. This container/load is exempt from survey due Approved for disposal in the landfill.		
Radiological Survey Release for Waste Disposal not best of my knowledge, the waste described above contains only those materia to the best of my knowledge, the waste described above contains only those materia attemption to the best of my knowledge, the waste described above contains only those materia and the state of this through the waste characterization method identified above a container/load meets the criteria for added man-made radioactive material approved for disposal in the landfill. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due to the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey Release for Waste Disposal not be criteria for 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 the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due to the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due to the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due to the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due to the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due to the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due to the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due to the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due to the criteria for Radcon Manual Table 4.2 release limits.	nitials: (ir initialed, no radiological clearance is necessary.)	
Radiological Survey Release for Waste Disposal RCT Initials Link Name: MIA FWAD gnature: Date: 21/07 Radiological Survey Release for Waste Disposal RCT Initials Lave verified this through the waste characterization method identified above a added man-made radioactive material added man-made radioactive material. This container/load meets the criteria for 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 the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load meets the criteria for Radcon Manual Table 4.2 release limits.		t Area (CWMA) and to the best of my
the best of my knowledge, the waste described above contains only those materia to the land t	mowledge, does not contain radiological materials.	Radiological Suprey Release for Waste Dispu
ohibited and allowable waste items. I have contacted Property Management and ha approved for disposal in the landfill. int Name: MIK FWGD gnature: Date: 21/07 SIGNATURE: DATE:	To the best of my knowledge, the waste described above contains only those materia	1
approved for disposal in the landfill. This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from survidue Approximates knowledge and origin. Gnature: Date: 2/1/07 SIGNATURE: DATE:	site. I have verified this through the waste characterization method identified above a	
gnature: Radcon Manual Table 4.2 release limits. This container/load is exempt from sunduction or sunduction		
gnature: Date: 2/1/07 SIGNATURE: DATE:		<u> </u>
gnature: Date: 2/1/07 SIGNATURE: DATE:	Print Name: MIK PLOYD	· · · · · · · · · · · · · · · · · · ·
	0//-	1 2
must have signed removal certification statement with Load Verification."	Note: *Food waste, office trash and animal carcasses do not require a radiological clea	
	SWO USE ONLY	
	oad Weight (net from seate or estimate): 42 (796) (Signature of Certifier)	Į.



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SWO USE (Select One) AREA 23 🔀 6		9 [X L	ANDFILL
For waste characterization, approval, and/or assistance, contact Solid	Waste Op	eration (SWC)) at 5	-7898.
REQUIRED: WASTE GERERATOR INFOR		materials.)		
Waste Generator: Shaughn Burnison / Mike Floyd	Phone	Number: 5-9	9328	
Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenn	ny Discharg	je		
Waste Category: (check one)		rial		
Waste Type: NTS Putrescrible	⊠ FFAC	O-onsite		WAC Exception
(check one)	☐ FFAC	O-offsite		Historic DOE/NV
Pollution Prevention Category: (check one)	☐ Defens	se Projects		YMP
Pollution Prevention Category: (check one) Clean-Up	☐ Routin	е		***
Method of Characterization: (check one) Sampling & Analysis	Proces	ss Knowledge		Contents
Prohibited Waste at all three Radioactive waste; RCRA waste; Hazardous was NTS landfills: levels, and Medical wastes (needles, sharps, block and Medical wastes)			above	TSCA regulatory
Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage	e (food was	ite); and Friat	ole as	bestos
REQUIRED: WASTE CONTENTS ALLOWABLE Check all allowable wastes that are contained with NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubric petroleum hydrocarbon; and ethylene glycol.	ithin this lo contact with cants and h	ad: petroleum h pydraulics; ke	rosen	e; asphaltic
Acceptable waste at any NTS landfill: Paper Rocks / unaltered	_	materials		mpty containers
☐ Asphalt ☐ Metal ☐ Wood ☐ Soil ☐ Rubber (excluding				emolition debris
☐ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-As		•		ement & concrete
Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic compo		********		***************************************
Additional waste accepted at the Area 23 Mercury Landfill:	_		□ A	nimal Carcasses
Additional waste accepted at the Area 9 U10c Landfill:				
	Solid fra	actions from :	sand/	oil/water
		ed Undergro		
☐ Hydrocarbons (contact SWO) ☐ Other	Ground	-		
Additional waste accepted at the Area 6 Hydrocarbon Landfill:		***************		
☐ Septic sludge ☐ Rags ☐ Drained fuel filters (gas & diesel)	ПС	rushed non-te	eme r	plated oil filters
☐ Plants ☐ Soil ☐ Sludge from sand/oil/water separators		CBs below 50	•	
REQUIRED: WASTE GENERATOR SIGN.		<u> </u>	, pa	o por remote
Initials: (if initialed, no radiological clearance is necessary.)				
The above mentioned waste was generated outside of a Controlled Waste Manage knowledge, does not contain radiological materials.	ement Are	a (CWMA) an	id to t	he best of my
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 abour prohibited and allowable waste items. I have contacted Property Management an	ove a	CT initials		elease for Waste Dispos
is approved for disposal in the landfill.	_	inis con added m	icainer Ian-ma	load meets the criteriande radioactive material
Print Name: Keyin Olson	_	This con	tainer.	load meets the criteria
Signature: Date: 2- 1- 07	7_ -	This con	tainer	al Table 4.2 release limit /load is exempt from su knowledge and origin.
Note: "Food waste, office trash and animal carcasses do not require a radiological must have signed removal certification statement with Load Verification."	l cle: SIGI	NATURE:		DATE?
SWO USE ONLY				SN-06
		,		
Load Weight (net from seele or estimate): 40, 806 Signature of Certifier:	:			

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Load Weight (net from scale or estimate): 42,000

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SWO USE (Select One) AREA	□ 23 🖂 6		⊠ LANDFILL
For waste characterization, approval,			D) at 5-7898.
	D: WASTE GERERATOR INFO s, dump trucks, and other onsite		
Waste Generator: Shaughn Burnison / Mike Fl	oyd	Phone Number: 5-	9328
Location / Origin: CAU 536 (CAS 03-44-02) A	Area 3 Release Site - Steam Jei	nny Discharge	
Waste Category: (check one)] Commercial		- 1/4 CONTRACTOR
Waste Type: NTS	Putrescrible		☐ WAC Exception
(check one)	Asbestos Containing Material		☐ Historic DOE/NV
	Environmental management	Defense Projects	☐ YMP
Pollution Prevention Category: (check one)		Routine	***************************************
	Sampling & Analysis	Process Knowledge	
	ste; RCRA waste; Hazardous w fical wastes (needles, sharps, b		above TSCA regulatory
Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge	e, Animal carcasses, Wet garba	ge (food waste); and Frial	ble asbestos
Check all allow. NOTE: Waste disposal at the Area 6 Hydrocarbo coolants, such as: gasoline (no benzen	e, lead); jet fuel; diesel fuel; lubi	within this load: contact with petroleum h	
petroleum hydrocarbon; and ethylene gly	***************************************		
☐ Asphalt ☐ Metal ☐ Wood ☐	Soil Rubber (excluding Cloth Insulation (non-	Asbestosform)	 ☐ Empty containers ☐ Demolition debris ☐ Cement & concrete
Additional waste accepted at the Area 23 Mere			☐ Animal Carcasses
· · · · · · · · · · · · · · · · · · ·	ole (contact SWO if regulated lo		
Additional waste accepted at the Area 9 U10c	Landfill:		7
	tomobiles and military vehicles	☐ Solid fractions from	sand/oil/water
	el filters (gas & diesel)	☐ Deconned Undergro	
☐ Hydrocarbons (contact SWO) ☐ Other		Ground Tanks	
Additional waste accepted at the Area 6 Hydro	ocarbon Landfill:		
☐ Septic sludge ☐ Rags ☐ Draine	ed fuel filters (gas & diesel)	☐ Crushed non-to	eme plated oil filters
	e from sand/oil/water separator		0 parts per million
REQUIRE	D: WASTE GENERATOR SIG	NATURE	
Initials: (if initialed, no radiological clea	rance is necessary.)		
The above mentioned waste was generated outs knowledge, does not contain radiological materi		gement Area (CWMA) ar	nd to the best of my
To the best of my knowledge, the waste describe site. I have verified this through the waste chara prohibited and allowable waste items. I have con is approved for disposal in the landfill.	acterization method identified a	pand ha RCT initials This core added in This core	vey Release for Waste Dispontainer/load meets the criterians-made radioactive materiantainer/load meets the criteria
Print Name: Keurd Olsow	Date: 2-1-	This cor	ntainer/toad is exempt from s rocess knowledge and origin
Signature:			DATE:
Note: "Food waste, office trash and animal carca must have signed removal certification sta		al cle:	, ————————————————————————————————————
SWO USE ONLY		•	•

Signature of Certifier:



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For	m

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SWO USE (Select One) AREA	23	₽ 6	9	LANDFILL
For waste characterization, appro	ival, and/or assistanc	e, contact Solid W	aste Operation (SW	O) at 5-7898.
	RED: WASTE GERE			
1	se ~	•	Phone Number.	5-294
Location / Origin: CAU53L AR		se Site S	team Jones	M
Waste Category: (check one)	☐ Commercial		Industrial	
Waste Type: NTS	Putrescrible		FFACO-onsite	
(check one) Non-Putrescible	Asbestos Conta		FFACO offsite	☐ Historic DOE/NV
Pollution Prevention Category: (check one)			Defense Projects	☐ YMP
Pollution Prevention Category: (check one)			Routine	
Method of Characterization: (check one)	Sampling & Ana	llysis 🔲	Process Knowledg	e 🗌 Contents
Prohibited Waste at all three Radioactive NTS landfills: Radioactive levels, and N		Hazardous waste	Free liquids, PCBs	
Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sluce	dge, Animal carcasse	es, Wet garbage (fo	ood waste); and Fria	ble asbestos
	D: WASTE CONTEN	TS ALLOWABLE	WASTES	****
Check all all	lowable wastes that a	are contained within	n this load:	
NOTE: Waste disposal at the Area 6 Hydroca				
coolants, such as: gasoline (no benz petroleum hydrocarbon; and ethylene		neserivel, moncan	is and nyoraunes ki	erosene, aspnaliic
Acceptable waste at any NTS landfill:		ocks / unaltered ge	ologic materials	☐ Empty containers
		ubber (excluding ti	-	Demolition debris
		sulation (non-Asbe		Cement & concrete
Manufactured items: (swamp coolers, furn		•	<u>-</u>	
Additional waste accepted at the Area 23 M	***************************************			Animal Carcasses
	riable (contact SWO i			
Additional waste accepted at the Area 9 U1	**** ** **** *************************		The second of th	*****
	automobiles and milit	tary vehicles	Solid fractions from	sand/oil/water
☐ Light ballasts (contact SWO) ☐ Drained			Deconned Undergro	ì
Hydrocarbons (contact SWO) Other	idei iiiteis (yas a dies		Ground Tanks	ound and Above
			Ground Laws	***************************************
Additional waste accepted at the Area 6 Hy Septic sludge Rags Dra			[] Caushad agas	and plated oil filters
	ained fuel filters (gas idge from sand/oil/wa		PCBs below 5	eme plated oil filters
	RED: WASTE GENE			υ parts per million
			ONE	
nitials: (if initialed, no radiological c	learance is necessa	ıry.)		İ
The above mentioned waste was generated or knowledge, does not contain radiological mat		d Waste Managem	ent Area (CWMA) ai	nd to the best of my
	et en		-1 11 1 1	
To the best of my knowledge, the waste descr site. I have verified this through the waste ch			al: Radiological Si	urvey Release for Waste Disp
prohibited and allowable waste items. I have			as PCT Initials	
s approved for disposal in the landfill.			This co	ontainer/load meets the criter man-made radioactive mater
Print Name: Keuin Olsan			. This co	ontainer/load meets the criter
' -		^ ^ .	Radco	n Manual Table 4.2 release lic
Signature:		Date: 2-1-07	This co	ontainer/load is exempt from process knowledge and origin.
Note: "Food waste, office trash and animal car must have signed removal certification."			signature:	DATE
		-		i
ote: "Food waste, office trash and animal car must have signed removal certification s WO USE ONLY	rcasses do not requir	e a radiological cle	due to	process knowledge and origin.

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SWO USE (Sale	ot One) AREA		23	⊠ 6		9	X	LANDFILL	
SWO USE (Sele			val and/e			olid Waste	9 Operation (SV			
7 Or Wasie	Grial Bolon			***************************************	RERATOR IN			, o, u		
	(This i	form is for roll	offs, dun	np trucks, a	and other onsi	le disposa	of materials.)	,		
Waste Generator: _S	Shaughn B	urnison / Mike	e Floyd			Ph	one Number: _	5-932	8	
Location / Origin:	CAU 536 (0	CAS 03-44-02) Area 3	Release S	Site - Steam J	enny Disc	harge			
Waste Category: (che	eck one)		☐ Con	nmercial	· · · · · · · · · · · · · · · · · · ·	⊠ Inc	lustrial		<u> </u>	
Waste Type:	NTS		☐ Putr	rescrible		⊠ FF	ACO-onsite] WAC Excep	lion
(check one)	Non-Putr	escible	☐ Asb	estos Con	taining Materia	al 🗌 FF	ACO-offsite] Historic DO	:/NV
Pollution Prevention	Category	/: (check one)	⊠ Env	ironmental	management	☐ De	fense Projects	<u> </u>] YMP	
Pollution Prevention		~				☐ Ro			~~~~	
Method of Character	************	*******	*********	npling & Ar	~~~~~~~~~~~~~~		ocess Knowled	*****		·** · ** * * *
Prohibited Waste at NTS landfills:	all three				e; Hazardous edles, sharps,			Bs abo	ve TSCA regul	atory
Additional Prohibite	d Waste			*	·	•	0,			
at the Area 9 U10C L		Sewage Slu	dge, Anir	nal carcas	ses, Wel garb	age (food	waste); and Fr	iable	asbestos	
					NTS ALLOW					
NOTE: Waste dispos	eal at the A				t are contained			n hwdr	ocarbone or	1
							nd hydraulics;			
petroleum hyd	drocarbon;	and ethylene							,	
Acceptable waste at			Pape			-	gic materials		Empty contain	
☐ Asphalt ☐ Me			Soil		Rubber (exclu				Demolition del	
☐ Plastic ☐ Wi	· · ·	-	Cloth		Insulation (no		•	Ш	Cement & con	crete
Manufactured iten					************	*****			0	
Additional waste acc	cepted at t Friable		-		☐ Office w D if regulated t			ப	Animal Carcas	ses
						vau) Q	uartity.			## ***********************************
Additional waste acc					vilitan vahiolog	. I Sol	id fractions fro	m ear	nd/oil/water	
☐ Light ballasts (con							conned Under			
☐ Hydrocarbons (con			tuei iii(ei	s (yas a u	iesei)		conned Onderç ound Tanks	Jrouni	and Above	
Additional waste acc	*****				u: 🗆					
	Rags	-			n: 🗀 is & diesel)		Crushed nor	ı-tem	e plated oil filte	_ _
	⊠ Soil				water separato				arts per million	
					NERATOR S					
Initials: (if init	ialed, no r	adiological c	:learance	e is neces	sarv.)					
The above mentioned knowledge, does not a				f a Control	led Waste Mai	nagement	Area (CWMA)	and t	o the best of m	У
knowledge, does not	JOHLAN I A	motodicat ma	teriais,			:	_	Surv	y Release for Wa	ste Di
To the best of my kno							RCT initials	conta	iner/load meets i	he crit
site. I have verified the prohibited and allowa							add	ed ma	n-made radioacti	ve mat
is approved for dispo				,.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			· —		iiner/load meets (anual Table 4.2 n	
Drint Nama: MIL	· #1.6	6n					This	conta	iner/load is exen	pt fro
Print Name:MIK		<i></i>			Date: 1/3	100	due SIGNATURE:		cess knowledge ar	
Signature:	<u> </u>						<u> </u>			_ DAT
Note: "Food waste, of must have sign									ing apple topo	
SWO USE ONLY										
5 1561-1-5-4 (1 f	- 1- 1	11	0 -	- 0		·				

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Load Weight (net from scale of estimate) 2,000

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SWO USE (Select One) AREA 23	6 ☐ 9 🖂 LANDFILL				
For waste characterization, approval, and/or assistance, conta	oct Solid Waste Operation (SWO) at 5-7898.				
REQUIRED: WASTE GERERATOR (This form is for rolloffs, dump trucks, and other	RINFORMATION				
Waste Generator: Shaughn Burnison / Mike Floyd	Phone Number: <u>5-9328</u>				
Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Stea	am Jenny Discharge				
Waste Category: (check one)	⊠ Industrial				
Waste Type: NTS Putrescrible					
(check one)	•				
Pollution Prevention Category: (check one)	ment 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 Radioactive waste; RCRA waste; Hazard NTS landfills: Revels, and Medical wastes (needles, sha	lous waste; Free liquids, PCBs above TSCA regulatory rps, 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 ALL	OWABLE WASTES				
Check all allowable wastes that are conti					
NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have con coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fue					
petroleum hydrocarbon; and ethylene glycol.	er, rubricants and riyurauncs, kerosene, aspirantic				
7179.005.54.00	naltered geologic materials				
☐ Asphalt ☐ Metal ☐ Wood ☐ Soil ☐ Rubber (e	excluding tires)				
☐ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation	(non-Asbestosform)				
 Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic 	components, PPE, etc.)				
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ce Waste				
Asbestos Friable Non-Friable (contact SWO if regula	ated load) Quantity:				
Additional waste accepted at the Area 9 U10c Landfill:					
☐ Non-friable asbestos ☐ Drained automobiles and military veh	nicles 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: Rags Drained fuel filters (gas & diese	cl) 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 knowledge, does not contain radiological materials.	e Management Area (CWMA) and to the best of my				
To the best of my knowledge, the waste described above contains only th	Radiological Survey Release for Waste Dispo				
site. I have verified this through the waste characterization method identi	ified above: RCT Initials				
prohibited and allowable waste items. I have contacted Property Manage					
is approved for disposal in the landfill.	This container/load meets the criteria				
Print Name: Min FloyD	Radcon Manual Table 4.2 release lim				
	this container/load is exempt from sign.				
	islasical ala				
Note: "Food waste, office trash and animal carcasses do not require a rad must have signed removal certification statement with Load Verifica					
SWO USE ONLY					

Signature of Certifier: __



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SWO USE (Select One) AREA 23 86	☐ 9 🔀 LANDFILL
For waste characterization, approval, and/or assistance, contact Sol	lid Waste Operation (SWO) at 5-7898.
REQUIRED: WASTE GERERATOR INFO	
Waste Generator: Shaughn Burnison / Mike Floyd	Phone Number: 5-9328
Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Je	enny Discharge
Waste Category: (check one)	
Waste Type: ☐ NTS ☐ Putrescrible	
(check one) Non-Putrescible Asbestos Containing Material	
Pollution Prevention Category: (check one) Environmental management	
Pollution Prevention Category: (check one) 🗵 Clean-Up	Routine
Method of Characterization: (check one) Sampling & Analysis	☐ Process Knowledge ☐ Contents
Prohibited Waste at all three Radioactive waste; RCRA waste; Hazardous wastes levels, and Medical wastes (needles, sharps, but it is a level of the control	
Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garba	ge (food waste); and Friable asbestos
REQUIRED: WASTE CONTENTS ALLOWA. Check all allowable wastes that are contained NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lub petroleum hydrocarbon; and ethylene glycol.	within this load: contact with petroleum hydrocarbons or
Acceptable waste at any NTS landfill: Paper Rocks / unalter	red geologic materials
Asphalt Metal Wood Soil Rubber (exclud	- · · · · · · · · · · · · · · · · · · ·
•	-Asbestosform)
Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic com	
Additional waste accepted at the Area 23 Mercury Landfill:	·
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 separator	
REQUIRED: WASTE GENERATOR SIG	GNATURE
Initials: (if initialed, no radiological clearance is necessary.)	·
The above mentioned waste was generated outside of a Controlled Waste Manknowledge, does not contain radiological materials.	agement Area (CWMA) and to the best of my
To the best of my knowledge, the waste described above contains only those n site. I have verified this through the waste characterization method identified a prohibited and allowable waste items. I have contacted Property Management is approved for disposal in the landfill.	above a RCT initials and har This container/load meets the criteria for added man-made radioactive material
Print Name: M. L. FLOYD	This container/load meets the criteria for Radcon Manual Table 4.2 release limits. This container/load is exempt from surve
Print Name: Date: 1/3/	due te-process knowledge and origin.
Note: "Food waste, office trash and animal carcasses do not require a radiologic must have signed removal certification statement with Load Verification."	LANGUATINE. DAIE? T
SWO USE ONLY	
	inn
Load Weight (net from ecolor estimate): 42,000 Signature of Certifi	UI,

NSTec Form

FRM-0918

NTS LANDFILL LOAD VERIFICATION

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SWO USE (Select One) AREA 23 6 9 LANDFIL For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898. REQUIRED: WASTE GERERATOR INFORMATION (This form is for rolloffs, dump trucks, and other onsite disposal of materials.) Waste Generator: Shaughn Burnison / Mike Floyd Phone Number: 5-9328	
REQUIRED: WASTE GERERATOR INFORMATION (This form is for rolloffs, dump trucks, and other onsite disposal of materials.)	
(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 ☐ Putrescrible ☐ FFACO-onsite ☐ WAC Exce	otion
(check one) Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DC	`
Pollution Prevention Category: (check one)	**********
Pollution Prevention Category: (check one) Clean-Up Routine	
Method of Characterization: (check one) ⊠ Sampling & Analysis □ Process Knowledge □ Contents	
Prohibited Waste at all three Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regu	ilatory
NTS landfills: levels, and Medical wastes (needles, sharps, bloody clothing).	
Additional Prohibited Waste Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos	
at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, wet garbage (lood waste); and Friable aspestos	
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 contai	ners
☐ Asphalt ☐ Metal ☐ Wood ☐ Soil ☐ Rubber (excluding tires) ☐ Demolition de	
☐ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-Asbestosform) ☐ Cement & co	·
Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)	
Additional waste accepted at the Area 23 Mercury Landfill:	2922
☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load) Quantity:	20000
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 filt	
☐ Plants ☐ Soil ☐ Sludge from sand/oil/water separators ☐ PCBs below 50 parts per million	1
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 knowledge, does not contain radiological materials.	πy
Anomeage, abes not contain radiological materials.	
To the best of my knowledge, the waste described above contains only those material Radiological Survey Release for W	aste Dis
site. I have verified this through the waste characterization method identified above a RCT Initials	•
prohibited and allowable waste items. I have contacted Property Management and ha is approved for disposal in the landfill. This container/load meets added man-made radioactic added man-made radioact	
to white tags of an analysis and in the religious.	
This container/load meets	
Print Name: MIK 1000 This container/load meets Radcon Manual Table 4.2 m	
Print Name: MIK \$1070 This container/load meets Radcon Manual Table 4.2 m	ipt from
Print Name: Mik Noro Print Name: Mik Noro Signature: Date: 1/31/87 This container/load meets Radcon Manual Table 4.2 r This container/load is exent due rosess knowledge at	n pt from nd origin.
Print Name: Mik flora This container/load meets Radcon Manual Table 4.2 m	pt from

Load Weight (net from sealero estimate): 42,600 Signature of Certifier:

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SWO USE (Select One) AREA	23	⊠ 6	<u> </u>	LAN	IDFILL
For waste characteri	terre de la companie				WO) at 5-78	98.
(This		D: WASTE GERE s, dump trucks, an)	
Waste Generator: Shaughn B	umison / Mike F	loyd		Phone Number:	5-9328	
Location / Origin: CAU 536 (0	CAS 03-44-02)	Area 3 Release Si	te - Steam Jenny I	Discharge		
Waste Category: (check one)		Commercial	×	Industrial		
Waste Type: NTS		Putrescrible		FFACO-onsite	□ wa	C Exception
(check one) Non-Putr	escible	Asbestos Conta		FFACO-offsite		toric DOE/NV
Pollution Prevention Category	/: (check one)	Environmental n			****	******
Pollution Prevention Category		Clean-Up		Routine		
Method of Characterization: (d	:heck one)	Sampling & Ana	lysis 🔲	Process Knowle	dge 🔲 Co	ntents
Prohibited Waste at all three NTS landfills:		iste; RCRA waste; dical wastes (need			Bs above TS	CA regulatory
Additional Prohibited Waste at the Area 9 U10C Landfill:	Sewage Sludge	e, Animal carcasse	es, Wet garbage (f	ood waste); and F	riable asbes	tos
NOTE: Waste disposal at the A coolants, such as: gas petroleum hydrocarbon;	Check all allow rea 6 Hydrocarb oline (no benzer	ne, lead); jet fuel; d	are contained with ave come into con	in this load: tact with petroleur		
Acceptable waste at any NTS			ocks / unaltered g	eologic materials	☐ Empt	y containers
	☐ booW		ubber (excluding t			olition debris
☑ Plastic ☐ Wire ☐	Cable	Cloth In	sulation (non-Asb	estosform)	☐ Ceme	ent & concrete
☐ Manufactured items: (swamp	o coolers, furnitu	ire, rugs, carpet, e	lectronic compone	nts, PPE, etc.)		
Additional waste accepted at to Asbestos	_	rcury Landfill: ble (contact SWO	☐ Office Waste if regulated load)	☐ Food Waste Quantity:	Anim	al Carcasses
Additional waste accepted at t Non-friable asbestos Light ballasts (contact SWO)	☐ Drained au ☐ Drained fu	tomobiles and mili	-	Solid fractions from		
Hydrocarbons (contact SWO)				Ground Tanks		
Additional waste accepted at t				Created no		
☐ Septic sludge ☐ Rags ☐ Plants ☐ Soil		ied fuel filters (gas ge from sand/oil/wa	,	☐ Crushed no ☐ PCBs below	•	
_ rians Son		ED: WASTE GEN			y ov parts pe	
Initials: (if initialed, no r		arance is necessa				
The above mentioned waste was knowledge, does not contain rate			d Waste Managen	nent Area (CWMA)	and to the l	best of my
To the best of my knowledge, the site. I have verified this through prohibited and allowable waste	the waste char	acterization metho	ed identified above	e a Radiological		se for Waste Dis
is approved for disposal in the I				add	ed man-made	id meets the crite radioactive mate ad meets the crite
Print Name: Mik Flor	· 20		a 1	Rad	con Manual T	able 4.2 release
Signature:			Date: //3//07	This	s container/loa to prosess kno	ed is exempt from wiedge and origin
Note: "Food waste, office trash a must have signed remova				signature:		DAT
SWO USE ONLY	<i>J</i> 1a			•		ı
Load Weight (net from seale of e	estimate):7	Signa	ture of Certifier:		•	
- · · · · · · · · · · · · · · · · · · ·	· / /			the state of the state of		



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SWO USE (Sele	ct One) AREA	- <u> </u>	23	⊠ 6		9	\boxtimes	LANDFILL
For waste of	haracteri	zation, appro	val, and	or assist	ance, contact So	olid Wa	ste Operation (SWO)	at 5-7898.
100	(This				ERERATOR IN s, and other onsi			s.)	
Waste Generator: SI	naughn B	urnison / Mike	e Floyd		······································		Phone Number	: <u>5-93</u>	28
Location / Origin: C	AU 536 (0	CAS 03-44-02	2) Area	3 Releas	e Site - Steam J	enny D	ischarge		
Waste Category: (che	ck one)		☐ Co	mmercial		⊠	Industrial		
Waste Type:	NTS		☐ Put	rescrible		\boxtimes	FFACO-onsite		□ WAC Exception
(check one)	Non-Putr	escible	☐ Ast	oestos Co	ontaining Materia	al 🔲	FFACO-offsite		☐ Historic DOE/NV
Pollution Prevention	Category	r: (check one)	⊠ En	/ironmen	tal management		Defense Projec	ts	☐ YMP
Pollution Prevention	Category	r: (check one)	⊠ Cle	an-Up	*******************		Routine		
Method of Characteri	zation: (c	heck one)	🛛 Saı	npling &	Analysis		Process Knowl	edge	☐ Contents
Prohibited Waste at a	ll three							CBs ab	ove TSCA regulatory
NTS landfills:		levels, and N	Medical v	vastes (n	eedies, sharps,	bloody	clothing).		
Additional Prohibited at the Area 9 U10C La		Sewage Sluc	dge, Ani	mal carca	asses, Wet garb	age (fo	od waste); and	Friable	e asbestos
					ENTS ALLOW				
NOTE: Waste disposa	l at the A				hat are contained st have come in			ım hva	frocarbons or
					el; diesel fuel; lu				
petroleum hyd									
Acceptable waste at a	any NTS	landfill:	Pape	er 🗀] Rocks / unalte	ered ge	ologic materials		Empty containers
☐ Asphalt ☐ Met	al 🗌	Wood [☐ Soil] Rubber (exclu	ding tii	es)		Demolition debris
☐ Plastic ☐ Wire	<u> </u>	Cable [☐ Cloth	n 🗆] Insulation (no	n-Asbe	stosform)		Cement & concrete
Manufactured items	s: (swamp	o coolers, furr	niture, ru	gs, carpe	et, electronic con	nponer	its, PPE, etc.)		
Additional waste acce	epted at t	he Area 23 N	Mercury	Landfill:	□ Office W	/aste	☐ Food Wast	е [Animal Carcasses
☐ Asbestos ☐ F	riable	☐ Non-F	riable (c	ontact SV	NO if regulated I	oad)	Quantity:		
Additional waste acce	epted at t	he Area 9 U	10c Lan	dfill:		*********		• • • • • • • • • • • • • • • • • • • •	
☐ Non-friable asbesto	•				military vehicles	· 🗆 ·	Solid fractions fo	rom sa	ind/oil/water
☐ Light ballasts (conta					-		Deconned Unde		
☐ Hydrocarbons (cont			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	10 (500 0			Ground Tanks	. 5	10 010 100 10
					JE: 01.				
Additional waste acce	epted at t ∃Rags				gas & diesel)		Crushed n	on-ten	ne plated oil filters
	⊒ Nags ⊠ Soil				il/water separate	nre			parts per million
	3 30"				SENERATOR SI			W 30 F	barts per tramorr
)_145_6	.1	-				JAAI			
Initials: (if initia	nea, no r	adiological d	nearand	e is nec	essary.)				
The above mentioned with the modern to the control of the control				f a Contr	olled Waste Mar	nagem	ent Area (CWM/	A) and	to the best of my
To the best of my know	dadae th	a wasto doso	rihad ah	ove conf	aine only those	matori	a		* * * * * * * * * * * * * * * * * * * *
site. I have verified this							, Radiologica	al Surve	y Release for Waste Dis
prohibited and allowab	le waste i	items. <u>I have</u>					- I worman	,	
is approved for dispos	al in the l	andfill.				-	ado	s conta led mai	liner/load meets the criter n-made radioactive mater
Print Name: #a: 4-	E164.	n					I James This	s conta	iner/load meets the crite.
Print Name: MI he	- 49 T					1_	j nac	icon Ma	Bhuai Table 4.2 releace ii.
Signature:		~			Date: <u>1/3/</u>	107	. F. 🗻 inis	3 Conta	iner/load is exempt from es knowledge and origin
Note: "Food waste, off							SIGNATURE:		DATE:
must have signe	d remova	al certification	stateme	nt with Le	oad Verification.	»			BN-
SWO USE ONLY						1			1

Load Weight (net from seele of certifier: 42,000 Signature of Certifier: 2

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SWO USE (Selec	ct One) AREA	23	⊠ 6	П9	☐ LANDFILL
For waste c	haracterization, appr	oval, and/or assistance	, contact Solid Wa	ste Operation (SV	VO) at 5-7898.
		IRED: WASTE GERE			
Waste Generator: Sh	naughn Burnison / Mil	ce Floyd		Phone Number:	5-9328
Location / Origin: CA	<u> 4U 536 (CAS 03-44-0</u>	2) Area 3 Release Sit	<u>e - Steam Jenny D</u>	ischarge	
Waste Category: (chec	:k one)	Commercial	Ø	Industrial	
Waste Type: 🔀 ∣	NTS	☐ Putrescrible	\boxtimes	FFACO-onsite	☐ WAC Exception
(check one)	Non-Putrescible	Asbestos Contai	ning Material 🔲	FFACO-offsite	☐ Historic DOE/NV
Pollution Prevention (Category: (check one)	Environmental m	anagement 🔲	Defense Projects	☐ YMP
Pollution Prevention	Category: (check one)	☑ Clean-Up		Routine	***************************************
Method of Characteria	zation: (check one)	Sampling & Anal	ysis 🔲	Process Knowled	ge Contents
Prohibited Waste at a NTS landfills:		waste; RCRA waste; Medical wastes (needl	Hazardous waste;	Free liquids, PCB	s above TSCA regulatory
Additional Prohibited at the Area 9 U10C La	Counda Ch	udge, Animal carcasse	s, Wet garbage (fo	od waste); and Fr	iable asbestos
	Check all at the Area 6 Hydro	nzene, lead); jet fuel; d	re contained within ave come into conta	this load: act with petroleum	
Acceptable waste at a			ocks / unaltered ge	ologic materials	☐ Empty containers
☐ Asphalt ☐ Meta	<u> </u>	•	ubber (excluding tir	-	☐ Demolition debris
☐ Plastic ☐ Wire			sulation (non-Asbe	•	☐ Cement & concrete
☐ Manufactured items	s: (swamp coolers, fu		•	•	
Additional waste acce			☐ Office Waste	☐ Food Waste	☐ Animal Carcasses
	·	Friable (contact SWO i	-	Quantity:	
Additional waste acce	, , , , , , , , , , , , , , , , , , ,				
☐ Non-friable asbesto	· ·	d automobiles and mili	tary vehicles 🔲	Solid fractions from	n sand/oil/water
☐ Light ballasts (conta				Deconned Underg	i
☐ Hydrocarbons (cont	·	a raci micro (gas a arsi	- ·	Ground Tanks	round and ribove
		4 5 - 1 - 1 - 12			****************************
Additional waste acce	<u> </u>	-		Π Δbad	Amana alata da 11 Eltara
	_	Prained fuel filters (gas			-teme plated oil filters
☐ Plants ☐		ludge from sand/oil/wa UIRED: WASTE GEN			50 parts per million
Initials: (if initia				ONL	
The above mentioned when when the knowledge, does not contain the same of the			d Waste Manageme	ent Area (CWMA)	and to the best of my
To the best of my know site. I have verified this prohibited and allowab is approved for disposi	s through the waste of	characterization metho	d identified above	and a review of the ave verified that t	ne above-mentioned his material/equipment
Print Name: MIX				RCT Initials	vey Release for Waste Disposa
Signature:			Date: 1/34/07	added m	ian-made radioactive material transplant meets the criteria fi
Note: "Food waste, off must have signe		carcasses do not requin n statement with Load		Radcon	Manual Table 4.2 release times tainer/load is exempt from sur
SWO USE ONLY		1/2	0/01		DATE:/-
SWO USE ONLY Load Weight (net from)	or estimate)	41 m Signa	ture of Certifier:	SIGNATURE:	BN-064

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NTS LANDFILL LOAD VERIFICATION

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For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898. REQUIRED: WASTE GERERATOR 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 Putrescrible FRACO-onsite WAC Exception (check one) Non-Putrescible Asbestos Containing Material FRACO-offsite Historic DOE/NV Pollution Prevention Category: (check one) Environmental management Defense Projects MP 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). Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos
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 □ Putrescrible □ Asbestos Containing Material □ 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 Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory NTS landfills:
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 Putrescrible SFACO-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 Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory NTS landfills: Reverse Slurdge Animal carcasses Wet garbage (food waste); and Eriable ashestos
Location / Origin: CAU 536 (CAS 03-44-02) Area 3 Release Site - Steam Jenny Discharge Waste Category: (check one) ☐ Commercial ☐ Industrial Waste Type: ☑ NTS ☐ Putrescrible ☐ 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 Severage Studge, Animal carcasses, Wet garbage (food waste); and Erigble ashestos
Waste Type: NTS
(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 NTS landfills: levels, and Medical wastes (needles, sharps, bloody clothing). Additional Prohibited Waste Several Studge Animal careasses. Wet garbage (food waste); and Eriable ashestos.
Pollution Prevention Category: (check one)
Pollution Prevention Category: (check one) ☐ Clean-Up ☐ Routine Method of Characterization: (check one) ☐ Sampling & Analysis ☐ Process Knowledge ☐ Contents Prohibited Waste at all three Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory NTS landfills: levels, and Medical wastes (needles, sharps, bloody clothing). Additional Prohibited Waste Sewage Studge Animal carcasses. Wet garbage (food waste); and Eriable ashestes.
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 Sevage Sludge Animal carcasses. Wet garbage (food waste); and Eriable ashestes.
Prohibited Waste at all three Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory NTS landfills: levels, and Medical wastes (needles, sharps, bloody clothing). Additional Prohibited Waste Sewage Sludge Animal carcases. Wet garbage (food waste); and Eriable ashestes.
NTS landfills: levels, and Medical wastes (needles, sharps, bloody clothing). Additional Prohibited Waste Sewage Slurtge Animal carcasses. Wet garbage (food waste): and Eriable ashestes.
SQUIDE SILIERO ANIMAL CARCACCAC MARI CARDACO HACA MACIOL AND FRANCO ACIDADO
at the Area 3 0 (00 Landing).
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 and allowed in 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. RCT initials This container/load meets the critery
Print Name: Mik Flogo added man-made to the criterian this container/load meets the criterian this criterian t
Signature: Date: 1/30/09 Radcon Manual Table is exempt from This container/load is exempt from This exempt from This container/load is exempt from This exem
Note: "Food waste, office trash and animal carcasses do not require a radiological cleimust have signed removal certification statement with Load Verification." DATE SIGNATURE: BIT SIGNAT
SWO USE ONLY 1/30/07 Load Weight (net from section of estimate): 42,000 Signature of Certifier:

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

NTS LANDFILL LOAD VERIFICATION

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Page 1 of 2 FRM-0918 SWO USE (Select One) AREA □ LANDFILL 23 \times 6 For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898. REQUIRED: WASTE GERERATOR 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 Waste Type: □ NTS □ FFACO-onsite ☐ Putrescrible ☐ WAC Exception ☐ Non-Putrescible ☐ Historic DOE/NV (check one) ☐ Asbestos Containing Material ☐ FFACO-offsite ☐ YMP Pollution Prevention Category: (check one)

Clean-Up ☐ Routine Method of Characterization: (check one) Prohibited Waste at all three Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory NTS landfills: levels, and Medical wastes (needles, sharps, bloody clothing). **Additional Prohibited Waste** Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos at the Area 9 U10C Landfill: REQUIRED: WASTE CONTENTS ALLOWABLE WASTES Check all allowable wastes that are contained within this load: NOTE: Waste 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: Rocks / unaltered geologic materials ☐ Paper ☐ 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: ☐ Drained automobiles and military vehicles ☐ Solid fractions from sand/oil/water ☐ Non-friable asbestos ☐ Light ballasts (contact SWO) ☐ Drained fuel filters (gas & diesel) ☐ Deconned Underground and Above ☐ Light ballasts (contact SWO) ☐ Other
☐ Hydrocarbons (contact SWO) ☐ Other
☐ Clindenarbon Landfill: ☐ **Ground Tanks** ☐ Septic studge ☐ 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 Radiological Survey Release for Waste Disposal is approved for disposal in the landfill. RCT initials Print Name: Mile Flogs This container/load meets the criteria for no added man-made radioactive material This container/load meets the criteria for Date: 1/30/07 Radcon Manual Table 4.2 release limits. This container/load is exempt from survey Note: "Food waste, office trash and animal carcasses do not require a radiological cleadue to process knowledge and origin. must have signed removal certification statement with Load Verification." SIGNATURE: DATE: (-30.07 SWO USE ONLY 1/30/07 BN-0646 (10/05)

Signature of Certifier:



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FRM-0918

NTS LANDFILL LOAD VERIFICATION

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SWO USE (S	elect On	e) AF	REA	23] 6	7 9	عر	LANDFILL
For wa	aste characte	erization, i	approval, a	nd/or assista	nce, con	tact Solid	Waste Operation (S	NO) a	at 5-7898.
	(Thi			WASTE GE dump trucks,			RMATION isposal of materials.,)	
Waste Generator:	Mike	EL04.	0				Phone Number:	2	6653
Location / Origin:	CAU	536	CAC	03-44.	ره ک				
Waste Category:	(check one)			Commercial			industrial		
Waste Type:	T NTS			utrescrible			FFACO-onsite	(☐ WAC Exception
(check one)	☐ Non-Pu	trescible		Asbestos Co	ntaining N	/laterial	☐ FFACO-offsite	(☐ Historic DOE/NV
Pollution Prevent	tion Catego	ry: (check					Defense Projects	;	YMP
Pollution Prevent				Clean-Up		************	Routine		***************************************
Method of Charac			**************************************	Sampling & A	Analysis		Process Knowled	ige [Contents
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Acceptable waste					Rocks /	unaltered	geologic materials	П	Empty containers
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		Cable	□ CI			-	bestosform).		Cement & concrete
	-	_				•		<u> </u>	Cernein & concrete
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Additional waste	accepted at] Friable			ry Landfill: (contact SW		fice Waste ated load	_	니 	Animal Carcasses
Additional waste	accepted at	the Area	9 U10c La	ındfill:	**********				
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Light ballasts (d	contact SWO)				-		Deconned Underg	roun	d and Above
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Additional waste :		*********		rhon I and	::::: T		***************************************		
Septic sludge	accepted at Rags □		-	fuel filters (g		٠ . ام	Crushed nor	tom	e plated oil filters
☐ Plants	_			rom sand/oil/		•			arts per million
		_		WASTE GE				JU pi	arts per minori
			•			714 319147	TONE		
Initials: (if i	nitialed, no	radiologi	ical cleara	nce is neces	ssary.)		•		
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The above mention knowledge, does n					neu wasi	e manage		y Rele	ease for Waste Disposal
To the best of my k	nowledge, t	he waste	described	above contai	ins only t	hose mat		iner/lo	ad meets the criteria for
site. I have verified	l this throug	h the was	te charact	erization met	thod iden	tified abo	added ma		e radioactive material
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is approved for dis	posal in the	ianomi.		•					ad is exempt from surve
Print Name: M	6 Flo	240	<u> </u>		-	Vacl	due to ചിറ്റി SIGNATURE:	øse kr	owledge and origin. DATE: 1/45
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SWO USE ONLY					سر لید ان				
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NTS LANDFILL LOAD VERIFICATION

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SWO USE (S	elect Or	ie) AF	REA		23		6		A 9	[2	ا ا	ANDF	ILL
For wa	ste charact	erization,	approval,	and/or a	assistanç	e, coni	tact Soli	d Wa	ste Operation	(SWO	at 5	5-7898.	
	(Th		EQUIRED for rolloffs,						ATION osal of materia	ls.)		1	
Waste Generator:	Mike	EL04	0						Phone Numbe	ر ان r:ع	=	653	
Location / Origin:	CAU	536	CAC	03	-44-0	ک				·			
Waste Category:	(check one)			Comme	ercial			2	Industrial				
Waste Type:	D NTS			Putreso	crible				FFACO-onsite			WAC Ex	ception
(check one)	☐ Non-Pu	utrescible		Asbest	os Contai	ining N	/laterial		FFACO-offsite	!		Historic	DOE/NV
Pollution Prevent	ion Catego	ory: (check			nmental n				Defense Proje			YMP	
Pollution Prevent	ion Catego	ory: (check		Clean-l			**********		Routine	*******	B		
Method of Charac	terization:	(check on	3) 🗷	Sampli	ng & Ana	lysis	***	N	Process Know	ledge		Content	S
Prohibited Waste NTS landfills:	at all three		active wast							CBs a	bove	TSCA re	egulatory
Additional Prohib at the Area 9 U10		Sewag	e Sludge,	Animal	carcasse	s, We	t garbag	je (fo	od waste); and	Friab	le as	bestos	
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NOTE: Waste disp	nasal at the		all allowa.							ım bı	idroc	arbone o	,
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	hydrocarbo									**********			
Acceptable waste	at any NT	S landfill:	☐ P	aper	☐ Ro	ocks /	unaltere	d ged	ologic material:	s [] E	mpty con	tainers
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Plastic 1	Wire	Cable		loth	☐ Ins	sulatio	n (non-A	Asbes	stosform)		Œ C	ement &	concrete
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Additional waste a	accepted a	t the Area	23 Merci	ıry Lan	dfill: [fice Was	ste	☐ Food Was	te [] A	nimal Ca	rcasses
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Additional waste a	ccented a	the Area	6 Hydrod	arbon	Landfill:								
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√ Signature:			4			Date:	1/25/0	7	SIGNATURE				DATE: 1/2
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must have signed	gried remov	/ai Certifica	anon state	HEIR W									
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SWO USE (Selec	ct One) ARE	ĒΑ	2	3	6	····	× 9	13	LANDFILL	\equiv
Property and the second							id Wa	ste Operation (SI			\neg
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		KLOYD		······································				Phone Number: _	<u> </u>	6658	
Location / Origin:	AU B	536 (CAS	03-	44-05	-					
Waste Category: (chec	k one)			Commer	cíal		2	Industrial			
Waste Type: 🌃 I	NTS			Putrescri				FFACO-onsite	į	☐ WAC Except	on
	Non-Putr				Containing	**********		FFACO-offsite]	☐ Historic DOE	/NV
Pollution Prevention (Category	/: (check o	ne) 🗹	Environn	nental mana	gement		Defense Projects]	☐ YMP	
Pollution Prevention (пе) 🔼	Clean-Up)			Routine			
Method of Characteriz	ation: (c	heck one)	Z	Sampling	& Analysis		P	Process Knowled	ge [☐ Contents	
Prohibited Waste at al NTS landfills:	ll three				waste; Haz s (needles, s				s ab	ove TSCA regula	ıtory
Additional Prohibited	Waste	Courage	Chidao	Animala	aronnon IA	lat aarba	an (for	ad wasta): and Er	ماطمة	anhostae	
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lnitials: (if initial	ed, no ra	adiologica	al clear	ance is n	ecessary.)						
men) at					4 11 1187			-4 # /m34/8#A1			
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knowiedge, does not co	iitaiii jau	, orogical,	mate ; i ai				1	RCY Initials	veyn	ologse lot Heste D	Spose
To the best of my knowle	edge, the	a waste de	scribed	above co	ontains only	those m	ater			/load meets the cri	
site. I have verified this prohibited and allowable	through	the waste	charac	terization	method ide	entified at	1V00			ade radioactive ma r/load meets the cri	
profileted and allowable is approved for disposal			ive com	acteu Pro	perty Maria	gement a	110 1			al Table 4.2 release	
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Print Name: M	1209	<u>"U</u>			··			due to p	ogeas	knowledge and orig	
Signature:				· · · · · · · · · · · · · · · · · · ·	Date:	1/25/0	7	SIGNATURE:		DA [*]	FE: 1/ BN-064
Note: "Food waste, offic must have signed							al clea	arance. Freon-co	ntain	ning appliances	1
SWO USE ONLY			,							· ,	
load Weight (net from so	2010	market Sandara	11 5	260	1/25/07 Signature	l of Codific	m.				



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SWO USE (Select One) AREA 23 6	Ø9 € LANDFILL
For waste characterization, approval, and/or assistance, contact Solid W	aste Operation (SWO) at 5-7898.
REQUIRED: WASTE GERERATOR INFORM	IATION
(This form is for rolloffs, dump trucks, and other onsite disp	
Waste Generator: Mile FLOYP	Phone Number: 8-665-3
Location / Origin: CAR 536 CAF 03-44-02	
Waste Category: (check one)	Industrial
Waste Type: ☐ NTS ☐ Putrescrible	PFFACO-onsite WAC Exception
(check one) Non-Putrescible Asbestos Containing Material	FFACO-offsite Historic DOE/NV
	Defense Projects
	Routine
***************************************	Process Knowledge Contents
Prohibited Waste at all three Radioactive waste; RCRA waste; Hazardous waste NTS landfills: Radioactive waste; RCRA waste; Hazardous waste levels, and Medical wastes (needles, sharps, blood	Free liquids, PCBs above TSCA regulatory
Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (f	•
REQUIRED: WASTE CONTENTS ALLOWABLE	
Check all allowable wastes that are contained within	
NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into con coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubrican	
petroleum hydrocarbon; and ethylene glycol.	its and hydraulics, herosche, asphane
Acceptable waste at any NTS landfill: Paper Rocks / unaltered go	eologic materials
☐ Asphalt ☐ Metal ☐ Wood ☐ Soil ☐ Rubber (excluding ti	ires) Demolition debris
☐ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-Asbe	estosform) . [V] Cement & concrete
Manufactured items: (swarnp coolers, furniture, rugs, carpet, electronic compone	nts, PPE, etc.)
Additional waste accepted at the Area 23 Mercury Landfill:	
☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load)	
Additional waste accepted at the Area 9 U10c Landfill:	
·	Solid fractions from sand/oil/water
	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 SIGNAT	
initials: (if initialed, no radiological clearance is necessary.)	
The above mentioned waste was generated outside of a Controlled Waste Manager	A (CIAIAA) and to the heat of mu
knowledge, does not contain radiological materials.	Radiological Survey Release for Waste Disposa
To the heat of my branded on the works described above sentaine and, the sure	RCT Initials
To the best of my knowledge, the waste described above contains only those mate site. I have verified this through the waste characterization method identified above.	This container/load meets the criteria for added man-made radioactive material
prohibited and allowable waste items. I have contacted Property Management and	This container/load meets the criteria for
is approved for disposal in the landfill.	Radcon Manual Table 4.2 release limits
Print Name: M. L. FLOY!	This container/load is exempt from sur due to process knowledge and origin.
Signature: Date: /23/07	SIGNATURE: DATE: // BN-064
Note: "Food waste, office trash and animal carcasses do not require a radiological cl	earance./Freon-containing appliances
must have signed removal certification statement with Load Verification."	<u> </u>
must have signed removal certification statement with Load Verification." SWO USE ONLY	Andrew An



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SWO USE (Select One) **日 LANDFILL** AREA 23 6 x 9 For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898. REQUIRED: WASTE GERERATOR INFORMATION (This form is for rolloffs, dump trucks, and other onsite disposal of materials.) Phone Number: 8-C6 5-3 Mile FLOGO Waste Generator: CAQ 536 CAF 03-44-02 Location / Origin: Waste Category: (check one) M Industrial ☐ Commercial Waste Type: TA-NTS FFACO-onsite ☐ Putrescrible ☐ WAC Exception (check one) ☐ Non-Putrescible ☐ Asbestos Containing Material ☐ FFACO-offsite ☐ Historic DOE/NV Pollution Prevention Category: (check one) P Environmental management ☐ Defense Projects ☐ Routine Analysis & Analysis Method of Characterization: (check one) Process Knowledge Contents Prohibited Waste at all three Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory NTS landfills: levels, and Medical wastes (needles, sharps, bloody clothing). Additional Prohibited Waste Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos at the Area 9 U10C Landfill: REQUIRED: WASTE CONTENTS ALLOWABLE WASTES Check all allowable wastes that are contained within this load: NOTE: Waste 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 Demolition debris Rubber (excluding tires) ☐ 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 ☐ Animal Carcasses ☐ Food Waste ☐ 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 studge Crushed non-teme plated oil filters ☐ Rags ☐ Drained fuel filters (gas & diesel) ☐ 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 1 knowledge, does not contain radiological materials. Radiological Survey Release for Waste Disposal **RCT** Initials To the best of my knowledge, the waste described above contains only those materials This container/load meets the criteria for no site. I have verified this through the waste characterization method identified above an added man-made radioactive material This container/load meets the criteria for prohibited and allowable waste items. I have contacted Property Management and have is approved for disposal in the landfill Radcon Manual Table 4.2 release limits. This container/load is exempt from survey due to process knowledge and origin. Print Name: Date: 1/24/07 Signature: Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances

1/24/07

Signature of Certifier.

must have signed removal certification statement with Load Verification."

Load Weight (net fron scale) or estimate): 30, 540



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SWO USE (Select One) AREA 23 6	N 9	₽ LANDFILL
For waste characterization, approval, and/or assistance, contact Solid W		
REQUIRED: WASTE GERERATOR INFORM (This form is for rolloffs, dump trucks, and other onsite disp	ATION	
Waste Generator: Mile FLOYD	Phone Number:	8-6653
Location / Origin: CAR 536 CAF 03-44-02		
Waste Category: (check one)	- Industrial	
Waste Type: ☐NTS ☐ Putrescrible ☐	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
	Routine	
	Process Knowled	
Prohibited Waste at all three Radioactive waste, RCRA waste, Hazardous waste NTS landfills: Revels, and Medical wastes (needles, sharps, bloody		Bs above TSCA regulatory
Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (for	ood waste); and Fr	riable asbestos
REQUIRED: WASTE CONTENTS ALLOWABLE Check all allowable wastes that are contained within NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into con coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubrican petroleum hydrocarbon; and ethylene glycol.	in this load: tact with petroleum	
Acceptable waste at any NTS landfill: Paper Rocks / unaltered ge	eologic materials	☐ Empty containers
☐ Asphalt ☐ Metal ☐ Wood ☐ Soil ☐ Rubber (excluding ti	ires)	☐ Demolition debris
☐ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-Asbe	estosform)	Cement & concrete
☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic compone	nts, PPE, etc.)	
Additional waste accepted at the Area 23 Mercury Landfill: Office Waste Asbestos Friable Non-Friable (contact SWO if regulated load)		☐ Animal Carcasses
Additional waste accepted at the Area 9 U10c Landfill:		
<u> </u>	Solid fractions fro	m sand/oil/water
·	Deconned Underg	ground and Above
	Ground Tanks	
Additional waste accepted at the Area 6 Hydrocarbon Landfill:	*************************	## # # # # # # # # # # # # # # # # # #
☐ Septic sludge ☐ Rags ☐ Drained fuel filters (gas & diesel)	Crushed nor	n-terne plated oil filters
☐ Plants ☐ Soil ☐ Sludge from sand/oil/water separators		50 parts per million
REQUIRED: WASTE GENERATOR SIGNAT		
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.	Radiological RCT initials	Survey Release for Waste Dispo
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 his approved for disposal in the landfill.	tal This adde This Radc	container/load meets the criteria d man-made radioactive materia container/load meets the criteria on Manual Table 4.2 release limi container/load is exempt from su
Print Name: M. L. FLOY	due to	nowledge and origin.
Signature: Date: 1/24/07		DATE:
Note: "Food waste, office trash and animal carcasses do not require a radiological cl must have signed removal certification statement with Load Verification."	earance. Freon-ci	ontaining appliances
SWO USE ONLY 1/24/07		•
Load Weight (net from geale or estimate): 42,000 Signature of Certifier:	· ·	



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TICIN-0310 TO ENTO TELL COND TELL		, - 9
SWO USE (Select One) AREA 23 6	A 9	∠ LANDFILL
For waste characterization, approval, and/or assistance, contact Solic	l Waste Operation (S	SWO) at 5-7898.
REQUIRED: WASTE GERERATOR INFO	RMATION	
(This form is for rolloffs, dump trucks, and other onsite		
Waste Generator: Mile FLOYD	Phone Number:	8-6653
Location / Origin: CPR 536 CAF 03-44-02		
Waste Category: (check one)	☐ Industrial	
Waste Type: ☐NTS ☐ Putrescrible	FFACO-onsite	☐ WAC Exception
(check one)	☐ FFACO-offsite	☐ Historic DOE/NV
Pollution Prevention Category: (check one)	Defense Projec	ts 🔲 YMP
Pollution Prevention Category: (check one)	Routine	
Method of Characterization: (check one)	2 Process Knowle	edge Contents
Prohibited Waste at all three Radioactive waste; RCRA waste; Hazardous wa	ste; Free liquids, PC	
NTS landfills: levels, and Medical wastes (needles, sharps, blo Additional Prohibited Waste	ouy cioning).	
at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage	a (food waste); and F	Friable asbestos
REQUIRED: WASTE CONTENTS ALLOWAB	LEMASTES	
Check all allowable wastes that are contained w		•
NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into o		m hydrocarbons or
coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubric		
petroleum hydrocarbon; and ethylene glycol.	****	
Acceptable waste at any NTS landfill: Paper Rocks / unaltered	d geologic materials	☐ Empty containers
🗌 Asphalt 🖺 Metal 🔲 Wood 🔑 Soil 🔲 Rubber (excludin	g tires)	Demolition debris
☐ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-A	sbestosform)	Cement & concrete
Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic compounds)	onents, PPE, etc.)	
Additional waste accepted at the Area 23 Mercury Landfill: Office Was		e
☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load		
***************************************		**************************************
Additional waste accepted at the Area 9 U10c Landfill:	□ o rate-arriva to	
	•	om sand/oil/water
		rground and Above
☐ Hydrocarbons (contact SWO) ☐ Other	Ground Tanks	i
Additional waste accepted at the Area 6 Hydrocarbon Landfill:	****	
☐ Septic sludge ☐ Rags ☐ Drained fuel filters (gas & diesel)	☐ Crushed no	on-teme plated oil filters
☐ Plants ☐ Soil ☐ Sludge from sand/oil/water separators	PCBs below	w 50 parts per million
REQUIRED: WASTE GENERATOR SIGN	IATURE	
nitials: (if initialed, no radiological clearance is necessary.)		
The above mentioned waste was generated outside of a Controlled Waste Manag	iem	
mowledge, does not contain radiological materials.	Radiological S	Survey Release for Waste Dispor
<u>.</u>	RCT Initials	container/load meets the criteria
To the best of my knowledge, the waste described above contains only those ma		d man-made radioactive material
site. I have verified this through the waste characterization method identified above his tendent and allowable waste items. I have provided Brone to Management and	ove	container/load meets the criteria
prohibited and allowable waste items. <u>I have contacted Property Management ar</u> s approved for disposal in the landfill.	Rade	on Manual Table 4,2 release limi
	This c	container/load is exempt from su o arrage knowledge and origin.
Print Name: M. L. FLOY!		DATE:
Signature: Date: 1/24/	SIGNATURE:	DATE:
		
Note: "Food waste, office trash and animal carcasses do not require a radiologica must have signed removal certification statement with Load Verification."	clearance Freon-c	containing appliances
SWO USE ONLY		

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SWO USE (Select One) AREA 23 6	<i>≱</i> 9	∠ LANDFILL
For waste characterization, approval, and/or assistance, contact Solid V	Vaste Operation (SW	/O) at 5-7898.
REQUIRED: WASTE GERERATOR INFORM (This form is for rolloffs, dump trucks, and other onsite dis		
Waste Generator: Mike KLOYD	Phone Number:	5-6653
Location / Origin: CAU 53C CAC 03-4V-02		
Waste Category: (check one)	¥ Industrial	
Waste Type: ☑ NTS ☐ Putrescrible ☑	FFACO-onsite	
(check one) Non-Putrescible Asbestos Containing Material	FFACO-offsite	☐ Historic DOE/NV
Pollution Prevention Category: (check one)	Defense Projects	☐ YMP
	Routine	
Method of Characterization: (check one)	Process Knowledg	ge 🗌 Contents
Prohibited Waste at all three Radioactive waste; RCRA waste; Hazardous waste NTS landfills: levels, and Medical wastes (needles, sharps, blood		s above TSCA regulatory
Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Fri	able asbestos
REQUIRED: WASTE CONTENTS ALLOWABLE		
Check all allowable wastes that are contained with		bud-ana-ban
NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into collection coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubrical		
petroleum hydrocarbon; and ethylene glycol.	nis and nytraulics, r	croserie, aspiratiic
Acceptable waste at any NTS landfill: Paper Rocks / unaltered g	eologic materials	☐ Empty containers
☐ Asphalt ☑ Metal ☐ Wood ☑ Soil ☐ Rubber (excluding	tires)	☐ Demolition debris
☐ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-Asb	estosform)	∠ Cement & concrete
☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic component	ents, PPE, etc.)	
Additional waste accepted at the Area 23 Mercury Landfill: Office 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	n sand/oil/water
☐ Light ballasts (contact SWO) ☐ Drained fuel filters (gas & diesel) ☐		1
☐ Hydrocarbons (contact SWO) ☐ Other	Ground Tanks	ourie aria / iboro
**************************************		***************************************
Additional waste accepted at the Area 6 Hydrocarbon Landfill:	Crushed per	tome plated all filters
☐ Septic sludge ☐ Rags ☐ Drained fuel filters (gas & diesel)		teme plated oil filters on parts per million
☐ Plants ☐ Soil ☐ Sludge from sand/oil/water separators REQUIRED: WASTE GENERATOR SIGNA		oo parts per million
	TORL	
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.	ment Area (CWMA) a	and to the best of my
•	Radiological S	urvey Release for Waste Disposa
To the best of my knowledge, the waste described above contains only those mate		ontainer/load meets the criteria fo
site. I have verified this through the waste characterization method identified abov prohibited and allowable waste items. I have contacted Property Management and		man-made radioactive material
is approved for disposal in the landfill.	This co	ontainer/load meets the criteria fo
Print Name: MIL FloyD	This co	n Manual Table 4.2 release limits ontainetoad is exempt from sur
Signature: Date: 1 13/6	due to SIGNATURE:	process knowledge and origin. DATE:
Note: "Food waste, office trash and animal carcasses do not require a radiological or must have signed removal certification statement with Load Verification."	clea	
SWO USE ONLY (/25/07		,
Load Weight (net from scale or estimate): 26 300 Signature of Certifier:	<u>-</u>	<u> </u>
and trailing to the properties of the properties	 `	



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SWO USE (Select One) AREA 23 6	5/9 ANDFILL
For waste characterization, approval, and/or assistance, contact Solid Wa	
REQUIRED: WASTE GERERATOR INFORMA	
(This form is for rolloffs, dump trucks, and other onsite disp	osal of materials.)
Waste Generator: MIK FLOYO	Phone Number: 5-6653
Location / Origin: (AUS36 (AS 63-44-02	
Waste Category: (check one) ☐ Commercial ☑	Industrial
Waste Type: ☑ NTS ☐ Putrescrible	FFACO-onsite
(check one)	FFACO-offsite
Pollution Prevention Category: (check one) 🗹 Environmental management 🗌	Defense Projects
	Routine
Method of Characterization: (check one)	Process Knowledge Contents
Prohibited Waste at all three Radioactive waste; RCRA waste; Hazardous waste; NTS landfills: levels, and Medical wastes (needles, sharps, bloody	
Additional Prohibited Waste	-
at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (fo	od waste); and Friable asbestos
REQUIRED: WASTE CONTENTS ALLOWABLE	WASTES
Check all allowable wastes that are contained within	
NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into conta coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricant	
petroleum hydrocarbon; and ethylene glycol.	s and Hydraulios, Reroserie, aspiratio
Acceptable waste at any NTS landfill: Paper Rocks / unaltered ge	ologic materials
☐ Asphalt ☑ Metal ☐ Wood ☒ Soil ☐ Rubber (excluding tir	es)
☐ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-Asbe	stosform)
Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic component	its, PPE, etc.)
***************************************	☐ Food Waste ☐ Animal Carcasses
☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load)	Quantity:
Additional waste accepted at the Area 9 U10c Landfill:	VALABA - 1
<u>, </u>	Solid fractions from sand/oil/water
-	Deconned Underground and Above
_	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 SIGNATU	
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.	Radiological Survey Release for Waste Disposal
To the best of my knowledge, the waste described above contains only those mater	RCT initials This container/load meets the criteria for
site. I have verified this through the waste characterization method identified above	added man-made radioactive material
prohibited and allowable waste items. I have contacted Property Management and	This container/load meets the criteria for Redcon Manual Table 4.2 release limits.
is approved for disposal in the landfill.	This container/least is exempt from surve
Print Name: M. La Clogo	due to process showledge and origin.
Signature: Date: 1/30/07	SIGNATURE: BN-0646
Note: "Food waste, office trash and animal carcasses do not require a radiological cle must have signed removal certification statement with Load Verification."	arance. Freon-containing appliances
SWO USE ONLY 1/30/07	1-3007
Load Weight (net from scale o) estimate). 19 200 Signature of Certifier:	



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FRM-0918

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 Wa	ste Operation (SW	/O) at 5-7898.
REQUIRED: WASTE GERERATOR INFORMA (This form is for rolloffs, dump trucks, and other onsite dispo	osal of materials.)	
Waste Generator: _ Mile Flosp	Phone Number:	5-6653
Location / Origin: CAC 536 CAF 03-44-02		
Waste Category: (check one)	Industrial	
Waste Type: ☐ NTS ☐ Putrescrible ☐	FFACO-onsite	☐ WAC Exception
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	FFACO-offsite	☐ Historic DOE/NV
	Defense Projects	☐ YMP
	Routine	
***************************************	Process Knowledg	
Prohibited Waste at all three Radioactive waste; RCRA waste; Hazardous waste; NTS landfills: levels, and Medical wastes (needles, sharps, bloody		above TSCA regulatory
Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (for	od waste); and Fria	able asbestos
REQUIRED: WASTE CONTENTS ALLOWABLE VI Check all allowable wastes that are contained within NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into contain coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants petroleum hydrocarbon; and ethylene glycol.	this load: act with petroleum	
Acceptable waste at any NTS landfill: Paper Rocks / unaltered ged	ologic materials	☐ Empty containers
☐ Asphalt ☐ Metal ☐ Wood ☐ Soil ☐ Rubber (excluding tire	<del>-</del>	☐ Demolition debris
☐ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-Asbes	stosform)	Cement & concrete
☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic component	•	
Additional waste accepted at the Area 23 Mercury Landfill:  Office Waste  Asbestos Friable Non-Friable (contact SWO if regulated load)	******	☐ Animal Carcasses
☐ Light ballasts (contact SWO) ☐ Drained fuel filters (gas & diesel) ☐ ☐	Solid fractions from Deconned Undergr Bround Tanks	l l
		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
Additional waste accepted at the Area 6 Hydrocarbon Landfill:  Septic sludge Rags Drained fuel filters (gas & diesel)	Crushed non-	teme plated oil filters
		60 parts per million
REQUIRED: WASTE GENERATOR SIGNATU		parto por minor.
Initials: (if initialed, no radiological clearance is necessary.)	···	
The above mentioned waste was generated outside of a Controlled Waste Manageme knowledge, does not contain radiological materials.	Radiological S	Survey Release for Waste Disposa
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.	an This o	container/load meets the criteria for I man-made radioactive material container/load meets the criteria for on Manual Table 4.2 release limits container/load is exempt from sur-
Print Name: M. L. FLOY	due to	process inowledge and origin.
Signature: Date: 1/23/62	SIGNATURE:	DATE: <u>//</u> BN-0640
Note: "Food waste, office trash and animal carcasses do not require a radiological clear must have signed removal certification statement with Load Verification."	arance. Freon-cor	ntaining appliances
SWO LISE ONLY		
Load Weight (net from scale or estimate): 4/,500 Signature of Certifier:		



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SWO USE (Se	elect One	a) ARE	Α	23	П	6 6	X	9	Į.	LAND	FILL
				d/or assistan	се, contac	t Solid V			WO) a	t 5-7898.	
	······································	REG	UIRED:	WASTE GEF ump trucks, a	RERATOR	INFOR	MATION sposal o	f materials.	.)		
Waste Generator:	Mile	FLOGE	7				Phone	Number:	.80	1653	,
Location / Origin:	CAR	536	CAS	03-44	1-02		· · · · · · · · · · · · · · · · · · ·				
Waste Category: (	(check one)		ОС	ommercial		E	1ndus	trial			
Waste Type:	<b>I</b> S−NTS		□ P:	utrescrible			FFAC	O-onsite		] WAC E	xception
(check one)	☐ Non-Put	rescible	□ A:	sbestos Cont	taining Mat	terial [	] FFAC	O-offsite	(	] Historia	DOE/NV
Pollution Preventi	ion Categor	y: (check or		nvironmental				se Project	s [	] YMP	
Pollution Preventi	ion Categor	y: (check or					☐ Routi	1e			
Method of Charac	terization: (	check one)	<b>Æ</b> -s:	ampling & Ar	nalysis	Q	<b>Proce</b>	ss Knowle	dge [	☐ Conten	its
Prohibited Waste NTS landfills:	at all three			RCRA waste wastes (nee					Bs abo	ove TSCA	regulatory
Additional Prohibi at the Area 9 U100		Sewage	Sludge, Ar	nimal carcass	ses, Wet g	arbage (	(food wa	ste); and F	riable	asbestos	
	such as: gas	Check al Area 6 Hydi soline (no b	<i>l allowable</i> rocarbon L enzene, le	ead); jet fuel;	are contai have come	<i>ined witl</i> into co	<i>hin this lo</i> intact wit	oad: h petroleui			
petroleum l Acceptable waste	hydrocarbon				Rocks / una	nlared :		matarial-		Empty co	ntainere
	=	Wood	☐ Par <b>Ŀ</b> Soi		Rocks / una Rubber (ex	_		materials		Demolitio	
☐ Plastic ☐ \	- ··	] Vvoca ] Cable	☐ Clo		nsulation (	-		·m/			concrete
☐ Manufactured it		_			,			•	L <u>v</u>	Oction 6	COILLIERE
Additional waste a		************			~ <del></del>		**********	ood Waste		Animal C	
	Friable		-	contact SWC	Office [] If regulate					Alimai C	aicasses
Additional waste a	accepted at	the Area 9	U10c Lar	ndfill:		***********	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	************			
☐ Non-friable asbe	estos	☐ Drain	ed automo	obiles and m	ilitary vehic	cles 🗆	] Solid fi	actions fro	m sar	d/oil/wate	r .
☐ Light ballasts (co	ontact SWO)	Drain	ed fuel filt	ers (gas & di	esel)		Decon	ned Under	ground	and Abo	ve
☐ Hydrocarbons (d	contact SWO)	☐ Other					Ground	l Tanks			
Additional waste a	ccepted at	the Area 6	Hydrocai	rbon Landfil	ı: 🗇	# # # # + + + + + + + + + +	*******	*********		**********	
☐ Septic sludge	Rags		-	uel filters (ga		******	c	rushed no	n-tem	plated oi	l filters
☐ Plants	☐ Soil			om sand/oil/w	-			CBs below			
		REC	QUIRED:	WASTE GEI	VERATOR	SIGNA	TURE				
initials: (if in	nitialed, no r	adiologica	al clearan	ce is necess	sary.)	•					}
The above mentions knowledge, does no	ed waste was ot contain <i>r</i> a	s generate diological	d outside materials.	of a Controll	ed Waste N	Manager		_	l Surve	y Release fo	r Waste Disp
To the best of my kr	nourladae +h	a waata di	secribad a	houa contain	e only the	ea mata		RCT initials This	contai	ner/load me	ets the criteri
site. I have verified								add	ed man	-made radio	active materi
prohibited and allow	wable waste	items. <u>I ha</u>									ets the criter! 4.2 release lin
is approved for disp Print Name:		~					,	This	conta	nectionad is	exempt from s ge and origin.
Signature:	* .				Date: //	/23/0	SI SI	GNATURE:	E .		DATE:
Note: "Food waste,	office trash	and animal	carcasse		ire a radiol	logical c		e. Freon-c	ontain	ing appliar	nces
must have sig	gnea remova	n certificati	on statem					· · · · · · · · · · · · · · · · · · ·			
SWO USE ONLY	$\sim$		: 1 :	, 1/	$l_{Z}3/67$ ature of Ce				•		
Load Weight (net fro	om scale or	otimeto):	4219	10 Sign	ature of Ce	ertifier: "	سسر يدا	·		-	

## NTS On-Site HazMat Transfer - Published

Tracking No: DPL07122 Mesa Number:		
Carrier: NSTEC		
Vehicle: E104363 Driver: NIRK FOREST	CDL: 4300161386 NV	
	Arrival 22 EER 2007 14-00	
Depart 22-F5B-2007 13:00	Arrival: 22-FEB-2007 14:00	
From: "HERESA HALE	To: MERL SCHWARTZWALTER	
MSTEC	NSTEC	
HASE CAMP	BASE CAMP	
·	MERCURY, NV 89023	
irrea: 3	Area: 05	
Elidg: CAU 536	Bldg: 007	
l'hone: 702-295-1672	Phone: 702-295-6807	
Alt Phone:	All Phone: 702-295-6811	
Mobile: 702-875-6398	Mobile:	
Entered !!y: BILL NICOSIA	Date Enlered: 21-FEB-2007	
Modified By: BILL NICOSIA	Date Modifled: 22-FEB-2007	
Shipped Material(s)	Package(s) Unit(s)	Guide No.
WASTE PACKACES 151453, 151434, 151482 TPH HYDROCARBON (		SS)
NASTE PACKACES 151453, 151434, 151482 TPH HYDROCARBON (	ency Response NNAME	1207
NASTE PACKACES 151453, 151434, 151482 TPH HYDROCARBON 1 24-Hr Emerge 70	ency Response NNAME	
PACKAC ES 151453, 151434, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151482 TPH HYDROCARBON CACKAC ES 151454, 151484, 151482 TPH HYDROCARBON CACKAC ES 151454, 151484, 151484, 151482 T	ency Response NNAME  DATE  DATE	
econdary Emergency Response Contact And/Or Comments BILL N COSIA 702-630-0223	ency Response NNAME  02-295-0311  DATE  NSTec RWP	02 07
WASTE PACKACES 151453, 151434, 151482 TPH HYDROCARBON  24-Hr Emerge 70  econdary Emergency Response Contact And/Or Comments BILL N COSIA 702-630-0223  EMERG	ency Response NNAME  D2-295-0311  DATE  NSTec RWP  SENCY RESPONSE  In the event of an incident involving Hazardous Mail	02 07
PACKAGES 151453, 151434, 151482 TPH HYDROCARBON 24-Hr Emerge 70 econdary Emergency Response Contact And/Or Comments BILL N COSIA 702-630-0223 EMERG	ency Response NNAME  DATE  NSTEC RWP  SENCY RESPONSE	02 07
WASTE PACKACES 151453, 151434, 151482 TPH HYDROCARBON  24-Hr Emerge 70  econdary Emergency Response Contact And/Or Comments BILL N COSIA 702-630-0223  EMERG	ency Response NNAME  D2-295-0311  DATE  NSTEC RWP  In the event of an incident involving Hazardous Mal  1. Gather HazMat shipping papers and NAER Guid 2. Isolate the immediate area 3. Assess the situation:	02 07
PACKAGES 151453, 151434, 151482 TPH HYDROCARBON  24-Hr Emerge 70  econdary Emergency Response Contact And/Or Comments Bit.L N COSIA 702-630-0223  EMERG  By Phone 702-295-0311  By Radio	PATE  DATE  NSTEC RWP  In the event of an incident involving Hazardous Mat  1. Gather HazMat shipping papers and NAER Guid 2. Isolate the immediate area 3. Assess the situation: a. Fire, Spill, or Leak?	02 07
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## **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	USTOC. Organization	Operation Speciales Title
Signature		2 · 22 · 07 Date

## APPENDIX D FIELD PHOTOGRAPHS

## 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



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)

### **APPENDIX E**

# NATIONAL ENVIRONMENTAL POLICY ACT ENVIRONMENTAL EVALUATION CHECKLIST

NV-16 (Rev. 11/2003) Other Editions Obsolete

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

FOLLOW ATTACHED P						Date	_		
A. Project/Activity Title (Attach a brief description of proposed project)     CAU 536: Area 3 Release Site						11/27/0 Anticipa		rt Doto	
OAO 330. AI 62 3 NEICEASC OILE						01/14/2		in Dale	•
Project Location		_	_	Т	Proposed By (if other than NNSA/NS		<del></del>		
NTS Area 3				İ	, (	,			
NNSA/NSO Line Management Organization NNSA/NSO Project/Program Man									<u>-</u>
	0110				John Jones				
check was and explain in project des	ONS: 1	it any	pnase 01	the	e project/activity involves any of the for consideration guidelines and examp	ollowing a	conside	rations	s,
CONSIDERATION	YES	NO			NSIDERATION	nes.	YES	NO	UNK
WASTE	-				EMISSIONS				
1 Non-Rad Solid Waste	X		<del>  </del>	1	Biological Material/Chemical Release	_		x	
2 Hazardous Waste		X		2			X		
3 Low-level Rad Waste	X			3			^	v	
4 Mixed Waste	^	X		4	Diesel Generators			X	
5 TRU/Mixed TRU Waste				5	Open Burning			X	
6 Wastewater (domestic/industrial)		X			Open Building			Х	
O Wastewater (Gornessonicustrial)		Х	<del>   </del>	епт	E LOCATIONOTHER				
HAZARDOUS MATERIALS									
				1	Environmental Restoration Site (CAU)  Excavation/Land Surface Disturbance		X		
Petroleum/Fuel (storage/use)     Underground Storage Tanks	X		ļ		Off road travel		X		
Underground Storage Tanks     Aboveground Storage Tanks		X	<u> </u>	3	***************************************			X	
	<u> </u>	X	-	4	Biological/Tortoise Resource Area  Cultural/Historic Resource Area	_		X	
- <del>-</del>		X		5				X	
5 Pesticides/Herbicides		X		_ <del>6</del>	Change in Existing Drainage Pattern			X	
6 Radioactive Materials	X			7		ystem		X	
7 Biological Materials/Simulants		X		8	Unexploded Ordnance Area			X	
8 Beryllium	_	X		9	Noise		Х		
9 Chemical storage/use		X		10	Radiation controlled area			X	
10 Use of explosives/firearms		X		11	<b>3 ,</b>			X	
					withis line. For eshib use only.				
B. Is the project/activity included in						<b>-</b>			
Yes X (complete Sec	ions C,	D, and	1 E)	No	(complete Sections D, E, and F	-)			
C This project/activity is included in	the NT	S EIS	POD (or	oth	er NEPA document) under the followin	a section	and no	000 00	
NTS EIS, section 3.1.3.3, Environm						y section	i anu pe	ige no	
D. Door the many and maniput/orthist			ll -4-						
D. Does the proposed project/activit	y requir	e any	iocai, sta	TO, (	or federal permits or notifications?	Yes	• —	No	<u>x</u>
E. If, based on the project description and	the prelin	ninary e	nvironmer	ntal c	considerations noted above, the proposed action	on fits with	in a class	of actio	n listed
in Subpart D of 10 CFR 1021, write in the	e space i	below, t	he paragra	aph r	number and short title from the appropriate tab	ole of conte	ents of Su		
Appendix B, C, or D, for a CX, EA, or E	S. ITTNE	propose	ed action o	oes	not fit within any class of action, write "Not List	(ed. pelow	•		
					<u></u>				
F. NEPA COMPLIANCE OFFICER									
I have determined that the impacts	of the p	ropos	ed action	1, de	escribed in item A, are adequately ad	dressed	in the	NTS EI	S. No
Additional analysis or documentation NEPA review may be required.	ı is requ	uired p	oursuant	το Γ	NEPA. If changes are made to the p	roposed	action,	iurther	ſ
TALL A TOVIEW May be required.			<i>-</i> +						
, , ,					5 December 2006				
NNSA/NSO NE	PA Con	nglan	ce Office	er	D	ate			_
	•								_
i									

#### 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

- Non-Rad Soild 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. <u>Low-Level Rad Waste:</u> 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.

#### **<u>Hazardous Materials</u>**

- 1. <u>Petroleum/Fuel (storage/use):</u> 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. <u>Radioactive Materials:</u> 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. <u>Dust/Particulate Matter:</u> 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. <u>Excavation/Land Surface Disturbance:</u> 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.

## **APPENDIX F**

# NEVADA DIVISION OF ENVIRONMENTAL PROTECTION COMMENT RESPONSES

## NEVADA ENVIRONMENTAL RESTORATION PROJECT DOCUMENT REVIEW SHEET

Document Title/Number: Draft Closure Report for

CAU 536, Area 3 Release Site

Document Date: July 2007

CAO 550, Area 5 Release Site

Author/Organization: NSTec

Revision Number: 0

Date Comments Due: July 13, 2007

Responsible NNSA/NSO ERP Federal Sub-Project

Director: Kevin Cabble

Reviewer's

Review Criteria: Full

Signature

Reviewer/Organization/Phone Number: Jeff

MacDougall/NDEP/486-2850, ext.233

Comment Number/ Location	Type	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.	* 50

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

CAU 536 Closure Report Section: Library Distribution List Revision: 0 Date: July 2007

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