

Nevada
Environmental
Restoration
Project

DOE/NV--1246



Closure Report for Corrective
Action Unit 543: Liquid Disposal
Units, Nevada Test Site, Nevada

Controlled Copy No.: _____

Revision: 0

January 2008

Environmental Restoration
Project

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

DISCLAIMER

Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

This report has been reproduced directly from the best available copy.

Available for sale to the public from:

U.S. Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161-0002
Telephone: (800) 553-6847
Fax: (703) 605-6900
E-mail: orders@ntis.gov
Online ordering: <http://www.ntis.gov/ordering.htm>

Available electronically at <http://www.osti.gov/bridge>.

Available for a processing fee to the U.S. Department of Energy and its contractors, in paper, from:

U.S. Department of Energy
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831-0062
Telephone: (865) 576-8401
Fax: (865) 576-5728
E-mail: reports@adonis.osti.gov

**CLOSURE REPORT FOR
CORRECTIVE ACTION UNIT 543:
LIQUID DISPOSAL UNITS,
NEVADA TEST SITE, NEVADA**

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

**Controlled Copy No._____
Revision: 0
January 2008**

THIS PAGE INTENTIONALLY LEFT BLANK

**CLOSURE REPORT FOR
CORRECTIVE ACTION UNIT 543:
LIQUID DISPOSAL UNITS,
NEVADA TEST SITE, NEVADA**

Approved By: /s/ Kevin J. Cabble
Kevin J. Cabble
Federal Sub-Project Director
Industrial Sites Sub-Project

Date: 1-3-08

Approved By: /s/ W. R. Wilborn for J. Jones
John B. Jones
Acting Federal Project Director
Environmental Restoration Project

Date: 1/7/2008

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS	vii
EXECUTIVE SUMMARY	ix
1.0 INTRODUCTION	1
1.1 PURPOSE	1
1.2 SCOPE	1
1.3 CLOSURE REPORT CONTENTS	3
2.0 CLOSURE ACTIVITIES	5
2.1 DESCRIPTION OF CORRECTIVE ACTION ACTIVITIES	5
2.1.1 Preplanning and Site Preparation.....	5
2.1.2 Closure Activities.....	5
2.1.2.1 CAS 06-07-01, Decon Pad	5
2.1.2.2 CAS 15-01-03, Aboveground Storage Tank	11
2.1.2.3 CAS 15-04-01, Septic Tank.....	14
2.1.2.4 CAS 15-05-01, Leachfield.....	14
2.1.2.5 CAS 15-08-01, Liquid Manure Tank	16
2.1.2.6 CAS 15-23-01, Underground Radioactive Material Area	16
2.1.2.7 CAS 15-23-03, Contaminated Sump, Piping.....	18
2.1.2.2.1 CAS 06-07-01, Decon Pad	5
2.1.2.2.2 CAS 15-01-03, Aboveground Storage Tank	11
2.1.2.2.3 CAS 15-04-01, Septic Tank.....	14
2.1.2.2.4 CAS 15-05-01, Leachfield.....	14
2.1.2.2.5 CAS 15-08-01, Liquid Manure Tank	16
2.1.2.2.6 CAS 15-23-01, Underground Radioactive Material Area	16
2.1.2.2.7 CAS 15-23-03, Contaminated Sump, Piping.....	18
2.2 DEVIATIONS FROM THE CAP AS APPROVED	18
2.3 CORRECTIVE ACTION SCHEDULE AS COMPLETED.....	20
2.4 SITE PLAN/SURVEY PLAT	20
3.0 WASTE DISPOSITION	23
3.1 WASTE MINIMIZATION	23
3.2 WASTE MANAGEMENT	23
3.3 WASTE CHARACTERIZATION	24
3.4 WASTE STREAMS AND DISPOSAL.....	24
3.4.1 Sanitary Waste	24
3.4.2 Petroleum Hydrocarbon Waste.....	26
3.4.3 PCB Remediation Waste.....	26
3.4.4 Low-Level Waste.....	26
3.4.5 Mixed Waste	27
4.0 CLOSURE VERIFICATION RESULTS	29
4.1 DATA QUALITY ASSESSMENT	32
4.2 USE RESTRICTION	32
4.2.1 CAS 06-07-01, Decon Pad.....	33
4.2.2 CAS 15-01-03, Aboveground Storage Tank.....	33
4.2.3 CAS 15-23-03, Contaminated Sump, Piping.....	33
5.0 CONCLUSIONS AND RECOMMENDATIONS	35
5.1 CONCLUSIONS.....	35
5.2 POST-CLOSURE REQUIREMENTS	36
5.2.1 Inspections	36
5.2.2 Monitoring	36

TABLE OF CONTENTS (continued)

5.3	RECOMMENDATIONS.....	36
6.0	REFERENCES	37
LIBRARY DISTRIBUTION LIST		

LIST OF FIGURES

FIGURE 1.	CAU 543 SITE LOCATION MAP	2
FIGURE 2.	CAS 06-07-01, DECON PAD	8
FIGURE 3.	CAS 06-07-01 SAMPLE LOCATIONS	10
FIGURE 4.	AREA 15 EPA FARM CLOSURE ACTIVITY AREAS.....	12
FIGURE 5.	CAS 15-01-03, ABOVEGROUND STORAGE TANK	13
FIGURE 6.	CASs 15-04-01, SEPTIC TANK, AND 15-05-01, LEACHFIELD	15
FIGURE 7.	CAS 15-08-01, LIQUID MANURE TANK	17
FIGURE 8.	CAS 15-23-03, CONTAMINATED SUMP, PIPING.....	19

LIST OF TABLES

TABLE 1.	SUMMARY OF CAU 543 CLOSURE ACTIVITIES	6
TABLE 2.	CAU 543 CLOSURE ACTIVITIES SCHEDULE.....	20
TABLE 3.	CAU 543 WASTE DISPOSITION SUMMARY	25
TABLE 4.	CLOSURE VERIFICATION SOIL SAMPLES COLLECTED FOR CAU 543	30
TABLE 5.	CLOSURE VERIFICATION SAMPLE ANALYTICAL RESULTS GREATER THAN THE DETECTION LIMITS	31

APPENDICES

APPENDIX A.	DATA QUALITY OBJECTIVES
APPENDIX B.	SAMPLE ANALYTICAL RESULTS
APPENDIX C.	WASTE DISPOSITION DOCUMENTATION
APPENDIX D.	SITE CLOSURE PHOTOGRAPHS
APPENDIX E.	USE RESTRICTION DOCUMENTATION

ACRONYMS AND ABBREVIATIONS

Am	americium
AST	aboveground storage tank
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
CFR	Code of Federal Regulations
Co	cobalt
COC	contaminant of concern
CR	Closure Report
DRO	diesel-range organics
EPA	U.S. Environmental Protection Agency
FAL	final action level
FFACO	<i>Federal Facility Agreement and Consent Order</i>
ft	foot (feet)
gal	gallon(s)
GRO	gasoline-range organics
HEPA	high efficiency particulate air
HWAA	Hazardous Waste Accumulation Area
ISOCS	In Situ Object Counting System
LLW	low-level waste
LT	less than requested detection limit but greater than method detection limit
M&OC	Management and Operations Contractor
mg/kg	milligram(s) per kilogram
MW	mixed waste
ND	not detected
NDEP	Nevada Division of Environmental Protection

ACRONYMS AND ABBREVIATIONS (continued)

NNSA/NSO	U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office
NNSA/NV	U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office
NTS	Nevada Test Site
ORO	oil-range organics
PCB	polychlorinated biphenyl
pCi/g	picocurie(s)s per gram
ppm	parts per million
Pu	plutonium
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RMA	Radioactive Material Area
RWMS	Radioactive Waste Management Site
SDG	sample delivery group
Sr	strontium
TPH	total petroleum hydrocarbons
UR	use restriction
URMA	underground radioactive material area
WMA	waste management area
yd ³	cubic yard(s)

EXECUTIVE SUMMARY

Corrective Action Unit (CAU) 543 is identified in the *Federal Facility Agreement and Consent Order* (FFACO, 1996) as Liquid Disposal Units. CAU 543 is located in Areas 6 and 15 of the Nevada Test Site, Nevada, and consists of the following seven Corrective Action Sites (CASs):

- CAS 06-07-01, Decon Pad
- CAS 15-01-03, Aboveground Storage Tank
- CAS 15-04-01, Septic Tank
- CAS 15-05-01, Leachfield
- CAS 15-08-01, Liquid Manure Tank
- CAS 15-23-01, Underground Radioactive Material Area
- CAS 15-23-03, Contaminated Sump, Piping

CAU 543 closure activities started in March 2007 and were completed in October 2007. Activities were performed in accordance with the FFACO and the Corrective Action Plan for CAU 543 (U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2007). The corrective action alternatives that were applied at each site consisted of closure in place and no further action with best management practices (BMPs).

CAS 06-07-01, located at the Area 6 Decontamination Facility, was closed in place with implementation of BMPs. The Building 6-605 concrete pad was fenced and posted, and a use restriction (UR) was implemented for polychlorinated biphenyls (PCBs) and radioactivity on and adjacent to the building pad. As BMPs, two septic tanks, two sumps, and their contents were removed and disposed of as mixed waste (MW); sediment from the Building 6-605 floor drain trenches was removed and disposed of as MW; Building 6-605 floor drain trenches, diversion box, and cleanouts were grouted to grade; and numerous containers and other surface debris were segregated according to waste stream and disposed of appropriately as either sanitary waste or low-level waste (LLW).

The remaining CASs are located at the former Area 15 U.S. Environmental Protection Agency Farm. CAS 15-23-03 was closed in place by filling the existing sump with clean fill, posting the perimeter of the sump and buried piping as use restricted, and implementing a UR for PCBs and radioactivity. The other five CASs were closed by taking no further action with implementation of the following BMPs:

- CAS 15-01-03: Underground piping between a fill stand and an aboveground storage tank (AST) and all aboveground piping were removed, size-reduced, and placed inside the AST. The AST was sealed and disposed of as LLW. A distribution box and its contents were excavated, packaged in a soft-sided container, and disposed of as PCB remediation LLW. Sediment was removed from the Building 15-06 floor drain trenches and disposed of as hydrocarbon PCB remediation waste. The floor drain trenches were filled with grout, the

building foundation was fenced and posted, and a UR was implemented for PCBs for the building pad and underground piping between the building pad and the AST.

- CAS 15-04-01: The septic tank and its contents were excavated, solidified, and disposed of as hydrocarbon PCB remediation waste. The excavation was backfilled to surrounding grade with clean fill.
- CAS 15-05-01: The distribution box, its contents, and piping between the distribution box and the CAS 15-04-01 septic tank were excavated and disposed of as hydrocarbon PCB remediation waste. The excavation was backfilled to surrounding grade with clean fill.
- CAS 15-08-01: Liquid remediation waste from within the liquid manure tank was pumped out and transferred to the Area 12 Sewage Lagoons. Remaining sludge was solidified, and the tank and its contents were excavated and disposed of as hydrocarbon waste. Wood debris on the ground surface was disposed of as hydrocarbon waste, and other surface debris was disposed of as sanitary waste.
- CAS 15-23-01: Surface debris was disposed of as sanitary waste.

Samples were collected as needed for characterization of waste streams. Samples were also collected from below several removed structures (e.g., septic tanks) to verify that the contents had not been released to the surrounding soil. Verification samples were only collected for wastes that would exceed CAU 543 established action levels if the waste was released to the environment from the container. All samples showed that concentrations were less than the established action levels in samples collected from below the removed structures.

Closure activities generated approximately 96 cubic yards (yd^3) of mixed waste, 173 yd^3 of LLW, 127 yd^3 of hydrocarbon waste, 72 yd^3 of sanitary waste, and 16,250 gallons of liquid remediation waste. Some of these waste streams also contained PCB remediation wastes, for which the landfill operator was notified in advance of shipments as required by Title 40 Code of Federal Regulations Part 761.61, "PCB Remediation Waste."

This Closure Report documents the activities taken to close this CAU and includes waste characterization and verification sample results, waste disposition paperwork, and other supporting documentation.

1.0 INTRODUCTION

This Closure Report (CR) documents closure activities for Corrective Action Unit (CAU) 543, Liquid Disposal Units, according to the *Federal Facility Agreement and Consent Order* (FFACO, 1996) and the Corrective Action Plan (CAP) for CAU 543 (U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office [NNSA/NSO], 2007). CAU 543 is located at the Nevada Test Site (NTS), Nevada (Figure 1), and consists of the following seven Corrective Action Sites (CASs):

- CAS 06-07-01, Decon Pad
- CAS 15-01-03, Aboveground Storage Tank
- CAS 15-04-01, Septic Tank
- CAS 15-05-01, Leachfield
- CAS 15-08-01, Liquid Manure Tank
- CAS 15-23-01, Underground Radioactive Material Area
- CAS 15-23-03, Contaminated Sump, Piping

CAS 06-07-01 is located at the Decontamination Facility in Area 6, adjacent to Yucca Lake. The remaining CASs are located at the former U.S. Environmental Protection Agency (EPA) Farm in Area 15.

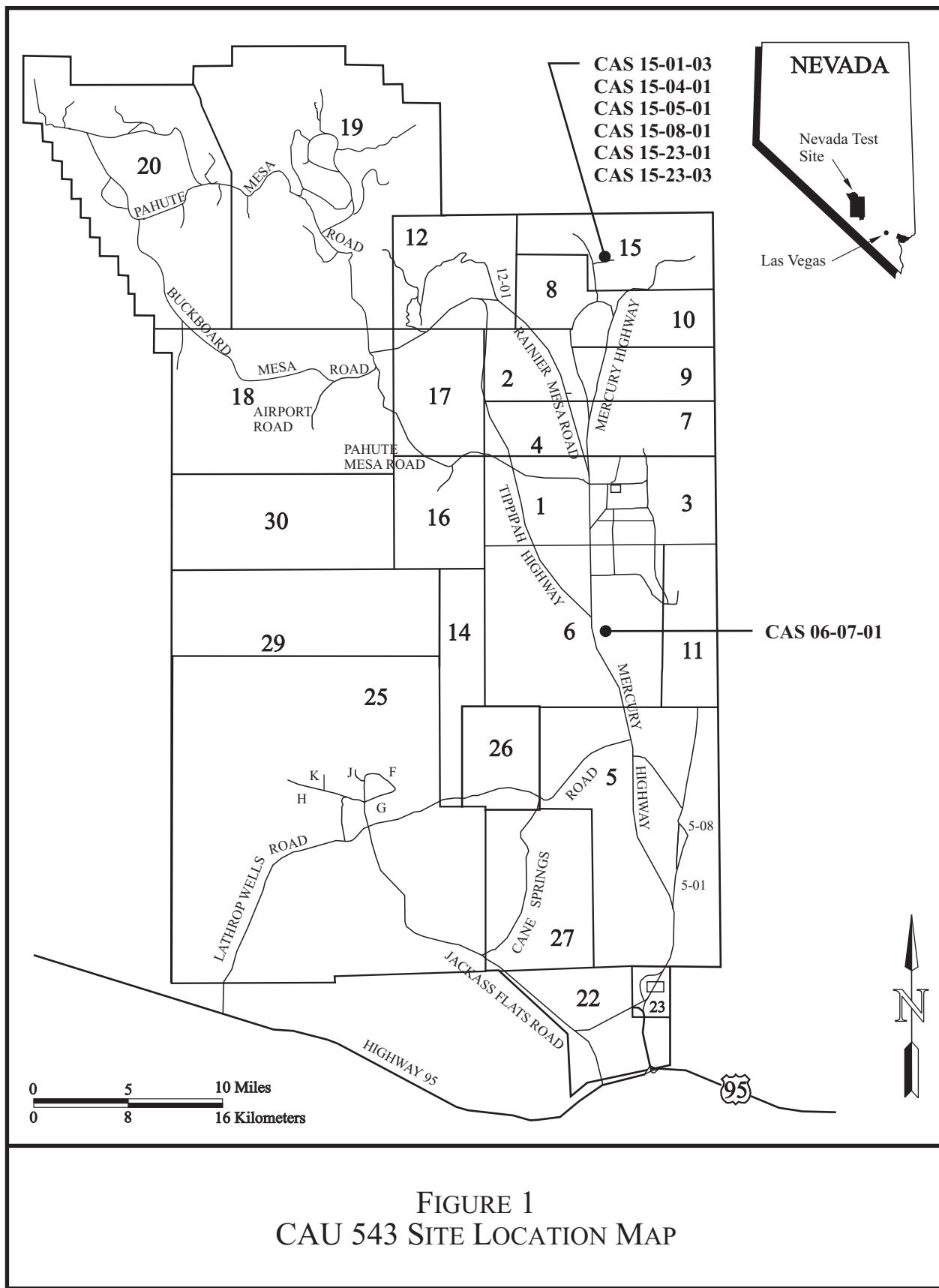
1.1 PURPOSE

The purpose of this CR is to provide a summary of the completed closure activities, to document waste disposal, and to present analytical data confirming that the remediation goals were met. The closure alternatives consisted of closure in place for two of the CASs, and no further action with implementation of best management practices (BMPs) for the remaining five CASs.

1.2 SCOPE

The closure strategy for CAU 543 was as follows:

- CAS 06-07-01 (Decon Pad) was closed in place with administrative controls and implementation of BMPs. The Building 6-605 concrete pad was closed in place by fencing, posting signs, and implementing a use restriction (UR) for polychlorinated biphenyls (PCBs) and radioactivity. As a BMP, (1) two septic tanks, two sumps, and their contents were removed, solidified as necessary, and disposed of as mixed waste (MW); (2) sediment contained within a diversion box and the Building 6-605 floor drain trenches was removed and disposed of as MW; (3) Building 6-605 floor drain trenches, diversion box, and cleanouts were grouted; and (4) containers and other surface debris were disposed of appropriately either as sanitary waste or low-level waste (LLW).
- CAS 15-01-03 (Aboveground Storage Tank) was closed by taking no further action with implementation of BMPs. The following activities were undertaken as BMPs: (1) the aboveground piping connected to the 25,000-gallon (gal) aboveground storage tank (AST)



was removed, size-reduced, and placed within the AST; (2) the AST and its contents were removed and disposed of as PCB remediation LLW; (3) a distribution box and its contents were removed and disposed of as LLW; (4) sediment from the Building 15-06 floor drain trenches was removed and disposed of as petroleum hydrocarbon PCB remediation waste; (5) Building 15-06 floor drain trenches were filled with grout and the perimeter of the building foundation was fenced; and (6) a UR for PCBs was implemented for the Building 15-06 concrete pad and underground piping between the pad and the former AST.

- CAS 15-04-01 (Septic Tank) was closed by taking no further action with implementation of BMPs. As a BMP, the septic tank contents were removed and solidified, and both tank and contents were disposed of as hydrocarbon PCB remediation waste.
- CAS 15-05-01 (Leachfield) was closed by taking no further action with implementation of BMPs. As a BMP, the distribution box and its contents were removed and disposed of as hydrocarbon PCB remediation waste.
- CAS 15-08-01 (Liquid Manure Tank) was closed by taking no further action with implementation of BMPs. The following activities were undertaken as BMPs: (1) wood debris on the ground surface was removed and disposed of as hydrocarbon waste, (2) liquid remediation waste within the liquid manure tank was removed and disposed of in the Area 12 Sewage Lagoons, (3) sludge was solidified within the tank, (4) the tank and its solidified sludge were removed and disposed of as hydrocarbon waste, and (5) non-wood surface debris was disposed of as sanitary waste.
- CAS 15-23-01 (Underground Radioactive Material Area) was closed by taking no further action. As a BMP, the steel grate and miscellaneous surface debris in the area were removed and disposed of as sanitary waste at the Area 9 U10c Sanitary Landfill.
- CAS 15-23-03 (Contaminated Sump, Piping) was closed in place with administrative controls and implementation of BMPs. The sump was backfilled, wheel-roll compacted, and graded to prevent precipitation run-on; UR signs were posted around the perimeter of the sump and above the underground piping; and a UR was implemented for PCBs and radioactivity for the sump and the underground piping between the sump and the CAS 15-01-03 distribution box.

1.3 CLOSURE REPORT CONTENTS

This CR includes the following sections:

- Section 1.0 - Introduction
- Section 2.0 - Closure Activities
- Section 3.0 - Waste Disposition
- Section 4.0 - Closure Verification Results
- Section 5.0 - Conclusions and Recommendations
- Section 6.0 - References
- Appendix A - Data Quality Objectives

- Appendix B - Sample Analytical Results
- Appendix C - Waste Disposition Documentation
- Appendix D - Site Closure Photographs
- Appendix E – Use Restriction Documentation
- Library Distribution List

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

- CAP for CAU 543, Revision 1 (NNSA/NSO, 2007)
- *Nevada Environmental Restoration Project Industrial Sites Quality Assurance Project Plan* (QAPP) (U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office [NNSA/NV], 2002)

All laboratory data were reviewed to ensure that they are useable and complete, in accordance with the QAPP. Data collected during the closure activities showed that removal of the CAU 543 structures successfully removed the waste contained within the structures. Removal of the structures was completed as a BMP. Observations and analytical results obtained during the closure activities did not change the conceptual site models that were presented within the Corrective Action Investigation Plan (CAIP) for CAU 543 (NNSA/NSO, 2004a) and reconciled in the Corrective Action Decision Document (CADD) for CAU 543 (NNSA/NSO, 2005). One UR was implemented in addition to that recommended in the CADD. The additional UR was implemented for CAS 15-01-03 because porous waste structures that were left in place had contained PCBs at concentrations that required fencing and posting with PCB signs per Title 40 Code of Federal Regulations (CFR) Part 761.65, “Storage for Disposal” (CFR, 2006b).

2.0 CLOSURE ACTIVITIES

This section details the specific activities completed during the closure of CAU 543, deviations from the CAU 543 CAP, the schedule of completed activities, and the final site plan.

Photographs in Appendix D of this report document the state of the sites before corrective actions were implemented, during field work, and after completion of work.

2.1 DESCRIPTION OF CORRECTIVE ACTION ACTIVITIES

Closure activities for CAU 543 were completed according to the CAP (NNSA/NSO, 2007), with minor deviations as documented in Section 2.2. Closure activities consisted of removing and disposing structures (i.e., septic tanks, sumps, and similar structures), their contents, contaminated sediment, and debris; backfilling excavations and a sump; grouting floor drain trenches; and implementing URs. The following sections detail the closure activities as completed. Table 1 identifies the activities that were conducted at each CAS.

2.1.1 Preplanning and Site Preparation

Prior to closure activities, the following documents were prepared:

- *National Environmental Policy Act Checklist*
- Site-Specific Health and Safety Plan
- Field Management Plan
- Site Specific Emergency Response and Contingency Plan
- NNSA/NSO Real Estate/Operations Permit
- Work control packages

2.1.2 Closure Activities

The following sections detail the closure activities performed at each CAS.

2.1.2.1 CAS 06-07-01, Decon Pad

CAS 06-07-01 is located at the Area 6 Decontamination Facility, adjacent to Yucca Lake (Figure 2). It consisted of the effluent collection and distribution systems for Buildings 6-605, 6-606, and 6-607, which included two 1,000-gal septic tanks, two sumps and associated piping, the concrete foundation of Building 6-605, floor drains, drain trenches, and cleanouts. This CAS was closed in place by implementing administrative controls and implementation of BMPs.

TABLE 1. SUMMARY OF CAU 543 CLOSURE ACTIVITIES

CAS	CAS Name	Closure Method	COC	Closure Activities
06-07-01	Decon Pad	Closure in Place with Administrative Controls	PCBs	<ul style="list-style-type: none"> Collected characterization samples needed to characterize waste in containers and trough. Disposed of containers, luggers, and other miscellaneous debris as sanitary waste. Disposed of drums, trough with soil, and personal protective equipment as LLW. Solidified the contents of septic tank 6-605. Removed septic tank 6-605 and contents, packaged in soft-sided container, and disposed of as MW. Excavated septic tank 6-607 and contents, packaged in soft-sided containers, and disposed of as MW. Solidified the contents of Sump 1. Removed Sumps 1 and 2 and their contents, packaged in soft-sided containers, and disposed of as MW. Collected verification samples from beneath septic tanks and sumps. Removed sediment from building floor drain trenches, packaged in soft-sided container, and disposed of as MW. Filled building floor drain trenches, diversion box, and cleanouts with grout. Backfilled excavations. Installed a two-strand wire perimeter fence and gate around the perimeter of the Building 6-605 foundation. Posted UR and PCB warning signs around Building 6-605 foundation and implemented administrative controls.
15-01-03	Aboveground Storage Tank	No Further Action with BMP	None	<ul style="list-style-type: none"> Removed liquid remediation waste and sediment from building floor drain trenches, solidified, and disposed of as petroleum hydrocarbon PCB remediation waste (<50 parts per million [ppm] PCB). Filled building floor drain trenches with grout. Excavated distribution box and contents and disposed of as PCB remediation LLW (<50 ppm PCB). Collected verification sample from below distribution box. Grouted underground piping between distribution box and AST. Backfilled distribution box excavation to surrounding grade. Opened AST and identified presence of approximately 500 gal of solidified sludge. Removed all aboveground piping, size-reduced, and placed inside AST. Removed underground piping between AST and fill stand, size-reduced, and placed inside AST. Sealed AST and disposed of as LLW. Removed and disposed of fill stand as sanitary waste. Installed a two-strand wire perimeter fence and gate around the perimeter of the Building 15-06 foundation. Posted UR and PCB warning signs and implemented administrative controls.

TABLE 1. SUMMARY OF CAU 543 CLOSURE ACTIVITIES (CONTINUED)

CAS	CAS Name	Closure Method	COC	Closure Activities
15-04-01	Septic Tank	No Further Action with BMP	None	<ul style="list-style-type: none"> Removed and solidified liquid remediation waste from septic tank. Solidified septic tank liquid remediation waste and sludge. Disposed of solidified liquid remediation waste and sludge as petroleum hydrocarbon PCB remediation waste (<50 ppm PCB). Excavated and disposed of septic tank and associated piping as PCB remediation hydrocarbon waste (<50 ppm PCB). Collected verification sample from below tank. Backfilled excavation to surrounding grade.
15-05-01	Leachfield	No Further Action with BMP	None	<ul style="list-style-type: none"> Removed and disposed of distribution box and its contents as PCB remediation hydrocarbon waste (<50 ppm PCB). Collected verification sample from below distribution box. Backfilled excavation to surrounding grade.
15-08-01	Liquid Manure Tank	No Further Action with BMP	None	<ul style="list-style-type: none"> Removed and disposed of wood as hydrocarbon waste and miscellaneous debris as sanitary waste. Removed and disposed of cover from liquid manure tank as sanitary waste. Pumped liquid remediation waste from tank and disposed of it in the Area 12 Camp sewage lagoons. Solidified sludge in tank. Excavated and removed solidified sludge and liquid manure tank. Disposed of solidified sludge and size-reduced tank as hydrocarbon waste. Backfilled excavation to surrounding grade. De-posted URMA.
15-23-01	Underground Radioactive Material Area	No Further Action with BMP	None	<ul style="list-style-type: none"> Removed and disposed of perforated steel plank and miscellaneous debris as sanitary waste.
15-23-03	Contaminated Sump, Piping	Closure in Place with Administrative Controls	PCBs Plutonium-238	<ul style="list-style-type: none"> Removed and disposed of miscellaneous debris as sanitary waste. Filled sump with native fill, mounding slightly and wheel-roll compacting. Posted UR signs around sump and implemented administrative controls.

AST: aboveground storage tank

BMP: best management practice

CAS: Corrective Action Site

COC: contaminant of concern

LLW: low-level waste

MW: mixed waste

PCB: polychlorinated biphenyl

ppm: parts per million

UR: use restriction

URMA: underground radioactive material area

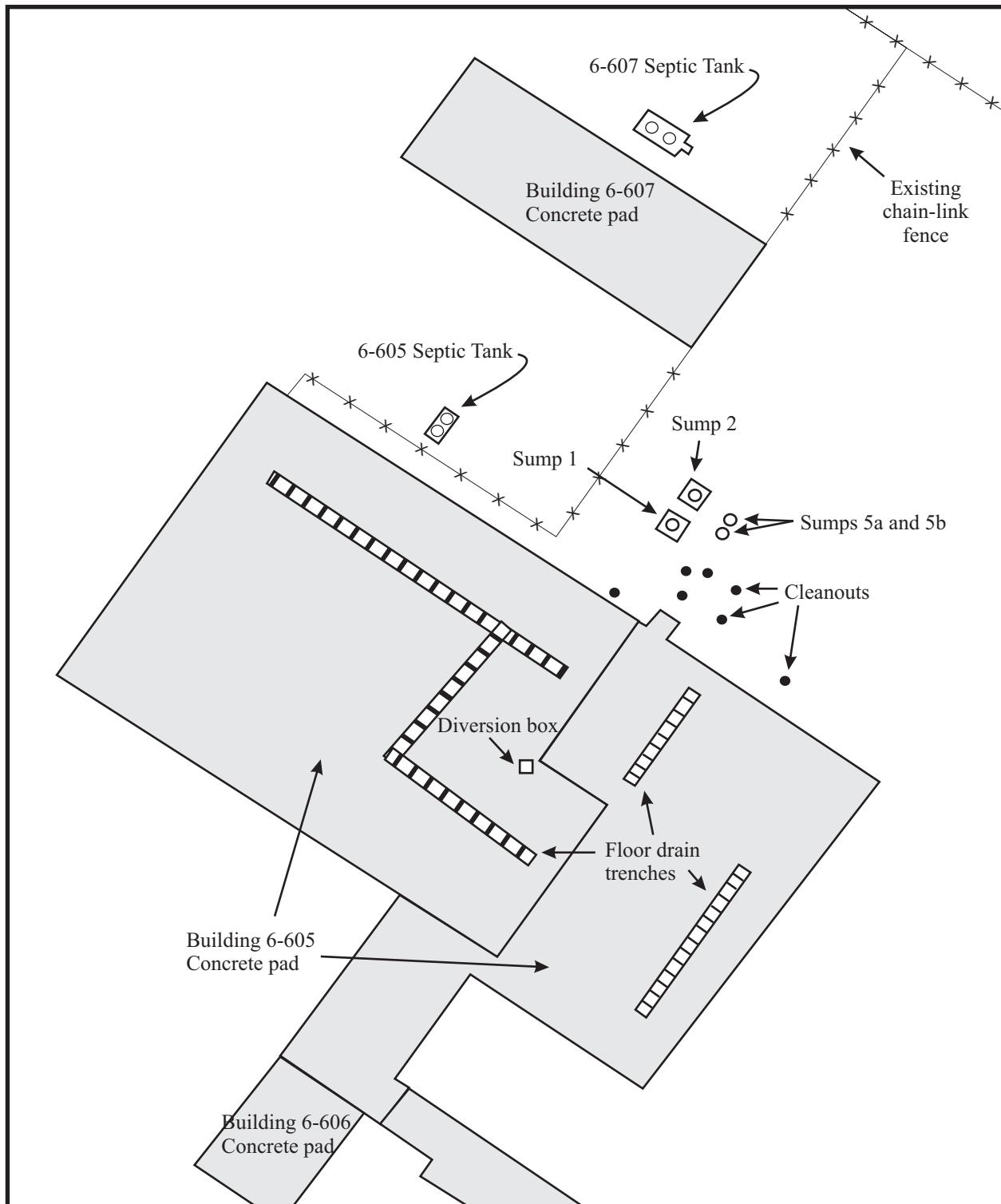


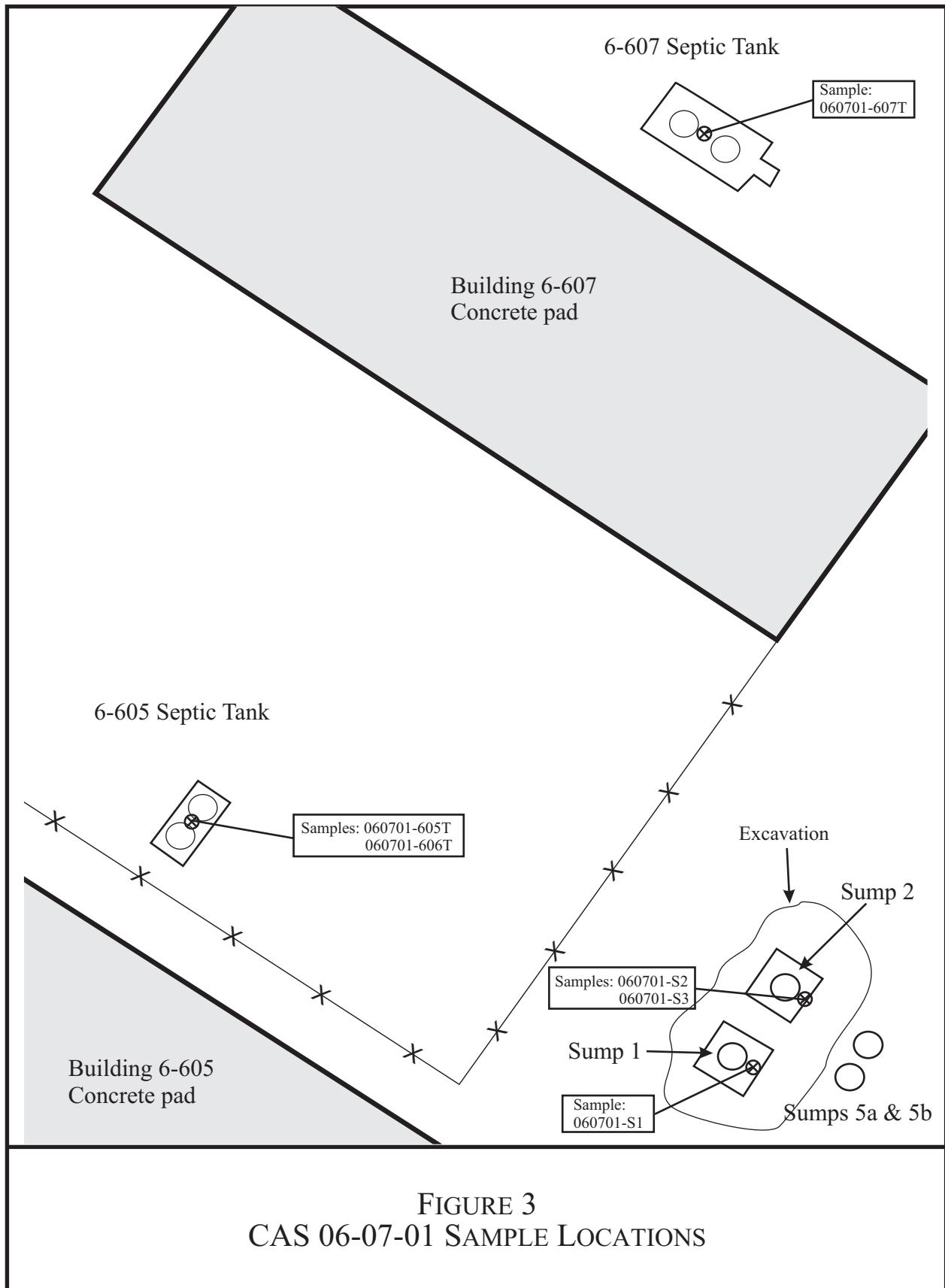
FIGURE 2
CAS 06-07-01, DECON PAD

The closure activities for this CAS were completed after the BMPs had been completed. The following activities were performed as BMPs:

- Septic tanks for Buildings 6-605 and 6-607 were opened and the contents were solidified. The septic tanks and their contents were excavated, packaged in soft-sided containers, and disposed of as MW. One sample was collected from beneath each tank (Figure 3) to verify closure of the site. Samples were collected from depths of approximately 4 feet (ft) below ground surface (bgs) for the 6-605 tank and 5 ft bgs for the 6-607 tank. Analytical results showed all concentrations to be less than the final action levels (FALs) for this CAS, and the excavations were backfilled to surrounding grade with clean fill.
- Two sumps (Sumps 1 and 2) and their contents were excavated, packaged in soft-sided containers, and disposed of as MW. One sample was collected from beneath each sump (Figure 3) to verify closure of the site. Approximate sample locations are indicated in Figure 3. Samples were collected from depths of approximately 6 to 7 ft bgs for Sumps 1 and 2. Analytical results showed all concentrations to be less than the FALs for this CAS, and the excavations were backfilled to surrounding grade with clean fill.
- Sediment contained within floor drain trenches and a diversion box in the Building 6-605 concrete foundation was removed, packaged in soft-sided containers, and disposed of as MW. The floor drain trenches, diversion box, and cleanouts adjacent to the foundation were then filled with concrete grout.
- Containers, luggers, troughs, debris, and other miscellaneous items within the Decontamination Facility yard were characterized and disposed of appropriately. Samples were collected when needed to characterize soil or other substances within the containers, luggers and troughs. The items were screened to free-release for radioactivity using hand instruments, in accordance with the NV/YMP Radiological Control Manual (NNSA/NSO, 2004b). Additional screening using the In Situ Object Counting System (ISOCS) was performed on those items where the results of hand instruments did not provide adequate determination on whether items could be free-released. Based on results of sample analytical results, ISOCS, and radiological screening, the items and their contents were disposed of as sanitary waste, LLW, or hydrocarbon PCB remediation LLW.

Activities undertaken for the CAS closure consisted of fencing the Building 6-605 concrete pad. The fencing extends a minimum of 10 ft outside of the perimeter of the pad. A UR was implemented for the fenced area. The UR was implemented for radioactivity and PCBs. UR signs and PCB signs (large PCB signs as defined by 40 CFR 761.45, "Marking Formats" [CFR, 2006b]) were posted at nine locations around the perimeter of the Building 6-605 foundation fencing. Appendix E contains a copy of the completed UR documentation.

Analytical results for samples collected during closure activities are provided in Appendix B and summarized in Section 4.0. Waste disposition documentation is presented in Section 3.0 and is provided in Appendix C. Photographs of the site before, during, and upon completion of closure activities are provided in Appendix D.



2.1.2.2 CAS 15-01-03, Aboveground Storage Tank

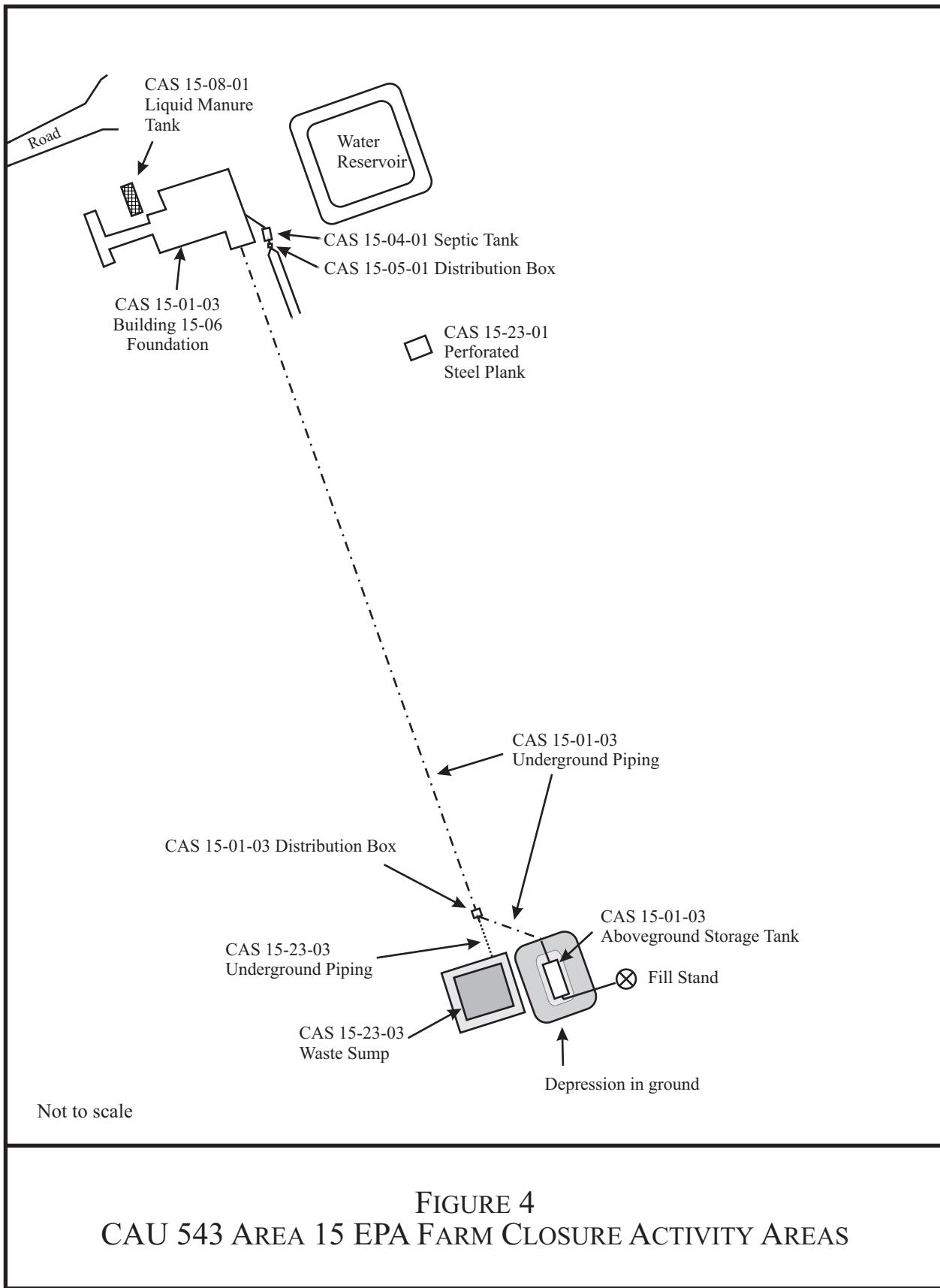
CAS 15-01-03 is located at the former EPA Farm in Area 15 (Figure 4). It consisted of the Building 15-06 concrete foundation, a radiologically contaminated 25,000-gal AST, a radiologically contaminated distribution box, aboveground and underground piping between the AST and the building foundation, and holding pens (Figure 5). This CAS was closed by taking no further action with implementation of BMPs.

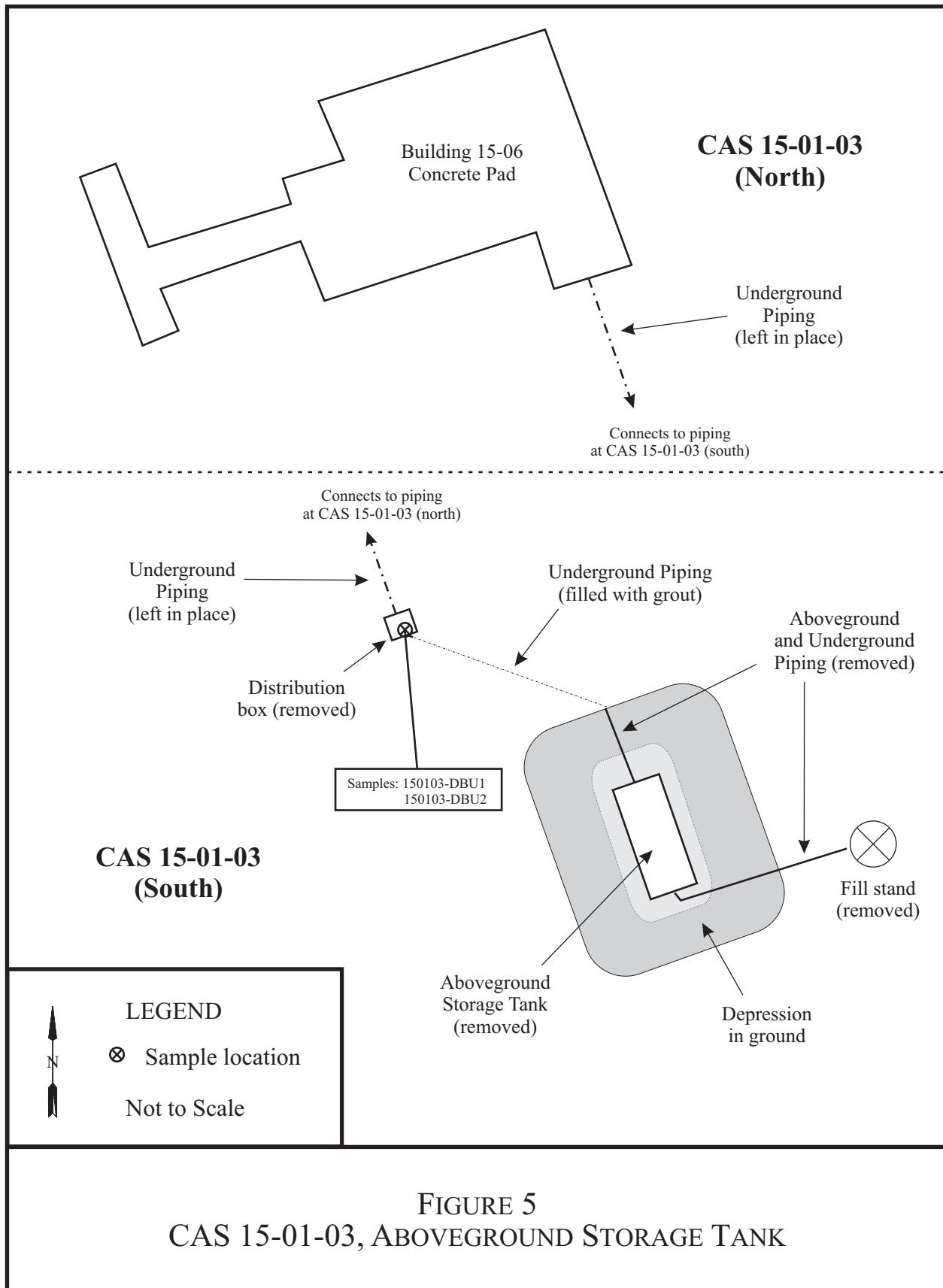
The AST was opened and approximately 500 gal of caked sludge, with no free liquid, were present in the bottom of the tank. Aboveground piping was removed, size-reduced, and placed inside of the AST. Underground piping between the AST and a fill stand, located to the east of the AST, was removed, size-reduced, and placed into the AST. The fill stand itself was removed and disposed of at the Area 9 U10c Sanitary Landfill because it met the free-release criteria for radioactivity established in the NV/YMP Radiological Control Manual (NNSA/NSO, 2004b). All openings of the AST were sealed, and the AST itself served as the container for LLW contained within it. The AST was disposed of as LLW in the Area 5 Radioactive Waste Management Site (RWMS) on the NTS.

The distribution box and its contents were excavated, placed into a soft-sided container, and disposed of as PCB remediation LLW at the Area 5 RWMS on the NTS. One sample was collected from beneath the distribution box, at a depth of approximately 5 ft bgs, to verify that concentrations beneath the distribution box are less than the FALs established for this site. Analytical results are provided in Appendix B and are summarized in Section 4.0. Underground piping between the distribution box and the AST was filled with grout, and the excavation was backfilled to surrounding grade.

Because the Building 15-06 floor drains had been sealed so that rainwater would not flow from the drains to the AST, the floor drain trenches contained both liquid (from rainwater) and sediment. The liquid remediation waste was removed and solidified, and the sediment was removed. The solidified liquid remediation waste and sediment were transported to the Area 6 Hydrocarbon Landfill and disposed of as hydrocarbon PCB remediation waste. Floor drains were filled with concrete, and the concrete building foundation was fenced and posted as a use-restricted area.

A UR was implemented for the building pad and underground piping between the building pad and the former AST. The UR was implemented for PCB concentrations between 25 and 50 parts per million (ppm). UR signs and PCB signs (large PCB signs as defined by 40 CFR 761.45 [CFR, 2006b]) were posted on each of the four sides of the Building 15-06 foundation fencing. A pair of UR signs and PCB signs were posted approximately every 100 ft apart above the underground piping. Fencing was not constructed above the piping because the PCBs are buried and the UR prohibits excavation. Underground radioactive materials area (URMA) postings, which were present before CAU 543 activities began, were left in place above the piping. Appendix E contains a copy of the completed UR documentation.





Analytical results for verification samples collected from below the distribution box are provided in Appendix B and summarized in Section 4.0. Waste disposition documentation is presented in Section 3.0 and is provided in Appendix C. Photographs of the site before, during, and upon completion of closure activities are provided in Appendix D.

2.1.2.3 CAS 15-04-01, Septic Tank

CAS 15-04-01 is located at the former EPA Farm in Area 15 and consisted of a 1,000-gal septic tank, piping, and a cleanout located to the southeast of the Building 15-06 foundation (Figure 6). This CAS was closed by taking no further action with implementation of BMPs.

As a BMP, the septic tank and its contents were removed and disposed of appropriately. Liquid remediation waste from the septic tank was pumped into a solidification basin and solidified. Sludge was solidified within the septic tank. The solidified liquid remediation waste, sludge, and the tank itself were then excavated and disposed of as hydrocarbon PCB remediation waste at the Area 6 Hydrocarbon Landfill. One soil sample was collected from below the tank (Figure 6) at a depth of approximately 8 ft bgs, to verify closure of the site. Analytical results showed all concentrations to be less than the FALs for this CAS, and the excavation was backfilled to surrounding grade with clean fill.

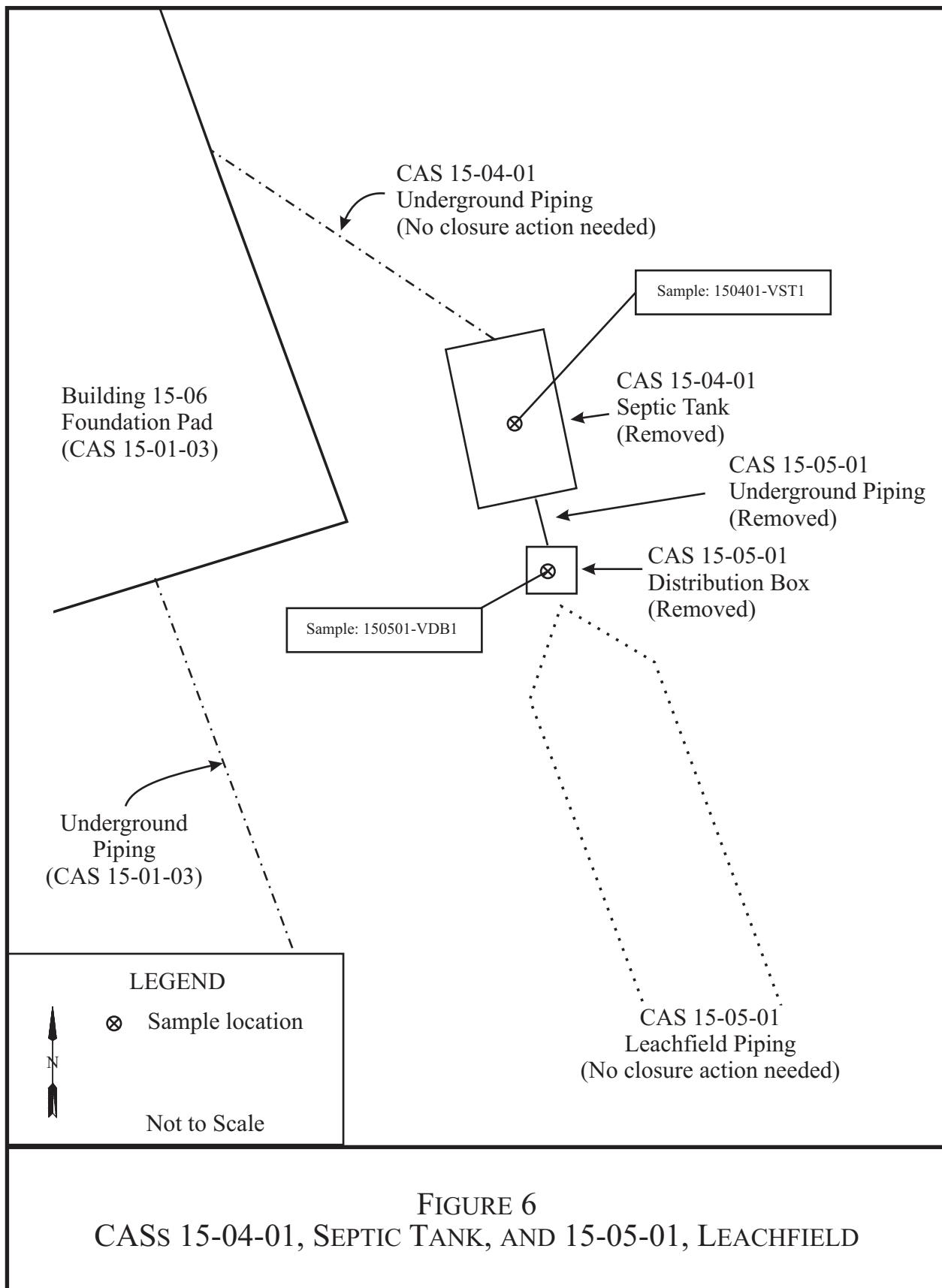
Analytical results are provided in Appendix B and summarized in Section 4.0. Waste disposition documentation is presented in Section 3.0 and is provided in Appendix C. Photographs of the site during and upon completion of closure activities are provided in Appendix D.

2.1.2.4 CAS 15-05-01, Leachfield

CAS 15-05-01 is located at the EPA Farm in Area 15 and consisted of a distribution box and leachfield that are connected to the CAS 15-04-01 septic tank (Figure 6). This CAS was closed by taking no further action with implementation of BMPs.

As a BMP, the distribution box, its contents, and piping between the distribution box and the septic tank were removed and disposed of as hydrocarbon PCB remediation waste at the Area 9 U10c Sanitary Landfill, which is permitted to accept limited quantities of hydrocarbon waste. One soil sample was collected from below the distribution box (Figure 6), at a depth of approximately 6 ft bgs, to verify closure of the site. Analytical results showed all concentrations to be less than the FALs for this CAS, and the excavation was backfilled to surrounding grade with clean fill.

Analytical results are provided in Appendix B and summarized in Section 4.0. Waste disposition documentation is presented in Section 3.0 and is provided in Appendix C. Photographs of the site upon completion of closure activities are provided in Appendix D.



2.1.2.5 CAS 15-08-01, Liquid Manure Tank

CAS 15-08-01 is located at the former EPA Farm in Area 15 and consisted of an underground liquid manure tank, associated piping, and a concrete pad and drain northwest of the Building 15-06 foundation (Figure 7). This CAS was closed by taking no further action with implementation of BMPs.

As a BMP, the liquid manure tank, its contents, and surface debris were removed and disposed of appropriately. Wood debris was disposed of as hydrocarbon waste, and other surface debris was disposed of as sanitary waste. Samples collected of the tank contents confirmed that the liquid remediation waste was suitable for disposal in NTS sewage lagoons and that the sludge was petroleum hydrocarbon waste.

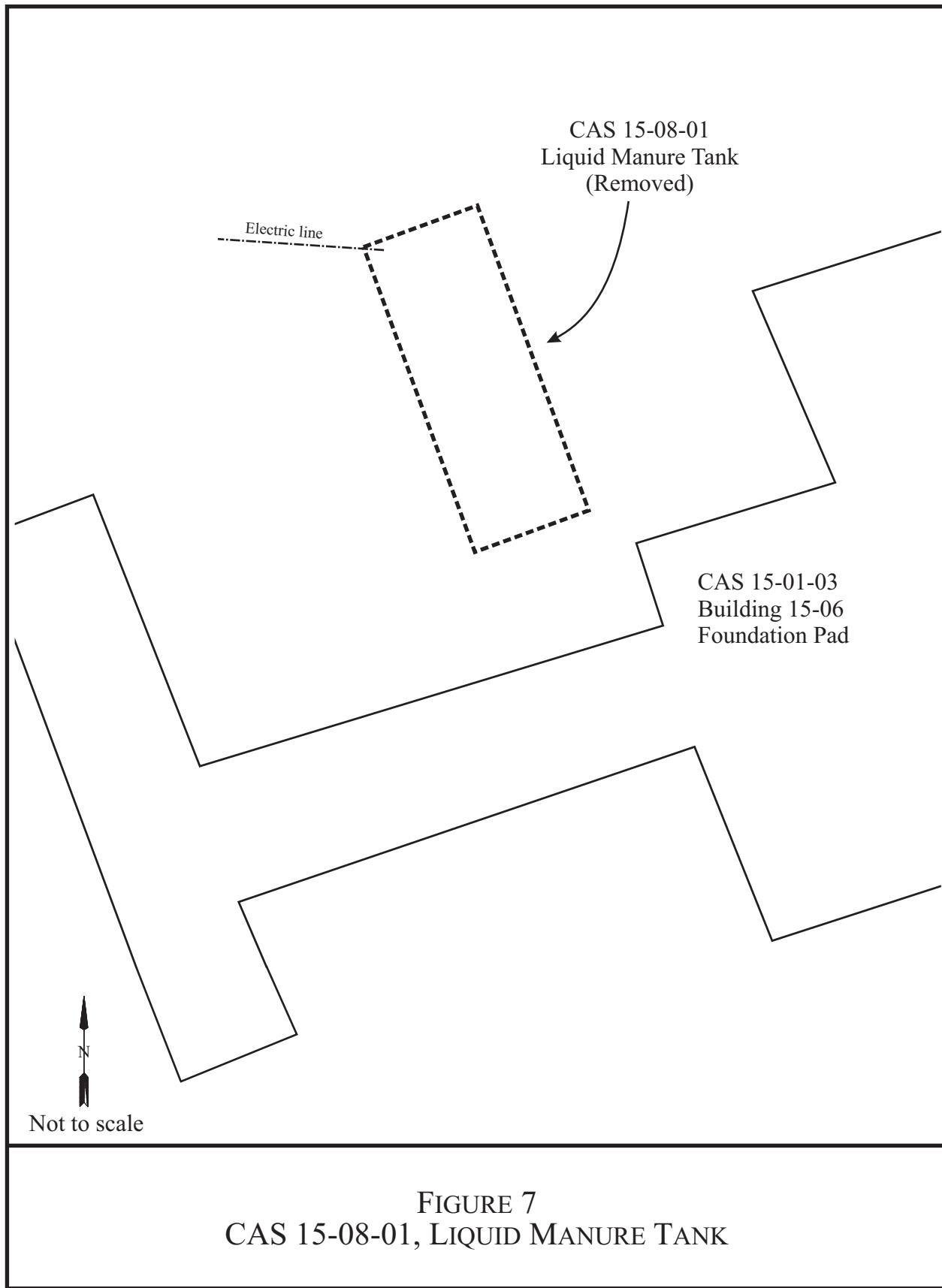
Liquid remediation waste was pumped from the tank and disposed of at the Area 12 Sewage Lagoons. The concrete lid was removed from the tank, and sludge was solidified within the tank. Solidified sludge was removed from the tank and disposed of as hydrocarbon waste at either the Area 6 Hydrocarbon Landfill or to the Area 9 U10c Sanitary Landfill, which is permitted to accept limited quantities of hydrocarbon waste. The excavation was backfilled with clean fill to surrounding grade. The tank area, which had previously been posted as a URMA, was de-posted because the reason for its posting (i.e., the tank and its contents) had been removed.

No samples were collected from beneath the liquid manure tank. The sludge within the tank had 370 milligrams per kilogram (mg/kg) total petroleum hydrocarbons (TPH) in the diesel and oil range. The tank contained approximately 17,000 gal of water before closure activities started. The water was pumped from the tank, the sludge was solidified within the tank, and sludge was removed from the tank as far as was practical before any demolition to the tank was undertaken. Upon removal of the tank, there was no evidence that liquid had been seeping from the tank. The area was over-excavated to a depth of approximately 18 ft bgs to ensure that all parts of the tank and any residual, solidified sludge had been removed from the excavation. Samples were considered not necessary because there was no evidence of any release from the tank, there were no COCs at the site (as documented in the CADD [NNSA/NSO, 2005]), and the tank was being removed merely as a BMP.

Waste disposition documentation is presented in Section 3.0 and is provided in Appendix C. Photographs of the site before and after completing closure activities are provided in Appendix D.

2.1.2.6 CAS 15-23-01, Underground Radioactive Material Area

CAS 15-23-01 is located at the former EPA Farm in Area 15, to the southeast of CASSs 15-04-01 and 15-05-01. This CAS consisted of a steel grate, other surface debris, and an area that is posted as a URMA (Figure 4). The CAS was closed by taking no further action with implementation of BMPs. The steel grate and other surface debris were screened for free-release and were disposed of as sanitary waste at the Area 9 U10c Sanitary Landfill. No underground materials were removed; therefore, the URMA was not de-posted.



Waste disposition documentation is presented in Section 3.0 and is provided in Appendix C. Photographs of the site before and upon completion of closure activities are provided in Appendix D.

2.1.2.7 CAS 15-23-03, Contaminated Sump, Piping

CAS 15-23-03 is located at the former EPA Farm in Area 15. This CAS consisted of a sump and associated piping between the sump and the CAS 15-01-03 distribution box (Figure 8). CAS 15-23-03 was closed in place with administrative controls.

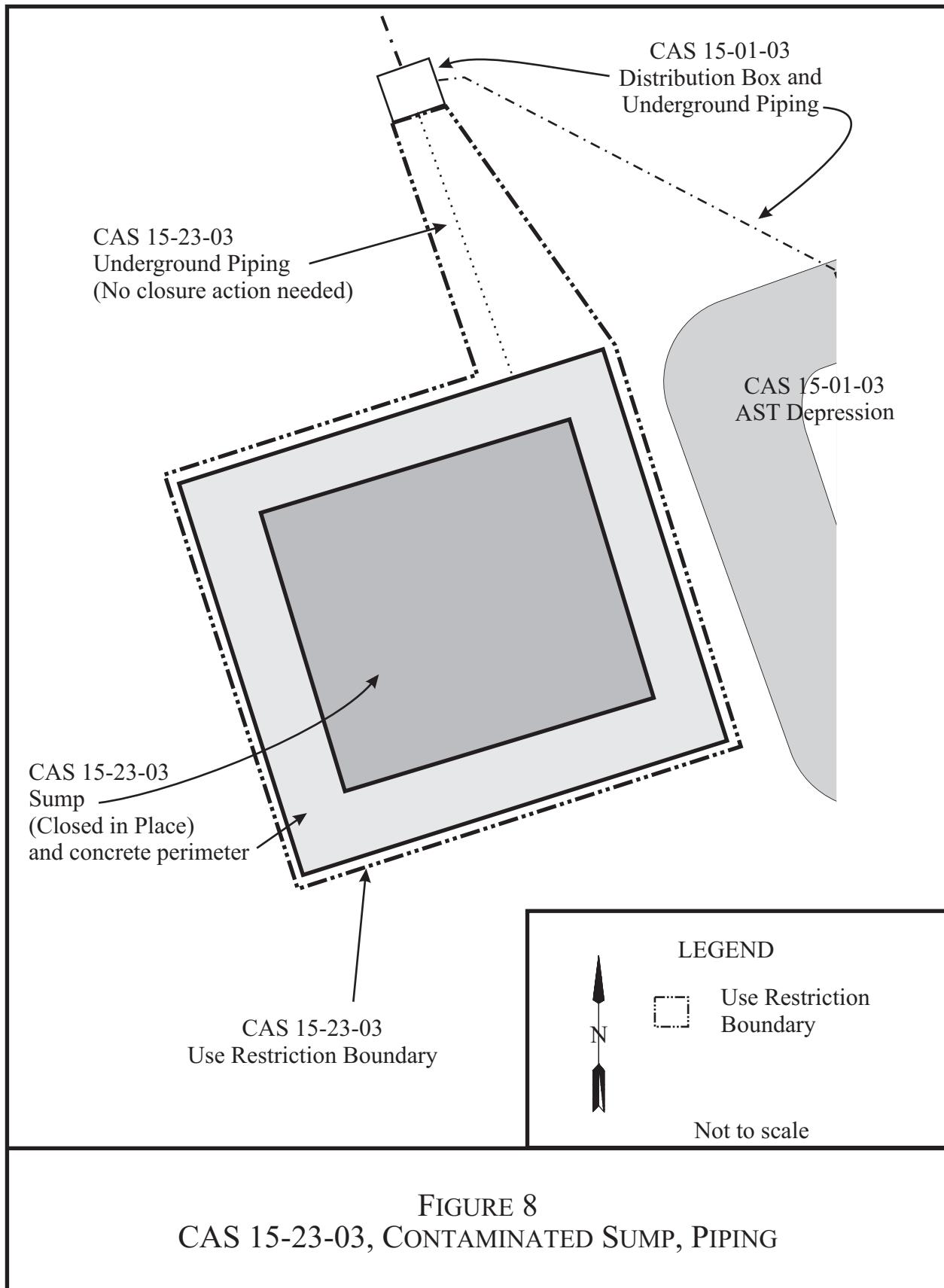
Closure activities consisted of filling the sump with clean fill and implementing a UR. Vertical supports within the sump, previously used to support fencing that used to be over the top of the sump, were pushed over into the sump so they would not penetrate through the fill material. Clean fill was then brought in from the Area 1 Batch Plant borrow pit and dumped into the sump. The fill material was compacted by wheel rolling as the material was placed into the sump. Fill material was mounded higher than the surrounding sump edges so that water from precipitation will run off of the sump. Existing URMA signs were left in place around the perimeter of the sump. UR signs were posted around the perimeter of the sump and over the top of the underground piping. Surface debris that included wire, fence posts, wood planks, metal cabinets, and cement blocks was screened for radioactivity and was disposed of at the Area 9 U10c Sanitary Landfill.

A UR was implemented for the sump and underground piping between the sump and the CAS 15-01-03 distribution box. The UR was implemented for PCBs and radioactive materials. Appendix E contains a copy of the completed UR documentation. Waste disposition documentation is presented in Section 3.0 and is provided in Appendix C. Photographs of the site before, during, and upon completion of closure activities are provided in Appendix D.

2.2 DEVIATIONS FROM THE CAP AS APPROVED

Closure activities that deviated from the approved CAP are presented below.

- CAS 15-01-03: Approximately 24,500 gal of liquid was expected to be present within the 25,000-gal AST; however, there was no free liquid. This change in conditions was evaluated and is expected to be the result of the following: (1) drains in the Building 15-06 building pad, which historically drained rainwater into the AST, were grouted during the corrective action investigation activities thereby preventing additional water from entering the tank; and (2) vented openings were still present and allowed continued evaporation of the liquid over the two years between the corrective action investigation and closure activities.
- CAS 15-04-01: The pipe reported to be located above the septic tank in the CADD for CAU 543 (NNSA/NSO, 2005) was not present at the site when closure activities were conducted.
- CAS 15-05-01: The pipe reported to be located above the distribution box in the CADD (NNSA/NSO, 2005) was not present at the site when closure activities were conducted.



- CAS 15-08-01: Samples were not collected from beneath the liquid manure tank. The sludge within the tank had 370 mg/kg TPH in the diesel and oil range. The tank contained approximately 17,000 gal of water before closure activities started. The water was pumped from the tank, the sludge was solidified within the tank, and sludge was removed from the tank as far as was practical before any demolition of the tank was undertaken. Upon removal of the tank, there was no evidence that liquid had been seeping from the tank. The area was over-excavated to make sure that all parts of the tank and any residual, solidified sludge had been removed from the excavation. Samples were considered not necessary because there was no evidence of any release from the tank, there were no COCs at the site (as documented in the CADD [NNSA/NSO, 2005]), and the tank was being removed merely as a BMP.

2.3 CORRECTIVE ACTION SCHEDULE AS COMPLETED

Closure activities for CAU 543 started in March 2007 and were completed in October 2007. Details of the schedule are provided in Table 2.

TABLE 2. CAU 543 CLOSURE ACTIVITIES SCHEDULE

CAS	START DATE	END DATE
06-07-01, Decon Pad	April 17, 2007	October 10, 2007
15-01-03, Aboveground Storage Tank	April 4, 2007	September 27, 2007
15-04-01, Septic Tank	March 28, 2007	May 30, 2007
15-05-01, Leachfield	April 3, 2007	May 30, 2007
15-08-01, Liquid Manure Tank	May 30, 2007	August 8, 2007
15-23-01, Underground Radioactive Material Area	April 2, 2007	April 2, 2007
15-23-03, Contaminated Sump, Piping	March 28, 2007	September 27, 2007

2.4 SITE PLAN/SURVEY PLAT

URs were implemented for the following CAs:

- CAS 06-07-01 (Decon Pad) was use-restricted for radioactivity and PCBs. The 6-605 building foundation was fenced and posted as a use-restricted area.
- CAS 15-01-03 (Aboveground Storage Tank) was use-restricted for PCBs. The 15-06 building foundation was fenced and posted as a use-restricted area. Underground piping between the building pad and the former AST location was also posted as a use-restricted area.
- CAS 15-23-03 was use-restricted for PCBs and radioactivity. The sump and underground piping between the sump and the CAS 15-01-03 distribution box were posted with UR signs.

Figures showing the locations of the surveyed points delineating the use-restricted areas are provided in Appendix E of this report.

THIS PAGE INTENTIONALLY LEFT BLANK

3.0 WASTE DISPOSITION

This section describes the waste streams generated during closure activities and their final disposition.

3.1 WASTE MINIMIZATION

Waste minimization practices were applied where possible. Septic tanks, piping, and structures (e.g., the fill stand at CAS 15-01-03) were size-reduced before disposal. The CAS 15-01-03 AST became the container for LLW solids within the tank and LLW piping that had been size-reduced and placed within the tank.

Industry standard waste minimization practices were applied throughout the course of closure activities. These practices included the following:

- Using field survey instruments and ISOCS analysis to identify and segregate LLW
- Size-reducing debris and structures before their disposal
- Using an existing AST as a container for LLW solids
- Correctly characterizing waste to allow segregation of waste streams
- Sending liquid remediation waste for treatment at the sewage lagoons, where possible based on characterization of those liquids, rather than solidifying and landfilling the waste

3.2 WASTE MANAGEMENT

All waste was managed according to applicable federal and state regulations, U.S. Department of Energy orders, and NTS Management and Operations Contractor (M&OC) procedures. Waste management areas (WMAs) were established throughout the project, as needed. All WMAs were identified with appropriate signs and boundaries to restrict unauthorized access. The WMAs were inspected on a weekly or monthly basis, as required per the waste type, to ensure that all containers were intact, not leaking, and not exceeding storage duration times. Applicable WMAs were posted as Radioactive Material Areas (RMAs) whenever radiological waste was stored in the area, and as Hazardous Waste Accumulation Areas (HWAA) where hazardous waste was also stored. A contingency plan was developed and implemented for the HWAA that was established at CAS 06-07-01. Upon removal of radiologically impacted waste, the RMAs were surveyed and de-posted.

Waste containers were either purchased new, reconditioned or, in the case with CAS 15-01-03, the AST itself was used as a strong tight container. All containers were inspected prior to use to verify that they were in good condition (e.g., no leaks, rust, or dents), lined or made of material that would not react with the waste, and met U.S. Department of Transportation requirements. The containers remained closed while stored unless waste was being added. Containers were also handled in such a manner that the integrity of the container was not compromised.

Appropriate labels were affixed, and relevant information was marked on the containers with an indelible marker. All information was legible and clearly visible.

3.3 WASTE CHARACTERIZATION

Most waste streams were identified based on data collected during the corrective action investigation, as was presented in the CADD (NNSA/NSO, 2005). Samples were collected to characterize waste streams where data were insufficient or unavailable, to verify that the waste would be disposed of appropriately. Waste was characterized according to industry standards and M&OC company procedures.

All samples were collected and managed according to the QAPP (NNSA/NV, 2002). Samples were collected in appropriate containers, sealed with a custody seal, cooled to 4 degrees Celsius, and logged on a chain of custody form. The samples were shipped under chain of custody to an approved offsite laboratory for analysis. A copy of the summary reports for analytical results and the associated chain-of-custody forms are provided in Appendix B.

Characterization samples were collected of the sludge from the CAS 15-08-01 liquid manure tank and of waste within three containers (i.e., a lugger, a horse trough, and drum number 36) at the CAS 06-07-01 Decon Pad. At CAS 15-08-01, characterization samples showed the sludge to be TPH waste, with diesel and oil-range organics at 370 mg/kg. At CAS 06-07-01, the full suite of characterization sampling was required for the contents of the lugger and horse trough. Results showed the soil in the lugger to be sanitary waste, and the lugger and the soil within were free-released after radiological screening. Soil in the trough was found to be petroleum hydrocarbon PCB remediation LLW. The one sample that was collected from drum 36 (as reported in the CADD [NNSA/NSO, 2005]) emptied the drum, and it was disposed of as LLW with other containers because it did not meet the free-release criteria for radioactivity.

Waste was also screened for radiological contamination using handheld radiological survey instruments and ISOCS analysis, to confirm its appropriate disposal as either LLW or to be free-released as non-radioactive waste.

3.4 WASTE STREAMS AND DISPOSAL

Waste streams generated during closure activities at CAU 543 consisted of sanitary waste, liquid remediation waste waste, hydrocarbon waste, PCB remediation waste, LLW, and MW. Appendix C provides copies of the waste disposition documentation. Waste disposition is summarized in Table 3 and discussed in detail in the following sections. Waste disposition documentation is included as Appendix C of this report.

3.4.1 Sanitary Waste

Sanitary waste consisted of empty drums and other containers, and construction-type debris (scrap wood, metal, etc.). Approximately 35 cubic yards (yd^3) of sanitary waste was generated at the Area 6 Decon Pad (CAS 06-07-01) and approximately 42 yd^3 from closure activities at the Area 15 EPA Farm. All waste was screened to verify that radiological contamination was less

TABLE 3. CAU 543 WASTE DISPOSITION SUMMARY

WASTE STREAM	CORRECTIVE ACTION SITE	WASTE TYPE	VOLUME (yd ³)	DISPOSITION
Sanitary Waste	06-07-01, Decon Pad	Containers, debris, luggers, furniture, ladder, iron screens, aluminum plated covers, pallets, wood, scrap metal	35	Area 9 U10c Sanitary Landfill
	15-01-03, Aboveground Storage Tank	Fill stand, pipes near CAS	5	
	15-04-01, Septic Tank	Pipe, metal cover	10	
	15-08-01, Liquid Manure Tank	Cover	5	
	15-23-01, Underground Radioactive Material Area	Metal planking	2	
	15-23-03, Contaminated Sump, Piping	Wire, fence posts, wood planks, metal cabinets, wood frame, cement blocks	20	
Liquid Remediation Waste	15-08-01, Liquid Manure Tank	Liquid from tank	16,250 gal	Area 12 Sewage Lagoons
Hydrocarbon Waste	15-08-01, Liquid Manure Tank	Wood planks, tank and solidified sludge	90	Area 9 U10c Sanitary Landfill and Area 6 Hydrocarbon Landfill
Hydrocarbon PCB Remediation Waste	15-01-03, Aboveground Storage Tank	Building 15-06 trench sediment	0.1	Area 6 Hydrocarbon Landfill
	15-04-01, Septic Tank	Tank and contents	35	
	15-05-01, Leachfield	Distribution box and contents	2	Area 9 U10c Sanitary Landfill
LLW	06-07-01, Decon Pad	Empty drums, HEPA canisters (2), personal protective equipment	42	Area 5 RWMS
	15-01-03, Aboveground Storage Tank	AST and contents, piping, distribution box and contents	130	
Hydrocarbon PCB Remediation LLW	06-07-01, Decon Pad	Horse trough with dirt and contents	0.5	Area 5 RWMS
MW	06-07-01, Decon Pad	6-605 building trench sediment, 6-605 septic tank and contents, 6-607 septic tank and contents, sumps and contents	96	Area 5 RWMS

gal – gallon(s)

HEPA – high efficiency particulate air

LLW – low-level waste

MW – mixed waste

PCB – polychlorinated biphenyls

RWMS – Radioactive Waste Management Site

yd³ – cubic yards

than the free-release limit established in the NV/YMP Radiological Control Manual (NNSA/NSO, 2004b). Sanitary waste was transported to and disposed of in the Area 9 U10c Sanitary Landfill at the NTS.

3.4.2 Petroleum Hydrocarbon Waste

Petroleum hydrocarbon waste was generated from closure activities at several of the Area 15 EPA Farm CASs. Approximately 127 yd³ of petroleum hydrocarbon waste was generated from the CAS 15-01-03 Building 15-06 floor drain trench sediment, the contents and structures of CASs 15-04-01 septic tank and 15-05-01 distribution box, and the CAS 15-08-01 liquid manure tank, its contents, and wooden debris. Some of this waste also contained PCBs at concentrations less than 50 mg/kg or less.

Petroleum hydrocarbon waste was disposed of at either the Area 6 Hydrocarbon Landfill or the Area 9 U10c Sanitary Landfill on the NTS. The Area 9 U10c Sanitary Landfill is permitted to accept limited quantities of hydrocarbon waste. Field personnel worked closely with landfill personnel to verify that the permitted volumes were not exceeded.

3.4.3 PCB Remediation Waste

PCB remediation waste at concentrations of 50 mg/kg or less PCBs was disposed of at the appropriate landfill for other waste characteristics. For example, floor trench sediment from CAS 15-01-03 and solidified septic tank sludge from CAS 15-04-01, both of which contained petroleum hydrocarbon PCB remediation waste, was disposed of at the Area 6 Hydrocarbon Landfill at the NTS.

PCB remediation waste at concentrations greater than 50 mg/kg were present only at the CAS 06-07-01 floor drain trenches. Because the sediment in the floor drain trenches contained other constituents making it both radioactive waste and hazardous waste, it was disposed of as MW at the Area 5 RWMS.

In all cases, the appropriate landfill operator was notified in advance that PCB remediation waste would be shipped to the landfill.

3.4.4 Low-Level Waste

A total of approximately 173 yd³ of LLW was generated during closure activities. Radiologically impacted soil and debris were packaged in soft-sided containers stored in RMAs that had been established at CASs 06-07-01 and 15-01-03.

At the EPA Farm (CAS 15-01-03), LLW consisted of the distribution box and its contents, which were placed within one soft-sided container, and the AST and its contents, where the AST served as the container. The AST of CAS 15-01-03 was not stored in an RMA because it was removed from its location and immediately transported for disposal. The AST itself served as a container for LLW from that location. Both containers were transported to the Area 5 RWMS, on the NTS, on September 20, 2007.

At CAS 06-07-01, LLW consisted of empty drums, HEPA [high efficiency particulate air] canisters, and personnel protective equipment. Seven soft-sided containers of LLW was generated at this location. The waste was transported to and disposed of at the Area 5 RWMS on the NTS on October 10, 2007.

3.4.5 Mixed Waste

The CAS 06-07-01 septic tanks, sumps, their contents, and sediment from the Building 6-605 floor drain trenches were MW. All of the waste was hazardous and radioactive, and some of it contained PCBs in concentrations up to 437 mg/kg. The concentrations of hazardous constituents were low and met the criteria for the Area 5 RWMS at the NTS. The waste was managed in an area that was both a HWAA and an RMA, pending shipment for disposal. A total of approximately 96 yd³ (16 soft-sided containers) of MW was packaged and disposed of at the Area 5 RWMS on September 27 and 28, 2007.

THIS PAGE INTENTIONALLY LEFT BLANK

4.0 CLOSURE VERIFICATION RESULTS

Site closure was verified by visually observing and taking photographs to document that closure activities had been completed (Appendix D), and by collecting and analyzing samples. Samples were collected to verify that soil beneath removed structures (e.g., septic tanks and sumps) did not contain contaminants in concentrations that exceeded the FALs. Samples were only collected if concentrations within the structure could have contaminated the surrounding soil if the contents were released. Criteria for verification sampling were provided in the approved CAU 543 CAP (NNSA/NSO, 2007).

All samples were collected and managed according to the QAPP (NNSA/NV, 2002). Seven verification samples and three field duplicates were collected. All samples were collected with disposable polyethylene scoops and placed in appropriately labeled sample containers that were secured with custody seals. Because each sample was collected with its own separate, disposable scoop, equipment blank samples were not needed. Samples were labeled with a unique sample number, placed on ice, and transported under chain of custody to the analytical laboratory. Samples were analyzed by certified offsite contract laboratories.

Table 4 identifies the verification samples that were collected after structures had been removed, and the analyses that were performed. Verification samples were collected from below each removed structure in CAS 06-07-01 (i.e., septic tanks 6-605 and 6-607 and Sumps 1 and 2), the CAS 15-04-01 septic tank, and distribution boxes in CASs 15-01-03 and 15-05-01. Concentrations were less than the CAS-specific FALs for all samples, confirming the no further action decisions for cleanup of these sites.

Table 5 presents verification sample analytical results that exceeded the method detection limits. At CAS 06-07-01, samples collected from below septic tank 6-605 contained low concentrations of gross alpha and diesel-range petroleum hydrocarbons. Samples collected from below septic tank 6-607 were all less than detection limits. Samples collected from below Sump 1 contained low concentrations of gross alpha; however, this was only detected because the sample run for gross beta was also run by the analytical laboratory for gross alpha. Samples collected from below Sump 2 contained low concentrations of diesel-range petroleum hydrocarbons, cobalt-60, and plutonium. For CAS 15-01-03, samples collected from below the distribution box contained very low concentrations of plutonium, with all remaining sample concentrations being less than their respective detection limits. Concentrations in samples collected from below the septic tank at CAS 15-04-01 and the distribution box at CAS 15-05-01 were less than the respective detection limits for all analytes. All concentrations were below the FALs established for the respective CASs.

A copy of the summary reports for analytical results and the associated chain-of-custody forms are provided in Appendix B. The complete data set for all laboratory analytical reports are available on request. These data are maintained in M&OC project files located at the NTS. Photographs documenting closure activities are presented in Appendix D.

TABLE 4. CLOSURE VERIFICATION SOIL SAMPLES COLLECTED FOR CAU 543

CAS	Sample Location	SDG	Sample Number	Chemical			Radiological							
				TPH DRO	TPH GRO	PCBs	gross alpha	gross beta	gamma spec	Am- 241	Co- 60	Pu- 238	Pu- 239/ 240	Sr- 90
06-07-01	6-605 Septic tank	V2974-V2975	060701-605T	X		X	X	X						
			060701-606T	X		X	X	X						
	6-607 Septic tank	V2974-V2975	060701-607T	X		X				X	X	X	X	X
	Sump 1	V2981-V2982	060701-S1	X	X	X		X					X	X
	Sump 2	V2981-V2982	060701-S2	X	X	X					X	X	X	
			060701-S3	X	X	X					X	X	X	
15-01-03	Distribution box	V2967-V2968	150103-DBU1	X	X	X			X			X	X	
			150103-DBU2	X	X	X			X			X	X	
15-04-01	Septic tank	V2899-V2900	150401-VST1	X		X			X					
15-05-01	Distribution box	V2899	150501-VDB1	X										

X – Sample submitted for this analysis

Orange – Results less than detection limits

Blue – Results greater than detection limits

Am – americium

CAS – Corrective Action Site

Co – cobalt

DRO – diesel-range organics

GRO – gasoline-range organics

ORO – oil-range organics

PCBs – polychlorinated biphenyls

Pu – plutonium

SDG – sample delivery group

Sr – strontium

TPH – total petroleum hydrocarbons

TABLE 5. CLOSURE VERIFICATION SAMPLE ANALYTICAL RESULTS GREATER THAN THE DETECTION LIMITS

CAS	SAMPLE LOCATION	SAMPLE NUMBER	TPH-DRO/ORO	Gross Alpha	Gross Beta	Co-60	Pu-238	Pu-239/240
			(mg/kg)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)
06-07-01	Septic tank 6-605	060701-605T	ND	5.74	5.22 (LT)	-	-	-
		060701-606T	4.1	6.58	5.78 (LT)	-	-	-
	Sump 1	060701-S1	ND	7.39	5.03 (LT)	-	ND	ND
	Sump 2	060701-S2	14	-		0.213	0.00525 (LT)	0.0604
		060701-S3	14	-		0.205	0.00736 (LT)	0.0735
			FAL = 100				FAL = 13	FAL = 2,637
15-01-03	Distribution box	150103-DBU1	ND	-		-	0.0205	0.00577 (LT)
		150103-DBU2	ND	-		-	0.00239 (LT)	0.0406

CAS – Corrective Action Site

Co - cobalt

DRO – diesel-range organics

FAL – final action level

mg/kg – milligrams per kilogram

ND – not detected

(LT) – less than requested detection limit but greater than method detection limit

* FAL = 15 pCi/liter gross alpha (from the National Primary Drinking Water Regulations, Title 40 CFR Part 141.66, “Maximum Contaminant Levels for Radionuclides” [CFR, 2006a]), and 50 pCi/g from Nevada Drinking Water Standards, as identified in the CAU 543 CADD (NNSA/NSO, 2005)

ORO – oil-range organics

pCi/g – picocurie(s) per gram

Pu - plutonium

TPH – total petroleum hydrocarbons

- Not analyzed for this parameter

4.1 DATA QUALITY ASSESSMENT

Detailed information regarding the quality assurance/quality control (QA/QC) program requirements can be found in the QAPP (NNSA/NV, 2002). All CAU 543 samples were analyzed using stringent QA/QC laboratory procedures that included matrix spike/matrix spike duplicates, spiked surrogate recovery, and other standard QA/QC procedures. Additional data review was conducted by the NTS M&OC to ensure that samples were appropriately processed and analyzed, and that the results are valid. All data underwent Tier I and II data reviews in accordance with the QAPP (NNSA/NV, 2002), which is based on the EPA functional guidelines for data quality (EPA, 1994; 1999). Data validation was also performed on 100 percent of the data to verify that results were useable and served their intended purpose.

No anomalies were discovered in the data that would discredit any of the CAU 543 waste characterization or verification sample results. One blind duplicate verification sample per twenty samples or one blind duplicate sample per sampling event was collected and submitted for analysis. All of the verification data were useable for making decisions. Data met the required data quality indicators (i.e., precision, accuracy, sensitivity, completeness, comparability, and representativeness) with the following exceptions:

- Precision: The 20 percent relative percent difference was exceeded for plutonium results for CAS 06-07-01 Sump 2 and for the CAS 15-01-03 distribution box; however, all of the sample concentrations were orders of magnitude less than the action levels such that the data were useable for making a decision. Results from most of the duplicate samples were near the detection limit, which is where the relative percent difference calculations are subject to such results and have little impact on the value of the data quality.
- Sensitivity: Recoveries were low (58 to 66 percent) for PCB samples collected below the sumps at CAS 06-07-01; however, the method detection limit was orders of magnitude less than the action level, and the results were all non-detects. Therefore, these results were useable for making a decision and show that the resulting PCB concentrations are much less than the action level.

There were no findings during closure activities that required any modifications to the post-closure plan as proposed in the CAU 543 CAP. The data quality objectives (Appendix A of this report, as originally presented in the CAIP [NNSA/NSO, 2004a]) were confirmed during the corrective action investigation and were reported in the CADD (NNSA/NSO, 2005). Observations and analytical results from the closure activities confirmed what was reported in the CADD (NNSA/NSO, 2005) and any changes made therein to the conceptual site models.

4.2 USE RESTRICTION

URs have been implemented for the following CASs:

- CAS 06-07-01, Decon Pad
- CAS 15-01-03, Aboveground Storage Tank
- CAS 15-23-03, Contaminated Sump, Piping

4.2.1 CAS 06-07-01, Decon Pad

CAS 06-07-01 (Decon Pad) was use-restricted for radioactivity and PCBs on and directly adjacent to the Building 6-605 concrete foundation. Two-strand wire rope fencing surrounds and restricts access to the area. UR signs and PCB signs (large PCB signs as defined by 40 CFR 761.45 [CFR, 2006b]) are posted on each of the four sides of the Building 6-605 foundation fencing, to warn against intrusive activity according to the FFACO UR posting guidance (FFACO, 2003). Annual site inspections will be required to ensure that the fencing is intact and functioning, and the UR and PCB signs are intact and legible. The CAU Land-Use Restriction Information form and figures, showing the locations of the surveyed points delineating the use-restricted areas, are provided as Appendix E. Details on the post-closure requirements are included in Section 5.2.

4.2.2 CAS 15-01-03, Aboveground Storage Tank

CAS 15-01-03 (Aboveground Storage Tank) was use-restricted for PCBs (at concentrations between 25 and 50 ppm) on the Building 15-06 concrete pad and in underground piping between Building 15-06 and the former AST. Two-strand wire rope fencing surrounds and restricts access to the Building 15-06 concrete pad. UR and PCB signs (large PCB signs as defined by 40 CFR 761.45 [CFR, 2006b]) are posted on each of the four sides of the Building 15-06 foundation fencing. UR and PCB signs are also posted approximately every 100 ft apart above the underground piping, and existing URMA signs also are present above the underground piping. The UR signs warn against intrusive activity according to the FFACO UR posting guidance (FFACO, 2003). Annual site inspections will be required to ensure that the fencing is intact and functioning, and the UR and PCB signs are intact and legible. The CAU Land-Use Restriction Information form and figures, showing the locations of the surveyed points delineating the use-restricted areas, are provided as Appendix E. Details on the post-closure requirements are included in Section 5.2.

4.2.3 CAS 15-23-03, Contaminated Sump, Piping

CAS 15-23-03 (Contaminated Sump, Piping) was use-restricted for radioactivity and PCBs. The contaminated sump was filled with clean, native fill and mounded to prevent rainwater ponding on the surface. UR and URMA signs are posted around the perimeter of the sump, on posts adjacent to existing fencing (fencing is not a post-closure maintenance item) and in the middle of the unfenced access to the sump area. The UR signs warn against intrusive activity according to the FFACO UR posting guidance (FFACO, 2003). PCB signs are not posted because PCB concentrations are less than 25 ppm.

Annual site inspections will be required to ensure that the UR and PCB signs are intact and legible. The CAU Land-Use Restriction Information form and figures, showing the locations of the surveyed points delineating the use-restricted areas, are provided as Appendix E. Details on the post-closure requirements are included in Section 5.2.

THIS PAGE INTENTIONALLY LEFT BLANK

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

The following site closure activities were performed at CAU 543 and are documented in this CR.

- CAS 06-07-01 (Decon Pad) was closed in place with administrative controls and implementation of BMPs. The use-restricted area was fenced and posted, and a UR was implemented for PCBs and radioactivity. As BMPs, two septic tanks, two sumps, and their contents were removed and disposed of as MW; sediment from the Building 6-605 floor drain trenches was removed and disposed of as MW; the floor drain trenches, a diversion box, and seven cleanouts were grouted to grade; and numerous containers and other surface debris was segregated according to waste stream and disposed of appropriately as either LLW or sanitary waste.
- CAS 15-01-03 (Aboveground Storage Tank) was closed by taking no further action with implementation of the following BMPs. Underground piping between the AST and fill stand, and all aboveground piping, were removed, size-reduced, and placed inside the AST. The AST was sealed and disposed of as LLW. A distribution box and its contents were excavated and disposed of as PCB remediation LLW. Sediment was removed from the Building 15-06 floor drain trenches and disposed of as hydrocarbon PCB remediation waste. The floor drain trenches were filled with grout, the building foundation was fenced and posted, and a UR for PCBs was implemented for the building pad and underground piping between the building pad and the AST.
- CAS 15-04-01 (Septic Tank) was closed by taking no further action with implementation of the following BMPs. A septic tank and its contents were removed and disposed of as hydrocarbon PCB remediation waste. The excavation was backfilled to surrounding grade with clean fill.
- CAS 15-05-01 (Leachfield) was closed by taking no further action with implementation of the following BMPs. A distribution box, its contents, and piping between the distribution box and the CAS 15-04-01 septic tank were removed and disposed of as hydrocarbon PCB-remediation waste. The excavation was backfilled to surrounding grade with clean fill.
- CAS 15-08-01 (Liquid Manure Tank) was closed by taking no further action with implementation of the following BMPs. Liquid remediation waste from within the liquid manure tank was pumped out and transferred to the Area 12 Sewage Lagoons. Sludge within the tank was solidified, and the tank and its contents were excavated and disposed of as hydrocarbon waste. Surface debris was disposed of as hydrocarbon waste.
- CAS 15-23-01 (Underground Radioactive Material Area) was closed by taking no further action with the implementation of the following BMP. Surface debris was disposed of as sanitary waste.
- CAS 15-23-03 (Contaminated Sump, Piping) was closed in place with administrative controls by filling the existing sump with clean fill, posting the perimeter of the sump and buried piping as use restricted, and implementing a UR for PCBs and radioactivity.

5.2 POST-CLOSURE REQUIREMENTS

Post-closure requirements apply only at the following sites, where URs have been implemented:

- CAS 06-07-01, Decon Pad
- CAS 15-01-03, Aboveground Storage Tank
- CAS 15-23-03, Contaminated Sump, Piping

5.2.1 Inspections

Inspections will be performed annually to verify that signs are in place and readable; fencing, if present, is in good condition; and the UR is maintained. Maintenance or repair needs that are identified will be scheduled within 90 working days of discovery and documented in writing at the time the work is done. Inspection results will be documented in the combined NTS post-closure annual letter report. The report will include a discussion of observations and will describe any maintenance activities performed since the last inspection was performed.

5.2.2 Monitoring

No monitoring other than visual inspections will be required for CAU 543.

5.3 RECOMMENDATIONS

Since closure activities for CAU 543 have been completed following the Nevada Division of Environmental Protection (NDEP)-approved CAP (NNSA/NSO, 2007), NNSA/NSO requests the following:

1. Provision of a Notice of Completion from NDEP to NNSA/NSO for the closure of CAU 543
2. Transfer of CAU 543 from Appendix III to Appendix IV, Closed CAUs, of the FFACO (FFACO, 1996)

6.0 REFERENCES

CFR, see Code of Federal Regulations.

Code of Federal Regulations, Title 40, Part 141, "National Primary Drinking Water Standards," 2006a.

Code of Federal Regulations, Title 40, Part 761, "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions," 2006b.

EPA, see U.S. Environmental Protection Agency.

Federal Facility Agreement and Consent Order, 1996 (as amended January 2007). Agreed to by the state of Nevada; the U.S. Department of Energy, Environmental Management; the U.S. Department of Defense; and the U.S. Department of Energy, Legacy Management.

Federal Facility Agreement and Consent Order, 2003. *FFACO Use Restriction Post Guidance for NNSA/NSO and Associated Contractors*. Las Vegas, NV.

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

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.

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

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2004a. *Corrective Action Investigation Plan for Corrective Action Unit 543: Liquid Disposal Units, Nevada Test Site, Nevada*. DOE/NV--968. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2004b. *NV/YMP Radiological Control Manual*. DOE/NV/11718--079 Rev. 5. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2005. *Corrective Action Decision Document for Corrective Action Unit 543: Liquid Disposal Units, Nevada Test Site, Nevada*. DOE/NV--1082. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2007. *Corrective Action Plan for Corrective Action Unit 543: Liquid Disposal Units, Nevada Test Site, Nevada*. DOE/NV--1168-REV1. Las Vegas, NV.

6.0 REFERENCES (continued)

U.S. Environmental Protection Agency, 1994. *Guidance for the Data Quality Objectives Process*. EPA QA/G-4. Washington, D.C.

U.S. Environmental Protection Agency, 1999. *Contract Laboratory Program National Functional Guidelines for Organic Data Review*. EPA540/R-99/008. Washington, D.C.

APPENDIX A*
DATA QUALITY OBJECTIVES

* As presented and published in Appendix A1 of the approved *Corrective Action Investigation Plan for Corrective Action Unit 543: Liquid Disposal Units, Nevada Test Site, Nevada*. 2004a. DOE/NV--968. Las Vegas, NV.

THIS PAGE INTENTIONALLY LEFT BLANK

A.1 Data Quality Objectives Process

The DQO process is a seven-step strategic planning approach based on the scientific method that is being used to plan data collection activities for each CAS within CAU 543, Liquid Disposal Units. The DQOs are designed to ensure that the data collected will provide sufficient and reliable information to identify, evaluate, and technically defend 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 CASs in CAU 543 is insufficient to evaluate and select preferred corrective actions; therefore, a corrective action investigation will be conducted.

The CAU 543 investigation will be based on DQOs developed in this Appendix by representatives from NDEP and NNSA/NSO. The seven steps of the DQO process developed for the CASs in CAU 543 and presented in [Section A.1.2](#) through [Section 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, 2000a) and *Guidance on Choosing a Sampling Design for Environmental Data Collection* (EPA, 2000b) upon which the DQO process presented herein is based.

A.1.1 CAS-Specific Information

Corrective Action Unit 543 contains seven individual CASs. One CAS is located in Area 6 and the other six CASs are located in Area 15 of the NTS as shown in [Figure A.1-1](#). The CASs within CAU 543 are:

- 06-07-01, Decon Pad
- 15-04-01, Septic Tank
- 15-05-01, Leachfield
- 15-08-01, Liquid Manure Tank
- 15-23-03, Contaminated Sump, Piping
- 15-01-03, Aboveground Storage Tank
- 15-23-01, Underground Radioactive Material Area

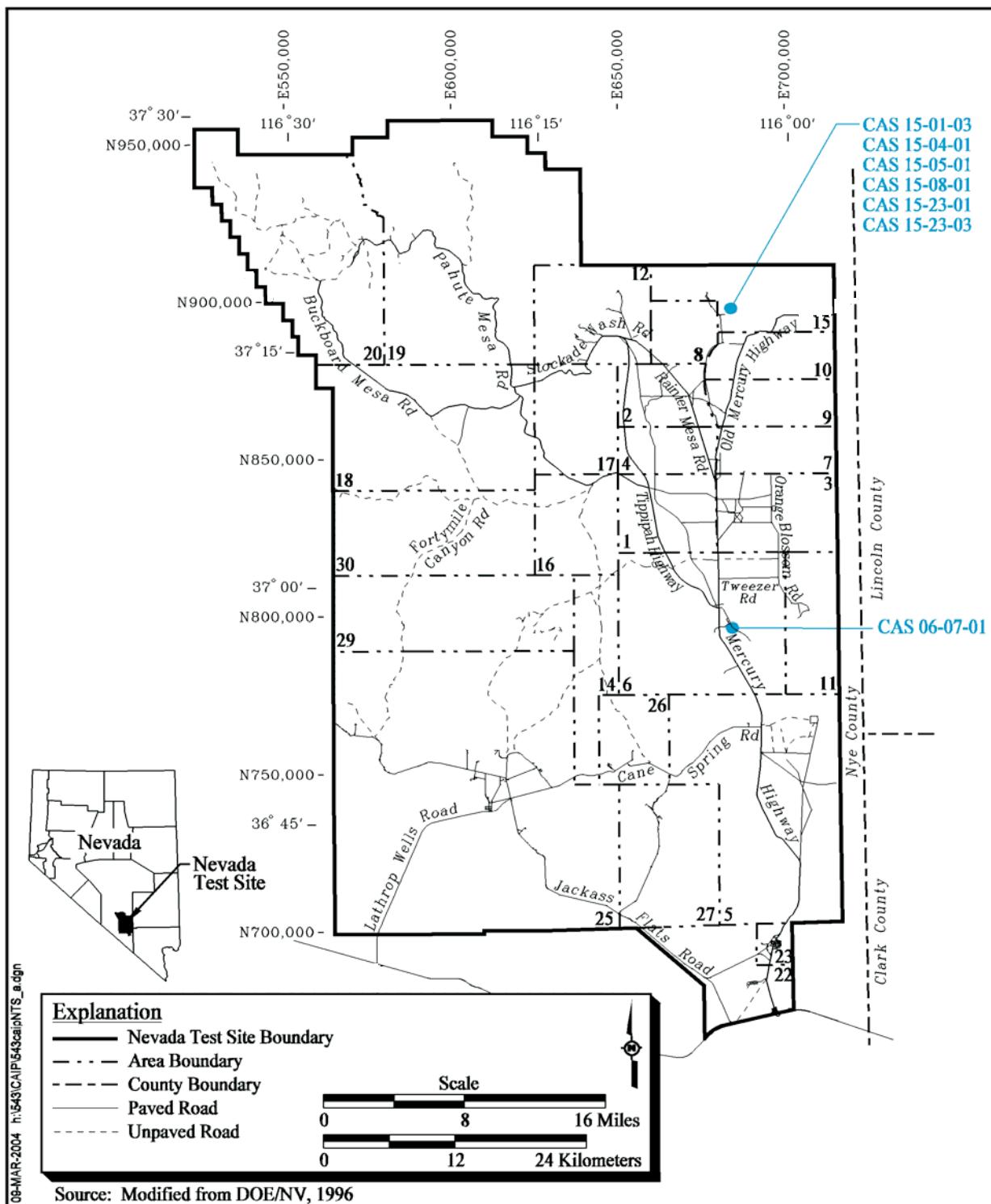


Figure A.1-1
Location of CAU 543 Corrective Action Sites

[Section A.1.1.1](#) and [Section A.1.1.2](#) provide overviews of the operational histories of the Area 6 Decontamination Facility and the Area 15 EPA Farm, respectively. Processes and activities conducted at each of these separate facilities have created interrelated sources and potential releases common to the CAs or CAS components. Each section is followed by subsections that discuss the CAS or CAS-component physical setting and operational history, sources of potential contamination, any previous investigations, and potential contamination for each CAS.

The CAS-specific critical COPCs are listed in [Table A.1-1](#) and described in the following CAS descriptions. Many of the COPCs are based on process knowledge of activities conducted rather than specific knowledge of a release. As a result, many of the Decision I COPCs for the CAI are considered the class of contaminants for a given analytical suite. Critical COPCs are defined as those contaminants that are known or reasonably suspected to be present within the CAS based on previous sampling, process knowledge, geographic setting, and/or operational site history. Analyses for noncritical COPCs assist in reducing the uncertainty concerning the history and potential release from the CAS and allow for an accurate evaluation of potential contamination. Beryllium, PCBs, and gamma-emitting radionuclides are general COPCs common to every CAS due to process knowledge of the NTS and lack of data to eliminate these from consideration.

A.1.1.1 *Area 6 Decontamination Facility*

The Area 6 Decontamination Facility ([Figure A.1-2](#)) was built in 1971 and designed to handle mixed and radioactive waste generated from a variety of decontamination processes (DOE/NV, 1984 and 1993; Holmes & Narver, 1971b). The Area 6 Decontamination Facility is located along the southwest edge of Yucca Lake in Area 6 of the NTS and consisted of several buildings and structures within a fenced area:

- Area 6 Decontamination Pad (Building 6-605) and an associated outdoor concrete pad
- Area 6 Decontamination Laundry (Building 6-607)
- Dyna Drill Repair Shop (Building 6-606)
- Dyna Drill Repair Parts (Building 06-2203A)
- Tent Structure 06-202567
- Trailer TA-20 on a concrete foundation
- An electrical substation
- Various other temporary containers and sheds
- Storage area for contaminated materials

Table A.1-1
Contaminants of Potential Concern for CAU 543

Contaminants of Potential Concern	Area 6		Area 15 - EPA Farm				
	CAS 6-07-01	CAS 15-04-01	CAS 15-05-01	CAS 15-08-01	CAS 15-23-03	CAS 15-01-03	CAS 15-23-01
Degreasers	X						X
Solvents	X						X
Detergents	X						X
Caustics	X						
Acids	X						
Gamma Emitting Radionuclides	X	X	X	X	X	X	X
Cesium-137	X	X	X	X	X	X	X
Plutonium-238/239	X	X	X	X	X	X	X
Plutonium-240	X	X	X	X	X	X	X
Strontium-90	X	X	X	X	X	X	X
Americium-241	X	X	X	X	X	X	X
Uranium-234	X	X	X	X	X	X	X
Uranium-235	X	X	X	X	X	X	X
Uranium-238	X	X	X	X	X	X	X
VOCs	X	X	X	X	X	X	X
SVOCs	X	X	X	X	X	X	X
Metals (Including Beryllium)	X	X	X	X	X	X	X
TPH	X	X	X	X	X	X	X
PCBs	X	X	X	X	X	X	X
Pesticides		X	X	X	X	X	X
Herbicides		X	X	X	X	X	X
Sanitary Waste	X	X	X	X	X	X	
Laboratory Wastes		X	X	X	X	X	
Biological waste		X	X	X	X	X	

Biological waste = Fecal matter, urine, blood, animal organs

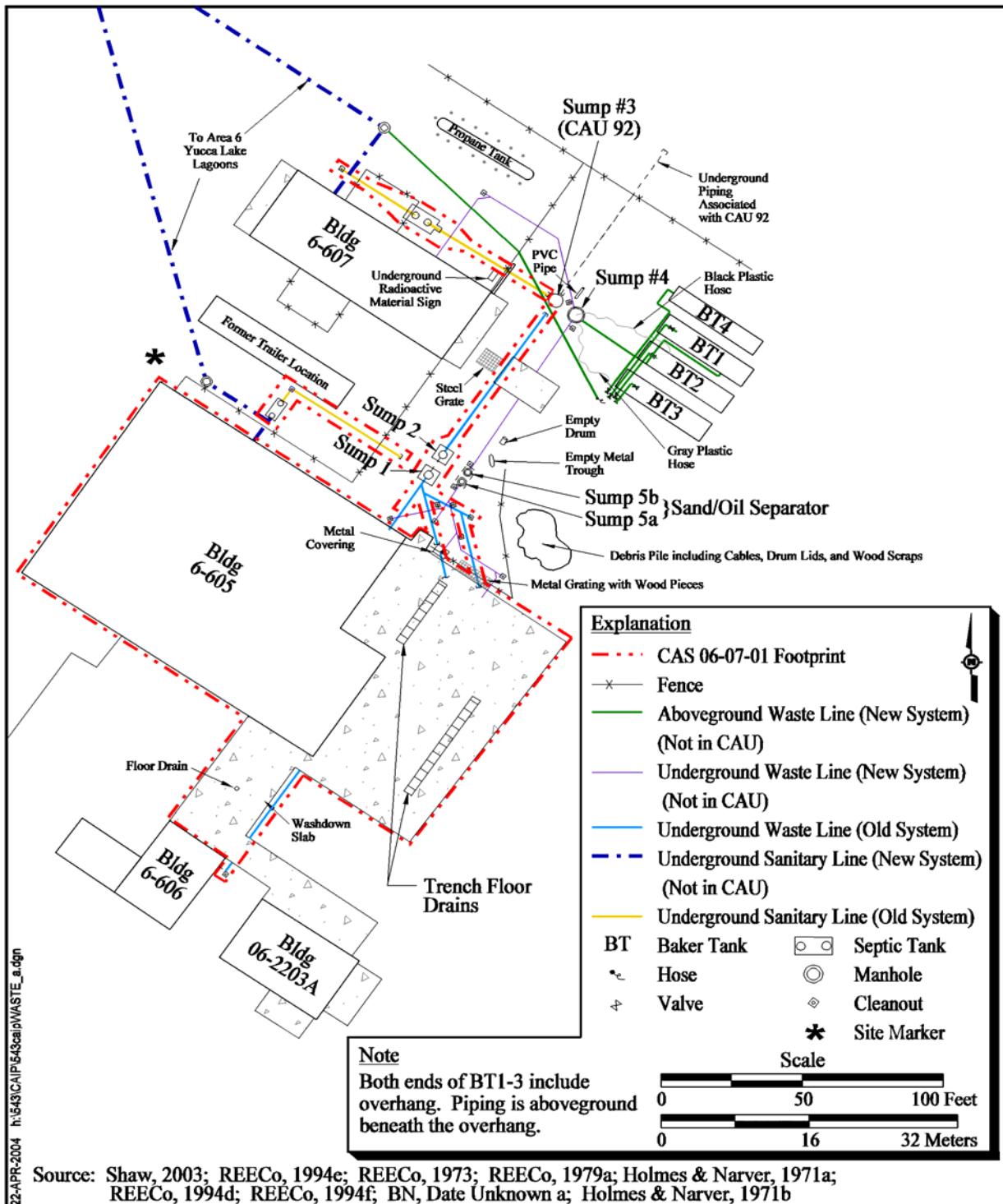


Figure A.1-2
CAU 543, CAS 06-07-01, Decon Pad Site Map

The Area 6 Decontamination Pond, located 600 ft northeast of the Facility, was the original discharge area for all liquid wastes generated within the Facility buildings until the Pond was closed in 1992 (DOE/NV, 1999). The Area 6 Decontamination Pond, associated piping from the Pond to Sump 3 located within the Facility perimeter fence, and Sump 3 have been remediated and closed under CAU 92 (DOE/NV, 1999).

The Area 6 Decontamination Facility was built to decontaminate vehicles, equipment, and clothing that had become radiologically contaminated during nuclear testing activities (DOE/NV, 1984 and 1993). From 1971 through 1992, hazardous, radioactive, and sanitary wastes were generated within Buildings 6-605, 6-606, 6-607, and Trailer TA-20 and originally discharged via process waste lines, septic systems, and sumps to the Area 6 Decontamination Pond located north of the facility (REECo, 1979a; DOE/NV, 1999). Until November 1988, the waste generated at CAS 06-07-01 contained RCRA constituents; however, after this date, wastes containing RCRA constituents were no longer allowed to be discharged into this waste system (Bicker, 1988). Around 1992, liquid wastes were no longer allowed to be discharged to the Decontamination Pond (Bingham, 1993a). In 1994, the Area 6 Decontamination Facility waste collection/discharge system underwent a significant upgrade in which a new process waste line system and ASTs (i.e., Baker tanks) were installed to contain all liquid wastes generated within the buildings prior to disposal. The sanitary septic tanks were reportedly changed to holding tanks for domestic sewage prior to the new sewer line being installed (Radack, 1992). The Area 6 Decontamination Facility remained operational until approximately 2001 and is currently inactive and abandoned (Soong, 2003).

Building 6-605, built in 1971, is the main decontamination facility and is referred to as the Area 6 Decontamination Pad. The building contains both a high and low bay equipped to accommodate both large (i.e., drill rigs) and smaller vehicles and equipment. The primary decontamination process for radiologically contaminated materials involved spraying water, mixed with cleaning solvents and soaps/detergents, onto contaminated materials inside the bays. Electronic equipment and materials that could be damaged by water were cleaned using solvents, such as alcohol. Three dip tanks, containing hot caustics, were also located within the building and were used to submerge and clean smaller pieces of equipment (REECo, 1971b; DOE/NV, 1984). An outdoor decontamination pad sits adjacent to the building and contains a floor drain. It is assumed decon activities were conducted on this pad as well. The liquid wastes generated by the decontamination activities were collected within

the floor drains of the building and discharged via a process waste line to the Pond. The building also contained restrooms and personnel decontamination facilities (e.g., showers) that discharged sanitary wastes via a separate sewer line and septic tank before discharging to the Pond.

Building 6-607, the Area 6 Decontamination Laundry, was used to clean clothing and other fabrics contaminated with potentially radioactive and hazardous material from NTS testing activities (Wuellner, 1994). Effluent from the laundry operations was discharged via a process waste line to the Pond, while sanitary effluent from the laundry facility was discharged through an associated sewer line and septic tank before discharging to the Pond.

Building 6-606, the Dyna-Drill Repair Shop, is located south of Building 6-605. The building was used to fix pipes and other drill parts that were decontaminated within the Area 6 Decontamination Facility. Discharges from the Facility entered the process waste line going to the Area 6 Decontamination Pond.

The Dyna-Drill Repair Parts, Building 6-2203A, is located southwest of Building 6-605. The building was used in conjunction with the Dyna-Drill Repair Shop; however, specific activities are unknown (REECo, 1979a). Documentation indicates this building did not contribute or generate a liquid waste stream.

The Trailer TA-20 was an administrative office located northwest of Building 6-605. Activities conducted within this trailer, other than administrative, are unknown. The trailer had an aboveground PVC line that connected directly into Building 6-605 sanitary sewer line and it is believed the trailer discharged only sanitary waste (Radack, 1992). The trailer or PVC piping is no longer present; however, the concrete foundation is.

The Tent Structure, Building 6-202567, is located southwest of Building 6-605 and was used to store various wastes (BN, Date Unknown a). The majority of these wastes were stored in B25 steel boxes. Documentation and process knowledge indicates this building was not directly related to the decontamination activities of Building 6-605; therefore, it did not contribute liquid wastes via a process or sewer waste line.

The southeast portion of the facility, formerly used to store contaminated materials, is currently posted as a “Contamination Area” (Holmes & Narver, 1971a).

A.1.1.1.1 CAS 06-07-01, Decon Pad

The portions of the Area 6 Decontamination Facility piping system that are included in CAS 06-07-01 are those areas that may have been impacted by RCRA or other hazardous constituents from decontamination activities. The entire piping system at the facility underwent significant changes in 1994 after which wastes from Buildings 6-605, potentially 6-606, and 6-607 flowed into sequenced Baker tanks located in the northeast section of the facility (REECo, 1994f; Bertrand, 2003). The last sequenced tank was sampled for RCRA constituents before liquid was allowed to drain to a sanitary sewer manhole located north of Building 6-607 and discharge to the Area 6 Yucca Lake Lagoon System. Since the wastes generated after the upgrades have been analyzed and consistently shown to be nonhazardous (Elle, 1994), the piping, sumps, and tanks installed for the 1994 upgrade are not included in this CAS. However, all portions of the old piping system, including the sumps and septic tanks, are covered as part of CAS 06-07-01.

Physical Setting and Operational History - The portions of CAS 06-07-01 to be investigated under CAU 543 include Building 6-605 and an associated outdoor decontamination pad; portions of the inactive sanitary sewer systems from Buildings 6-605 and 6-607; inactive underground process waste lines and sumps that formerly discharged wastes from Buildings 6-605, 6-606, and 6-607 to the former Area 6 Decontamination Pond, and the soils located in the southeast portion of the Decontamination Facility that was formerly used for the storage of contaminated materials.

Building 6-605, the main decontamination facility, is a slab-on-grade metal building measuring approximately 100 x 84 ft. The building contains a high and low bay capable of accommodating heavy equipment, a dip tank bay containing three heated dip tanks capable of holding pipe stems up to 40 ft in length, a storeroom, a mechanical equipment room, a shower/locker room, and two offices (DOE/NV, 1984). The two bays contain several remaining high-pressure pumps and recirculation tanks (REECo, 1979b and c). The building contains floor drains (most are configured as trenches) that collected various liquids and wastes from decontamination processes occurring inside the building. Currently, the building appears in good condition with no significant spills or staining visible. The dip tanks are still present within the building and believed to be empty.

The liquids from Building 6-605 drains were piped via a process waste line to two sumps labeled Sump 1 (sand trap) and Sump 2 (oil/water separator) located northeast of Building 6-605 (REECo, 1973). These two sumps were designed to remove the solid and oil components from the liquid waste. Liquid process wastes from Building 6-607 (Laundry) entered the system at Sump 3 via the process waste line, while process waste from Building 6-606 entered the system via the process waste line south of Building 6-605. The liquid then flowed via the process waste line to Sump 3. From Sump 3, wastes were delivered via piping to the Area 6 Decontamination Pond.

Sanitary sewage waste discharged from Buildings 6-605 and 6-607 through separate sewer lines to separate septic tanks. From the Building 6-605 septic tank, the sanitary sewer line ran southeast to Sump 1, joined the process waste line, and then discharged to the Pond. From the septic tank that serviced Building 6-607, the sanitary sewer line joined the process waste line, connected to Sump 3, and then discharged to the Pond (REECo, 1973; Holmes & Narver, 1981). Trailer TA-20 had a PVC line directly connected to the sewer system at Building 6-605. The PVC line and the trailer have been removed, leaving only the concrete foundation present at the facility. Currently, two metal coverings are present over the Building 6-605 septic tank. Metal grates replaced the two manhole covers over the Building 6-607 septic tank. One manhole cover was noted in the area of Sumps 1 and 2; however, it is not clear which sump was connected to the manhole.

In 1994, a new process waste line system was installed, including new sumps and a new concrete floor in Building 6-605 (REECo, 1994a, b, c, e, and f). The process waste line still originated at the decontamination pad (Building 6-605), but the line continued to Sumps 5a and 5b, and then to Sump 4. From Sump 4, waste was sent to three baker tanks located at the northeast end of the facility. A fourth baker tank was installed sometime later, but it is uncertain if it was ever used. When the last baker tank became full, the wastewater was tested for RCRA hazardous constituents. If all contaminants were below action levels, then the water would be discharged via an aboveground pipe that connected to a sanitary sewer manhole on the north side of Building 6-607 (Bertrand, 2003; Boyd, 2003). Waste entering this manhole was sent to the Area 6 Yucca Lake Lagoon Systems. It is unknown what was done with the water if the action levels were exceeded. These new components included in the reconfigured system are not included in this CAS but are added for knowledge of the current system (Bertrand, 2003; Paradis, 1998). The Baker tanks are still present at the facility.

Sources of Potential Contamination - Activities conducted at the Area 6 Decontamination Facility included decontaminating vehicles, equipment, and clothing that had become contaminated during nuclear testing activities. Decontamination activities conducted within Building 6-605 created effluent potentially contaminated with cleaning solvents, soaps/detergents, degreasers, hot caustics, acids, and various radionuclides from contaminated materials that were discharged through floor drains to a process waste line system which currently includes subsurface piping and two sumps. Documentation states that due to numerous caustic and acidic spills and abrasive actions caused by drill pipe and heavy equipment, the concrete floor of Building 6-605 started to breakdown. As a result, the product Stonclad was applied over the entire floor to protect the concrete floor from further erosive attacks (Western, 1977).

In addition to the process wastes, Building 6-605 generated sanitary effluent that discharged through drains to a septic tank and eventually to the process waste line at Sump # 1. Based on process knowledge gained from previous septic system investigations on the NTS, the sanitary effluent may have hazardous and/or radioactive contamination present. In 1992, floating debris and oil were noted in the septic tank adjacent to Building 6-605 and is believed to be the result of overflow from clogged process waste lines (Radack, 1992).

Building 6-607 (Area 6 Decontamination Laundry) used soaps and detergents to clean the contaminated clothing used during testing and drilling activities. Effluent from Building 6-607 that was potentially contaminated with various inorganic, organic, and radiologically contaminated material, entered the septic system at Sump 3. In addition, Building 6-607 generated sanitary effluent that discharged through drains to a septic tank and eventually to the process waste at Sump #3. Based on process knowledge gained from previous septic systems investigations on the NTS, the sanitary effluent may have hazardous and/or radioactive contaminants present.

Effluent from Building 6-606 likely contained solvents, degreasers, and lubricants that may have been used during equipment repair activities. Effluent discharged through drains and entered the process waste line south of Building 6-605. A concrete pad with a floor drain is located between Building 6-606 and 6-605. It is assumed this drain also contributes effluent to the process waste line but exact activities for this pad are unknown; however, at a minimum surface run-off would be generated.

Documentation indicates several leaks from the subsurface piping at connection points of the old piping system to Building 6-605 and near Sump 2 may have occurred in the past. It is possible that other leaks occurred along the piping system, sumps, and/or septic tanks (Bingham, 1990 and 1993; Bielawski, 1994).

The southeast area of the facility has been identified as a storage area for contaminated items and materials. Engineering drawings identify this area as the “Hot Side” and the “Hot Park Area.” The specific details of activities in this area are undocumented. Contaminated equipment and materials staged in this area were exposed to the elements; therefore, release of oil from the equipment and deposition of contamination to the underlying soils was possible. The area is currently posted as a “Contamination Area.”

The *Closure Report for Petroleum Hydrocarbon Release at the Area 6 Decontamination Facility at the Nevada Test Site: Tank 6-605-1* (NDEM #990204-3304) (DOE/NV, 2000a) identifies a release of petroleum hydrocarbons from UST 6-605-1. The tank was used to store heating oil for Building 6-605. When activities were stopped in the building the boiler was no longer needed and the UST was removed. The tank was located adjacent to the northwest corner of Building 6-605 and was closed by removing the tank and associated piping. Soil samples collected at the time of the closure indicated the presence of petroleum hydrocarbons in concentrations that exceed the state action level. Some soil was removed, but it is believed that the concentrations exceeding regulatory criteria remain under the building and/or near the electrical substation. The NDEP approved the site for closure in place with use restriction (DOE/NV, 2000a).

Previous Investigation Results - Sampling results from the Area 6 Decontamination Pond, the septic tanks that serviced Buildings 6-605 and 6-607, Sumps 1 and 2, and soil from around the process waste lines indicated the presence of numerous potential contaminants. Results indicate the presence of various solvents, acids, caustics, degreasers, detergents, alcohols, metals, radionuclides, petroleum hydrocarbons, VOCs, and SVOCs (DOE/NV, 1999).

Sampling results from closure of tank 6-605-1 indicate that petroleum hydrocarbons were present in concentrations as high as 13,000 mg/kg and that contaminants had migrated in the soil underneath Building 6-605 (DOE/NV, 2000a).

Contaminants of Potential Concern - Chemical and radiological contaminants have been identified for this CAS based on previous investigation results and historical documentation. Various solvents, acids, caustics, degreasers, detergents, alcohols, and metals are parameters identified as COPCs. Based on investigations of similar facilities at the NTS and historical documentation, petroleum hydrocarbons are also COPCs. Beryllium and PCBs are a concern at the NTS and have not been ruled out by process knowledge.

Radionuclides that are associated with the fall-out from the nuclear weapons testing included americium (Am)-241, Barium-127m, cobalt (Co)-60, cesium (Cs)-137, europium (Eu)-152, Eu-154, plutonium (Pu)-238, Pu-239/240, Pu-241, samarium-151, strontium (Sr)-90, yttrium-90, tungsten (W)-181, W-187, and tritium (Adams, 2002; EG&G/EM, 1986).

The following COPCs are identified for CAS 06-07-01:

- VOCs including methylene chloride, chlorobenzene, acetone, ethanol, xylene, xylene isomers, ethanol, isopropyl alcohol, ethylbenzene, toluene, 1,1,1-trichloroethane, 2-methylnaphthalene, 2-(2-ethoxyethoxy)ethanol, and 2-butoxyethanol
- SVOCs including Bis(2-ethylhexyl)phthalate, butylbenzylphthalate, dioctyl ester (a.k.a., di-N-octylphthalate), naphthalene, pentachlorophenol, bis(2-ethylhexyl)ester, di-n-butylphthalate, and n-nitrosediphenylamine
- Petroleum hydrocarbons including oil and grease, and petroleum naphtha
- Metals including nickel, antimony, copper, zinc, arsenic, barium, cadmium, chromium, lead, beryllium, silver, thallium, selenium, mercury, and lithium
- PCBs
- Caustics and acids
- Radionuclides to include Am-241, Co-60, Cs-137, Pu-238, Pu-239/240, Sr-90, U-234, U-235, U-238, tritium (for liquids) and gamma-emitting radionuclides

A.1.1.2 U.S. Environmental Protection Agency Farm

On July 1, 1963, the AEC awarded a contract to the USPHS to study the transport of radioiodine from the environment to man, as well as the uptake by plants of long-lived fission products (SWRHL, 1967). The USPHS Farm was constructed in Area 15 of the NTS as a fully functioning

diary to support these studies (EPA, 1973; SWRHL, 1967). The location of the farm was chosen based on the UE-15d Well, the location of roads and powerlines, and the fall-out in the area from the Plowshare Program. The radioiodine studies ended in 1970, at which time the USPHS was renamed the EPA (EPA, 1980). Various names have been used interchangeably for both the farm and the main building. The farm has been referred to as the EPA Farm, the USPHS Farm, and the PHS Farm. The main building has been referred to as Building 15-06, the Laboratory Building, the EPA Dairy Barn, and the Experimental Dairy Barn (DRI, 1994). The farm continued to be used until 1981 for other studies including metabolism studies on animals. By 1979, the farm no longer functioned as a full-time dairy and only brought in animals for specific experiments. On December 31, 1981, the DOE decided to decontaminate and decommission the farm. On October 23, 1997, closure activities at the farm were completed (DOE/NV, 1998a). [Figure A.1-3](#) shows the general layout of the Area 15 EPA Farm and its associated CASSs.

The majority of experiments occurred inside Laboratory Building 15-06 or nearby in the adjacent property. Corrective action sites 15-01-03, 15-04-01, 15-05-01, 15-08-01, and 15-23-03 received effluents from Laboratory Building 15-06 (Holmes & Narver, 1971, 1974, 1975, and 1979). The sixth CAS (15-23-01) is associated with decontamination activities that took place in a separate location of the EPA Farm (Hopper, 1995). The rooms within the laboratory building included the hot slaughter room, milk room, milking area, sample control room, metabolism room, small animal laboratory, biology laboratory, autopsy laboratory, holding pen, utility room, rest room, and a change room for the workers (Edward B. Hendricks, 1965a, b, and c). Wastes from the metabolism and slaughter rooms were originally disposed via a waste line into a sump (CAS 15-23-03). In approximately 1974, an AST was installed (CAS 15-01-03) east of the sump to accept higher level radiological wastes (EPA, 1977). The wastes originating from both rooms were diverted at a distribution box between the AST and the sump, with the radiological wastes going to the AST and the nonradioactive or low-level wastes going to the sump (DOE, 1988; Olsen, 1997). The wastes from holding pens were also believed to have been disposed into the AST via the same waste line (Holmes & Narver, 1971c).

Another waste stream from Building 15-06 consists of wastes from the small animal laboratory, biology laboratory, utility room, and rest room. Those wastes were disposed into the septic tank

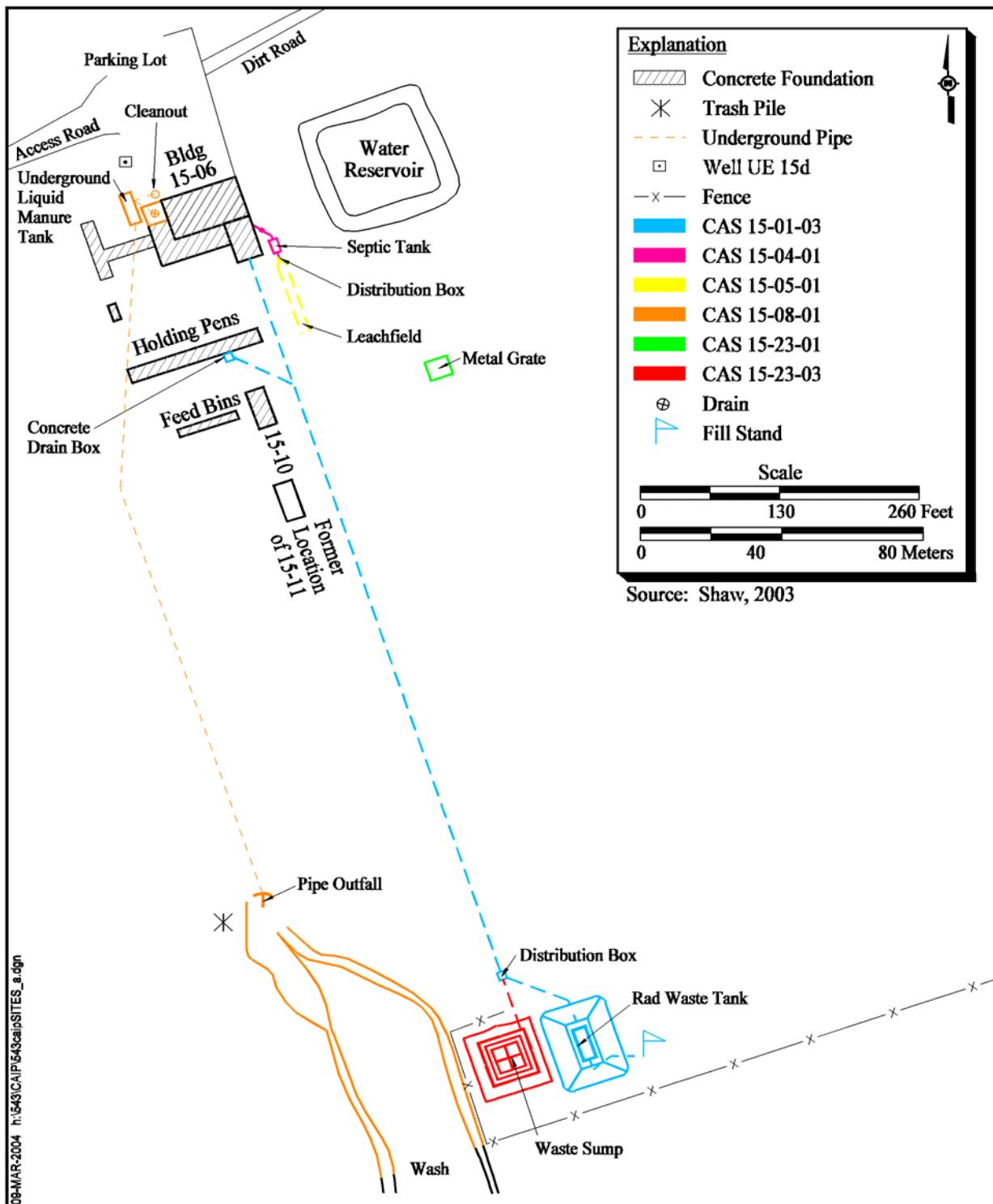


Figure A.1-3
EPA Farm Site MAP

(CAS 15-04-01) and finally to the leachfield (CAS 15-05-01)(Holmes & Narver, 1973a and b). During the planning stages of the farm, there was a concern regarding the disposal of excess milk from the dairy herd and the adverse effects it might have on the biochemical activity in the septic tank. In addressing the concern, a commercially available liquid manure system was installed for the dairy operations. The liquid manure tank was installed in 1965, at the same time the Laboratory Building was constructed (SWRHL, 1967). The liquid manure tank was used for the accumulation of liquid waste and excess milk from the dairy cows. Wastes from the metabolism area, milking parlor, milk room, and holding pen were disposed of to the tank. After 1972, the liquid manure tank only received effluent from the milking area and milk room (EPA, 1977).

General sources of potential contamination common to all CASs within the Area 15 EPA Farm include the pesticides and fertilizers used and stored at the farm (SWRHL, 1967 and Boehlecke, 1997). Fertilizers sprayed on the crops fed to the animals used in the animal experiments consisted of ammonium nitrate, treble superphosphate and urea (SWRHL, 1967) in addition to the nitrogen and phosphorus fertilizers (SWRHL, 1967 and Boehlecke, 1997). As part of the animal studies, cobalt, manganese, and molybdenum were used in the animal feed (EPA, 1973).

There is a potential that waste water discharges from Well UE-15d may have been disposed down drains at the EPA Farm, resulting in the following contaminants being introduced into the EPA Farm waste stream: iron, manganese, lead, and mercury. These four contaminants exceeded the SDWA contaminant levels in 1984 (DOE, 1988).

Radionuclides associated with the fall-out from nuclear weapons testing Plowshare Project may be present in the surface soils of Area 15 and include typical fission products such as Cs-137, Am-241, Sr-90, and Pu isotopes (Adams, 2002; EG&G/EM, 1986). Radionuclides used for the metabolism study at the EPA Farm include cerium-141, Sr-85, Mn-54, Scandium-46, Pu-238, iodine isotopes (121, 123, and 131), and iron-59 (EPA, 1973 and 1977).

Because the types of activities and disposal practices conducted at the Farm were similar and have the opportunity to affect all the CASs and components in a similar manner, five of the CASs have the same COPC list. For this reason, individual CAS descriptions of COPCs are not included in the

following subsections but are listed in [Table A.1-1](#). The exception is CAS 15-23-01, Underground Radioactive Material Area, because the nature of activities and release of contaminants is different than the rest of the Farm.

A.1.1.3 CAS 15-04-01, Septic Tank

Physical Setting and Operational History - This CAS is located adjacent and east of Building 15-06. The CAS consists of a 1,000-gal septic tank, cleanout, and associated piping. The piping consists of 4-in. cast-iron pipe from the building to the cleanout, where the pipe changes to 4-in. VCP from the cleanout to the septic tank (Edward B. Hendricks, 1965a; BN, Date Unknown b). Recent geophysical surveys and field observations were not able to confirm if the septic tank is still present at the site (SAIC, 2003).

The septic tank, piping, and cleanout were constructed in 1965 to service Laboratory Building 15-06 (Frazier, 1987). Originally, four floor drains, four sinks, and one toilet discharged to the septic tank. These drains, sinks, and toilet were located in the small animal laboratory, the biology laboratory, the utility room, and the rest room within Building 15-06 (Bingham, 1992; Olsen, 1997; Edward B. Hendricks, 1965b). In 1972, the waste water collection system was reconfigured to allow for separation of sanitary and nonsanitary wastes. With the exception of the floor drain in the utility room, all floor drains in the shower, and the toilet and sink in the toilet room, were connected to the manure tank. In 1973, two slaughter areas were added to the building. The drains in the slaughter areas were connected to the manure tank (Holmes & Narver, 1973a and b).

Sources of Potential Contamination - The sources of potential contamination for the septic tank are considered the liquid wastes and effluent discharged through the floor drains and sinks within the Laboratory Building 15-06. The discharged effluent is associated with the sanitary sewage wastes and radioactive wastes from the laboratory testing and slaughter of animals within the laboratory.

Previous Investigation Results - This septic tank was sampled as part of the *Preliminary Characterization of Abandoned Septic Tank Systems* (DOE/NV, 1995) phase I activities. In this study, this septic system is identified as A15EPA. When sampled on September 12, 1994, the tank contained approximately 800 gal of waste, including an estimated 2-ft layer of sludge. The liquid was relatively clear with floating particles and the sludge was dark brown to black and viscous. One

liquid sample (A15EPA-T-L) and one sludge sample (A15EPA-T-S) were collected. The analytical results for these samples led to a recommendation that the septic system be closed as a “hydrocarbon containing tank” (DOE/NV, 1995).

A geophysical survey was conducted at CAS 15-04-01 in March 2003 over an area where the septic tanks were shown to be located on engineering drawings (SAIC, 2003). According to the survey, only anomalies consistent with underground piping were identified. No septic tank was located during the survey. It is possible that the tank may have been removed, or the area containing the tank may have fallen outside the boundaries of the survey. No documentation was located that confirms the removal of the septic tank.

A.1.1.4 CAS 15-05-01, Leachfield

Physical Setting and Operational History - This CAS is located adjacent and east of Building 15-06. The CAS consists of the distribution box, associated piping, and leachfield associated with the 1,000-gal septic tank (CAS 15-04-01) that serviced Building 15-06 (Edward B. Hendricks, 1965a; Holmes & Narver, 1973a).

The leachfield consists of two subsurface 70-ft long leach lines that are 8 ft apart extending south from the distribution box. The leach lines consist of perforated 4-in. VCP. The dimensions for the distribution box are unknown (Edward B. Hendricks, 1965a; BN, Date Unknown c).

Sources of Potential Contamination - The sources of potential contamination for the distribution box and leachfield are the same as the septic tank (15-04-01) and are considered the liquid wastes and effluent collected through the floor drains and sinks within the Laboratory Building 15-06 and discharged to the septic tank.

Previous Investigation Results - The leachfield was sampled as part of the *Preliminary Characterization of Abandoned Septic Tank Systems* phase I activities (DOE/NV, 1995). In this study, this septic system is identified as A15EPA. On March 27, 1995, one soil sample was collected below the first identified leachfield tile perforation. Barium, cadmium, and chromium, as well as oil and grease, were detected in the leachfield soil sample. Barium (110 mg/kg), was the only metal detected in the TCLP metal analysis at a concentration of 0.22 mg/L. This result correlates with

background concentrations for the area and was below the TCLP action level (100 mg/L) and the NDEP guidance level (10 mg/L). Cadmium was detected at 0.69 mg/kg and chromium was detected at 4.8 mg/kg. Oil and grease was detected at 0.2 mg/kg and did not exceed the allowable liquid discharge limits for the Area 23 Sewage Lagoon. Although the sewage lagoon limits refers to liquids only, it is used here to provide an indication of the oil and grease characteristic of the leachfield soils. Tetrachloroethylene was detected at a concentration of 0.00033 mg/L, and was also detected in the reagent blank (0.00059 mg/L) which suggests analytical interference. This concentration is below the TCLP action level of 0.07 mg/L and the NDEP guidance level of 0.07 mg/L. In the background soil sample, TCLP barium was detected at 0.19 mg/kg, which is below the TCLP action level (100 mg/L) and the NDEP guidance level of 10 mg/L. The pH of the sample was 7.52 units and is not hazardous under 40 CFR 261.22 for corrosivity. Semivolatile organic compounds, TPH, and PCBs were not detected above laboratory reporting limits in the leachfield soil sample.

A geophysical survey, including CAS 15-05-01, was conducted on the NTS in March 2003 (SAIC, 2003). The survey was conducted to determine the location and dimensions of the leachfield. Various anomalies consistent with underground piping were identified that may potentially be the piping associated with the leachfield.

A.1.1.5 CAS 15-08-01, Liquid Manure Tank

Physical Setting and Operational History - This CAS is located adjacent to the northwest corner of the Building 15-06 foundation and consists of a liquid manure tank and its associated piping. The liquid manure tank consisted of an 18,000-gal underground concrete tank that measures 32 x 12 x 8 ft and the top of the tank is even with the ground surface (SWRHL, 1967; BN, Date Unknown b; Edward B. Hendricks, 1965b). Included in the CAS is piping between the tank and the building and the outside floor drain in the center of a concrete pad. Also included in this CAS is outflow piping that extends south from the tank approximately 550 ft to a drainage wash. The 6-in. diameter outflow pipe, south of Building 15-06, surfaces from the ground at the head of the wash. The wash is approximately 4 to 5 ft wide and 2 to 3 ft deep.

The manure tank had a clock-operated agitator to keep the solids in suspension. A special chopper pump emptied the tank into a tank wagon, which was used to spread the contents over the crop fields. An interviewee stated the liquid wastes in the tank were pumped into an outflow pipe and allowed to

flow south, eventually discharging into the small wash (Hopper, 2003). An outflow pipe was identified during a field visit that was located south of Building 15-06. Further, a geophysical survey conducted in March 2003 identified a line that connects the manure tank to the outflow pipe (SAIC, 2003). It is believed that this outflow line was at some time used to discharge wastes from the liquid manure tank; however, there has been no documentation found that details these activities.

Sources of Potential Contamination - The sources of potential contamination are the activities that were conducted in Building 15-06 and the manure waste and milk from the dairy operations. Originally the liquid manure tank collected wastewater from a drinking fountain drain, a service sink drain, as well as floor drains in the milking parlor, milk room, metabolism area, and the 20- x 20-ft concrete pad off the northwest side of the building (BN, Date Unknown b). The tank was used to collect excess milk and wash down effluent from the dairy operation. In 1972 the building was reconfigured. The metabolism area was moved to the east side of the building and a new drain system was added. After this, waste from the metabolism area was no longer collected in the liquid manure tank (EPA, 1977).

Previous Investigation Results - A geophysical survey was conducted at CAS 15-08-01 during March 2003 (SAIC, 2003). The results identified the underground line associated with the outflow at the southern end of the farm. The line ran north approximately 550 ft to the liquid manure tank (EPA, 1977).

Radiological surveys performed in August 1997 in support of the CAU 95 CADD did not identify any removable-surface or fixed-surface contamination in the areas of Building 15-06 that are associated with the liquid manure tank. Radiological walk-over surveys performed at the NTS during February 18 and 19, 2003, included CAS 15-08-01. No risk to individuals from residual radiological contamination was identified (Nicosia, 2003).

A.1.1.6 CAS 15-23-03, Contaminated Sump, Piping

Physical Setting and Operational History - Corrective Action Site 15-23-03 is located approximately 875 ft south of the Building 15-06 foundation at the EPA Farm. This CAS consists of a 25 x 25 x 6 ft deep sump and subsurface piping extending approximately 60 ft north to a distribution box. The dimensions of the distribution box are approximately 31 x 36 in. The sides of the sump are

constructed of concrete angled at 45 degrees and the bottom is unlined. Currently, there are metal stakes and chicken wire covering the entire sump area.

The contaminated waste sump was not part of the original farm construction plans and was added in 1972 when the large animal metabolism facility was converted from the telemetry, data analysis, and biology rooms (DRI, 1988; Hopper, 2003). The sump was used for the accumulation of liquid waste from the laboratory (Holmes & Narver, 1972a and b). Documentation indicates the sump was not used for radioactive waste; however, the sump area is posted with "Underground Radioactive Material" signs (Shaw, 2003; DOE/NV, 2000). In 1974, an AST (CAS 15-01-03) was added adjacent to the sump to receive radiologically contaminated waste. The distribution box, located about 60 ft north of the sump, was added to divert the radioactive waste to the tank and nonradioactive waste to the sump.

Sources of Potential Contamination - The sump and associated piping included in CAS 15-23-03 supported the activities in Building 15-06. Engineering drawings indicate floor drains in the metabolism area, the Sample Control Room, and the Shower Room, and the slaughter areas (added in 1973), as well as service sinks in these areas were connected to the piping that terminated at the sump (Holmes & Narver, 1972a, b, and 1974). The distribution box and tank for collection of highly contaminated liquid waste was not added until 1974 (Olsen, 1997; DOE, 1988). It is not stated what criteria determined when the waste was diverted to the tank from the sump. There is no mention of flushing the line prior to waste being diverted to the sump. There is the potential for all waste entering the drainline from Building 15-06 to contribute to contamination at this CAS.

Previous Investigation Results - A demarcation survey of the EPA Farm area was conducted on August 6, 1998 (DOE/NV, 2000b). The figure that accompanies the report indicates the EPA Farm Pond Underground Radioactive Material Area Boundary and the EPA Farm Storage Tank Contamination Area Boundary as one boundary. This boundary encompasses both the sump and the AST. The radionuclides in the soil are expected to be americium and plutonium. The DOE/NV (2000b) report states that the subsurface soils contained unknown levels of radionuclide activity, but the surface-soil removable activity was well below 10 CFR 835 guidelines.

A.1.1.7 CAS 15-01-03, Aboveground Storage Tank

Physical Setting and Operational History - This CAS is located approximately 875 ft south of Building 15-06. This CAS includes the 25,000-gal AST, its contents, and the fill stand located within the bermed area; approximately 875 ft of associated piping originating from Building 15-06 and the holding pens; the distribution box (31 x 36 in.) located approximately 60 ft from the AST; the concrete drain box located at the holding pens, and the surrounding soil. The cylindrical AST is located within a pit and is approximately 31 ft long and 21 ft in diameter, with an estimated capacity of 25,000 gal. A gauge on top of the AST reads approximately 24,000 gal (Shaw, 2003). If the gauge reads correctly, the tank is full. The exact contents of the AST are uncertain. A pump motor is noted on a drawing at the southern end of the AST (REECo, 1975). The piping also branches northwest from the main line to a concrete drain box located at the holding pens (REECo, 1975).

During a site visit on February 11, 2003, staining was observed on the sides of the tank near the southernmost access ports (Shaw, 2003). Tumble weeds in the pit hinder viewing the bottom of the pit for any possible staining. It is believed that the AST may have released contaminants to the surface soil at some time during the operation of the facility. The piping on the southern end of the tank, near the fill stand, is covered with what may be ACM.

Sources of Potential Contamination - The AST was used to support the disposal of contaminated wastes from the EPA Farm Building 15-06. The wastes in the tank originated from the metabolism and slaughter rooms within Building 15-06 (Holmes & Narver, 1971c).

The wastes within the tank were periodically transferred into a tanker and disposed in the U8d dump hole (CAU 542) (ERDA, 1976; DRI, 1988). The tank may have been emptied about four or five times during the life of the farm studies. Engineering drawings indicate that the tank was equipped with a pump and motor to aid the transfer of waste from the tank to the tanker (REECo, 1975).

Previous Investigation Results, Experimental Studies, Historical Documentation - No specific investigation results were identified.

A.1.1.8 CAS 15-23-01, Underground Radioactive Material Area

Physical Setting and Operational History - This CAS is located southeast of Building 15-06 and approximately 150 ft south of the septic tank. The CAS consists of PSP measuring approximately 22 by 22 ft and the surrounding and underlying soil. Corrective Action Site 15-23-01 was originally identified as a contaminated dry waste well located beneath the grain silo next to Trailer 15-12. Based on the results of interviews, a review of historical documentation, and a geophysical survey, it is believed that the well does not, nor did it ever, exist at the site (Barth, 2003; Giles, 2003). The term “well” may have been used at one time to describe a pit or a sump filled with coarse gravel.

According to interviewees, this CAS was used as a decontamination area for various pieces of farm equipment (Hopper, 1995 and 2003). Activities at the farm included the spraying of iodine-131 and tritiated water on the crop fields that were located on the east side of the farm (Hopper, 1995; Sorom, 1995). Wastes from the liquid manure tank (CAS 15-08-01) were also reported to have been spread on the fields. Pesticides and herbicides were also applied to the fields to manage the weeds and pests. The workers, and potentially the equipment used in the crop fields, would proceed to the metal grate for decontamination after leaving the fields. Decontamination was conducted at this location in order to prevent the spread of contamination from the “hot” east side of the farm, to the “cold” west side of the farm. The RSO would conduct the decontamination process, using equipment and supplies stored in the adjacent RadSafe Trailer 15-12 (Hopper, 1995 and 2003).

Sources of Potential Contamination - Decontamination activities at this site were in support of the work performed during the management of the crops planted at the farm. This may have included decontamination of personnel, tools, and equipment. These activities are considered the source of any contamination that exists in the surface and shallow subsurface soil within the CAS boundary.

Previous Investigation Results - A Site Monitoring/Site Demarcation Survey of Area 15 Site Dry Well was performed in May 1991 (Smith, 1991). The sketch on the checklist indicates an area that is consistent with the description of this CAS. The survey was conducted at four locations at the dry well, 270 degrees west, 180 degrees south, 90 degrees east, and 360 degrees north. The results for beta/gamma were 100 cpm, 100 cpm, 120 cpm, and 100 cpm, respectively. For alpha, the results were 0 cpm at all locations.

Radiological walk-over surveys performed at the NTS during February 18 and 19, 2003, included CAS 15-23-01. No radiological contamination was identified (Nicosia, 2003).

Geophysical surveys were conducted at various sites at the NTS in March 2003 (SAIC, 2003). Corrective Action Site 15-23-01 was included in the sites surveyed. Four anomalies were identified in the area. Anomaly "D" corresponds with the area for CAS 15-23-01. The anomaly coincided with the PSP that is located at the surface of the site.

Potential Contamination - Gamma-emitting radionuclides and general radionuclides associated with nuclear weapons testing fallout are COPCs. The COPCs that are common to decontamination activities include degreasers, solvents, detergents, and TPH. Based on process knowledge of typical NTS practices and EPA farm practices, additional COPCs include metals with beryllium, herbicides, pesticides, and PCBs.

A.1.2 Seven-Step DQO Process

This following section presents the seven-step DQO process employed for the development of the sampling and analysis plan for CAU 543.

A.1.2.1 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 543 CAI, and develops the CSMs.

A.1.2.2 Planning Team Members

The DQO planning team consists of representatives from NDEP, NNSA/NSO, SNJV, and BN. The primary decision makers include NDEP and NNSA/NSO representatives. [Table A.1-2](#) lists representatives from each organization in attendance at the February 26, 2004, DQO planning meeting.

A.1.2.3 Describe the Problem

Corrective Action Unit 543 is being investigated because the activities conducted at the Area 6 Decontamination Facility (CAS 06-07-01) and EPA Farm (CASSs 15-01-03, 15-04-01, 15-05-01, 15-08-01, 15-23-01, and 15-23-03) may have released hazardous and/or radiological contaminants

Table A.1-2
DQO Meeting Participants

Participant	Affiliation	Function
Dawn Arnold	SNJV	Industrial Sites CAU Lead
Stacey Alderson	SNJV	Radiation Services Manager
Sabine Curtis	NNSA/NSO	Environmental Restoration Division Task Manager
Syl Hersh	SNJV	Quality Processes Technical Staff
Brian Hoenes	SNJV	Industrial Sites Project Manager
Dave Madsen	BN	Environmental Restoration Task Lead
Harry A. Perry	BN	Waste Management Lead
Al Wickline	SNJV	Industrial Sites Task Manager
Jeanne Wightman	SNJV	Quality Processes Representative
Ted Zaferatos	NDEP	Oversight/Representative

BN - Bechtel Nevada

NDEP - Nevada Division of Environmental Protection

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

SNJV - Stoller-Navarro Joint Venture

into the environment at concentrations that could potentially pose a threat to human health and/or the environment during future use.

The problem statement for CAU 543 is that the existing information on the nature and extent of potential contamination is insufficient to evaluate and recommend corrective action alternatives for the CASs comprising CAU 543.

A.1.2.4 Develop Conceptual Site Models

Conceptual site models describe the most probable scenarios for current conditions at specific sites and define the assumptions that are the basis for identifying appropriate sampling strategy and data collection methods. They set the stage for assessing how contaminants could reach receptors both in the present and future by addressing contaminant release and migration pathways, transport mechanisms, potential receptors, and potential exposures to those receptors. Accurate CSMs are important as they serve as the basis for all subsequent inputs and decisions throughout the DQO process. Land-use descriptions help define exposure scenarios, which are the basis for assessing how contaminants could reach potential receptors both in the present and future. There are two future

land-use scenarios for CAU 543. Corrective Action Site 06-07-01 is within the Defense Industrial Zone. The remaining CASs are within the Reserved Zone on the NTS (DOE/NV, 1998b). Based on land use, current and future receptors are limited to industrial and construction workers as well as personnel conducting training maneuvers. These human receptors may be exposed to COPCs through oral ingestion, inhalation, dermal contact (absorption) of soils and/or debris (e.g., equipment, concrete) due to inadvertent disturbance of these materials or irradiation by radioactive material(s).

Two CSMs have been developed for CAU 543 using assumptions formulated from the physical setting, historical background, and potential contaminant sources and release information at Area 6 and Area 15. The components in the Area 6 CAS (06-07-01) and the CASs in the Area 15 EPA Farm are integrated or interrelated as part of a larger system or process with shared sources of potential contamination for each respective area; therefore, a separate CSM has been developed for Area 6 and Area 15. To better illustrate the more complex, integrated process of the Area 15 EPA Farm, [Figure A.1-4](#) has been developed as a Flow Diagram. The Flow Diagram walks through the common sources of contamination and related release points and pathways which help to establish the CSM. The CSMs for CAU 543 are termed:

- Conceptual Site Model for Area 6, Decontamination Processes
- Conceptual Site Model for Area 15, EPA Farm Processes

The following subsections discuss each CSM.

A.1.2.5 Conceptual Site Model for Area 6, Decontamination Processes

Conceptual Site Model for Area 6 applies to the components of CAS 06-07-01 that were designed to collect and discharge decontamination effluent and sanitary waste streams including septic tanks, sumps, and underground piping. Upon release from the source, the effluent traveled through discharge lines and was routed into the various septic system components and sumps. The designed and accidental release points within the collection and distribution system create potential exposure pathways. Included in this CSM, although not part of the effluent collection system, is the contaminated soils within a designated “Contamination Area.” These soils were contaminated from the same equipment and materials that were decontaminated at the Area 6 Decontamination Facility.

[Figure A.1-5](#) shows a generalized representation of the Area 6 CSM.

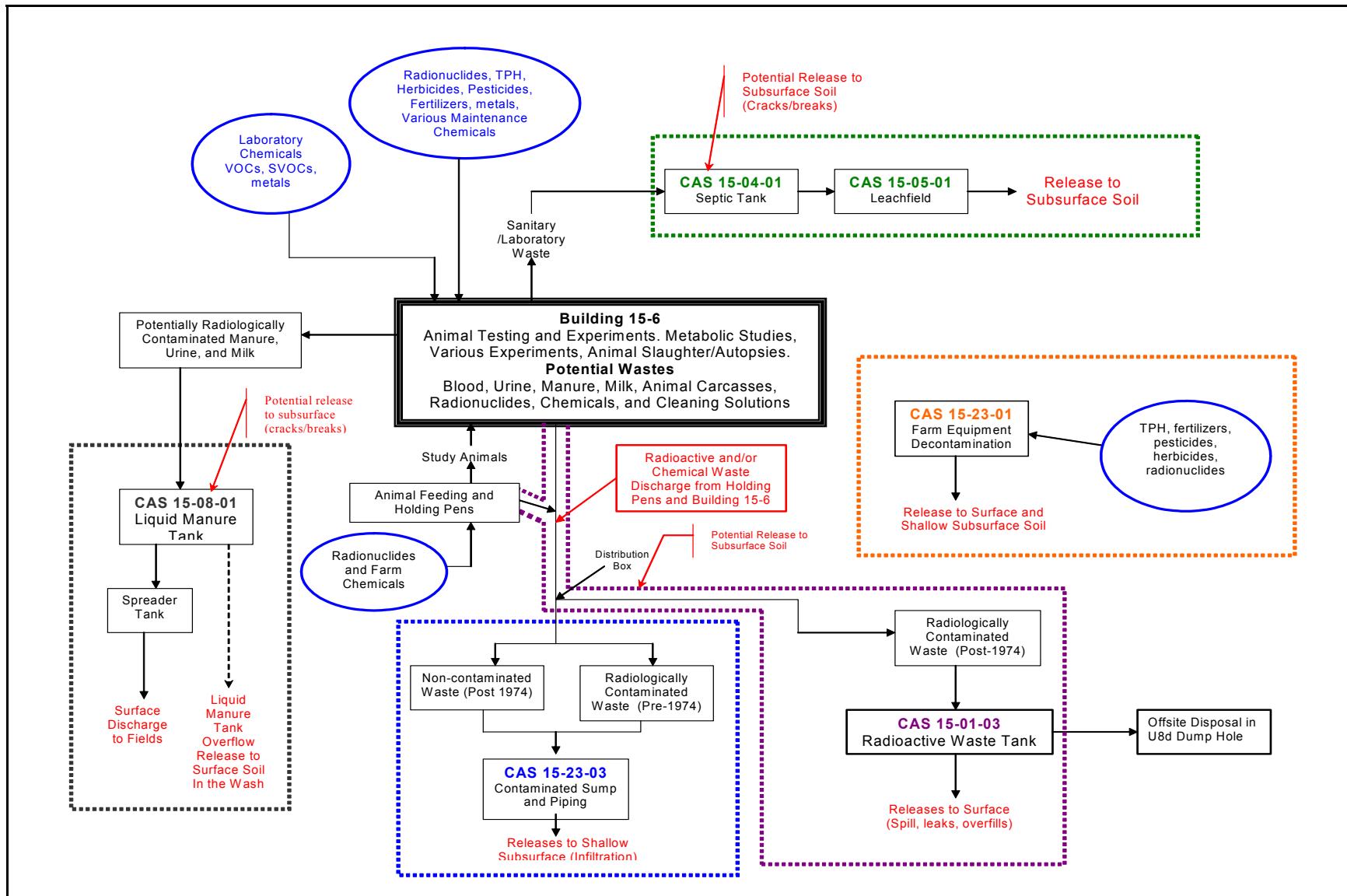


Figure A.1-4
Process Flow Diagram for the Area 15 EPA Farm

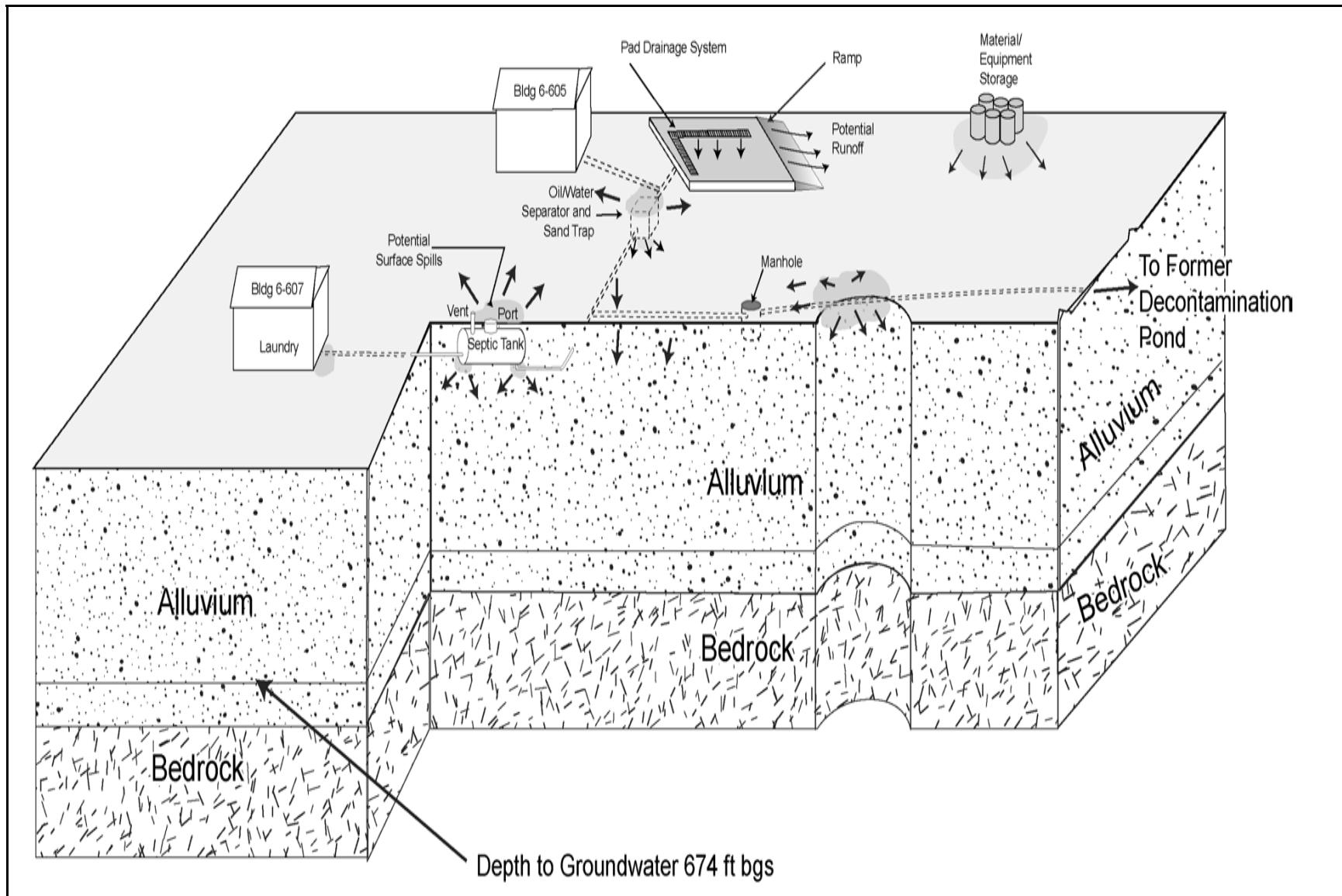


Figure A.1-5
Conceptual Site Model for Area 6

A.1.2.6 Conceptual Site Model for Area 15, EPA Farm Processes

Conceptual Site Model for Area 15 applies to CASs and components of each CAS that were parts of an integrated system to collect and discharge waste streams from the activities associated with the EPA Farm animal testing and experiments. The primary source of contamination was generated within one building, the Laboratory Building 15-06; however, several other areas within the Farm also contributed wastes (i.e., holding pens). Upon release from the source, sanitary, hazardous, and radioactive effluent traveled through discharge lines and was routed to various distribution components that include a septic tank and leachfield, an underground storage tank, a sump, ASTs, and an outfall. There are designed and accidental release points in this model. [Figure A.1-6](#) shows a generalized representation of the Area 15 CSM.

Affected Media - Soils beneath and surrounding the sums, septic tanks, aboveground and underground tanks, and associated piping potentially could be affected by the release of contaminants either by design or accident (i.e, overflow). The components of the piping, tanks, concrete pads, drains, and building structures in direct contact with potential contaminants may be affected. Structures and equipment within Building 6-605 may be affected from direct contact with decontamination fluids (e.g., acids and caustics). Surface and shallow subsurface soils may be affected by contaminants from stored equipment and materials, surface run-off from exposed pads, and outfall effluent.

Location of Contamination/Release Points - Releases of contamination to the environment are most likely to have occurred beneath the outlet and inlet pipe ends and the base of the septic tanks, sums, distribution box, tanks, along perforated piping (leachfield), or beneath any breaches in underground piping from cracks, breaks, or overflow of the components. Stored contaminated materials in the storage area may have spread contamination onto the surface soils via runoff or erosion. Surface run-off from any of the concrete pads may have contributed contamination to the surrounding soils.

Transport Mechanisms - An important element of a CSM is the expected fate and transport of contaminants, which infer how contaminants move through site media and where they can be expected in the environment (migration pathway). The expected fate and transport is based on distinguishing physical characteristics of the contaminants and media. Contaminant characteristics include solubility, density, and particle size. Media characteristics include permeability, saturation,

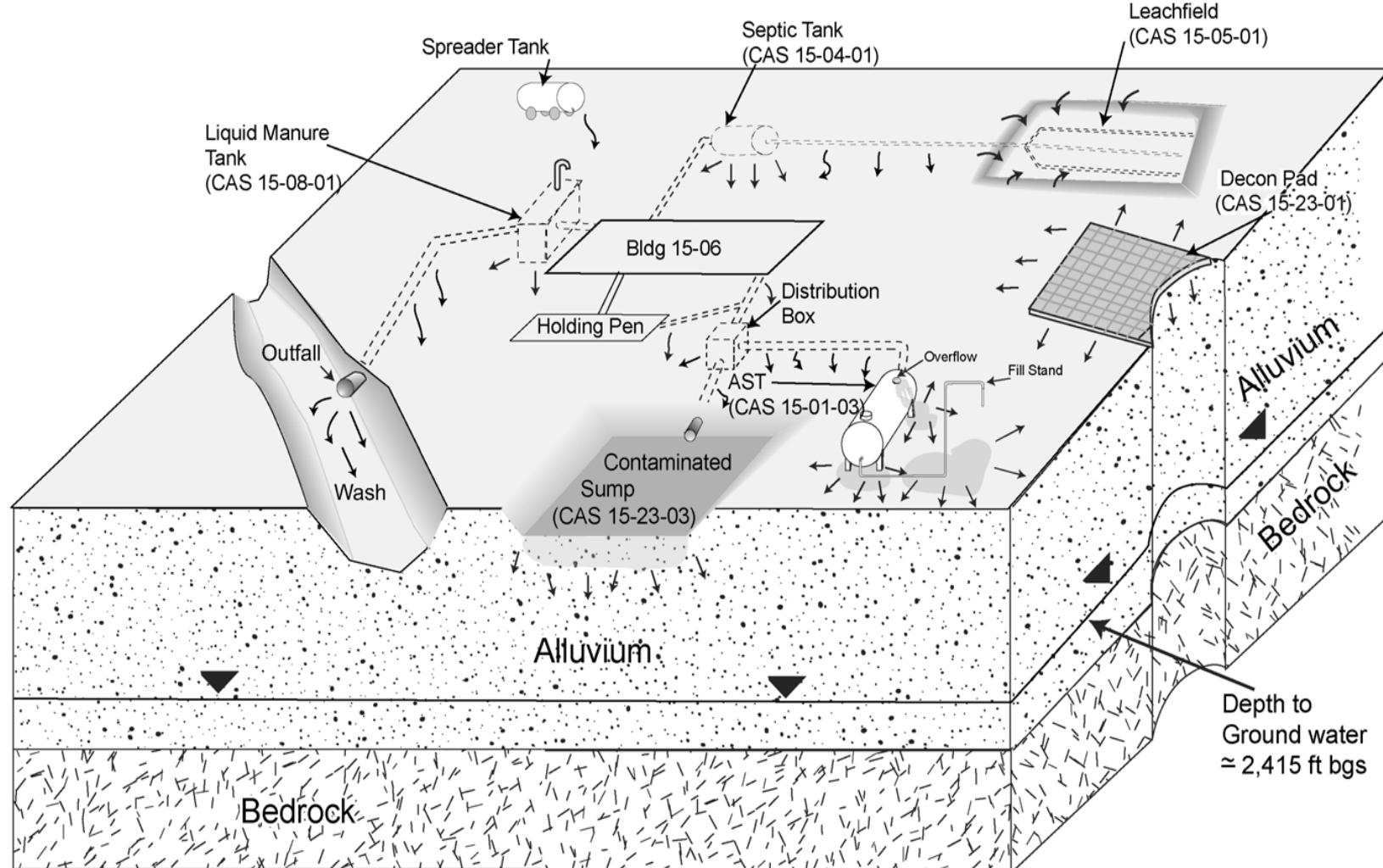


Figure A.1-6
Conceptual Site Model for Area 15, EPA Farm Processes

sorting, 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.

Migration of potential contamination is assumed to be minimal based on the affinity of the COPCs for soil particles, and the low precipitation and high evapotranspiration rates typical of the NTS environment. Contaminants may have been transported by infiltration and percolation of precipitation through soil, which would serve as the primary driving force for downward migration. Based on the release points within both Area 6 and Area 15, migration would be expected primarily downward with horizontal migration to a much lesser degree. Mixing of the surface soils as a result of grading or construction activities could also move COPCs into deeper intervals. The migration of organic constituents (e.g., pesticides and TPH) can be controlled to some extent by their affinity of organic material present in the soil. However, this mechanism is considered insignificant because of the lack of organic carbon in the desert soil. Migration of certain inorganic constituents (e.g., metals) is controlled by geochemical processes, such as adsorption, ion exchange, and precipitation of solids from solution.

Contaminants migrating to regional aquifers are not considered a likely scenario at CAU 543 based on the average depth to groundwater, the low annual average precipitation rates, the high potential for evapotranspiration, and the low mobility of expected COPCs (e.g., SVOCs, PCBs, petroleum hydrocarbons, and RCRA metals). The average depth to groundwater in Area 6 is 1,425 ft and 690 ft at the EPA farm in Area 15 (DRI, 1993).

Airborne release subsequent to initial contamination release is not considered a significant release pathway. The main process of migration via the airborne pathway would be through windblown dust with COPCs adsorbed to the fine soil particles. This process could result in the deposition of COPCs beyond the CAS boundaries; however, it would be expected that contaminant levels decrease with distance from the point of release and distributed consistent with prevailing wind direction.

Preferential Pathways - Preferential pathways for contaminant migration at most of CAU 543 sites are expected to have only a minor impact on contaminant migration or none at all.

Lateral and Vertical Extent of Contamination - The degree of contaminant migration, if any, at these sites is unknown, but it is assumed to be minimal and confined to the surface and shallow subsurface soils. Any contamination at these sites is expected to be contiguous with the source and decrease with distance and depth from the release point. It is believed that groundwater has not been, or would not be, impacted because of the significant depths of groundwater levels, and the high evapotranspiration rates. Because of the relatively flat terrain in these areas, horizontal migration beyond the area of initial impact is expected to be limited, and liquids would primarily infiltrate vertically into the soil at or near the point of release. Although infrequent, surface migration may have occurred as a result of storm events when precipitation rates exceeded infiltration rates (stormwater run-off). The primary lateral migration pathways would be dispersion through the shallow soil and limited migration in the down gradient direction.

A.1.3 Step 2 - Identify the Decision

The purpose of this section is to develop the decisions that require environmental data to address the presence of contamination and identify appropriate alternative actions for the investigation.

A.1.3.1 Develop a Decision Statement

Problem statement is: “There is an insufficient amount of information concerning the nature and extent of contamination released at these sites to determine if there is an unacceptable risk to human health and the environment.”

The Decision I statement is: “Is a contaminant present within a 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 defined in [Section A.1.4.2](#) will be considered a COC. A COC is defined as a site-related constituent that exceeds the PAL. The presence of a contaminant within a CAS is defined as the analytical detection of a COC. Samples used to resolve Decision 1 are identified as Decision I samples.

The Decision II statement is: “If a COC is present, is sufficient information available to determine the lateral and vertical extent of the contamination?”

Sufficient information is defined as the data needs identified during the DQO process to include the lateral and vertical extent of all COCs within each CAS. Samples used to resolve Decision II are identified as Decision II samples.

A.1.3.2 Alternative Actions to the Decision

If a COC is not present, further assessment of the CAS is not required. If a COC is present, resolve Decision II.

If the extent of a COC is defined in both the lateral and vertical directions, 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 Decision

This step identifies the information needed, determines sources for information, determines the basis for establishing the action level, and identifies sampling and analysis methods that can meet the data requirements. To determine if a COC is present, each sample result or population parameter is compared to the PAL. If any sample result or population parameter is greater than the PAL, then the CAS is advanced to Decision II for that parameter. This approach does not use a statistical mean/average for comparison to the PAL, but rather a point-by-point comparison to the established screening criteria to identify COCs.

A.1.4.1 Information Needs and Information Sources

In order to determine if a COC is present at the CAS, sample data must be collected and analyzed following these two criteria: (1) samples must be collected in areas most likely to contain a COC and (2) the analytical suites and associated MDLs selected must be sufficient to detect any COCs present in the samples below their corresponding PALs. Biasing factors to support these criteria include:

- Documented process knowledge on source and location of release
- Field observations
- Field-screening results
- Historical sample results
- Interpretation of geophysical and/or radiological survey data
- Experience and data from investigations of similar sites
- Professional judgement

In order to determine the extent of a COC for Decision II, sample data must be collected and analyzed at locations to bound the lateral and vertical extent of COCs. The data required to satisfy the information needed for Decision II for each COC is a sample result that is below the PAL. Step-out locations will be selected based on the CSM, biasing factors, and existing data. Analytical suites may only include those parameters that exceeded PALs (i.e., COCs) in Decision I samples. Biasing factors to support these information needs may include the factors previously listed and Decision 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 results from direct measurement of a characteristic or component within the population of interest. These data require the highest level of QA/QC in collection and measurement systems because the intended use of the data is to resolve the primary decision (i.e., rejecting or accepting the null hypothesis) and/or verifying closure standards have been met. Laboratory analytical data are usually assigned as quantitative data.

Semiquantitative Data

Semiquantitative data is generated from a measurement system that indirectly measures the quantity or amount of a characteristic or component of interest. Inferences are drawn about the quantity or amount of a characteristic or component because a correlation has been shown to exist between results from the indirect measurement and the quantitative measurement. The QA/QC requirements on semiquantitative collection and measurement systems are high, but may not be as rigorous as a quantitative measurement system. Semiquantitative data contribute to decision making, but are not generally used alone to resolve primary decisions. The data are often used to guide investigations toward quantitative data collection and increase the efficiency of the sampling effort.

Table A.1-3
Information Needs to Resolve the Decision I and Decision II Decisions

Information Need	Information Source	Collection Method	Data Type/Metric
Decision I: Determine if a COC is present. Criteria I: Samples must be collected in areas most likely to contain a COC.			
Source and location of release points	Process knowledge compiled during the preliminary assessment and previous investigations of similar sites	Information documented in CSM and public reports – no additional data needed	Qualitative - CSM has not been shown to be inaccurate
	Site visit and field observations	Conduct site visits and document field observations	Qualitative - CSM has not been shown to be inaccurate
	Aerial photographs	Review and interpret aerial photographs	Semiquantitative - Sampling based on biasing criteria stipulated in DQO Step 3
	Radiological surveys	Review and interpret radiological surveys	Semiquantitative - Sampling based on biasing criteria stipulated in DQO Step 3
	Geophysical surveys	Review and interpret surveys	Semiquantitative - Sampling based on biasing criteria stipulated in DQO Step 3
	Field screening	Conduct field screening during the initial sampling to determine if contamination is present at suspected locations	Semiquantitative - Sampling based on biasing criteria stipulated in DQO Step 3
Decision 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 compiled during the preliminary assessment and previous investigations of similar sites	Information reported in the CSM and public reports - no additional data needed	Qualitative - CSM has not been shown to be inaccurate
Analytical results	Data packages of biased samples	Appropriate sampling techniques and approved analytical methods will be used	Quantitative - Detection limits will be less than or equal to PALs
Decision II: Determine the lateral and vertical extent of a COC.			
Identification of applicable COCs	Data packages of Decision I or other prior samples	Review Decision I analytical results and compare to respective PALs to identify COCs	Quantitative - Only COCs identified will be analyzed in future sampling events
Extent of Contamination	Field observations	Document field observations	Qualitative - CSM has not been shown to be inaccurate
	Field screening	Conduct field screening with appropriate instrumentation	Semiquantitative - FSRs will be compared to FSLs
	Decision II analytical results	Appropriate sampling techniques and approved analytical methods will be used to bound COCs	Quantitative - Validated analytical results will be compared to PALs to determine COC extent

Qualitative Data

Qualitative data identifies or describes the characteristics or components of the population of interest. The QA/QC requirements for qualitative data are the least rigorous on data collection methods and measurement systems. Professional judgement is often used to generate qualitative data. The intended use of the data is for information purposes, to refine conceptual models, and to guide investigations rather than resolve primary decisions. This measurement of quality is typically associated with historical information and data where QA/QC may be highly variable or not known. 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 training (i.e., military) personnel may be exposed to contaminants through oral ingestion, inhalation, external (radiological), or dermal contact (absorption) of soil. Laboratory analytical results for soils will be compared to the following PALs to evaluate if COPCs are present:

- EPA *Region IX Risk-Based Preliminary Remediation Goals* for Industrial Soils (EPA, 2002b).
- For detected chemical COPCs without established PRGs that are listed in the EPA IRIS database (EPA, 2002c), the protocol used by the EPA Region 9 in establishing PRGs (or similar) will be used in establishing the PALs.
- Background concentrations for metals are considered when natural background exceeds the PRG, as is often the case with arsenic. 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 (formerly the Nellis Air Force Range) (NBMG, 1998; Moore, 1999).
- TPH action level of 100 mg/kg per the NAC 445A.2272 (NAC, 2002).
- The PALs for radionuclides, except those covered by DOE Order 5400.5 (DOE, 1993), were taken from the construction, commercial, industrial land-use scenario in Table 2.1 of the NCRP Report No. 129, *Recommended Screening Limits for Contaminated Surface Soil and Review Factors Relevant to Site-Specific Studies* (NCRP, 1999). The values provided in this source document are based on a 25 mrem/yr dose but have been scaled to a 15 mrem/yr dose for the purpose of this investigation.
- The PALs for Ra-226, Ra-228, Th-230, and Th-232 and their progeny in secular equilibrium

are the generic guidelines for residual counteractions as found in Chapter IV of DOE Order 5400.5 Change 2, *Radiation Protection of the Public and Environment* (DOE, 1993).

- For radiologically contaminated materials and structures, the total residual surface contamination for unrestricted release of materials and equipment to the general public allowed by DOE Order 5400.5 (DOE, 1993) and as defined in the NV/YMP RadCon Manual (DOE/NV, 2000c).

The selected PALs are based on the EPA Region 9 Industrial Land Use PRGs. The PRGs are risk-based tools for evaluating and cleaning up contaminated sites that estimate contaminant concentrations in environmental media (i.e., soil, air, and water) that EPA considers protective of humans (including sensitive groups) over a lifetime. The toxicity based PALs have been calculated for an Industrial Use scenario. The Industrial Use scenario is applicable to sites at the NTS based on future land-use scenarios as presented in [Section A.1.2.3](#) and agreements between NDEP and NNSA/NSO.

The conservative level of 100 ppm for TPH is based on a regulatory mandate from the State of Nevada and is used as a “clean-up” level.

Radiochemistry PALs are based on a scaling of the NCRP 25 mrem/yr dose-based levels (NCRP, 1999) to a conservative 15 mrem/yr and the recommended levels for certain radionuclides in DOE Order 5400.5 Change 2 (DOE, 1993). These PALs are based on the Construction, Commercial, Industrial land-use scenario provided in the guidance and are appropriate for the NTS based on future land-use scenarios as presented in [Section A.1.2.3](#). These established PALs have been accepted by the regulatory agency for use.

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 as well as all other possible contaminants. This effort will include field screening, soil sampling, and laboratory analysis to determine the presence of COPCs and extent of identified COCs.

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](#).

A.1.4.3.1 Field Screening

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

- *Alpha and Beta/Gamma Radiation* - Handheld radiological survey equipment may be used based on process knowledge, previous radiological surveys, and analytical results that detect radiological activity. The radiological (alpha and beta/gamma) FSL of the mean background activity plus two times the standard deviation of the mean background activity collected from undisturbed locations within the vicinity of the site (Adams, 1998).
- *Gamma Radiation* - Gamma spectroscopy, or an equivalent instrument or method, may be used based on process knowledge, previous radiological surveys, and previous analytical results indicate the potential for gamma-emitting radionuclides to be present.
- *VOCs* - A photoionization detector, or an equivalent instrument or method, may be used to conduct headspace analysis because VOCs are commonly used in degreasers and based on process knowledge decontamination/degreasing activities were potentially conducted at many of the CAs. The VOC FSL is established as 20 ppm or 2.5 times background, whichever is greater.
- *TPH* - A gas chromatograph, or an equivalent instrument or method, may be used because TPH may be present as a result of decontaminating drilling and farm equipment. The TPH FSL is established as 75 ppm.
- *Phosphates* - A phosphate detection kit, or an equivalent instrument or method, may be used because phosphates are commonly used in detergents and fertilizers and based on process knowledge, decontamination/degreasing activities were potentially conducted at some of the CAs as well as fertilizers used on crops used in animal studies.

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

A.1.4.3.2 Soil Sampling

Auguring, direct-push, excavation, drilling, or other appropriate sampling methods will be used to collect soil samples for laboratory analysis. Sample collection and handling activities will be conducted in accordance with the approved procedures.

A.1.4.3.3 Radiological Walk-Overs and Scanning/Swipe Sampling

A radiological survey will be conducted for alpha, and beta/gamma-emitting radionuclides at CAS 06-07-01 on the surface soil within the fenced perimeter of the Area 6 Decontamination Facility. The radiological survey will identify locations potentially contaminated with radionuclides that may require sampling.

Radiological scanning and swipe sampling may be conducted on drain pipes, tanks, etc. for purposes of waste management and future release status. A handheld detector such as an NE Technologies Electra or equivalent instrument, will be used to scan the item of interest. If contamination is indicated, swipe samples will be collected and counted.

A.1.4.3.4 Video Survey

Video surveys will be conducted using a commercial camera system to locate and inspect septic system piping. The video survey will allow a visual assessment of the integrity of the septic system and piping by identifying obvious breaches, unexpected branchings (i.e., tie-ins or off-shoots), open joints, and the presence of material. The septic system piping can be inspected and physically verified to the extent practicable by tracking the camera head inside the piping network. The video survey will not be possible on piping with inside diameters less than 3 in. and may not be possible if there is limited access, pipe damage, blockage, or other factors. Material found in the piping that is representative of the former operations conducted at the CAS will be sampled.

A.1.4.3.5 Concrete Sampling

Samples of concrete will be collected from the concrete decontamination pads located inside and outside of Building 6-605 at CAS 06-07-01. Additional concrete samples may be collected from other pads and/or sumps if biasing factors suggest the need. Samples will be collected from areas of suspected or known contamination identified by the radiological survey and from processes knowledge and field observations (e.g., staining).

A.1.4.3.6 Analytical Program

The analytical program for CAU 543 shown in [Table A.1-4](#) was developed based on the suspected-contaminant information presented in [Section A.1.1](#). The critical and noncritical COPCs identified for CAU 543 vary with each CAS and/or component and are listed in [Table A.1-1](#).

The critical COPCs are given greater importance in the decision-making process relative to other COPCs. For this reason, more stringent performance criteria are specified for critical analyte data quality indicators ([Section 6.0](#)). Noncritical COPCs are defined as classes of contaminants that include all the analytes reported from the respective analytical methods that have PALs; those analytes are listed in [Table A.1-5](#) for the various analytical methods proposed for this CAI. The noncritical COPCs also aid in reducing the uncertainty concerning the history and potential releases from the CASs and help in the accurate evaluation of potential contamination. If a COPC, either critical or noncritical, is detected in any sample at a concentration above the respective PAL, the COPC will be identified as a COC. During Decision II sampling and analysis, all COCs are considered critical parameters. [Section 3.0](#) and [Section 6.0](#) of the CAIP provide the analytical methods and laboratory performance 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. Specific analyses required for the disposal of IDW are identified in [Section 5.0](#) of this CAIP. 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, if any, required for the disposal of IDW are identified in [Section 5.0](#) of the CAIP.

For sampling performed to define the extent of contamination (Decision II), samples will be collected and analyzed only for those COCs identified in samples collected to resolve Decision I. However, if samples are collected to define the extent of contamination prior to nature of contamination data becoming available, the extent samples will be analyzed for the full list parameters given for that CAS. For samples collected to define the extent of contamination, critical analytes are the COCs identified during the Decision I activities that exceed PALs.

Table A.1-4
Analytical Methods for CAU 543
(Includes Environmental and Waste Characterization Analyses)

Analytical Parameter ^a	Analytical Method	
	Liquid	Solid/Sludge
Total Volatile Organic Compounds	SW-846 8260B ^c	SW-846 8260B ^c
TCLP Volatile Organic Compounds	SW-846 8260B	SW-846 8260B
Total Semivolatile Organic Compounds	SW-846 8270C ^c	SW-846 8270C ^c
TCLP Semivolatile Organic Compounds	SW-846 8270C	SW-846 8270C
Total Metals	SW-846 6010B ^c (mercury - 7470A ^a)	SW-846 6010B ^c (mercury - 7471A ^c)
TCLP Metals	SW-846 6010B/7470A	SW-846 6010B/7471A
Polychlorinated Biphenyls	SW-846 8082 ^c	SW-846 8082 ^c
Total Petroleum Hydrocarbons (C ₆ - C ₃₈)	SW-846 8015B ^c (modified)	SW-846 8015B ^c (modified)
Total Pesticides	SW-846 8081 ^c	SW-846 8081 ^c
Total Herbicides	SW-846 8151A ^c	SW-846 8151A ^c
Gamma Spectroscopy (to include Cesium-137, Cobalt-60, and Americium-241 ^b)	EPA Procedure 901.1 ^d	HASL-300 ^e
Strontium-90	ASTM D5811-00 ^f	HASL-300 ^e
Isotopic Uranium	ASTM D3972-02 ^g	ASTM E1000-02 ^h
Isotopic Plutonium	ASTM D3865-02 ⁱ	ASTM C1001-00 ^j

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

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

^cEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition, Parts 1-4, SW-846 (EPA, 1996)

^dPrescribed Procedure for Measurements of Radioactivity in Drinking Water (EPA, 1980)

^eThe Procedures Manual of the Environmental Measurements Laboratory, HASL-300 (DOE, 1997)

^fStandard Test Method for Strontium-90 in Water (ASTM, 2000a)

^gStandard Test Method for Isotopic Uranium in Water by Radiochemistry (ASTM, 2002b)

^hStandard Test Method for Radiochemical Determination of Uranium Isotopes in Soil by Alpha Spectroscopy (ASTM, 2002c)

ⁱStandard Test Method for Plutonium in Water (ASTM, 2002a)

^jStandard Test Method for Radiochemical Determination of Plutonium in Soil by Alpha Spectroscopy (ASTM, 2000b)

ASTM = American Society of Testing and Materials

SW = Solid Waste

TCLP = Toxicity Characteristic Leaching Procedure

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

VOC	SVOC	TPH	PCB	Metals	Radionuclides
1,1,1-Trichloroethane	1,2,4-Trichlorobenzene ^a		Aroclor-1016	Arsenic	Americium-241
1,1,1,2-Tetrachloroethane	1,2-Dichlorobenzene ^a		Aroclor-1221	Barium	Cesium-137
1,1,2,2-Tetrachloroethane	1,3-Dichlorobenzene ^a		Aroclor-1232	Beryllium	Cobalt-60
1,1,2-Trichloroethane	1,4-Dichlorobenzene ^a	DRO, GRO	Aroclor-1242	Cadmium	Eu-152
1,1-Dichloroethane	2,4,5-Trichlorophenol		Aroclor-1248	Chromium	Nb-94
1,1-Dichloroethene	2,4,6-Trichlorophenol		Aroclor-1254	Lead	Radium
cis-1,2-Dichloroethene	2,4-Dichlorophenol		Aroclor-1260	Mercury	Thorium
trans-1,2-Dichloroethene	2,4-Dimethylphenol			Selenium	Plutonium-238
1,2-Dichloroethane	2,4-Dinitrophenol			Silver	Plutonium-239/240
1,2-Dichloropropane	2,4-Dinitrotoluene				Strontrium-90
1,2,3-Trichloropropane	2,6-Dinitrotoluene				Uranium-234
1,2,4-Trimethylbenzene	2-Chloronaphthalene				Uranium-235
1,2-Dibromo-3-chloropropane	2-Chlorophenol				Uranium-238
1,2-Dibromoethane	2-Methylphenol				Other parameters:
1,3,5-Trimethylbenzene	2-Nitroaniline				Gamma-emitting radionuclides
cis-1,3-Dichloropropene	3,3'-Dichlorobenzidine				
trans-1,3-Dichloropropene	4-Bromophenyl phenyl ether				
2-Butanone	4-Chloroaniline				
2-Chlorotoluene	4-Methylphenol				
4-Methyl-2-pentanone	4-Nitrophenol				
Acetone	Acenaphthene				
Benzene	Acenaphthylene				
Bromobenzene	Aniline				
Bromochloromethane	Anthracene				
Bromodichloromethane	Benzo(a)anthracene				
Bromoform	Benzo(a)pyrene				
Bromomethane	Benzo(b)fluoranthene				
Carbon disulfide	Benzo(g,h,i)perylene				
Carbon tetrachloride	Benzo(k)fluoranthene				
Chlorobenzene	Benzoic Acid				
Chloroethane	Benzyl Alcohol				
Chloroform	Bis(2-chloroethoxy) methane				
Chloromethane	Bis(2-chloroethyl)ether				
Dibromochloromethane	Bis(2-chloroisopropyl)ether				
Dibromomethane	Bis(2-ethylhexyl) phthalate				
Dichlorodifluoromethane	Butyl benzyl phthalate				
Ethylbenzene	Carbazole				
Isopropylbenzene	Chrysene				
Iodomethane	Dibeno(a,h)anthracene				
Methyl tertiary butyl ether	Dibenzofuran				
Methylene chloride	Diethyl Phthalate				
N-Butylbenzene	Dimethyl Phthalate				
N-Propylbenzene	Di-n-butyl Phthalate				
sec-Butylbenzene	Di-n-octyl Phthalate				
Styrene	Fluoranthene				
tert-Butylbenzene	Fluorene				
Tetrachloroethene	Hexachlorobenzene				
Toluene	Hexachlorobutadiene ^a				
Trichloroethene	Hexachlorocyclopentadiene				
Trichlorofluoromethane	Hexachloroethane				
Trichlorotrifluoroethane	Indeno(1,2,3-cd)pyrene				
Vinyl acetate	Isophorone				
Vinyl chloride	Naphthalene ^a				
Xylene	Nitrobenzene				
	N-Nitroso-di-n-propylamine				
	N-Nitrosodimethylamine				
	N-Nitrosodiphenylamine				
	Pentachlorophenol				
	Phenanthrene				
	Phenol				
	Pyrene				
	Pyridine				

^aMay be reported with VOCs

A.1.5 Step 4 - Define the Boundaries of the Study

The purpose of this step is to define the target population of interest, specify the spatial and temporal features of the 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 decisions.

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 locations adjacent to the COC plume where COC concentrations are less than PALs.

A.1.5.2 Identify the Spatial and Temporal Boundaries

The spatial boundaries for each CAS are defined as the vertical or horizontal boundaries beyond which the CSM and/or the scope of the investigation will require reevaluation.

The spatial boundaries that apply to Decision I (determine the presence of a COC) are the sample locations selected to satisfy the criteria for Decision I samples. In general, geographic boundaries are defined by the area impacted from releases attributed to each CAS. Intrusive activities are not intended to extend into the boundaries of neighboring areas of environmental concern (e.g., other CASs). The spatial boundaries for the components each CAS are listed in [Table A.1-6](#).

Temporal boundaries are those time constraints set up by weather conditions and project schedules. Significant temporal constraints due to weather conditions are not expected. Moist weather may place constraints on sampling and field screening contaminated soils because of the attenuating effect of moisture in samples (e.g., alpha-emitting radionuclides). There are no time constraints on collected samples as environmental conditions at all sites 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

Practical constraints include underground and overhead utilities, rough terrain, access restrictions such as scheduling conflicts at the NTS, posted contamination area requirements, physical barriers

Table A.1-6
CAU 543 Spatial Boundaries

CAS/Component	Spatial Boundary	
	Horizontal	Vertical
Area 6 Decontamination Facility	50-ft buffer around perimeter fence for general CAS; The TPH Use Restriction on northwest corner of Building 6-605 will not be entered.	A maximum of 20 ft bgs
Septic and Process waste line piping at all CASs	20 ft laterally from piping	A maximum of 20 ft bgs
Septic Tanks and Sumps at Area 6	20 ft laterally from edges of tank features and all junctions	A maximum of 20 ft bgs
Aboveground Storage Tank	Includes a 20-ft lateral buffer from sides of the AST berm; length of piping to holding pen and Building 15-06; drain box at holding pen; distribution box; 20-ft lateral boundary from all these components	A maximum of 20 ft bgs
Liquid Manure Tank	20-ft lateral buffer around edges of tank; 20-ft lateral buffer around concrete pad; 20-ft lateral from any piping	A maximum of 20 ft bgs
Contaminated Sump	20-ft lateral buffer around edges of the sump	A maximum of 30 ft bgs
Clean-Out Boxes; Drain Boxes; Collection Boxes	15-ft lateral buffer from the sides of features	A maximum of 20 ft bgs
Leachfields	50-ft lateral buffer from leach lines	A maximum of 30 ft bgs from base of piping
Contaminated Surface Soil Areas	50-ft lateral buffer from designated boundaries (e.g., fence, rope, posted area)	A maximum of 20 ft bgs

(e.g., fences, steep slopes), and areas requiring authorized access. Underground utilities surveys will be conducted at each CAS prior to the start of investigation activities to determine if utilities exist, and, if so, determine the limit of spatial boundaries for intrusive activities. No other practical constraints have been identified.

A.1.5.4 Define the Scale of Decision Making

The scale of decision making in Decision I is defined as each CAS. The scale of decision making for Decision II is defined as a contiguous area contaminated with any COC originating from the CAS.

A.1.6 Step 5 - Develop a Decision Rule

This step integrates outputs from the previous step 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 Decision I data collected from biased sample locations is the maximum observed concentration of each COC within the target population.

The population parameter for Decision II 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 and discussed in [Section A.1.4.2](#). As appropriate, action levels may also be the unrestricted release criteria given in the NV/YMP RadCon Manual (DOE/NV, 2000c).

A.1.6.3 Decision Rule

If the concentration of any COPC in a target population exceeds the PAL for the COPC in a Decision I sample, then that COPC is identified as a COC and sampling to define the extent of contamination (Decision II) will be conducted. If the Site Supervisor determines that an indicator

(e.g., staining) is present, then Decision II sampling may be conducted. If all COPC concentrations are less than the corresponding PALs, then the decision will be no further action.

Sample analyses conducted during this investigation will be sufficient to characterize the contents, if any, of a septic tank for clean closure according to the NAC.

If the observed population parameter of any COC in a Decision II sample exceeds the PALs, then additional samples will be collected. 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/or vertical direction(s).

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

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

The approach for Decision I and II sampling for all CASSs, with the exception of CAS 15-23-01 and the Contamination Area component of CAS 06-07-01, relies on biased sampling locations. Only validated analytical results (quantitative data) will be used to determine if COCs are present (Decision I) or the extent of a COC (Decision II), unless otherwise stated. The baseline condition (i.e., null hypothesis) and alternative condition for Decision 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 Decision 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 rejection) or beta (false acceptance) error associated with their determination (discussed in the following subsections). Since quantitative data are individually compared to action levels, statistical evaluations of the data such as averages or confidence intervals are not appropriate.

Statistical analysis is will be used in addition to bias sampling to determine the number Decision I sample locations at CAS 15-23-01 and the storage yard at CAS 06-07-01. Inputting parameters into standard statistical equations for calculating the required number of sample locations at these CAs resulted in 9 sample locations at CAS 15-23-01 and 16 sample locations at CAS 06-07-01.

A.1.7.1 False Rejection Decision Error

The false rejection (alpha) decision error would mean:

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

In both cases, the consequence is the increased risk to human health and the environment.

In Decision I, a false rejection decision error (where consequences are more severe) is controlled by meeting these criteria: (1) having a high degree of confidence that the sample locations selected will identify COCs if present anywhere within the CAS, and (2) having a high degree of confidence that analyses conducted will be sufficient to detect any COCs present in the samples. For Decision II, this error is reduced by: (1) having a high degree of confidence that the sample locations selected will identify the extent of COCs; (2) having a high degree of confidence that analyses conducted will be sufficient to detect any COCs present in the samples; and (3) having a high degree of confidence that the dataset is of sufficient quality and completeness.

To satisfy the first criterion, Decision I data and samples will be collected in areas most likely to be contaminated by any COCs. In Decision II, data collection will sample areas that represent the lateral and vertical extent of contamination. The following characteristics are considered during both Decisions to accomplish the first criterion:

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

These characteristics were considered during the development of the CSMs and selection of sampling locations. The biasing factors listed in [Section A.1.6.1](#) will be used to further ensure that these criteria are met.

To satisfy the second criterion, all Decision I samples will be analyzed for the chemical and radiological parameters listed in [Table A.1-4](#). Decision II samples will be analyzed for those chemical and radiological parameters that identified unbounded COCs.

To satisfy the third criterion, 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. Critical parameters/analytes identified as COPCs are discussed in [Section A.1.1](#). 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 protocol also protects against false negatives.

A.1.7.2 False Positive Decision Error

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

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

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

The false positive decision error is controlled by protecting against false positive analytical results. False positive results are typically attributed to laboratory and/or sampling/handling errors. Quality control 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 Statistical Model

In the absence of biasing factors for surface contamination, sampling locations need to be determined with the use of a randomization technique. Chapter 9 of EPA SW-846 defines the methodology suggested to determine the sufficient number of samples to be taken to ensure a 90 percent confidence

level in the COPC concentration. This method is used here to determine the number of random sampling locations required at CAS 15-23-01 and the Contamination Area component of CAS 06-07-01. SW-846 makes the following assumptions:

- A regulatory threshold for the contaminant of concern has been defined.
- The COPC is uniformly distributed throughout the waste form.
- The concentration of the COPC is normally distributed.
- There is a positive analytical result for the contaminant of concern in each sample.
- The regulatory threshold exceeds the mean concentration of the contaminant.

Although some of these assumptions may not hold true for the radiological contaminants, the EPA SW-846 method can still be used to predict the number of samples required to reach the 90 percent confidence level. If the 90 percent confidence level of the mean concentration of the contaminant exceeds the regulatory threshold, the solid waste is assumed to contain the contaminant of concern at a hazardous level. [Appendix A.3](#) provides a discussion of assumptions and the calculations used to determine the number of samples required at CAS 06-07-01, Contaminated Area and CAS 15-23-01.

A.1.7.4 Quality Assurance/Quality Control

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

Quality control samples will be collected as required by the Industrial Sites QAPP (NNSA/NV, 2002) and in accordance with established procedures. The required QC 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 are collected)
- Field blanks (minimum of 1 per 20 environmental samples, or 1 per CAS if less than 20 are collected per sampling day)
- MS/MSD (minimum of 1 per matrix per 20 environmental samples or 1 per CAS if less than 20 are collected; not required for all radionuclide measurements)

Additional QC samples may be submitted based on site conditions.

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

This section presents an overview of the resource-effective strategy planned to obtain the data required to meet the project DQOs developed in previous six steps. [Section A.1.8.1](#) provides general investigation strategy, and [Section A.1.8.2](#) provides the detailed sampling approach to resolve the decision statement for CAU 543. As additional data or information is obtained, this step will be reevaluated and refined, if necessary, to reduce uncertainty and increase the confidence that the nature and extent of contamination is accurately defined.

A.1.8.1 General Investigation Strategy

The initial activities to be conducted will be a visual inspection and photodocumentation of the area of all CASs and CAS components. A judgmental or biased sampling design (a nonprobabilistic approach) has been developed for the general investigation strategy for CAU 543 with the exception of CAS 15-23-01 and the Contamination Area component of CAS 06-07-01 in which a combination of judgmental and random (probabilistic) sampling will be implemented. This sampling approach focuses on specific sampling locations to support the decision statements presented in [Section A.1.3](#) and the migration and release pathways identified in the CSMs. Chapter 7 of the EPA QA/G-4HW guidance document (EPA, 2000a) allows for judgmental (biased) sampling when chosen locations are based on expert knowledge of contamination sources and history of the sites.

For the CASs or CAS components that include septic tanks, distribution boxes, USTs, and ASTs, the initial visual inspection will also include accessing and opening tanks to document details on the tank contents. Additional liquid and solid samples will be collected for waste characterization purposes from these components if present and accessible. Based on the results of the radiological survey of the concrete surfaces, swipes may be collected and analyzed on site for removable radiological contaminants. Based on biasing factors, scabbling of the concrete may be conducted to collect samples for off-site analysis of chemical and radiological contaminants.

Most of the CASs and components of CASs have elements of an effluent collection and distribution system that involves subsurface piping. At these areas a video survey will be conducted from within the associated piping to identify residual material, breaches, or unknown tie-ins. Site conditions and

conditions of the piping may not allow a 100 percent video survey. If the video survey identifies breaches and/or conditions that may have provided a means for effluent reach to the surrounding soils, then Decision I samples may be collected at those locations for laboratory analysis. If residual material is present and of an adequate volume, a sample will be collected for analysis. If no breaches or residual effluent is identified during the survey, than Decision I sampling adjacent to and within the buried portions of the pipelines will not be necessary.

Following the initial visual inspection and/or video surveys, Decision I soil sample locations will be identified and collected for laboratory analysis. The selection of theses locations considers the biasing factors listed in [Section A.1.4.1](#) and features of the CSM. If site conditions are encountered during the Decision I surface sampling or the video survey results suggest shallow subsurface contamination exists, then subsurface Decision I samples may be collected immediately. Decision I surface and shallow subsurface soil samples will be collected for laboratory analysis of the parameters identified in [Section A.1.4.3.6](#).

Decision II (step-out) sampling locations at each CAS will be selected based on the outer boundary sample locations where COCs were detected in the Decision I samples. Decision II locations will also be selected based on the elements of the CSM and other biasing factors. If biasing factors indicate a COC extends beyond the planned step-outs (i.e, field screening), locations may be modified or additional Decision II samples may be collected from incremental step-out locations as determined by the project staff. Initial step-outs will be at least as deep as the vertical extent of contamination defined at the Decision I location and the depth of the incremental step-outs will be based on the deepest contamination observed at all locations. For subsurface sampling locations, generally two consecutive soil samples with results below field-screening action levels are required to define the vertical extent of contamination. Generally, the uppermost “clean” sample from each location will be submitted for laboratory analysis. Contaminants determined not to be present in Decision I samples may be eliminated from Decision II analytical suites.

Due to the nature of buried features possibly present (e.g., structures and utilities), sample locations may be relocated, based upon actual field conditions, review of engineering drawings, and information obtained during the site visit. However, the new locations will meet the decision needs and criteria stipulated in [Section A.1.4.1](#).

A.1.8.2 Detailed Investigation Strategy

The following sections discuss the more detailed CAS- and CAS component-specific investigation activities, including proposed sample locations.

A.1.8.2.1 CAS 06-07-01, Area 6 Decontamination Facility

The detailed investigation strategy for the Area 6 Decontamination Facility will be discussed based on the various components of the CAS including effluent collection system, decontamination pads, Building 6-605, and the Contamination Area.

Effluent Collection/Distribution System - Prior to Decision I sampling, a video mole survey will be performed on as much of the subsurface piping as practical to identify breaks, residual materials, and location of sumps/tanks. Excavation may be performed to locate the subsurface sumps and septic tanks. If any breaches are identified within the piping, excavation and Decision I subsurface soil sampling will be implemented. Additional Decision I soil sampling will be performed at the junctions of subsurface piping at Sump 1, Sump 2, and the two septic tanks associated with Buildings 6-605 and 6-607 assuming all these components are still present. Decision I soil samples will be collected near the base of the sumps and septic tanks to capture potential leaks. Decision I samples will be collected on any residual sediments or liquids identified in the piping, sumps, and septic tanks for waste management purposes. See [Figure A.1-7](#) for proposed sample locations.

Decision II step-out samples may be collected, as described in [Section A.1.8.1](#). The Site Supervisor will determine if Decision II sampling is appropriate based on biasing factors, primarily field screening of Decision I samples.

Decontamination Pads - Decision I soil samples will be collected from the surface soils surrounding the edges of the outdoor concrete pads adjacent to Buildings 6-605 and 6-606 to capture potential contaminated run-off. The concrete will be scabbled at visibly stained areas and concrete samples will be collected for Decision I analysis. Decision I samples will be collected from any residual sediment still remaining within the pad trench or floor drains. [Figure A.1-7](#) shows the proposed sample locations.

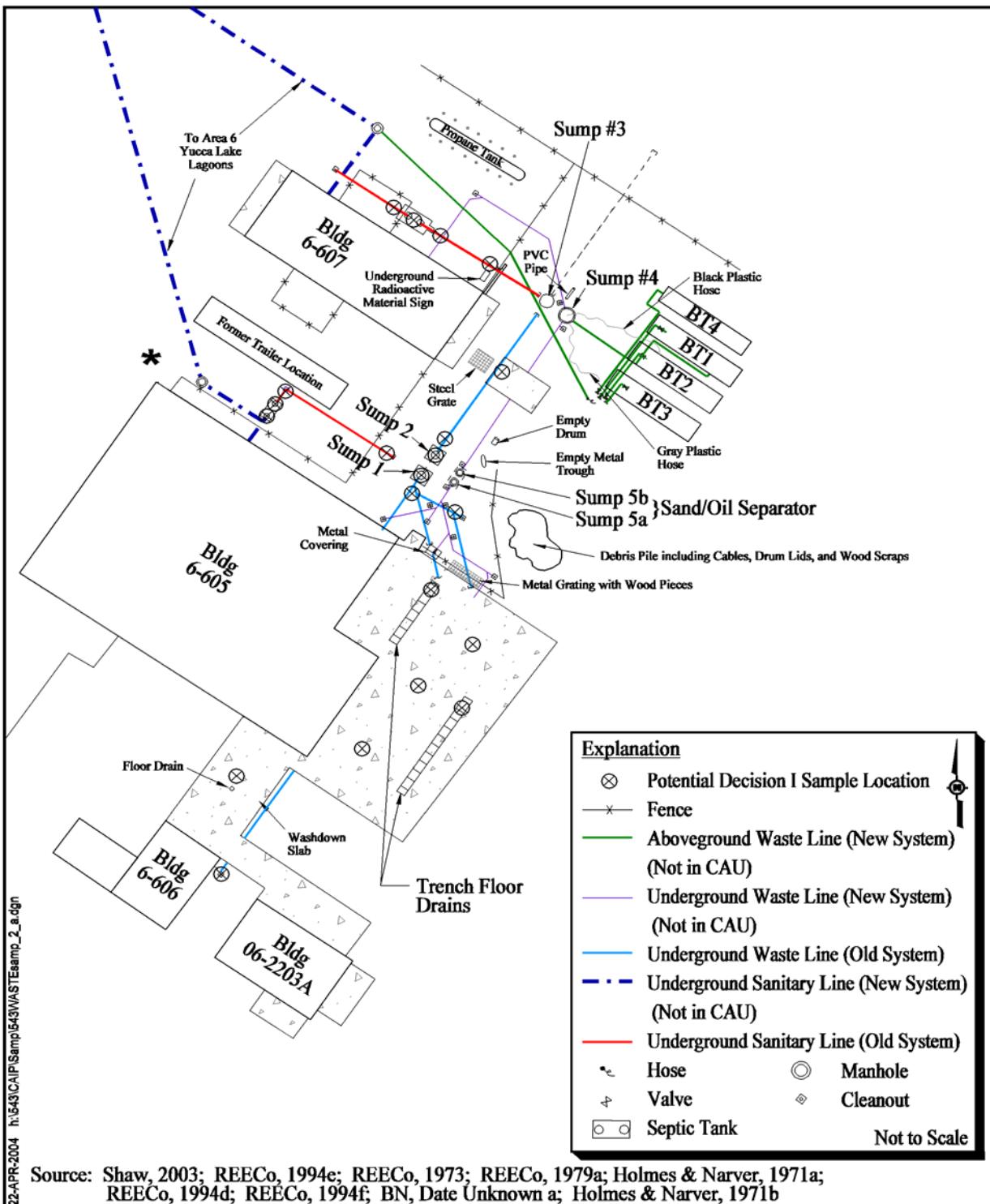


Figure A.1-7
CAU 543, CAS 06-07-01, Decon Pad, Septic System, and Piping
Proposed Decision I Sample Locations

Decision II step-out samples may be collected, as described in [Section A.1.8.1](#). The Site Supervisor will determine if Decision II sampling is appropriate based on biasing factors, primarily field screening of Decision I samples.

Building 6-605 - Decision I sample collection will be implemented for components within Building 6-605 to determine future waste disposal actions of building materials. All drains, trenches, and piping within the building will be inspected for remaining residual sediments/materials. If residual material is present, Decision I samples will be collected. If biasing factors indicate the need, concrete within the building floors may be scabbled and sampled for analysis. The remaining caustic dip tanks will be accessed and inspected for residual materials. Any remaining liquids and/or solids present will be collected for Decision I sample analysis. Radiological scanning and swipe collection will be conducted during Decision I sampling to determine the status of building materials and equipment for free release criteria. It is expected that the nature of Decision I sampling will most likely provide sufficient information on the extent of contamination for Building 6-605 so that Decision II sampling may not be necessary. See [Figure A.1-8](#) for proposed sample locations.

Contamination Area - A statistically based and biased sampling approach will be implemented during Decision I sampling of the surface soils within the area designated as the Contamination Area. A total of 16 random surface samples has been determined sufficient to satisfy the criteria of a 90 percent confidence level in the COPC concentration as determined by the methodology defined in Chapter 9 of EPA SW-846. The 16 sample locations have been randomly generated using the VSP program and will be within the boundary of the Contamination Area. [Figure A.1-9](#) shows the proposed surface soil sample locations. Additional biased samples may be collected where deemed appropriate.

Decision II step-out samples may be collected, as described in [Section A.1.8.1](#). The Site Supervisor will determine if Decision II sampling is appropriate based on biasing factors, primarily field screening of Decision I samples.

A.1.8.2.2 Area 15 EPA Farm

Discussions of the detailed investigation strategy for the Area 15 EPA Farm will be grouped based on related or similar CAs. The groups will be the septic system and leachfield (CAs 15-04-01 and

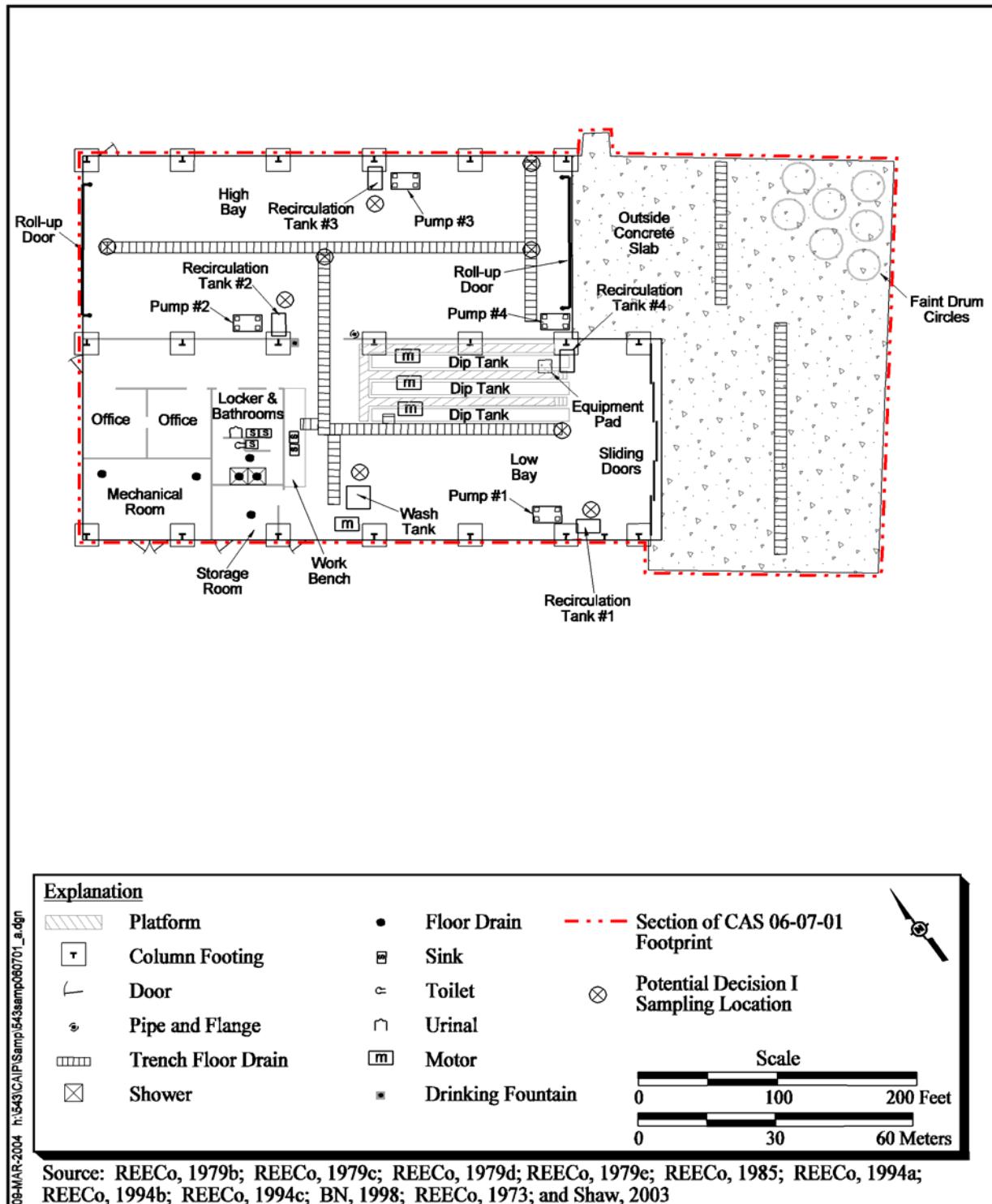


Figure A.1-8
CAU 543, CAS 06-07-01, Potential Decision I Sample Locations

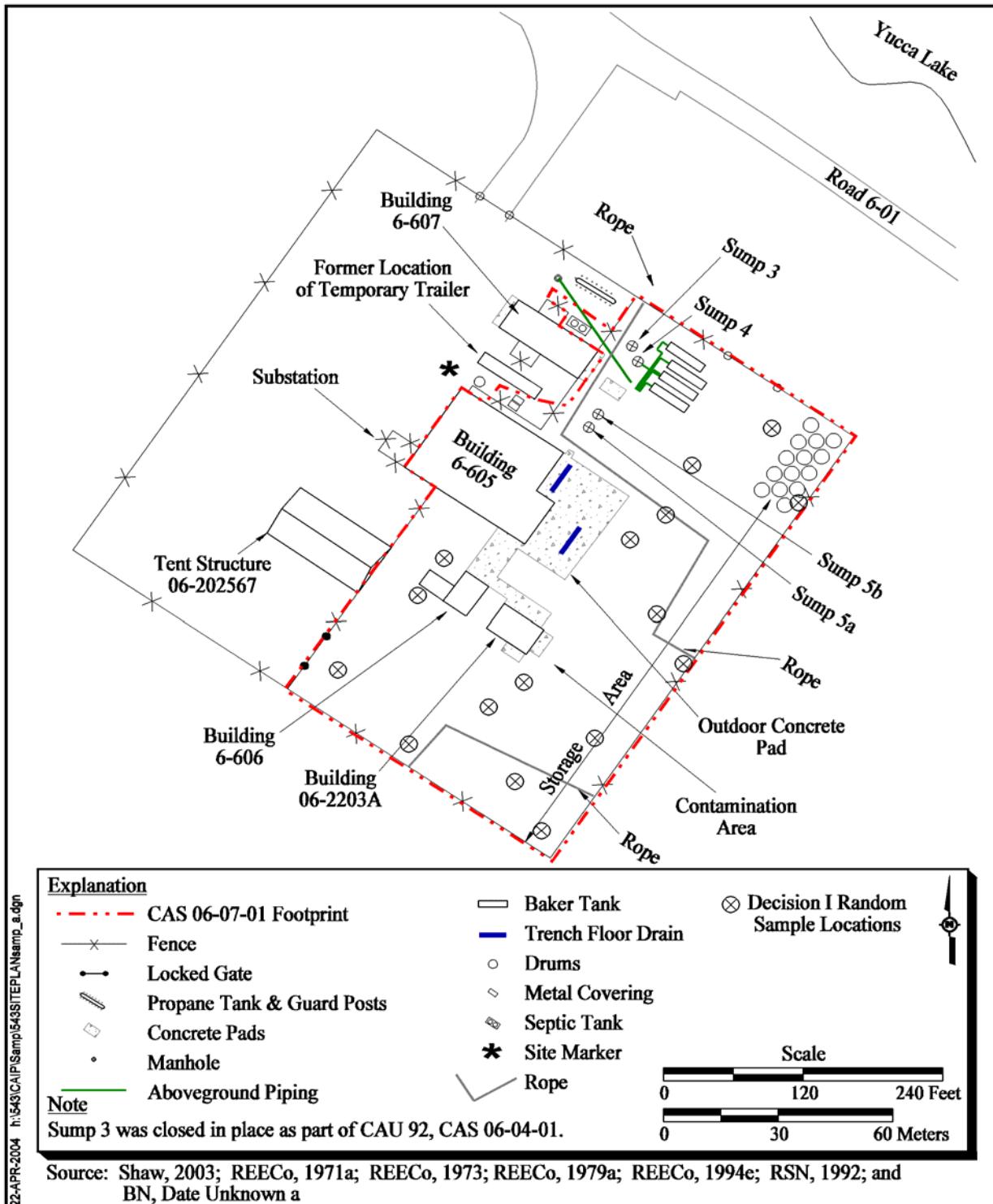


Figure A.1-9
CAU 543, CAS 06-07-01, Decon Pad,
Proposed Decision I Random Sampling Locations

15-05-01); liquid manure underground storage tank and concrete pad (15-08-01); the contaminated sump and AST (CASs 15-23-03 and 15-01-03); and the decontamination area (CAS 15-23-01).

Septic Tank and Leachfield System, CASs 15-04-01 and 15-05-01

Prior to Decision I sampling, a video mole survey will be performed to identify residual materials, breaches, location of the septic tank if still present, and the end of distribution lines. Excavation will be performed to access and inspect the septic tank and distribution box for integrity. Decision I soil sampling will be conducted below the septic tank inlet and outlet, the outlet from Building 15-06, the distribution box inlet/outlet, below the tank and box, and locations of identified breaches within any part of the system. Decision I activities at the Leachfield will consist of excavating to locate the boundaries of the leachfield, exposing the midpoint, and the proximal and distal ends of the associated perforated distribution pipes, and collecting biased samples from soil beneath the leachrock/native soil interface at the midpoint, and proximal and distal ends of the distribution pipes. If the interface cannot be identified, then samples will be collected directly beneath the distribution pipes.

The contents of the septic tank and distribution box will be sampled during Decision I for waste management purposes. Any remaining residual materials within piping or the clean out will also be sampled provided enough volume is present. [Figure A.1-10](#) and [Figure A.1-11](#) show the proposed sampling locations for the septic tank and leachfield systems, respectively.

Decision II step-out samples may be collected, as described in [Section A.1.8.1](#). The Site Supervisor will determine if Decision II sampling is appropriate based on biasing factors, primarily field screening of Decision I samples.

CAS 15-08-01, Liquid Manure Tank

Prior to collecting Decision I samples, a video mole survey will be performed to identify if piping connects to the tank or is broken and if residual materials are present. Decision I subsurface soil samples will be collected from below the manure tank inlet and outlet and base of tank and at identified breaches within the piping. Surface soil samples will be collected at the liquid waste transfer point. Decision I surface soil samples will be collected at the outfall located to the south of

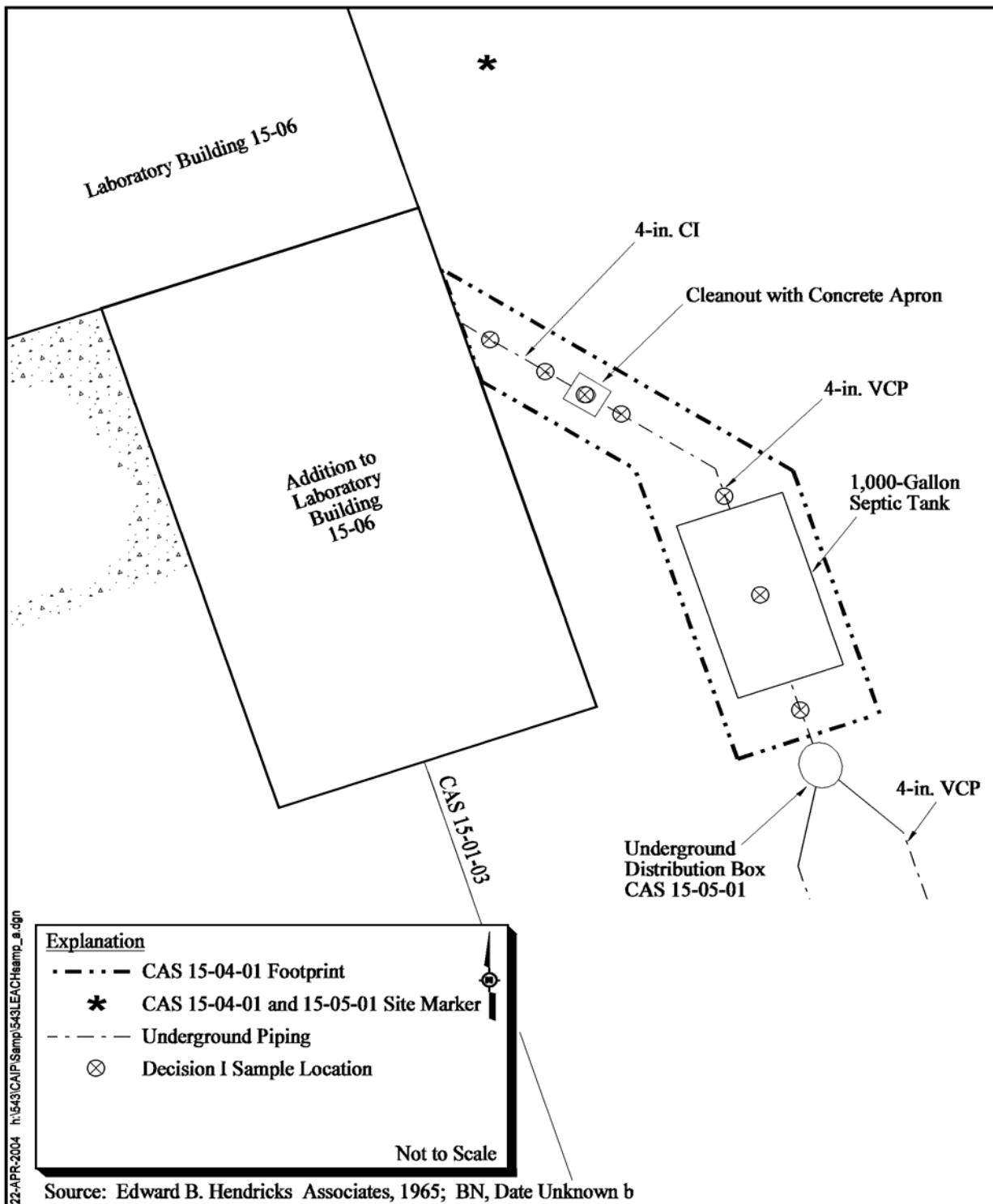


Figure A.1-10
CAU 543, CAS 15-04-01, Septic Tank
Proposed Decision I Sample Locations

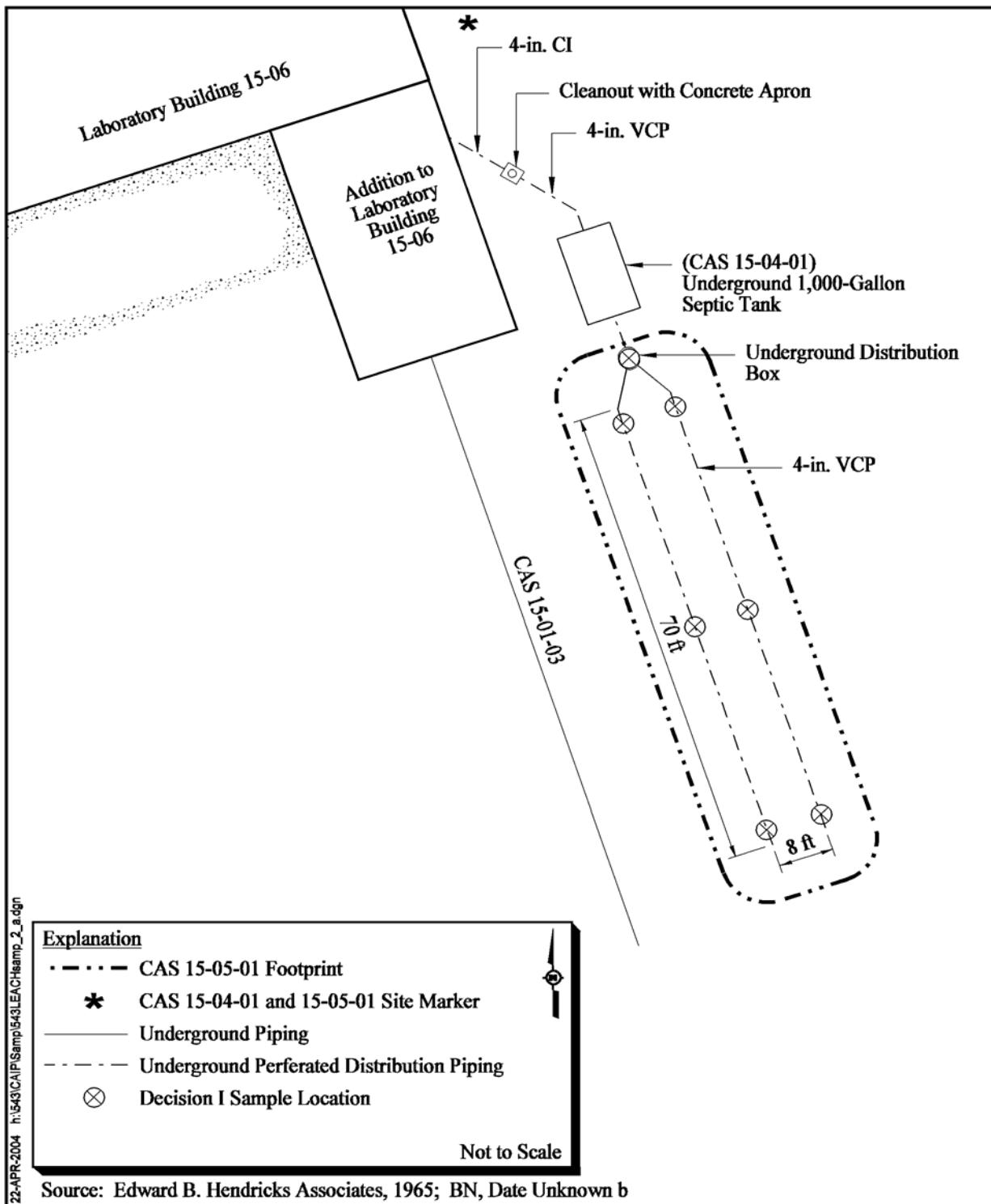


Figure A.1-11
CAU 543, CAS 15-05-01, Leachfield
Proposed Decision I Sample Locations

the tank. Tank contents will be sampled if present. [Figure A.1-12](#) shows the proposed sample locations.

Decision II step-out samples may be collected, as described in [Section A.1.8.1](#). The Site Supervisor will determine if Decision II sampling is appropriate based on biasing factors, primarily field screening of Decision I samples.

CAS 15-23-03, Contaminated Sump

Prior to Decision I sampling, a video mole will be performed along the piping from the sump outfall to the distribution box to identify breaches and residual material. Decision I subsurface soil samples will be collected below the distribution box at the effluent end and breaches in the piping. The piping will be sampled to determine if transite. Decision I soil samples will be collected below the outfall pipe and within the sump.

Decision II step-out samples may be collected, as described in [Section A.1.8.1](#). The Site Supervisor will determine if Decision II sampling is appropriate based on biasing factors, primarily field screening of Decision I samples. [Figure A.1-13](#) shows the proposed sample locations for Decision I.

CAS 15-01-03, Aboveground Storage Tank

Decision I investigation at this CAS includes the soils at the AST, the AST, and piping that extends from the AST to the distribution box to Building 15-06 and the holding pen concrete drain box. Prior to sampling, a video mole survey will be performed to identify breaches or residual materials. Decision subsurface soil samples will be collected at identified breaks and the distribution box inlet and outlet. Surface soil samples will be collected from the base of the AST near the tank staining and at the transfer point of liquid waste. The piping at the transfer point will be sampled for potential ACM. Soil beneath the junctions at the concrete drain box and Building 15-06 will also be sampled during Decision I investigation.

Decision II step-out samples may be collected, as described in [Section A.1.8.1](#). The Site Supervisor will determine if Decision II sampling is appropriate based on biasing factors, primarily field screening of Decision I samples. [Figure A.1-14](#) shows the proposed sample locations for Decision I.

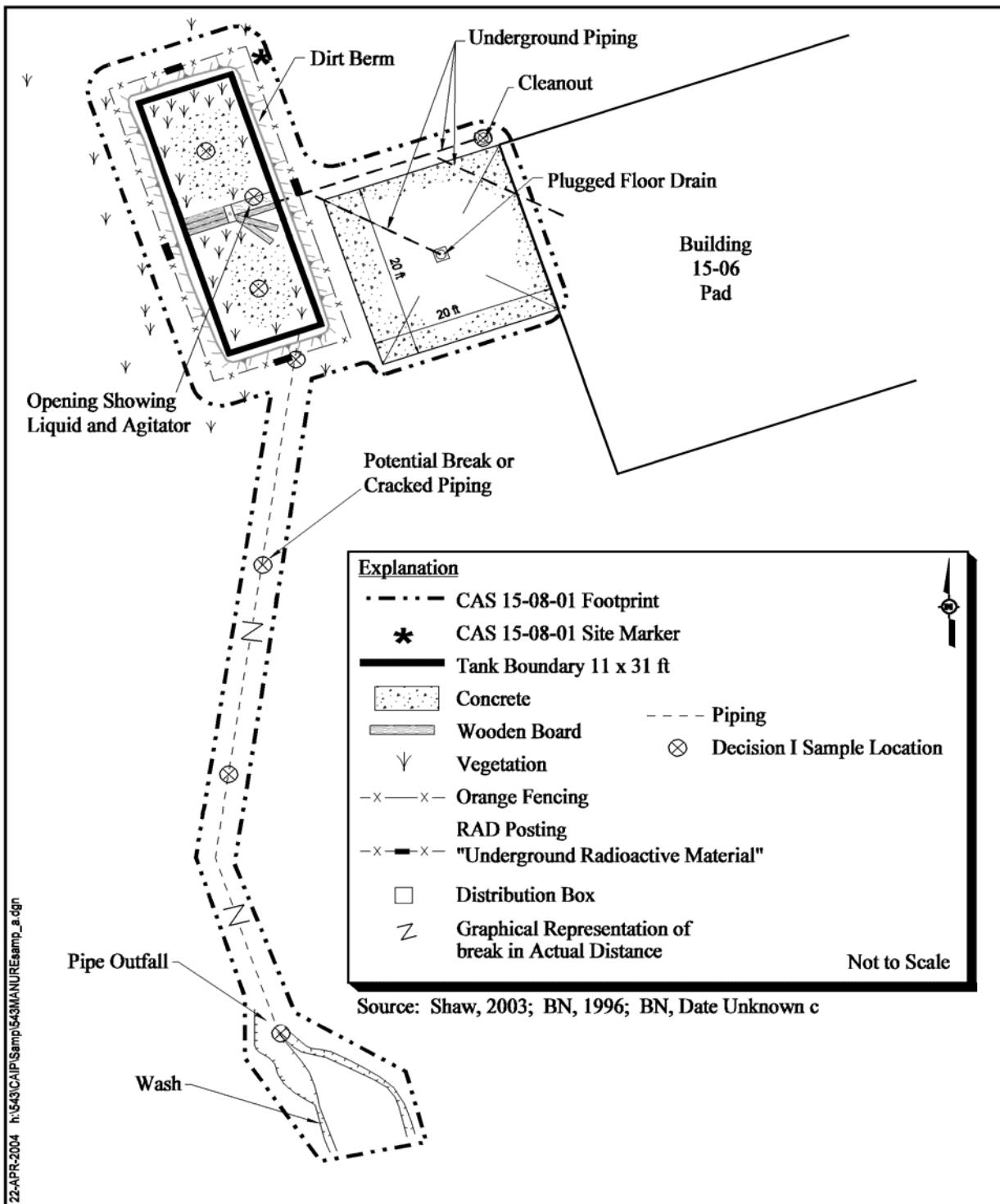


Figure A.1-12
CAU 543, CAS 15-08-01, Liquid Manure Tank
Proposed Decision I Sample Locations

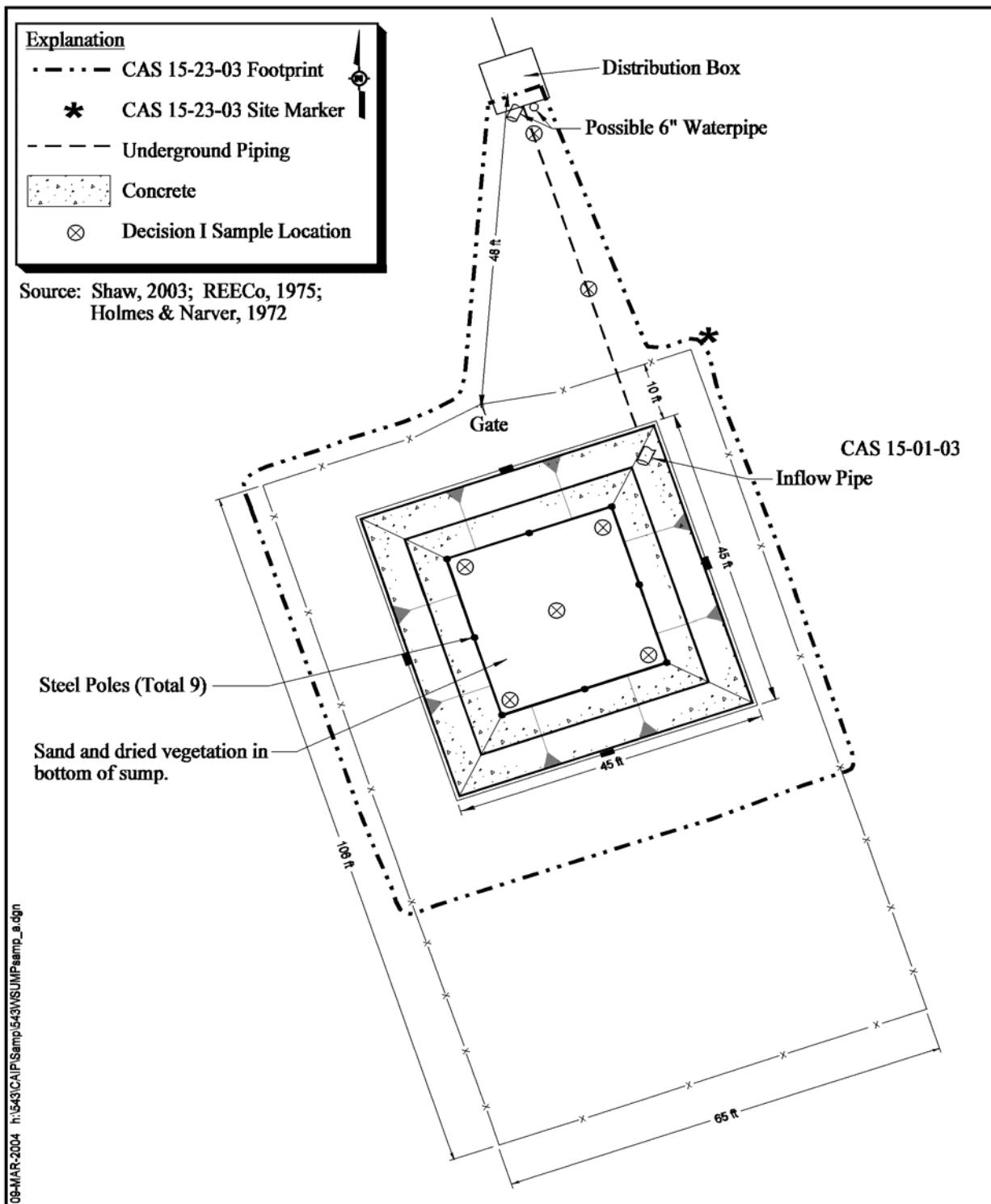


Figure A.1-13
CAU 543, CAS 15-23-03, Contaminated Sump, Piping
Proposed Decision I Sample Locations

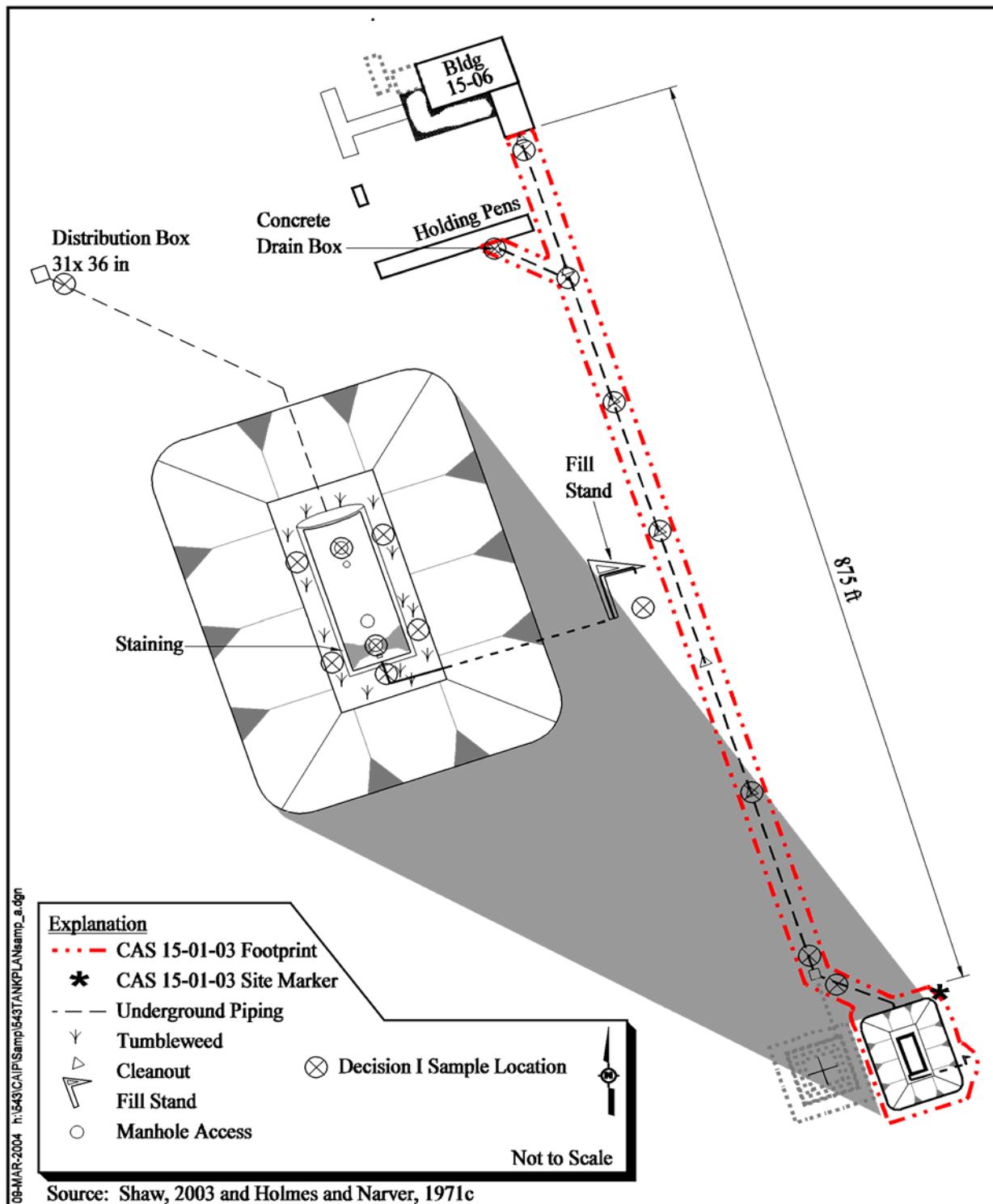


Figure A.1-14
CAU 543, CAS 15-01-03, Aboveground Storage Tank
Proposed Decision I Sample Locations

CAS 15-23-01, Decontamination Pad

The Decision I investigation involves the surface soils located beneath and surrounding the PSP located on the ground. A radiological survey will be performed to determine if elevated radiological conditions exist. A shallow excavation may be performed to determine if a sump is present below the PSP. If biased sample locations are observed, Decision I soil samples will be collected. A statistical sampling approach is being implemented for the surface soils at this CAS. A total of 9 surface samples will be collected within the area of the PSP to meet the 90 percent confidence level in the COPC concentration as determined by the methodology defined in Chapter 9 of EPA SW-846.

Decision II step-out samples may be collected, as described in [Section A.1.8.1](#). The Site Supervisor will determine if Decision II sampling is appropriate based on biasing factors, primarily field screening of Decision I samples. [Figure A.1-15](#) shows the proposed random sampling locations.

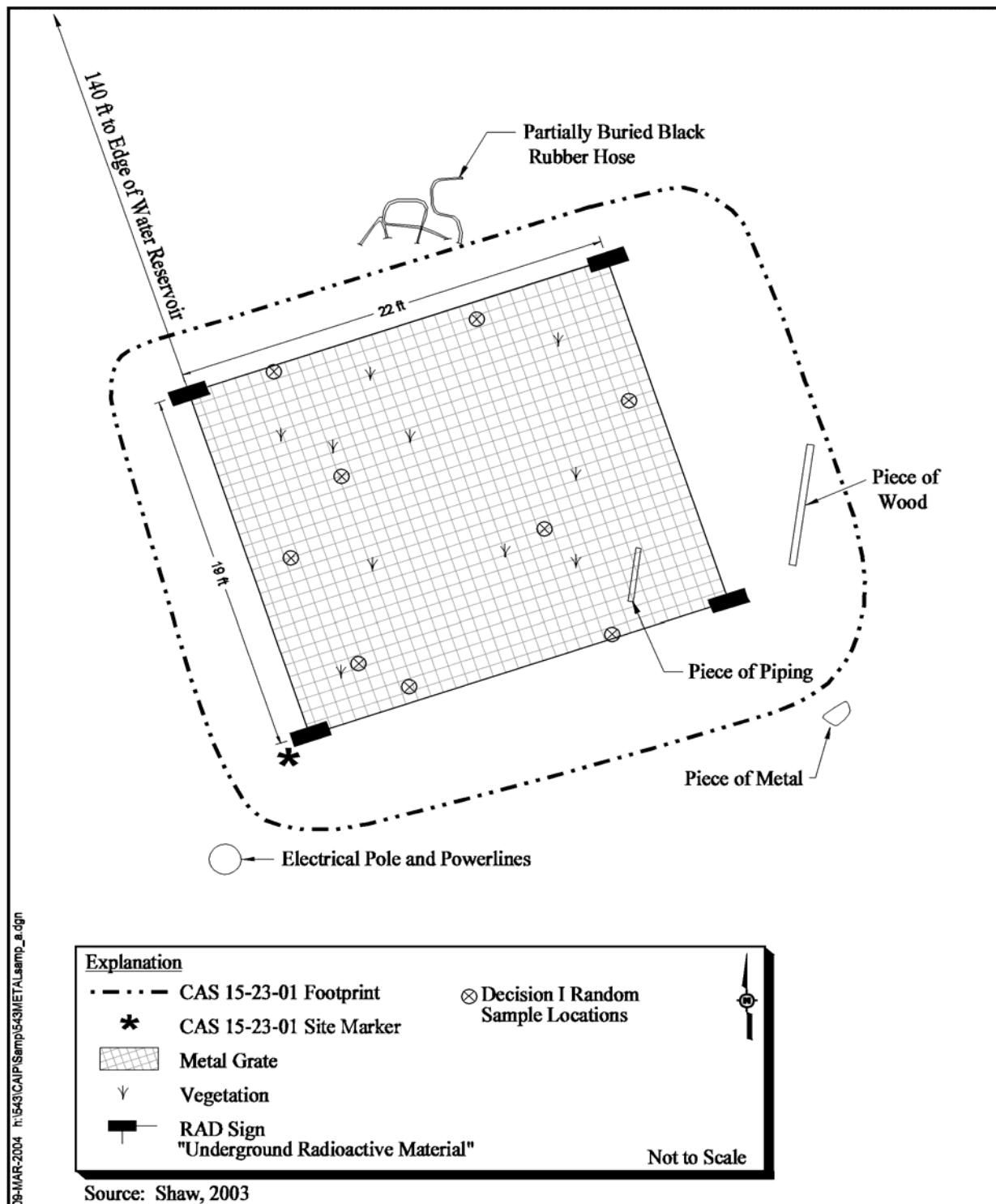


Figure A.1-15
CAU 543, CAS 15-23-01, Underground Radioactive Material Area
Proposed Decision I Random Sample Locations

A.1.9 References

ASTM, see American Society for Testing and Materials.

Adams, S., IT Corporation. 1998. Memorandum to R. McCall (Science Applications International Corporation) regarding methodology for determining action levels for CAU 407, the Roller Coaster RADSAFE Area, 16 June. Las Vegas, NV.

Adams, S., IT Corporation. 2002. Memorandum to B. Iverson (GeoTrans) entitled, "Radiological Contaminants of Potential Concern (COPC) at the Bunkers of Corrective Action Unit (CAU) 204," 29 March. Las Vegas, NV.

American Society for Testing and Materials. 2000a. *Standard Test Method for Strontium-90 in Water*, D5811-2000. Philadelphia, PA.

American Society for Testing and Materials. 2000b. *Standard Test Method for Radiochemical Determination of Plutonium in Soil by Alpha Spectroscopy*, C1001-2000. Philadelphia, PA.

American Society for Testing and Materials. 2002a. *Standard Test Method for Plutonium in Water*, D3865-02. Philadelphia, PA.

American Society for Testing and Materials. 2002b. *Standard Test Method for Isotopic Uranium in Water by Radiochemistry*, D3972-2002. Philadelphia, PA.

American Society for Testing and Materials. 2002c. *Standard Test Method for Radiochemical Determination of Uranium Isotopes in Soil by Alpha Spectroscopy*, E1000-2002. Philadelphia, PA.

BN, see Bechtel Nevada.

Barth, D., U.S. Environmental Protection Agency (Retired). 2003. Telecon with A. Steed (SAIC) and B. Iverson (GeoTrans) regarding the EPA Farm, 13 February. Las Vegas, NV.

Bechtel Nevada. Date Unknown a. Engineering drawing SK-006-03-C11 entitled, "CP and Yucca Lake Area Existing Sewage Systems Site Plan." Las Vegas, NV.

Bechtel Nevada. Date Unknown b. Engineering drawing JS-015-06-M4 entitled, "Nevada Test Site Area 15 Demolition Plans CAU 95 EPA Farm Building 15-06 Soil, Waste and Vent Plan." Mercury, NV: Archives & Records Center.

Bechtel Nevada. Date Unknown c. Engineering drawing JS-015-06-C1 entitled, "Nevada Test Site - Area 15, Demolition Plans CAU 95 EPA Farm Building 15-06 Site Plan," Las Vegas, NV.

Bechtel Nevada. 1996. Engineering drawing JS-015-139-E1 entitled, "Nevada Test Site – Area 15, NTS Retrofit Power Metering System In-House Energy Management Systems (Phase 1B) Plans, Elevation & Diagram," Las Vegas, NV.

Bechtel Nevada. 1998. Engineering drawing FWR-98223-A06-M1 entitled, "Decon Shower Decontamination Facility Bldg 605 Demolition and Floor Plan," 3 November. Las Vegas, NV.

Betrand, K., Bechtel Nevada. 2003. Record of Telecon with B. Bailey (Shaw) regarding CAS 06-07-01, 2 June. Las Vegas, NV.

Bicker, A.E., Reynolds Electrical & Engineering Co., Inc. 1988. Memorandum to B.P. Smith (REECO) entitled, "Control of Effluent from Building 650 and the Area 6 Decontamination Facility," 17 November. Las Vegas, NV.

Bielawski, J.P., Reynolds Electrical & Engineering Co., Inc. 1994. Memorandum to D.S. Gilmore (REECO) entitled, "Decontamination Facility Upper Wastewater System Construction Approval and Additional Sampling," 23 March. Las Vegas, NV.

Bingham, F.E., Reynolds Electrical & Engineering Co., Inc. 1990. Memorandum to the Files entitled, "Telephone Call from David McNelis on Area 6 Decontamination (Decon) Pond Problem," 3 January. Las Vegas, NV.

Bingham, F.E., Reynolds Electrical & Engineering Co., Inc. 1992. Letter to J.D. Stewart (DOE/NTSO) entitled, "Survey of Nevada Test Site (NTS) Abandoned Septic Tank Systems - Tiger Team Finding SW/CF-3," 2 January. Las Vegas, NV.

Bingham, F.E., Reynolds Electrical & Engineering Co., Inc. 1993a. Letter to D.R. Elle (DOE/NV) entitled, "Closure of Tiger Team Finding SW/CF-06," 7 July. Las Vegas, NV.

Bingham, F.E., Reynolds Electrical & Engineering Co., Inc. 1993b. Letter to D.R. Elle (DOE/NV) entitled, "Decontamination Facility Sampling Plan," 22 September. Las Vegas, NV.

Boehlecke, R.F., Science Applications International Corporation. 1997. Electronic transmittal to E. Shupp (IT) entitled, "MSDS's." Las Vegas, NV.

Boyd, G., Bechtel Nevada. 2003. Record of Telecon with A. Steed (SAIC) regarding CAS 06-07-01, 17 March. Las Vegas, NV.

DOE, see U.S. Department of Energy.

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

DRI, see Desert Research Institute.

Desert Research Institute. 1988. *CERCLA Preliminary Assessment of DOE's Nevada Operations Office Nuclear Weapons Testing Areas, Volume I*. Prepared for the U.S. Department of Energy, Nevada Operations Office. Las Vegas, NV: Water Resources Center.

Desert Research Institute. 1993. *Tritium Activities in Selected Wells on the Nevada Test Site*, DOE/NV/10845-20. Publication Number 45104. Prepared by B.F Lyles. Las Vegas, NV: Water Resources Center.

Desert Research Institute. 1994. *A Class III Cultural Resource Reconnaissance of a Proposed Soil Treatability Pilot Plant Site at the EPA Farm, Area 15, Nevada Test Site, Nye County, Nevada*, SR090893-1. Prepared by N.G. Goldenberg, W.G. Johnson, and A.R. McLane. Las Vegas, NV.

EG&G/EM, see EG&E Energy Measurements.

EPA, see U.S. Environmental Protection Agency.

EG&G Energy Measurements. 1986. *An Aerial Radiological Survey of Areas 12, 15, 17 and 19 Nevada Test Site*, EGG-10282-1113. Prepared by J.E. Jobst. Las Vegas, NV.

ERDA, see U.S. Energy Research and Development Administration.

Edward B. Hendricks Associates. 1965a. Engineering drawing NV-35-08-01.2 entitled, "Area 15 U.S.P.H.S. Field Research Complex Laboratory Mech-Elect. Plot Plan," 29 November. Mercury, NV: Archives & Records Center.

Edward B. Hendricks Associates. 1965b. As-built engineering drawing NV-35-08-01.2 Sheet M-2 entitled, "Area 15 N.T.S. U.S.P.H.S. Field Research Complex Laboratory Plumbing Plan," 30 November. Las Vegas, NV.

Edward B. Hendricks Associates. 1965c. As-built engineering drawing NV-35-08-01.1 Sheet A-1 entitled, "Area 15 N.T.S. U.S.P.H.S. Field Research Complex Plan," 2 December. Las Vegas, NV.

Elle, D.R., U.S. Department of Energy, Nevada Operations Office. 1994. Letter to P.J. Liebendorfer (NDEP) entitled, "Summary of Activities at the Area 6 Decontamination (A-6 Decon) Laundry Facility," 19 April. Las Vegas, NV.

Frazier, A.R., Reynolds Electrical & Engineering Co., Inc. 1987. Letter to W. McCurry (NDEP) entitled, "Description of NTS and TTR Septic Tank and Leachfield Systems," 21 December. Las Vegas, NV.

Giles, K., Desert Research Institute. 2003. Telecon with A. Steed (SAIC) and B. Iverson (GeoTrans) regarding the EPA Farm, 6 February. Las Vegas, NV.

Holmes & Narver, Inc. 1971a. Engineering drawing 006-029-C2 entitled, "Rad-Safe Decontamination Laundry Plot Plan," 23 December. Las Vegas, NV.

Holmes & Narver, Inc. 1971b. Engineering drawing 006-029-M10 entitled, "Rad-Safe Decontamination Laundry Sanitation & Waste Drainage Plan," 23 December. Las Vegas, NV.

Holmes & Narver, Inc. 1971c. Engineering drawing, 015-094-C3.7 Sheet 6 of 10, entitled "Nevada Test Site - Area 15, Modifications to Bldg. 15-06 - USPHS Farm Plan, Profile, and Details," 17 June. Las Vegas, NV.

Holmes & Narver, Inc. 1972a. Engineering drawing, 015-094-C3.2, entitled "Nevada Test Site - Area 15, Modifications to Bldg. 15-06 - USPHS Farm, Plan, Profile & Details," 2 January. Las Vegas, NV

Holmes & Narver, Inc. 1972b. Engineering drawing, 015-06-M1.1 Sheet 5, entitled, "Nevada Test Site - Area 15, Modifications to Bldg. 15-06 - USPHS Farm Plans - Water & Drainage Piping," 2 January. Las Vegas, NV.

Holmes & Narver, Inc. 1973a. Engineering drawing, 015-06-C1 entitled, "Nevada Test Site Area 15 New EPA Slaughter Facility Grading Plan," 24 August. Mercury, NV.

Holmes & Narver, Inc. 1973b. Engineering drawing, 015-06-M2.1 entitled, "Nevada Test Site Area 15 New EPA Slaughter Facility Plumbing Plan & Sections," 24 August. Mercury, NV.

Holmes & Narver, Inc. 1974. Engineering drawing, 015-06-M2.1, entitled "Nevada Test Site-Area 15, New EPA Slaughter Facility, Plumbing Plan & Sections," 6 September. Las Vegas, NV.

Holmes & Narver, Inc. 1979a. Engineering drawing, Page No. 21, entitled "Area 15 Environmental Protection Agency," 1 April. Las Vegas, NV.

Holmes & Narver, Inc. 1979b. Engineering drawing, JS-015-06-M2, entitled "Title II EPA Farm Slaughter Facility Mods Water Piping Plan & Details," 1 March. Las Vegas, NV.

Holmes & Narver, Inc. 1981. Engineering drawing 006-029-M10.1 entitled, "Rad-Safe Decontamination Laundry Sanitation & Waste Drainage Plan," 3 May. Las Vegas, NV.

Hopper, R., U.S. Environmental Protection Agency and S. Helleman, D.B. Stephens. 1995. Record of Telecon with L. Tryboski (IT Corporation) regarding the EPA Farm, 3 August. Las Vegas, NV.

Hopper, D., U.S. Environmental Protection Agency. 2003. Meeting with A. Steed (SAIC) and B. Iverson (Geo Trans) regarding the EPA Farm, 4 February. Las Vegas, NV.

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

NAC, see *Nevada Administrative Code*.

NBMG, see Nevada Bureau of Mines and Geology.

NCRP, see National Council on Radiation Protection and Measurements.

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

National Council on Radiation Protection and Measurements. 1999. *Recommended Screening Limits for Contaminated Surface Soil and Review of Factors Relevant to Site-Specific Studies*, NCRP Report No. 129. Washington, DC.

Nevada Administrative Code. 2002. NAC 445A, "Water Controls." Carson City, NV.

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

Nicosia, W.C., Shaw Environmental, Inc. 2003. Memorandum to M. England (SAIC) entitled, "Radiological Land Area Surveys of Various Locations at the Nevada Test Site for Preliminary Assessments," 3 March. Las Vegas, NV.

Olsen, A. Bechtel Nevada. 1997. Correspondence to L. Tryboski (IT Corporation) regarding CAUs at the EPA Farm Facility, 5 August. Las Vegas, NV.

Paradis, L., Company Unknown. 1998. Record of Telecon with L.M. Mercado (SAIC) regarding the status of the Area 6 decon pad, 4 August. Las Vegas, NV.

REECo - See Reynolds Electrical & Engineering Co., Inc.

RSN, see Raytheon Services Nevada.

Radack, P.M., Reynolds Electrical & Engineering Co., Inc. 1992. Memorandum to M.B. Brown (REECo) entitled, "Decontamination Facility Septic Tank," 2 June. Las Vegas, NV.

Raytheon Services Nevada. 1992. Engineering drawing JS-006-083-C2 entitled, "Area 6 Yucca Lake Utilities - Water Map," 29 December. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1971a. *Environmental Sciences Decontamination Facility Operations Guide*, September. Mercury, NV.

Reynolds Electrical & Engineering Co., Inc. 1971b. Ground-level photograph 3296-06 showing Building 6-605, 4 February. Nellis Air Force Base, NV: Remote Sensing Laboratory Photo Library.

Reynolds Electrical & Engineering Co., Inc. 1973. Engineering drawing SK-6-183 entitled, "Decon Facility Drainage Control Grading Plan," 15 February. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1975a. Engineering Drawing, 15-E.P.A.-C1, entitled "Nevada Test Site - Area 15, E.P.A. Farm Contaminated Waste Disposal System Modification Plan & Profile - Sections - Details," 10 June. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1975b. Engineering drawing, 15-E.P.A.-E1, entitled, "Nevada Test Site - Area 15, E.P.A. Farm Contaminated Waste Disposal System Elect. Plan Diagram & Details," 11 June. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1979a. Engineering drawing 6-DD-C1 entitled, "Dyna-Drill Maintenance Shop Plot & Utility Plan," 29 September. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1979b. Engineering drawing 6-D-A1 entitled, "Rad-Safe Decontamination Facility Architectural - Floor Plan," 5 July. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1979c. Engineering drawing 6-D-S2 entitled, "Rad-Safe Decontamination Facility Floor Slab Drainage Plan & Sections," 5 July. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1979d. Engineering drawing 6-D-A2 entitled, "Rad-Safe Decontamination Facility Partial Floor Plan, Sect. & Det's," 5 July. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1979e. Engineering drawing 6-D-M3 entitled, "Rad-Safe Decontamination Facility Plumbing Layout & Schedule," 5 July. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1979f. Engineering drawing 6-D-M1 entitled, "Rad-Safe Decontamination Facility Piping Layout & Legend," 2 July. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1985. Engineering drawing 6-605-C1 entitled, "Reline Concrete Drains Decon Facility Bldg 6-605," 16 April. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1994a. Engineering drawing 6-605-556-S5.1 entitled, "Concrete Floor Repair Decon Facility, Building 6-605 Existing Floor Plan," 10 November. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1994b. Engineering drawing 6-605-556-S6.1 entitled, "Concrete Floor Repair Decon Facility, Building 6-605 Floor Plan," 7 September. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1994c. Engineering drawing 6-605-556-S9.1 entitled, "Recirculation Tank System Decon Facility, Building 6-605 Floor Plan," 11 July. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1994d. Engineering drawing 6-DF-556-C11.1 entitled, "Upper Wastewater Disposal System Decon Facility, Area 6 Site Plan," 29 October. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1994e. Engineering drawing 6-DF-556-C3.2 entitled, "Sanitary Sewerage System Decon Facility, Area 6 Site Plan," 27 October. Las Vegas, NV.

Reynolds Electrical & Engineering Co., Inc. 1994f. Engineering drawing 6-DF-556-10.1 entitled, "Upper Wastewater Disposal System Decon Facility, Area 6 existing/Demolition Plan," 5 October. Las Vegas, NV.

SAIC, see Science Applications International Corporation.

Shaw, see Shaw Environmental, Inc.

SWRHL, see Southwestern Radiological Health Laboratory.

Science Applications International Corporation. 2003. *Surface Geophysical Survey Final Report Corrective Action Units Nevada Test Site*, May. Prepared for Shaw Environmental, Inc. Harrisburg, PA.

Shaw Environmental, Inc. 2003. CAU 543 Project Files. Las Vegas, NV.

Smith, M. 1991. *Site Monitoring/Site Demarcation Checklist: Area 15 Site Dry Well – Feed Storage Bin*, 29 May. Las Vegas, NV.

Soong, C., Bechtel Nevada. 2003. Record of Telecon with B. Bailey (Shaw) regarding CAS 06-07-01, 9 June. Las Vegas, NV.

Sorom, E., Reynolds Electrical & Engineering Co., Inc. 1995. Telecon with L. Tryboski (IT Corporation) regarding the tank at the EPA Farm, 13 July. Las Vegas, NV.

Southwestern Radiological Health Laboratory. 1967. *Status of the Nevada Test Site Experimental Farm Summary Report for July 1964-December 1965*, SWRHL-36r. Prepared by R.L. Douglas for the U.S. Atomic Energy Commission. Las Vegas, NV: U.S. Public Health Service

USGS, see U.S. Geological Survey.

U.S. Department of Energy. 1988. *Environmental Survey Preliminary Report*, DOE/EH/OEV-15P, April. Washington, DC: Environment, Safety, and Health Office of Environmental Audit.

U.S. Department of Energy. 1993. DOE Order 5440.5, Change 2, *Radiation Protection of the Public and the Environment*. Washington, DC: U.S. Government Printing Office.

U.S. Department of Energy. 1997. *Procedures Manual of Environmental Measurements Laboratory*, HASL-300, 28th Ed., Vol. I. New York, NY.

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

U.S. Department of Energy, Nevada Operations Office. 1984. *Safety Assessment of the Area 6 Decontamination Pad and Laundry*, DOE/NV/10327-12. Prepared by M.W. Chilton and J.A. Orcutt. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1992. *RCRA Part B Permit Application for Waste Management Activities at the Nevada Test Site: Section L Potential Solid Waste Management Units*, Volume IV. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1993. *Nevada Test Site Conceptual Site Treatment Plan*, October. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1995. *Preliminary Characterization of Abandoned Septic Tank Systems*, Volumes I and II, DOE/NV-414 UC-700. Prepared by Reynolds Electrical & Engineering Co., Inc. Las Vegas, NV.

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

U.S. Department of Energy, Nevada Operations Office. 1998a. *Closure Report for Decontamination & Decommissioning (D&D) Category, Corrective Action Unit 95, EPA Farm Laboratory Building 15-06, Nevada Test Site*, DOE/NV-11718-178. Las Vegas, NV.

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

U.S. Department of Energy, Nevada Operations Office. 1999. *Closure Report for Corrective Action Unit 92: Area 6 Decontamination Pond Nevada Test Site, Nevada*, DOE/NV/11718-306. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 2000a. *Closure Report for Petroleum Hydrocarbon Release at the Area 6 Decontamination Facility at the Nevada Test Site: Tank 6-605-1 (NDEM #990204-3304)*, February. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 2000b. *Nevada Test Site Contaminated Land Areas Report, Volume I*, DOE/NV/11718-481-VOL 1. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 2000c. *NV/YMP Radiological Control Manual*, Rev. 4, DOE/NV/11718-079, UC-702. Prepared by A.L. Gile of Bechtel Nevada. Las Vegas, NV.

U.S. Energy Research and Development Administration. 1976. Letter to H.D. Cunningham transmitting the attachment "Disposal Procedures for Contaminated Liquid Waste EPA Farm," Accession numbers NVO173551 and NVO173552, September. Las Vegas, NV: NNSA/NSO Public Reading Facility.

U.S. Environmental Protection Agency. 1973. *Status of the Environmental Protection Agency's Nevada Test Site Experimental Dairy Herd January 1, 1969 - December 31, 1970*, NERC-LV-539-22. Prepared by D. D. Smith for the U.S. Atomic Energy Commission. Las Vegas, NV.

U.S. Environmental Protection Agency. 1977. *Five-Year Summary Report of an Experimental Dairy Herd Maintained on the Nevada Test Site 1971 Through 1975*, EMSL-LV-0539-9. Prepared for the U.S. Energy Research and Development Administration. Las Vegas, NV.

U.S. Environmental Protection Agency. 1980. *Prescribed Procedures for Measurement of Radioactivity in Drinking Water*, EPA 600/4-80-032. Washington, DC.

U.S. Environmental Protection Agency. 1983. *Standards for Remedial Actions of Inactive Uranium Processing Sites, Title 40 Code of Federal Regulations*, Part 192. Washington, DC.

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

U.S. Environmental Protection Agency. 2000a. *Data Quality Objectives Process for Hazardous Waste Site Investigations*, EPA QA/G-4HW. Washington, DC.

U.S. Environmental Protection Agency. 2000b. *Guidance on Choosing a Sampling Design for Environmental Data Collection*, EPA QA/G-5S. Washington, DC.

U.S. Environmental Protection Agency. 2002a. *Guidance for Quality Assurance Project Plans*, EPA QA/G-5, EPA/240/R-02/009. Washington, DC.

U.S. Environmental Protection Agency. 2002b. *Region IX Preliminary Remediation Goals (PRGs)*. Prepared by S.J. Smucker. San Francisco, CA.

U.S. Environmental Protection Agency. 2002c. Integrated Risk Information System (IRIS) Database, as accessed at <http://www.epa.gov/iris/index.html> on 16 October.

U.S. Geological Survey. 2003. "USGS/DOE Nevada Water Use Wells." As accessed at http://waterdata.usgs.gov/nwis/inventory/?site_no=371106116110401 on 13 November.

Western, A.W., Reynolds Electrical & Engineering Co., Inc. 1977. Memorandum to A.E. Bicker (REECO) entitled, "Concrete Floor - Decon Facility," 28 March. Las Vegas, NV.

Wuellner, J.W., Reynolds Electrical & Engineering Co., Inc. 1994. Memorandum to E.W. Kendall (REECO) entitled, "Inspection of Buildings 605 and 607," 23 June. Las Vegas, NV.

APPENDIX B

SAMPLE ANALYTICAL RESULTS

PAGE INTENTIONALLY LEFT BLANK

APPENDIX B. ANALYTICAL RESULTS CROSS-REFERENCE LIST

SAMPLE TYPE	CAS	SAMPLE LOCATION	SAMPLE NUMBER	SDG	
				Chemical	Radiological
Characterization	06-07-01	Lugger	060701-WC1	V2875	V2876
		Trough with soil	060701-WC2	V2875	V2876
		Drum #36	060701-D1	V2982	V2876
Verification	15-08-01	Liquid Manure Tank sludge	150801-WC1	V2877	V2878
		6-605 Septic Tank	150801-WC2	V2877	V2878
		6-607 Septic Tank	060701-605T	V2974	V2975
	06-07-01	6-607 Septic Tank	060701-606T	V2974	V2975
		Sump 1	060701-607T	V2974	V2975
		Sump 2	060701-S1	V2981	V2982
	15-01-03	Distribution Box	060701-S2	V2981	V2982
			060701-S3	V2981	V2982
			150103-DBU1	V2967	V2968
	15-04-01	Distribution Box	150103-DBU2	V2967	V2968
		Septic Tank	150401-VST1	V2899	V2900
	15-05-01	Distribution Box	150501-VDB1	V2899	

CAS – Corrective Action Site
 SDG – Sample Delivery Group

THIS PAGE INTENTIONALLY LEFT BLANK

Sample Delivery Group V2875

THIS PAGE INTENTIONALLY LEFT BLANK

Sample Information	Cust ID:	060701-T1	060701-WC1B	060701-WC1B	060701-WC2B	060701-WC3B	VBLKBB
RFN#:	013	014	014	015	016	016	07LVX071-MB1
Matrix:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
D. F.:	1.00	5.00	5.00	5.00	5.00	5.00	1.00
Units:	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Toluene-d8	94	96	97	97	95	95	98
Bromofluorobenzene	88	90	93	93	89	89	91
1, 2-Dichloroethane-d4	94	91	98	90	92	92	95
Vinyl Chloride	0.010	U	0.050	U	0.050	U	0.050
1,1-Dichloroethene	0.005	U	0.025	U	0.025	U	0.025
Chloroform	0.005	U	0.025	U	0.025	U	0.025
1, 2-Dichloroethane	0.005	U	0.025	U	0.025	U	0.025
2-Butanone	0.010	U	0.050	U	0.050	U	0.050
Carbon Tetrachloride	0.005	U	0.025	U	0.025	U	0.025
Trichloroethene	0.005	U	0.025	U	0.025	U	0.025
Benzene	0.005	U	0.025	U	0.025	U	0.025
Tetrachloroethene	0.005	U	0.025	U	0.025	U	0.025
Chlorobenzene	0.005	U	0.025	U	0.025	U	0.025

* = Outside of EPA CLP QC limits.

Sample Information

Cust ID:	060701-WC1B	060701-WC1B	060701-WC1B	060701-WC2B	060701-WC3B	060701-WC3B
RFW#:	017	017	017	018	019	019
Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
						REPREP
Nitrobenzene-d5	72	58	75	72	65	73
2-Fluorobiphenyl	67	73	71	61	62	76
p-Terphenyl-d14	95	93	98	93	68	89
Phenol-d5	78	82	84	79	3 *	32
2-Fluorophenol	72	75	75	63	1 *	46
2,4,6-Tribromophenol	95	118	120	101	1 *	97
Pyridine	0.050	U	60	42	0.050	U
1,4-Dichlorobenzene	0.050	U	57	65	0.050	U
2-Methylphenol	0.050	U	79	86	0.050	U
3/4-Methylphenol	0.050	U	79	89	0.050	U
Hexachloroethane	0.050	U	53	59	0.050	U
Nitrobenzene	0.050	U	55	80	0.050	U
Hexachlorobutadiene	0.050	U	52	74	0.050	U
2,4,6-Trichlorophenol	0.050	U	84	93	0.050	U
2,4,5-Trichlorophenol	0.12	U	90	97	0.12	U
2,4-Dinitrotoluene	0.050	U	92	94	0.050	U
Hexachlorobenzene	0.050	U	91	102	0.050	U
Pentachlorophenol	0.12	U	122 *	140 *	0.12	U

* = Outside of EPA CLP QC limits.

U. S. EPA

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

Lab Name: LIONVILLE LABORATORY Contract: 60052
Lab Code: LVLI Case No.: NSTEC SAS No.: SDG No.: V2875
Matrix (soil/water): WATER Lab Sample ID: 0704L059-020
Level (low/med): LOW Date Received: 04/03/07
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Color Before: _____
Color After: _____

Clarity Before: _____
Clarity After: _____

Texture: _____
Artifacts: _____

Comments:

060701-WC1C
TCLP OF 003

U. S. EPA

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

Lab Name: LIONVILLE LABORATORY Contract: 60052
Lab Code: LVLI Case No.: NSTEC SAS No.: SDG No.: V2875
Matrix (soil/water): WATER Lab Sample ID: 0704L059-02
Level (low/med): LOW Date Received: 04/03/07
% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): UG/L

Color Before: _____
Color After: _____

Clarity Before: _____
Clarity After: _____

Texture: _____
Artifacts: _____

Comments :
060701-WC2C
TCLP OF 007

U. S. EPA

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

Lab Name: LIONVILLE LABORATORY Contract: 60052 NESTC
Lab Code: LVLI Case No.: NSTEC SAS No.: SDG No.: V2875
Matrix (soil/water): WATER Lab Sample ID: 0704L059-022
Level (low/med): LOW Date Received: 04/03/07
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Color Before: _____
Color After: _____

Clarity Before: _____
Clarity After: _____

Texture: _____
Artifacts: _____

Comments:

060701-WC3C
TCLP OF 011

RFW Batch Number: 0704L059 Client: NSTEC V2875 Herbicides, Special List Report Date: 04/19/07 09:54

Cust ID: 060701-WC1D 060701-WC1D 060701-WC1D 060701-WC2D 060701-WC3D PBLKYU

Sample Information RFW#: 004 Matrix: SOIL D.F.: 1.00 Units: ug/kg

Surrogate:	DCAA	%	87	%	85	%	53	%	37	%	79	%
Dalapon	27	J	36	%	39	%	270	U	130	J	270	U
Dicamba	67	U	36	%	40	%	67	U	67	U	67	U
Dichloroprop	170	U	39	%	35	%	270	U	170	U	170	U
2,4-D	33	U	56	%	38	%	33	U	1	J	33	U
2,4,5-TP (Silvex)	17	U	57	%	51	%	17	U	11	J	17	U
2,4,5-T	17	U	29	*	26	*	17	U	35	J	17	U
2,4-DB	170	U	26	*	33	%	170	U	170	U	170	U
Dinosesb	17	U	50	%	60	%	17	U	17	U	17	U
Pentachlorophenol	13	U	61	%	75	%	13	U	13	U	13	U

Cust ID: PBLKYU BS

Sample Information RFW#: 07LE0174-MB1 Matrix: SOIL D.F.: 1.00 Units: ug/kg

Surrogate:	DCAA	%	224	%	224	%	99	%	126	%	132	%
Dalapon												
Dicamba												
Dichloroprop												
2,4-D												
2,4,5-TP (Silvex)												
2,4,5-T												
2,4-DB												
Dinosesb												
Pentachlorophenol												

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

RFW Batch Number: 0704L059 Client: NSTEC v2875 Work Order: 60052001001 Page: 1

Report Date: 04/19/07 09:54

Herbicides, Special List

Sample Information	Cust ID: 060701-WC1D	Cust ID: 060701-WC1D	Cust ID: 060701-WC1D	Cust ID: 060701-WC1D	Cust ID: 060701-WC2D	Cust ID: 060701-WC3D	Cust ID: PBLKYU
RFN#:	004	004	004	004	008	012	07LE0174-MB1
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg

Surrogate:	DCAA	%	87	%	85	%	53	%	37	*	%	79	%
Dalapon	27	J	36	%	39	%	170	U	130	J	170	U	
Dicamba	67	U	38	%	40	%	67	U	67	U	67	U	
Dichloroprop	170	U	39	%	25	%	170	U	170	U	170	U	
2,4-D	33	U	56	%	36	%	33	U	1	J	33	U	
2,4,5-TP (Silvex)	17	U	57	%	51	%	17	U	11	J	17	U	
2,4,5-T	17	U	29	*	26	*	17	U	35	J	17	U	
2,4-DB	170	U	26	*	33	%	170	U	170	U	170	U	
Dinoseb	17	U	50	%	60	%	17	U	17	U	17	U	
Pentachlorophenol	13	U	61	%	75	%	13	U	13	U	13	U	

Surrogate:	DCAA	*	%
Dalapon	99	*	%
Dicamba	126	*	%
Dichloroprop	132	*	%
2,4-D	234	*	%
2,4,5-TP (Silvex)	102	*	%
2,4,5-T	92	*	%
2,4-DB	144	*	%
Dinoseb	104	*	%
Pentachlorophenol	34	*	%

Surrogate:	DCAA	*	%
Dalapon	99	*	%
Dicamba	126	*	%
Dichloroprop	132	*	%
2,4-D	234	*	%
2,4,5-TP (Silvex)	102	*	%
2,4,5-T	92	*	%
2,4-DB	144	*	%
Dinoseb	104	*	%
Pentachlorophenol	34	*	%

U= Analyzed, not detected. J= present below detection limit. I= Present in blank. MR= Not reported. NS= Not spiked.
 % = Percent recovery. D= Diluted out. * = Interference. NA= Not Applicable. = Outside of EPA C.I.P QC

Sample Information		Cust ID: 060701-WC3B	PBLKZA	PBLKZA BS	PBLKZA BSD	LCHBLK
RFM#:	019	07LE0186-MB1	07LE0186-MB1	07LE0186-MB1	07LE0186-MB1	07LT00
Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L

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

Lionville Laboratory, Inc.

Report Date: 04/18/07 14:35
 Client: NSTEC V2875 Work Order: 60052001001 Page: 1
 RFN Batch Number: 0704L059

Sample Information	RFN#:	004	004 MS	004 MSD	008	012	07LE0170-MB1			
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
	D.F.:	1.00	VAL/D.	1.00	VAL/D.	VAL/D.	VAL/D.			
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG			
Surrogate: Tetrachloro-m-xylene	75	%	62	%	56	%	72	%		
Decachlorobiphenyl	63	%	59	%	53	%	64	%		
Alpha-BHC	1.7	U	68	U	59	*	1.7	U		
gamma-BHC (Lindane)	1.7	U	58	U	52	U	1.7	U		
Beta-BHC	0.40	J1	J	56	U	49	*	J		
Heptachlor	1.8	J	67	U	61	U	1.7	J		
Delta-BHC	1.7	U	43	*	41	*	0.97	J		
Aldrin	1.7	U	66	U	60	U	1.7	U		
Heptachlor epoxide	1.7	U	67	U	59	*	1.7	U		
gamma-Chlordane	1.7	U	64	U	56	*	1.7	U		
Endosulfan I	1.7	U	76	U	72	U	1.7	U		
alpha-Chlordane	1.7	U	61	U	61	U	0.50	J		
4,4'-DDE	0.57	J	67	U	62	U	1.7	U		
Dieldrin	0.53	J	70	U	74	U	0.87	J		
Endrin	1.7	U	79	U	72	U	1.7	U		
4,4'-DDD	1.7	U	92	U	82	U	1.7	U		
Endosulfan II	1.7	U	74	U	64	U	1.7	U		
4,4'-DDT	1.0	J	77	U	92	U	1.8	J		
Endrin aldehyde	1.2	J	J	60	U	1.7	U	8.3	U	
Endosulfan sulfate	1.7	U	75	U	68	U	1.7	U	110	J
Methoxychlor	1.7	U	91	U	89	U	1.7	U	1	J
Endrin ketone	1.7	U	89	U	110	U	1.7	U	8.3	U
Toxaphene	17	U	17	U	17	U	17	U	8.3	U
									17	U

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

RFW Batch Number: 0704L059

PCBs by GC

Client: NSTEC V2875

Report Date: 04/19/07 12:35

Work Order: 60052001001 Page: 1

Sample Information	Cust ID: 060701-WC1A	060701-WC2A	060701-WC2A	060701-WC2A	060701-WC3A	PBLKyr
RFN#:	001	005	005	005	005	009
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene	86 %	97 %	102 %	98 %	99 %	99 %
Decachlorobiphenyl	81 %	91 %	91 %	87 %	87 %	91 %
Aroclor-1016	13 U	13 U	92 %	93 %	1330 U	13 U
Aroclor-1221	13 U	13 U	13 U	13 U	1330 U	13 U
Aroclor-1232	13 U	13 U	13 U	13 U	1330 U	13 U
Aroclor-1242	13 U	13 U	13 U	13 U	1330 U	13 U
Aroclor-1248	13 U	13 U	13 U	13 U	15000 U	13 U
Aroclor-1254	13 U	13 U	13 U	13 U	9200 U	13 U
Aroclor-1260	65 T	14 T	95 %	97 %	1300 U	13 U
Aroclor-1268	13 U	13 U	13 U	13 U	1300 U	13 U
TOTAL PCE'S	65 T	14 J T	I	I	25000 T	40 U

U= Analyzed, not detected. J= present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.

% = Percent recovery. D= Diluted out. I= Interference. T= Diluted out. * = Outside of EPA CLP QC

Ref# Batch Number: 0704L059

Report Date: 04/18/07 13:57
Client: NSTEC V2875

Work Order: 60052001001 Page: 1

GAS RANGE ORGANICS

Sample Information

	Cust ID:	060701-WC1A	060701-WC2A	060701-WC3A	TBLKCL	BS
RFW#:	001	005	009	07LVJ411-MB1	07LVJ411-MB1	
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	
D.F.:	1.00	1.00	1.00			
Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	

	Fluorobenzene	57	%	39	*	%	32	*	%	72	%	73	%
Gasoline Range Organics (GRO)	90	U	89	U	90	U	90	U	90	U	93	%	

U= Analyzed, not detected. B= Present below detection limit. NR= Not reported. NS= Not spiked.
% = Percent recovery. D= Diluted out. I= Interference. * = Outside of EPA CIP QC

147
B64147

Report Date: 04/18/07 13:29
11001 Page: 1

೨೫೮

060701-WC3A BLK
009 07LE0171-MB1
SOIL SOIL
20 0 1 00

060701-WC3A BLK

701-WC2A

WC1A 0607

060701-

60701-WC1A

0

Just ID: 06070

Sample Information	RFN#:	001	001 MSD	005	009	07LE0171-MBL
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
D.F.:	5.00	5.00	5.00	5.00	5.00	5.00
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg

CUST TD: BLK BS

Sample Information RFW# : 07LE0171-MBL
 Matrix: SOIL
 D.F.: 1.00
 Units: ug/kg

	p-Terphenyl	54 %
Diesel Range Organics		93 %
Motor Oil Range Organics		10000 %

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

• $\mathcal{L}(A, D + T \cap \mathcal{U})$ (Quia $L \cap F \subseteq \mathcal{E}$, è

۱۰۱

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORDPage 1 of 2

PROJECT / CLIENT INFORMATION		REPORT & TURNAROUND INFORMATION						SAMPLE INFORMATION									
Project: CAV 543	AN Org#: H330	Send Report to: DAVE NACHT						Sampling Site: 06-07-01									
Charge Number: SB18 22D5		Phone: 295-5577	Fax:	M/S: NTS 306		The samples submitted contain (check):											
Project Manager: Tom THIELE		Turnaround: () Standard - 14 days (II) 28 days Non-rad Env, 45 days Rad Env (X) RUSH Preliminary by: (III)							() Hazardous - (list)								
Phone: 295-6711	Fax:	1 2 X 7 14 (non-Rad Env)		1 7 14 28 (Radiological Env)		() Radioactive - (list)											
								() Unknown contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.									
SAMPLE MANAGEMENT INFORMATION								Pay Item, Analysis, Method									
SDG: (III) J2875 (Non-Rad Env) (Rad Env)								W.52	8.1	6.11	7.3	9.23	8.21	8.3	131		
Samples submitted are associated with a signed Project SOW. (X) YES () NO								131/808 - 8082	TCGP-VOCs 131/8240B	TCGP-SVOCs 131/8270C	TCGP-METALS 131/610/7470		HEX/SOCIES 6151A	ESTIMATES - 8081A		TOXIC VOCs 131/8082	
Analyses entered here agree with the SOW. (X) YES () NO () N/A																	
If not, identify the variation:																	
Subcontract Lab(s) used for this work: LIONVILLE																	
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	Est. Vol	QC MD	QC MS	QC MSD	Pres ~ Analysis eg. HCl - VOCs	W.52	8.1	6.11	7.3	9.23	8.21	8.3	131
060701 - WC1A	03/28/07	13:15	Soil	1	250ml				cool 4°C	X	X						
060701 - WC1B		13:16										X	X				
060701 - WC1C		13:17												X			
060701 - WC1D		13:18													X	X	
060701 - WC2A		13:19								X	X						
060701 - WC2B		13:20										X	X				
060701 - WC2C		13:21												X			
060701 - WC2D		13:22												X	X		
060701 - WC3A		13:40	↓	1	↓				↓	X	X						
060701 - WC3B	↓	13:41	↓	↓	↓				↓	X	X	X	X				
CUSTODY TRANSFER																	
Sampled/Relinquished (print)	Signature		DATE / TIME		Received by (print)		Signature		DATE / TIME								
Ben McGee	/s/ B McGee		4/05/29/07-10:45		CAG CASTANEDA		/s/ C Castaneda		3/29/07 06:16:45								
(s) C ASTANEDA	/s/ C Castaneda		4/1/07 @ 13:00		FED EX		799114670351		4/1/07 @ 13:00								
FED EX			4.3.07 0935		D Smith		/s/ D Smith		4.3.07 0935								

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page 2 of 2

PROJECT/CLIENT INFORMATION		REPORT & TURNAROUND INFORMATION						SAMPLE INFORMATION														
Project: CAV SUB	pk Org: NTS 30	Send Report to: DANE NACHT						Sampling Site: 06-07-01														
Charge Number: 551B 22D5		Phone: 295-5577	Fax:	MS: NTS 306			The samples submitted contain (check):															
Project Manager: Tom Trifolk		Turnaround: () Standard - 14 days HI, 28 days Non-rad Env, 45 days Rad Env () RUSH Preliminary by: (1) 1 2 X 7 14 (Non-Rad Env) 1 7 14 28 (Radiological Env)						() Hazardous - dist) () Radioactive - dist) () Unknown contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.														
Phone: 295-6711	Fax:	MS: NTS 306			SAMPLE MANAGEMENT INFORMATION						Pay Item, Analysis, Method											
SDG: (1) 2475 (Non-Rad Env) (Rad Env)						Samples submitted are associated with a signed Project SOW. () YES () NO						10.52 8.1 6.1 7.3 9.23 8.21 8.3 1.31										
Analyses entered here agree with the SOW. () YES () NO () N/A						If not, identify the variation:						2809-2521 1311/02108 1311/02109 1311/02109 1311/02109 1311/02109 1311/02109 1311/02109										
Subcontract Lab(s) used for this work: LIONVILLE						Tru-VOCS						Hazardous - VISA Radioactive - VISA TOTAL VISA										
ID/DESCRIPTION						SAMPLING DATE		TIME		MATRIX	CONTAINER #	Est. Vol	QC MD	MS	MSD	Pres - Analysis eg HCl - VOCs	1311/6010/7470					
060701-WL3C	03/27/07		13:42		SOIL	1	250 ml															
060701-WL3D	03/28/07		13:43		SOIL	1	250 ml															
060701-TL	03/29/07		13:10		WATER	2	40 ml															
												B7										
												TBY										
CUSTODY TRANSFER																						
Sampled/Relinquished (print)	Signature			DATE / TIME			Received by (print)			Signature			DATE / TIME									
BEN McGEE	/s/ B. McGee			03/29/07 - 10:45			PA 1311/02109			/s/ C Castaneda			03/29/07 10:45									
CO CASTANEDA	/s/ C Castaneda			4/2/07 13:00			FED EX**			749114675351			4/2/07 13:00									
FED EX				4/3/07 09:35			D Smith			/s/ D Smith			4/3/07 09:35									

Sample Delivery Group V2876

THIS PAGE INTENTIONALLY LEFT BLANK

Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: National Security Technologies, LLC
 Client Project Name: CAU 543
 Client Project Number: V2876

Laboratory Name: Paragon Analytics
 PAI Work Order: 0704006

Page: 1 of 1
 Reported on: Tuesday, April 10, 2007
 2:25:36 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed
0704006-1	060701-WC1E	Sample	GROSS ALPHA	6.70E+00 +/- 1.93E+00	8.70E-01	pCi/g	SOIL	AB070405-2	4/9/2007
0704006-1	060701-WC1E	Sample	GROSS BETA	9.08E+00 +/- 1.97E+00	1.47E+00	pCi/g	SOIL	AB070405-2	4/9/2007
0704006-3	060701-WC2E	Sample	GROSS ALPHA	8.95E+00 +/- 2.26E+00	7.88E-01	pCi/g	SOIL	AB070405-2	4/9/2007
0704006-3	060701-WC2E	Sample	GROSS BETA	1.10E+01 +/- 2.29E+00	1.59E+00	pCi/g	SOIL	AB070405-2	4/9/2007
0704006-5	060701-WC3E	Sample	GROSS ALPHA	1.09E+02 +/- 1.85E+01	1.07E+00	pCi/g	SOIL	AB070405-2	4/9/2007
0704006-5	060701-WC3E	Sample	GROSS BETA	8.50E+01 +/- 1.41E+01	3.41E+00	pCi/g	SOIL	AB070405-2	4/9/2007

Comments:

Data Package ID: AB0704006-1

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- M1 - The requested MDC was not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

Date Printed: Tuesday, April 10, 2007

Paragon Analytics
 LIMS Version: 6.001A

Page 1 of 1

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0704006

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2876

Field ID: 060701-WC1E Lab ID: 0704006-1	Sample Matrix: SOIL Prep SOP: PAI 739 Rev 8 Date Collected: 28-Mar-07 Date Prepared: 05-Apr-07 Analysis ReqCode: NGS-A-002	Prep Batch: GS070405-1 QCBatchID: GS070405-1A Run ID: GS070405-1A Count Time: 30 minutes Report Basis: Dry Weight	Final Aliquot: 342 g Prep Basis: Dry Weight Moisture(%): NA Result Units: pCi/g File Name: 070538d06
--	--	---	--

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-63-0	Ac-228	2.08E+00 +/- 4.82E-01	5.70E-01	G
14596-10-2	Am-241	-8.34E-01 +/- 2.22E+00	3.86E+00	U,G
14913-49-6	Bi-212	2.53E+00 +/- 1.60E+00	2.31E+00	G,TI
14733-03-0	Bi-214	1.24E+00 +/- 3.45E-01	3.80E-01	G,J
14762-78-8	Ce-144	-9.54E-02 +/- 8.93E-01	1.53E+00	U,G
10198-40-0	Co-60	4.73E-02 +/- 9.66E-02	1.68E-01	U,G
13967-70-9	Cs-134	-1.07E-01 +/- 1.74E-01	3.19E-01	U,G
10045-97-3	Cs-137	1.60E+01 +/- 1.98E+00	2.11E-01	G
14683-23-9	Eu-152	5.67E-02 +/- 4.21E-01	7.96E-01	U,G
15585-10-1	Eu-154	1.63E-01 +/- 9.49E-01	1.62E+00	U,G
14391-16-3	Eu-155	2.21E-01 +/- 5.78E-01	9.68E-01	U,G
13966-00-2	K-40	2.50E+01 +/- 4.25E+00	1.63E+00	G
15092-94-1	Pb-212	2.23E+00 +/- 3.96E-01	3.41E-01	G
15067-28-4	Pb-214	1.19E+00 +/- 2.91E-01	4.08E-01	G,J
14834-73-2	Pm-144	5.67E-03 +/- 8.71E-02	1.57E-01	U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110% - Quantitative Yield is assumed

Y2 - Chemical Yield outside default limits

LT - Result is less than Requested MDC, greater than sample specific MDC

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC

M - The requested MDC was not met

SO - Spectral quality prevents accurate quantitation

SI - Nuclide identification and/or quantitation is tentative

TI - Nuclide identification is tentative

R - Nuclide has exceeded 8 half-lives

G - Sample density differs by more than 15% of LCS density

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GSS0704006-1

Gamma Spectroscopy Results

PAI 713 Rev 9 Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0704006

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2876

Field ID: 060701-WC1E	Sample Matrix: SOIL	Prep Batch: GS070405-1	Final Aliquot: 342 g
Lab ID: 0704006-1	Prep SOP: PAI 739 Rev 8	QCBatchID: GS070405-1-1	Prep Basis: Dry Weight
Library: LNG_GAM-A-00	Date Collected: 28-Mar-07	Run ID: GS070405-1A	Moisture(%): NA
Analysis ReqCode: NGS-A-002	Date Prepared: 05-Apr-07	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 09-Apr-07	Report Basis: Dry Weight	File Name: 070538d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	1.89E-01 +/- 2.09E-01	3.40E-01	U,G
13967-48-1	Ru-106	-9.94E-01 +/- 1.02E+00	1.96E+00	U,G
14234-35-6	Sb-125	6.04E-01 +/- 3.34E-01	5.52E-01	G,TI
15065-10-8	Th-234	1.69E+01 +/- 3.84E+00	4.72E+00	G
14913-50-9	Tl-208	7.37E-01 +/- 1.88E-01	1.91E-01	G
15117-96-1	U-235	2.25E-01 +/- 8.84E-01	1.49E+00	U,G
13982-36-0	Y-88	-6.12E-02 +/- 1.19E-01	2.30E-01	U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110% Quantitative Yield is assumed

Y2 - Chemical Yield outside default limits

LT - Result is less than Requested MDC, greater than sample specific MDC

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC

M1 - The requested MDC was not met

Abbreviations

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GSS0704006-1

SQ - Spectral quality prevents accurate quantitation

SI - Nuclide identification and/or quantitation is tentative

TI - Nuclide identification is tentative

R - Nuclide has exceeded 8 halflives

G - Sample density differs by more than 15% of LCS density

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0704006

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2876

Field ID: 060701-WC2E Lab ID: 0704006-3 Library: LNG_GAM-A-00 Analysis ReqCode: NGS-A-002	Sample Matrix: SOIL Prep SOP: PAI 739 Rev 8 Date Collected: 28-Mar-07 Date Prepared: 05-Apr-07 Date Analyzed: 09-Apr-07	Prep Batch: GS070405-1 QCBatchID: GS070405-1A Run ID: GS070405-1A Count Time: 30 minutes Report Basis: Dry Weight	Final Aliquot: 354 g Prep Basis: Dry Weight Moisture(%): NA Result Units: pCi/g File Name: 070507d08
--	---	---	--

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	2.50E+00 +/- 4.78E-01	5.17E-01	G
14682-66-7	Al-26	4.35E-02 +/- 4.38E-02	2.94E-02	G,TI
14596-10-2	Am-241	1.78E-02 +/- 1.79E-01	3.06E-01	U,G
14913-49-6	Bi-212	1.85E+00 +/- 1.04E+00	1.35E+00	G
14733-03-0	Bi-214	1.18E+00 +/- 2.79E-01	2.76E-01	G,J
14762-78-8	Ce-144	-2.30E-01 +/- 4.34E-01	7.80E-01	U,G
10198-40-0	Co-60	2.45E-02 +/- 7.92E-02	1.44E-01	U,G
13967-70-9	Cs-134	-1.62E-02 +/- 6.25E-02	1.58E-01	U,G
10045-97-3	Cs-137	5.09E+00 +/- 6.87E-01	1.49E-01	G
14683-23-9	Eu-152	2.51E-01 +/- 4.27E-01	7.28E-01	U,G
15585-10-1	Eu-154	-4.03E-01 +/- 4.48E-01	9.34E-01	U,G
14391-16-3	Eu-155	1.20E-01 +/- 2.34E-01	3.91E-01	U,G
13966-00-2	K-40	2.73E+01 +/- 4.42E+00	1.33E+00	G
15092-94-1	Pb-212	2.23E+00 +/- 3.65E-01	2.54E-01	G
15067-28-4	Pb-214	1.38E+00 +/- 2.81E-01	3.52E-01	G,J

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

SO - Spectral quality prevents accurate quantitation

Y1 - Chemical Yield is in control at 100-110% - Quantitative Yield is assumed

SI - Nuclide identification and/or quantitation is tentative

Y2 - Chemical Yield outside default limits

TI - Nuclide identification is tentative

LT - Result is less than Requested MDC, greater than sample specific MDC

R - Nuclide has exceeded 8 halfives

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC

G - Sample density differs by more than 15% of LCS density

M - The requested MDC was not met

Abbreviations

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GSS0704006-1

Date Printed: Monday, April 09, 2007

Paragon Analytics

LIMS Version: 6.001A

Page 3 of 6

000017

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0704006

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2876

Field ID: 060701-WC2E Lab ID: 0704006-3	Sample Matrix: SOIL Prep SOP: PAI 739 Rev 8 Date Collected: 28-Mar-07 Date Prepared: 05-Apr-07 Date Analyzed: 09-Apr-07	Prep Batch: GS070405-1 QCBatchID: GS070405-1-1 Run ID: GS070405-1A Count Time: 30 minutes Report Basis: Dry Weight	Final Aliquot: 354 g Prep Basis: Dry Weight Moisture(%): NA Result Units: pCi/g File Name: 070507d08
--	---	--	--

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-73-2	Pm-144	-2.00E-02 +/- 7.63E-02	1.43E-01	U,G
14834-74-3	Pm-146	-4.76E-02 +/- 1.11E-01	2.04E-01	U,G
13967-48-1	Ru-106	0E+00 +/- 6.76E-01	1.24E+00	U,G
14234-35-6	Sb-125	4.27E-01 +/- 2.65E-01	4.60E-01	U,G
15065-10-8	Th-234	4.45E+00 +/- 1.11E+00	1.77E+00	G
14913-50-9	Tl-208	7.08E-01 +/- 1.62E-01	1.42E-01	G
15117-96-1	U-235	-1.25E-01 +/- 4.44E-01	7.85E-01	U,G
13982-36-0	Y-88	1.01E-01 +/- 9.05E-02	1.38E-01	U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC

M - The requested MDC was not met

SQ - Spectral quality prevents accurate quantitation

SI - Nuclide identification and/or quantitation is tentative

TI - Nuclide identification is tentative

R - Nuclide has exceeded 8 halflives

G - Sample density differs by more than 15% of LCS density

Abbreviations

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GSS0704006-1

Date Printed: Monday, April 09, 2007

Paragon Analytics

LIMS Version: 6.001A

Page 4 of 6

000018

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0704006

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2876

Field ID: 060701-WC3E	Sample Matrix: SOIL
Lab ID: 0704006-5	Prep SOP: PAI 739 Rev 8
Library: LNG_GAM-A-00	Date Collected: 28-Mar-07
Analysis ReqCode: NGS-A-002	Date Prepared: 05-Apr-07
	Date Analyzed: 09-Apr-07

Prep Batch: GS070405-1	Final Aliquot: 266 g
QCBatchID: GS070405-1-1	Prep Basis: Dry Weight
Run ID: GS070405-1A	Moisture(%): NA
Count Time: 30 minutes	Result Units: pCi/g
Report Basis: Dry Weight	File Name: 070563d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.44E+00 +/- 4.99E-01	9.01E-01	G
14596-10-2	Am-241	2.66E+01 +/- 3.92E+00	2.62E+00	G
14733-03-0	Bi-214	1.40E+00 +/- 3.96E-01	5.17E-01	G,J
14762-78-8	Ce-144	-6.10E-01 +/- 8.54E-01	1.51E+00	U,G
10198-40-0	Co-60	1.32E+00 +/- 2.48E-01	2.29E-01	G
13967-70-9	Cs-134	-4.50E-02 +/- 1.31E-01	2.38E-01	U,G
10045-97-3	Cs-137	2.12E+01 +/- 2.60E+00	2.84E-01	G
14683-23-9	Eu-152	2.62E-01 +/- 5.33E-01	9.35E-01	U,G
15585-10-1	Eu-154	-9.28E-01 +/- 1.29E+00	2.46E+00	U,G
14391-16-3	Eu-155	2.29E-01 +/- 5.60E-01	9.38E-01	U,G
13966-00-2	K-40	2.15E+01 +/- 4.25E+00	2.41E+00	G
15100-28-4	Pa-234m	1.11E+02 +/- 3.67E+01	4.13E+01	G
15092-94-1	Pb-212	1.56E+00 +/- 3.66E-01	4.22E-01	G
15067-28-4	Pb-214	1.20E+00 +/- 3.78E-01	5.85E-01	G,J
14834-73-2	Pm-144	2.62E-02 +/- 1.23E-01	2.16E-01	U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110% Quantitative Yield is assumed

Y2 - Chemical Yield outside default limits

L1 - Result is less than Requested MDC, greater than sample specific MDC

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC

M - The requested MDC was not met

SO - Spectral quality prevents accurate quantitation

SI - Nuclide identification and/or quantitation is tentative

TI - Nuclide identification is tentative

R - Nuclide has exceeded 8 halfives

G - Sample density differs by more than 15% of LCS density

Abbreviations

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GSS0704006-1

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0704006

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2876

Field ID: 060701-WC3E	Sample Matrix: SOIL	Prep Batch: GS070405-1	Final Aliquot: 266 g
Lab ID: 0704006-5	Prep SOP: PAI 739 Rev 8	QCBatchID: GS070405-1A	Prep Basis: Dry Weight
Library: LNG_GAM-A-00	Date Collected: 28-Mar-07	Run ID: GS070405-1A	Moisture(%): NA
Analysis ReqCode: NGS-A-002	Date Prepared: 05-Apr-07	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 09-Apr-07	Report Basis: Dry Weight	File Name: 070563d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	-9.54E-02 +/- 2.45E-01	4.31E-01	U,G
13967-48-1	Ru-106	-2.66E-01 +/- 1.23E+00	2.24E+00	U,G
14234-35-6	Sb-125	3.06E-02 +/- 5.06E-01	8.70E-01	U,G
15065-10-8	Th-234	6.83E+01 +/- 9.34E+00	5.67E+00	G
14913-50-9	Tl-208	4.11E-01 +/- 1.89E-01	2.65E-01	G
15117-96-1	U-235	9.11E-01 +/- 8.85E-01	1.43E+00	U,G
13982-36-0	Y-88	4.65E-02 +/- 1.36E-01	2.37E-01	U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110% Quantitative Yield is assumed

Y2 - Chemical Yield outside default limits

L1 - Result is less than Requested MDC, greater than sample specific MDC

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC

M - The requested MDC was not met

SO - Spectral quality prevents accurate quantitation

SI - Nuclide identification and/or quantitation is tentative

TI - Nuclide identification is tentative

R - Nuclide has exceeded 8 half-lives

G - Sample density differs by more than 15% of LCS density

Abbreviations

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GSS0704006-1

Isotopic Uranium By Alpha Spectroscopy Sample Results Summary

Client Name: National Security Technologies, LLC
 Client Project Name: CAU 543
 Client Project Number: V2876

Laboratory Name: Paragon Analytics
 PAI Work Order: 0704006

Page: 1 of 1
 Reported on: Tuesday, April 17, 2007
 1:11:33 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0704006-2	060701-WC1F	Sample	U-233/234	2.64E+00 +/- 4.43E-01	5.88E-03	pCi/g	SOIL	AS070406-2	4/10/2007	
0704006-2	060701-WC1F	Sample	U-235	1.26E-01 +/- 3.13E-02	2.97E-03	pCi/g	SOIL	AS070406-2	4/10/2007	
0704006-2	060701-WC1F	Sample	U-238	3.40E+00 +/- 5.67E-01	8.34E-03	pCi/g	SOIL	AS070406-2	4/10/2007	
0704006-4	060701-WC2F	Sample	U-233/234	3.05E+00 +/- 5.16E-01	1.07E-02	pCi/g	SOIL	AS070406-2	4/10/2007	
0704006-4	060701-WC2F	Sample	U-235	1.76E-01 +/- 4.08E-02	3.16E-03	pCi/g	SOIL	AS070406-2	4/10/2007	
0704006-4	060701-WC2F	Sample	U-238	4.66E+00 +/- 7.81E-01	7.73E-03	pCi/g	SOIL	AS070406-2	4/10/2007	
0704006-6	060701-WC3F	Replicate	U-233/234	1.17E+01 +/- 2.16E+00	1.45E-02	pCi/g	SOIL	AS070406-2	4/10/2007	
0704006-6	060701-WC3F	Replicate	U-235	1.17E+00 +/- 2.72E-01	1.71E-02	pCi/g	SOIL	AS070406-2	4/10/2007	
0704006-6	060701-WC3F	Replicate	U-238	6.19E+01 +/- 1.12E+01	4.79E-02	pCi/g	SOIL	AS070406-2	4/10/2007	M3

Comments:

Data Package ID: U0704006-1

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- LR - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- M - The requested MDC was not met.
- M3 - The requested MDC was not met, but the recorded activity is greater than the reported MDC.

Date Printed: Tuesday, April 17, 2007

Paragon Analytics
LIMS Version. 6.002A

Page 1 of 1

Isotopic Plutonium By Alpha Spectroscopy Sample Results Summary

Client Name: National Security Technologies, LLC
 Client Project Name: CAU 543
 Client Project Number: V2876

Laboratory Name: Paragon Analytics
 PAI Work Order: 0704006

Page: 1 of 1
 Reported on: Tuesday, April 24, 2007
 1:25:27 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0704006-2	060701-WC1F	Sample	Pu-238	2.00E-02 +/- 8.87E-03	2.35E-03	pCi/g	SOIL	AS070417-3	4/20/2007	LT
0701006-2	060701-WC1F	Sample	Pu-239/240	1.87E-01 +/- 3.84E-02	5.70E-03	pCi/g	SOIL	AS070417-3	4/20/2007	
0701006-4	060701-WC2F	Sample	Pu-238	6.12E-02 +/- 1.74E-02	2.37E-03	pCi/g	SOIL	AS070418-1	4/21/2007	
0701006-4	060701-WC2F	Sample	Pu-239/240	5.47E-01 +/- 9.47E-02	5.75E-03	pCi/g	SOIL	AS070418-1	4/21/2007	
0704006-6	060701-WC3F	Sample	Pu-238	1.79E+00 +/- 8.43E-01	5.99E-01	pCi/g	SOIL	AS070412-6	4/16/2007	M3
0704006-6	060701-WC3F	Sample	Pu-239/240	2.52E+02 +/- 3.94E+01	5.99E-01	pCi/g	SOIL	AS070412-6	4/16/2007	M3

Comments:

Data Package ID: P0704006-1

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- M1 - The requested MDC was not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

Date Printed: Tuesday, April 24, 2007

Paragon Analytics
 LIMS Version: 6.007A

Page 1 of 1

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

0704006

Page 1 of 1

PROJECT / CLIENT INFORMATION		REPORT & TURNAROUND INFORMATION				SAMPLE INFORMATION					
Project: CAU 543	BN Org#: 4730	Send Report to: DAVE MACH				Sampling Site: 06-07-01					
Charge Number: 5B1B 22DS		Phone: 295-5577	Fax:	M/S NTS 306		The samples submitted contain (check):					
Project Manager: TOM THIELIC		Turnaround: () Standard - 14 days IHL, 28 days Non-rad Env, 45 days Rad Env X RUSH Preliminary by: () 1 2 7 14 (not-Rad Env) 1 X 7 14 28 (Radiological Env)				<input checked="" type="checkbox"/> Hazardous - dist <input type="checkbox"/> Radioactive - dist <input type="checkbox"/> Unknown contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.					
Phone: 295-6711	Fax:	M/S: NTS 306	SAMPLE MANAGEMENT INFORMATION				Pay Item, Analysis, Method				
SDG: () (Non-Rad Env) V2876 (Rad Env)				GLC-A-003	GLC-A-003	NAS-A-002	NAS-A-002	NAS-A-006			
Samples submitted are associated with a signed Project SOW. (X) YES () NO				Grass	Grass	Grass	Grass	Grass			
Analyses entered here agree with the SOW. (X) YES () NO () N/A				SPME	SPME	SPME	SPME	SPME			
If not, identify the variation:				150 - URANIUM	150 - URANIUM	150 - URANIUM	150 - URANIUM	150 - URANIUM			
Subcontract Lab(s) used for this work: PARAGON				150 - PLUTONIUM	150 - PLUTONIUM	150 - PLUTONIUM	150 - PLUTONIUM	150 - PLUTONIUM			
ID/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	CONTAINER #	EST. VOL	QC MD	QC MS	QC MSD	Pres. Analysis eg. HCl - VOC's		
060701-WC1E	07/28/07	13:14	SOIL	1	500 ml				Cool 4°C	X	X
060701-WC1F		13:15									X
060701-WC2E		13:18								X	X
060701-WC2F		13:19									X
060701-WC3E		13:39								X	X
060701-WC3F	✓	13:40	✓	✓	✓					X	X
LAST 17 EX											
CUSTODY TRANSFER											
Sampled/Relinquished (print)	Signature		DATE / TIME		Received by (print)			Signature		DATE / TIME	
BEN MCGEE	/s/ B McGee		03/29/07 - 10:45		/s/ C ASTHUAZIA			/s/ C Castaneda		3/29/07 - 10:45	
C CASTANEDA	/s/ C Castaneda		4/2/07 - 13:00		FED EX			790706771614		4/2/07 - 13:00	
FEDEX	FEDEX		4/3/07@0915		Rebecca Rambo			/s/ R Rambo		4/3/07@0915	

Sample Delivery Group V2877

THIS PAGE INTENTIONALLY LEFT BLANK

Lionville Laboratory, Inc.
DIESEL RANGE ORGANICS BY GC
RFW Batch Number: 0704L058 Client: NSTEC V2877 Work Order: 60052001001 Page: 1

Report Date: 04/11/07 15:30
07LE0171-MB1

Sample Information	Cust ID: 150801-WC1	150801-WC1	150801-WC1	150801-WC2	BLK	BLK BS
RFW#:	001	001 MS SOLID	001 MSD SOLID	002	07LE0171-MB1 SOIL	07LE0171-MB1
Matrix:	SOLID	SOLID	SOLID		SOIL	SOIL
D.F.:	1.00	1.00	1.00		1.00	1.00
Units:	ug/kg	ug/kg	ug/kg		ug/kg	ug/kg
p-Terphenyl	123 %	693 * %	500 * %	107 %	134 * %	110 %
Diesel Range Organics	120000	102 %	170 * %	93000	3330 U	92 %
Motor Oil Range Organics	250000	170000	210000	180000	10000 U	10000 U

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

147

Lionville Laboratory, Inc.
GAS RANGE ORGANICS

Report Date: 04/11/07 18:19
RFW Batch Number: 0704L058 Client: NSTEC V2877 Work Order: 60052001001 Page: 1

Cust ID: 150801-WC1 150801-WC2 TBLKCL TBLKCL BS

Sample Information	RFN#:	001	002	07LVJ411-MB1	07LVJ411-MB1
	Matrix:	SOLID	SOLID	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG

Gasoline Range Organics (GRO)	Fluorobenzene	134	%	74	%	72	%	73	%
		330		89	U	90	U	93	%

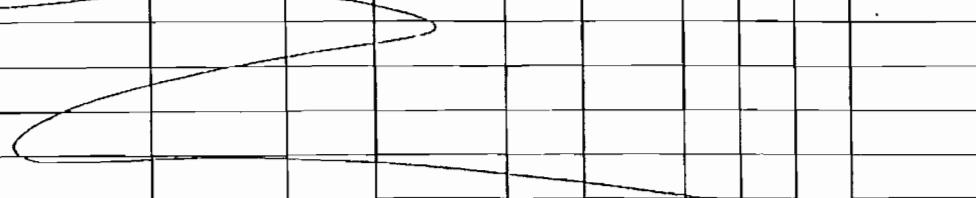
U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
% = Percent recovery. D= Diluted out. I= Interference. NA= NOT Applicable. * = Outside of EPA CLP QC

/8/7

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page 1 of 1

PROJECT / CLIENT INFORMATION		REPORT & TURNAROUND INFORMATION						SAMPLE INFORMATION					
Project: CAU 543	HN Org#: H330	Send Report to: DAVID NACHT						Sampling Site: CAU 543 CAS 15-08-01					
Charge Number: SB10-2205		Phone: 295-5877	Fax:	M/S: NTS306			The samples submitted contain (check):						
Project Manager: THOMAS A. THIELE		Turnaround: <input type="checkbox"/> Standard - 14 days <input type="checkbox"/> 28 days Non-rad Env. <input type="checkbox"/> 45 days Rad Env <input checked="" type="checkbox"/> RUSH Preliminary by: 14 (H)						<input type="checkbox"/> Hazardous - (list) _____					
Phone: 295-6711	Fax: _____	M/S: NTS306							<input type="checkbox"/> Radioactive - (list) _____				
SAMPLE MANAGEMENT INFORMATION								Pay Item, Analysis, Method					
SDG: V2877 (IH) (Non-Rad Env) (Rad Env) Samples submitted are associated with a signed Project SOW. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Analyses entered here agree with the SOW. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A If not, identify the variation: _____ Subcontract Lab(s) used for this work: LIONVILLE								10.52					
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	QC Est. Vol	MS	MSD	Pres - Analysis eg. HCl - VOCs	TPR- 10015M 100				
150801-WC1	03/28/07	10:30	SLUDGE	1	250 mL			COOL 4°C	X				
150801-WC2	03/28/07	10:55	SLUDGE	1	250 mL			COOL 4°C	X				
LAST ITEM													
													
CUSTODY TRANSFER													
Sampled/Relinquished (print)	Signature		DATE / TIME		Received by (print)		Signature		DATE / TIME				
BEN McGEE	/s/ B McGee		03/29/07 - 10:45		C. Castaneda		/s/ C Castaneda		3/29/07 10:45				
C. CASTANEDA	/s/ C Castaneda		4/2/07 1300		FED EX #		79914675051		4/2/07 1300				
FED EX			4/2/07 0925		J. Smith		/s/ D Smith		4/2/07 0925				

THIS PAGE INTENTIONALLY LEFT BLANK

Sample Delivery Group V2878

THIS PAGE INTENTIONALLY LEFT BLANK

Gamma Spectroscopy Results

PAI 713 Rev 9 Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0704007

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2878

Field ID: 150801-WC1
Lab ID: 0704007-1
Library: LNG_GAM-A-00
Analysis ReqCode: NGS-A-002

Sample Matrix: SLUDGE
Prep SOP: PAI 739 Rev 8
Date Collected: 28-Mar-07
Date Prepared: 06-Apr-07
Date Analyzed: 09-Apr-07
Prep Batch: GS070406-1
QCBatchID: GS070406-1-1
Run ID: GS070406-1A
Count Time: 30 minutes
Report Basis: As Received
Final Aliquot: 57.7 g
Prep Basis: As Received
Moisture(%): NA
Result Units: pCi/g
File Name: 070481d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	4.38E-01 +/- 6.39E-01	1.06E+00	U,G
14596-10-2	Am-241	-1.12E-01 +/- 6.32E-01	1.10E+00	U,G
14762-78-8	Ce-144	1.43E-01 +/- 5.67E-01	9.72E-01	U,G
10198-40-0	Co-60	-2.91E-02 +/- 1.70E-01	3.11E-01	U,G
13967-70-9	Cs-134	-7.91E-02 +/- 1.65E-01	2.93E-01	U,G
10045-97-3	Cs-137	4.82E-02 +/- 1.31E-01	2.24E-01	U,G
14683-23-9	Eu-152	-2.40E-02 +/- 7.84E-01	1.42E+00	U,G
15585-10-1	Eu-154	4.30E-02 +/- 8.21E-01	1.46E+00	U,G
14391-16-3	Eu-155	-1.74E-01 +/- 3.25E-01	5.86E-01	U,G
13966-00-2	K-40	1.29E+00 +/- 1.56E+00	2.55E+00	U,G
15092-94-1	Pb-212	-7.32E-02 +/- 2.21E-01	3.90E-01	U,G
14834-73-2	Pm-144	-5.01E-02 +/- 1.41E-01	2.55E-01	U,G
14834-74-3	Pm-146	7.20E-02 +/- 1.34E-01	2.26E-01	U,G
13967-48-1	Ru-106	-1.27E-01 +/- 1.21E+00	2.15E+00	U,G
14234-35-6	Sb-125	1.84E-01 +/- 2.66E-01	4.41E-01	U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110% Quantitative Yield is assumed

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC

M - The requested MDC was not met

SO - Spectral quality prevents accurate quantitation

SI - Nuclide identification and/or quantitation is tentative

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GSS0704007-1

Gamma Spectroscopy Results

PAI 713 Rev 9 Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0704007

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2878

Field ID: 150801-WC1
Lab ID: 0704007-1
Library: LNG_GAM-A-00
Analysis ReqCode: NGS-A-002

Sample Matrix: SLUDGE
Prep SOP: PAI 739 Rev 8
Date Collected: 28-Mar-07
Date Prepared: 06-Apr-07
Date Analyzed: 09-Apr-07

Prep Batch: GS070406-1
QCBatchID: GS070406-1-1
Run ID: GS070406-1A
Count Time: 30 minutes
Report Basis: As Received

Final Aliquot: 57.7 g
Prep Basis: As Received
Moisture(%): NA
Result Units: pCi/g
File Name: 070481d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
15065-10-8	Th-234	5.67E-01 +/- 1.83E+00	3.10E+00	U,G
15117-96-1	U-235	-2.44E-01 +/- 6.12E-01	1.09E+00	U,G
13982-36-0	Y-88	-7.25E-02 +/- 1.53E-01	2.86E-01	U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

SQ - Spectral quality prevents accurate quantitation

Y1 - Chemical Yield is in control at 100-110% Quantitative Yield is assumed

SI - Nuclide identification and/or quantitation is tentative

Y2 - Chemical Yield outside default limits

TI - Nuclide identification is tentative

L1 - Result is less than Requested MDC, greater than sample specific MDC

R - Nuclide has exceeded 8 halflives

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

G - Sample density differs by more than 15% of LCS density

M1 - The requested MDC was not met

Abbreviations

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GSS0704007-1

Gamma Spectroscopy Results

PAI 713 Rev 9 Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0704007

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2878

Field ID: 150801-WC2
Lab ID: 0704007-2

Library: LNG_GAM-A-00
Analysis ReqCode: NGS-A-002

Sample Matrix: SLUDGE
Prep SOP: PAI 739 Rev 8
Date Collected: 28-Mar-07
Date Prepared: 06-Apr-07
Date Analyzed: 09-Apr-07

Prep Batch: GS070406-3
QCBatchID: GS070406-3-1
Run ID: GS070406-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 52.5 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070434d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	8.01E-01 +/- 1.10E+00	1.82E+00	U,G
14596-10-2	Am-241	6.13E-01 +/- 1.21E+00	2.06E+00	U,G
14762-78-8	Ce-144	2.37E-01 +/- 7.15E-01	1.25E+00	U,G
10198-40-0	Co-60	-8.16E-02 +/- 1.81E-01	4.15E-01	U,G
13967-70-9	Cs-134	1.49E-02 +/- 2.13E-01	3.86E-01	U,G
10045-97-3	Cs-137	7.41E-01 +/- 3.30E-01	4.10E-01	LT,G
14683-23-9	Eu-152	0E+00 +/- 9.63E-01	1.97E+00	U,G
15585-10-1	Eu-154	-3.74E-01 +/- 1.09E+00	2.26E+00	U,G
14391-16-3	Eu-155	1.46E-01 +/- 5.12E-01	8.93E-01	U,G
13966-00-2	K-40	2.76E+01 +/- 6.92E+00	4.98E+00	G
15092-94-1	Pb-212	6.45E-01 +/- 3.49E-01	5.00E-01	G
15067-28-4	Pb-214	6.79E-01 +/- 3.31E-01	5.48E-01	G,J
14834-73-2	Pm-144	5.04E-02 +/- 1.99E-01	3.58E-01	U,G
14834-74-3	Pm-146	1.97E-01 +/- 2.26E-01	3.64E-01	U,G
13967-48-1	Ru-106	-1.69E+00 +/- 1.66E+00	3.61E+00	U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110% Quantitative Yield is assumed

Y2 - Chemical Yield outside default limits

LT - Result is less than Requested MDC, greater than sample specific MDC

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met

SO - Spectral quality prevents accurate quantitation

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density

Abbreviations

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GSS0704007-1

Gamma Spectroscopy Results

PAI 713 Rev 9 Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0704007

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2878

Field ID: 150801-WC2
Lab ID: 0704007-2

Sample Matrix: SLUDGE
Prep SOP: PAI 739 Rev 8
Date Collected: 28-Mar-07
Date Prepared: 06-Apr-07
Date Analyzed: 09-Apr-07

Prep Batch: GS070406-3
QCBatchID: GS070406-3-1
Run ID: GS070406-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 52.5 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070434d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14234-35-6	Sb-125	5.36E-02 +/- 5.02E-01	9.09E-01	U,G
15065-10-8	Th-234	-1.16E+00 +/- 2.84E+00	5.23E+00	U,G
14913-50-9	Tl-208	4.63E-01 +/- 2.41E-01	3.06E-01	G
15117-96-1	U-235	-5.04E-01 +/- 7.44E-01	1.44E+00	U,G
13982-36-0	Y-88	8.76E-02 +/- 2.09E-01	3.73E-01	U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

SO - Spectral quality prevents accurate quantitation

Y1 - Chemical Yield is in control at 100-110% Quantitative Yield is assumed

SI - Nuclide identification and/or quantitation is tentative

Y2 - Chemical Yield outside default limits

TI - Nuclide identification is tentative

LT - Result is less than Requested MDC, greater than sample specific MDC

R - Nuclide has exceeded 8 halflives

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

G - Sample density differs by more than 15% of LCS density

M - The requested MDC was not met

Abbreviations

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GSS0704007-1

Strontium-90 Analysis by GFPC Sample Results Summary

Client Name: National Security Technologies, LLC
Client Project Name: CAU 543
Client Project Number: V2878

Laboratory Name: Paragon Analytics
PAI Work Order: 0704007

Page: 1 of 1
Reported on: Thursday, April 12, 2007
11:07:47 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0704007-1	150801-WC1	Sample	Sr-90	8.27E-02 +/- 1.08E-01	1.96E-01	pCi/g	SLUDGE	SR070404-2	4/7/2007	U
0704007-2	150801-WC2	Sample	Sr-90	3.05E-01 +/- 2.43E-01	4.85E-01	pCi/g	SLUDGE	SR070406-1	4/10/2007	U

Comments:

Data Package ID: SR0704007-1

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- M1 - The requested MDC was not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Date Printed: Thursday, April 12, 2007

Paragon Analytics
LIMS Version: 6.001A

Page 1 of 1

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD 0704007

Page 1 of 1

PROJECT / CLIENT INFORMATION		REPORT & TURNAROUND INFORMATION							SAMPLE INFORMATION					
Project: CAU 543	BN Org#:	Send Report to: DAVID NACHT							Sampling Site: CAU 543 CAS 15-08-01					
Charge Number: 501B-2205		Phone: 295-5577			Fax:		M/S NTF 306		The samples submitted contain (check):					
Project Manager: THOMAS A. THIELE		Turnaround <input type="checkbox"/> Standard - 14 days <input type="checkbox"/> 28 days Non-rad Env. <input type="checkbox"/> 45 days Rad Env <input checked="" type="checkbox"/> RUSH Preliminary by <input type="checkbox"/> (III) <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 7 <input type="checkbox"/> 14 (non-Rad Env) <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 7 <input type="checkbox"/> 14 <input type="checkbox"/> 28 (Radiological Env)							<input type="checkbox"/> Hazardous - (list) <input type="checkbox"/> Radioactive - (list) <input type="checkbox"/> Unknown contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.					
Phone: 295-6711	Fax:	M/S:												
SAMPLE MANAGEMENT INFORMATION									Pay Item, Analysis, Method					
SDG: <input type="checkbox"/> (III) <input type="checkbox"/> (Non-Rad Env) V2878 <input type="checkbox"/> (Rad Env) Samples submitted are associated with a signed Project SOW. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Analyses entered here agree with the SOW. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A If not, identify the variation: _____ Subcontract Lab(s) used for this work: PARAGON									NGS-A- #02	GPC-A- #10				
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	EST. VOL	QC MD	MS	MSD	Pres - Analysis eg. HCl - VOC's	Gamma Spec	Strenght Cap/90			
150801-WC1	03/29/07	11:15	SLUDGE	1	500 ml					X	X			
150801-WC2	03/29/07	11:45	SLUDGE	1	500 ml					X	X			
			LAST ITEM											
CUSTODY TRANSFER														
Sampled/Relinquished (print)	Signature		DATE / TIME		Received by (print)			Signature		DATE / TIME				
BEN McGEE	/s/ B McGee		03/29/07-10:45		C.J. CASTANEDA			/s/ C Castaneda		3/29/07@ 10:45				
C.J. CASTANEDA	/s/ C Castaneda		4/2/07@ 13:00		Rebecca Rambo			790706771614		4/2/07@ 13:00				
FEDEX	790706771614		4/3/07@ 09:15		Rebecca Rambo			/s/ R Rambo		4/3/07@ 09:15				

Sample Delivery Group V2899

THIS PAGE INTENTIONALLY LEFT BLANK

RFW Batch Number: 0704L144

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC
Client: NSTEC V2B99 Work Order: 60052001001 Page: 1

1100000000

Sample Information	Cust ID:	150401-VST1	150401-VST1	150401-VST1	150501-VDB1	BLK	BLK BS
RFW#:	001	001 MS	001 MSD	002	07LE0212-MB1	07LE0212-MB1	
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00	
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg

p-Terphenyl		195 *	103 %	109 %	91 %	51 %	104 %
Diesel Range Organics	3550	U	35 %	93 %	3420	U	3330
Motor Oil Range Organics	10700	U	NS	NS	10300	U	10000

Sample Information	Cust ID:	BLK	BLK BS	BLK	BLK BSD
RFW#:	07LE0217-MB1	07LE0217-MB1	07LE0217-MB1	07LE0217-MB1	07LE0217-MB1
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
D.F.:	1.00	1.00	1.00	1.00	1.00
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg

o-Terphenyl		98 %	106 %	77 %	77 %	77 %	77 %
Diesel Range Organics	3330	U	87 %	67 %	67 %	67 %	67 %
Motor Oil Range Organics	10000	U	NS	NS	NS	NS	NS

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

1/17

Lionville Laboratory, Inc.

Report Date: 04/27/07 10:49
 RFW Batch Number: 041 14 Client: NSTEC V2899 Work Order: 60052001001 Page: 1

PCBs by GC

Sample Information	Cust ID:	150401-VST1	150401-VST1	150401-VST1	PBLKZM	PBLKZM BS
RFW#:	001	001 MS	001 MSD	07LE0211- SOIL	07LE0211- SOIL	07LE0211-MBL
Matrix:	SOIL	SOIL	SOIL			
D.F.:	1.00	1.00	1.00			
Units:	UG/KG	UG/KG	UG/KG			
Surrogate: Tetrachloro-m-xylene	78.92	170 *	81 %	77 %	82 %	
Decachlorobiphenyl	92	200 *	91 %	93 %	86 %	
Aroclor-1016	14	159 *	79 %	13 U	81 %	
Aroclor-1221	14	14	14 U	13 U	13 U	
Aroclor-1232	14	14	14 U	13 U	13 U	
Aroclor-1242	14	14	14 U	13 U	13 U	
Aroclor-1248	14	14	14 U	13 U	13 U	
Aroclor-1254	14	14	14 U	13 U	13 U	
Aroclor-1260	14	176 *	89 %	13 U	84 %	
Aroclor-1268	14	14	14 U	13 U	13 U	
TOTAL PCB'S	43	U	NA	40 U	NA	

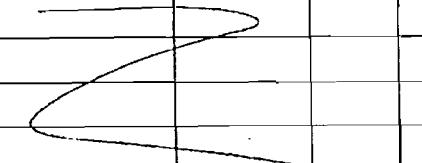
U= Analyzed, not detected. J= Present in blank. B= Present below detection limit. NS= Not reported. % = Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. * = Outside of EPA CLP QC

11/12

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page ____ of ____

PROJECT / CLIENT INFORMATION		REPORT & TURNAROUND INFORMATION				SAMPLE INFORMATION			
Project CA4543	BN Org#	Send Report to DOYLE NACHA				Sampling Site: CA515-04-01 / CA515-05-01			
Charge Number: SB1B0205		Phone 5-5577	Fax 5-7761	M/S NTS 306	The samples submitted contain (check):				
Project Manager Jeff Smith		Turnaround: <input type="checkbox"/> Standard - 14 days DL, 28 days Non-rad Env, 45 days Rad Env <input checked="" type="checkbox"/> RUSH Preliminary by (III)				<input type="checkbox"/> Hazardous - <i>this</i> <input type="checkbox"/> Radioactive - <i>this</i> <input type="checkbox"/> Unknown contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.			
Phone 5-7775	Fax 5-7761	M/S NTS 306	MSF						
SAMPLE MANAGEMENT INFORMATION						Pay Item, Analysis, Method			
SDG: (III) V2899	(Non-Rad Env) (Rad Env)				10.21	8.1			
Samples submitted are associated with a signed Project SOW. <input type="checkbox"/> YES <input type="checkbox"/> NO						TPK-DR	PCR		
Analyses entered here agree with the SOW. <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A							5		
If not, identify the variation:									
Subcontract Lab(s) used for this work: LICNUVILLE									
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	QC Est. Vol	MD	MS	MSD	Pres. Analysis eg. HCl - VOCs
150401-VST1	4/16/07	1140	Soil	1	250 ml				X
150401-VSP1		1		1	250 ml				X
160401-VST1 MSF		1		1	500 ml				
150501-VDB1		1445		1	250 ml				X
LAST ITEM									
									
CUSTODY TRANSFER									
Sampled/Relinquished (print)	Signature		DATE / TIME	Received by (print)		Signature		DATE / TIME	
Ben McGee	/s/ B McGee		4/17/07 @ 10:39	C. CASTANEDA		/s/ C. Castaneda		4/17/07 @ 10:39	
C. CASTANEDA	/s/ C Castaneda		4/18/07 @ 13:00	FED EX		79913455 #142		4/18/07 @ 13:00	
FED EX			4/18/07 @ 0945	VICTOR HERNANDEZ		/s/ V Hernandez		4/19/07 @ 0945	

THIS PAGE INTENTIONALLY LEFT BLANK

Sample Delivery Group V2900

THIS PAGE INTENTIONALLY LEFT BLANK

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0704141

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2900

Field ID: 150401-UST1	Sample Matrix: SOIL	Prep Batch: GS070420-2	Final Aliquot: 459 g
Lab ID: 0704141-1	Prep SOP: PAI 739 Rev 8	QCBatchID: GS070420-2-1	Prep Basis: Dry Weight
Library: LNG_GAM-A-001	Date Collected: 16-Apr-07	Run ID: GS070420-2A	Moisture(%): NA
Analysis ReqCode: NGS-A-002	Date Prepared: 20-Apr-07	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 26-Apr-07	Report Basis: Dry Weight	File Name: 070647d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.04E+00 +/- 2.89E-01	5.38E-01	
14596-10-2	Am-241	4.20E-02 +/- 5.27E-01	9.18E-01	U
14733-03-0	Bi-214	8.33E-01 +/- 2.05E-01	2.08E-01	J
14762-78-8	Ce-144	1.64E-01 +/- 3.66E-01	6.15E-01	U
10198-40-0	Co-60	2.42E-02 +/- 6.76E-02	1.20E-01	U
13967-70-9	Cs-134	-4.79E-02 +/- 5.08E-02	1.01E-01	U
10045-97-3	Cs-137	0E+00 +/- 6.30E-02	1.14E-01	U
14683-23-9	Eu-152	-2.83E-02 +/- 3.41E-01	6.45E-01	U
15585-10-1	Eu-154	-3.24E-01 +/- 4.05E-01	7.95E-01	U
14391-16-3	Eu-155	9.05E-02 +/- 1.92E-01	3.24E-01	U
13966-00-2	K-40	2.76E+01 +/- 4.09E+00	8.50E-01	
15092-94-1	Pb-212	1.05E+00 +/- 2.15E-01	2.17E-01	
15067-28-4	Pb-214	9.93E-01 +/- 1.99E-01	2.10E-01	J
14834-73-2	Pm-144	4.53E-02 +/- 6.45E-02	1.07E-01	U
14834-74-3	Pm-146	1.87E-02 +/- 6.57E-02	1.14E-01	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M4 - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BOL - Below Detection Limit

Data Package ID: GSS0704141-1

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0704141

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2900

Field ID: 150401-UST1	Sample Matrix: SOIL	Prep Batch: GS070420-2	Final Aliquot: 459 g
Lab ID: 0704141-1	Prep SOP: PAI 739 Rev 8	QCBatchID: GS070420-2-1	Prep Basis: Dry Weight
Library: LNG_GAM-A-001	Date Collected: 16-Apr-07	Run ID: GS070420-2A	Moisture(%): NA
Analysis ReqCode: NGS-A-002	Date Prepared: 20-Apr-07	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 26-Apr-07	Report Basis: Dry Weight	File Name: 070647d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13967-48-1	Ru-106	2.25E-01 +/- 5.11E-01	8.78E-01	U
14234-35-6	Sb-125	-9.33E-02 +/- 1.46E-01	2.77E-01	U
15065-10-8	Th-234	1.30E+00 +/- 1.39E+00	2.26E+00	U
14913-50-9	Tl-208	3.54E-01 +/- 1.04E-01	1.15E-01	
15117-96-1	U-235	3.03E-01 +/- 3.72E-01	6.08E-01	U
13982-36-0	Y-88	-4.73E-03 +/- 7.02E-02	1.29E-01	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halfives.

G - Sample density differs by more than 15% of LGS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GSS0704141-1

0704141

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page 1 of 1

PROJECT / CLIENT INFORMATION		REPORT & TURNAROUND INFORMATION					SAMPLE INFORMATION							
Project	Call 543	BN Org#	H300	Send Report to	Dave NpcLr					Sampling Site:	Call 15-04-01			
Charge Number:	SB1B2205	Phone	6-5577	Fax	NTS 366	M/S	5-7761	Turnaround:	() Standard - 14 days (II), 28 days Non-rad Env, 45 days Rad Env	The samples submitted contain (check):				
Project Manager	Jeff Smith				X	RUSH	Preliminary by	(III)	() Hazardous - (list)					
Phone	5-7775	Fax	5-7761	M/S	NTS 366			(II)	() Radioactive - (list)					
									() Unknown contamination. If known, identify					
									contaminants. This information will ensure compliance with					
									applicable regulations and allow for the safe handling of the					
									sample materials.					
SAMPLE MANAGEMENT INFORMATION										Pay Item, Analysis, Method				
SDG:	(III)	(Non-Rad Env)	V2900	(Rad Env)	NGS-A-002									
Samples submitted are associated with a signed Project SOW. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO														
Analyses entered here agree with the SOW. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A														
If not, identify the variation:														
Subcontract Lab(s) used for this work:										PARAGON				
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	ESL VOL	MD	MS	MSD	QC	Pres - Analysis eg. HCl - VOC's				
180401-VST1	4/14/07	1140	Soil	1	500 ml					X				
LAST ITEM														
CUSTODY TRANSFER														
Sampled/Relinquished (print)	Signature		DATE / TIME		Received by (print)			Signature		DATE / TIME				
BEN MCGEE	/s/ B McGee		4/17/07 @ 10:39		C.D.CASTANEDA			/s/ C Castaneda		4/17/07 @ 10:39				
C.D.CASTANEDA	/s/ C Castaneda		4/18/07 @ 1300		FED EX			79815494644		4/18/07 @ 1300				
Fed Ex			4/19/07 0900		Sheri Lafferty			/s/ S Lafferty		4/19/07 @ 900				

THIS PAGE INTENTIONALLY LEFT BLANK

Sample Delivery Group V2967

THIS PAGE INTENTIONALLY LEFT BLANK

Lionville Laboratory, Inc.

Report Date: 08/24/07 09:15

Client: NSTEC V2967

PCBS by GC

Work Order: 60052001001

Page: 1

Sample Information	Cust ID: 150103-DBV1	150103-DBV2	PBLKEZ	PBLKEZ BS
RFM#:	001	002	07LE0458-MB1	07LE0458-MB1
Matrix:	SOIL	SOIL	SOIL	SOIL
D.F.:	1.00	1.00	1.00	1.00
Units:	UG/KG	UG/KG	UG/KG	UG/KG

Surrogate:	Tetrachloro-m-xylyene	79	%	75	%	83	%	84	%
	Decachlorobiphenyl	90	%	89	%	91	%	96	%
Aroclor-1016		14	U	14	U	13	U	93	%
Aroclor-1221		14	U	14	U	13	U	13	U
Aroclor-1232		14	U	14	U	13	U	13	U
Aroclor-1242		14	U	14	U	13	U	13	U
Aroclor-1248		14	U	14	U	13	U	13	U
Aroclor-1254		14	U	14	U	13	U	13	U
Aroclor-1260		14	U	14	U	13	U	98	%

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

Lionville Laboratory, Inc.

RFW Batch Number. 0708L769

Report Date: 08/24/07 06:18

Client. NSTEC V2967

Work Order. 60052001001 Page: 1

GAS RANGE ORGANICS

Report Date: 08/24/07 06:18

Cust ID: 150103-DBV1 150103-DBV2 TBLKDC TBLKDC BS TBLKDC BSD

Sample Information	RFW#:	Matrix:	D.F.:	Units:	001	002	07LVJ823-MB1	07LVJ823-MB1	07LVJ823-MB1	SOIL	SOIL	SOIL
	SOIL	SOIL	1.00	UG/KG						1.00	1.00	1.00
										UG/KG	UG/KG	UG/KG

Gasoline Range Organics (GRO)	Fluorobenzene	74	%	77	%	63	%	78	%	88	%
Gasoline Range Organics (GRO) _____		90	J	90	U	90	U	78	%	92	%

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

Lionville Laboratory, Inc.
DIESEL RANGE ORGANICS BY GC

Client. NSTEC v2967

Report Date: 08/23/07 14:25

RFW Batch Number: 0708L769

Work Order. 60052001001 Page: 1

Cust ID: 150103-DBV1

150103-DBV2

BLK

BLK BS

Sample Information	RFW#:	001	002	07LE0460-MB1	07LE0460-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg
Diesel Range Organics	p-Terphenyl	103	%	108	%
		3440	U	3440	U
Motor Oil Range Organics		10300	U	10300	U
				10000	U
					NS

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

NSTec

**ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD**

Page 1 of 1

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
David Nacht	/s/ D Nacht	8-13-07 16:40	Sample Fridge	/s/ V Hernandez	8-13-07 16:40
Sample Fridge	/s/ D Nacht	8-15-07 8:37	David Nacht	/s/ D Nacht	8-15-07 8:37
David Nacht	/s/ D Nacht	8-15-07 8:50	CDCASTANEDA	/s/ C Castaneda	8-15-07 08:50
CDCASTANEDA	/s/ C Castaneda	8-15-07 08:13AM	Fac. Lab	792397059963	8-15-07 08:13AM
Fac. Lab	/s/ V Hernandez	8-16-07 09:50	VICENTE HERNANDEZ	/s/ V Hernandez	8-16-07 09:50

Sample Delivery Group V2968

THIS PAGE INTENTIONALLY LEFT BLANK

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0708142

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2968

Field ID: 150103-DBU1 Lab ID: 0708142-1	Sample Matrix: SOIL Prep SOP: PAI 739 Rev 9 Date Collected: 13-Aug-07 Library: LNG_GAM-A-001 Analysis ReqCode: NGS-A-002	Prep Batch: GS070821-1 QCBatchID: GS070821-1-1 Run ID: GS070821-1A Date Prepared: 21-Aug-07 Date Analyzed: 22-Aug-07	Final Aliquot: 469 g Prep Basis: Dry Weight Moisture(%): NA Result Units: pCi/g Report Basis: Dry Weight File Name: 071158d06
--	--	--	--

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	7.67E-01 +/- 2.77E-01	4.17E-01	TI
14596-10-2	Am-241	1.28E+00 +/- 9.87E-01	1.54E+00	U
14733-03-0	Bi-214	6.40E-01 +/- 1.98E-01	2.40E-01	J
14762-78-8	Ce-144	0E+00 +/- 3.38E-01	5.94E-01	U
10198-40-0	Co-60	2.00E-02 +/- 5.49E-02	9.99E-02	U
13967-70-9	Cs-134	-2.22E-02 +/- 6.20E-02	1.16E-01	U
10045-97-3	Cs-137	-1.11E-02 +/- 5.98E-02	1.13E-01	U
14683-23-9	Eu-152	6.60E-02 +/- 2.64E-01	4.95E-01	U
15585-10-1	Eu-154	9.45E-02 +/- 3.95E-01	7.06E-01	U
14391-16-3	Eu-155	-5.53E-03 +/- 2.55E-01	4.45E-01	U
13966-00-2	K-40	2.02E+01 +/- 3.37E+00	1.41E+00	
15092-94-1	Pb-212	8.85E-01 +/- 1.82E-01	1.55E-01	
15067-28-4	Pb-214	5.89E-01 +/- 1.52E-01	2.13E-01	J
14834-73-2	Pm-144	9.62E-03 +/- 5.87E-02	1.05E-01	U
14834-74-3	Pm-146	-1.30E-02 +/- 6.41E-02	1.20E-01	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SO - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GS0708142-1

Date Printed: Monday, August 27, 2007

Paragon Analytics

Page 1 of 4

LIMS Version: 6.056A

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0708142

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2968

Field ID: 150103-DBU1	Sample Matrix: SOIL	Prep Batch: GS070821-1	Final Aliquot: 469 g
Lab ID: 0708142-1	Prep SOP: PAI 739 Rev 9	QCBatchID: GS070821-1-1	Prep Basis: Dry Weight
Library: LNG_GAM-A-001	Date Collected: 13-Aug-07	Run ID: GS070821-1A	Moisture(%): NA
Analysis ReqCode: NGS-A-002	Date Prepared: 21-Aug-07	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 22-Aug-07	Report Basis: Dry Weight	File Name: 071158d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
15623-45-7	Ra-223	1.31E+00 +/- 6.77E-01	9.62E-01	TI
13967-48-1	Ru-106	-2.70E-01 +/- 5.53E-01	1.07E+00	U
14234-35-6	Sb-125	-8.97E-03 +/- 1.28E-01	2.37E-01	U
15065-10-8	Th-234	-6.77E-01 +/- 1.31E+00	2.36E+00	U
14913-50-9	Tl-208	2.29E-01 +/- 9.11E-02	1.14E-01	
15117-96-1	U-235	1.38E-02 +/- 3.29E-01	5.76E-01	U
13982-36-0	Y-88	1.31E-02 +/- 7.45E-02	1.34E-01	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SO - Spectral quality prevents accurate quantitation

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halfives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 740)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GS0708142-1

Date Printed: Monday, August 27, 2007

Paragon Analytics

LIMS Version: 6.056A

Page 2 of 4

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0708142

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2968

Field ID: 150103-DBU2	Sample Matrix: SOIL	Prep Batch: GS070821-1	Final Aliquot: 462 g
Lab ID: 0708142-2	Prep SOP: PAI 739 Rev 9	QCBatchID: GS070821-1-1	Prep Basis: Dry Weight
Library: LNG_GAM-A-001	Date Collected: 13-Aug-07	Run ID: GS070821-1A	Moisture(%): NA
Analysis ReqCode: NGS-A-002	Date Prepared: 21-Aug-07	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 22-Aug-07	Report Basis: Dry Weight	File Name: 071159d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	8.60E-01 +/- 2.48E-01	4.16E-01	
14596-10-2	Am-241	-2.47E-01 +/- 9.94E-01	1.78E+00	U
14733-03-0	Bi-214	5.26E-01 +/- 1.77E-01	1.96E-01	J
14762-78-8	Ce-144	-3.14E-01 +/- 3.70E-01	6.83E-01	U
10195-40-0	Co-60	0E+00 +/- 4.27E-02	8.86E-02	U
13967-70-9	Cs-134	1.43E-02 +/- 5.88E-02	1.04E-01	U
10045-97-3	Cs-137	3.21E-02 +/- 5.92E-02	1.01E-01	U
14683-23-9	Eu-152	2.01E-01 +/- 2.52E-01	4.02E-01	U
15585-10-1	Eu-154	7.79E-02 +/- 3.54E-01	6.42E-01	U
14391-16-3	Eu-155	1.28E-01 +/- 2.50E-01	4.21E-01	U
13966-00-2	K-40	2.29E+01 +/- 3.69E+00	1.27E+00	
15092-94-1	Pb-212	8.75E-01 +/- 1.81E-01	1.56E-01	
15067-28-4	Pb-214	6.61E-01 +/- 1.59E-01	1.96E-01	J
14834-73-2	Pm-144	-4.68E-02 +/- 6.02E-02	1.20E-01	U
14834-74-3	Pm-145	2.19E-02 +/- 6.96E-02	1.22E-01	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SO - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GS0708142-1

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0708142

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2968

Field ID: 150103-DBU2	Sample Matrix: SOIL	Prep Batch: GS070821-1	Final Aliquot: 462 g
Lab ID: 0708142-2	Prep SOP: PAI 739 Rev 9	QCBatchID: GS070821-1-1	Prep Basis: Dry Weight
Library: LNG_GAM-A-001	Date Collected: 13-Aug-07	Run ID: GS070821-1A	Moisture(%): NA
Analysis ReqCode: NGS-A-002	Date Prepared: 21-Aug-07	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 22-Aug-07	Report Basis: Dry Weight	File Name: 071159d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13967-48-1	Ru-106	-9.46E-02 +/- 5.09E-01	9.63E-01	U
14234-35-6	Sb-125	-7.28E-02 +/- 1.48E-01	2.82E-01	U
15065-10-8	Th-234	3.87E-01 +/- 1.34E+00	2.29E+00	U
14913-50-9	Tl-208	2.48E-01 +/- 9.03E-02	1.06E-01	
15117-96-1	U-235	-8.38E-02 +/- 3.42E-01	6.11E-01	U
13982-36-0	Y-88	-1.46E-02 +/- 6.60E-02	1.28E-01	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

SD - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

Tl - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halfives.

G - Sample density differs by more than 15% of LCS density.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GS0708142-1

Date Printed: Monday, August 27, 2007

Paragon Analytics

LIMS Version: 6.056A

Page 4 of 4

Isotopic Plutonium By Alpha Spectroscopy Sample Results Summary

Client Name: National Security Technologies, LLC

Client Project Name: CAU 543

Client Project Number: V2968

Laboratory Name: Paragon Analytics

PAI Work Order: 0708142

Page: 1 of 1

Reported on: Wednesday, August 29, 2007

9:02:51 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0708142-1	150103-DBU1	Sample	Pu-238	2.05E-02 +/- 8.70E-03	2.14E-03	pCi/g	SOIL	AS070821-1	8/23/2007	
0708142-1	150103-DBU1	Sample	Pu-239/240	5.77E-03 +/- 4.69E-03	5.18E-03	pCi/g	SOIL	AS070821-1	8/23/2007	LT
0708142-2	150103-DBU2	Sample	Pu-238	2.39E-03 +/- 3.37E-03	2.16E-03	pCi/g	SOIL	AS070821-1	8/23/2007	LT
0708142-2	150103-DBU2	Sample	Pu-239/240	4.06E-02 +/- 1.31E-02	2.16E-03	pCi/g	SOIL	AS070821-1	8/23/2007	

Comments:

Data Package ID: P0708142-1

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

N1 - The requested MDC was not met.

N13 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Date Printed: Wednesday, August 29, 2007

Paragon Analytics
LIMS Version: 6.057A

Page 1 of 1

Sample Delivery Group V2974

THIS PAGE INTENTIONALLY LEFT BLANK

Lionville Laboratory, Inc.
 DIESEL RANGE ORGANICS BY GC
 RFW Batch Number: 0709L854 Client: NSTEC V2974 Work Order: 60052001001 Page: 1
 Report Date: 09/21/07 13:58

Sample Information	Cust ID:	060701-605T	060701-605T	060701-605T	060701-605T	060701-607T	060701-607T	BLK
RFW#:	001	001	MS	001	MSD	002	003	07L80508-MB1
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
p-Terphenyl	88	%	94	%	96	%	105	%
Diesel Range Organics	3630	U	79	%	75	%	4100	3840
Motor Oil Range Organics	10900	U	NS		NS		11000	U
							11500	U
							10000	U
							3330	U

Sample Information	Cust ID:	BLK BS
RFW#:	07L80508-MB1	
Matrix:	SOIL	
D.F.:	1.00	
Units:	ug/kg	
p-Terphenyl	76	%
Diesel Range Organics	67	%
Motor Oil Range Organics	NS	

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

Lionville Laboratory, Inc.

Report Date: 09/11/07 14:00
 RFN Batch Number: 0709L854 Client: NSTEC V2974 Work Order: 60052001C01 Page: 1

Sample Information	Cust. ID:	060701-605T	060701-605T	060701-605T	060701-605T	060701-607T	060701-607T	PBLKFY
RFN#:	001	001	MS	001	MSD	002	003	07LE0511-MB1
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	101	%	100	%	103	%	90
	Decachlorobiphenyl	92	%	90	%	92	%	90
Aroclor-1016		15	U	85	%	88	%	15
Aroclor-1221		15	U	15	U	15	U	15
Aroclor-1232		15	U	15	U	15	U	15
Aroclor-1242		15	U	15	U	15	U	15
Aroclor-1248		15	U	15	U	15	U	15
Aroclor-1254		15	U	15	U	15	U	15
Aroclor-1260		15	U	94	%	101	%	15

Cust ID: PBLKFY BS

Sample Information	RFN#:	07LE0511-MB1
Matrix:	SOIL	
D.F.:	1.00	
Units:	UG/KG	

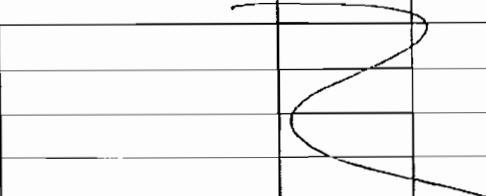
Surrogate:	Tetrachloro-m-xylene	96	%	81	%	81	%	81	%
	Decachlorobiphenyl	87	%	87	%	87	%	87	%
Aroclor-1016		13	U	13	U	13	U	13	U
Aroclor-1221		13	U	13	U	13	U	13	U
Aroclor-1232		13	U	13	U	13	U	13	U
Aroclor-1242		13	U	13	U	13	U	13	U
Aroclor-1248		13	U	13	U	13	U	13	U
Aroclor-1254		13	U	13	U	13	U	13	U
Aroclor-1260		88	%	88	%	88	%	88	%

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

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page 1 of 1

PROJECT/CLIENT INFORMATION		REPORT & TURNAROUND INFORMATION					SAMPLE INFORMATION							
Project	CAU 543	BN Org#	W330	Send Report to:	Dark Nacht					Sampling Site:	CAU 543			
Charge Number:	5B1B 2205		Phone	5-5571	Fax	J-7761	M/S:	MTS306		The samples submitted contain (check):				
Project Manager:	Jeff Smith		Turnaround:	(Standard - 14 days III. 28 days Non-rad Env, 45 days Rad Env (CRUSH Preliminary by III)					<input type="checkbox"/> Hazardous - dist					
Phone:	5-3221	Fax:	5-7761	M/S:	MTS306		<input checked="" type="checkbox"/> Radioactive - dist							
SAMPLE MANAGEMENT INFORMATION										Pay Item, Analysis, Method				
SDG:	(III) V2974		(Non-Rad Env)		(Rad Env)		10.21	8.1						
Samples submitted are associated with a signed Project SOW. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO										TPH	PCB			
Analyses entered here agree with the SOW. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A										DRD				
If not, identify the variation:										8055	8082			
Subcontract Lab(s) used for this work: LIONVILLE														
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER	#	Est. Vol	MD	MS	MSD	eg.	Pres - Analysis			
060701-605T	8-28-07	10 ³⁰	Soil	2	16 ¹²						X	X		
060701-606T	8-28-07	10 ⁴⁵	↓	2	16 ¹²						X	X		
060701-607T	8-28-07	10 ²⁰	↓	2	16 ⁰²						X	X		
LAST 176xx														
														
CUSTODY TRANSFER														
Sampled/Relinquished (print)	Signature		DATE / TIME		Received by (print)			Signature		DATE / TIME				
Reed Poderis ER Refrig	/s/ R Poderis		8/28/07 12 ⁰⁰		ER Fridge			NA		8/28/07 12 ⁰⁰				
	NA		9/1/07 8 ⁴⁰		Reed Poderis			/s/ R Poderis		9/4/07 8 ⁴⁰				
Reed Poderis	/s/ R Poderis		9/4/07 8 ⁴⁰		J. D. CASTANEDA			/s/ C Castaneda		9/4/07 08 ⁴⁰				
CD CASTANEDA	/s/ C Castaneda		9/4/07 @ 13 ⁰⁰		FED EX #			790819921423		9/4/07 @ 13 ⁰⁰				
Fed EX			9-5-07 @ 09:35		Victor Hernandez			/s/ V Hernandez		9-5-07 @ 09:35				

THIS PAGE INTENTIONALLY LEFT BLANK

Sample Delivery Group V2975

THIS PAGE INTENTIONALLY LEFT BLANK

Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: National Security Technologies, LLC

Client Project Name: CAU 543

Client Project Number: V2975

Laboratory Name: Paragon Analytics

PAI Work Order: 0709008

Page: 1 of 1

Reported on: Wednesday, October 03, 2007

11:20:16 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0709008-1	060701-605T	Sample	GROSS ALPHA	5.74E+00 +/- 1.94E+00	1.10E+00	pCi/g	SOIL	AB070920-1	9/26/2007	
0709008-1	060701-605T	Sample	GROSS BETA	5.22E+00 +/- 1.64E+00	2.15E+00	pCi/g	SOIL	AB070920-1	9/26/2007	LT
0709008-2	060701-606T	Sample	GROSS ALPHA	6.58E+00 +/- 2.20E+00	1.43E+00	pCi/g	SOIL	AB070920-1	9/26/2007	
0709008-2	060701-606T	Sample	GROSS BETA	5.78E+00 +/- 1.78E+00	2.31E+00	pCi/g	SOIL	AB070920-1	9/26/2007	LT

Comments:

Data Package ID: AB0709008-1

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Date Printed: Wednesday, October 03, 2007

Paragon Analytics
LIMS version: 6.071A

Page 1 of 1

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0709008

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2975

Field ID: 060701-607T	Sample Matrix: SOIL	Prep Batch: GS070910-1	Final Aliquot: 295 g
Lab ID: 0709008-3	Prep SOP: PAI 739 Rev 9	QCBatchID: GS070910-1-1	Prep Basis: Dry Weight
Library: LNG_GAM-A-001	Date Collected: 28-Aug-07	Run ID: GS070910-1A	Moisture(%): NA
Analysis ReqCode: NGS-A-002	Date Prepared: 11-Sep-07	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 14-Sep-07	Report Basis: Dry Weight	File Name: 071263d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14596-10-2	Am-241	-3.14E-02 +/- 4.71E-01	8.06E-01		U,G
10198-40-0	Co-60	4.69E-02 +/- 6.79E-02	1.12E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

L7 - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS0709008-1

Isotopic Plutonium By Alpha Spectroscopy Sample Results Summary

Client Name: National Security Technologies, LLC
Client Project Name: CAU 543
Client Project Number: V2975

Laboratory Name: Paragon Analytics
PAI Work Order: 0709008

Page: 1 of 1
Reported on: Monday, September 24, 2007
2:38:45 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0709008-3	060701-607T	Sample	Pu-238	0E+00 +/- 3.35E-03	1.85E-03	pCi/g	SOIL	AS070911-8	9/17/2007	U
0709008-3	060701-607T	Sample	Pu-239/240	0E+00 +/- 3.35E-03	1.85E-03	pCi/g	SOIL	AS070911-8	9/17/2007	U

Comments:

Data Package ID: PU0709008-1

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- L - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- M - The requested MDC was not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Date Printed: Monday, September 24, 2007

Paragon Analytics
LIMS Version: 6.068A

Page 1 of 1

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

Strontium-90 Analysis by GFPC Sample Results Summary

Client Name: National Security Technologies, LLC

Client Project Name: CAU 543

Client Project Number: V2975

Laboratory Name: Paragon Analytics
PAI Work Order: 0709008

Page: 1 of 1
Reported on: Thursday, September 20, 2007
4:31:19 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0709008-3	060701-607-T	Sample	Sr-90	4.55E-02 +/- 1.01E-01	2.92E-01	pCi/g	SOIL	SR070911-1	9/17/2007	Y1,U

Comments:

Data Package ID: SR0709008-1

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- M - The requested MDC was not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Date Printed: Thursday, September 20, 2007

Abbreviations:

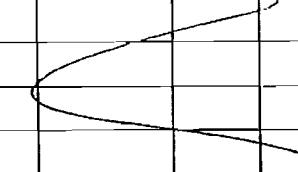
- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- SDL - Below Detection Limit

NSTec

**ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD**

D. 00

Page _____ of _____

PROJECT / CLIENT INFORMATION			REPORT & TURNAROUND INFORMATION							SAMPLE INFORMATION									
Project: <i>CRV 543</i>	BN Org#: <i>16340</i>	Send Report to: <i>Dave Nacht</i>								Sampling Site: <i>CRV 543</i>									
Charge Number: <i>5B1B 2205</i>	Phone: <i>5-5377</i>	Fax: <i>5-7761</i>	M/S: <i>NTS306</i>								The samples submitted contain (check):								
Project Manager: <i>Dave Nacht</i>	Turnaround: <input type="checkbox"/> Standard - 14 days III, 28 days Non-rad Env, 45 days Rad Env <input checked="" type="checkbox"/> RUSH Preliminary by: <i>1</i> <input type="checkbox"/> <i>2</i> <input type="checkbox"/> <i>7</i> <input type="checkbox"/> <i>14</i> (non-Rad Env) <input type="checkbox"/> <i>1</i> <input type="checkbox"/> <i>7</i> <input checked="" type="checkbox"/> <i>14</i> <input type="checkbox"/> <i>28</i> (Radiological Env)								<input type="checkbox"/> Hazardous - (list) _____ <input type="checkbox"/> Radioactive - (list) _____ <input checked="" type="checkbox"/> Unknown contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.										
SAMPLE MANAGEMENT INFORMATION										Pay Item, Analysis, Method									
SDG: <i>(III)</i> (Non-Rad Env) <i>VJ2975</i> (Rad Env)								GPC-A-003	GPC-A-003	NES-A-002	NES-A-002	GPC-A-010	NES-A-006						
Samples submitted are associated with a signed Project SOW. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO								<i>Gross</i>	<i>Gross</i>	<i>Co</i>	<i>AM</i>	<i>Sr</i>	<i>Pu</i>						
Analyses entered here agree with the SOW. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A								<i>Alpha</i>	<i>Beta</i>	<i>60</i>	<i>211</i>	<i>90</i>	<i>239</i>						
If not, identify the variation: _____															<i>gamma</i>	<i>gamma</i>	<i>gamma</i>	<i>gamma</i>	
Subcontract Lab(s) used for this work: <i>PARAGON</i>															<i>spec</i>	<i>spec</i>	<i>spec</i>	<i>spec</i>	
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	Est. Vol	MD	MS	MSD	QC	Pres - Analysis eg. HCl - VOC's									
060701-605T	8-28-07	1030	Soil	1	500ml						X	X							
060701-606T	1	1045		2	1L						X	X	<i>ANAL</i>	<i>ANAL</i>	<i>ANAL</i>				
060701-607T	1	1020		2	1L						X	X	X	X					
LAST ITEM																			
																			
CUSTODY TRANSFER																			
Sampled/Relinquished (print)	Signature		DATE / TIME			Received by (print)			Signature		DATE / TIME								
<i>Reed Poderis</i>	<i>R Poderis</i>		<i>8/28/07 1200</i>			<i>EQ fridge</i>			<i>NA</i>		<i>8/28/07 1200</i>								
<i>CR Castaneda</i>	<i>NA</i>		<i>9/4/07 840</i>			<i>Reed Poderis</i>			<i>/s/ R Poderis</i>		<i>9/4/07 840</i>								
<i>Reed Poderis</i>	<i>/s/ R Poderis</i>		<i>9/4/07 840</i>			<i>/s/ C Castaneda</i>			<i>/s/ C Castaneda</i>		<i>9/4/07 0840</i>								
<i>C. A. CASTANEDA</i>	<i>/s/ C Castaneda</i>		<i>9/4/07 0840</i>			<i>Reed Poderis</i>			<i>791754860434</i>		<i>9/4/07 0840</i>								
<i>FED EX</i>						<i>Cheryl Trimble</i>			<i>/s/ C Trimble</i>		<i>9/5/07 0940</i>								

THIS PAGE INTENTIONALLY LEFT BLANK

Sample Delivery Group V2981

THIS PAGE INTENTIONALLY LEFT BLANK

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Client: NISTEC V2981

Report Date: 09/19/07 09:29

Work Order: 60052001001

Page: 1

Sample Information				Cust ID: 060701-S1	060701-S1	060701-S1	060701-S2	060701-S3	BLK
Sample	RFW#:	001	001 MS		001 MSD		002		003
Information	Matrix:	SOIL	SOIL		SOIL		SOIL		07LE0528-MB1
	D.F.:	1.00	1.00		1.00		1.00		SOIL
	Units:	ug/kg	ug/kg		ug/kg		ug/kg		1.00
Diesel Range Organics	p-Terphenyl	88	%	81	%	68	%	87	%
Motor Oil Range Organics		3660	U	82	%	73	%	3650	U
		11000	U	NS		NS		3710	U
						14000		14000	U
								10000	

Sample Information				Cust ID: BLK BS					
Sample	RFW#:	07LE0528-MB1							
Information	Matrix:	SOIL							
	D.F.:	1.00							
	Units:	ug/kg							
Diesel Range Organics	p-Terphenyl	73	%						
Motor Oil Range Organics		90	%						
		NS							

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

Lionville Laboratory, Inc.

GAS RANGE ORGANICS

RFW Batch Number. 0709L919

Report Date: 09/20/07 13:50

Work Order. 60052001001

Page: 1

Sample Information	Cust ID:	060701-S1	060701-S1	060701-S1	060701-S2	060701-S3	TBLKDG
RFW#:	001	001 MS	001 MSD	002	003	07LVJ919-MB1	
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG

Gasoline Range Organics (GRO)	Fluorobenzene	70	%	73	%	78	%	76	%	74	%	83	%
_____	99	U	73	%	79	%	99	U	99	U	90	U	

Cust ID: TBLKDG BS

Sample Information	RFW#:	07LVJ919-MB1
Gasoline Range Organics (GRO)	Matrix:	SOIL
_____	D.F.:	1.00
_____	Units:	UG/KG

Gasoline Range Organics (GRO)	Fluorobenzene	86	%
_____	84	%	_____

U= Analyzed, not detected. \leq = Present below detection limit. 3= Present in blank. NR= Not reported. NS= Not spiked.
% = Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. * = Outside of EPA CLP QC

Lionville Laboratory, Inc.

Report Date: 09/18/07 13:43

RFW Batch Number: 0709L919

Client: NSTEC V2981 PCBs by GC

Work Order: 60052001001 Page: 1

Cust ID: 060701-S1 060701-S1 060701-S1 060701-S2 060701-S3 PBLKGL

Sample Information	RFM#:	001	001 MS	001 MSD	002	003	07LE0527-MB1	
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00	
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	
Surrogate: Tetrachloro-m-xylylene		71	%	79	%	75	%	
Decachlorobiphenyl		61	%	62	%	59	%	
Aroclor-1016	15	U	79	%	75	%	75	%
Aroclor-1221	15	U	15	U	15	U	15	U
Aroclor-1232	15	U	15	U	15	U	15	U
Aroclor-1242	15	U	15	U	15	U	15	U
Aroclor-1248	15	U	15	U	15	U	15	U
Aroclor-1254	15	U	15	U	15	U	15	U
Aroclor-1260	15	U	90	%	83	%	15	U

Cust ID: PBLKGL BS

Sample Information	RFM#:	07LE0527-MB1	07LE0527-MB1	07LE0527-MB1	07LE0527-MB1	07LE0527-MB1	07LE0527-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylylene		81	%	81	%	81	%
Decachlorobiphenyl		64	%	77	%	77	%
Aroclor-1016							
Aroclor-1221		13	U				
Aroclor-1232		13	U				
Aroclor-1242		13	U				
Aroclor-1248		13	U				
Aroclor-1254		13	U				
Aroclor-1260		87	%				

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

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page 1 of 1

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
BEN McGEE	/s/ B McGee	09/06/07 - 17:00	REFRIGERATOR	/s/ B McGee	09/06/07 - 17:00
REFRIGERATOR	/s/ B McGee	09/13/07 - 09:32	BEN McGEE	/s/ B McGee	09/18/07 - 09:32
BEN McGEE	/s/ B McGee	09/12/07 - 09:40	C D CASTANEDA	/s/ C Castaneda	9/13/07 @ 0940
C D. CASTANEDA	/s/ C Castaneda	9-13-07 @ 13:00	FED EX	7917632293725	9/13/07 @ 13:00
	FED EX	9-14-07 09:55	D Smith	/s/ D Smith	9-14-07 09:55

Sample Delivery Group V2982

THIS PAGE INTENTIONALLY LEFT BLANK

Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: National Security Technologies, LLC

Client Project Name: CAU 543

Client Project Number: V2982

Laboratory Name: Paragon Analytics
PAI Work Order: 0709089

Page: 1 of 1
Reported on: Friday, October 05, 2007
11:39:12 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0709089-2	060701-S1B	Sample	GROSS ALPHA	7.39E+00 +/- 2.11E+00	9.62E-01	pCi/g	SOIL	AB070920-1	9/26/2007	
0709089-2	060701-S1B	Sample	GROSS BETA	5.03E+00 +/- 1.37E+00	1.50E+00	pCi/g	SOIL	AB070920-1	9/26/2007	LT

Comments:

Data Package ID: AB0709089-1

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M1 - The requested MDC was not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Date Printed: Friday, October 05, 2007

Paragon Analytics
LIMS Version: 6.072A

Page 1 of 1

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0709089

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2982

Field ID: 060701-S2 Lab ID: 0709089-3 Library: LNG_GAM-A-001 Analysis ReqCode: NGS-A-002	Sample Matrix: SOIL Prep SOP: PAI 739 Rev 9 Date Collected: 06-Sep-07 Date Prepared: 20-Sep-07 Date Analyzed: 23-Sep-07	Prep Batch: GS070920-1 QCBatchID: GS070920-1-1 Run ID: GS070920-1A Count Time: 30 minutes Report Basis: Dry Weight	Final Aliquot: 347 g Prep Basis: Dry Weight Moisture(%): NA Result Units: pCi/g File Name: 071325d01
---	---	--	--

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	2.20E+00 +/- 3.70E-01	4.21E-01		G
14596-10-2	Am-241	-4.27E-01 +/- 4.33E-01	7.61E-01		U,G
14913-49-6	Bi-212	1.34E+00 +/- 7.03E-01	9.97E-01		G
14733-03-0	Bi-214	1.06E+00 +/- 2.07E-01	2.11E-01		G,J
14762-78-8	Ce-144	-2.74E-02 +/- 6.65E-01	1.12E+00		U,G
10198-40-0	Co-60	2.13E-01 +/- 6.29E-02	9.98E-02		G
13967-70-9	Cs-134	1.16E-01 +/- 7.11E-02	1.08E-01		G,TI
10045-97-3	Cs-137	-1.82E-02 +/- 6.07E-02	1.08E-01	1.00E+00	U,G
14683-23-9	Eu-152	-2.26E-02 +/- 3.33E-01	5.92E-01		U,G
15585-10-1	Eu-154	-1.68E-01 +/- 3.60E-01	6.50E-01		U,G
14391-16-3	Eu-155	9.95E-02 +/- 2.39E-01	4.00E-01		U,G
13966-00-2	K-40	2.98E+01 +/- 4.03E+00	1.30E+00		G
15092-94-1	Pb-212	2.38E+00 +/- 3.40E-01	2.01E-01		G
15067-28-4	Pb-214	1.13E+00 +/- 1.96E-01	2.08E-01		G,J
14834-73-2	Pm-144	1.86E-03 +/- 6.02E-02	1.04E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halfives.

G - Sample density differs by more than 15% of LCS density.

Data Package ID: GSS0709089-1

Date Printed: Tuesday, October 02, 2007

Paragon Analytics

Page 1 of 4

LIMS Version: 6.071A

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0709089

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2982

Field ID: 060701-S2
Lab ID: 0709089-3

Sample Matrix: SOIL

Prep SOP: PAI 739 Rev 9

Date Collected: 06-Sep-07

Prep Batch: GS070920-1

Final Aliquot: 347 g

Prep Basis: Dry Weight

Date Prepared: 20-Sep-07

Moisture(%): NA

Date Analyzed: 23-Sep-07

Run ID: GS070920-1A

Result Units: pCi/g

Count Time: 30 minutes

File Name: 071325d01

Report Basis: Dry Weight

Library: LNG_GAM-A-001

Analysis ReqCode: NGS-A-002

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14834-74-3	Pm-146	4.98E-02 +/- 6.60E-02	1.08E-01		U,G
13967-48-1	Ru-106	-3.42E-01 +/- 5.72E-01	1.03E+00		U,G
14234-35-6	Sb-125	1.12E-01 +/- 1.27E-01	2.27E-01		U,G
15065-10-8	Th-234	1.66E+00 +/- 1.37E+00	2.19E+00		U,G
14913-50-9	Tl-208	6.56E-01 +/- 1.20E-01	9.79E-02		G
15117-96-1	U-235	1.88E-01 +/- 4.38E-01	7.31E-01		U,G
13982-36-0	Y-88	-1.43E-02 +/- 7.64E-02	1.35E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

SQ - Spectral quality prevents accurate quantitation.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

SI - Nuclide identification and/or quantitation is tentative.

Y2 - Chemical Yield outside default limits.

TI - Nuclide identification is tentative.

LT - Result is less than Requested MDC, greater than sample specific MDC.

R - Nuclide has exceeded B halfives.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

G - Sample density differs by more than 15% of LCS density.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GSS0709089-1

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0709089

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2982

Field ID: 060701-S3 Lab ID: 0709089-4	Sample Matrix: SOIL Prep SOP: PAI 739 Rev 9 Date Collected: 06-Sep-07 Library: LNG_GAM-A-001 Analysis ReqCode: NGS-A-002	Prep Batch: GS070920-1 QCBatchID: GS070920-1-1 Run ID: GS070920-1A Date Prepared: 20-Sep-07 Date Analyzed: 23-Sep-07	Count Time: 30 minutes Report Basis: Dry Weight	Final Aliquot: 357 g Prep Basis: Dry Weight Moisture(%): NA Result Units: pCi/g File Name: 071326d01
--	--	--	--	--

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14331-83-0	Ac-228	2.14E+00 +/- 3.62E-01	4.16E-01		G
14596-10-2	Am-241	-6.92E-02 +/- 3.98E-01	6.82E-01		U,G
14913-49-6	Bi-212	2.02E+00 +/- 7.92E-01	1.03E+00		G
14733-03-0	Bi-214	1.08E+00 +/- 2.07E-01	1.97E-01		G,J
14762-78-8	Ce-144	-1.87E-01 +/- 6.27E-01	1.07E+00		U,G
10198-40-0	Co-60	2.05E-01 +/- 5.76E-02	9.96E-02		G
13967-70-9	Cs-134	8.05E-02 +/- 6.66E-02	1.06E-01		U,G
10045-97-3	Cs-137	4.44E-02 +/- 5.98E-02	9.85E-02	1.00E+00	U,G
14683-23-9	Eu-152	-2.93E-02 +/- 3.19E-01	5.68E-01		U,G
15585-10-1	Eu-154	3.17E-02 +/- 3.31E-01	5.78E-01		U,G
14391-16-3	Eu-155	-6.62E-02 +/- 2.28E-01	3.93E-01		U,G
13966-00-2	K-40	2.91E+01 +/- 3.92E+00	1.15E+00		G
15092-94-1	Pb-212	2.35E+00 +/- 3.35E-01	1.90E-01		G
15067-28-4	Pb-214	1.12E+00 +/- 1.90E-01	1.78E-01		G,J
14834-73-2	Prn-144	2.19E-02 +/- 5.94E-02	1.00E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

G - Sample density differs by more than 10% of LCS density.

Data Package ID: GSS0709089-1

Date Printed: Tuesday, October 02, 2007

Paragon Analytics

LIMS Version: 6.071A

Page 3 of 4

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0709089

Client Name: National Security Technologies, LLC

ClientProject ID: CAU 543 V2982

Field ID: 060701-S3 Lab ID: 0709089-4 Library: LNG_GAM-A-001 Analysis ReqCode: NGS-A-002	Sample Matrix: SOIL Prep SOP: PAI 739 Rev 9 Date Collected: 06-Sep-07 Date Prepared: 20-Sep-07 Date Analyzed: 23-Sep-07	Prep Batch: GS070920-1 QCBatchID: GS070920-1-1 Run ID: GS070920-1A Count Time: 30 minutes Report Basis: Dry Weight	Final Aliquot: 357 g Prep Basis: Dry Weight Moisture(%): NA Result Units: pCi/g File Name: 071326d01
---	---	--	--

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
14834-74-3	Pm-146	4.06E-02 +/- 6.19E-02	1.03E-01		U,G
13967-48-1	Ru-106	1.91E-01 +/- 5.79E-01	9.81E-01		U,G
14234-35-6	Sb-125	1.52E-01 +/- 1.44E-01	2.64E-01		U,G
15623-47-9	Th-227	7.68E-01 +/- 4.38E-01	6.14E-01		G, TI
15065-10-8	Th-234	2.16E+00 +/- 1.21E+00	2.02E+00		G
14913-50-9	Tl-208	6.87E-01 +/- 1.21E-01	9.67E-02		G
15117-96-1	U-235	-2.60E-01 +/- 4.25E-01	7.38E-01		U,G
13982-36-0	Y-88	9.25E-02 +/- 6.83E-02	1.05E-01		U,G

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC or less than the associated TPU

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

MA - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: GSS0709089-1

Strontium-90 Analysis by GFPC Sample Results Summary

Client Name: National Security Technologies, LLC
Client Project Name: CAU 543
Client Project Number: V2982

Laboratory Name: Paragon Analytics
PAI Work Order: 0709089

Page: 1 of 1
Reported on: Friday, October 12, 2007
3:14:56 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0705089-1	060701-S1	Sample	Sr-90	-7.26E-02 +/- 1.14E-01	2.79E-01	pCi/g	Soil	SR071004-2	10/11/2007	U

Comments:

Data Package ID: SR0709089-1

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

U3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Date Printed: Friday, October 12, 2007

Paragon Analytics
LIMS Version: 6.076A

Page 1 of 1

Isotopic Plutonium By Alpha Spectroscopy Sample Results Summary

Client Name: National Security Technologies, LLC
 Client Project Name: CAU 543
 Client Project Number: V2982

Laboratory Name: Paragon Analytics
 PAI Work Order: 0709089

Page: 1 of 1
 Reported on: Tuesday, October 02, 2007
 11:35:39 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0709089-1	060701-S1	Sample	Pu-238	2.62E-03 +/- 7.42E-03	1.41E-02	pCi/g	SOIL	AS070921-2	9/27/2007	U
0709089-1	060701-S1	Sample	Pu-239/240	2.62E-03 +/- 8.28E-03	1.57E-02	pCi/g	SOIL	AS070921-2	9/27/2007	U
0709089-3	060701-S2	Sample	Pu-238	5.25E-03 +/- 4.37E-03	2.37E-03	pCi/g	SOIL	AS070921-2	9/27/2007	LT
0709089-3	060701-S2	Sample	Pu-239/240	6.04E-02 +/- 1.76E-02	6.44E-03	pCi/g	SOIL	AS070921-2	9/27/2007	
0709089-4	060701-S3	Sample	Pu-238	7.36E-03 +/- 4.80E-03	1.99E-03	pCi/g	SOIL	AS070921-2	9/27/2007	
0709089-4	060701-S3	Sample	Pu-239/240	7.35E-02 +/- 1.89E-02	5.41E-03	pCi/g	SOIL	AS070921-2	9/27/2007	
0709089-5	060701-D1	Sample	Pu-238	2.43E-03 +/- 3.98E-03	2.19E-03	pCi/g	SLUDGE	AS070921-1	9/27/2007	LT
0709089-5	060701-D1	Sample	Pu-239/240	3.15E-02 +/- 1.15E-02	5.95E-03	pCi/g	SLUDGE	AS070921-1	9/27/2007	

Comments:

Data Package ID: PU0709089-1

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110% . Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- M - The requested MDC was not met.
- N13 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Date Printed: Tuesday, October 02, 2007

Paragon Analytics
 LIMS Version: 6.071A

Page 1 of 1

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

0709089

Page 1 of 1

PROJECT / CLIENT INFORMATION		REPORT & TURNAROUND INFORMATION						SAMPLE INFORMATION						
Project: CAV 543	BN Org: 1300	Send Report to: DAVID NACHT						Sampling Site: CAS 06-07-01						
Charge Number: 5B1B 2205		Phone:	Fax: 5-7582		MS/NTS 306		The samples submitted contain (check):							
Project Manager: THOMAS A. THIELE		Turnaround:	Standard - 14 days (II), 28 days Non-rad Env, 45 days Rad Env PURSH Preliminary by (III)						<input checked="" type="checkbox"/> Hazardous - (list) _____ <input checked="" type="checkbox"/> Radioactive - (list) _____ <input type="checkbox"/> Unknown contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.					
Phone: 5-6711	Fax: 5-7582	M/S: NTS 306												
SAMPLE MANAGEMENT INFORMATION								Pay Item, Analysis, Method						
SDG: (III)	(Non-Rad Env)		V2982		(Rad Env)		NAS-A-COV	GPC-A-010	NGS-A-002	GPC-A-003				
Samples submitted are associated with a signed Project SOW. (X) YES () NO								150 P	50.90	GRANITE SPEC				
Analyses entered here agree with the SOW. (X) YES () NO () N/A								CC-60	GRANITE SPEC					
If not, identify the variation: _____								GROSS SPER						
Subcontract Lab(s) used for this work: PHAGEN														
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	EST. VOL	QC MD	MS	MSD	Pres - Analysis eg. HCl - VOCs	150 P	50.90	GRANITE SPEC	CC-60	GROSS SPER
060701-S1 (1)	09/06/07	14:55	SOIL	1	500 mL				Cool 4°C	X	X			
060701-S1B (2)		14:55												X
060701-S2 (3)		15:10								X			X	
060701-S3 (4)		15:20								X			X	
060701-D1 (5)		14:40	SLUDGE							X				
								Pay						
CUSTODY TRANSFER														
Sampled/Relinquished (print)	Signature		DATE / TIME		Received by (print)		Signature		DATE / TIME					
Ben McGee	/s/ B McGee		09/06/07 - 17:00		REFRIGERATOR		/s/ B McGee		09/06/07 - 17:00					
REFRIGERATOR	/s/ B McGee		09/13/07 - 09:32		BN McGee		/s/ B McGee		09/13/07 - 09:32					
BN McGee	/s/ B McGee		09/13/07 - 09:40		C. D. CASTANEDA		/s/ C Cantaneda		09/13/07 - 09:40					
C. D. CASTANEDA	/s/ C Cantaneda		09/13/07 - 09:30		RET. 10/07/07		7982630541115		09/13/07 - 09:30					
See Original 14/07 0935														
ERM-0732 (11/05) 9/14/07 0935														

APPENDIX C
WASTE DISPOSITION DOCUMENTATION

THIS PAGE INTENTIONALLY LEFT BLANK

**Corrective Action Site 06-07-01
Decon Pad**

THIS PAGE INTENTIONALLY LEFT BLANK

Certificate of Disposal

This is to certify that the Waste Stream No. LRY5MWFY07002 package numbers 07M037 and 07M038 were shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Scientist

Shipped by

Organization

Title

/s/ Theresa Hale
Signature

Date 9-28-07

ED TAKAHASHI

Received by

NSTec RWMC

Organization

SCIENTIST

Title

/s/ E Takahashi
Signature

Date 28-SEP-2007

Certificate of Disposal

This is to certify that the Waste Stream No. LRYSMWFY07002, packages number 07M039 and 07M040 were shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Scientist

Shipped by

Organization

Title

/s/ Theresa Hale
Signature

Date 9-28-07

Received by ED TAKAHASHIOrganization NSTec WWSTitle SCIENTIST

/s/ E Takahashi
Signature

Date 28-SEP-2007

Certificate of Disposal

This is to certify that the Waste Stream No. LRY5MWFY07002, packages number 07M041 and 07M042 were shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Scientist

Shipped by

Organization

Title

/s/ Theresa Hale

Signature

Date 9-28-07ED TAKAHASHI

Received by

NSTec RW/MW

Organization

SCIENTIST

Title

/s/ E Takahashi

Signature

Date 28-SEP-2007

7-01-2007 03:05pm From-WASTE OPERATIONS

702-295-4815

T-281 P.005/011 F-649

Certificate of Disposal

This is to certify that the Waste Stream No. LRY5MWFY07002, packages number 07M043 and 07M044 were shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Scientist

Shipped by

Organization

Title

/s/ Theresa Hale
Signature

Date 9-28-07

ED TAKAHASHI
Received by

NSTec RWM
Organization

Scientist
Title

/s/ E Takahashi
Signature

Date

Certificate of Disposal

This is to certify that the Waste Stream No. LRY5MWFY07002, packages number 07M045 and 07M046 were shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale	NSTec Waste Generator Services	Senior Scientist
Shipped by	Organization	Title

/s/ Theresa Hale
Signature Date 9-27-07

Nancy Etheridge
Received by NSTec Organization tech Staff Title

/s/ Nancy Etheridge
Signature Date 9-27-07

Certificate of Disposal

This is to certify that the Waste Stream No. LRY5MWFY07002, packages number 07M047 and 07M048 were shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Scientist

Shipped by

Organization

Title

/s/ Theresa Hale
Signature

Date 9-27-07

Nancy Etheridge
Received by

NSTec
Organization

Tech Staff
Title

/s/ Nancy Etheridge
Signature

Date 9-27-07

Certificate of Disposal

This is to certify that the Waste Stream No. LRY5MWFY07002, packages number 07M049 and 07M050 were shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Scientist

Shipped by

Organization

Title

/s/ Theresa Hale
Signature

Date 9-27-07

Nancy Etheridge
Received by

NSTec
Organization

Tech Staff
Title

/s/ Nancy Etheridge
Signature

Date 9-27-07

Certificate of Disposal

This is to certify that the Waste Stream No. LRY5MWFY07002, packages number 07M051 and 07M052 were shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Scientist

Shipped by

Organization

Title

/s/ Theresa Hale

Signature

Date 9-27-07Nancy Etheridge
Received byNSTec

Organization

Tech Staff

Title

/s/ Nancy Etheridge

Signature

Date 9-27-07

Certificate of Disposal

This is to certify that the Waste Stream No. LRY5LLFY07002 package numbers 07L296 and 07L297 were shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Technical Staff

Shipped by

Organization

Title

/s/ Theresa Hale

Signature

10-10-07

Date

Ed TAKAHASHI

Received by

NSTec RWMC A-5

Organization

SCIENTIST

Title

/s/ E Takahashi

Signature

10-OCT-2007

Certificate of Disposal

This is to certify that the Waste Stream No. LRY5LLFY07002 package numbers 07L298 and 07L299 were shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Technical Staff

Shipped by

Organization

Title

/s/ Theresa Hale
Signature

10-10-07
Date

ED TAKAHASHI

Received by

NSTec RWMC A-5

Organization

SCIENTIST
Title

/s/ E Takahashi
Signature

Date 16-OCT-2007

Oct-16-2007 07:49am From-WASTE OPERATIONS

702-295-4815

T-301 P.004/005 F-731

Certificate of Disposal

This is to certify that the Waste Stream No. LRY5LLFY07002 package numbers 07L310 and 07L311 were shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Technical Staff

Shipped by

Organization

Title

/s/ Theresa Hale

Signature

10-10-07

Date

ED TAKAHASHI

NSTec RWMC A-5

Received by

Organization

SCIENTIST

Title

/s/ E Takahashi

Signature

Date 10-OCT-2007

Certificate of Disposal

This is to certify that the Waste Stream No. LRY5LLFY07002 package number 07L312 was shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Technical Staff

Shipped by

Organization

Title

/s/ Theresa Hale

Signature

10-10-07

Date

ED TAKAHASHI

Received by

NSTec RWMC

Organization

SCIENTIST

Title

/s/ E Takahashi

Signature

10 OCT 2007

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA 23 6 9 rec. LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Shaughn Burnison Phone Number: 5-9328 358 1080

Location / Origin: LM 543, CAS 06-07-01, AC Decon fund

Waste Category: (check one)	<input type="checkbox"/> Commercial	<input checked="" type="checkbox"/> Industrial		
Waste Type: (check one)	<input type="checkbox"/> Putrescible	<input checked="" type="checkbox"/> FFACO-onsite	<input type="checkbox"/> WAC Exception	
	<input type="checkbox"/> Non-Putrescible	<input type="checkbox"/> Asbestos Containing Material	<input type="checkbox"/> FFACO-offsite	<input type="checkbox"/> Historic DOE/NV
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Environmental management	<input type="checkbox"/> Defense Projects	<input type="checkbox"/> YMP	
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Clean-Up	<input type="checkbox"/> Routine		
Method of Characterization: (check one)	<input checked="" type="checkbox"/> Sampling & Analysis	<input type="checkbox"/> Process Knowledge	<input type="checkbox"/> Contents	

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill:	<input type="checkbox"/> Paper	<input type="checkbox"/> Rocks / unaltered geologic materials	<input checked="" type="checkbox"/> Empty containers		
<input type="checkbox"/> Asphalt	<input checked="" type="checkbox"/> Metal	<input type="checkbox"/> Wood	<input type="checkbox"/> Rubber (excluding tires)	<input type="checkbox"/> Demolition debris	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Wire	<input type="checkbox"/> Cable	<input type="checkbox"/> Cloth	<input type="checkbox"/> Insulation (non-Asbestosform)	<input type="checkbox"/> Cement & concrete
<input checked="" type="checkbox"/> Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.) <u>15" BULK CONTAINER</u>					

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-ferme 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 Was knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only 1 site. I have verified this through the waste characterization method ider prohibited and allowable waste items. I have contacted Property Manag is approved for disposal in the landfill.

Print Name: Shaughn Burnison

Signature: /s/ Shaughn Burnison

Date: 8/12/07

Radiation Survey Release for Waste Disposal	
RCT Initials	<input type="checkbox"/> This container/load is free of external radioactive contamination.
	<input type="checkbox"/> This container/load is exempt from survey due to process knowledge and origin.
	<input type="checkbox"/> This container/load is free of radioactive contamination based on radioanalysis.
SIGNATURE:	See Original
DATE: <u>8/12/07</u>	
BN-064G (09/95)	

"Radiological Release Sticker" here. Onsite use only.

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

SWO USE ONLY

Load Weight (net from scale or estimate): 1640 Signature of Certifier /s/ Steven C

NSTec
Form
FRM-0918

NTS LANDFILL LOAD VERIFICATION

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

SWO USE (Select One) AREA 23 6 9 10c LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5-9328 358 1050

Location / Origin: LAU 543 (CAS DL-07-01) AREA 6 DECON PADS

Waste Category: (check one) Commercial Industrial
Waste Type: NTS Putrescible FFACO-onsite WAC Exception
(check one) Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NV
Pollution Prevention Category: (check one) Environmental management Defense Projects YMP
Pollution Prevention Category: (check one) Clean-Up Routine
Method of Characterization: (check one) Sampling & Analysis Process Knowledge Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: Paper Rocks / unaltered geologic materials Empty containers
 Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris
 Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete
 Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.) METAL LUGGERS X 3

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-ferme 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 site, to the best of my knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only prohibited and allowable waste items. I have contacted Property Manager and is approved for disposal in the landfill.

Print Name: SHAUGHN BURNISON

Signature: /s/ Shaughn Burnison

Date: 9/12/07

"Radiological Release Sticker" here. Onsite use only.

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

SWO USE ONLY

Load Weight (net from scale or estimate): 4000 9-12-07 Signature of Certifier: /s/ Richard Everett

Radiation Survey Release for Waste Disposal	
RCT Initials	
<input type="checkbox"/>	This container/load is free of external radioactive contamination.
<input type="checkbox"/>	This container/load is exempt from survey due to process knowledge and origin.
<input type="checkbox"/>	This container/load is free of radioactive contamination based on radioanalysis.
SIGNATURE: <u>See Original</u> DATE: <u>9-12-07</u> BN-0646 (09/09)	

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA 23 6 9 10C LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5 9328 358 10C

Location / Origin: CAN 543 (CAS 06-00-01) ANIMAL DECON SALT

Waste Category: (check one) Commercial Industrial
Waste Type: (check one) NTS Putrescible FFACO-onsite WAC Exception
 Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NV
Pollution Prevention Category: (check one) Environmental management Defense Projects YMP
Pollution Prevention Category: (check one) Clean-Up Routine
Method of Characterization: (check one) Sampling & Analysis Process Knowledge Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: Paper Rocks / unaltered geologic materials Empty containers
 Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris
 Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete
 Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.) / WIRE SCREEN

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-ferrous 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.

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

Print Name: SHAUGHN BURNISON

Signature: /s/ Shaughn Burnison

Date: 7/13/07 "Radiological Release Sticker"
here. Onsite use only.

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

SWO USE ONLY

Load Weight (net from scale or estimate): 3580 Signature of Cermittee: /s/ Steven Curtis

Radiation Survey Release for Waste Disposal

RCT Initials

This container/load is free of external radioactive contamination.

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

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

SIGNATURE: See Original DATE: 9-12-07

BN-0646 (09/95)

NSTec
Form
FRM-0918

2 satellite dishes for SWO

NTS LANDFILL LOAD VERIFICATION

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

SWO USE (Select One) AREA 23 6 910C LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Shaughn Burnison Phone Number: 5-7328 *358-1050*

Location / Origin: CAU 543 (145 06-07-01)

Waste Category: (check one) Commercial Industrial

Waste Type: NTS Putrescible FFACO-onsite WAC Exception

(check one) Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NV

Pollution Prevention Category: (check one) Environmental management Defense Projects YMP

Pollution Prevention Category: (check one) Clean-Up Routine

Method of Characterization: (check one) Sampling & Analysis Process Knowledge Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: Paper Rocks / unaltered geologic materials Empty containers

Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris

Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete

Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.) *+2 satellite dishes for SWO*

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-ferrous plated oil filters

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

REQUIRED: WASTE GENERATOR

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

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

To the best of my knowledge, the waste described above contains only prohibited and allowable waste items. I have contacted Property Manager and approved for disposal in the landfill.

Print Name: Shaughn Burnison

Signature: /s/ Shaughn Burnison Date: 5/18/07

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

SWO USE ONLY

Load Weight (net from scale or estimate): 426.07 Signature of Certifier: /s/ Don Bicford

426.07

Radiation Survey Release for Waste Disposal RCT Initials

This container/load is free of external radioactive contamination.

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

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

SIGNATURE: See Original DATE: 5/18/07 *BN0646/05/09*

If applicable, place FRM-0646,
"Radiological Release Sticker"
here. Onsite use only.

**Corrective Action Site 15-01-03
Aboveground Storage Tank**

THIS PAGE INTENTIONALLY LEFT BLANK

Certificate of Disposal

This is to certify that the Waste Stream No. LRY5LLFY07002 package number 07L295 was shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Technical Staff

Shipped by

Organization

Title/s/ Theresa Hale

Signature

9-20-07

Date

Nancy Etheridge

Received by

NSTec

Organization

Tech Staff

Title

/s/ Nancy Etheridge

Signature

9-20-07

Package # 07L295 is a 25,000 gallon above ground storage tank from CAUS43 area 15.
2018243 is the NTS property control number for the tank.

Certificate of Disposal

This is to certify that Waste Stream No. LRY5LLFY07002 package number 07L294 was shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Theresa Hale

NSTec Waste Generator Services

Senior Technical Staff

Shipped by

Organization

Title/s/ Theresa Hale

Signature

9-20-07

Date

Nancy Etheridge

Received by

NSTec

Organization

tech Staff

Title

/s/ Nancy Etheridge

Signature

9-20-07

Date

3
NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Shaughn Burnison Phone Number: 5-9328 / 358-1082

Location / Origin: AREA 15 OLD EPA FARM - CAW 543 LIQUID DISPOSAL UNITS

Waste Category: (check one) Commercial Industrial
Waste Type: NTS Putrescible FFACO-onsite WAC Exception
(check one) Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NV
Pollution Prevention Category: (check one) Environmental management Defense Projects YMP
Pollution Prevention Category: (check one) Clean-Up Routine
Method of Characterization: (check one) Sampling & Analysis Process Knowledge Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: Paper Rocks / unaltered geologic materials Empty containers
 Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris
 Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete
 Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: Office Waste Food Waste Animal Carcasses
 Asbestos Friable Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

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

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

To the best of my knowledge, the waste described above contains only those prohibited and allowable waste items. I have contacted Property Management and is approved for disposal in the landfill.

Print Name: Shaughn Burnison

Signature: /s/ Shaughn Burnison Date: 4/3/07

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

SWO USE ONLY

Load Weight (net from scale or estimate): 1700 Signature of Certifier: /s/ Don Bickford

**Radiation Survey Release for Waste Disposal
RCT Initials**

This container/load is free of external radioactive contamination.

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

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

SIGNATURE: See Original DATE: 4-3-07
BN-0646 (05/99)

NSTec
Form
FRM-0918

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

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA <input type="checkbox"/> 23 <input type="checkbox"/> 6 <input checked="" type="checkbox"/> 9 10c <input type="checkbox"/> LANDFILL	
For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.	
REQUIRED: WASTE GENERATOR INFORMATION (This form is for rolloffs, dump trucks, and other onsite disposal of materials.)	
Waste Generator: <u>Shaughn Burnison</u>	Phone Number: <u>5-9328</u>
Location / Origin: <u>CAU 543 (CAS 15-01-03) OLD EPA FARM</u>	
Waste Category: (check one) <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Industrial	
Waste Type: (check one) <input type="checkbox"/> NTS <input type="checkbox"/> Putrescible <input checked="" type="checkbox"/> FFACO-onsite <input type="checkbox"/> WAC Exception <input type="checkbox"/> Non-Putrescible <input type="checkbox"/> Asbestos Containing Material <input type="checkbox"/> FFACO-offsite <input type="checkbox"/> Historic DOE/NV	
Pollution Prevention Category: (check one) <input checked="" type="checkbox"/> Environmental management <input type="checkbox"/> Defense Projects <input type="checkbox"/> YMP	
Pollution Prevention Category: (check one) <input checked="" type="checkbox"/> Clean-Up <input type="checkbox"/> Routine	
Method of Characterization: (check one) <input checked="" type="checkbox"/> Sampling & Analysis <input checked="" type="checkbox"/> Process Knowledge <input type="checkbox"/> Contents	
Prohibited Waste at all three NTS landfills: Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).	
Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos	
REQUIRED: WASTE CONTENTS ALLOWABLE WASTES Check all allowable wastes that are contained within this load:	
NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.	
Acceptable waste at any NTS landfill: <input type="checkbox"/> Paper <input type="checkbox"/> Rocks / unaltered geologic materials <input type="checkbox"/> Empty containers <input type="checkbox"/> Asphalt <input checked="" type="checkbox"/> Metal <input type="checkbox"/> Wood <input type="checkbox"/> Soil <input type="checkbox"/> Rubber (excluding tires) <input checked="" type="checkbox"/> Demolition debris <input type="checkbox"/> Plastic <input checked="" type="checkbox"/> Wire <input type="checkbox"/> Cable <input type="checkbox"/> Cloth <input checked="" type="checkbox"/> Insulation (non-Asbestosform) <input checked="" type="checkbox"/> Cement & concrete <input type="checkbox"/> Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)	
Additional waste accepted at the Area 23 Mercury Landfill: <input type="checkbox"/> Office Waste <input type="checkbox"/> Food Waste <input type="checkbox"/> Animal Carcasses <input type="checkbox"/> Asbestos <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable (contact SWO if regulated load) Quantity: _____	
Additional waste accepted at the Area 9 U10c Landfill: <input type="checkbox"/> Non-friable asbestos <input type="checkbox"/> Drained automobiles and military vehicles <input type="checkbox"/> Solid fractions from sand/oil/water <input type="checkbox"/> Light ballasts (contact SWO) <input type="checkbox"/> Drained fuel filters (gas & diesel) <input type="checkbox"/> Deconned Underground and Above <input type="checkbox"/> Hydrocarbons (contact SWO) <input type="checkbox"/> Other Ground Tanks	
Additional waste accepted at the Area 6 Hydrocarbon Landfill: <input type="checkbox"/> <input type="checkbox"/> Septic sludge <input type="checkbox"/> Rags <input type="checkbox"/> Drained fuel filters (gas & diesel) <input type="checkbox"/> Crushed non-ferme plated oil filters <input type="checkbox"/> Plants <input type="checkbox"/> Soil <input type="checkbox"/> Sludge from sand/oil/water separators <input type="checkbox"/> 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 site, does not contain radiological materials.	
To the best of my knowledge, the waste described above contains only those prohibited and allowable waste items. I have contacted Property Management and is approved for disposal in the landfill.	
Print Name: <u>Shaughn Burnison</u>	
Signature: <u>/s/ Shaughn Burnison</u> Date: <u>8/14/07</u>	
Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."	
SWO USE ONLY	
Load Weight (net from scale or estimate): <u>3500</u> Signature of Certifier: <u>/s/ Don Bickford</u>	

Radiation Survey Release for Waste Disposal

RCT Initials This container/load is free of external radioactive contamination.

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

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

See Original 8-14-07
DATE: BN-0646 (05/95)

"Radiological Release Sticker" here. Onsite use only.

**Corrective Action Site 15-04-01
Septic Tank**

THIS PAGE INTENTIONALLY LEFT BLANK

NSTec

Form

FRM-0918

08/23/06

Rev. 0

Page 1 of 2

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Shaughn Burnison Phone Number: 5-9328/358-1080Location / Origin: Area 15, Old EPA Farm, CAC 243 Liquid Disposal UnitsWaste Category: (check one) Commercial IndustrialWaste Type: (check one) NTS Putrescible FFACO-onsite WAC Exception
 Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NVPollution Prevention Category: (check one) Environmental management Defense Projects YMPPollution Prevention Category: (check one) Clean-Up RoutineMethod of Characterization: (check one) Sampling & Analysis Process Knowledge Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

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

Print Name: Shaughn BurnisonSignature: /s/ Shaughn Burnison Date: 12 APR 07

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

SWO USE ONLY

Load Weight (net from scale or estimate): 15467 4-12-07 Signature of Certifier: /s/ Don Bickford

Radiation Survey Release for Waste Disposal

RCT Initials

 This container/load is free of external radioactive contamination. This container/load is exempt from survey due to process, weight and origin. This container/load is free of radioactive contamination based on radioanalysis.SIGNATURE: See Original DATE: 11/20/07

BN-0546 (05/99)

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Shaughn A. Burnison Phone Number: 5-9328 / 358-1080

Location / Origin: Area 15, Old EPA Farm CAW 543 Hydrocarbon IMPACTED Sewer Lining

Waste Category: (check one) Commercial Industrial

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

Pollution Prevention Category: (check one) Environmental management Defense Projects YMP

Pollution Prevention Category: (check one) Clean-Up Routine

Method of Characterization: (check one) Sampling & Analysis Process Knowledge Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: Paper Rocks / unaltered geologic materials Empty containers
 Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris
 Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete
 Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: Office Waste Food Waste Animal Carcasses

Asbestos Friable Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

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

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

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

Print Name: Shaughn Burnison

Signature: /s/ Shaughn Burnison Date: 4/16/07

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

Radiation Survey Release for Waste Disposal RCT Initials

This container/load is free of external radioactive contamination.
 This container/load is exempt from survey due to process knowledge and origin.
 This container/load is free of radioactive contamination based on radioanalysis.

SIGNATURE: See Original DATE: 4-12-07
BN-0646 (09/99)

SWO USE ONLY

Load Weight (net from scale or estimate): 410.07 Signature of Certifier: /s/ Steven C

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA <input type="checkbox"/> 23 <input checked="" type="checkbox"/> 6 <input type="checkbox"/> 9 <input type="checkbox"/> LANDFILL		2	
For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.			
REQUIRED: WASTE GENERATOR INFORMATION (This form is for rolloffs, dump trucks, and other onsite disposal of materials.)			
Waste Generator: <u>Shaughn Burnison</u>	Phone Number: <u>5-9328 / 358-1080</u>		
Location / Origin: <u>Area 15, EPA Farm, Call 543 Septic Waste</u>			
Waste Category: (check one)	<input type="checkbox"/> Commercial	<input checked="" type="checkbox"/> Industrial	
Waste Type: (check one)	<input type="checkbox"/> NTS <input type="checkbox"/> Non-Putrescible	<input type="checkbox"/> Putrescible <input type="checkbox"/> Asbestos Containing Material	<input checked="" type="checkbox"/> FFACO-onsite <input type="checkbox"/> FFACO-offsite
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Environmental management	<input type="checkbox"/> Defense Projects	<input type="checkbox"/> WAC Exception <input type="checkbox"/> Historic DOE/NV
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Clean-Up	<input type="checkbox"/> Routine	<input type="checkbox"/> YMP
Method of Characterization: (check one)	<input checked="" type="checkbox"/> Sampling & Analysis	<input type="checkbox"/> Process Knowledge	<input type="checkbox"/> Contents
Prohibited Waste at all three NTS landfills:	Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).		
Additional Prohibited Waste at the Area 9 U10C Landfill:	Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos		
REQUIRED: WASTE CONTENTS ALLOWABLE WASTES Check all allowable wastes that are contained within this load:			
NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.			
Acceptable waste at any NTS landfill:	<input type="checkbox"/> Paper	<input type="checkbox"/> Rocks / unaltered geologic materials	<input type="checkbox"/> Empty containers
<input type="checkbox"/> Asphalt	<input type="checkbox"/> Metal	<input type="checkbox"/> Wood	<input checked="" type="checkbox"/> Soil
<input checked="" type="checkbox"/> Plastic	<input type="checkbox"/> Wire	<input type="checkbox"/> Cable	<input type="checkbox"/> Rubber (excluding tires)
<input type="checkbox"/> Cloth <input type="checkbox"/> Insulation (non-Asbestosform)			
<input type="checkbox"/> Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)			
Additional waste accepted at the Area 23 Mercury Landfill:	<input type="checkbox"/> Asbestos	<input type="checkbox"/> Office Waste	<input type="checkbox"/> Food Waste
<input type="checkbox"/> Friable	<input type="checkbox"/> Non-Friable (contact SWO if regulated load)	Quantity: _____	
Additional waste accepted at the Area 9 U10c Landfill:			
<input type="checkbox"/> Non-friable asbestos	<input type="checkbox"/> Drained automobiles and military vehicles	<input type="checkbox"/> Solid fractions from sand/oil/water	
<input type="checkbox"/> Light ballasts (contact SWO)	<input type="checkbox"/> Drained fuel filters (gas & diesel)	<input type="checkbox"/> Deconned Underground and Above	
<input type="checkbox"/> Hydrocarbons (contact SWO)	<input type="checkbox"/> Other _____	Ground Tanks	
Additional waste accepted at the Area 6 Hydrocarbon Landfill: <input type="checkbox"/>			
<input checked="" type="checkbox"/> Septic sludge	<input type="checkbox"/> Rags	<input type="checkbox"/> Drained fuel filters (gas & diesel)	<input type="checkbox"/> Crushed non-teme plated oil filters
<input type="checkbox"/> Plants	<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Sludne from sand/oil/water separators	<input checked="" type="checkbox"/> PCBs below 50 parts per million
REQUIII			
Initials: _____ (if initialed, no radiological cl	Radiation Survey Release for Waste Disposal		
The above mentioned waste was generated or knowledge, does not contain radiological mat	RCT Initials		
To the best of my knowledge, the waste descr site. I have verified this through the waste ch prohibited and allowable waste items. I have is approved for disposal in the landfill.	<input type="checkbox"/> This container/load is free of external radioactive contamination. <input type="checkbox"/> This container/load is exempt from survey due to process knowledge and origin. <input type="checkbox"/> This container/load is free of radioactive contamination based on radioanalysis.		
SIGNATURE: <u>See Original</u>	DATE: <u>4/16/07</u> BN-0646 (09/99)		
Print Name: <u>Shaughn Burnison</u>	If applicable, place FRM-0646, "Radiological Release Sticker" here. Onsite use only.		
Signature: <u>/s/ Shaughn Burnison</u>	Date: <u>4/16/07</u>		
Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."			
SWO USE ONLY			
Load Weight (net from scale or estimate): <u>42,100</u>	4-16-07 Signature of Certifier: <u>/s/ Steven C.</u>		

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Shaughn Burnison Phone Number: 5-9328 / 358-1080

Location / Origin: AREA 15 EPA FARM, CALL 543 SEPTIC WASTE, HYDROCARBON IMPACTED

Waste Category: (check one) Commercial Industrial

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

Pollution Prevention Category: (check one) Environmental management Defense Projects YMP

Pollution Prevention Category: (check one) Clean-Up Routine

Method of Characterization: (check one) Sampling & Analysis Process Knowledge Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: Paper Rocks / unaltered geologic materials Empty containers
 Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris
 Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete
 Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: Office Waste Food Waste Animal Carcasses
 Asbestos Friable Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-teme plated oil filters
 Plants Soil Sludge from sand/oil/water separalors 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. I have verified this through the waste characterization method identified above. The prohibited and allowable waste items, I have contacted Property Management and is approved for disposal in the landfill.

Print Name: Shaughn Burnison

Signature: /s/ Shaughn Burnison Date: 4/17/07

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

SWO USE ONLY

Load Weight (net from scale or estimate): 40,000 Signature of Certifier: /s/ Sandra Little

Radiation Survey Release for Waste Disposal

RCT Initials

This container/load is free of external radioactive contamination.
 This container/load is exempt from survey due to process knowledge and origin.
 This container/load is free of radioactive contamination based on radioanalysis.

SIGNATURE: See Original DATE: 4/17/07
BN-0646 (09/99)

**Corrective Action Site 15-05-01
Leachfield**

THIS PAGE INTENTIONALLY LEFT BLANK

NSTec

Form

FRM-0918

08/23/06

Rev. 0

Page 1 of 2

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Shaughn Burnison Phone Number: 5-9328 / 358-1080Location / Origin: AREA 15 OLD EPA FARM, CAW 543 LIQUID DISPOSAL UNITSWaste Category: (check one) Commercial IndustrialWaste Type: (check one) NTS Putrescible FFACO-onsite WAC Exception
 Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NVPollution Prevention Category: (check one) Environmental management Defense Projects YMPPollution Prevention Category: (check one) Clean-Up RoutineMethod of Characterization: (check one) Sampling & Analysis Process Knowledge Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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 TanksAdditional waste accepted at the Area 6 Hydrocarbon Landfill: Septic sludge Rags Drained fuel filters (gas & diesel) Crushed non-ferme 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 facility, to the best of my knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those prohibited and allowable waste items. I have contacted Property Management and is approved for disposal in the landfill.

Print Name: Shaughn BurnisonDate: 4/5/07Signature: /s/ Shaughn Burnison

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

SWO USE ONLY

Load Weight (net from scale or estimate): 536 Signature of Certifier: /s/ Don Bickford

Radiation Survey Release for Waste Disposal

RCT Initials

 This container/load is free of external radioactive contamination. This container/load is exempt from survey due to process knowledge and origin. This container/load is free of radioactive contamination based on radioanalysis.SIGNATURE: See Original DATE: 4/5/07

BN-0646 (05/98)

THIS PAGE INTENTIONALLY LEFT BLANK

**Corrective Action Site 15-08-01
Liquid Manure Tank**

THIS PAGE INTENTIONALLY LEFT BLANK

NSTec
Form
FRM-0918

NTS LANDFILL LOAD VERIFICATION

OC
RE
Page 1 of

SWO USE (Select One) AREA 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON (NSTec ER) Phone Number: 5-9328

Location / Origin: Area 15 EPA Farm Liquid Manure Tank (CAS 15-08-01) (AC-543)

Waste Category: (check one) Commercial Industrial

Waste Type: NTS Putrescible FFACO-onsite WAC Exception

(check one) Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NV

Pollution Prevention Category: (check one) Environmental management Defense Projects YMP

Pollution Prevention Category: (check one) Clean-Up Routine

Method of Characterization: (check one) Sampling & Analysis Process Knowledge Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: Paper Rocks / unaltered geologic materials Empty containers

Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris

Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete

Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: Office Waste Food Waste Animal Carcasses

Asbestos Friable Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

Non-friable asbestos Drained automobiles and military vehicles Solid fractions from sand/oil/water

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

Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

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

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

REQUIRED: WASTE GENERATOR

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.

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

Radiation Survey Release for Waste Disposal

RCT Initials

This container/load is free of external radioactive contamination.

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

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

SIGNATURE: See Original DATE: 7-31-07

BN-0646 (09/99)

Print Name: SHAUGHN BURNISON

Signature: /s/ Shaughn Burnison Date: 7/31/07 If applicable, place FRM-0646, "Radiological Release Sticker" here. Onsite use only.

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

SWO USE ONLY

Load Weight (net from scale or estimate): 40,000 Signature of Certifier: /s/ Don Bickford

NSTec
Form
FRM-0918

NTS LANDFILL LOAD VERIFICATION

Page 1

SWO USE (Select One) AREA 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 794-7947 8-1-07

Location / Origin: AREA 15 EPA FARM LIQUID MANURE TANK (CAS 15-08-01)

Waste Category: (check one)	<input type="checkbox"/> Commercial	<input checked="" type="checkbox"/> Industrial		
Waste Type: (check one)	<input type="checkbox"/> NTS	<input type="checkbox"/> Putrescible	<input checked="" type="checkbox"/> FFACO-onsite	<input type="checkbox"/> WAC Exception
	<input type="checkbox"/> Non-Putrescible	<input type="checkbox"/> Asbestos Containing Material	<input type="checkbox"/> FFACO-offsite	<input type="checkbox"/> Historic DOE/NV
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Environmental management	<input type="checkbox"/> Defense Projects	<input type="checkbox"/> YMP	
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Clean-Up	<input type="checkbox"/> Routine		
Method of Characterization: (check one)	<input checked="" type="checkbox"/> Sampling & Analysis	<input type="checkbox"/> Process Knowledge	<input type="checkbox"/> Contents	

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill:	<input type="checkbox"/> Paper	<input type="checkbox"/> Rocks / unaltered geologic materials	<input type="checkbox"/> Empty containers		
<input type="checkbox"/> Asphalt	<input checked="" type="checkbox"/> Metal	<input type="checkbox"/> Wood	<input type="checkbox"/> Soil	<input type="checkbox"/> Rubber (excluding tires)	<input checked="" type="checkbox"/> Demolition debris
<input type="checkbox"/> Plastic	<input type="checkbox"/> Wire	<input type="checkbox"/> Cable	<input type="checkbox"/> Cloth	<input type="checkbox"/> Insulation (non-Asbestosform)	<input checked="" type="checkbox"/> Cement & concrete
<input type="checkbox"/> 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:

<input type="checkbox"/> Non-friable asbestos	<input type="checkbox"/> Drained automobiles and military vehicles	<input type="checkbox"/> Solid fractions from sand/oil/water
<input type="checkbox"/> Light ballasts (contact SWO)	<input type="checkbox"/> Drained fuel filters (gas & diesel)	<input type="checkbox"/> Deconned Underground and Above
<input checked="" type="checkbox"/> Hydrocarbons (contact SWO)	<input type="checkbox"/> Other	Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

<input type="checkbox"/> Septic sludge	<input type="checkbox"/> Rags	<input type="checkbox"/> Drained fuel filters (gas & diesel)	<input type="checkbox"/> Crushed non-ferme plated oil filters
<input type="checkbox"/> Plants	<input type="checkbox"/> Soil	<input type="checkbox"/> Sludge from sand/oil/water separators	<input type="checkbox"/> 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 N knowledge, does not contain radiological materials.

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

Radiation Survey Release for Waste Disposal

RCT Initials

This container/load is free of external radioactive contamination.
 This container/load is exempt from survey due to process knowledge and origin.
 This container/load is free of radioactive contamination based on radioanalysis.

SIGNATURE: See Original

DATE: 8-1-07

BN-0646 (09/99)

Print Name: Shaughn Burnison

Signature: /s/ Shaughn Burnison Date: 8-1-07 here. Onsite use only.

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

SWO USE ONLY

Load Weight (net from scale or estimate): 27,005 Signature of Certifier: /s/ Don Bickford

NSTec
Farm
FRM-0918

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

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA		<input type="checkbox"/> 23	<input checked="" type="checkbox"/> 6	<input type="checkbox"/> 9	<input checked="" type="checkbox"/> LANDFILL	
For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.						
REQUIRED: WASTE GENERATOR INFORMATION (This form is for rolloffs, dump trucks, and other onsite disposal of materials.)						
Waste Generator:	<u>KEVIN OLSEN</u> <u>CAU-543</u>			Phone Number: <u>5-2941</u>		
Location / Origin:	<u>AREA 15 EPA FARM LIQUID MANURE TANK (CAS 15-08-01)</u>					
Waste Category: (check one)	<input type="checkbox"/> Commercial		<input checked="" type="checkbox"/> Industrial			
Waste Type: (check one)	<input type="checkbox"/> NTS <input type="checkbox"/> Non-Putrescible		<input type="checkbox"/> Putrescible <input type="checkbox"/> Asbestos Containing Material		<input checked="" type="checkbox"/> FFACO-onsite <input type="checkbox"/> FFACO-offsite	<input type="checkbox"/> WAC Exception <input type="checkbox"/> Historic DOE/NV
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Environmental management		<input type="checkbox"/> Defense Projects		<input type="checkbox"/> YMP	
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Clean-Up		<input type="checkbox"/> Routine			
Method of Characterization: (check one)	<input checked="" type="checkbox"/> Sampling & Analysis		<input type="checkbox"/> Process Knowledge		<input type="checkbox"/> Contents	
Prohibited Waste at all three NTS landfills:	Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).					
Additional Prohibited Waste at the Area 9 U10C Landfill:	Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos					
REQUIRED: WASTE CONTENTS ALLOWABLE WASTES Check all allowable wastes that are contained within this load:						
NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.						
Acceptable waste at any NTS landfill:	<input type="checkbox"/> Paper <input type="checkbox"/> Rocks / unaltered geologic materials <input type="checkbox"/> Empty containers <input type="checkbox"/> Asphalt <input checked="" type="checkbox"/> Metal <input checked="" type="checkbox"/> Wood <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Rubber (excluding tires) <input type="checkbox"/> Plastic <input type="checkbox"/> Wire <input type="checkbox"/> Cable <input type="checkbox"/> Cloth <input type="checkbox"/> Insulation (non-Asbestosform) <input type="checkbox"/> Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)					
Additional waste accepted at the Area 23 Mercury Landfill:	<input type="checkbox"/> Office Waste <input type="checkbox"/> Food Waste <input type="checkbox"/> Animal Carcasses <input type="checkbox"/> Asbestos <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable (contact SWO if regulated load) Quantity: _____					
Additional waste accepted at the Area 9 U10c Landfill:	<input type="checkbox"/> Non-friable asbestos <input type="checkbox"/> Drained automobiles and military vehicles <input type="checkbox"/> Solid fractions from sand/oil/water <input type="checkbox"/> Light ballasts (contact SWO) <input type="checkbox"/> Drained fuel filters (gas & diesel) <input type="checkbox"/> Deconned Underground and Above <input checked="" type="checkbox"/> Hydrocarbons (contact SWO) <input type="checkbox"/> Other Ground Tanks					
Additional waste accepted at the Area 6 Hydrocarbon Landfill:	<input type="checkbox"/> Septic sludge <input type="checkbox"/> Rags <input type="checkbox"/> Drained fuel filters (gas & diesel) <input type="checkbox"/> Crushed non-ferme plated oil filters <input type="checkbox"/> Plants <input type="checkbox"/> Soil <input type="checkbox"/> Sludge from sand/oil/water separators <input type="checkbox"/> PCBs below 50 parts per million					
REQUIRED: WASTE GENERATOR SIGNATURE						
Initials: <u>KSO</u> (if initialed, no radiological clearance is necessary.)	Radiation Survey Release for Waste Disposal RCT Initials <input type="checkbox"/> This container/load is free of external radioactive contamination. <input type="checkbox"/> This container/load is exempt from survey due to process knowledge and origin. <input type="checkbox"/> This container/load is free of radioactive contamination based on radioanalysis. SIGNATURE: <u>See Original</u> DATE: <u>8/2/07</u> BN-0646 (09/93)					
Print Name: <u>KEVIN OLSEN</u>	If applicable, place FRM-0646, "Radiological Release Sticker" here. Onsite use only.					
Signature: <u>/s/ Kevin Olsen</u>	Date: <u>8/2/07</u>					
Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification."						
SWO USE ONLY						
Load Weight (net from scale or estimate): <u>45,000</u>	Signature of Certifier: <u>See Original</u>					

NSTec
Form
FRM-0918

NTS LANDFILL LOAD VERIFICATION

Page 1

SWO USE (Select One) AREA 23 6 9 10C LANDFILL

For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-1198.

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Kevin Olson CHL-S43 Phone Number: 5-2441

Location / Origin: AREA 15 EPA FARM LIQUID MANURE TANK (CAS 15-08-01)

Waste Category: (check one) Commercial Industrial

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

Pollution Prevention Category: (check one) Environmental management Defense Projects YMP

Pollution Prevention Category: (check one) Clean-Up Routine

Method of Characterization: (check one) Sampling & Analysis Process Knowledge Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: Paper Rocks / unaltered geologic materials Empty containers
 Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris
 Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete
 Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: Office Waste Food Waste Animal Carcasses
 Asbestos Friable Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

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

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

To the best of my knowledge, the waste described above contains only those materials that are allowed at the landfill site. I have verified this through the waste characterization method identified above. The waste described above does not contain any prohibited and allowable waste items. I have contacted Property Management and the waste is approved for disposal in the landfill.

Print Name: Kevin Olson

Signature: /s/ Kevin Olson

Date: 8/2/07

Radiation Survey Release for Waste Disposal

RCT Initials

This container/load is free of external radioactive contamination.
 This container/load is exempt from survey due to process knowledge and origin.
 This container/load is free of radioactive contamination based on radioanalysis.

SIGNATURE: See Original

DATE: 8/2/07

BN-0646 (05/95)

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

SWO USE ONLY

Load Weight (net from scale or estimate): 47,600

8-2-07

Signature of Certifier: /s/ Don Bickford

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Kevin Olsen CAU-543 Phone Number: 5-2941

Location / Origin: Area 15 EPA Farm Liquid Manure Tank -- CAS 15-08-01 -- Tank Property Number 9997990

Waste Category: (check one)	<input type="checkbox"/> Commercial	<input checked="" type="checkbox"/> Industrial		
Waste Type: (check one)	<input type="checkbox"/> NTS <input type="checkbox"/> Non-Putrescible	<input type="checkbox"/> Putrescible <input type="checkbox"/> Asbestos Containing Material	<input checked="" type="checkbox"/> FFACO-onsite <input type="checkbox"/> FFACO-offsite	<input type="checkbox"/> WAC Exception <input type="checkbox"/> Historic DOE/NV
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Environmental management			
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Clean-Up			
Method of Characterization: (check one)	<input checked="" type="checkbox"/> Sampling & Analysis			
Prohibited Waste at all three NTS landfills:	Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).			
Additional Prohibited Waste at the Area 9 U10C Landfill:	Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos			

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill:	<input type="checkbox"/> Paper	<input type="checkbox"/> Rocks / unaltered geologic materials	<input type="checkbox"/> Empty containers		
<input type="checkbox"/> Asphalt	<input type="checkbox"/> Metal	<input type="checkbox"/> Wood	<input type="checkbox"/> Soil	<input type="checkbox"/> Rubber (excluding tires)	<input checked="" type="checkbox"/> Demolition debris
<input type="checkbox"/> Plastic	<input type="checkbox"/> Wire	<input type="checkbox"/> Cable	<input type="checkbox"/> Cloth	<input type="checkbox"/> Insulation (non-Asbestosform)	<input checked="" type="checkbox"/> Cement & concrete
<input type="checkbox"/> 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:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

<input type="checkbox"/> Septic sludge	<input type="checkbox"/> Rags	<input type="checkbox"/> Drained fuel filters (gas & diesel)	<input type="checkbox"/> Crushed non-leme plated oil filters
<input type="checkbox"/> Plants	<input type="checkbox"/> Soil	<input type="checkbox"/> Sludge from sand/oil/water separators	<input type="checkbox"/> PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR

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

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

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

Radiation Survey Release for Waste Disposal

RCRA Initials

This container/load is free of external radioactive contamination.
 This container/load is exempt from survey due to process knowledge and origin.
 This container/load is free of radioactive contamination based on radioanalysis.

SIGNATURE: _____

See Original DATE: 8-6-07

BN-0646 (09/99)

Print Name: Kevin Olsen

Signature: /s/ Kevin Olsen

Date: 8/6/07

If applicable, place FRM-0646, "Radiological Release Sticker" here. Onsite use only.

SWO USE ONLY

Load Weight (net from scale or estimate): 51,700 8-6-07 Signature of Certifier: /s/ Steven C

NTS LANDFILL LOAD VERIFICATION

Page 1

SWO USE (Select One) AREA 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Kevin Olson (721-543) Phone Number: 5-2941

Location / Origin: Area 15 EPA Farm Liquid Manure Tank --- CAS 15-08-01 — Tank Property Number 9997990

Waste Category: (check one)	<input type="checkbox"/> Commercial	<input checked="" type="checkbox"/> Industrial		
Waste Type: (check one)	<input type="checkbox"/> NTS <input type="checkbox"/> Non-Putrescible	<input type="checkbox"/> Putrescible <input type="checkbox"/> Asbestos Containing Material	<input checked="" type="checkbox"/> FFACO-onsite	<input type="checkbox"/> WAC Exception
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Environmental management		<input type="checkbox"/> Defense Projects	<input type="checkbox"/> Historic DOE/NV
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Clean-Up		<input type="checkbox"/> Routine	<input type="checkbox"/> YMP
Method of Characterization: (check one)	<input checked="" type="checkbox"/> Sampling & Analysis		<input type="checkbox"/> Process Knowledge	<input type="checkbox"/> Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill:	<input type="checkbox"/> Paper	<input type="checkbox"/> Rocks / unaltered geologic materials	<input type="checkbox"/> Empty containers		
<input type="checkbox"/> Asphalt	<input type="checkbox"/> Metal	<input type="checkbox"/> Wood	<input type="checkbox"/> Rubber (excluding tires)	<input checked="" type="checkbox"/> Demolition debris	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Wire	<input type="checkbox"/> Cable	<input type="checkbox"/> Cloth	<input type="checkbox"/> Insulation (non-Asbestosform)	<input checked="" type="checkbox"/> Cement & concrete
<input type="checkbox"/> 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:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

<input type="checkbox"/> Septic sludge	<input type="checkbox"/> Rags	<input type="checkbox"/> Drained fuel filters (gas & diesel)	<input type="checkbox"/> Crushed non-ferme plated oil filters
<input type="checkbox"/> Plants	<input type="checkbox"/> Soil	<input type="checkbox"/> Sludge from sand/oil/water separators	<input type="checkbox"/> PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

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

Print Name: Kevin Olson

Signature: /s/ Kevin Olsen

Date: 9/6/07

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

SWO USE ONLY

Load Weight (net from scale or estimate): 46,000

3-6-07

Signature of Certifier: /s/ Don Bickford

Radiation Survey Release for Waste Disposal
RCT Initials

<input type="checkbox"/> This container/load is free of external radioactive contamination.
<input type="checkbox"/> This container/load is exempt from survey due to process knowledge and origin.
<input type="checkbox"/> This container/load is free of radioactive contamination based on radioanalysis.

SIGNATURE: See Original DATE: 9-6-07

BN-0646 (09/05)

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) **AREA** 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Kevin Olson CRU-583 Phone Number: 5-2941

Location / Origin: Area 15 EPA Farm Liquid Manure Tank -- CAS 15-08-01 -- Tank Property Number 9997990

Waste Category: (check one)	<input type="checkbox"/> Commercial	<input checked="" type="checkbox"/> Industrial		
Waste Type: (check one)	<input type="checkbox"/> NTS	<input type="checkbox"/> Putrescible	<input checked="" type="checkbox"/> FFACO-onsite	<input type="checkbox"/> WAC Exception
	<input type="checkbox"/> Non-Putrescible	<input type="checkbox"/> Asbestos Containing Material	<input type="checkbox"/> FFACO-offsite	<input type="checkbox"/> Historic DOE/NV
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Environmental management	<input type="checkbox"/> Defense Projects	<input type="checkbox"/> YMP	
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Clean-Up	<input type="checkbox"/> Routine		
Method of Characterization: (check one)	<input checked="" type="checkbox"/> Sampling & Analysis	<input type="checkbox"/> Process Knowledge	<input type="checkbox"/> Contents	
Prohibited Waste at all three NTS landfills:	Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).			
Additional Prohibited Waste at the Area 9 U10C Landfill:	Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos			

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

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

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

<input type="checkbox"/> Septic sludge	<input type="checkbox"/> Rags	<input type="checkbox"/> Drained fuel filters (gas & diesel)	<input type="checkbox"/> Crushed non-ferme plated oil filters
<input type="checkbox"/> Plants	<input type="checkbox"/> Soil	<input type="checkbox"/> Sludge from sand/oil/water separators	<input type="checkbox"/> PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

To the best of my knowledge, the waste described above contains only those materials. I have verified this through the waste characterization method identified above. The waste described above does not contain prohibited and allowable waste items. I have contacted Property Management and is approved for disposal in the landfill.

Print Name: Kevin Olson

Signature: /s/ Kevin Olson Date: 8/6/07

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

Radiation Survey Release for Waste Disposal
RCT Initials

This container/load is free of external radioactive contamination.
 This container/load is exempt from survey due to process knowledge and origin.
 This container/load is free of radioactive contamination based on radioanalysis.

SIGNATURE: See Original DATE: 8-6-07
DN-0646 (09/99)

SWO USE ONLY

Load Weight (net from scale or estimate): 31,900

8-6-07

Signature of Certifier: /s/ Don Bickford

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Shaughn Burnison Phone Number: 5-7328

Location / Origin: Area 15 EPA Farm Liquid Manure Tank --- CAS 15-08-01 --- Tank Property Number 9997990

Waste Category: (check one)	<input type="checkbox"/> Commercial	<input checked="" type="checkbox"/> Industrial		
Waste Type: (check one)	<input type="checkbox"/> NTS	<input type="checkbox"/> Putrescible	<input checked="" type="checkbox"/> FFACO-onsite	<input type="checkbox"/> WAC Exception
	<input type="checkbox"/> Non-Putrescible	<input type="checkbox"/> Asbestos Containing Material	<input type="checkbox"/> FFACO-offsite	<input type="checkbox"/> Historic DOE/IV
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Environmental management	<input type="checkbox"/> Defense Projects	<input type="checkbox"/> YMP	
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Clean-Up	<input type="checkbox"/> Routine		
Method of Characterization: (check one)	<input checked="" type="checkbox"/> Sampling & Analysis	<input type="checkbox"/> Process Knowledge	<input type="checkbox"/> Contents	

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill:	<input type="checkbox"/> Paper	<input type="checkbox"/> Rocks / unaltered geologic materials	<input type="checkbox"/> Empty containers		
<input type="checkbox"/> Asphalt	<input checked="" type="checkbox"/> Metal	<input type="checkbox"/> Wood	<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Rubber (excluding tires)	<input checked="" type="checkbox"/> Demolition debris
<input checked="" type="checkbox"/> Plastic	<input type="checkbox"/> Wire	<input type="checkbox"/> Cable	<input type="checkbox"/> Cloth	<input type="checkbox"/> Insulation (non-Asbestosform)	<input checked="" type="checkbox"/> Cement & concrete
<input type="checkbox"/> 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:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

<input type="checkbox"/> Septic sludge	<input type="checkbox"/> Rags	<input type="checkbox"/> Drained fuel filters (gas & diesel)	<input type="checkbox"/> Crushed non-terne plated oil filters
<input type="checkbox"/> Plants	<input type="checkbox"/> Soil	<input type="checkbox"/> Sludge from sand/oil/water separators	<input type="checkbox"/> 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 facility, and to the best of my knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those prohibited and allowable waste items. I have contacted Property Management and is approved for disposal in the landfill.

Print Name: Shaughn Burnison

Signature: /s/ Shaughn Burnison Date: 8/7/07

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

SWO USE ONLY

Load Weight (net from scale or estimate): 17,650 Signature of Certifier: /s/ Don Bickford

Radiation Survey Release for Waste Disposal

RCT Initials

This container/load is free of external radioactive contamination.
 This container/load is exempt from survey due to process knowledge and origin.
 This container/load is free of radioactive contamination based on radioanalysis.

SIGNATURE: See Original

DATE: 8/7/07

BN-0646 (0918)

If applicable, place FRTV-0040,
"Radiological Release Sticker"
here. Onsite use only.

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Shaughn Burnison 543 Phone Number: 5-9328

Location / Origin: Area 15 EPA Farm Liquid Manure Tank --- CAS 15-08-01 --- Tank Property Number 9997990

Waste Category: (check one) Commercial Industrial

Waste Type: NTS Putrescible FFACO-onsite WAC Exception

(check one) Non-Putrescible Asbestos Containing Material FFACO-offsite Historic DOE/NV

Pollution Prevention Category: (check one) Environmental management Defense Projects YMP

Pollution Prevention Category: (check one) Clean-Up Routine

Method of Characterization: (check one) Sampling & Analysis Process Knowledge Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: Paper Rocks / unaltered geologic materials Empty containers

Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris

Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete

Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: Office Waste Food Waste Animal Carcasses

Asbestos Friable Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

Non-friable asbestos Drained automobiles and military vehicles Solid fractions from sand/oil/water

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

Hydrocarbons (contact SWO) Other _____ Ground Tanks

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

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

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

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

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

Print Name: Shaughn Burnison

Signature: /s/ Shaughn Burnison Date: 8/7/07

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

Radiation Survey Release for Waste Disposal RCT Initials

This container/load is free of external radioactive contamination.

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

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

SIGNATURE: See Original DATE: 8/7/07 BN-0646 (09/99)

SWO USE ONLY

Load Weight (net from scale or estimate): 12,547 Signature of Certifier: /s/ Don Bickford

THIS PAGE INTENTIONALLY LEFT BLANK

**Corrective Action Site 15-23-01
Underground Radioactive Material Area**

THIS PAGE INTENTIONALLY LEFT BLANK

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5-3281358

Location / Origin: AREA 15 OLD FUEL TANKS, CALI 543 LIQUID DISPOSAL UNITS

Waste Category: (check one)	<input type="checkbox"/> Commercial	<input checked="" type="checkbox"/> Industrial		
Waste Type: (check one)	<input type="checkbox"/> Putrescible	<input checked="" type="checkbox"/> FFACO-onsite	<input type="checkbox"/> WAC Exception	
	<input type="checkbox"/> Non-Putrescible	<input type="checkbox"/> Asbestos Containing Material	<input type="checkbox"/> FFACO-offsite	<input type="checkbox"/> Historic DOE/NV
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Environmental management	<input type="checkbox"/> Defense Projects	<input type="checkbox"/> YMP	
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Clean-Up	<input type="checkbox"/> Routine		
Method of Characterization: (check one)	<input checked="" type="checkbox"/> Sampling & Analysis	<input type="checkbox"/> Process Knowledge	<input type="checkbox"/> Contents	

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill:	<input type="checkbox"/> Paper	<input type="checkbox"/> Rocks / unaltered geologic materials	<input type="checkbox"/> Empty containers		
<input type="checkbox"/> Asphalt	<input checked="" type="checkbox"/> Metal	<input checked="" type="checkbox"/> Wood	<input type="checkbox"/> Soil	<input type="checkbox"/> Rubber (excluding tires)	<input type="checkbox"/> Demolition debris
<input type="checkbox"/> Plastic	<input type="checkbox"/> Wire	<input type="checkbox"/> Cable	<input type="checkbox"/> Cloth	<input type="checkbox"/> Insulation (non-Asbestosform)	<input type="checkbox"/> Cement & concrete
<input type="checkbox"/> 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:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

<input type="checkbox"/> Septic sludge	<input type="checkbox"/> Rags	<input type="checkbox"/> Drained fuel filters (gas & diesel)	<input type="checkbox"/> Crushed non-teme plated oil filters
<input type="checkbox"/> Plants	<input type="checkbox"/> Soil	<input type="checkbox"/> Sludge from sand/oil/water separators	<input type="checkbox"/> 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. I have verified this through the waste characterization method identified above. I have contacted Property Management and is approved for disposal in the landfill.

Print Name: SHAUGHN BURNISON

Signature: /s/ Shaughn Burnison Date: 4/3/07

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

Radiation Survey Release for Waste Disposal

RCT Initials

<input type="checkbox"/> This container/load is free of external radioactive contamination.
<input type="checkbox"/> This container/load is exempt from survey due to process knowledge and origin.
<input checked="" type="checkbox"/> This container/load is free of radioactive contamination based on radioanalysis.

SIGNATURE: /s/ D W DATE: 4-3-07
BN-0646 (09/98)

SWO USE ONLY

Load Weight (net from scale or estimate): 5000 Signature of Certifier: /s/ Don Rickford

THIS PAGE INTENTIONALLY LEFT BLANK

**Corrective Action Site 15-23-03
Contaminated Sump, Piping**

THIS PAGE INTENTIONALLY LEFT BLANK

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA		<input type="checkbox"/> 23	<input type="checkbox"/> 6	<input checked="" type="checkbox"/> 9	<input type="checkbox"/> LANDFILL
For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.					
REQUIRED: WASTE GENERATOR INFORMATION (This form is for rolloffs, dump trucks, and other onsite disposal of materials.)					
Waste Generator:	Shaughn Burnison			Phone Number: 5-9328 / 358-1030	
Location / Origin:	Area 15 Old EPA Farm - CAM 543 (CAS 15-23-01) MISC DER2.6 in Housekeeping Waste				
Waste Category: (check one)	<input type="checkbox"/> Commercial		<input checked="" type="checkbox"/> Industrial		
Waste Type: (check one)	<input type="checkbox"/> Putrescible		<input checked="" type="checkbox"/> FFACO-onsite <input type="checkbox"/> WAC Exception		
	<input type="checkbox"/> Non-Putrescible		<input type="checkbox"/> FFACO-offsite <input type="checkbox"/> Historic DOE/NV		
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Environmental management		<input type="checkbox"/> Defense Projects <input type="checkbox"/> YMP		
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Clean-Up		<input type="checkbox"/> Routine		
Method of Characterization: (check one)	<input checked="" type="checkbox"/> Sampling & Analysis		<input type="checkbox"/> Process Knowledge <input type="checkbox"/> Contents		
Prohibited Waste at all three NTS landfills:	Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).				
Additional Prohibited Waste at the Area 9 U10C Landfill:	Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos				
REQUIRED: WASTE CONTENTS ALLOWABLE WASTES Check all allowable wastes that are contained within this load:					
NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.					
Acceptable waste at any NTS landfill:	<input type="checkbox"/> Paper <input type="checkbox"/> Rocks / unaltered geologic materials <input type="checkbox"/> Empty containers <input type="checkbox"/> Asphalt <input checked="" type="checkbox"/> Metal <input checked="" type="checkbox"/> Wood <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Rubber (excluding tires) <input checked="" type="checkbox"/> Demolition debris <input type="checkbox"/> Plastic <input checked="" type="checkbox"/> Wire <input type="checkbox"/> Cable <input type="checkbox"/> Cloth <input type="checkbox"/> Insulation (non-Asbestosform) <input checked="" type="checkbox"/> Cement & concrete <input checked="" type="checkbox"/> Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)				
Additional waste accepted at the Area 23 Mercury Landfill:	<input type="checkbox"/> Office Waste <input type="checkbox"/> Food Waste <input type="checkbox"/> Animal Carcasses <input type="checkbox"/> Asbestos <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable (contact SWO if regulated load) Quantity: _____				
Additional waste accepted at the Area 9 U10c Landfill:	<input type="checkbox"/> Non-friable asbestos <input type="checkbox"/> Drained automobiles and military vehicles <input type="checkbox"/> Solid fractions from sand/oil/water <input type="checkbox"/> Light ballasts (contact SWO) <input type="checkbox"/> Drained fuel filters (gas & diesel) <input type="checkbox"/> Deconned Underground and Above <input type="checkbox"/> Hydrocarbons (contact SWO) <input type="checkbox"/> Other Ground Tanks				
Additional waste accepted at the Area 6 Hydrocarbon Landfill:	<input type="checkbox"/> Septic sludge <input type="checkbox"/> Rags <input type="checkbox"/> Drained fuel filters (gas & diesel) <input type="checkbox"/> Crushed non-ferrous plated oil filters <input type="checkbox"/> Plants <input type="checkbox"/> Soil <input type="checkbox"/> Sludge from sand/oil/water separators <input type="checkbox"/> 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. I have contacted Property Management and is approved for disposal in the landfill.					
Print Name: Shaughn Burnison					
Signature: /s/ Shaughn Burnison Date: 4/2/07					
Note: "Food waste, office trash and animal carcasses do not require a radiological clearance statement. A radiological clearance must have signed removal certification statement with Load Verification."					
SWO USE ONLY					
Load Weight (net from scale or estimate): 22,000 1-2-07					
Signature of Certifier: /s/ Steven C					

Radiation Survey Release for Waste Disposal	
RCT Initials	
<input checked="" type="checkbox"/> This container/load is free of external radioactive contamination.	
<input type="checkbox"/> This container/load is exempt from survey due to process knowledge and origin.	
<input type="checkbox"/> This container/load is free of radioactive contamination based on radioanalysis.	
SIGNATURE: /s/ D W DATE: 3/24/07	
BN-0646 (09/95)	

NSTec
Form
FRM-0918

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

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA		<input type="checkbox"/> 23	<input type="checkbox"/> 6	<input checked="" type="checkbox"/> 9	<input type="checkbox"/> LANDFILL
For waste characterization, approval, and/or assistance, contact Solid Waste Operation (SWO) at 5-7898.					
REQUIRED: WASTE GENERATOR INFORMATION (This form is for rolloffs, dump trucks, and other onsite disposal of materials.)					
Waste Generator:	<u>Shaughn Burnison</u>			Phone Number: <u>5-9328</u>	
Location / Origin:	<u>CAU 543 (CAS 15-03-01) 0 LID E1A FARM AREA 15 GENERAL HOUSEHOLD WASTE</u>				
Waste Category: (check one)	<input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Industrial				
Waste Type: (check one)	<input type="checkbox"/> NTS	<input type="checkbox"/> Putrescible	<input checked="" type="checkbox"/> FFACO-onsite	<input type="checkbox"/> WAC Exception	
	<input type="checkbox"/> Non-Putrescible	<input type="checkbox"/> Asbestos Containing Material	<input type="checkbox"/> FFACO-offsite	<input type="checkbox"/> Historic DOE/NV	
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Environmental management <input type="checkbox"/> Defense Projects <input type="checkbox"/> YMP				
Pollution Prevention Category: (check one)	<input checked="" type="checkbox"/> Clean-Up <input type="checkbox"/> Routine				
Method of Characterization: (check one)	<input type="checkbox"/> Sampling & Analysis <input checked="" type="checkbox"/> Process Knowledge <input checked="" type="checkbox"/> Contents				
Prohibited Waste at all three NTS landfills:	Radioactive waste; RCRA waste; Hazardous waste; Free liquids, PCBs above TSCA regulatory levels, and Medical wastes (needles, sharps, bloody clothing).				
Additional Prohibited Waste at the Area 9 U10C Landfill:	Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos				
REQUIRED: WASTE CONTENTS ALLOWABLE WASTES Check all allowable wastes that are contained within this load:					
NOTE: Waste disposal at the Area 6 Hydrocarbon Landfill must have come into contact with petroleum hydrocarbons or coolants, such as: gasoline (no benzene, lead); jet fuel; diesel fuel; lubricants and hydraulics; kerosene; asphaltic petroleum hydrocarbon; and ethylene glycol.					
Acceptable waste at any NTS landfill:	<input type="checkbox"/> Paper	<input type="checkbox"/> Rocks / unaltered geologic materials	<input type="checkbox"/> Empty containers		
<input type="checkbox"/> Asphalt	<input checked="" type="checkbox"/> Metal	<input checked="" type="checkbox"/> Wood	<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Rubber (excluding tires)	<input checked="" type="checkbox"/> Demolition debris
<input checked="" type="checkbox"/> Plastic	<input type="checkbox"/> Wire	<input type="checkbox"/> Cable	<input type="checkbox"/> Cloth	<input type="checkbox"/> Insulation (non-Asbestosform)	<input type="checkbox"/> Cement & concrete
<input type="checkbox"/> Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)					
Additional waste accepted at the Area 23 Mercury Landfill: <input type="checkbox"/> Office Waste <input type="checkbox"/> Food Waste <input type="checkbox"/> Animal Carcasses					
<input type="checkbox"/> Asbestos	<input type="checkbox"/> Friable	<input type="checkbox"/> Non-Friable (contact SWO if regulated load) Quantity: _____			
Additional waste accepted at the Area 9 U10c Landfill:					
<input type="checkbox"/> Non-friable asbestos	<input type="checkbox"/> Drained automobiles and military vehicles			<input type="checkbox"/> Solid fractions from sand/oil/water	
<input type="checkbox"/> Light ballasts (contact SWO)	<input type="checkbox"/> Drained fuel filters (gas & diesel)			<input type="checkbox"/> Deconned Underground and Above	
<input type="checkbox"/> Hydrocarbons (contact SWO)	<input type="checkbox"/> Other			<input type="checkbox"/> Ground Tanks	
Additional waste accepted at the Area 6 Hydrocarbon Landfill: <input type="checkbox"/>					
<input type="checkbox"/> Septic sludge	<input type="checkbox"/> Rags	<input type="checkbox"/> Drained fuel filters (gas & diesel)	<input type="checkbox"/> Crushed non-ferme plated oil filters		
<input type="checkbox"/> Plants	<input type="checkbox"/> Soil	<input type="checkbox"/> Sludge from sand/oil/water separators	<input type="checkbox"/> PCBs below 50 parts per million		
REQUIRED: WASTE GENERATOR SIGNATURE					
Initials: <u>SB</u> (if initialed, no radiological clearance is necessary.)					
The above mentioned waste was generated outside of a Controlled Waste Management Area (CWMA) and to the best of my knowledge, does not contain radiological materials.					
To the best of my knowledge, the waste described above contains only those materials that are allowed for disposal at this site. I have verified this through the waste characterization method identified above and a review of the above-mentioned prohibited and allowable waste items. I have contacted Property Management and have verified that this material/equipment is approved for disposal in the landfill.					
Print Name: <u>Shaughn Burnison</u>			If applicable, place FRM-0646, "Radiological Release Sticker" here. Onsite use only.		
Signature: <u>/s/ Shaughn Burnison</u>			Date. <u>8/16/07</u>		
Note: "Food waste, office trash and animal carcasses do not require a radiological clearance. Freon-containing appliances must have signed removal certification statement with Load Verification"					
SWO USE ONLY					
Load Weight (net from scale or estimate): <u>15,000</u> Signature of Certifier: <u>/s/ Don Bickford</u>					

SWO USE (Select One) AREA 23 6 9 LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5-9328

Location / Origin: CAM 543 (CAS 15-03-01) OLD ERA FARM Area 15 Housekeeping Sector

Waste Category: (check one) Commercial Industrial

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

Pollution Prevention Category: (check one) Environmental management Defense Projects YMP

Pollution Prevention Category: (check one) Clean-Up Routine

Method of Characterization: (check one) Sampling & Analysis Process Knowledge Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: Paper Rocks / unaltered geologic materials Empty containers
 Asphalt Metal Wood Soil Rubber (excluding tires) Demolition debris
 Plastic Wire Cable Cloth Insulation (non-Asbestosform) Cement & concrete
 Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: Office Waste Food Waste Animal Carcasses
 Asbestos Friable Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill:

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

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

To the best of my knowledge, the waste described above contains only those materials that are allowed for disposal at this site. I have verified this through the waste characterization method identified above and a review of the above-mentioned prohibited and allowable waste items. I have contacted Property Management and have verified that this material/equipment is approved for disposal in the landfill.

Print Name: SHAUGHN BURNISON

If applicable, place FRM-0646,
"Radiological Release Sticker"
here. Onsite use only.

Signature: /s/ Shaughn Burnison Date: 8/16/07

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

SWO USE ONLY

Load Weight (net from scale or estimate): 28.02 Signature of Certifier: /s/ Don Bickford

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX D
SITE CLOSURE PHOTOGRAPHS

THIS PAGE INTENTIONALLY LEFT BLANK

PHOTOGRAPH LOG

CAS	Photo Number	Date	Perspective	Description
06-07-01	1	8/27/2007	to northwest	Septic tank 6-605 during excavation
	2	9/5/2007	to northeast	Septic tank 6-605 excavation after tank removal
	3	10/10/2007	to northeast	Septic tank 6-605 excavation, backfilled
	4	10/25/2004	to north	Septic tank 6-607 before closure activities
	5	9/26/2007	to northwest	Septic tank 6-607 excavation after tank removal
	6	10/10/2007	to north	Septic tank 6-607 excavation, backfilled
	7	9/5/2007	to east	Sump excavation, after sumps have been removed
	8	10/10/2007	to northeast	Sump excavation, backfilled
	9	10/25/2004	to north	Debris and cleanouts, before closure activities
	10	9/24/2007	to northwest	Cleanout, grouted
	11	11/22/2006	to northeast	Building 6-605 concrete pad, diversion box, trenches covered with plywood, before closure activities
	12	9/24/2007	to southeast	Building 6-605 diversion box, grouted
	13	9/24/2007	to northwest	Building 6-605 floor drain trenches, trenches grouted
	14	9/26/2007	to southwest	Building 6-605 Use Restriction (UR) and polychlorinated biphenyl (PCB) signs
	15	9/26/2007	to northwest	Building 6-605 Fencing and UR sign
	16	9/5/2007	to south	Moving mixed waste into hazardous waste accumulation area
	17	11/22/2006	to north	Debris, luggers and drums, before closure activities
	18	11/22/2006	to south	Debris, luggers and drums, before closure activities
	19	9/26/2007	to east	Lugger and drum debris area, after closure activities
15-01-03	20	1/31/2007	to southwest	Aboveground Storage Tank (AST), showing piping coming in from right (north) and going to fill stand (to east)
	21	1/31/2007	to southeast	Fill stand and associated piping to AST
	22	8/14/2007	to southeast	AST scaffolding, checking tank contents
	23	9/20/2007	to east	Rigging AST for removal
	24	9/20/2007	to southeast	Placing AST on flatbed trailer
	25	9/20/2007	to south	AST on flatbed trailer, prepared to transport
	26	9/20/2007	to south	AST depression after AST has been removed
	27	1/31/2007	to southwest	Distribution box, before closure activities
	28	8/14/2007	to west	Distribution box excavation, after box removal
	29	10/2/2007	to northwest	Distribution box excavation, backfilled
	30	9/20/2007	to southeast	Distribution box low-level waste (LLW) being prepared for lifting
	31	9/20/2007	to southeast	Distribution box LLW loading onto transportation vehicle
	32	1/31/2007	to west	Building 15-06 pad, before closure activities

PHOTOGRAPH LOG

CAS	Photo Number	Date	Perspective	Description
15-01-03	33	1/31/2007	to southwest	Building 15-06 floor drain trenches, with wood debris, before closure activities
	34	9/20/2007	to northwest	Building 15-06 pad with floor drain trenches grouted
	35	10/1/2007	to southeast	Building 15-06 UR and PCB signs on UR fencing
	36	10/1/2007	to south	UR, PCB, and URMA [Underground Radioactive Material Area] signs posted over underground piping
	37	12/8/2004	to east	Piping debris northeast of CAS 15-01-03 Building 15-06 pad, before closure activities
	38	10/1/2007	to northeast	Piping debris area northeast of CAS 15-01-03 Building 15-06 pad, after closure activities
	39	4/3/2007	to southeast	Asphalt debris north of CAS 15-01-03 Building 15-06 pad, before closure activities
	40	9/20/2007	to west	Asphalt debris area north of CAS 15-01-03 Building 15-06 pad, after closure activities
15-04-01	41	4/9/2007	to northeast	Septic tank, exposed during closure activities
	42	4/9/2007	to north	Septic tank, excavated
15-04-01 and 15-05-01	43	10/1/2007	to southeast	Septic tank and distribution box excavations, backfilled
15-08-01	44	1/31/2007	to south	Liquid manure tank top, including debris, before closure activities
	45	10/2/2007	to east	Liquid manure tank excavation, backfilled
15-23-01	46	1/31/2007	to west	Steel planking and other debris, before closure activities
	47	10/1/2007	to northeast	CAS 15-23-01 after debris removal
15-23-03	48	1/31/2007	to southwest	Sump, before closure activities
	49	4/3/2007	to south-southwest	Sump, partially filled, with concrete perimeter partially exposed
	50	9/20/2007	to south-southwest	Sump, final backfilled area
	51	10/2/2007	to south	UR signs posted around perimeter of sump
	52	1/31/2007	to south-southwest	Cabinet debris, before closure activities
	53	10/2/2007	to southwest	Debris area, after closure activities



Photograph 1. CAS 06-07-01, Septic tank 6-605 during excavation



Photograph 2. CAS 06-07-01, Septic tank 6-605 excavation after tank removal



Photograph 3. CAS 06-07-01, Septic tank 6-605 excavation, backfilled



Photograph 4.: CAS 06-07-01, Septic tank 6-607 before closure activities



Photograph 5. CAS 06-07-01, Septic tank 6-607 excavation after tank removal



Photograph 6. CAS 06-07-01, Septic tank 6-607 excavation, backfilled



Photograph 7. CAS 06-07-01, Sump excavation, after sumps have been removed



Photograph 8. CAS 06-07-01, Sump excavation, backfilled



Photograph 9. CAS 06-07-01, Debris and cleanouts, before closure activities



Photograph 10. CAS 06-07-01, Cleanout, grouted



Photograph 11. CAS 06-07-01, Building 6-605 concrete pad, diversion box, trenches covered with plywood, before closure activities



Photograph 12. CAS 06-07-01, Building 6-605 diversion box, grouted



Photograph 13. CAS 06-07-01, Building 6-605 floor drain trenches, trenches grouted



Photograph 14. CAS 06-07-01, Building 6-605 use restriction (UR) and polychlorinated biphenyl (PCB) signs



Photograph 15. CAS 06-07-01, Building 6-605 Fencing and UR sign



Photograph 16. CAS 06-07-01, Moving mixed waste into hazardous waste accumulation area



Photograph 17. CAS 06-07-01, Debris, luggers and drums, before closure activities



Photograph 18. CAS 06-07-01, Debris, luggers and drums, before closure activities



Photograph 19. CAS 06-07-01, Lugger and drum debris area, after closure activities



Photograph 20. CAS 15-01-03, Aboveground Storage Tank (AST), showing piping coming in from right (north) and going to fill stand (to east)



Photograph 21. CAS 15-01-03, Fill stand and associated piping to AST



Photograph 22. CAS 15-01-03, AST scaffolding, checking tank contents



Photograph 23. CAS 15-01-03, Rigging AST for removal



Photograph 24. CAS 15-01-03, Placing AST on flatbed trailer



Photograph 25. CAS 15-01-03, AST on flatbed trailer, prepared to transport



Photograph 26. CAS 15-01-03, AST depression after AST has been removed



Photograph 27. CAS 15-01-03, Distribution box, before closure activities



Photograph 28. CAS 15-01-03, Distribution box excavation, after box removal



Photograph 29. CAS 15-01-03, Distribution box excavation, backfilled



Photograph 30. CAS 15-01-03, Distribution box low-level waste (LLW)
being prepared for lifting



Photograph 31. CAS 15-01-03, Distribution box LLW loading onto transportation vehicle



Photograph 32. CAS 15-01-03, Building 15-06 pad, before closure activities



Photograph 33. CAS 15-01-03, Building 15-06 floor drain trenches, with wood debris, before closure activities



Photograph 34. CAS 15-01-03, Building 15-06 pad with floor drain trenches grouted



Photograph 35. CAS 15-01-03, Building 15-06 UR and PCB signs on UR fencing



Photograph 36. CAS 15-01-03, UR, PCB, and URMA signs posted over underground piping



Photograph 37. Piping debris northeast of CAS 15-01-03 Building 15-06 pad, before closure activities



Photograph 38. Piping debris area northeast of CAS 15-01-03 Building 15-06 pad, after closure activities



Photograph 39. Asphalt debris pile north of CAS 15-01-03 Building 15-06 pad, before closure activities



Photograph 40. Asphalt debris area north of CAS 15-01-03 Building 15-06 pad, after closure activities



Photograph 41. CAS 15-04-01, Septic tank, exposed during closure activities



Photograph 42. CAS 15-04-01, Septic tank, excavated



Photograph 43. CASs 15-04-01 and 15-05-01, Septic tank and distribution box excavations, backfilled



Photograph 44. CAS 15-08-01, Liquid manure tank top, including debris, before closure activities



Photograph 45. CAS 15-08-01, Liquid manure tank excavation, backfilled



Photograph 46. CAS 15-23-01, Steel planking and other debris, before closure activities



10/01/2007

Photograph 47. CAS 15-23-01, After debris removal



Photograph 48. CAS 15-23-03, Sump, before closure activities



Photograph 49. CAS 15-23-03, Sump, partially filled, with concrete perimeter partially exposed



Photograph 50. CAS 15-23-03, Sump, final backfilled area



Photograph 51. CAS 15-23-03, UR signs posted around perimeter of sump



Photograph 52. CAS 15-23-03, Cabinet debris, before closure activities



Photograph 53. CAS 15-23-03, Debris area, after closure activities

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX E
USE RESTRICTION DOCUMENTATION

THIS PAGE INTENTIONALLY LEFT BLANK

CAU Use Restriction Information

CAU Number/Description: CAU 543: Surface Debris, Waste Sites, and Burn Area (TTR)

Applicable CAS Numbers/Descriptions: CAS 06-07-01: Decon Pad

Contact (organization/project): NNSA/NSO Federal Sub-Project Director

Surveyed Area (UTM, Zone 11, NAD 27, meters):

UR POINTS	NORTHING	EASTING
South-1 Survey Point	4,087,941.145	585,738.772
South-2 Survey Point	4,087,949.463	585,726.340
South-3 Survey Point	4,087,938.791	585,719.180
South-4 Survey Point	4,087,946.640	585,707.759
South-5 Survey Point	4,087,958.482	585,716.052
West Corner	4,087,974.481	585,691.838
North Corner	4,088,000.688	585,709.026
East Corner	4,087,968.213	585,757.301

Survey Date: 10/25/2007

Survey Method (GPS, etc): GPS

Site Monitoring Requirements: Visual inspections of fence and postings

Required Frequency (quarterly, annually?): Annual

If Monitoring Has Started, Indicate last Completion Date: N/A

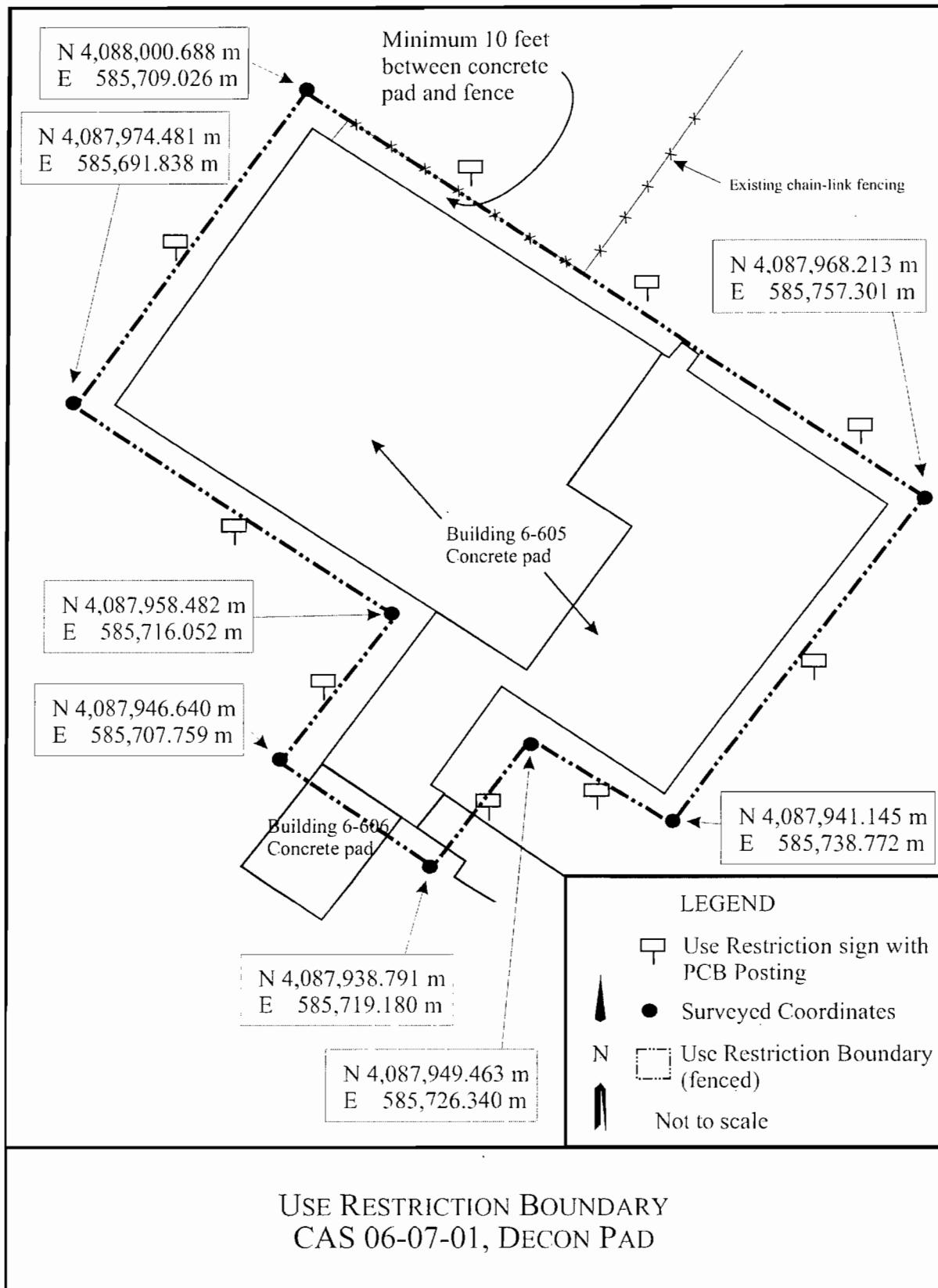
Use Restrictions

The future use of any land related to this Corrective Action Unit (CAU), as described by the above surveyed location, is restricted from any DOE or Air Force activity that may alter or modify the containment control as approved by the state and identified in the CAU Closure Report or other CAU documentation unless appropriate concurrence is obtained in advance.

Comments: See the Closure Report for additional information on the condition of the site(s) and any monitoring and/or inspection requirements. This use restriction applies to the former Building 6-605 concrete foundation plus 10 feet laterally outward in all directions. The use restriction applies to PCB and radioactive contamination of the pad and surrounding soil.

Submitted By: /s/ Kevin Cabble Date: 1-3-08

cc with copy of survey map (paper and digital (dgn) formats):
CAU Files (2 copies)



THIS PAGE INTENTIONALLY LEFT BLANK

CAU Use Restriction Information

CAU Number/Description: CAU 543: Surface Debris, Waste Sites, and Burn Area (TTR)

Applicable CAS Numbers/Descriptions: CAS 15-01-03: Aboveground Storage Tank

Contact (organization/project): NNSA/NSO Federal Sub-Project Director

Surveyed Area (UTM, Zone 11, NAD 27, meters):

UR POINTS	NORTHING	EASTING
Southeast Corner	4,118,271.245	585,102.289
South-1 Survey Point	4,118,270.313	585,098.520
South-2 Survey Point	4,118,058.336	585,169.760
South-3 Survey Point	4,118,050.734	585,182.455
South-4 Survey Point	4,118,049.279	585,181.158
South-5 Survey Point	4,118,057.395	585,167.846
South-6 Survey Point	4,118,269.425	585,094.393
Southwest Corner	4,118,261.956	585,053.810
Northwest Corner	4,118,283.210	585,046.973
Northeast Corner	4,118,298.531	585,094.087

Survey Date: 10/25/2007

Survey Method (GPS, etc): GPS

Site Monitoring Requirements: Visual inspections of fence and postings

Required Frequency (quarterly, annually?): Annual

If Monitoring Has Started, Indicate last Completion Date: N/A

Use Restrictions

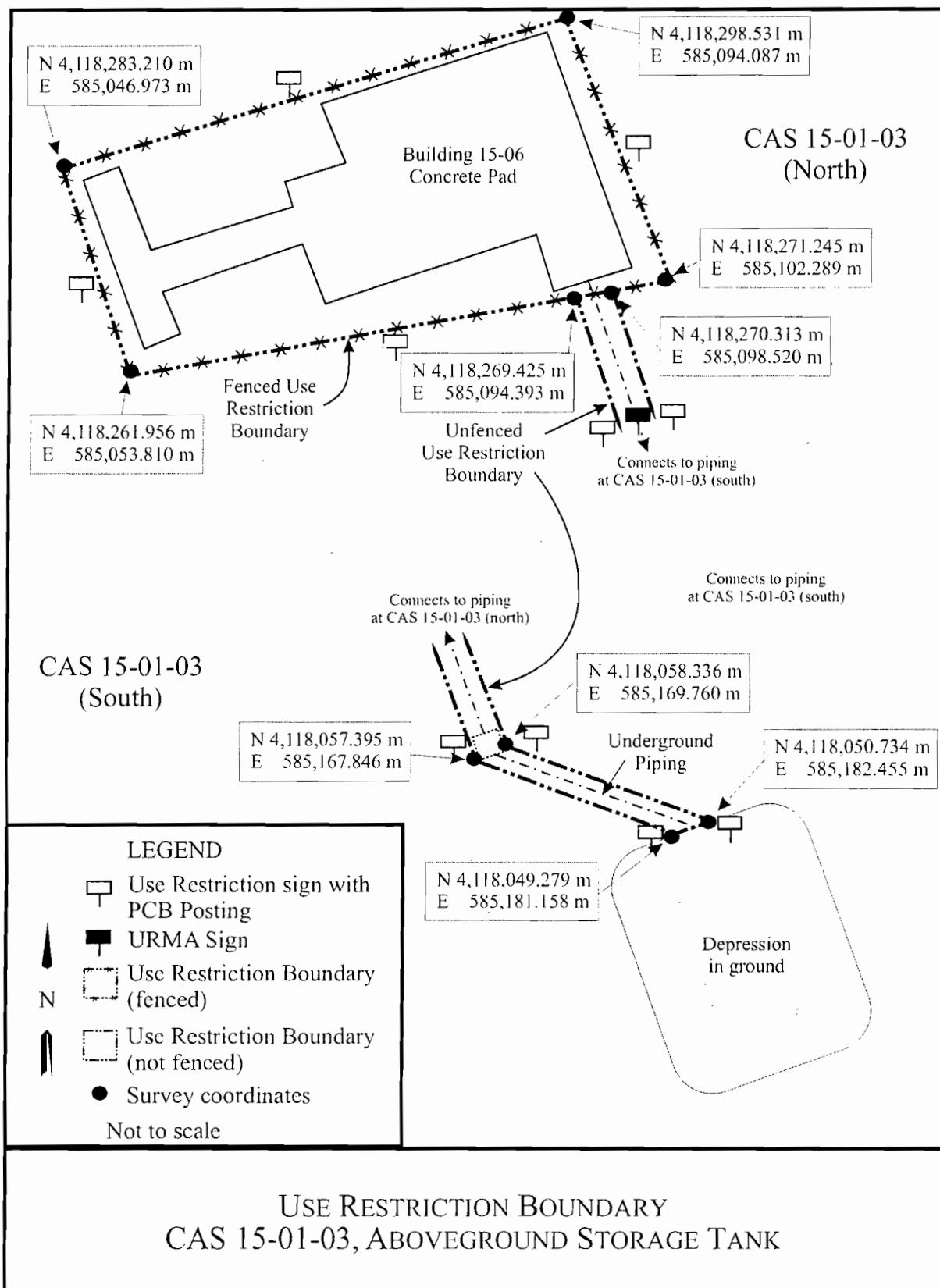
The future use of any land related to this Corrective Action Unit (CAU), as described by the above surveyed location, is restricted from any DOE or Air Force activity that may alter or modify the containment control as approved by the state and identified in the CAU Closure Report or other CAU documentation unless appropriate concurrence is obtained in advance.

Comments: See the Closure Report for additional information on the condition of the site(s) and any monitoring and/or inspection requirements. This use restriction applies to the former Building 15-06 concrete foundation and underground piping between the

building foundation and the former location of the Aboveground Storage Tank. The use restriction applies to PCB contamination of the pad and underground piping.

Submitted By: /s/ Kevin Cabble **Date:** 1-3-08

cc with copy of survey map (paper and digital (dgn) formats):
CAU Files (2 copies)



THIS PAGE INTENTIONALLY LEFT BLANK

CAU Use Restriction Information

CAU Number/Description: CAU 543: Surface Debris, Waste Sites, and Burn Area (TTR)

Applicable CAS Numbers/Descriptions: CAS 15-23-03: Contaminated Sump, Piping

Contact (organization/project): NNSA/NSO Federal Sub-Project Director

Surveyed Area (UTM, Zone 11, NAD 27, meters):

UR POINTS	NORTHING	EASTING
Southeast Corner	4,118,015.096	585,182.593
Southwest Corner	4,118,009.417	585,165.061
Northwest Corner	4,118,038.950	585,155.628
North-1 Survey Point	4,118,042.498	585,169.359
North-2 Survey Point	4,118,057.393	585,167.791
North-3 Survey Point	4,118,058.354	585,169.760
Northeast Corner	4,118,040.912	585,175.531

Survey Date: 10/25/2007

Survey Method (GPS, etc): GPS

Site Monitoring Requirements: Visual inspections of postings

Required Frequency (quarterly, annually?): Annual

If Monitoring Has Started, Indicate last Completion Date: N/A

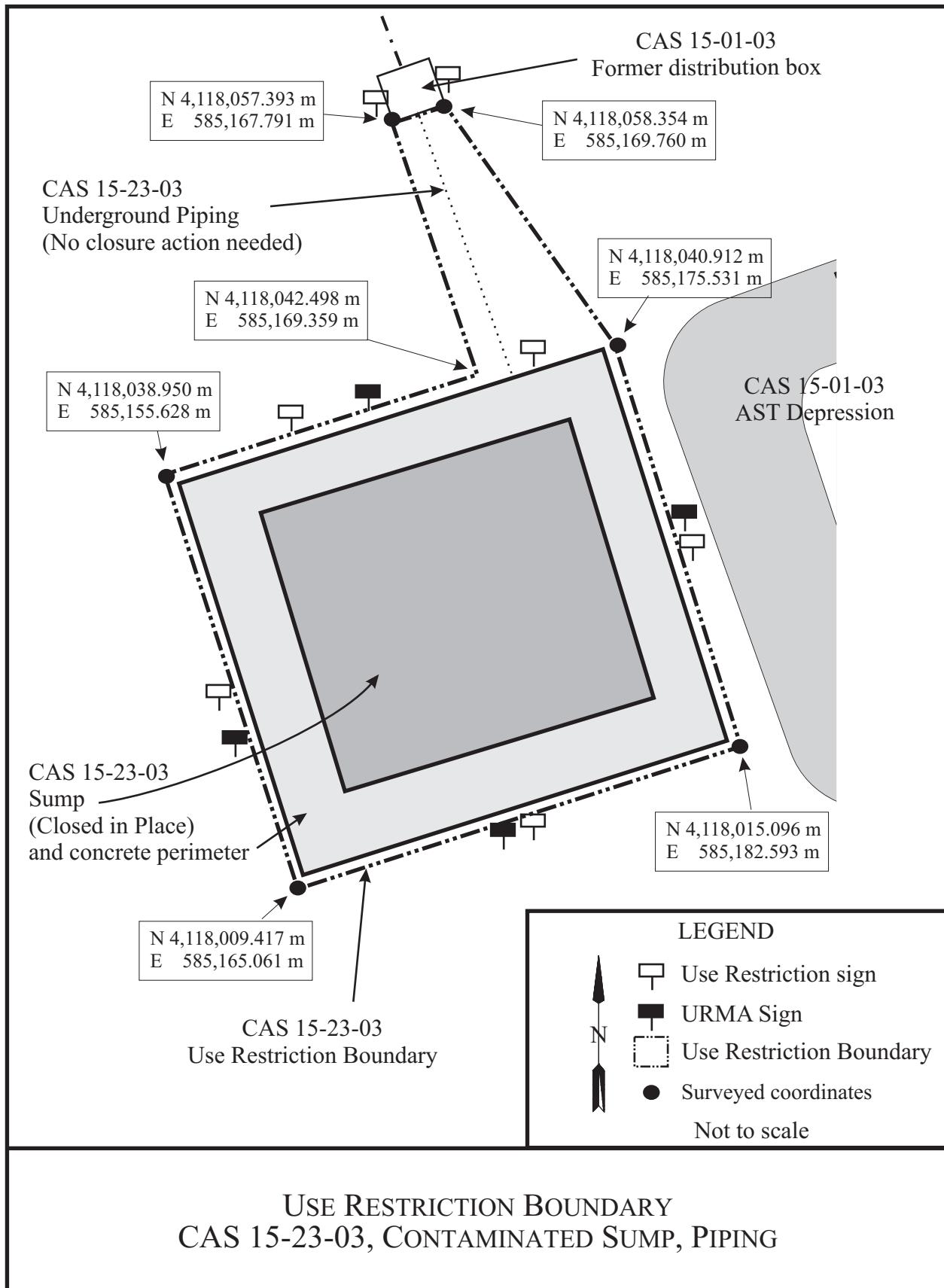
Use Restrictions

The future use of any land related to this Corrective Action Unit (CAU), as described by the above surveyed location, is restricted from any DOE or Air Force activity that may alter or modify the containment control as approved by the state and identified in the CAU Closure Report or other CAU documentation unless appropriate concurrence is obtained in advance.

Comments: See the Closure Report for additional information on the condition of the site(s) and any monitoring and/or inspection requirements. This use restriction applies to the sump and underground piping between the sump and the former location of a distribution box associated with CAS 15-01-03. The use restriction applies to PCB and radiological contamination of the sump and underground piping.

Submitted By: /s/ Kevin Cabble Date: 1-3-08

cc with copy of survey map (paper and digital (dgn) formats):
CAU Files (2 copies)



THIS PAGE INTENTIONALLY LEFT BLANK

LIBRARY DISTRIBUTION LIST

THIS PAGE INTENTIONALLY LEFT BLANK

LIBRARY DISTRIBUTION LIST

U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office
Technical Library
P.O. Box 98518, M/S 505
Las Vegas, NV 89193-8518

1 (Uncontrolled, electronic copy)

U.S. Department of Energy
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831-0062

1 (Uncontrolled, electronic copy)

Southern Nevada Public Reading Facility
c/o Nuclear Testing Archive
P.O. Box 98521, M/S 400
Las Vegas, NV 89193-8521

2 (Uncontrolled, electronic copies)

Manager, Northern Nevada FFACO
Public Reading Facility
c/o Nevada State Library & Archives
Carson City, NV 89701-4285

1 (Uncontrolled, electronic copy)

THIS PAGE INTENTIONALLY LEFT BLANK