

Nevada
Environmental
Restoration
Project

DOE/NV--1246



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

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Environmental Restoration
Project



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

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

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

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

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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 (yd³) of mixed waste, 173 yd³ of LLW, 127 yd³ of hydrocarbon waste, 72 yd³ 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)

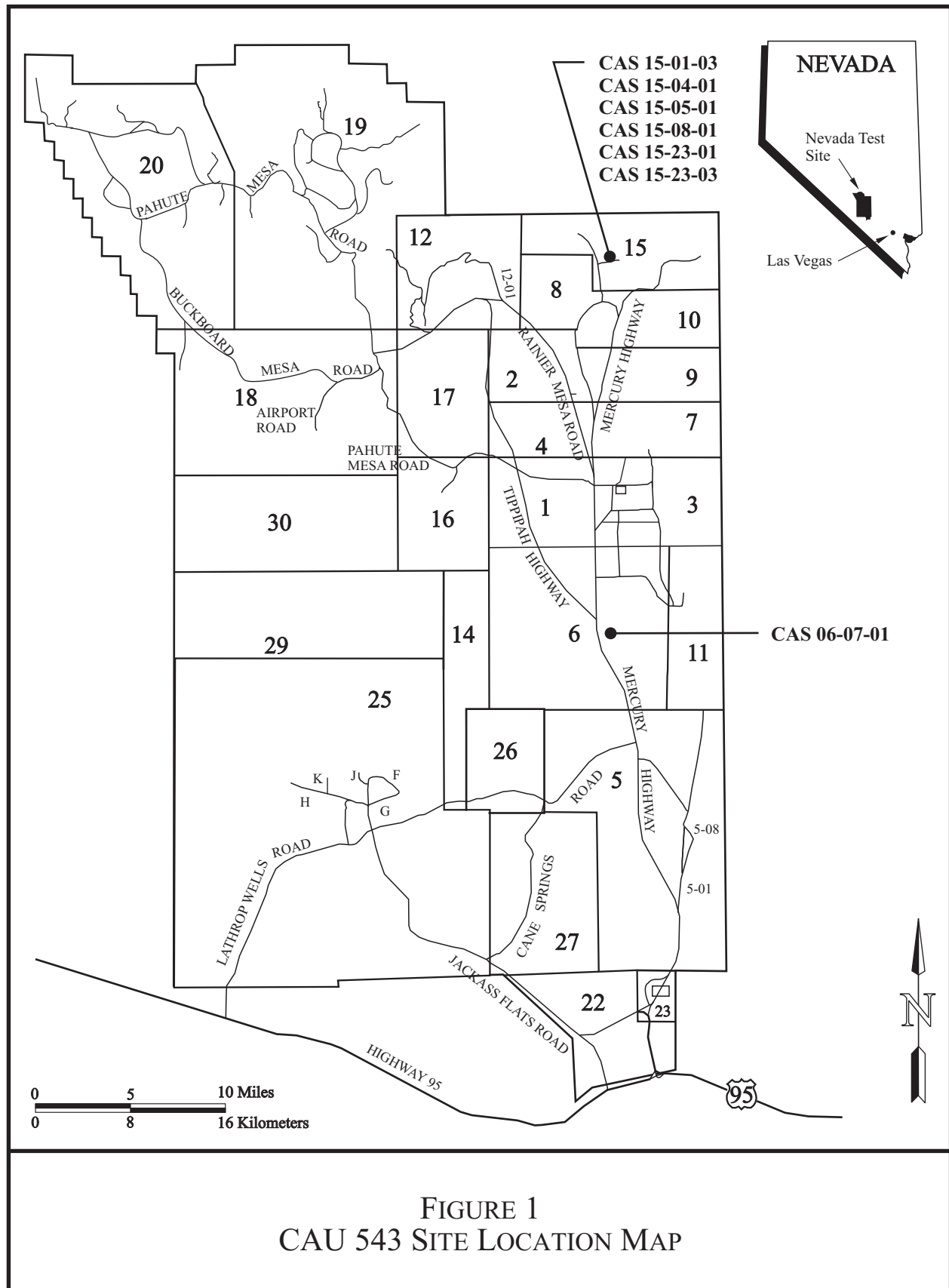


FIGURE 1
 CAU 543 SITE LOCATION MAP

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.

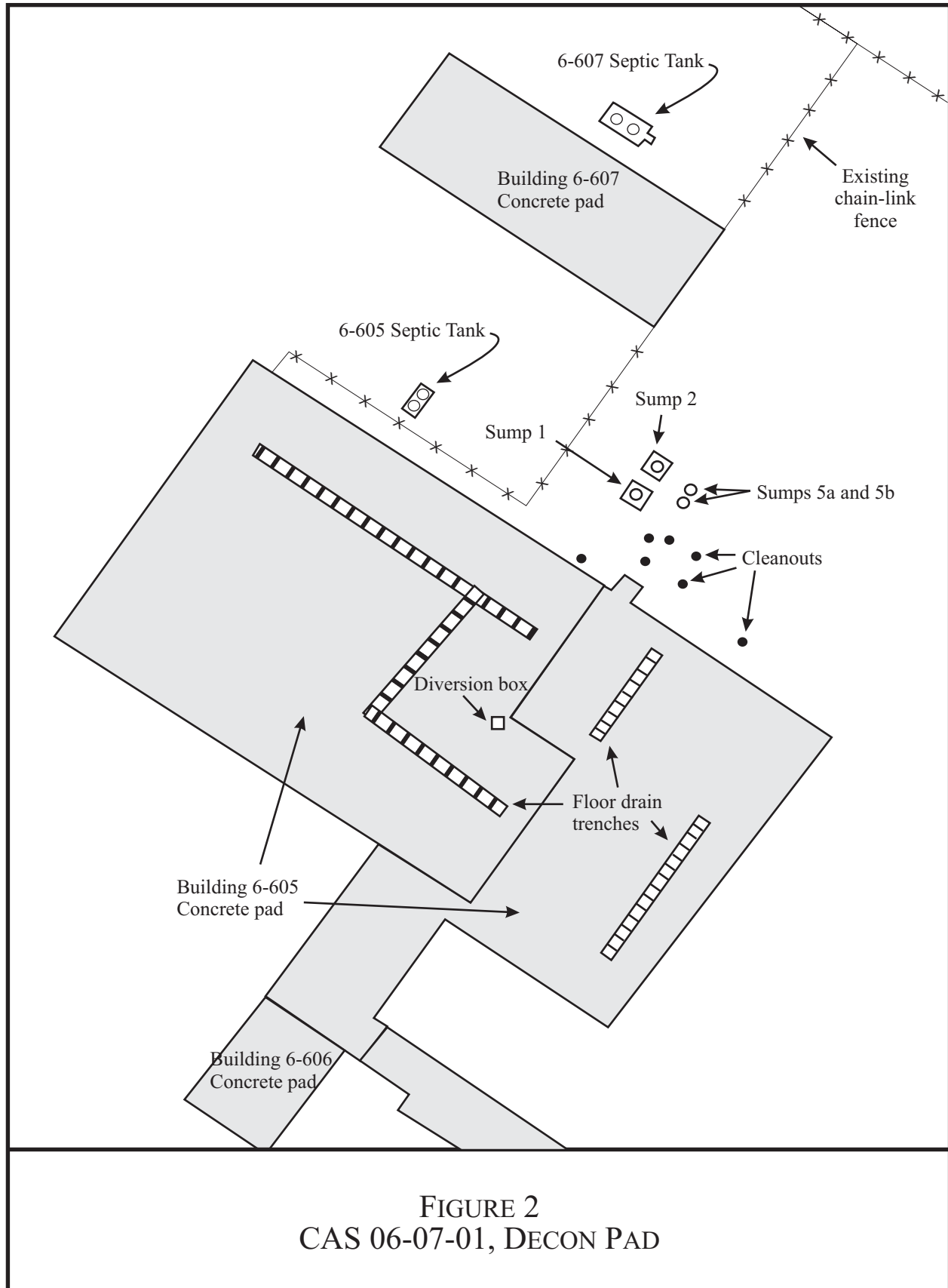
TABLE 1. SUMMARY OF CAU 543 CLOSURE ACTIVITIES

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

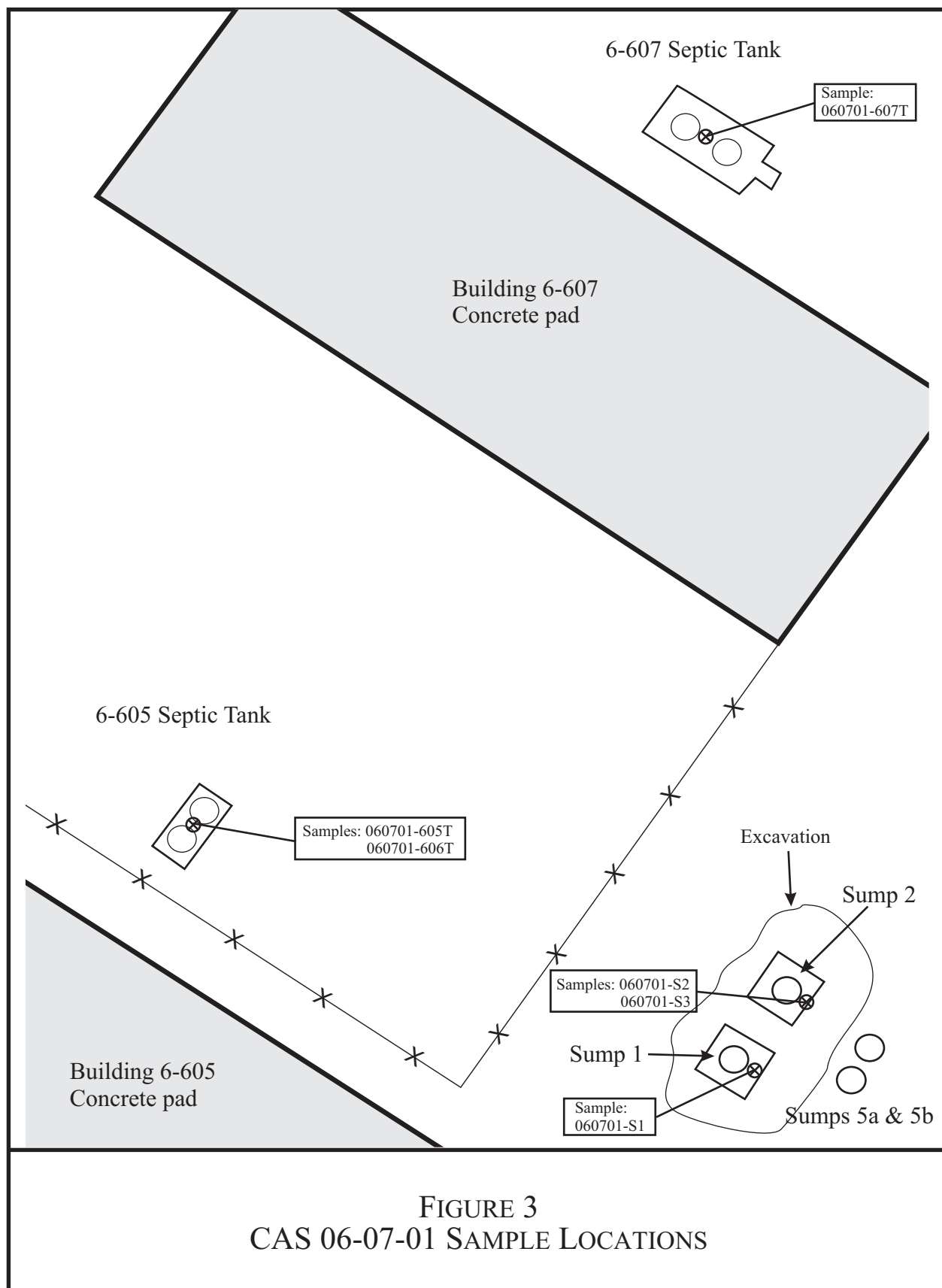


The closure activities for this CAS were completed after the BMPs had been completed. The following activities were performed as BMPs:

- 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

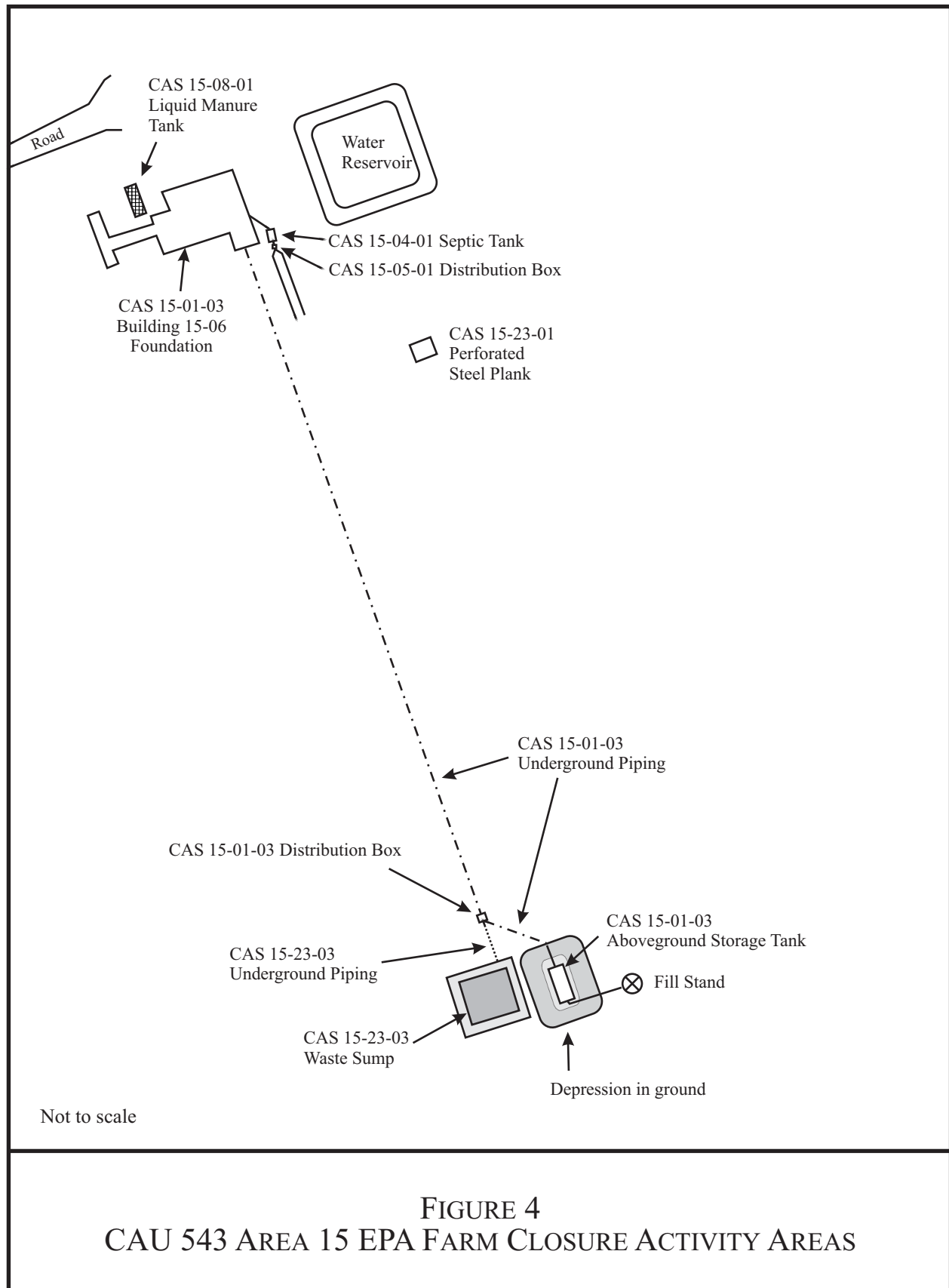
CAS 15-01-03 is located at the former EPA Farm in Area 15 (Figure 4). It consisted of the Building 15-06 concrete foundation, a radiologically contaminated 25,000-gal AST, a radiologically contaminated distribution box, aboveground and underground piping between the AST and the building foundation, and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

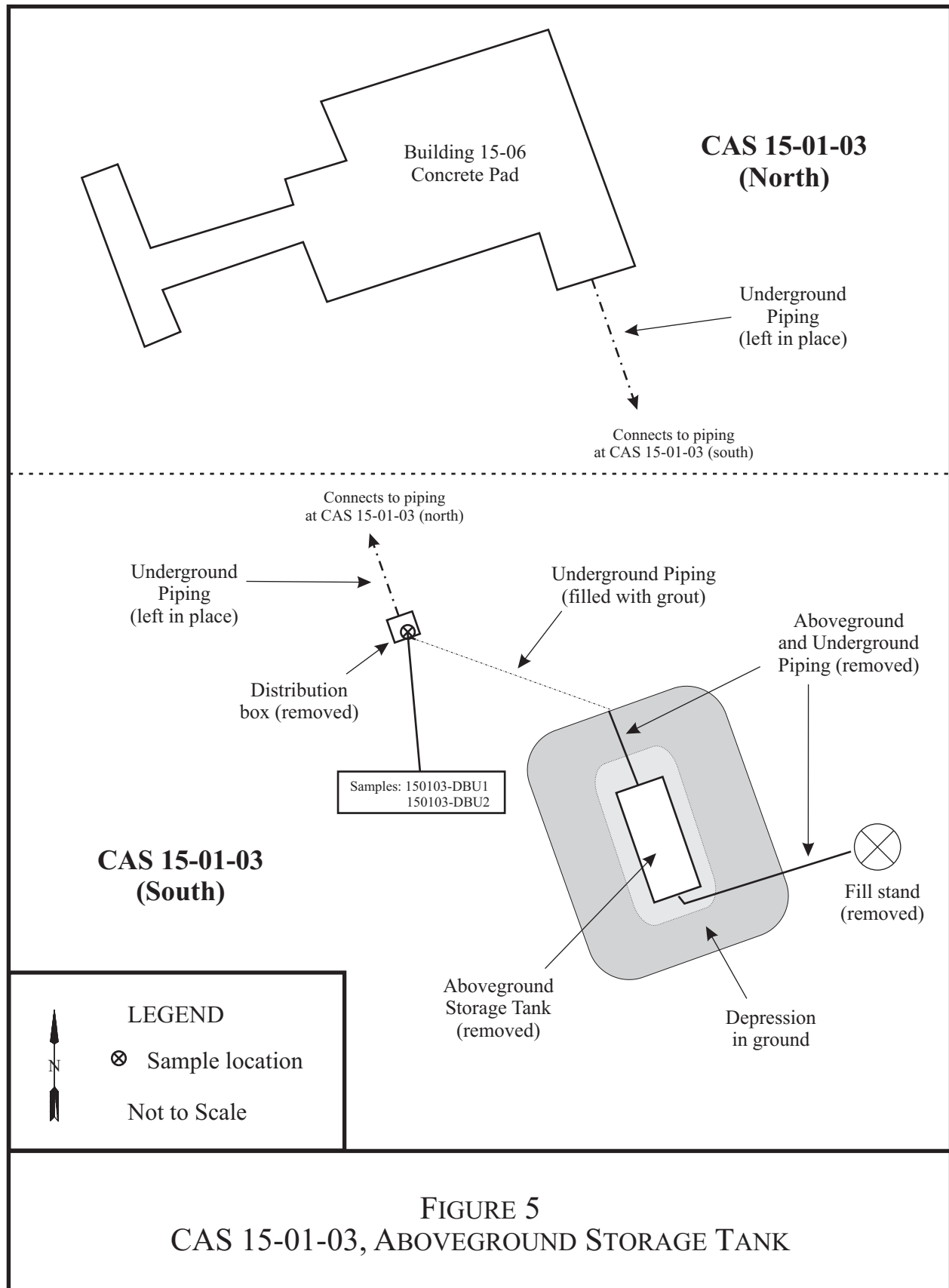
The AST was opened and approximately 500 gal of caked sludge, with no free liquid, were present in the bottom of the tank. Aboveground piping was removed, size-reduced, and placed inside of the AST. Underground piping between the AST and a fill stand, located to the east of the AST, was removed, size-reduced, 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.

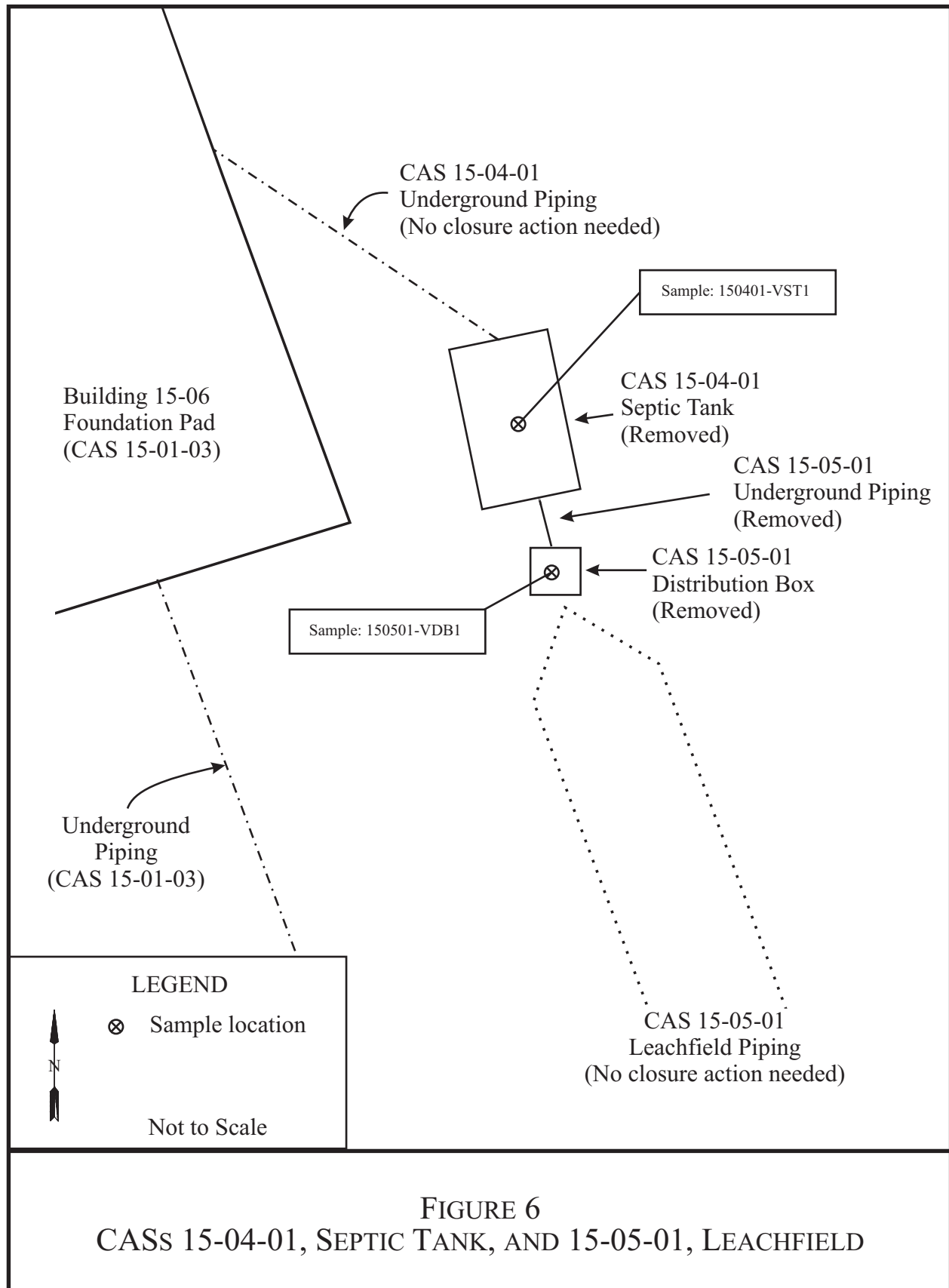
Analytical results are provided in Appendix B and summarized in Section 4.0. Waste disposition documentation is presented in Section 3.0 and is provided in Appendix C. Photographs of the site during and upon completion of closure activities are provided in Appendix D.

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.

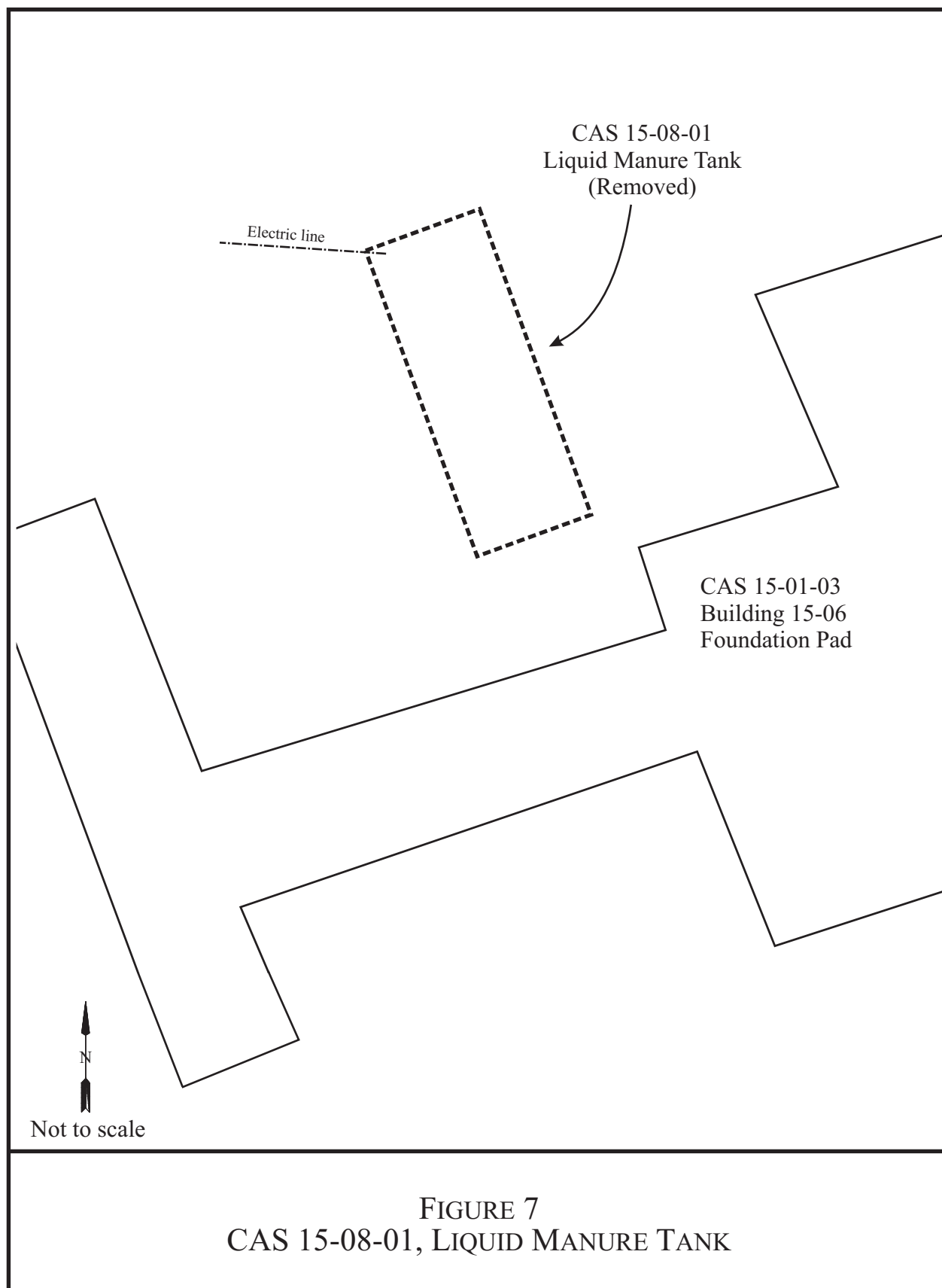
Liquid remediation waste was pumped from the tank and disposed of at the Area 12 Sewage Lagoons. The concrete lid was removed from the tank, and sludge was solidified within the tank. Solidified sludge was removed from the tank and disposed of as hydrocarbon waste at either the Area 6 Hydrocarbon Landfill 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 CASs 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.

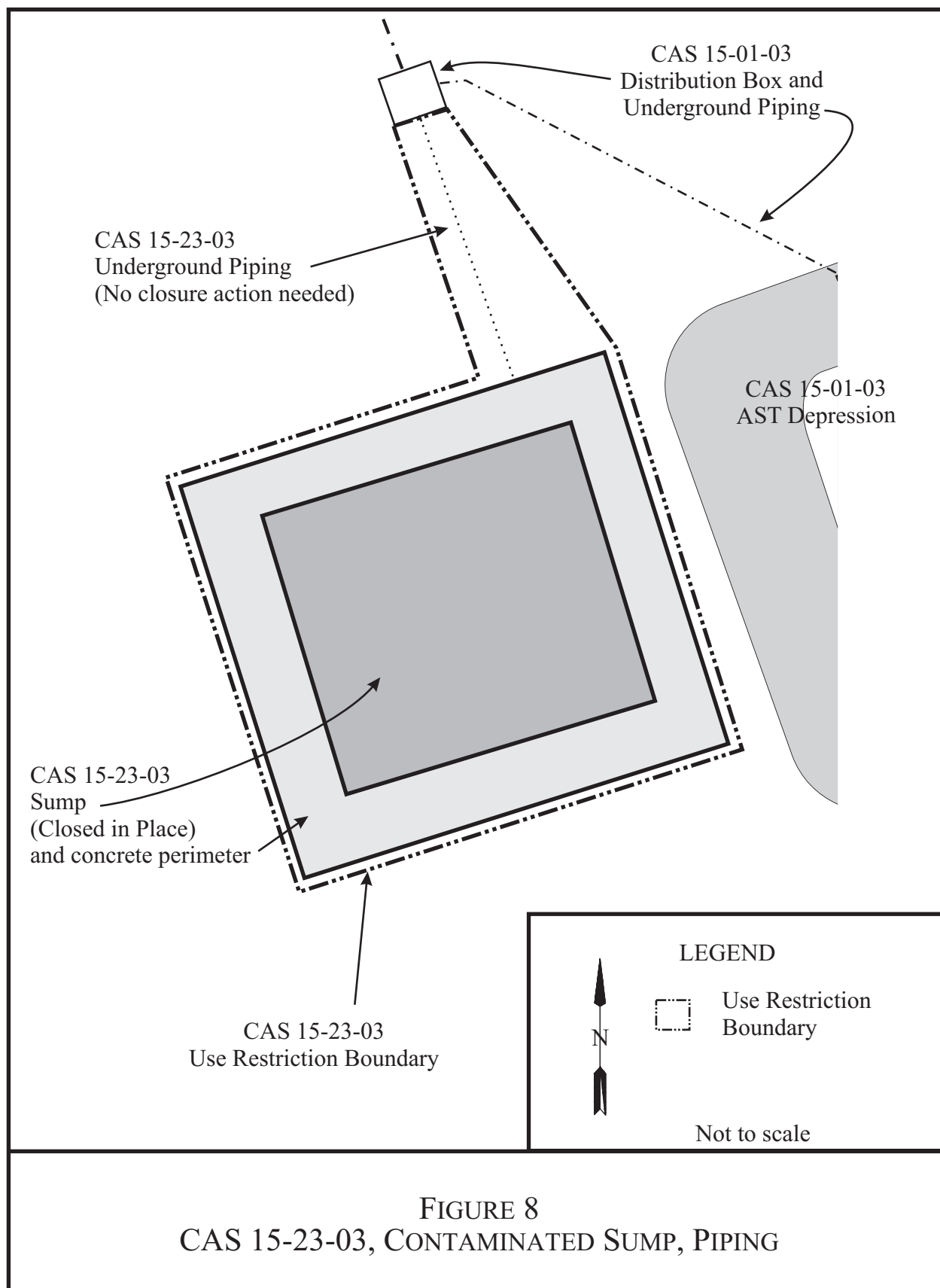
Closure activities consisted of filling the sump with clean fill and implementing a UR. Vertical supports within the sump, previously used to support fencing that used to be over the top of the sump, were pushed over into the sump so they would not penetrate through the fill material. Clean fill was 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 CASs:

- 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.

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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 (HWAAs) where hazardous waste was also stored. A contingency plan was developed and implemented for the HWAAs 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, 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 (yd³) of sanitary waste was generated at the Area 6 Decon Pad (CAS 06-07-01) and approximately 42 yd³ 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, ladders, 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.

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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 ORO	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	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

Results less than detection limits

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 (mg/kg)	Gross Alpha (pCi/g)	Gross Beta (pCi/g)	Co-60 (pCi/g)	Pu-238 (pCi/g)	Pu-239/240 (pCi/g)
			FAL = 100	*FAL = 15	*FAL = 50	FAL = 2.7	FAL = 13	FAL = 12.7
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.

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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.

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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

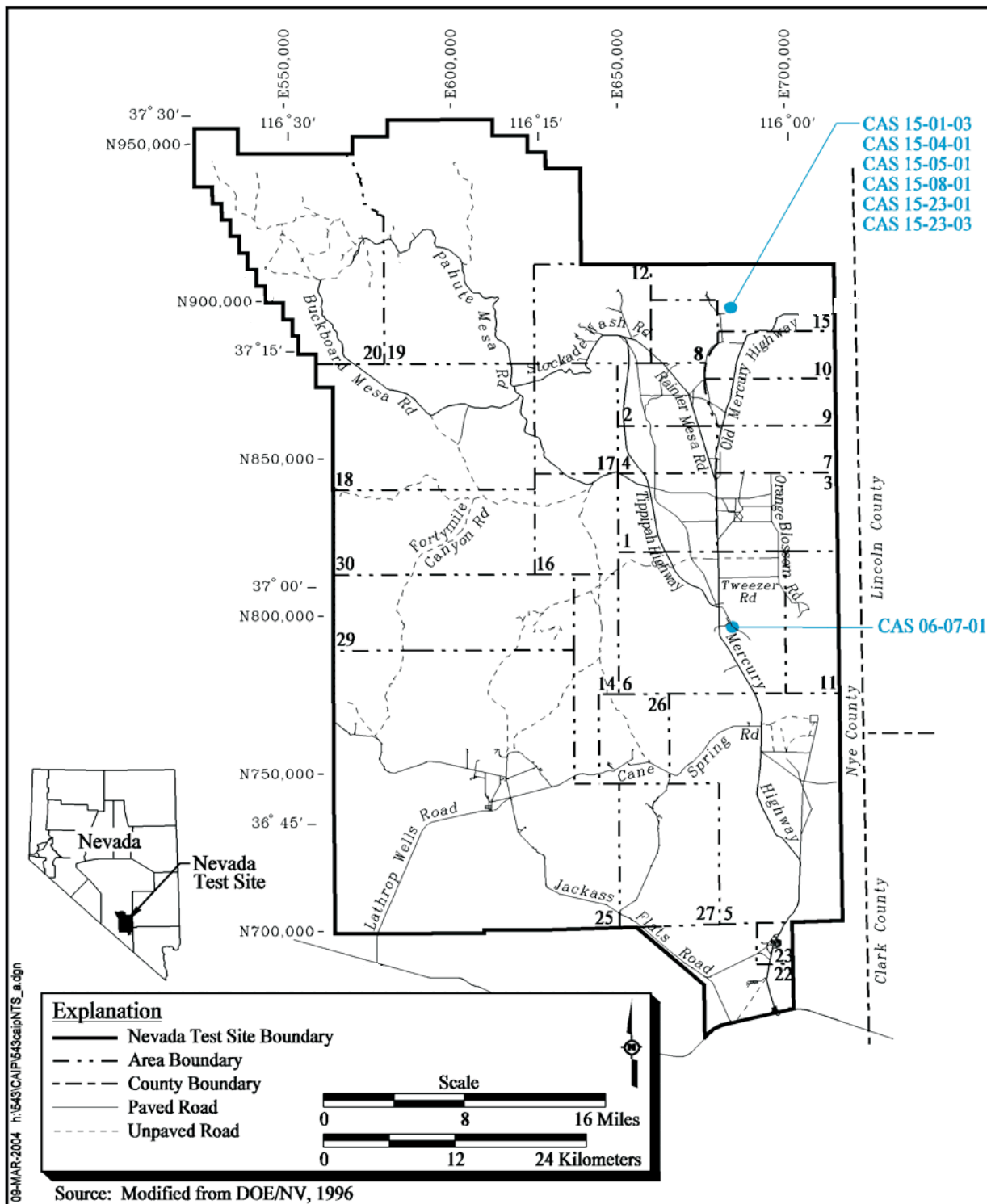


Figure A.1-1
Location of CAU 543 Corrective Action Sites

[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 CASs 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

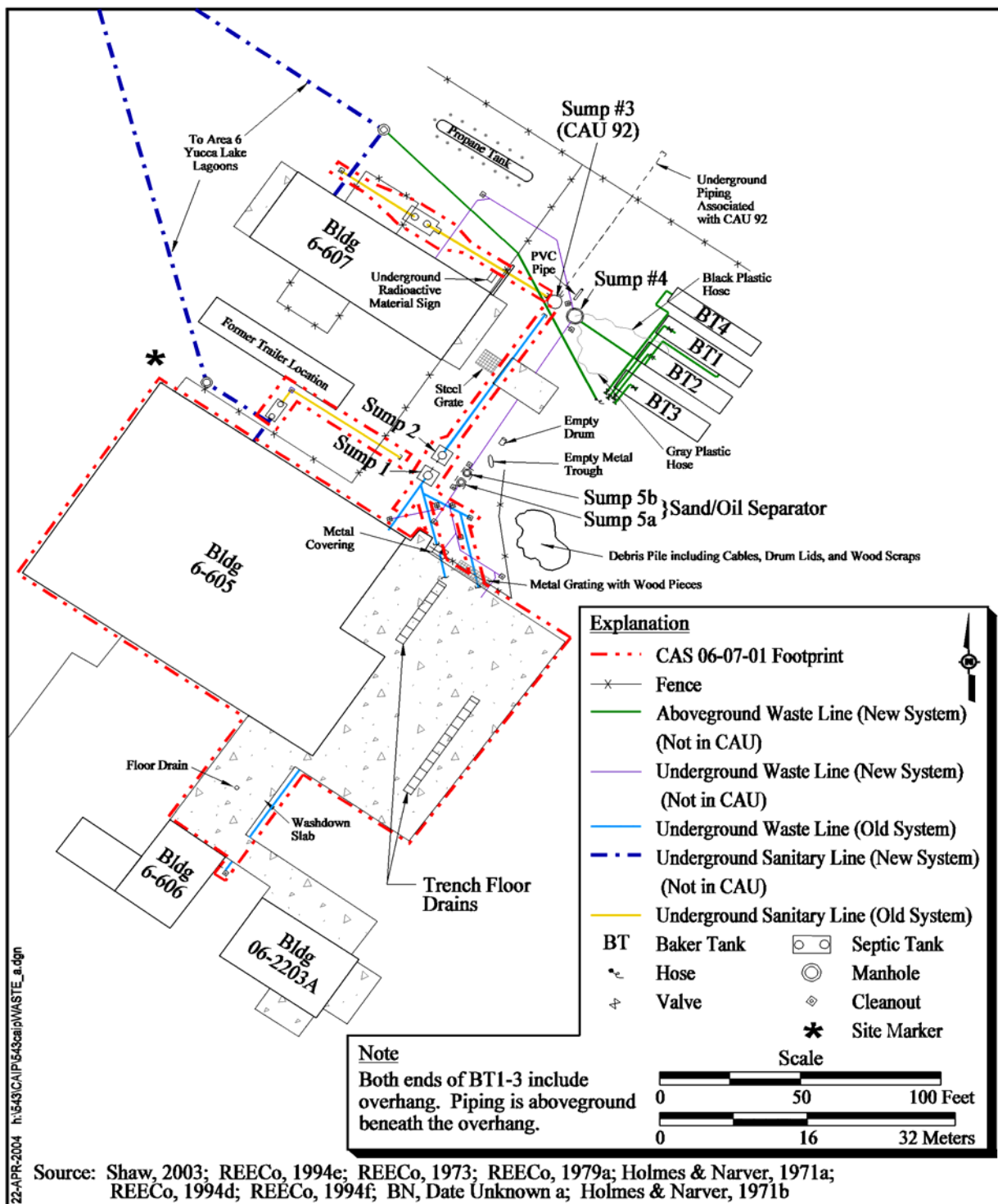


Figure A.1-2
CAU 543, CAS 06-07-01, Decon Pad Site Map

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, butylbenzophthalate, dioctyl ester (a.k.a., di-N-octylphthalate), naphthalene, pentachlorophenol, bis(2-ethylhexy)ester, di-n-butylphthalate, and n-nitrosedipheynamine
- 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

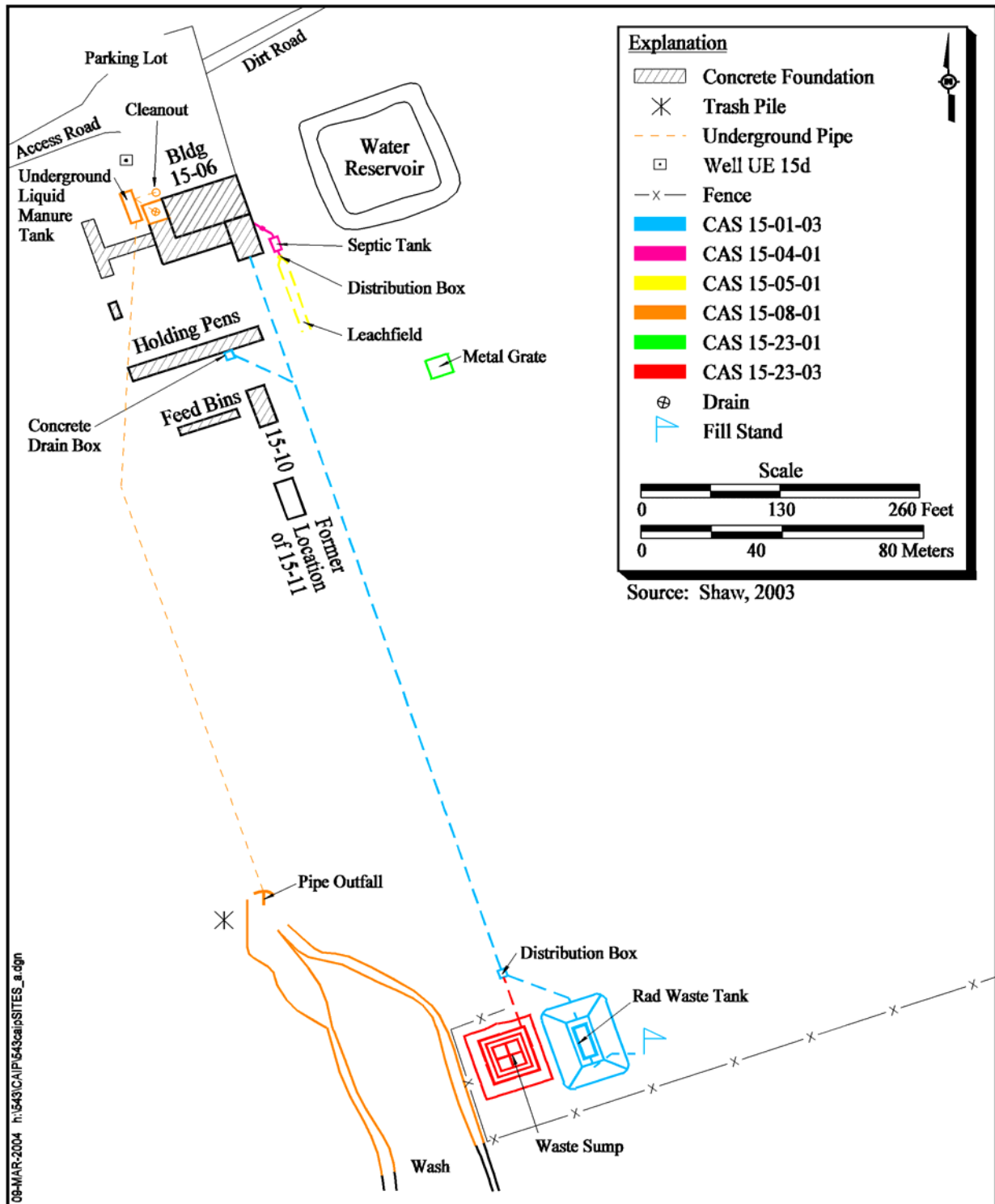
A.1.1.2 U.S. Environmental Protection Agency Farm

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 CASs.

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 (CASs 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.

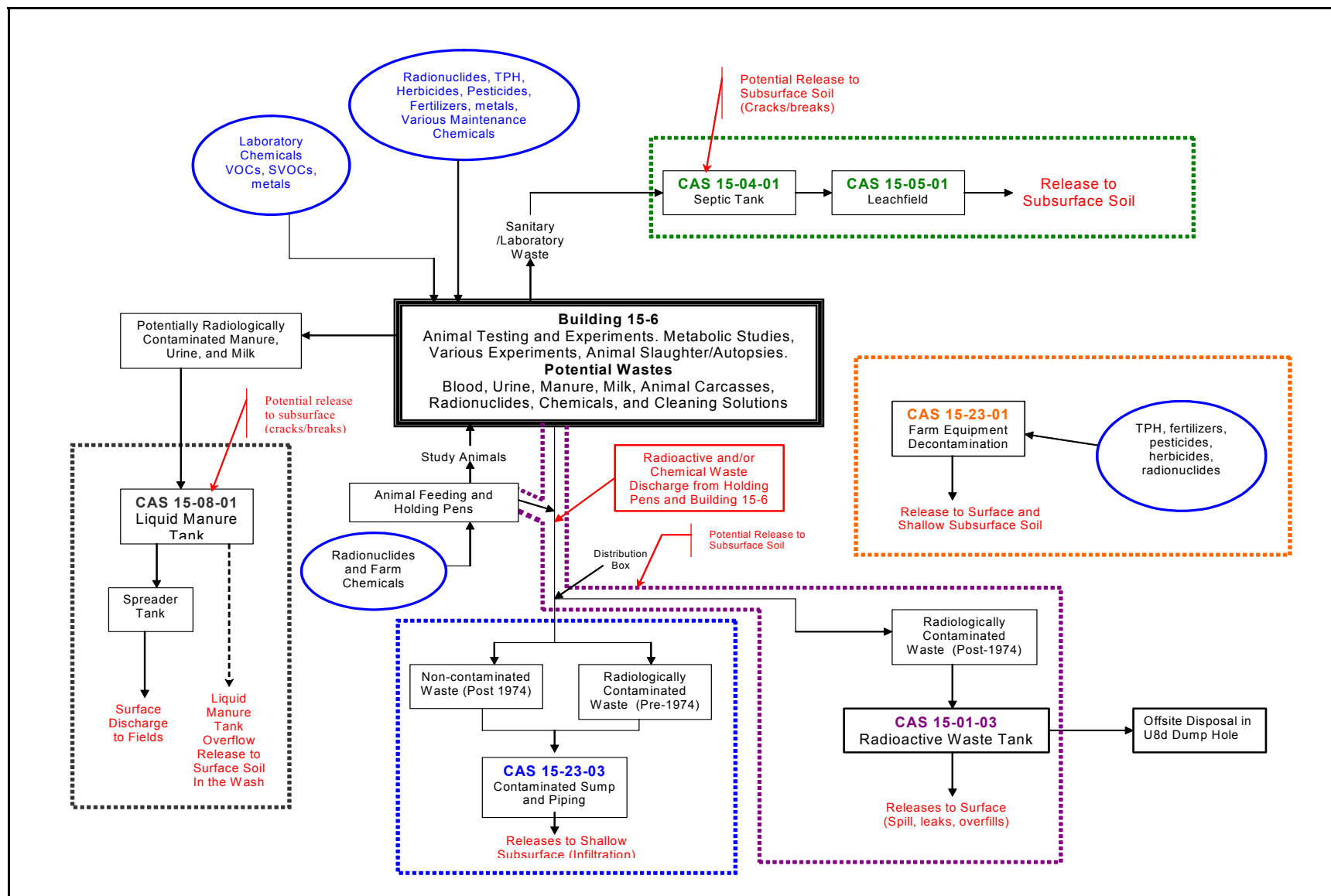


Figure A.1-4
Process Flow Diagram for the Area 15 EPA Farm

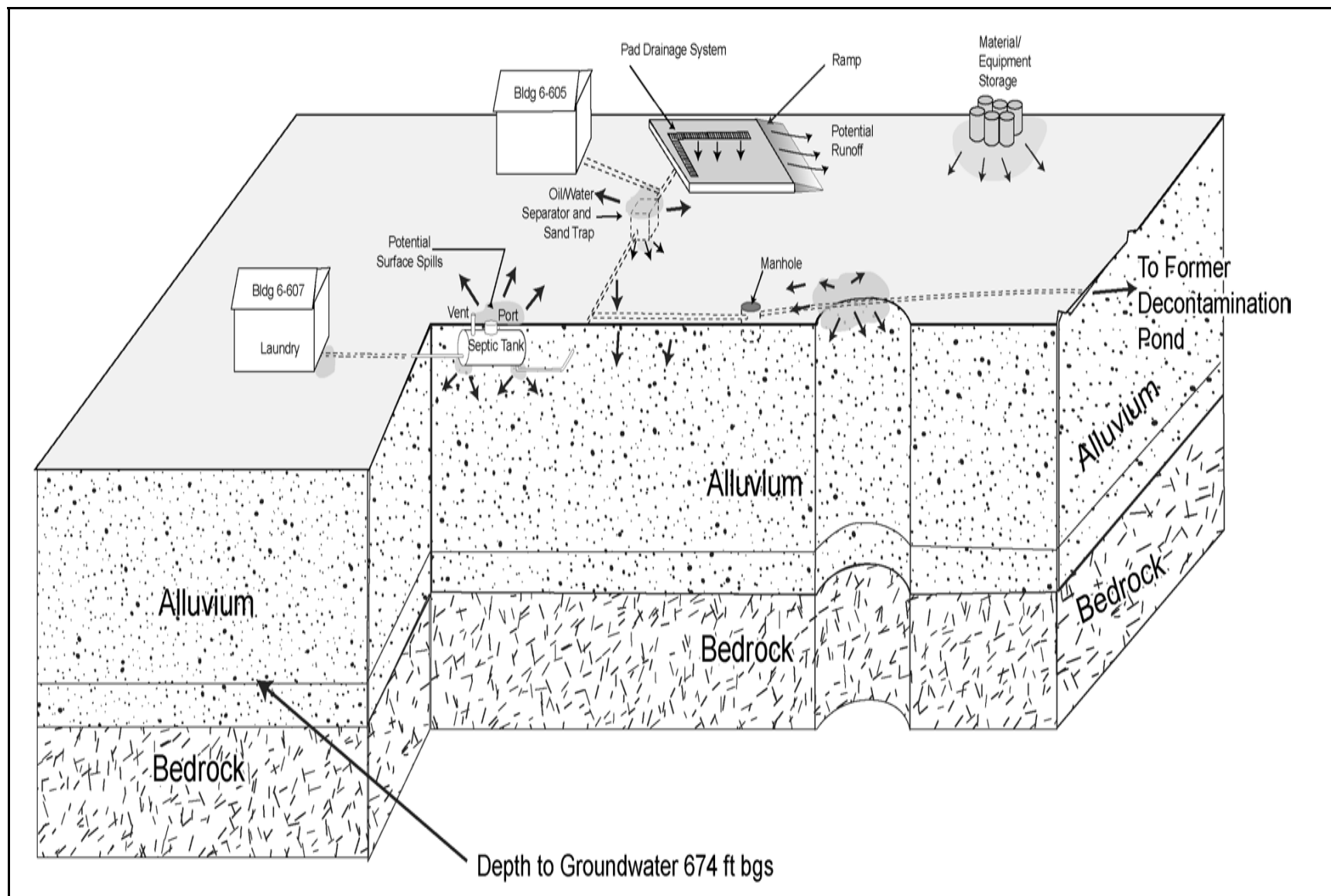


Figure A.1-5
Conceptual Site Model for Area 6

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 sumps, 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, sumps, 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,

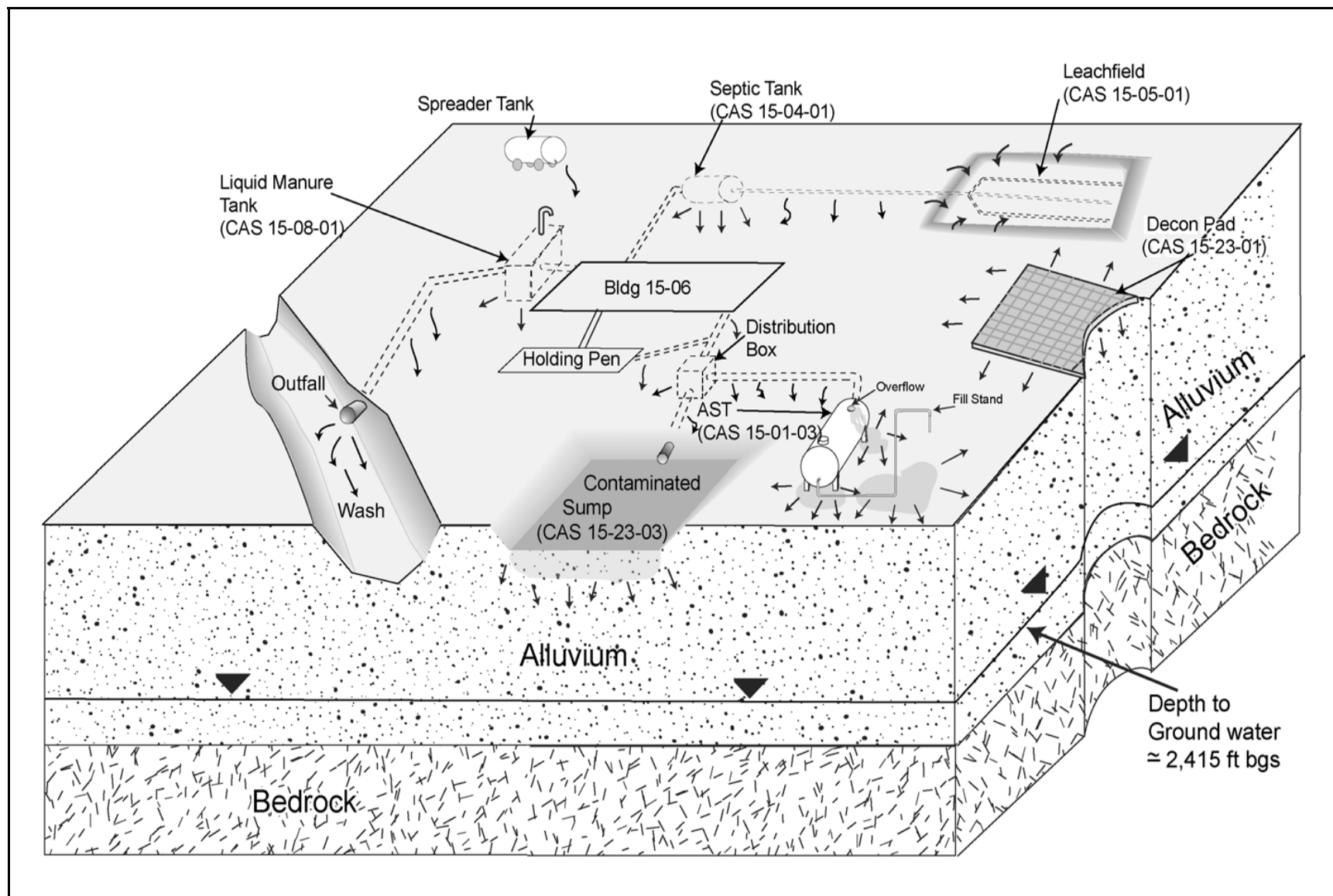


Figure A.1-6
Conceptual Site Model for Area 15, EPA Farm Processes

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 1: 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 CASs. 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 CASs 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 ₃₆)	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 1,1,1,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloropropane 1,2,3-Trichloropropane 1,2,4-Trimethylbenzene 1,2-Dibromo-3-chloropropane 1,2-Dibromoethane 1,3,5-Trimethylbenzene cis-1,3-Dichloropropene trans-1,3-Dichloropropene 2-Butanone 2-Chlorotoluene 4-Methyl-2-pentanone Acetone Benzene Bromobenzene Bromochloromethane Bromodichloromethane Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane Dibromomethane Dichlorodifluoromethane Ethylbenzene Isopropylbenzene Iodomethane Methyl tertiary butyl ether Methylene chloride N-Butylbenzene N-Propylbenzene sec-Butylbenzene Styrene tert-Butylbenzene Tetrachloroethene Toluene Trichloroethene Trichlorofluoromethane Trichlorotrifluoroethane Vinyl acetate Vinyl chloride Xylene	1,2,4-Trichlorobenzene ^a 1,2-Dichlorobenzene ^a 1,3-Dichlorobenzene ^a 1,4-Dichlorobenzene ^a 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrotoluene 2,6-Dinitrotoluene 2-Chloronaphthalene 2-Chlorophenol 2-Methylphenol 2-Nitroaniline 3,3'-Dichlorobenzidine 4-Bromophenyl phenyl ether 4-Chloroaniline 4-Methylphenol 4-Nitrophenol Acenaphthene Acenaphthylene Aniline Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Benzoic Acid Benzyl Alcohol Bis(2-chloroethoxy) methane Bis(2-chloroethyl)ether Bis(2-chloroisopropyl)ether Bis(2-ethylhexyl) phthalate Butyl benzyl phthalate Carbazole Chrysene Dibenzo(a,h)anthracene Dibenzofuran Diethyl Phthalate Dimethyl Phthalate Di-n-butyl Phthalate Di-n-octyl Phthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene ^a Hexachlorocyclopentadiene Hexachloroethane Indeno(1,2,3-cd)pyrene Isophorone Naphthalene ^a Nitrobenzene N-Nitroso-di-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene Pyridine	Total Petroleum Hydrocarbons (C ⁶ - C ³⁸) DRO, GRO	Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260	Arsenic Barium Beryllium Cadmium Chromium Lead Mercury Selenium Silver	Americium-241 Cesium-137 Cobalt-60 Eu-152 Nb-94 Radium Thorium Plutonium-238 Plutonium-239/240 Strontium-90 Uranium-234 Uranium-235 Uranium-238 Other parameters: Gamma-emitting radionuclides

^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 CASs, 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 CASs 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, then 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 these 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.

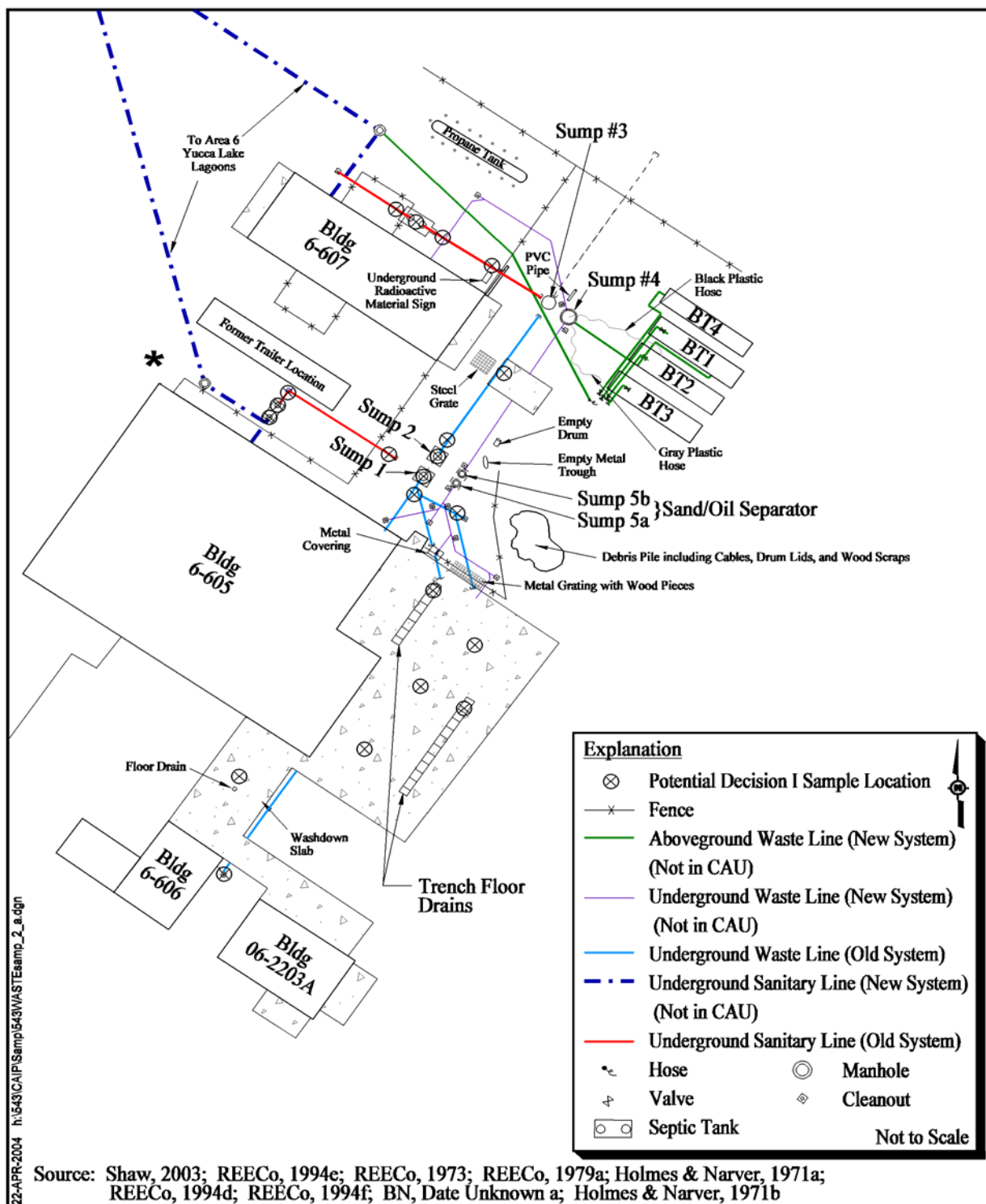


Figure A.1-7
CAU 543, CAS 06-07-01, Decon Pad, Septic System, and Piping
Proposed Decision I Sample Locations

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 CASs. The groups will be the septic system and leachfield (CASs 15-04-01 and

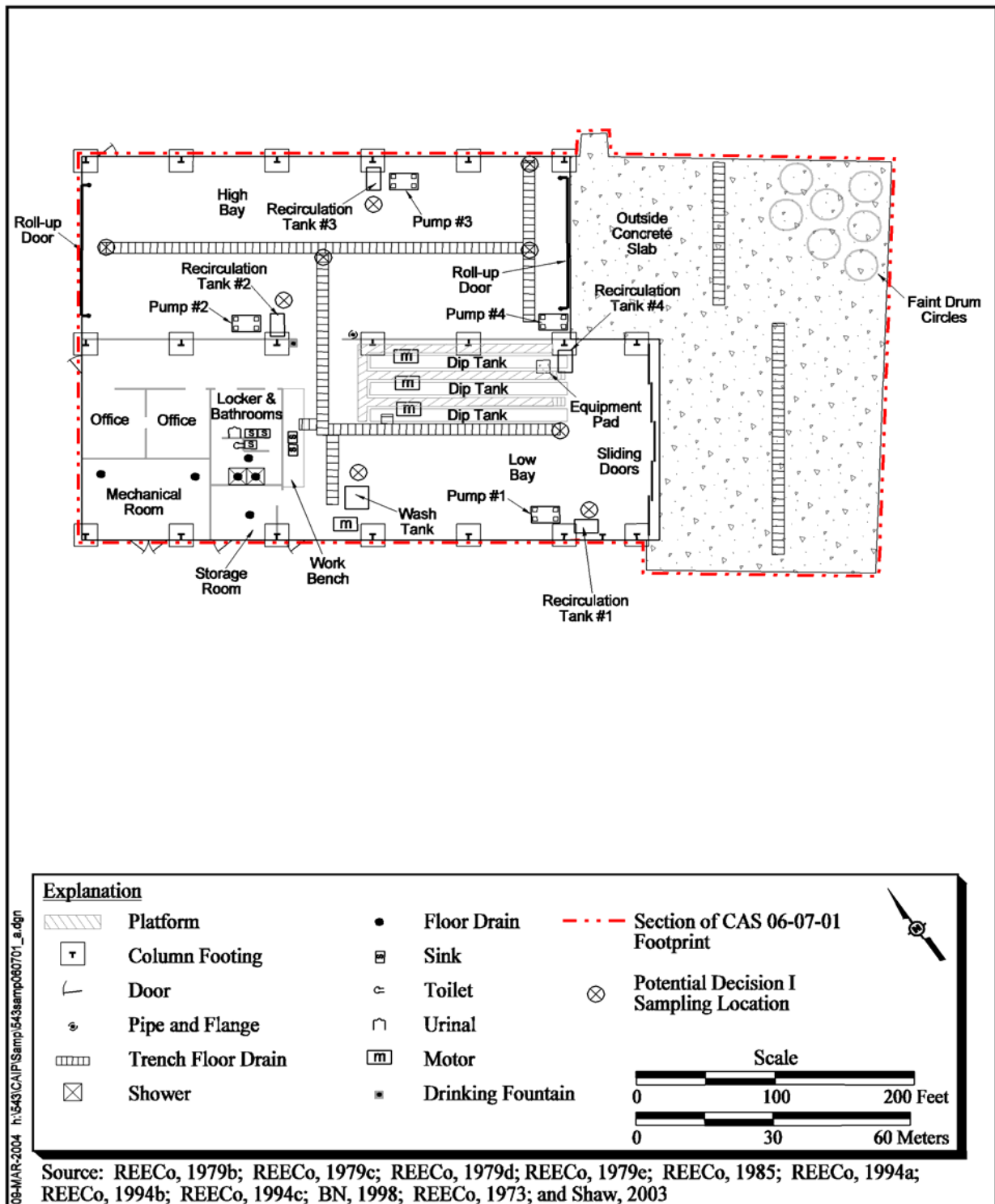


Figure A.1-8
CAU 543, CAS 06-07-01, Potential Decision I Sample Locations

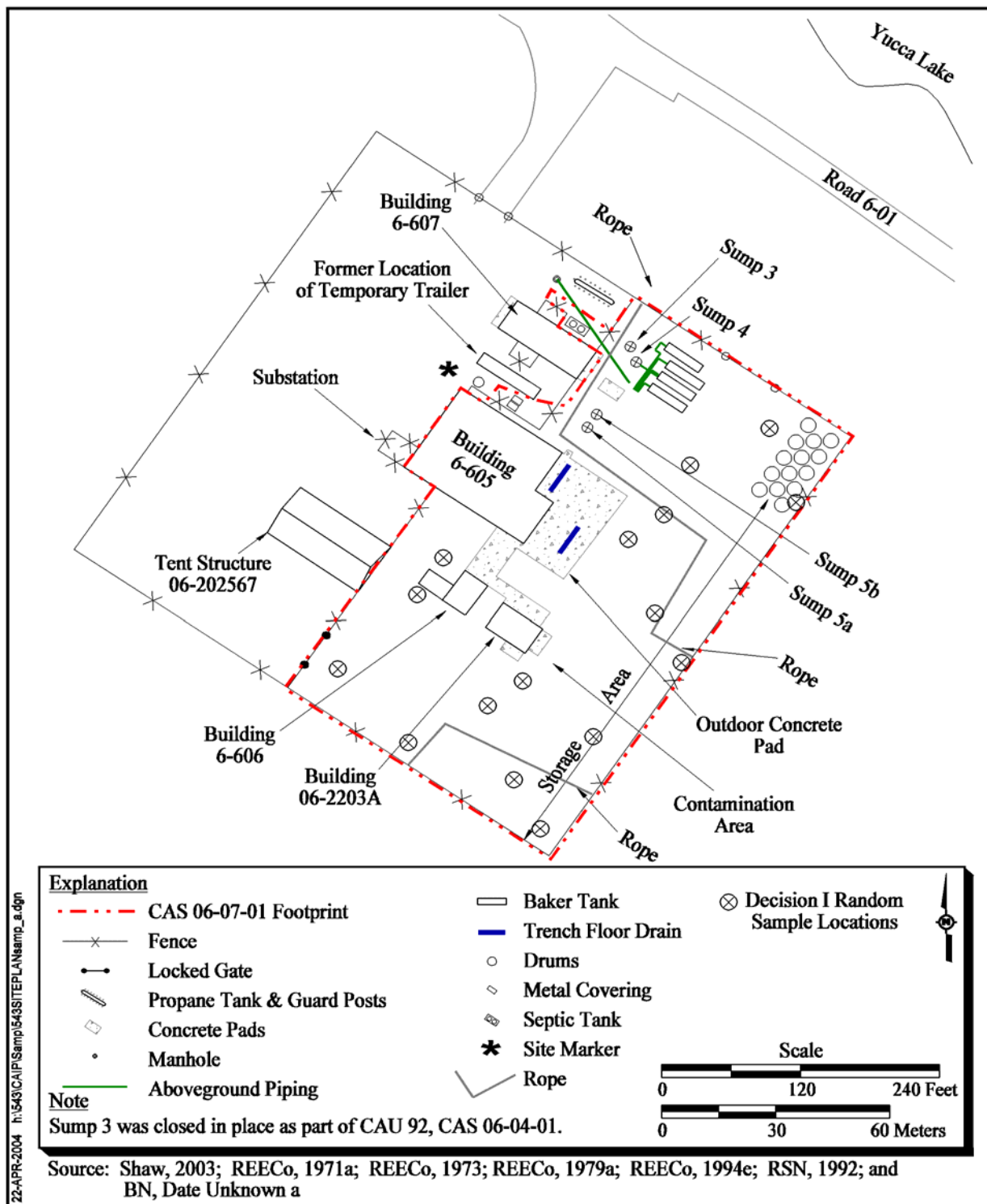


Figure A.1-9
CAU 543, CAS 06-07-01, Decon Pad,
Proposed Decision I Random Sampling Locations

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

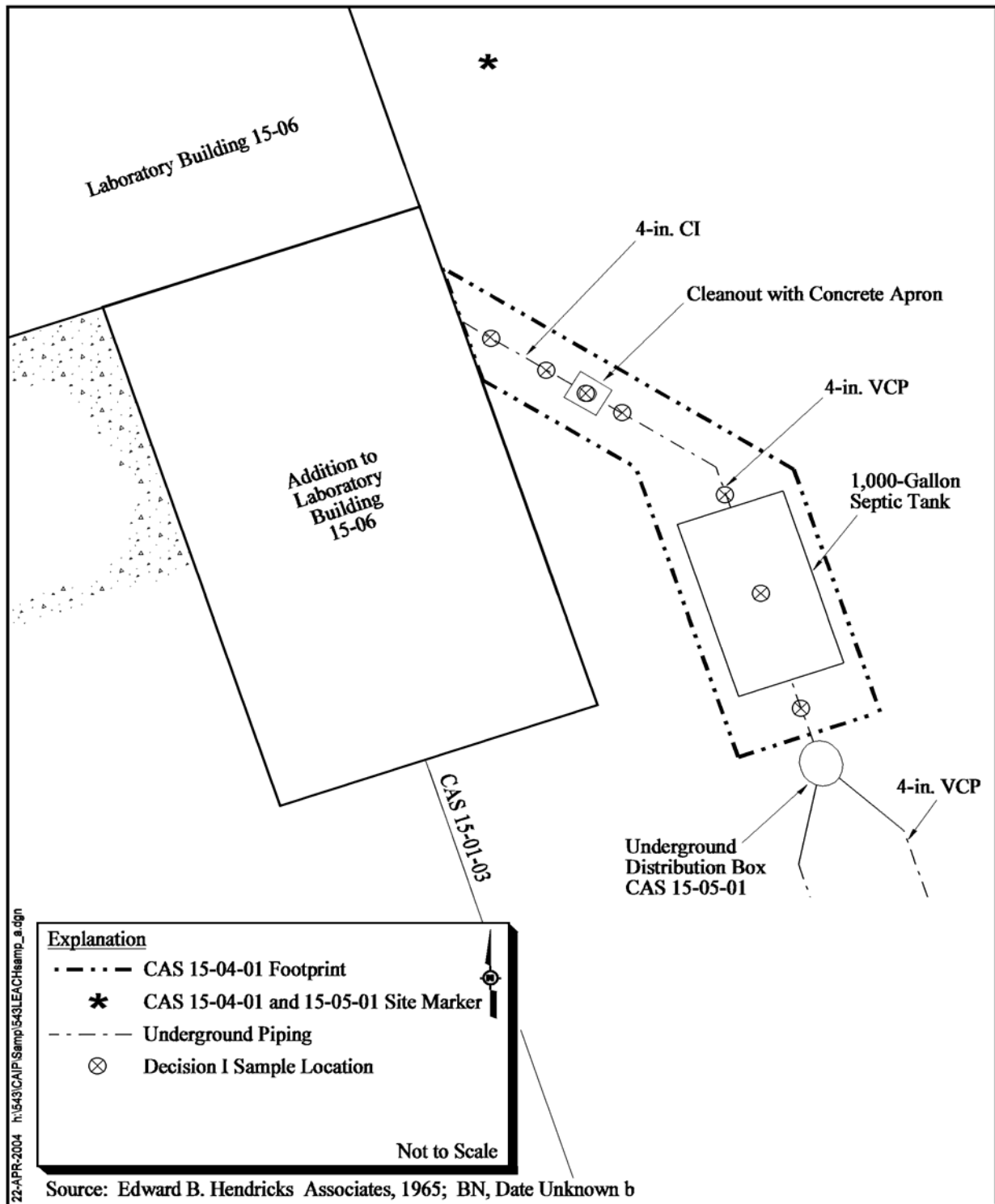


Figure A.1-10
CAU 543, CAS 15-04-01, Septic Tank
Proposed Decision I Sample Locations

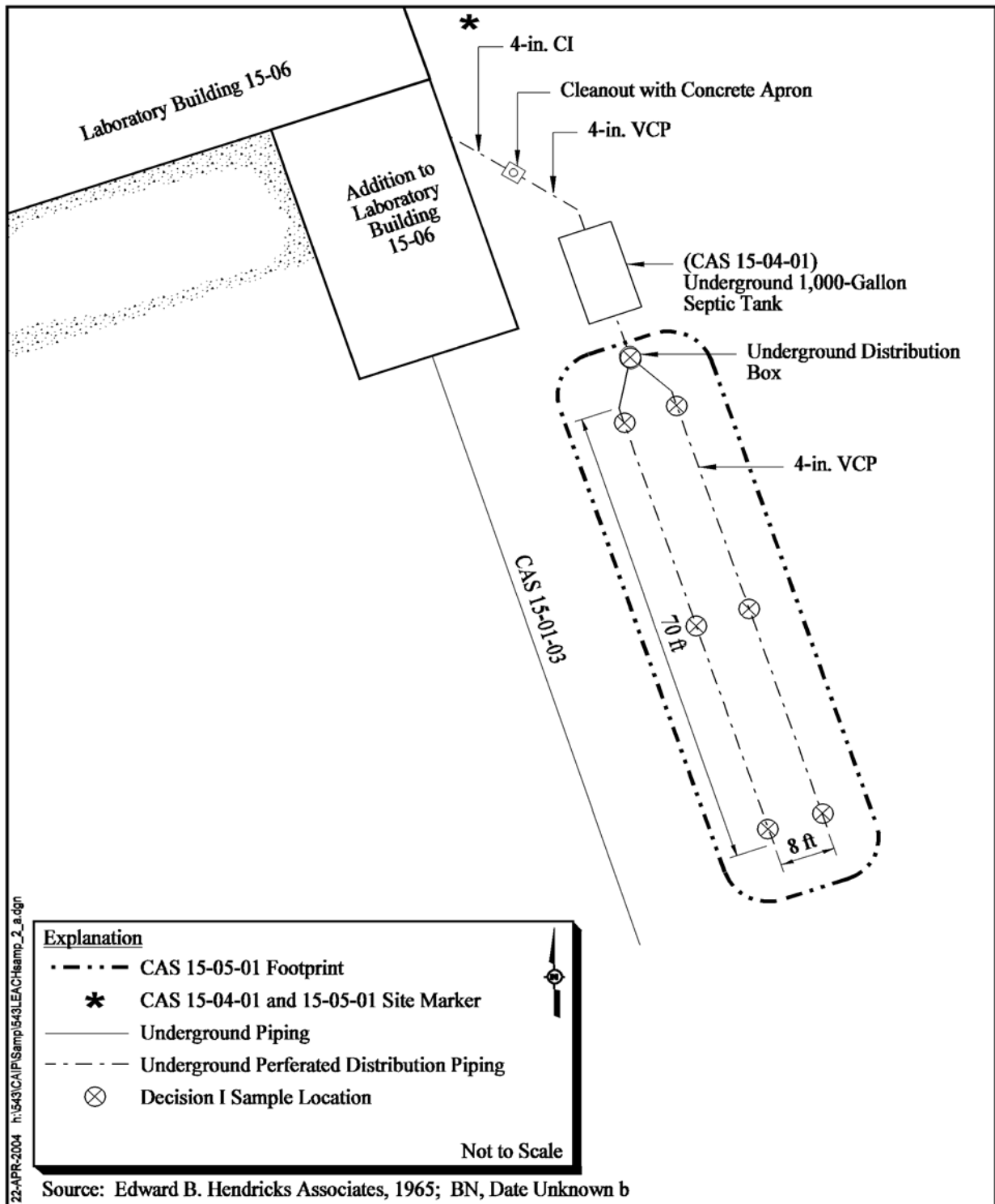


Figure A.1-11
CAU 543, CAS 15-05-01, Leachfield
Proposed Decision I Sample Locations

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.

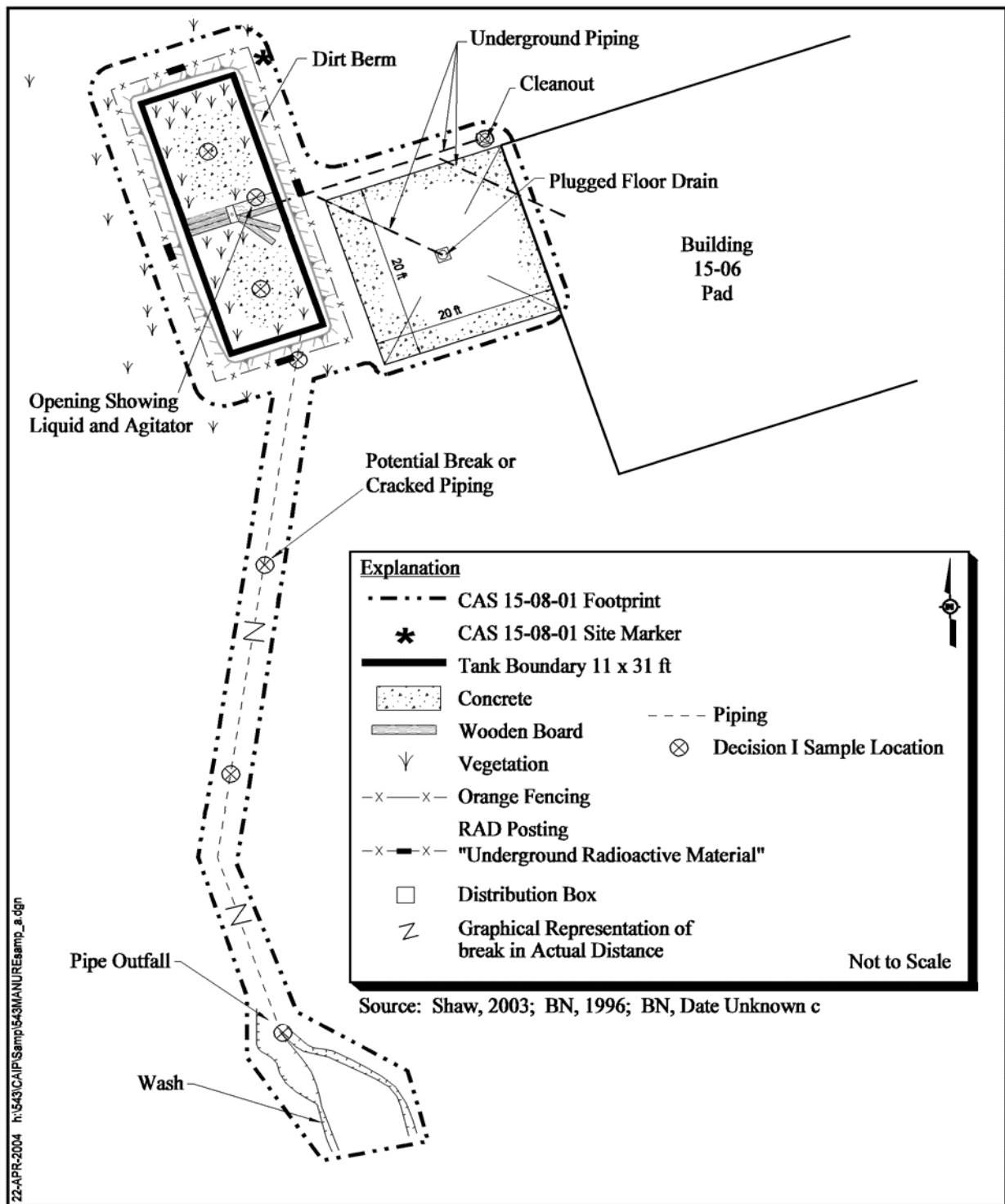


Figure A.1-12
CAU 543, CAS 15-08-01, Liquid Manure Tank
Proposed Decision I Sample Locations

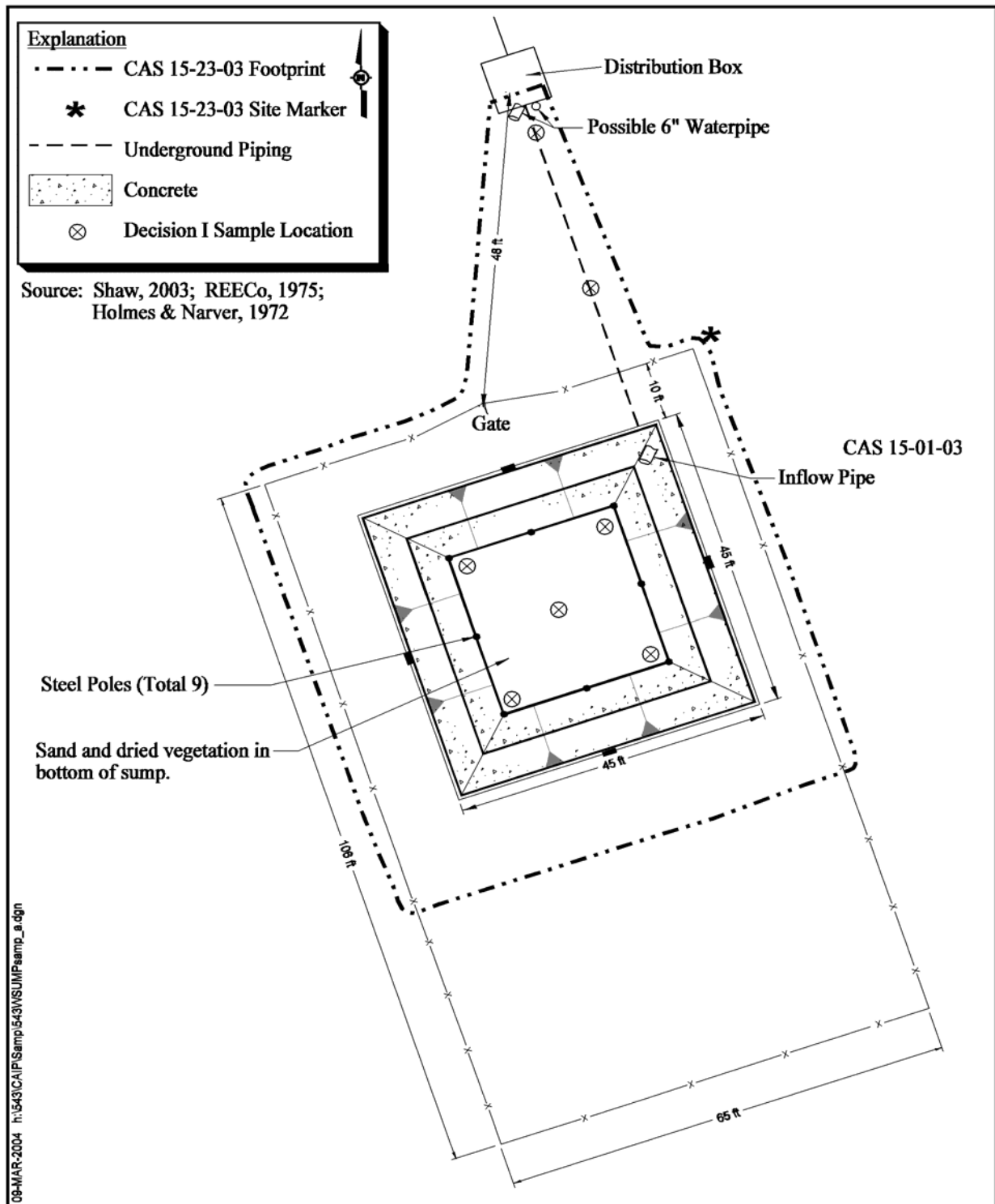


Figure A.1-13
CAU 543, CAS 15-23-03, Contaminated Sump, Piping
Proposed Decision I Sample Locations

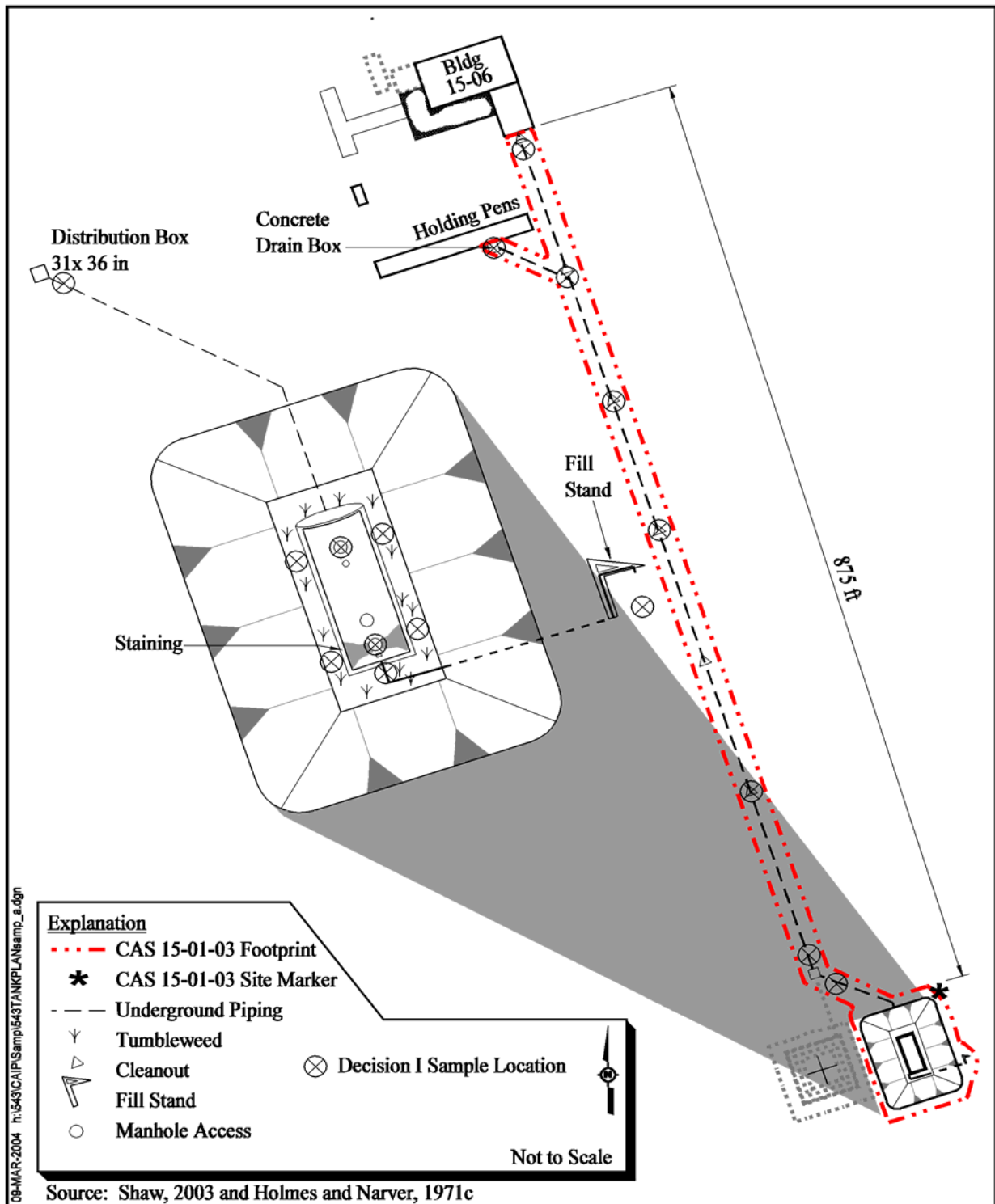


Figure A.1-14
CAU 543, CAS 15-01-03, Aboveground Storage Tank
Proposed Decision I Sample Locations

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.

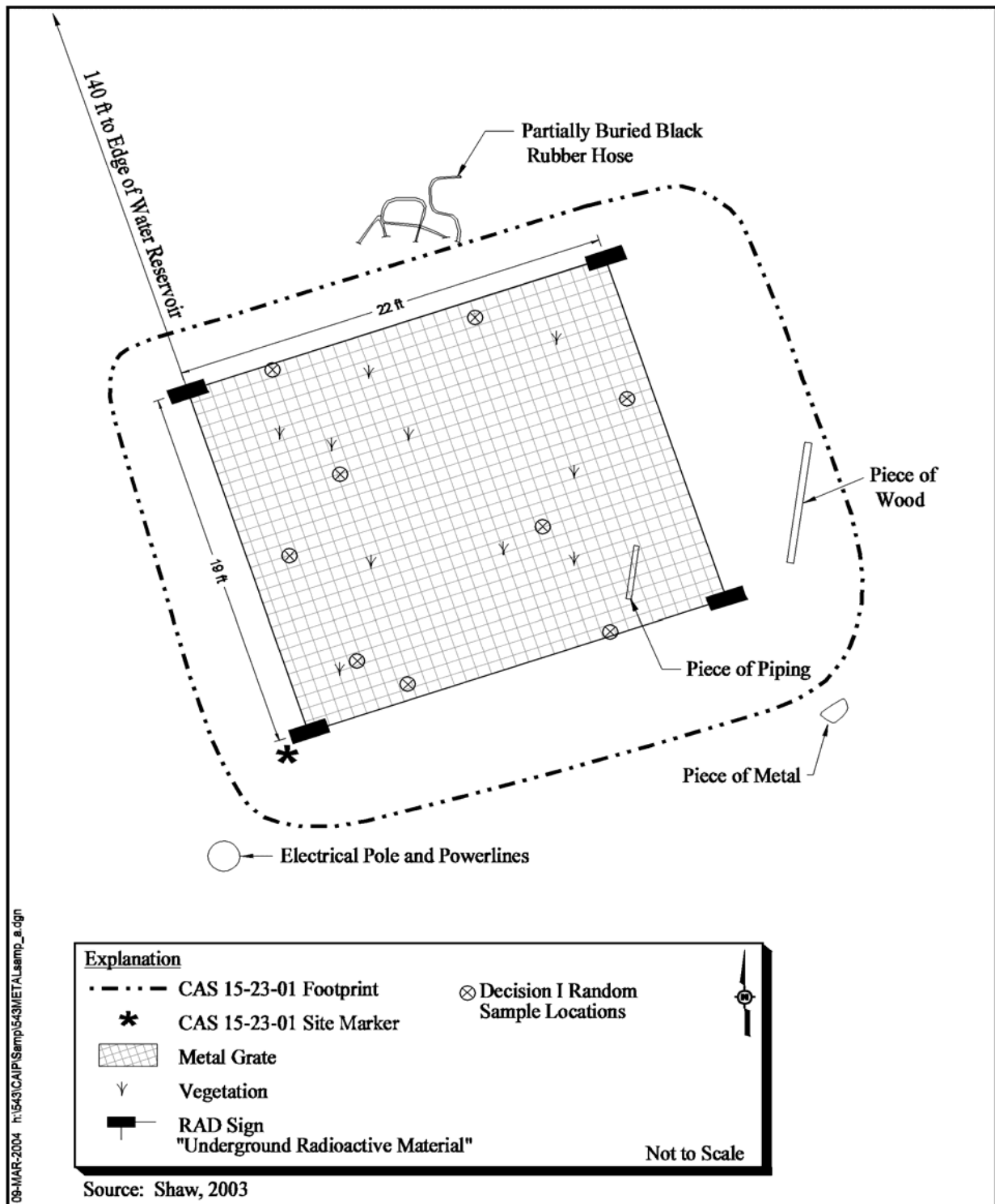


Figure A.1-15
CAU 543, CAS 15-23-01, Underground Radioactive Material Area
Proposed Decision I Random Sample Locations

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APPENDIX B

SAMPLE ANALYTICAL RESULTS

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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
			060701-WC2	V2875	V2876
		Trough with soil	060701-WC3	V2875	V2876
	Drum #36	060701-D1		V2982	
	15-08-01	Liquid Manure Tank sludge	150801-WC1	V2877	V2878
			150801-WC2	V2877	V2878
Verification	06-07-01	6-605 Septic Tank	060701-605T	V2974	V2975
			060701-606T	V2974	V2975
		6-607 Septic Tank	060701-607T	V2974	V2975
		Sump 1	060701-S1	V2981	V2982
	Sump 2	060701-S2	V2981	V2982	
		060701-S3	V2981	V2982	
	15-01-03	Distribution Box	150103-DBU1	V2967	V2968
		150103-DBU2	V2967	V2968	
15-04-01	Septic Tank	150401-VST1	V2899	V2900	
15-05-01	Distribution Box	150501-VDB1	V2899		

CAS – Corrective Action Site
SDG – Sample Delivery Group

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Sample Delivery Group V2875

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Sample Information	Cust ID: 060701-T1		060701-WC1B		060701-WC1B		060701-WC2B		060701-WC3B		VBLKBB	
	RFW#:	013	014	014 MS	015	016	016	016	016	016	016	016
Matrix:	WATER		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
D.F.:	1.00		5.00	5.00	5.00	5.00	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	MG/L	MG/L	MG/L	MG/L
Toluene-d8	94	%	96	%	97	%	97	%	95	%	98	%
Surrogate	88	%	90	%	93	%	93	%	89	%	91	%
Recovery	94	%	91	%	98	%	90	%	92	%	95	%
Vinyl Chloride	0.010	U	0.050	U	90	%	0.050	U	0.050	U	0.010	U
1,1-Dichloroethene	0.005	U	0.025	U	104	%	0.025	U	0.025	U	0.005	U
Chloroform	0.005	U	0.025	U	107	%	0.025	U	0.025	U	0.005	U
1,2-Dichloroethane	0.005	U	0.025	U	107	%	0.025	U	0.025	U	0.005	U
2-Butanone	0.010	U	0.050	U	102	%	0.050	U	0.050	U	0.010	U
Carbon Tetrachloride	0.005	U	0.025	U	107	%	0.025	U	0.025	U	0.005	U
Trichloroethene	0.005	U	0.025	U	104	%	0.025	U	0.025	U	0.005	U
Benzene	0.005	U	0.025	U	105	%	0.025	U	0.025	U	0.005	U
Tetrachloroethene	0.005	U	0.025	U	103	%	0.025	U	0.025	U	0.005	U
Chlorobenzene	0.005	U	0.025	U	102	%	0.025	U	0.025	U	0.005	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0704L059 Client: NSTEC V2875 Semivolatiles by GC/MS, TCLP Leachate Report Date: 04/11/07 12:04
Work Order: 60952001001 Page: 1a

Cust ID: 060701-WC1B 060701-WC1B 060701-WC1B 060701-WC2B 060701-WC3B 060701-WC3B

Sample Information	RFW#	017	017 MS	017 MSD	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
							REP
Surrogate	Nitrobenzene-d5	72	58	75	72	55	73
Recovery	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	68	1 *	46
	2,4,6-Tribromophenol	95	118	120	101	1 *	97
	Pyridine	0.050 U	60	42	0.050 U	0.050 U	0.050 U
	1,4-Dichlorobenzene	0.050 U	57	65	0.050 U	0.050 U	0.050 U
	2-Methylphenol	0.050 U	79	86	0.050 U	0.050 U	0.050 U
	3/4-Methylphenol	0.050 U	79	89	0.050 U	0.050 U	0.050 U
	Hexachloroethane	0.050 U	53	59	0.050 U	0.050 U	0.050 U
	Nitrobenzene	0.050 U	56	80	0.050 U	0.050 U	0.050 U
	Hexachlorobutadiene	0.050 U	52	74	0.050 U	0.050 U	0.050 U
	2,4,6-Trichlorophenol	0.050 U	84	93	0.050 U	0.050 U	0.050 U
	2,4,5-Trichlorophenol	0.12 U	90	97	0.12 U	0.12 U	0.12 U
	2,4-Dinitrotoluene	0.050 U	92	94	0.050 U	0.050 U	0.050 U
	Hexachlorobenzene	0.050 U	91	102	0.050 U	0.050 U	0.050 U
	Pentachlorophenol	0.12 U	122 *	140 *	0.12 U	0.12 U	0.12 U

* = Outside of EPA CLP QC limits.

1
INORGANIC ANALYSES DATA SHEET

WC1C

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

[illegible]

VALIDATION
QUALIFIER

UJ
J
J

060701-WC1C
TCLP OF 003

1

INORGANIC ANALYSES DATA SHEET

WC2C

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

[illegible]

VALIDATION
QUALIFIER

UJ
J
J

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

060701-WC2C
TCLP OF 007

1
INORGANIC ANALYSES DATA SHEET

WC3C

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

[illegible]

VALIDATION
QUALIFIER

U J
J

5

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

060701-WC3C
TCLP OF 011

41

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

Sample Information	RFW#:	004	004 MS	004 MSD	008	012	07LE0174-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:	DCAA	43 %	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 %	35 %	170 U	170 U	170 U
2,4-D		33 U	56 %	38 %	33 U	I	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	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

Cust ID: PBLKYU BS

Sample Information	RFW#:	07LE0174-MB1
	Matrix:	SOIL
	D.F.:	1.00
	Units:	ug/kg
Surrogate:	DCAA	224 %
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. 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

RFW Batch Number: 0704L059

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

Sample Information	RFW#:	004	004 MS	004 MSD	008	012	07LE0174-MB1
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	YALP, 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	43 %	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 %	35 %	170 U	170 U	170 U
2,4-D		33 U	56 %	38 %	33 U	I	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	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

Cust ID: PBLKYU BS

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

Surrogate:	DCAA	224 %
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. 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

1000000000

Cust ID: 060701-WC3B PBLKZA PBLKZA BS PBLKZA BSD LCHBLK
 RFW#: 019 07LE0186-MB1 07LE0186-MB1 07LE0186-MB1 07LT0043-LB1
 Matrix: WATER WATER WATER WATER
 D.F.: 1.00 1.00 1.00 1.00
 Units: UG/L UG/L UG/L UG/L

Surrogate:	DCAA	89	%	89	%	165	*	%	177	*	%	100	%
2,4-D		10 U		10 U		29	*	%	32	%		10 U	
2,4,5-TP (Silvex)		5.0 U		5.0 U		70	%		82	%		5.0 U	

11/10/07

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.

Pesticide/PCBs by GC, CLP List

Report Date: 04/18/07 14:35

RFW Batch Number: 0704L059

Client: NSTEC V2875

Work Order: 60052001001 Page: 1

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

Sample Information	RFW#:	004	004 MS	004 MSD	008	012	07LE0170-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: Tetrachloro-m-xylene	75 %	62 %	56 %	72 %	96 %	87 %	
Decachlorobiphenyl	63 %	59 %	53 %	64 %	105 %	93 %	
Alpha-BHC	1.7 U	68 %	59 *	1.7 U	8.3 U	1.7 U	1.7 U
gamma-BHC (Lindane)	1.7 U	58 %	52 %	1.7 U	1.7 U	1.7 U	1.7 U
Beta-BHC	0.40 JI	56 %	49 *	1.7	5.4 JI	1.7 U	1.7 U
Heptachlor	1.8	67 %	61 %	0.97 J		1.7 U	1.7 U
Delta-BHC	1.7 U	43 *	41 *	1.7 U	8.3 U	1.7 U	1.7 U
Aldrin	1.7 U	68 %	60 %	1.7 U	8.3 U	1.7 U	1.7 U
Heptachlor epoxide	1.7 U	67 %	59 *	1.7 U	I	1.7 U	1.7 U
gamma-Chlordane	1.7 U	64 %	56 *	1.7 U	8.3 U	1.7 U	1.7 U
Endosulfen I	1.7 U	76 %	72 %	1.7 U	8.3 U	1.7 U	1.7 U
alpha-Chlordane	1.7 U	61 %	61 %	0.50 J	8.3 U	1.7 U	1.7 U
1,4'-DDE	0.57 J	67 %	62 %	1.7 U	230	1.7 U	1.7 U
Dieldrin	0.53 J	70 %	74 %	0.87 J	8.3 U	1.7 U	1.7 U
Endrin	1.7 U	79 %	72 %	1.7 U	8.3 U	1.7 U	1.7 U
4,4'-DDD	1.7 U	92 %	82 %	1.7 U	8.3 U	1.7 U	1.7 U
Endosulfan II	1.7 U	74 %	64 %	1.7 U	8.3 U	1.7 U	1.7 U
4,4'-DDT	1.0 J	77 %	92 %	1.8	8.3 U	1.7 U	1.7 U
Endrin aldehyde	1.2 J	60 %	60 %	1.7 U	110	1.7 U	1.7 U
Endosulfan sulfate	1.7 U	75 %	68 %	1.7 U	I	1.7 U	1.7 U
Methoxychlor	1.7 U	91 %	89 %	1.7 U	8.3 U	1.7 U	1.7 U
Endrin ketone	1.7 U	89 %	110 %	1.7 U	8.3 U	1.7 U	1.7 U
Toxaphene	17 U	17 U	17 U	17 U	93 U	17 U	17 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. NA= Not Applicable. * = Outside of EPA CLP QC

Cust ID: 060701-WC1A 060701-WC2A 060701-WC2A 060701-WC2A 060701-WC3A PBLKYR

Sample Information RFW#: 001 005 005 MS 005 MSD 009 07LE0170-MB1
 Matrix: SOIL SOIL SOIL SOIL SOIL SOIL
 D.F.: 1.00 1.00 1.00 1.00 100 1.00
 Units: UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG

Surrogate:	Tetrachloro-m-xylene	86	%	97	%	102	%	98	%	D	%	89	%
	Decachlorobiphenyl	81	%	91	%	91	%	87	%	D	%	91	%
Aroclor-1016		13	U	13	U	92	%	93	%	1300	U	13	U
Aroclor-1221		13	U	13	U	13	U	13	U	1300	U	13	U
Aroclor-1232		13	U	13	U	13	U	13	U	1300	U	13	U
Aroclor-1242		13	U	13	U	13	U	13	U	1300	U	13	U
Aroclor-1248		13	U	13	U	13	U	13	U	15000		13	U
Aroclor-1254		13	U	13	U	13	U	13	U	9200		13	U
Aroclor-1260		65		14		95	%	97	%	1300	U	13	U
Aroclor-1268		13	U	13	U	13	U	13	U	1300	U	13	U
TOTAL PCB'S		65		14	J	I		I		25000		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. NA= Not Applicable. * Outside of EPA CIP QC

Cust ID: 060701-WC1A 060701-WC2A 060701-WC3A TBLKCL TBLKCL BS
 RFW#: 001 005 009 07LVJ411-MB1 07LVJ411-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

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. 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 CIP QC

1417

Cust ID: 060701-WC1A 060701-WC1A 060701-WC1A 060701-WC2A 060701-WC3A BLK

Sample Information RFW#: 001 001 MS 001 MSD 005 009 07LE0171-MB1
 Matrix: SOIL SOIL SOIL SOIL SOIL SOIL
 D.F.: 5.00 5.00 5.00 5.00 20.0 1.00
 Units: ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg

p-Terphenyl	D	%	D	%	D	%	D	%	D	%	D	%
Diesel Range Organics	130000	X	D	%	D	%	160000	X	920000	X	3330	U
Motor Oil Range Organics	520000	5	NS		NS		700000	J	2900000	J	10000	U

Cust ID: BLK BS

Sample Information RFW#: 07LE0171-MB1
 Matrix: SOIL
 D.F.: 1.00
 Units: ug/kg

p-Terphenyl	54	%
Diesel Range Organics	93	%
Motor Oil Range Organics	10000	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. NA= Not Applicable. * = Outside of EPA CLP QC

* (VALIDATION) QUALIFIED

1/1/07

PROJECT / CLIENT INFORMATION			REPORT & TURNAROUND INFORMATION			SAMPLE INFORMATION	
Project: <u>CAU 543</u>	Alt. Org#: <u>H330</u>	Send Report to: <u>DAVE NAUGHT</u>	Sampling Site: <u>06-02-01</u>		The samples submitted contain (check): <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.		
Charge Number: <u>SPB 22DS</u>	Phone: <u>295-5577</u>	Fax: <u>M/S: NTS 306</u>	Turnaround: <input type="checkbox"/> Standard - 14 days III, 28 days Non-rad Env, 45 days Rad Env <input checked="" type="checkbox"/> RUSH Preliminary by: <u> </u> (III) <u>1</u> <u>2</u> <u>X</u> <u>7</u> <u>14</u> (non-Rad Env) <u>1</u> <u>7</u> <u>14</u> <u>28</u> (Radiological Env)				
Project Manager: <u>Tom THIELE</u>	Phone: <u>295-6711</u>	Fax: <u> </u>	M/S: <u>NTS306</u>				

SAMPLE MANAGEMENT INFORMATION										Pay Item, Analysis, Method									
SDG: <u>(III) J2875</u> (Non-Rad Env) <u> </u> (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: <u> </u> Subcontract Lab(s) used for this work: <u>LIONVILLE</u>										10.52	8.1	6.11	7.3	9.23	8.21	8.3	13.1		
										TPH - 8015 M	TCBS - 8012	TECP-VOLCS 1311/8260B	TECP-SVOCs 1311/8270C	TECP METALS 1311/610/7470	HERBICIDES - 8151A	PESTICIDES - 8081A	TECAL VOLCS TECP-151		
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	Est. Vol	QC MID	MS	MSD	Pres - Analysis eg. HCL - VOCs										
060701 - WC1A	03/28/07	13:15	Soil	1	250 ml				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								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	03/29/07 - 10:45	C CASTANEDA	/s/ C Castaneda	3/29/07 @ 1645
C CASTANEDA	/s/ C Castaneda	4/12/07 @ 1300	FED EX	79914670351	4/12/07 @ 1300
FED EX		4.3.07 0935	D Smith	/s/ D Smith	4.3.07 0935

PROJECT / CLIENT INFORMATION			REPORT & TURNAROUND INFORMATION			SAMPLE INFORMATION		
Project: CAU 543	PK Org: M370	Send Report to: DAVE NACHT	Sampling Site: 06-07-01					
Charge Number: 5818 22DS	Phone: 293-5577	Fax:	The samples submitted contain (check):					
Project Manager: Tom Thiele	Turnaround: () Standard -- 14 days HL, 28 days Non-rad Env, 45 days Rad Env	NES: NTS 306	() Hazardous - (list)					
Phone: 293-6711	Fax:	NES: NTS 306	() Radioactive - (list)					
	Turnaround: () RUSH Preliminary by: (H)		() Unknown contamination. If known, identify					
	1 2 X 7 14 (non-Rad Env)		contaminants. This information will ensure compliance with					
	1 7 14 28 (Radiological Env)		applicable regulations and allow for the safe handling of the					
			sample materials.					

SAMPLE MANAGEMENT INFORMATION										Pay Item, Analysis, Method							
SDG: (H) 12875 (Non-Rad Env) (Rad Env)										10.52	8.1	6.4	7.3	9.22	8.24	8.3	1.31
Samples submitted are associated with a signed Project SOW. (X) YES () NO										 TCU-8015M PCBs - 808Z TCU-VOCs 1311/8210B TCU-SVOCs 1311/8270B TCU METALS 1311/6010/7470 HEAVY METALS - 8151A PESTICIDES - 8081A TOTAL VOC, TCU list. 							
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	MD	MS	MSD	Pres - Analysis eg HCl - VOCs								
060701-WL3C	03/28/07	13:42	SOIL	1	250 ml				COOL YC					X			
060701-WL3D	03/28/07	13:43	SOIL	1	250 ml				COOL YC					X	X		
060701-TA	03/29/07	13:10	WATER	2	40 ml				H2SO4								X

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
BEN MCGEE	/s/ B. McGee	03/29/07 - 10:45	COCASTALLODA	/s/ C. Castaneda	3/29/07 10:45
COCASTALLODA	/s/ C. Castaneda	4/2/07 13:00	FED EX	7991 14675351	4/2/07 6:13:00
FED EX		4-3-07 09:35	D. Smith	/s/ D. Smith	4-3-07 09:35

Sample Delivery Group V2876

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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.

M - 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

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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

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: GS070405-1-1
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

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

Data Package ID: GSS0704006-1

Date Printed: Monday, April 09, 2007

Paragon Analytics
LIMS Version: 6.001A

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Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0704006

Client Name: National Security Technologies, LLC

Client/Project ID: CAU 543 V2876

Field ID: 050701-WC1E

Lab ID: 0704006-1

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: GS070405-1-1

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
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

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 half-lives

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

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: 050701-WC2E	Sample Matrix: SOIL	Prep Batch: GS070405-1	Final Aliquot: 354 g
Lab ID: 0704006-3	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: 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
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

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

Data Package ID: GSS0704006-1

Date Printed: Monday, April 09, 2007

Paragon Analytics
LIMS Version: 6.001A

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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: GS070405-1-1

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	Ti-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

M1 - 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 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-WC3E
Lab ID: 0704006-5

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: GS070405-1-1
Run ID: GS070405-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 266 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
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

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

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

Lab ID: 0704006-5

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: GS070405-1-1

Run ID: GS070405-1A

Count Time: 30 minutes

Report Basis: Dry Weight

Final Aliquot: 266 g

Prep Basis: Dry Weight

Moisture(%): NA

Result Units: pCi/g

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	Ti-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

SQ - Spectral quality prevents accurate quantitation

SI - Nuclide identification and/or quantitation is tentative

T1 - 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

Date Printed: Monday, April 09, 2007

Paragon Analytics

LIMS Version 6.001A

Page 6 of 6

000020

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.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100 ± 10%. 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.

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 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
0704006-2	060701-WC1F	Sample	Pu-239/240	1.87E-01 +/- 3.84E-02	5.70E-03	pCi/g	SOIL	AS070417-3	4/20/2007	
0704006-4	060701-WC2F	Sample	Pu-238	6.12E-02 +/- 1.74E-02	2.37E-03	pCi/g	SOIL	AS070418-1	4/21/2007	
0704006-4	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	AS070412-5	4/16/2007	M3
0704006-6	060701-WC3F	Sample	Pu-239/240	2.52E+02 +/- 3.94E+01	5.99E-01	pCi/g	SOIL	AS070412-5	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.
- M - 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)
- BOL - 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#: H730	Send Report to: DAVE NACHT				Sampling Site: 06-07-01		
Charge Number: SIB 22DS	Phone: 295-5577	Fax:	M/S NTS 306			The samples submitted contain (check):		
Project Manager: TOM THIELER	Turnaround: () Standard - 14 days III, 28 days Non-rad Env, 45 days Rad Env		() RUSH Preliminary by: ()			() Hazardous - (list)		
Phone: 295-6711	Fax:	M/S: NTS 306	1 2 7 14 (non-Rad Env) 1 X 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

SDG: (III) (Non-Rad Env) V2876 (Rad Env)

Samples submitted are associated with a signed Project SOW. (X) YES () NO

Analyses entered here agree with the SOW. (X) YES () NO () N/A

If not, identify the variation: _____

Subcontract Lab(s) used for this work: PARAGON

Pay Item, Analysis, Method

ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	Est. Vol	QC MD	MS	MSD	Pres. Analysis eg. HCL - VOC's	GPC-A-003	GPC-A-003	NUS-A-002	NAS-A-002	NAS-A-006			
060701-WC1E	07/28/07	13:14	S.L.	1	500 ml				COOL 4°C	X	X	X					
060701-WC1F		13:15											X	X			
060701-WC2E		13:18								X	X	X					
060701-WC2F		13:19											X	X			
060701-WC3E		13:39								X	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	C. CASTANEDA	/s/ C Castaneda	3/29/07 @ 10:45
C. CASTANEDA	/s/ C. Castaneda	4/2/07 @ 13:00	FEDEX	790706771614	4/2/07 @ 13:00
FEDEX	FEDEX	4/3/07 @ 09:15	Rebecca Rambo	/s/ R Rambo	4/3/07 @ 09:15

Sample Delivery Group V2877

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Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 04/11/07 15:30

RFW Batch Number: 0704L058

Client: NSTEC V2877

Work Order: 60052001001 Page: 1

Cust ID:	150801-WC1	150801-WC1	150801-WC2	BLK	BLK BS
RFW#:	001	001 MS	002	07LE0171-MB1	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. NS= Not spiked.
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA ClP QC

Lionville Laboratory, Inc.

GAS RANGE ORGANICS

Report Date: 04/11/07 18:19

RFW Batch Number: 0704L058

Ident: NSTEC V2877

Work Order: 60052001001 Page: 1

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

Sample Information
 RFW#: 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

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

1.57

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

PROJECT / CLIENT INFORMATION			REPORT & TURNAROUND INFORMATION			SAMPLE INFORMATION		
Project: CAU 543	MS Orig: H330	Send Report to: DAVID NAUGHT				Sampling Site: CAU 543 CAS 15-08-01		
Charge Number: SBIB - 2205		Phone: 295-5577	Fax:	M/S: NTS306		The samples submitted contain (check):		
Project Manager: THOMAS A. THIELE		Turnaround: () Standard - 14 days (H), 28 days Non-rad Env, 45 days Rad Env (H)				() Hazardous - (list)		
Phone: 295-6711	Fax:	PUSH Preliminary by: <u>NTS</u>				() Radioactive - (list)		
		1 <u>2</u> <u>X</u> 7 14 (non-Rad Env)				() Unknown contamination. If known, identify contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.		
		1 <u>X</u> 7 14 28 (Radiological Env)						

SAMPLE MANAGEMENT INFORMATION										Pay Item, Analysis, Method									
SDG: _____ (H) <u>V2877</u> (Non-Rad Env) _____ (Rad Env)										10.52									
Samples submitted are associated with a signed Project SOW. (X) YES () NO																			
Analyses entered here agree with the SOW. (X) YES () NO () N/A																			
If not, identify the variation: _____																			
Subcontract Lab(s) used for this work: <u>LIONVILLE</u>																			
ID/DESCRIPTION	SAMPLING DATE		TIME	MATRIX	CONTAINER #	Est. Vol	MD	QC MS	MSD	Pres - Analysis eg. HCl - VOC's	TPH - 8015M								
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								
LIST 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 #	7991 14675051	4/2/07 1300
FED EX		4-2-07 0935	D. Smith	/s/ D Smith	4-2-07 0935

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Sample Delivery Group V2878

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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

LT3 - The requested MDC was not met, but the reported activity is greater than the reported MDC

LT4 - The requested MDC was not met

SD - 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: 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

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.

M1 - 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 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: 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

Abbreviations

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

SD - Spectral quality prevents accurate quantitation

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative

R - Nuclide has exceeded 6 half-lives.

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

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
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

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

SO - Spectral quality prevents accurate quantitation

SI - Nuclide identification and/or quantitation is tentative

T1 - Nuclide identification is tentative

R - Nuclide has exceeded B 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: 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.
- M - 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: Thursday, April 12, 2007

Paragon Analytics
LIMS Version: 6.001A

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FRM-0732 (11/06)

Sample Delivery Group V2899

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Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 05/03/07 10:11

RFW Batch Number: 07041144

Client: NSTEC V2899

Work Order: 60052001001 Page: 1

1100000000

Cust ID: 150401-VST1 150401-VST1 150401-VST1 150501-VDB1 BLK BLK BS

Sample Information RFW#: 001 001 MS 001 MSD 002 07LE0212-MB1 07LE0212-MB1 SOIL SOIL SOIL SOIL
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

p-Terphenyl 195 * % 103 % 109 % 91 % 51 % 104 %
Diesel Range Organics 3550 U 35 % 93 % 3420 U 3330 U 89 %
Motor Oil Range Organics 10700 U NS 10300 U 10000 U NS

Cust ID: BLK BLK BS BLK BSD

Sample Information RFW#: 07LE0217-MB1 07LE0217-MB1 07LE0217-MB1
Matrix: SOIL SOIL SOIL
D.F.: 1.00 1.00 1.00
Units: ug/kg ug/kg ug/kg

p-Terphenyl 98 % 106 % 77 %
Diesel Range Organics 3330 U 87 % 67 %
Motor Oil Range Organics 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

4/17

Lionville Laboratory, Inc.

Report Date: 04/27/07 10:49

PCBs by GC

Work Order: 60052001001 Page: 1

RFW Batch Number: '04' 14 Client: NSTEC V2899

Cust ID: 150401-VST1 150401-VST1 150401-VST1 PBLKZM BS

Sample Information RFW#: 001 001 MSD 07LE0211 07LE0211-MB1
Matrix: SOIL SOIL SOIL
D.F.: 1.00 1.00 1.00
Units: UG/KG UG/KG UG/KG

Surrogate:	Tetrachloro-m-xylene	78. %	170 * %	81 %	77 %	82 %
	Decachlorobiphenyl	92 %	200 * %	91 %	93 %	86 %
Aroclor-1016		14 U	159 * %	79 %	13 U	81 %
Aroclor-1221		14 U	14 U	14 U	13 U	13 U
Aroclor-1232		14 U	14 U	14 U	13 U	13 U
Aroclor-1242		14 U	14 U	14 U	13 U	13 U
Aroclor-1248		14 U	14 U	14 U	13 U	13 U
Aroclor-1254		14 U	14 U	14 U	13 U	13 U
Aroclor-1260		14 U	176 * %	89 %	13 U	84 %
Aroclor-1268		14 U	14 U	14 U	13 U	13 U
TOTAL PCB'S		43 U	NA	NA	40 U	NA

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

1/1/07

Page of

<u>CUSTODY TRANSFER</u>					
Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
BEN MCGEE	/s/ B McGee	4/17/07 @ 10:39	C.A. CASTANEDA	/s/ C. Castaneda	4/17/07 @ 1039
CASTANEDA	/s/ C Castaneda	4/18/07 @ 1300	FED EX	799124552142	4/18/07 @ 1300
FED EX		4/18/07 @ 0945	VICTOR HERNANDEZ	/s/ V Hernandez	4/18/07 @ 0945

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Sample Delivery Group V2900

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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

Lab ID: 0704141-1

Library: LNG_GAM-A-001

Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL

Prep SOP: PAI 739 Rev 8

Date Collected: 16-Apr-07

Date Prepared: 20-Apr-07

Date Analyzed: 26-Apr-07

Prep Batch: GS070420-2

QCBatchID: GS070420-2-1

Run ID: GS070420-2A

Count Time: 30 minutes

Report Basis: Dry Weight

Final Aliquot: 459 g

Prep Basis: Dry Weight

Moisture(%): NA

Result Units: pCi/g

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	1.67E-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

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.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BOL - 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 5 half-lives.

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

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

Lab ID: 0704141-1

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8

Date Collected: 16-Apr-07

Date Prepared: 20-Apr-07

Date Analyzed: 26-Apr-07

Prep Batch: GS070420-2

QC Batch ID: GS070420-2-1

Run ID: GS070420-2A

Count Time: 30 minutes

Report Basis: Dry Weight

Final Aliquot: 459 g

Prep Basis: Dry Weight

Moisture(%): NA

Result Units: pCi/g

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 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: GSS0704141-1

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page 1 of 1

<u>PROJECT / CLIENT INFORMATION</u>		<u>REPORT & TURNAROUND INFORMATION</u>			<u>SAMPLE INFORMATION</u>	
Project <u>CAL 543</u>	BN Orig# <u>H300</u>	Send Report to <u>Dave Npcbt</u>			Sampling Site: <u>CAY 15-04-01</u>	
Charge Number: <u>SBIB2205</u>		Phone: <u>6-5577</u>	Fax: <u>NTS 306</u>	MES <u>5-77C1</u>	The samples submitted contain (check): <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.	
Project Manager <u>Jeff Smith</u>		Turnaround: <input type="checkbox"/> Standard - 14 days III, 28 days Non-rad Env., 45 days Rad Env. <input checked="" type="checkbox"/> CRUSH Preliminary by _____ (III) _____ 1 _____ 2 _____ 7 _____ 14 (non-Rad Env.) _____ 1 _____ 7 <input checked="" type="checkbox"/> 14 _____ 28 (Radiological Env.)				
Phone <u>5-7775</u>	Fax <u>5-7761</u>	M/S <u>NTS 206</u>				

[illegible]

CUSTODY TRANSFER					
Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
BAP MCGEE	/s/ B McGee	4/17/07 @ 10:39	CDCASTANEDA	/s/ C Castaneda	4/17/07 @ 10:39
CDCASTANEDA	/s/ C Castaneda	4/18/07 @ 1300	FED EX	798154960424	4/18/07 @ 1300
FED EX		4/19/07 0900	Sheri Lafferty	/s/ S Lafferty	4/19/07 @ 900

Closure Report - CAU 543
Section: Appendix B
Revision: 0
Date: January 2008

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Sample Delivery Group V2967

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Lionville Laboratory, Inc.

Report Date: 08/24/07 09:15

PCBs by GC

Work Order: 60052001001 Page: 1

RFW Batch Number: 0708L769

Client: NSTEC V2967

Cust ID: 150103-DBV1 150103-DBV2 PBLKEZ PBLKEZ BS

Sample Information RFW#: 001 002 07LE0458-MB1 07LE0458-MB1
Matrix: SOIL SOIL SOIL
D.F.: 1.00 1.00 1.00
Units: UG/KG UG/KG UG/KG

Surrogate:	Tetrachloro-m-xylene	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.

GAS RANGE ORGANICS

Report Date: 08/24/07 06:18

RFW Batch Number: 0708L769

Client: NSTEC V2967

Work Order: 60952001001 Page: 1

Cust ID: 150103-DBV1		150103-DBV2	TBLKDC	TBLKDC BS	TBLKDC BSD
Sample Information	RFW#:	001	002	07LVJ823-MB1	07LVJ823-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

Fluorobenzene	74	%	77	%	83	%	78	%	88	%
Gasoline Range Organics (GRO)	90	U	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

Report Date: 08/23/07 14:25

RFW Batch Number: 0708L769

Client: NSTEC V2967

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
 D.F.: 1.00 1.00 1.00
 Units: ug/kg ug/kg ug/kg

p-Terphenyl	103	%	108	%	87	%
Diesel Range Organics	3440	U	3440	U	3330	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

[illegible]

Sample Delivery Group V2968

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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

Date Prepared: 21-Aug-07

Date Analyzed: 22-Aug-07

Prep Batch: GS070821-1

QCBatchID: GS070821-1-1

Run ID: GS070821-1A

Count Time: 30 minutes

Report Basis: Dry Weight

Final Aliquot: 469 g

Prep Basis: Dry Weight

Moisture(%): NA

Result Units: pCi/g

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.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

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.

Data Package ID: GS0708142-1

Date Printed: Monday, August 27, 2007

Paragon Analytics

LIMS Version: 6.056A

Page 1 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-DBU1

Lab ID: 0708142-1

Library: LNG_GAM-A-001

Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL

Prep SOP: PAI 739 Rev 9

Date Collected: 13-Aug-07

Date Prepared: 21-Aug-07

Date Analyzed: 22-Aug-07

Prep Batch: GS070821-1

QCBatchID: GS070821-1-1

Run ID: GS070821-1A

Count Time: 30 minutes

Report Basis: Dry Weight

Final Aliquot: 469 g

Prep Basis: Dry Weight

Moisture(%): NA

Result Units: pCi/g

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	Tl-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 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: 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

Lab ID: 0708142-2

Library: LNG_GAM-A-001

Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL

Prep SOP: PAI 739 Rev 9

Date Collected: 13-Aug-07

Date Prepared: 21-Aug-07

Date Analyzed: 22-Aug-07

Prep Batch: GS070821-1

QC Batch ID: GS070821-1-1

Run ID: GS070821-1A

Count Time: 30 minutes

Report Basis: Dry Weight

Final Aliquot: 462 g

Prep Basis: Dry Weight

Moisture(%): NA

Result Units: pCi/g

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
10198-40-0	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-146	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.

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 half-lives.

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

Data Package ID: GS0708142-1

Date Printed: Monday, August 27, 2007

Paragon Analytics

LIMS Version: 6.056A

Page 3 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

Lab ID: 0708142-2

Library: LNG_GAM-A-001

Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL

Prep SOP: PAI 739 Rev 9

Date Collected: 13-Aug-07

Date Prepared: 21-Aug-07

Date Analyzed: 22-Aug-07

Prep Batch: GS070821-1

QC Batch ID: GS070821-1-1

Run ID: GS070821-1A

Count Time: 30 minutes

Report Basis: Dry Weight

Final Aliquot: 462 g

Prep Basis: Dry Weight

Moisture(%): NA

Result Units: pCi/g

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.

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 half-lives.

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

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.
- M - 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: Wednesday, August 29, 2007

Paragon Analytics
LIMS Version: 6.057A

Page 1 of 1

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

0108142

Page 1 of 1

PROJECT / CLIENT INFORMATION			REPORT & TURNAROUND INFORMATION			SAMPLE INFORMATION	
Project: <u>CA4543</u>	BN Orig#: <u>H300</u>	Send Report to: <u>David Nacht</u>	Phone: <u>5-5577</u>	Fax: <u>5-7761</u>	M/S: <u>N4S 306</u>	Sampling Site: <u>CA4543 CAS 15-01-03</u>	The samples submitted contain (check):
Charge Number: <u>581822DS</u>		Turnaround: () Standard - 14 days (H), 28 days Non-rad Env, 45 days Rad Env				() Hazardous - (list) _____	() Radioactive - (list) _____
Project Manager: <u>Tom Thiele</u>		(X) RUSH Preliminary by _____ (H)				() 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: <u>5-6711</u>	Fax: <u>5-7761</u>	M/S: <u>N4S 306</u>					

SAMPLE MANAGEMENT INFORMATION										Pay Item, Analysis, Method									
SDG: _____ (H) _____ (Non-Rad Env) <u>V.2968</u> (Rad Env)										NAS-A-006		NAS-A-003							
Samples submitted are associated with a signed Project SOW. (X) YES () NO										ISO Pu		Gamma Spec							
Analyses entered here agree with the SOW. (X) YES () NO () N/A																			
If not, identify the variation: _____																			
Subcontract Lab(s) used for this work: <u>PARAGON</u>																			
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	Est. Vol	MD	QC MS	MSD	Pres - Analysis eg. HCl - VOCs										
150103-DBU1	8-13-07	14:32	Soil	2	1000mL				Ng	X	X								
150103-DRU2	8-13-07	14:35	Soil	2	1000mL				Ng	X	X								

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	Ng	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 8:52	C. CASTANEDA	/s/ C Castaneda	8-15-07 08:52
C. CASTANEDA	/s/ C Castaneda	8-15-07 13:00	Cheryl Trimble	790806286638	8-15-07 13:00
FED EX		8/16/07 @ 0945	Cheryl Trimble	/s/ C Trimble	8/16/07 @ 0945

FRM-0732 (11/06)

Sample Delivery Group V2974

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Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 09/21/07 13:58

RFW Batch Number: 0709L854

Client: NSTEC V2974

Work Order: 60052001001 Page: 1

Cust ID: 060701-605T 060701-605T 060701-605T 060701-606T 060701-607T BLK

Sample Information
 RFW#: 001 001 MS 001 MSD 002 003 07LE0508-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

p-Terphenyl	88	%	94	%	96	%	106	%	67	%	68	%
Diesel Range Organics	3630	U	79	%	75	%	4100	U	3840	U	3330	U
Motor Oil Range Organics	10900	U	NS		NS		11000	U	11500	U	10000	U

Cust ID: BLK BS

Sample Information
 RFW#: 07LE0508-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.

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

Cust ID: 060701-605T 060701-605T 060701-605T 060701-605T 060701-607T PBLKPY

Sample Information	RFW#:	001	001 MS	001 MSD	002	003	07LE0511-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: Tetrachloro-m-xylene	101 %	100 %	103 %	90 %	93 %	100 %	
Decachlorobiphenyl	92 %	90 %	92 %	90 %	93 %	93 %	
Aroclor-1016	15 U	85 %	88 %	15 U	15 U	13 U	
Aroclor-1221	15 U	15 U	15 U	15 U	15 U	13 U	
Aroclor-1232	15 U	15 U	15 U	15 U	15 U	13 U	
Aroclor-1242	15 U	15 U	15 U	15 U	15 U	13 U	
Aroclor-1248	15 U	15 U	15 U	15 U	15 U	13 U	
Aroclor-1254	15 U	15 U	15 U	15 U	15 U	13 U	
Aroclor-1260	15 U	94 %	101 %	15 U	15 U	13 U	

Cust ID: PBLKPY BS

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

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

PROJECT / CLIENT INFORMATION			REPORT & TURNAROUND INFORMATION			SAMPLE INFORMATION
Project	CAU 543	HN Orig# 4330	Send Report to:		Darr Nacht	Sampling Site: CAU 543
Charge Number:	5B1B 2205		Phone	5-5577	Fax: 5-7761	M/S: MT5306
Project Manager:	Jeff Smith		Turnaround:	<input type="checkbox"/> Standard - 14 days (H), 28 days Non-rad Env, 45 days Rad Env <input checked="" type="checkbox"/> RUSH Preliminary by: (H)		The samples submitted contain (check): <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.
Phone:	5-3224	Fax: 5-7761	M/S:	MT5306		

[illegible]

<u>CUSTODY TRANSFER</u>					
Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
Reel Poderis	/s/ R Poderis	8/28/07 12:00	ER Fudge	NA	8/28/07 12:00
ER Refrig	NA	9/1/07 840	Reel Poderis	/s/ R Poderis	9/4/07 840
Reel Poderis	/s/ R Poderis	9/4/07 840	C.D. CASTANEDA	/s/ C Castaneda	9/4/07 0840
C.D. CASTANEDA	/s/ C Castaneda	9/4/07 @ 1300	FED EX #	7908 1992 1423	9/4/07 @ 1300
FED EX		9-5-07 @ 0935	VICTOR HERNANDEZ	/s/ V Hernandez	9-5-07 @ 0935

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Closure Report - CAU 543
Section: Appendix B
Revision: 0
Date: January 2008

Sample Delivery Group V2975

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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.
- L T - 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.

Abbreviations:

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

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

Lab ID: 0709008-3

Library: LNG_GAM-A-001

Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL

Prep SOP: PAI 739 Rev 9

Date Collected: 28-Aug-07

Date Prepared: 11-Sep-07

Date Analyzed: 14-Sep-07

Prep Batch: GS070910-1

QCBatchID: GS070910-1-1

Run ID: GS070910-1A

Count Time: 30 minutes

Report Basis: Dry Weight

Final Aliquot: 295 g

Prep Basis: Dry Weight

Moisture(%): NA

Result Units: pCi/g

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.

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 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: 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.

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.

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	060701-607T	Sample	Sr-90	-4.55E-02 +/- 1.01E-01	2.52E-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.

Abbreviations:

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

Date Printed: Thursday, September 20, 2007

Paragon Analytics
LIMS Version: 6.06GA

NSTec

ANALYTICAL LABORATORY
SERVICES REQUEST AND CHAIN OF CUSTODY RECORD

Page of

PROJECT / CLIENT INFORMATION		REPORT & TURNAROUND INFORMATION		SAMPLE INFORMATION	
Project: <u>CAV 543</u>	BN Org#: <u>4530</u>	Send Report to: <u>Dave Nacht</u>		Sampling Site: <u>CAV 543</u>	
Charge Number: <u>SB2B 2205</u>		Phone: <u>5-5577</u>	Fax: <u>5-7761</u>	The samples submitted contain (check):	
Project Manager: <u>Dave Nacht</u>		M/S: <u>NTS306</u>		<input type="checkbox"/> () Hazardous - (list) _____ <input type="checkbox"/> () Radioactive - (list) _____ <input checked="" type="checkbox"/> (X) 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: _____	Fax: <u>5-6711</u>	M/S: <u>NTS306</u>			
		Turnaround: <input type="checkbox"/> () Standard - 14 days IH, 28 days Non-rad Env, 45 days Rad Env <input checked="" type="checkbox"/> (X) RUSH Preliminary by: _____ (IH) <u>1</u> <u>2</u> <u>7</u> <u>14</u> (non-Rad Env) <u>1</u> <u>7</u> <u>X14</u> <u>28</u> (Radiological Env)			

SAMPLE MANAGEMENT INFORMATION									Pay Item, Analysis, Method							
SDG: _____ (III) _____ (Non-Rad Env) <u>VJ2975</u> (Rad Env) Samples submitted are associated with a signed Project SOW. (X) YES () NO Analyses entered here agree with the SOW. (X) YES () NO () N/A If not, identify the variation: _____ Subcontract Lab(s) used for this work: <u>PARAGON</u>									GPR-A-003	GPR-A-003	NBS-A-002	NBS-A-002	GPR-A-010	NBS-A-006		
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	Est. Vol	QC MID	MS	MSD	Pres - Analysis eg. HCL - VOC's							
① 060701-605T	8-28-07	1030	Soil	1	500ml					X	X					
② 060701-606T	↓	1045	↓	2 nd	1L 500ml					X	X	ANAL	ANAL			
③ 060701-607T	↓	1020	↓	2	1L							X	X	X	X	
LAST ITEM																

CUSTODY TRANSFER

Sampled/Relinquished (print)	Signature	DATE / TIME	Received by (print)	Signature	DATE / TIME
Reed Poderis	/s/ R Poderis	8/20/07 1200	EQ Fridge	NA	8/20/07 1200
ER Jerny-ter	NA	9/4/07 840	Reed Poderis	/s/ R Poderis	9/4/07 840
Reed Poderis	/s/ R Poderis	9/4/07 840	C. CASTANEDA	/s/ C Castaneda	9/4/07 0840
C. CASTANEDA	/s/ C Castaneda	9/4/07 01300	FED EX	791754860434	9/4/07 01300
FED EX		9/5/07 0940	Cheryl Trimble	/s/ C Trimble	9/5/07 0940

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Sample Delivery Group V2981

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Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 09/19/07 09:29

RFW Batch Number: 0709L919

Client: NSTEC V2981

Work Order: 50052001001 Page: 1

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

Sample Information	RFW#: 001	001 MS	001 MSD	002	003	07LE0528-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
p-Terphenyl	88 %	81 %	68 %	87 %	98 %	73 %
Diesel Range Organics	3660 U	82 %	73 %	3650 U	3710 U	3330 U
Motor Oil Range Organics	11000 U	NS	NS	14000	14000	10000 U

Cust ID: BLK BS

Sample Information
 RFW#: 07LE0528-MB1
 Matrix: SOIL
 D.F.: 1.00
 Units: ug/kg

p-Terphenyl	73 %
Diesel Range Organics	90 %
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

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
 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

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

Cust ID: TBLKDG BS

Sample Information
 RFW#: 07LVJ919-MB1
 Matrix: SOIL
 D.F.: 1.00
 Units: UG/KG

Fluorobenzene	86	%
Gasoline Range Organics (GRO)	84	%

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: 09/18/07 13:43

PCBs by GC

RFW Batch Number. 0709L919

Client: NSTEC V2981

Work Order. 60052001001

Page: 1

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

Sample Information RFW#: 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-xylene	71 %	79 %	76 %	75 %	75 %	82 %
Decachlorobiphenyl	61 %	62 %	59 %	59 %	58 %	66 %
Aroclor-1016	15 U	79 %	75 %	15 U	15 U	13 U
Aroclor-1221	15 U	15 U	15 U	15 U	15 U	13 U
Aroclor-1232	15 U	15 U	15 U	15 U	15 U	13 U
Aroclor-1242	15 U	15 U	15 U	15 U	15 U	13 U
Aroclor-1248	15 U	15 U	15 U	15 U	15 U	13 U
Aroclor-1254	15 U	15 U	15 U	15 U	15 U	13 U
Aroclor-1260	15 U	90 %	83 %	15 U	15 U	13 U

Cust ID: PBLKGL BS

Sample Information RFW#: 07LE0527-MB1
Matrix: SOIL
D.F.: 1.00
Units: UG/KG

Surrogate: Tetrachloro-m-xylene	81 %
Decachlorobiphenyl	64 %
Aroclor-1016	77 %
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

PROJECT / CLIENT INFORMATION			REPORT & TURNAROUND INFORMATION			SAMPLE INFORMATION	
Project: <u>CAV 543</u>	BN Orig#: <u>H300</u>	Send Report to: <u>DAVID NACHT</u>	Sampling Site: <u>CAS 06-07-01</u>		The samples submitted contain (check):		
Charge Number: <u>5BIB 22DS</u>	Phone: _____	Fax: <u>5-7582</u>	M/S: <u>NTS 306</u>		<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.		
Project Manager: <u>THOMAS A. THIELE</u>	Turnaround: <input type="checkbox"/> Standard - 14 days (H), 28 days Non-rad Env, 45 days Rad Env (H)		<input checked="" type="checkbox"/> RUSH Preliminary by: _____ (H)				
Phone: <u>5-6711</u>	Fax: <u>5-7582</u>	M/S: <u>NTS 306</u>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 7 <input type="checkbox"/> 14 (non-Rad Env) <input type="checkbox"/> 1 <input type="checkbox"/> 7 <input type="checkbox"/> 14 <input type="checkbox"/> 28 (Radiological Env)				

SAMPLE MANAGEMENT INFORMATION										Pay Item, Analysis, Method																											
SDG: _____ (H) <u>V2981</u> (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: <u>LIVONVILLE</u>										<table border="1"> <tr> <td>10.21</td> <td>8.1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TPH Dec/610</td> <td>80156</td> <td>PCBS</td> <td>8082</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>								10.21	8.1									TPH Dec/610	80156	PCBS	8082						
10.21	8.1																																				
TPH Dec/610	80156	PCBS	8082																																		
ID/DESCRIPTION	SAMPLING DATE / TIME		MATRIX	CONTAINER #	Est. Vol	MD	QC MS	MSD	Pres - Analysis eg. HCl - VOC's																												
060701-S1	09/06/07	14:55	SOIL	1	250 mL				COOL 4°C	X	X																										
060701-S1-MSD		14:55					X	X		X	X																										
060701-S2		15:10								X	X																										
060701-S3		15:20								X	X																										

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	09/13/07 - 09:32
BEN MCGEE	/s/ B McGee	09/13/07 - 09:40	C.D. CASTANEDA	/s/ C Castaneda	9/13/07 @ 09:40
C.D. CASTANEDA	/s/ C Castaneda	9-13-07 @ 13:00	FED EX	791762293725	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

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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:	Abbreviations:
U - Result is less than the sample specific MDC.	TPU - Total Propagated Uncertainty (see PAI SOP 743)
LT - Result is less than Requested MDC, greater than sample specific MDC.	MDC - Minimum Detectable Concentration (see PAI SOP 709)
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.	BDL - Below Detection Limit
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.	

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	Sample Matrix: SOIL	Prep Batch: GS070920-1	Final Aliquot: 347 g
Lab ID: 0709089-3	Prep SOP: PAI 739 Rev 9	QC Batch ID: GS070920-1-1	Prep Basis: Dry Weight
Library: LNG_GAM-A-001	Date Collected: 06-Sep-07	Run ID: GS070920-1A	Moisture(%): NA
Analysis ReqCode: NGS-A-002	Date Prepared: 20-Sep-07	Count Time: 30 minutes	Result Units: pCi/g
	Date Analyzed: 23-Sep-07	Report Basis: Dry Weight	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 100-116%. 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 half-lives.

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

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-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
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

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

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

T1 - Nuclide identification is tentative.

R - Nuclide has exceeded 8 half-lives.

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

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

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
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	Pm-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 half-lives.

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

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

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

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	4.06E-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

SQ - 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.

Data Package ID: GSS0709089-1

Strontium-90 Analysis by GFPC Sample Results Summary

Client Name: National Security Technologies, LLC

Laboratory Name: Paragon Analytics

Page: 1 of 1

Client Project Name: CAU 543

PAI Work Order: 0709089

Reported on: Friday, October 12, 2007

Client Project Number: V2982

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
0709089-1	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.
- 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 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: V2882

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	LT
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.
- 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, 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: CAU 543	BN Org# 4300	Send Report to: DAVID NACHT		Sampling Site: CAS 06-07-01	
Charge Number: SBIB 22DS		Phone:	Fax: 5-7582	M/S: NTS 306	The samples submitted contain (check):
Project Manager: THOMAS A. THIELE		Turnaround:	<input type="checkbox"/> Standard - 14 days III, 28 days Non-rad Env, 45 days Rad Env <input checked="" type="checkbox"/> RUSH Preliminary by (III) ___ 1 ___ 2 ___ 7 ___ 14 (non-Rad Env) ___ 1 ___ 7 ___ 14 ___ 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: 5-6711	Fax: 5-7582	M/S: NTS 306			

SAMPLE MANAGEMENT INFORMATION										Pay Item, Analysis, Method									
SDG: _____ (III) _____ (Non-Rad Env) <u>V2982</u> (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: <u>PIRAGON</u>										NAS-A-004	GPC-A-010	NAS-A-002	GPC-A-003						
ID/DESCRIPTION	SAMPLING DATE	TIME	MATRIX	CONTAINER #	Est Vol	MD	MS	MSD	Pres - Analysis eg. HCl - VOCs	ISO PG	Sr-90 GAMMA SPEC	Co-60 GAMMA SPEC	GROSS BETA						
060701-S1	09/06/07	14:55	SOIL	1	500 mL				COOL 4°C	X	X								
060701-S1B		14:55											X						
060701-S2		15:10								X		X							
060701-S3		15:20								X		X							
060701-D1		14:40	SLUDGE							X									

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	09/13/07 - 09:32
BEN MCGEE	/s/ B McGee	09/13/07 - 09:40	C.D. CANTANEDA	/s/ C Cantaneda	09/13/07 - 09:40
C.D. CANTANEDA	/s/ C Cantaneda	09/13/07 - 09:40	7982630541145		09/13/07 - 09:40

04/07 0935

See Original

04/07 0935

ERM-0732 (11/05)

APPENDIX C

WASTE DISPOSITION DOCUMENTATION

Closure Report - CAU 543
Section: Appendix C
Revision: 0
Date: January 2008

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Corrective Action Site 06-07-01
Decon Pad

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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. LRY5MWFY07002, 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
SignatureDate 9-28-07

ED TAKAHASHI
Received by

NSTec RWM
Organization

SCIENTIST
Title

/s/ E Takahashi
SignatureDate 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 9-28-07

ED TAKAHASHI

Received by

NSTec RWM

Organization

SCIENTIST

Title

/s/ E Takahashi

Signature

Date 28-SEP-2007

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

Signature /s/ Theresa Hale

Date 9-28-07

ED TAKAHASHI	NSTec RWMG	Scientist
_____ Received by	_____ Organization	_____ Title

Signature /s/ E Takahashi

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

9-27-07Nancy 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

9-27-07Nancy 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 9-27-07

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. 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 byOrganizationTitle/s/ Theresa Hale
Signature10-10-07
DateEd Takahashi
Received byNSTec RWMC A-5.
OrganizationSCIENTIST
Title/s/ E Takahashi
Signature10-OCT-2007
Date

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
Received by

NSTec RWMC A-5
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 byOrganizationTitle/s/ Theresa Hale

Signature

10-10-07

Date

ED TAKAHASHI

Received by

NSTec RWMC

Organization

SCIENTIST

Title

/s/ E Takahashi

Signature

Date

10 OCT-2007

NTS LANDFILL LOAD VERIFICATION

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

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 /oc. ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5-9328 358,080

Location / Origin: CA# 543 CAS 06-07-01, AL DECON FORD

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.) 15' BULK CONTAINER

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 Was 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 ider prohibited and allowable waste items. I have contacted Property Manag is approved for disposal in the landfill.

Radiation Survey Release for Waste Disposal

RC* 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: 9-18-07
BN-0646 (09/95)

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): 1640 9-12-07
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 U10C ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5-9328

Location / Origin: CAU 543 (CAS 06-07-01) AREA 6 DECON PAD

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.) 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-teme plated oil filters
☐ Plants ☐ Soil ☐ Sludge from sand/oil/water separators ☐ PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

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

Print Name: SHAUGHN BURNISON

Signature: /s/ Shaughn Burnison

Date: 9/12/07

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: 9-12-07

BN-0646 (05/99)

"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 Signature of Certifier: /s/ Richard Everett

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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: SHAUGHN BURNISON Phone Number: 5 9328 3580

Location / Origin: CAN 543 (CAS DE-01-01) AREA 6 DECON PND

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-teme plated oil filters
☐ Plants ☐ Soil ☐ Sludge from sand/oil/water separators ☐ PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

To the best of my knowledge, the waste described above contains only the site. I have verified this through the waste characterization method identify 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: 9/13/07

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: 9-12-07
BN-0646 (03/05)

"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 9-13-07
Signature of Certifier: /s/ Steven Curtis

NSTec
Form
FRM-0918

INCLUDES

2 Satellite Dishes for SATV

NTS LANDFILL LOAD VERIFICATION

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

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 UIC ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON

Phone Number: 5-7328 358-1080

Location / Origin: CAN 543 (CAS 06-C7-01)

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 SATV

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

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 ide prohibited and allowable waste items. I have contacted Property Mana 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: 9/18/07
BN0646/105/250

Print Name: SHAUGHN BURNISON

Signature: /s/ Shaughn Burnison

Date: 9/18/07

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): 4500 Signature of Certifier: /s/ Don Bickford

42600

Corrective Action Site 15-01-03
Aboveground Storage Tank

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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 byOrganizationTitle/s/ Theresa Hale

Signature

9-20-07

Date

Nancy Etheridge

Received by

NSTec

Organization

Tech Staff

Title

/s/ Nancy Etheridge

Signature

Date 9.20.07

Package # 07L295 is a 25,000 gallon above ground storage tank from CAU543 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

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5-9328-358-1080

Location / Origin: AREA 15 OLD EPA FARM. CAN 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 Manag knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those ma site. I have verified this through the waste characterization method identified ab prohibited and allowable waste items. I have contacted Property Management ar 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 (09/99)

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 /oc ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5-9328

Location / Origin: CAU 543 (CAS 15-01-03) OLD EPA FARM

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 Ma knowledge, does not contain radiological materials.

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

Print Name: Shaughn Burnison

Signature: /s/ Shaughn Burnison Date: 8/14/07

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): 3,500 8-14-07
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 knowledge and origin.
☐ This container/load is free of radioactive contamination based on radioanalysis.
See Original. DATE: 8-14-07
SIGNATURE: _____ BN-0646 (09/93)

"Radiological Release Sticker" here. Onsite use only.

Corrective Action Site 15-04-01
Septic Tank

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NSTec
Form
FRM-0918

NTS LANDFILL LOAD VERIFICATION

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SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 593 28/358 1080

Location / Origin: AREA 15, OLD EPA FARM, CAU 243 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 Manageme knowledge, does not contain radiological materials.

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

Print Name: SHAUGHN BURNISON

Signature: /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): 15167 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, date, age and origin.
☐ This container/load is free of radioactive contamination based on radioanalysis.

SIGNATURE: See Original DATE: 4/12/07
BN-0546 (09/99)

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 rollofs, 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 CAU 543 HYDROCARBON IMPACTED SEPTIC WASTE

Waste Category: (check one) ☐ Commercial ☒ Industrial
Waste Type: ☐ NTS ☐ Putrescible ☒ FFACO-onsite ☐ WAC Exception
(check one) ☐ Non-Putrescible ☐ Asbestos Containing Material ☐ FFACO-offsite ☐ Historic DOE/NV
Pollution Prevention Category: (check one) ☒ Environmental management ☐ Defense Projects ☐ YMP
Pollution Prevention Category: (check one) ☒ Clean-Up ☐ Routine
Method of Characterization: (check one) ☒ Sampling & Analysis ☐ Process Knowledge ☐ Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: ☐ Paper ☐ Rocks / unaltered geologic materials ☐ Empty containers
☐ Asphalt ☐ Metal ☐ Wood ☒ Soil ☐ Rubber (excluding tires) ☐ Demolition debris
☒ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-Asbestosform) ☐ Cement & concrete
☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: ☐ Office Waste ☐ Food Waste ☐ Animal Carcasses
☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐

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

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

To the best of my knowledge, the waste described above contains only those materials. 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 (05/99)

SWO USE ONLY

Load Weight (net from scale or estimate): 47,000 Signature of Certifier: /s/ Steven C

NTS LANDFILL LOAD VERIFICATION

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SWO USE (Select One) AREA ☐ 23 ☒ 6 ☐ 9 ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Shaughn Burnison Phone Number: 5-9328 / 358-1080

Location / Origin: Area 15, EPA Farm, CAU 543 SEPTIC WASTE

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) ☐ Decanned 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

REQUIII

Initials: _____ (if initialed, no radiological cl

The above mentioned waste was generated on knowledge, does not contain radiological mat

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.

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: 4/16/07
BN-0646 (09/05)

A) and to the best of my

owed for disposal at this if the above-mentioned at this material/equipment

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 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 4-16-07
Signature of Certifier: /s/ Steven C.

If applicable, place FRM-0646, "Radiological Release Sticker" here. Onsite use only.

NTS LANDFILL LOAD VERIFICATION

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SWO USE (Select One) AREA ☐ 23 ☒ 6 ☐ 9 ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5-9328 / 358-1080

Location / Origin: AREA 15 EPA FARM, CAL 543 SEPTIC WASTE, HYDROCARBON IMPACTED

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/IV
Pollution Prevention Category: (check one) ☒ Environmental management ☐ Defense Projects ☐ YMP
Pollution Prevention Category: (check one) ☒ Clean-Up ☐ Routine
Method of Characterization: (check one) ☒ Sampling & Analysis ☐ Process Knowledge ☐ Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: ☐ Paper ☐ Rocks / unaltered geologic materials ☐ Empty containers
☐ Asphalt ☒ Metal ☐ Wood ☒ Soil ☐ Rubber (excluding tires) ☐ Demolition debris
☒ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-Asbestosform) ☐ Cement & concrete
☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: ☐ Office Waste ☐ Food Waste ☐ Animal Carcasses
☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐

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

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

To the best of my knowledge, the waste described above contains only those materials. 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: 4/17/07

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: 3/24/07

BN-0646 (09/99)

SWO USE ONLY

Load Weight (net from scale or estimate): 40,000 Signature of Certifier: /s/ Sandra Little

Closure Report - CAU 543
Section: Appendix C
Revision: 0
Date: January 2008

**Corrective Action Site 15-05-01
Leachfield**

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NSTec
Form
FRM-0918

NTS LANDFILL LOAD VERIFICATION

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

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5-932.8 / 358-1080

Location / Origin: AREA 15 OLD EPA FARM, CAL 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 Mar knowledge, does not contain radiological materials.

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

Print Name: SHAUGHN BURNISON

Signature: /s/ Shaughn Burnison

Date: 4/5/07

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): 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 (09/99)

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Corrective Action Site 15-08-01
Liquid Manure Tank

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON (NSTEC ER) Phone Number: 5-9328
Location / Origin: AREA 15 EPA FARM LIQUID MANURE TANK (CAS 15-08-01) (C-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-teme 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 id 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 7-31-07
Signature of Certifier: /s/ Don Bickford

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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: SHAUGHN BURNISON Phone Number: 295-9328

Location / Origin: AREA 15 EPA FARM LIQUID MANURE TANK (CAS 15-08-01)

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/INV
Pollution Prevention Category: (check one) ☒ Environmental management ☐ Defense Projects ☐ YMP
Pollution Prevention Category: (check one) ☒ Clean-Up ☐ Routine
Method of Characterization: (check one) ☒ Sampling & Analysis ☐ Process Knowledge ☐ Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: ☐ Paper ☐ Rocks / unaltered geologic materials ☐ Empty containers
☐ Asphalt ☒ Metal ☒ Wood ☒ Soil ☐ Rubber (excluding tires) ☒ Demolition debris
☐ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-Asbestosform) ☒ Cement & concrete
☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: ☐ Office Waste ☐ Food Waste ☐ Animal Carcasses
☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐

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

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

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

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

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)

NSTec

Form

FRM-0918

08/23/06

Rev. 0

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA ☐ 23 ☒ 6 ☐ 9 ☒ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: KEVIN OLSEN CAU-543 Phone Number: 5-2941Location / Origin: AREA 15 EPA FARM LIQUID MANURE TANK (CAS 15-08-01)

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.)

Additional waste accepted at the Area 23 Mercury Landfill: ☐ Office Waste ☐ Food Waste ☐ Animal Carcasses
☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐

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

REQUIRED: WASTE GENERATOR

Initials: KSO (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 prohibited and allowable waste items. I have verified this through the waste characterization method identified. I have contacted Property Manager and 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: 8/2/07
BN0646 (03/95)Print Name: Kevin OlsenSignature: /s/ Kevin OlsenDate: 8/2/07

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): 45,000 Signature of Certifier: See Original

NTS LANDFILL LOAD VERIFICATION

Page 1

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 U10C ☒ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: KEVIN OLSON CAR-543 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: ☐ NTS ☐ Putrescible ☒ FFACO-onsite ☐ WAC Exception
(check one) ☐ Non-Putrescible ☐ Asbestos Containing Material ☐ FFACO-offsite ☐ HistoricDOE/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: KEO (if initialed, no radiological clearance is necessary.)

The above mentioned waste was generated outside of a Controlled Waste Management Facility. The waste generator, 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 listed on this form. I have verified this through the waste characterization method identified above. I have contacted Property Management and they have approved for disposal in the landfill.

Print Name: Kevin Olson

Signature: /s/ Kevin Olsen

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 (09/95)

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

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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Kevin Olsen CAV-543 Phone Number: 5-2941Location / 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-teme plated oil filters
☐ Plants ☐ Soil ☐ Sludge from sand/oil/water separators ☐ PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR

Initials: KLO (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 ti site. I have verified this through the waste characterization method ident prohibited and allowable waste items. I have contacted Property Manage is approved for disposal in the landfill.

Print Name: Kevin OlsenSignature: /s/ Kevin OlsenDate: 8/6/07

Radiation Survey Release for Waste Disposal

RCR 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 (03/95)

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): 51,700 8-6-07 Signature of Certifier: /s/ Steven C

NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: Kevin Olson (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) ☐ 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: KEO (if initialed, no radiological clearance is necessary.)

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

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

Print Name: 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 3-4-07 Signature of Certifier: /s/ Don Bickford

Radiation Survey Release for Waste Dispos:

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: 9-6-07
BN-0646 (09/07)

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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: KEVIN OLSEN CPU-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) ☐ 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-terme plated oil filters
☐ Plants ☐ Soil ☐ Sludge from sand/oil/water separators ☐ PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

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

Print Name: KEVIN OLSEN

Signature: /s/ Kevin Olsen Date: 8/6/07

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

RCI 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 (03/99)

SWO USE ONLY

Load Weight (net from scale or estimate): 30,900 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 rollofs, dump trucks, and other onsite disposal of materials.)

Waste Generator: Shaughn Burnison 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 ☐ Ashes/Asbestos Containing Material ☐ FFACO-offsite ☐ Historic DOE/INV
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-terne 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 Man knowledge, does not contain radiological materials.

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

Print Name: Shaughn Burnison

Signature: /s/ Shaughn Burnison

Date: 8/7/07

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: 8/7/07
DN-0646 (09/95)

If applicable, place FRM-0040, "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): 17,650 Signature of Certifier: /s/ Don Bickford

NTS LANDFILL LOAD VERIFICATION

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Page 1 of 2

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON 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-teme plated oil filters
☐ Plants ☐ Soil ☐ Sludge from sand/oil/water separators ☐ PCBs below 50 parts per million

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

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

Print Name: 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 (05/99)

SWO USE ONLY

Load Weight (net from scale or estimate): 3,547 Signature of Certifier: /s/ Don Bickford

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Corrective Action Site 15-23-01
Underground Radioactive Material Area

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5-328 / 358 080

Location / Origin: AREA 15 OLD EDA JAIL, CAL 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 Area (CWMA) and to the best of my knowledge, does not contain radiological materials.

To the best of my knowledge, the waste described above contains only those materials. I have verified this through the waste characterization method identified above prohibited and allowable waste items. 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. They must have signed removal certification statement with Load Verification."

SWO USE ONLY

Load Weight (net from scale or estimate): 5000 4-3-07
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 knowledge and origin.
☒ This container/load is free of radioactive contamination based on radioanalysis.

SIGNATURE: /s/ D W DATE: 4-3-07
BN-0646 (03/99)

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**Corrective Action Site 15-23-03
Contaminated Sump, Piping**

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5-9328 / 358-1030

Location / Origin: Area 15 Old EPA Farm - CAU 543 (CAS 15-23-01) Misc Debris & Housekeeping Waste

Waste Category: (check one) ☐ Commercial ☒ Industrial
Waste Type: ☒ NTS ☐ Putrescible ☒ FFACO-onsite ☐ WAC Exception
(check one) ☐ Non-Putrescible ☐ Asbestos Containing Material ☐ FFACO-offsite ☐ Historic DOE/NV
Pollution Prevention Category: (check one) ☒ Environmental management ☐ Defense Projects ☐ YMP
Pollution Prevention Category: (check one) ☒ Clean-Up ☐ Routine
Method of Characterization: (check one) ☒ Sampling & Analysis ☐ Process Knowledge ☐ Contents

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

Additional Prohibited Waste at the Area 9 U10C Landfill: Sewage Sludge, Animal carcasses, Wet garbage (food waste); and Friable asbestos

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill: ☐ Paper ☐ Rocks / unaltered geologic materials ☐ Empty containers
☐ Asphalt ☒ Metal ☒ Wood ☒ Soil ☐ Rubber (excluding tires) ☒ Demolition debris
☐ Plastic ☒ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-Asbestosform) ☒ Cement & concrete
☒ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: ☐ Office Waste ☐ Food Waste ☐ Animal Carcasses
☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐

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

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

To the best of my knowledge, the waste described above contains only those materials that are allowed for disposal at this site. I have verified this through the waste characterization method identified above 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: 4/2/07

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

SWO USE ONLY

Load Weight (net from scale or estimate): 22,000 Signature of Certifier: /s/ Steven C

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: /s/ D W DATE: 3-24-07

BN-0646 (09/99)

NSTec
Form
FRM-0918

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NTS LANDFILL LOAD VERIFICATION

SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5-9328

Location / Origin: CAU 543 (CAS 15-03-01) OLD EIA FARM AREA 15 GENERAL HOUSEKEEPING

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: 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

Signature: /s/ Shaughn Burnison

Date: 8/16/07

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): 15,000 8-16-07 Signature of Certifier: /s/ Don Bickford

NSTec
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FRM-0918

NTS LANDFILL LOAD VERIFICATION

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SWO USE (Select One) AREA ☐ 23 ☐ 6 ☒ 9 ☐ LANDFILL

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

REQUIRED: WASTE GENERATOR INFORMATION

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

Waste Generator: SHAUGHN BURNISON Phone Number: 5-9328
Location / Origin: CAN 543 (CAS 15-03-01) OLD EPA FARM Area 15 HOUSEKEEPING SCRAP

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: 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

Signature: /s/ Shaughn Burnison Date: 8/16/07

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): 28,000 Signature of Certifier: /s/ Don Bickford

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APPENDIX D

SITE CLOSURE PHOTOGRAPHS

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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



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

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APPENDIX E

USE RESTRICTION DOCUMENTATION

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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

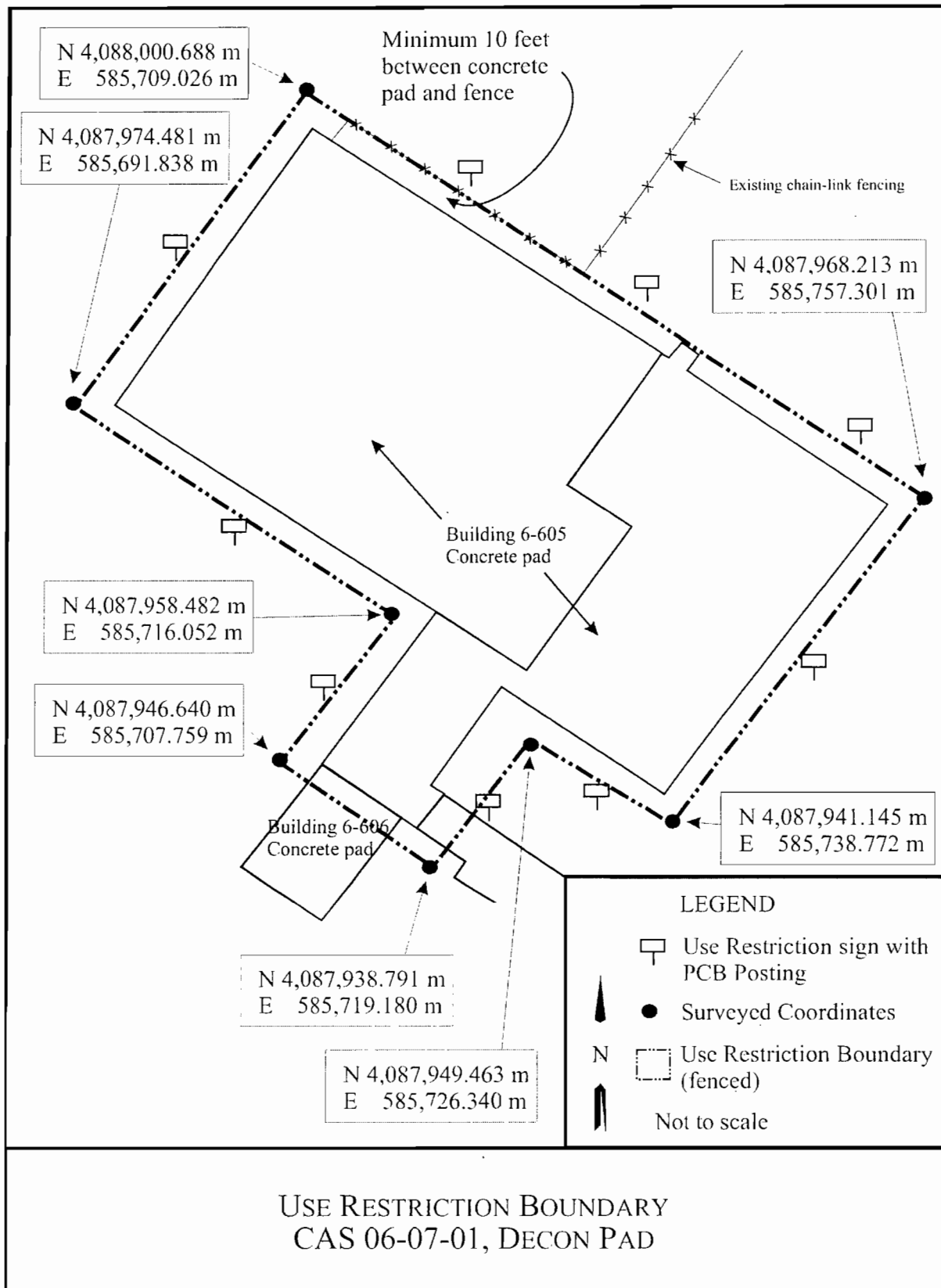
Use Restrictions

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 Cabbie Date: 1-3-08

cc with copy of survey map (paper and digital (dgn) formats):
CAU Files (2 copies)



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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

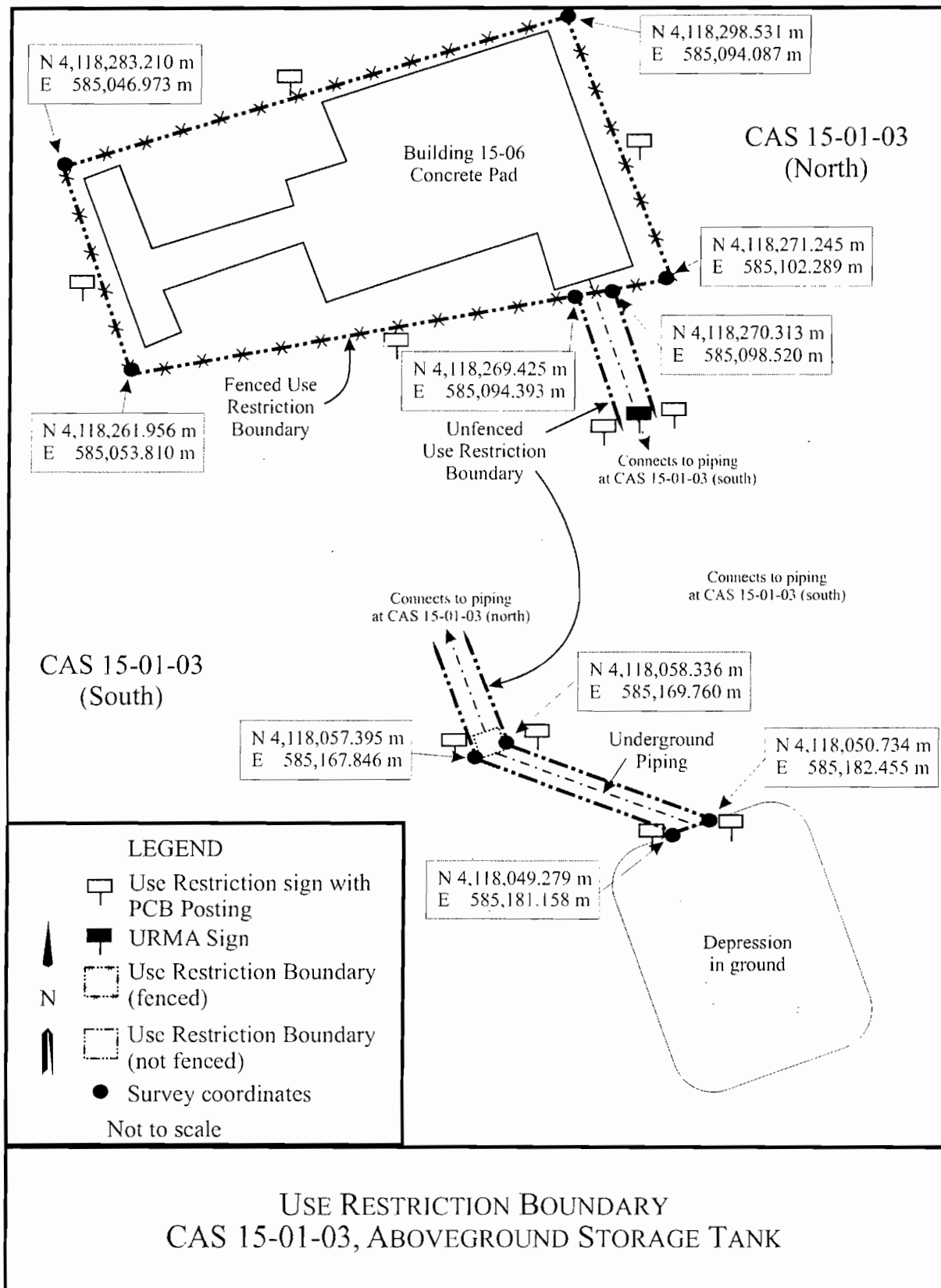
The future use of any land related to this Corrective Action Unit (CAU), as described by the above surveyed location, is restricted from any DOE or Air Force activity that may alter or modify the containment control as approved by the state and identified in the CAU Closure Report or other CAU documentation 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 Cabbie **Date:** 1-3-08

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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

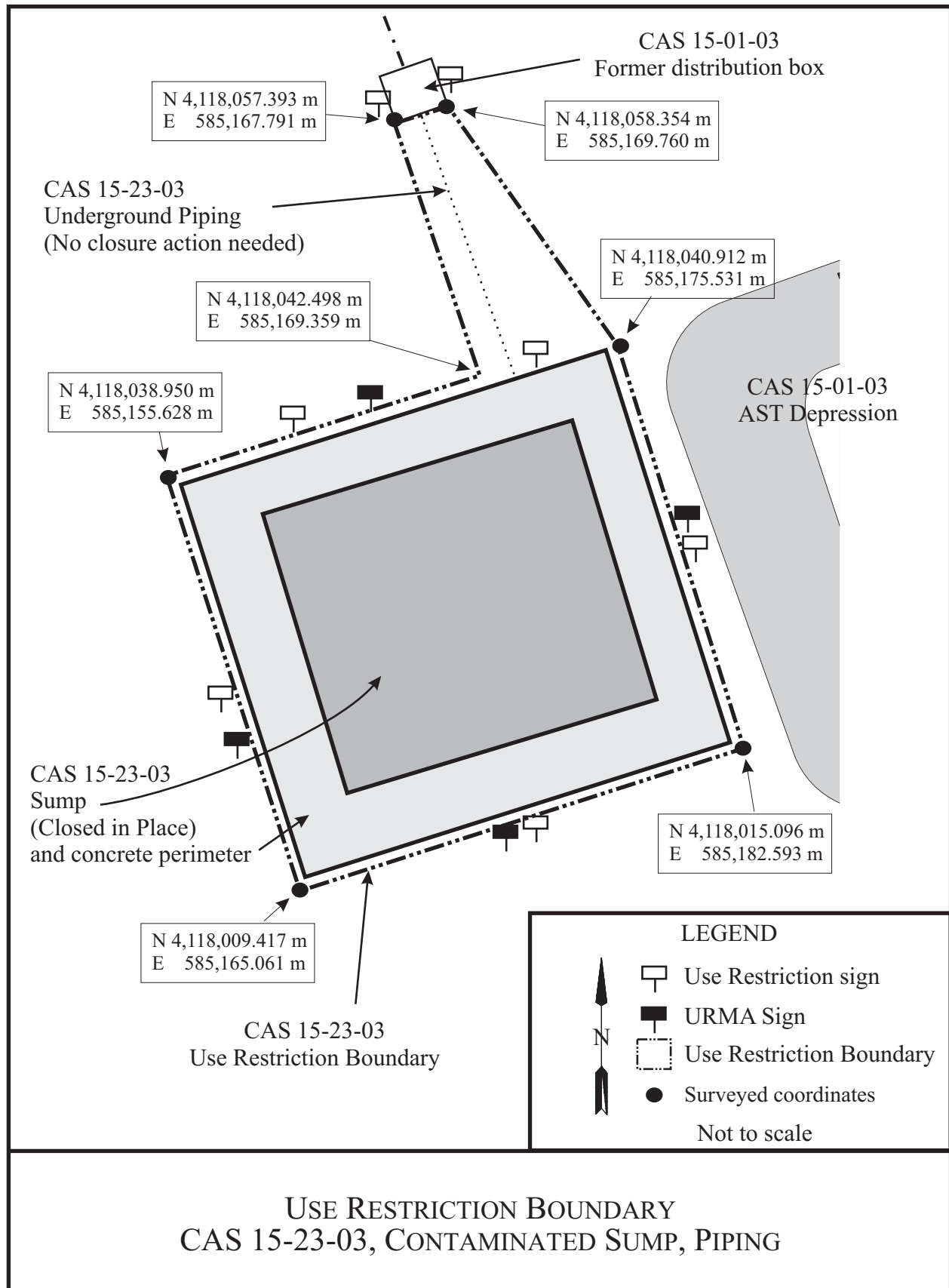
Use Restrictions

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 Cabbie Date: 1-3-08

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