Nevada
Environmental
Restoration
Project

DOE/NV--1222

National Nuclear Security Administration

Closure Report for Corrective Action Unit 300: Surface Release Areas Nevada Test Site, Nevada

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August 2007

Environmental Restoration
Project

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

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CLOSURE REPORT
FOR CORRECTIVE ACTION UNIT 300:
SURFACE RELEASE AREAS
NEVADA TEST SITE, NEVADA

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

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CLOSURE REPORT
FOR CORRECTIVE ACTION UNIT 300:
SURFACE RELEASE AREAS
NEVADA TEST SITE, NEVADA

Approved By: SIGNATURE APPROVED Date: 8/28/2007
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Acting Federal Project Director
Environmental Restoration Project

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ACRONYMS AND ABBREVIATIONS

AL	action level
Bldg	Building
BMP	best management practice
CADD	Corrective Action Decision Document
CAIP	Corrective Action Investigation Plan
CAP	Corrective Action Plan
CAS	Corrective Action Site
CAU	Corrective Action Unit
COC	contaminant of concern
CR	Closure Report
Cs	cesium
DOE	U.S. Department of Energy
DQO	data quality objective
E-MAD	Engine Maintenance, Assembly, and Disassembly Facility
FFACO	*Federal Facility Agreement and Consent Order*
ft	foot (feet)
HW	hazardous waste
LLW	low-level waste
mg/kg	milligram(s) per kilogram
mg/L	milligram(s) per liter
MW	mixed waste
ND	not detected above analytical limits
NDEP	Nevada Division of Environmental Protection
NEPA	*National Environmental Policy Act*
NNSA/NSO	U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office
NNSA/NV	U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office
NSTec	National Security Technologies, LLC
NTS	Nevada Test Site

ACRONYMS AND ABBREVIATIONS (continued)

PCB	polychlorinated biphenyl
pCi/g	picocurie(s) per gram
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RWMC	Radioactive Waste Management Complex
SVOC	semivolatile organic compound
TCA	Test Cell A
TPH-DRO	total petroleum hydrocarbons-diesel range organics
TSCA	*Toxic Substances Control Act*
TTF	Treatability Test Facility
WAC	waste acceptance criteria
yd^3	cubic yard(s)

EXECUTIVE SUMMARY

Corrective Action Unit (CAU) 300 is located in Areas 23, 25, and 26 of the Nevada Test Site, which is located approximately 65 miles northwest of Las Vegas, Nevada. CAU 300 is listed in the *Federal Facility Agreement and Consent Order* of 1996 as Surface Release Areas and is comprised of the following seven Corrective Action Sites (CASs), which are associated with the identified Building (Bldg):

- CAS 23-21-03, Bldg 750 Surface Discharge
- CAS 23-25-02, Bldg 750 Outfall
- CAS 23-25-03, Bldg 751 Outfall
- CAS 25-60-01, Bldg 3113A Outfall
- CAS 25-60-02, Bldg 3901 Outfall
- CAS 25-62-01, Bldg 3124 Contaminated Soil
- CAS 26-60-01, Bldg 2105 Outfall and Decon Pad

The Nevada Division of Environmental Protection (NDEP)-approved corrective action alternative for CASs 23-21-03, 23-25-02, and 23-25-03 is no further action. As a best management practice, approximately 48 feet of metal piping was removed from CAS 23-25-02 and disposed of as sanitary waste.

The NDEP-approved corrective action alternative for CASs 25-60-01, 25-60-02, 25-62-01, and 26-60-01, is clean closure. Closure activities for these CASs included removing and disposing of soil impacted with total petroleum hydrocarbons-diesel range organics (TPH-DRO), polychlorinated biphenyls (PCBs), semivolatile organic compounds (SVOCs), and cesium (Cs)-137, concrete impacted with TPH-DRO, and associated piping impacted with TPH-DRO.

CAU 300 was closed in accordance with the NDEP-approved CAU 300 Corrective Action Plan (CAP) (U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office [NNSA/NSO], 2006). The closure activities specified in the CAP were based on the recommendations presented in the CAU 300 Corrective Action Decision Document (NNSA/NSO, 2005). This Closure Report documents CAU 300 closure activities.

During closure activities, approximately 40 cubic yards (yd^3) of low-level waste consisting of TPH-DRO-, PCB-, and Cs-137-impacted soil and debris, approximately 7 yd^3 of hydrocarbon waste consisting of TPH-DRO-impacted soil, and approximately 66 yd^3 of sanitary debris consisting of soil and concrete debris were generated, managed, and disposed of appropriately. Waste minimization techniques, such as the utilization of field screening and laboratory analysis to determine the extent of excavation required, were employed during the performance of closure work.

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1.0 INTRODUCTION

Corrective Action Unit (CAU) 300 is listed in Appendix III of the *Federal Facility Agreement and Consent Order* (FFACO) of 1996 as Surface Release Areas. CAU 300 consists of seven Corrective Action Sites (CASs) located in Areas 23, 25, and 26 of the Nevada Test Site (NTS), which is located approximately 65 miles northwest of Las Vegas, Nevada. Figure 1 depicts the approximate CAS location within the NTS. Specifically, CAU 300 includes the following CASs, which are associated with the identified Building (Bldg):

- CAS 23-21-03, Bldg 750 Surface Discharge
- CAS 23-25-02, Bldg 750 Outfall
- CAS 23-25-03, Bldg 751 Outfall
- CAS 25-60-01, Bldg 3113A Outfall
- CAS 25-60-02, Bldg 3901 Outfall
- CAS 25-62-01, Bldg 3124 Contaminated Soil
- CAS 26-60-01, Bldg 2105 Outfall and Decon Pad

The sites reportedly included soil and concrete that exceeded clean-up criteria for total petroleum hydrocarbons-deisel range organics (TPH-DRO), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and cesium (Cs)-137. Historical details of the CASs are provided in the CAU 300 Corrective Action Investigation Plan (CAIP) (U.S. Department of Energy [DOE], National Nuclear Security Administration Nevada Site Office [NNSA/NSO], 2004) and in the CAU 300 Corrective Action Decision Document (CADD) (NNSA/NSO, 2005).

The corrective actions described in Section 2.0 the CAU 300 Corrective Action Plan (CAP) (NNSA/NSO, 2006) were implemented from March 2007 through July 2007. This Closure Report (CR) has been prepared for CAU 300 in accordance with the FFACO and the Nevada Division of Environmental Protection (NDEP)-approved CAP.

1.1 PURPOSE

The purpose of this CR is to document that the closure of CAU 300 complied with the NDEP-approved CAP closure requirements (NNSA/NSO, 2006). The closure activities specified in the CAP were based on the approved corrective action alternatives presented in Section 4.0 of the CAU 300 CADD (NNSA/NSO, 2005).

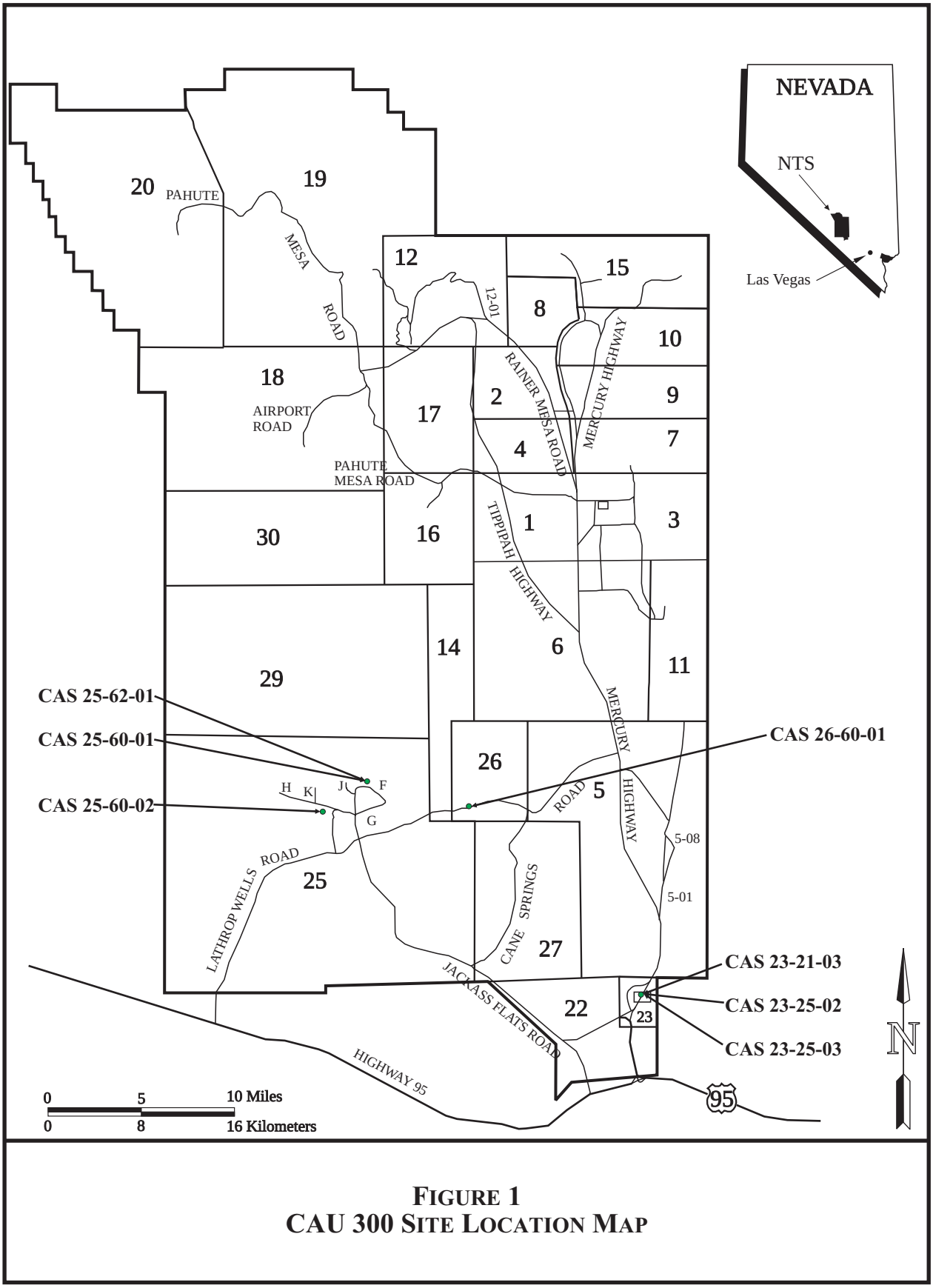

FIGURE 1
CAU 300 SITE LOCATION MAP

1.2 SCOPE

The approved closure strategy for CAU 300 was specified in Section 4.0 of the CAU 300 CADD (NNSA/NSO, 2005). The NDEP-approved closure alternative for CASs 23-21-03, 23-25-02, and 23-25-03 is no further action with best management practices (BMPs), where applicable. The NDEP-approved closure alternative for CASs 25-60-01, 25-60-02, 25-62-01, and 26-60-01, is clean closure. The strategy for implementing this closure was presented in the CAU 300 CAP (NNSA/NSO, 2006).

Closure activities included:

- Removing and disposing of 48 feet (ft) of TPH-DRO-impacted piping at CAS 23-25-02 as a BMP
- Removing and disposing of TPH-DRO-, SVOC-, PCB-, and Cs-137-impacted soil at CAS 25-60-01
- Removing and disposing of TPH-DRO-impacted soil at 25-60-02
- Removing and disposing of Cs-137-impacted soil at CAS 25-62-01
- Removing and disposing of TPH-DRO-impacted soil at 26-60-01
- Collecting verification samples to verify cleanup criteria
- Backfilling and grading excavations to surrounding topographic contours

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

Data quality objectives (DQOs) were developed for the CAU 300 site characterization (NNSA/NSO, 2004) and are included in Appendix A of this report. Site closure was verified through inspections, sampling, observations, and documentation of waste disposal.

1.3 CLOSURE REPORT CONTENTS

This CR includes the following sections:

- Section 1.0, "Introduction," presents the purpose, general scope, and an overview of report contents.
- Section 2.0, "Closure Activities," describes the corrective actions completed, any deviations from the CAP, and the general closure schedule.
- Section 3.0, "Waste Disposition," describes the waste generated and documents waste disposition.
- Section 4.0, "Closure Verification Results," describes the testing, inspections, and other measures used to confirm the completion of the corrective actions and the quality of results.

- Section 5.0, "Conclusions and Recommendations," describes the results, completion of implementation of the CAP, and the post-closure monitoring requirements.
- Section 6.0, "References," lists the supporting documents.

The appendices include relevant supporting documents:

- Appendix A, "Data Quality Objectives," presents the DQOs developed in the CAU 300 CAIP (NNSA/NSO, 2004).
- Appendix B, "Analytical Results," presents the summary analytical results for the soil verification samples collected at CASs 25-60-01, 25-60-02, and 26-60-01.
- Appendix C, "Waste Disposition Documentation," contains copies of the load verification forms and recycling forms.
- Appendix D, "Field Photographs," contains photographs of the CASs taken prior to, during, and after closure activities.
- Appendix E, "*National Environmental Policy Act* (NEPA) Environmental Evaluation Checklist," includes the checklist evaluating the environmental impact of site closure activities.

2.0 CLOSURE ACTIVITIES

This section details the specific activities involved in the closure of CAU 300.

2.1 DESCRIPTION OF CORRECTIVE ACTION ACTIVITIES

Closure of CAU 300 was completed by the National Security Technologies, LLC (NSTec), Environmental Restoration Industrial Sites Project using the approved CAP for CAU 300 (NNSA/NSO, 2006). The CAP was based on the recommendations presented in the CAU 300 CADD (NNSA/NSO, 2005).

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

- Preparation of a NEPA Checklist
- Preparation of a Field Management Plan for CAU 300 (NSTec, 2007a)
- Preparation of a Site-Specific Health and Safety Plan for closure activities at CAU 300 (NSTec, 2007b)
- Preparation of the work packages to control work
- Preparation of Real Estate/Operations Permits to authorize the work
- Performance of utility surveys to ensure that all fieldwork would be conducted safely and without disruption of NTS infrastructure

Closure activities began on March 21, 2007, and were completed on July 19, 2007. The following sections detail the closure activities implemented for CAU 300.

2.1.1 CAS 23-25-02, Bldg 750 Outfall

Figure 2 shows the site plan for CAS 23-25-02, which was an outfall located southeast of the Fleet Operations Building in Area 23. The site consisted of subsurface piping from the southeast corner of Building 750 up to and including an outfall, which was constructed for liquid discharges associated with the Bldg 750 steam cleaning pad.

Results of the site characterization reported no contaminants of concern (COCs) above action levels. However, as a BMP, a section of approximately 48 ft of the piping containing TPH-DRO was removed and disposed of as hydrocarbon waste at the NTS Area 6 Hydrocarbon Landfill. The pipe excavation was then backfilled with native material from an approved borrow source and graded to the approximate surrounding topographic contours.

2.1.2 CAS 25-60-01, Bldg 3113A Outfall

Figure 3 shows the site plan for CAS 25-60-01, which is located at the former Test Cell A (TCA) Facility in Area 25 and consisted of two primary release areas, the first being a southern site associated with the operations of Building 3113A, and the second being a northern site associated with drains around the concrete pad beneath the TCA piping and dewars.

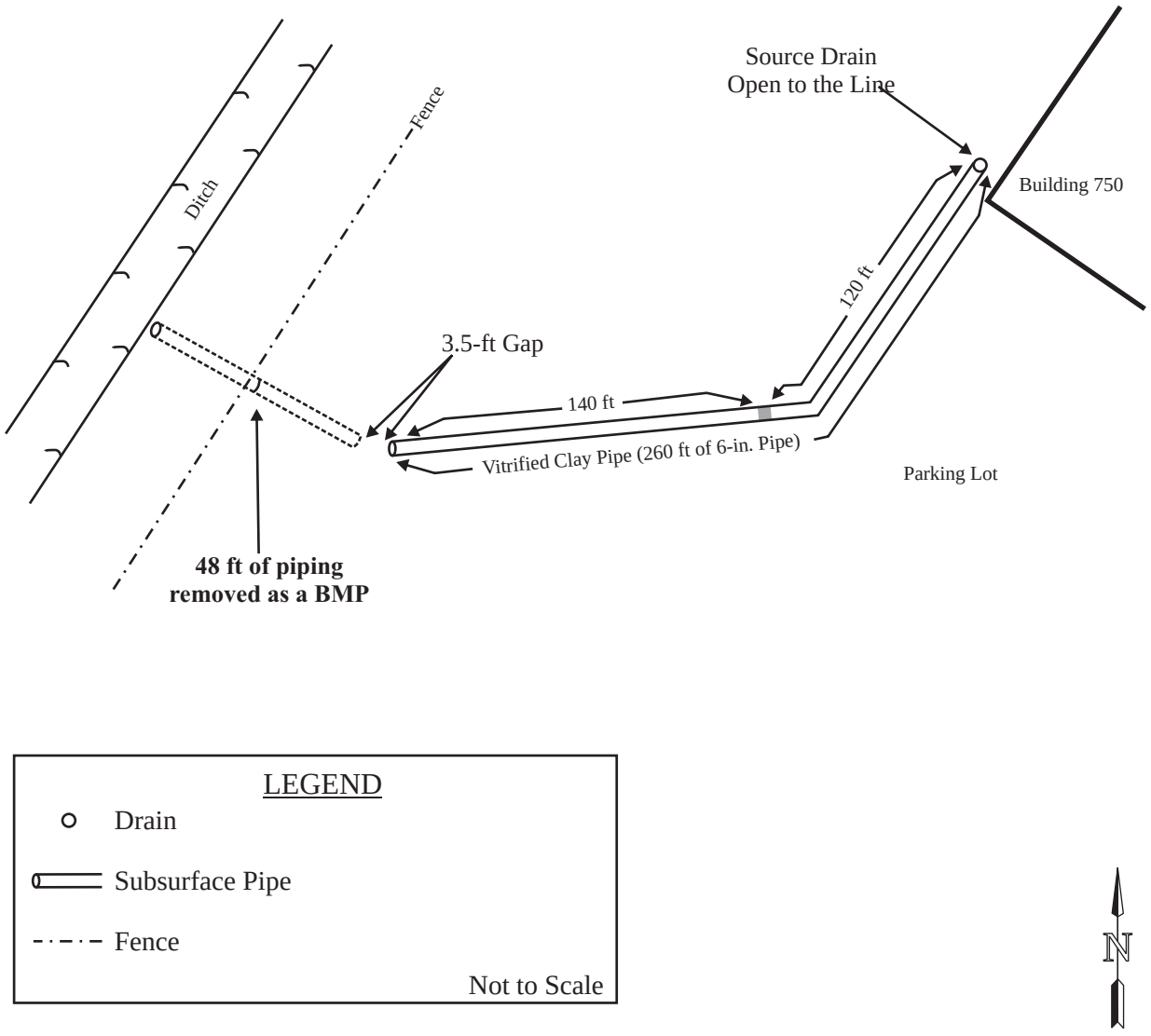

FIGURE 2
CAS 23-25-02, BLDG 750 OUTFALL

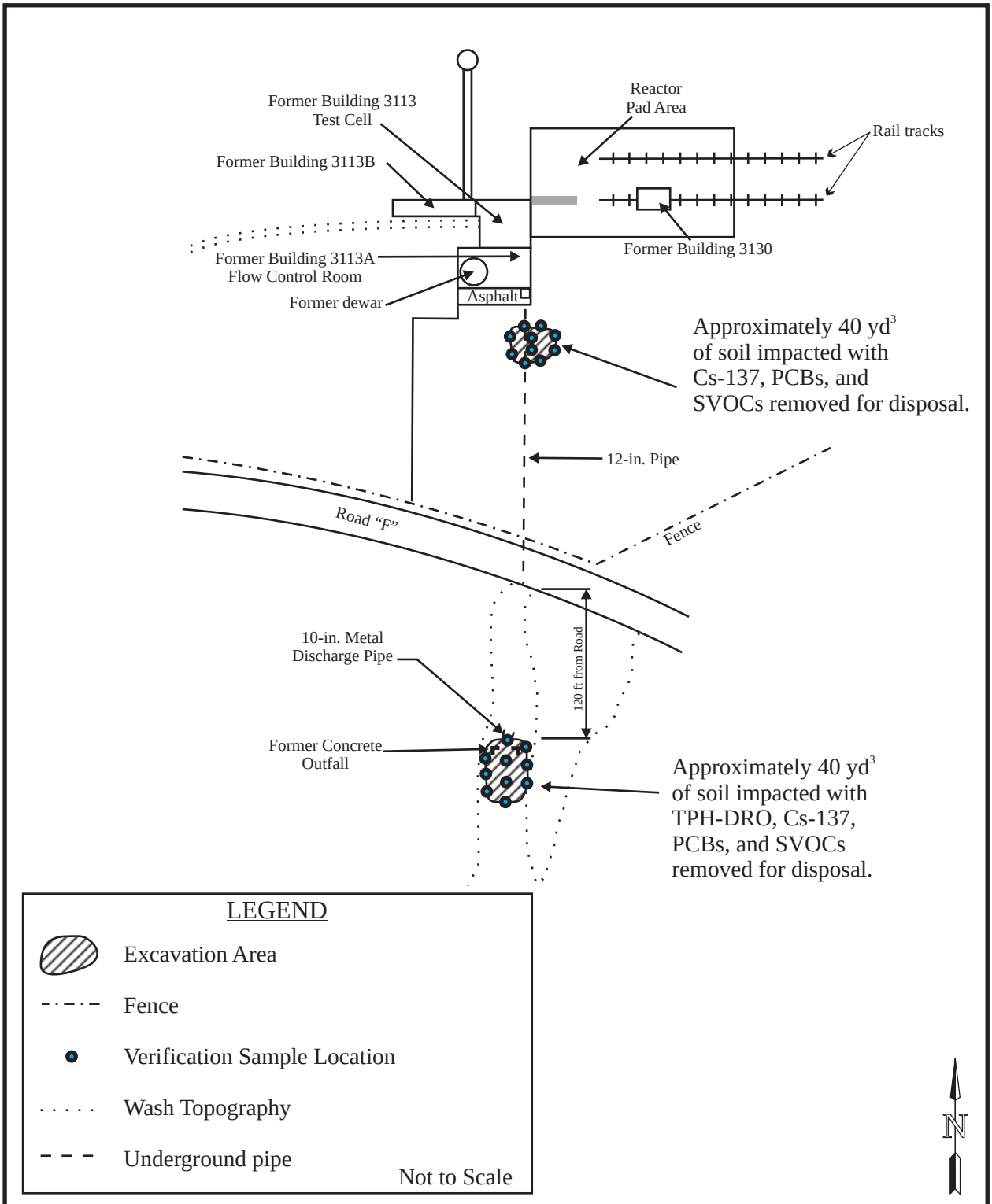

FIGURE 3
CAS 25-60-01, BLDG 3113A OUTFALL

Preliminary characterization of the northern site reported SVOCs, PCBs, and Cs-137 as COCs (NNSA/NSO, 2005). The northern portion of CAS 25-60-01 was clean closed by removing and disposing of approximately 40 cubic yards (yd^3) of SVOC-, PCB-, and Cs-137-impacted soil from beneath the pipe tie-in as sanitary waste at the NTS Area 9 U-10c Sanitary Landfill, and sealing all remaining open pipes. Verification samples were collected from the base and sidewalls of the excavation, and after the receipt of analytical results confirming that cleanup criteria had been met, the excavation was backfilled with native material from an approved borrow source and graded to the approximate surrounding topographic contours. The waste stream for this site is not classified as low-level waste (LLW), hazardous waste (HW), or *Toxic Substances Control Act* (TSCA) waste due to the fact that though Cs-137, SVOCs, and PCBs were COCs, the highest reported concentrations of Cs-137, SVOC, and PCB contamination were below the waste acceptance criteria (WAC) for the NTS Area 9 U-10c Sanitary Landfill.

Preliminary characterization of the southern site reported SVOCs, TPH-DRO, PCBs, and Cs-137 as COCs (NNSA/NSO, 2005). The southern portion of the site was clean closed by removing and disposing of approximately 40 yd^3 of SVOC-, TPH-DRO-, PCB-, and Cs-137-impacted soil and concrete from the pipe outfall location as LLW at the NTS Area 5 Radioactive Waste Management Complex (RWMC), and grouting the remaining outfall piping. Verification samples were collected from the base and sidewalls of the excavation, and sample results confirmed the removal of Cs-137 but indicated remnant TPH-DRO contamination within a localized area. As a result, an additional 2 yd^3 were removed and disposed of as hydrocarbon waste at the NTS Area 6 Hydrocarbon Landfill. Additional verification samples were obtained, and after the receipt of analytical results confirming that cleanup criteria had been met, the excavation was backfilled with native material from an approved borrow source and graded to the approximate surrounding topographic contours. The highest reported concentrations of SVOC and PCB contamination were below the WAC for the NTS Area 5 RWMC, and the waste stream was therefore considered LLW. The hydrocarbon waste stream for this site is not classified as LLW, HW, mixed waste (MW), or TSCA waste due to the fact that laboratory analytical results reported that no other COCs were present.

2.1.3 CAS 25-60-02, Bldg 3901 Outfall

Figure 4 shows the site plan for CAS 25-60-02, which is located adjacent to the locomotive maintenance building at the Engine Maintenance, Assembly, and Disassembly (E-MAD) Facility in Area 25. The CAS consisted of releases from the Building 3901 drains to outfall piping that discharged to the ground surface adjacent to the railroad tracks to the west.

Results of the site characterization reported TPH-DRO to be the only COC. The site was clean closed by removing and disposing of approximately 7 yd^3 of TPH-DRO-impacted concrete from the base of the pipe outfall as hydrocarbon waste at the NTS Area 6 Hydrocarbon Landfill, performing field screening, collecting verification samples from the base and sidewalls of the excavation, backfilling the excavation with native material from an approved borrow source after the receipt of analytical results confirming that cleanup criteria had been met, sealing remaining outfall piping with grout, and grading the site to the approximate surrounding topographic contours.

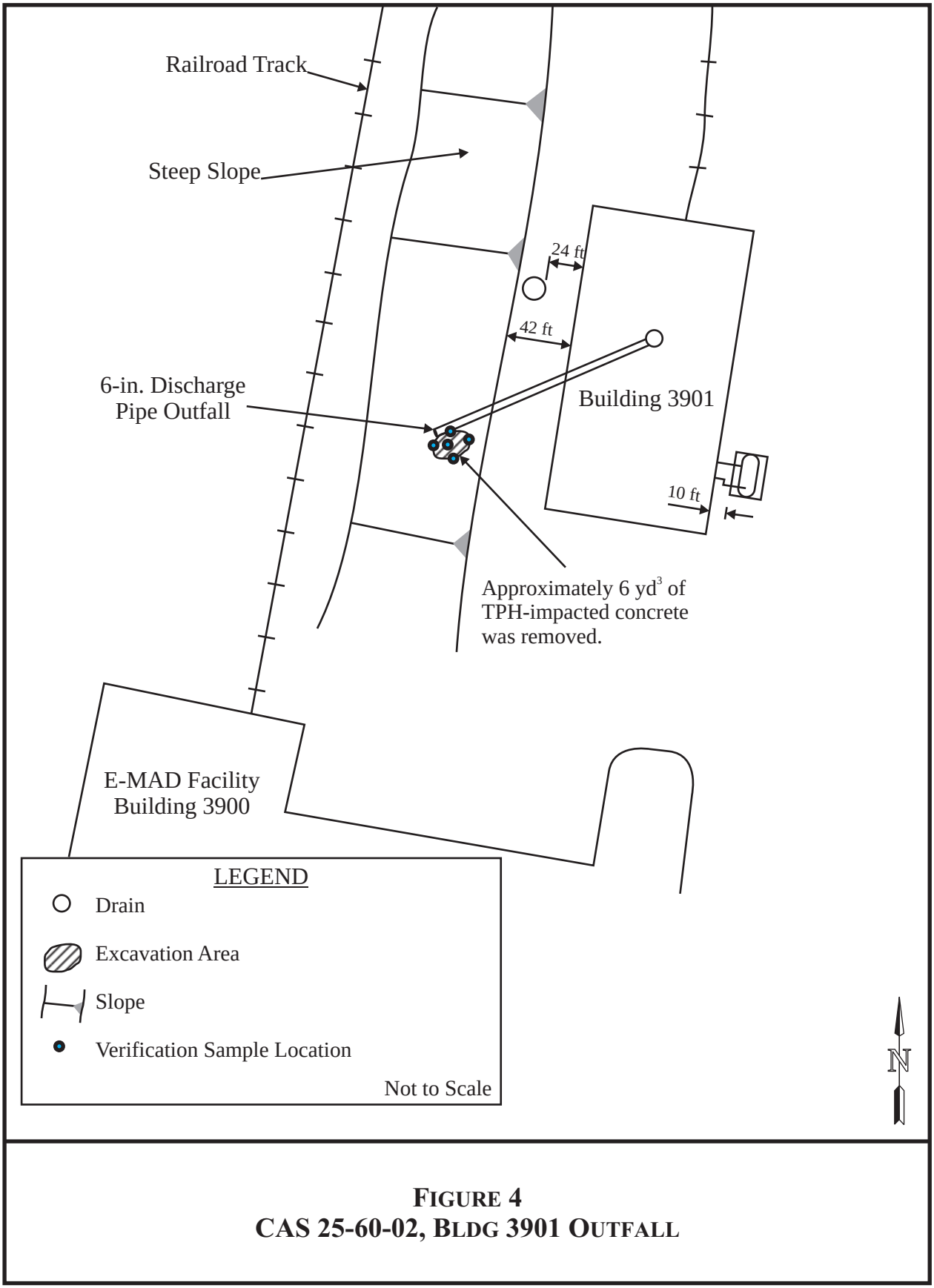

FIGURE 4
CAS 25-60-02, BLDG 3901 OUTFALL

2.1.4 CAS 25-62-01, Bldg 3124 Contaminated Soil

Figure 5 shows the site plan for CAS 25-62-01, which is located immediately north of the Treatability Test Facility (TTF), Building 3124, at the TCA Facility. The site consisted of contaminated surface soil from releases associated with operations at the TTF.

Preliminary site characterization reported Cs-137 contamination in the soil to the north of the TTF above action levels. CAS 25-62-01 was clean closed by removing and disposing of approximately 22 yd^3 of Cs-137-contaminated soil as sanitary waste at the NTS Area 9 U-10c Sanitary Landfill, collecting verification samples from the base and sidewalls of the excavation, backfilling the excavation with native material from an approved borrow source after the receipt of analytical results confirmed that cleanup criteria had been met, and grading the site to the approximate surrounding topographic contours. The waste stream for this site is not classified as LLW because the highest reported concentration of Cs-137 contamination was below the WAC for the NTS Area 9 U-10c Sanitary Landfill.

Gamma spectroscopy field screening was performed at CAS 25-62-01 with an in-situ object counting system as a waste minimization technique, which verified COC cleanup prior to the estimated excavated volume of 33 yd^3 in the NDEP-approved CAP (NNSA/NSO, 2006).

2.1.5 CAS 26-60-01, Bldg 2105 Outfall and Decon Pad

Figure 6 shows the site plan for CAS 26-60-01, which is located near the former location of the Building 2105 Check Station in Area 26. This CAS consisted of releases associated with a concrete pad, decontamination pad, and adjacent ditch located on the north side of the site.

Results of site characterization reported Cs-137 and TPH-DRO as the COCs at CAS 26-60-01. This CAS was clean closed by removing and disposing of approximately 7 yd^3 of TPH-DRO- and Cs-137-contaminated soil from directly below the concrete outfall as hydrocarbon waste at the NTS Area 6 Hydrocarbon Landfill, performing field screening and collecting verification samples from the base and sidewalls of the excavation, backfilling the excavation with native material from an approved borrow source after analytical results confirmed that cleanup criteria had been met, and grading the site to the approximate surrounding topographic contours. The waste stream for this site is not classified as LLW because the highest reported concentration of Cs-137 contamination was below the WAC for the NTS Area 6 Hydrocarbon Landfill.

2.2 DEVIATIONS FROM CORRECTIVE ACTION PLAN AS APPROVED

Due to the fact that the highest reported concentration of Cs-137 contamination at CAS 26-60-01 was below the action level of 12.2 picocuries per gram (pCi/g), Cs-137 was not considered a COC at CAS 26-60-01.

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

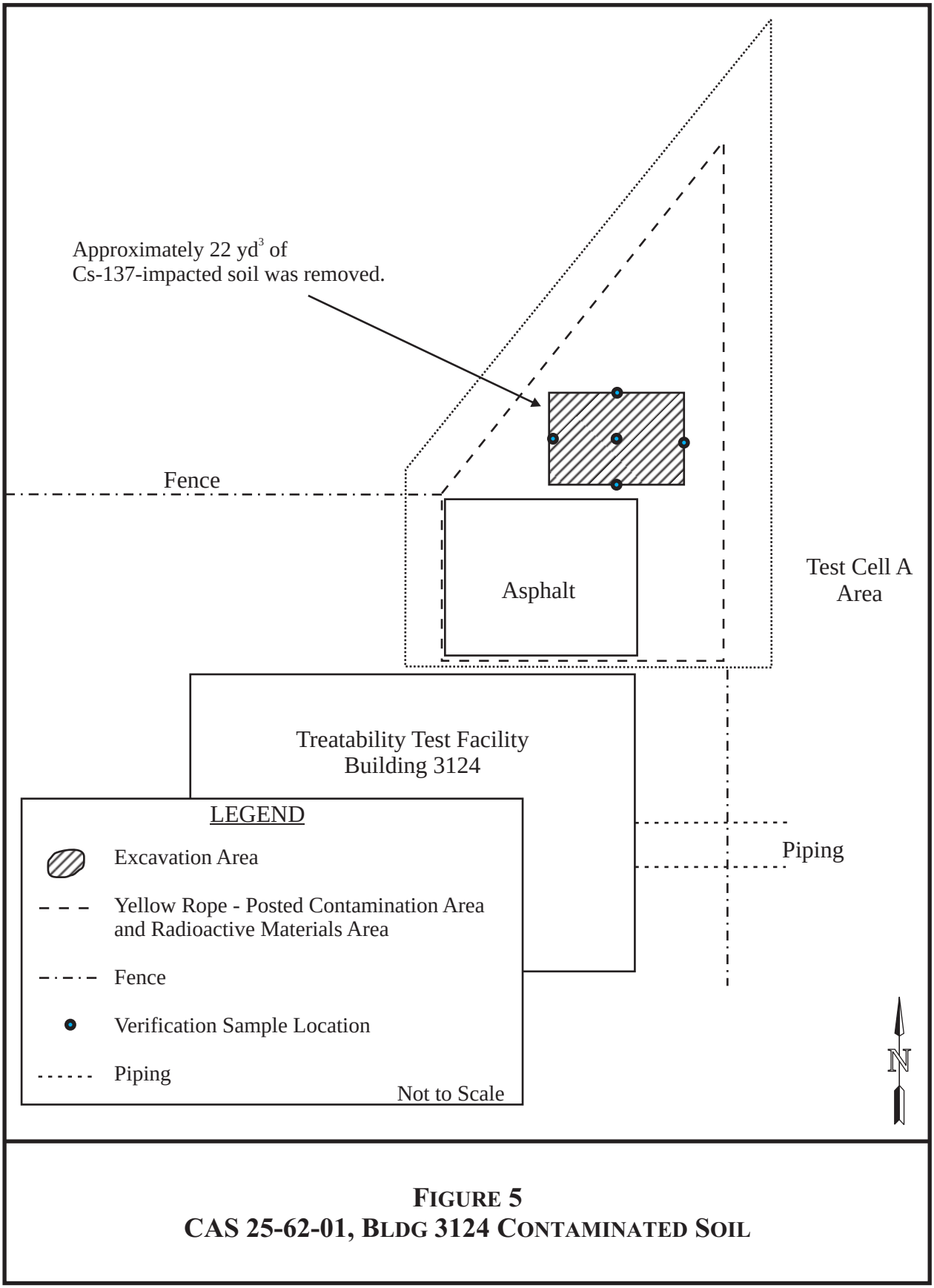

FIGURE 5
CAS 25-62-01, BLDG 3124 CONTAMINATED SOIL

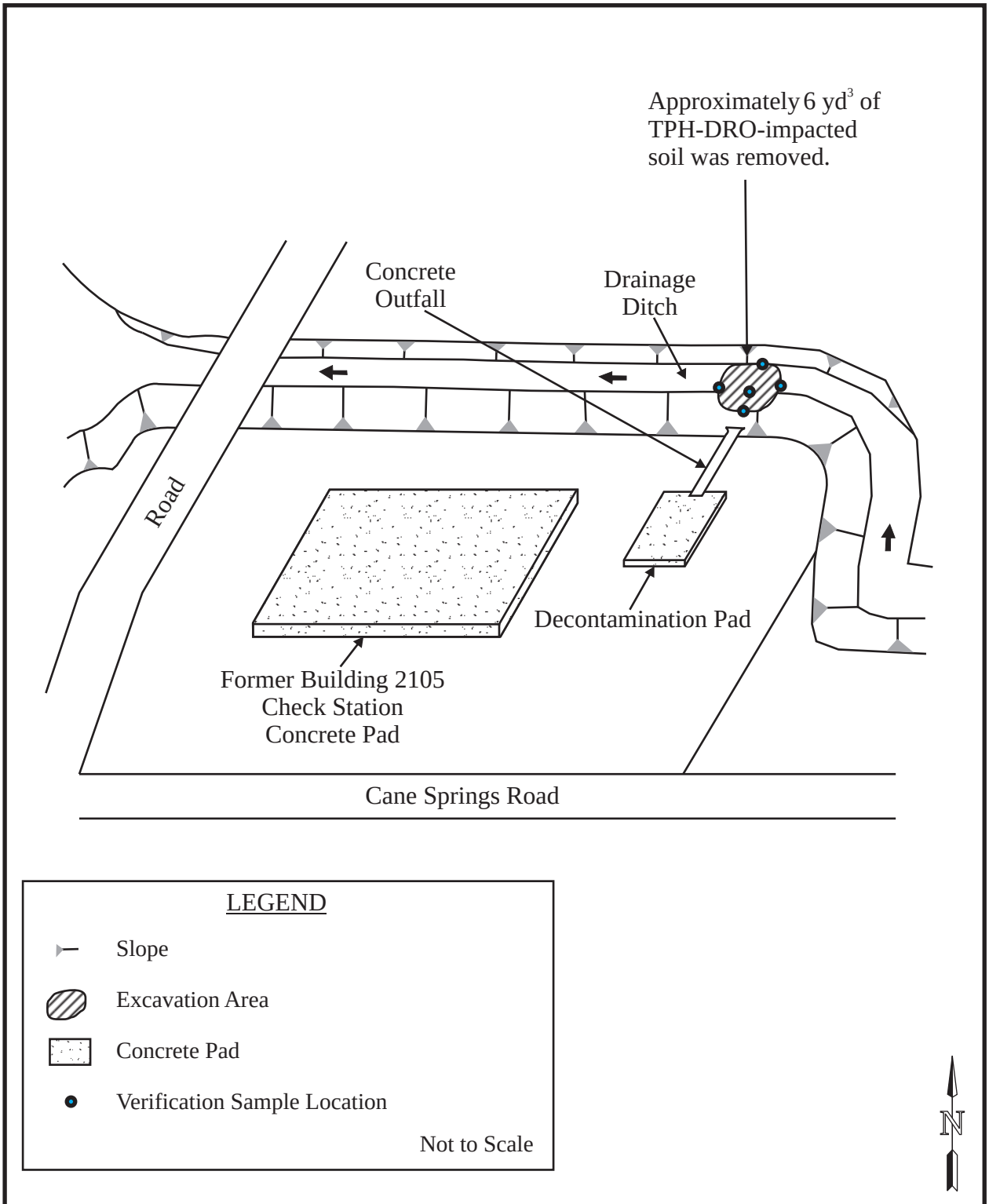

FIGURE 6
CAS 26-60-01, BLDG 2105 OUTFALL AND DECON PAD

2.3 CORRECTIVE ACTION SCHEDULE AS COMPLETED

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

TABLE 1. CAU 300 CLOSURE SCHEDULE

SITE	DATE CORRECTIVE ACTIONS COMPLETED*
CAS 23-25-02	April 11, 2007
CAS 25-60-01	July 17, 2007
CAS 25-60-02	July 17, 2007
CAS 25-62-01	July 18, 2007
CAS 26-60-01	July 16, 2007

Notes: * Corrective action activities do not include post-closure photo documentation site visits. Photo documentation was completed on July 19, 2007.

2.4 SITE PLAN / SURVEY PLAT

No engineering "as-built" drawings were required for closure activities conducted at CAU 300.

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3.0 WASTE DISPOSITION

Waste generated during CAU 300 closure activities included hydrocarbon waste, LLW, and sanitary waste/construction debris. All waste was managed according to federal and state regulations, DOE orders, and NSTec procedures. Some waste required sampling to verify the appropriate waste disposition. All waste was containerized, as needed, for proper disposal in an approved landfill. Table 2 summarizes disposition of each waste stream. Waste disposition documentation is included in Appendix C of this report.

TABLE 2. DISPOSITION OF WASTE

CAS	MATERIAL	VOLUME ESTIMATE	DISPOSITION
23-25-02	Soil and sanitary debris	4 yd^3	NTS Area 9 U-10c Sanitary Landfill
25-60-01 (Northern Portion)	Soil	40 yd^3	NTS Area 9 U-10c Sanitary Landfill
25-60-01 (Southern Portion)	Soil and concrete	40 yd^3	NTS Area 5 RWMC
		2 yd^3	NTS Area 6 Hydrocarbon Landfill
25-60-02	Soil	7 yd^3	NTS Area 6 Hydrocarbon Landfill
25-62-01	Soil	22 yd^3	NTS Area 9 U-10c Sanitary Landfill
26-60-01	Soil	6 yd^3	NTS Area 6 Hydrocarbon Landfill

3.1 WASTE MINIMIZATION

Industry standard waste minimization practices were applied throughout the course of field activities. These practices included using laboratory analysis as well as hydrocarbon and gamma spectroscopy field screening to determine the extent of excavation required to meet the respective cleanup criteria for applicable COCs.

3.2 HYDROCARBON WASTE

Approximately 15 yd^3 of TPH-impacted soil were excavated from CAU 300 CASs 25-60-01, 25-60-02, and CAS 26-60-01 and were disposed of at the NTS Area 6 Hydrocarbon Landfill. Waste disposal documentation is included in Appendix C of this report.

3.3 LOW-LEVEL WASTE

Approximately 40 yd^3 of LLW in the form of Cs-137-impacted soil were excavated from the southern portion of CAS 25-60-01 and disposed of at the NTS Area 5 RWMC. Waste disposal documentation is included in Appendix C of this report.

3.4 SANITARY WASTE

Approximately 66 yd^3 of sanitary waste, such as sanitary trash, personal protective equipment, soil, and concrete construction debris, were disposed of at the NTS Area 9 U-10c Sanitary Landfill. Waste disposal documentation is included in Appendix C of this report.

4.0 CLOSURE VERIFICATION RESULTS

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

At CAS 25-60-01, ten verification samples and one blind duplicate were collected from the bottom and base of the sidewalls of each of the northern and southern site excavations (see Figure 3). Samples were collected from the northern excavation on April 26, 2007, and were analyzed for isotopic Cs, PCBs, and SVOCs. Samples were collected from the southern excavation on April 12, 2007, and were analyzed for isotopic Cs, TPH-DRO, PCBs, and SVOCs. The first sampling event at the southern portion of the site indicated elevated levels of TPH-DRO, and additional soil was excavated. Additional verification samples were collected from the expanded excavation on July 7, 2007 and were analyzed for TPH-DRO. Results were below action levels, verifying that the CAS was clean closed.

At CAS 25-60-02, five verification samples and one blind duplicate were collected from the sides and base of the excavation (see Figure 4). Samples were collected from the excavation on April 3, 2007, and were analyzed for TPH-DRO. Results were below action levels, verifying that the CAS was clean closed.

At CAS 25-62-01, five verification samples and one blind duplicate were collected from the sides and base of the excavation (see Figure 5). Samples were collected from the excavation on April 26, 2007, and were analyzed for isotopic Cs. Results were below action levels, verifying that the CAS was clean closed.

At CAS 26-60-01, five verification samples and one blind duplicate were collected from the sides and base of the excavation (see Figure 6). Samples were collected from the excavation on April 23, 2007, and were analyzed for TPH-DRO. Results were below action levels, verifying that the CAS was clean closed.

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

Critera for verification sampling and backfilling were provided in the approved CAU 300 CAP (NNSA/NSO, 2005).

TABLE 3. VERIFICATION SAMPLE ANALYTICAL RESULTS

CAS	SAMPLE ID	DATE COLLECTED	RESULTS			
			Cs-137 (pCi/g)	TPH-DRO (mg/kg)	PCBs (mg/kg)	SVOCs (mg/L)
			AL = 12.2	AL = 100	AL = 1.0	AL = (varies)
25-60-01 (Northern Portion)	256001-V1-N	04/26/2007	0.8	--	ND	ND
	256001-V2-N	04/26/2007	ND	--	ND	ND
	256001-V3-N	04/26/2007	ND	--	ND	ND
	256001-V4-N	04/26/2007	ND	--	ND	ND
	256001-V5-N	04/26/2007	ND	--	0.05	ND
	256001-V6-N	04/26/2007	ND	--	ND	ND
	256001-V7-N	04/26/2007	ND	--	ND	ND
	256001-V8-N	04/26/2007	0.7	--	ND	ND
	256001-V9-N	04/26/2007	ND	--	ND	ND
	256001-V10-N	04/26/2007	2.4	--	ND	ND
	256001-V11-N	04/26/2007	0.1	--	ND	ND
25-60-01 (Southern Portion)	256001-VS1	04/12/2007	ND	ND	0.2	ND
	256001-VS2	04/12/2007	ND	ND	0.03	ND
	256001-VS3	04/12/2007	ND	ND	0.05	ND
	256001-VS4	04/12/2007	ND	ND	0.1	ND
	256001-VS5	04/12/2007	ND	ND	ND	ND
	256001-VS6	04/12/2007	ND	12	ND	ND
	256001-VS7	04/12/2007	ND	19	0.05	ND
	256001-VS8	04/12/2007	ND	45	0.04	ND
	256001-VS9	04/12/2007	ND	ND	ND	ND
	256001-VS10	04/12/2007	ND	ND	ND	ND
	256001-VS11	04/12/2007	ND	ND	0.09	ND
25-60-02	256002-V1	04/03/2007	--	ND	--	--
	256002-V2	04/03/2007	--	ND	--	--
	256002-V3	04/03/2007	--	ND	--	--
	256002-V4	04/03/2007	--	ND	--	--
	256002-V5	04/03/2007	--	ND	--	--
	256002-V6	04/03/2007	--	ND	--	--
25-62-01	256201-V1	04/26/2007	ND	--	--	--
	256201-V2	04/26/2007	ND	--	--	--
	256201-V3	04/26/2007	0.2	--	--	--
	256201-V4	04/26/2007	4.5	--	--	--
	256201-V5	04/26/2007	ND	--	--	--
	256201-V6	04/26/2007	0.2	--	--	--
26-60-01	266001-V1	04/23/2007	--	ND	--	--
	266001-V2	04/23/2007	--	ND	--	--
	266001-V3	04/23/2007	--	ND	--	--
	266001-V4	04/23/2007	--	ND	--	--
	266001-V5	04/23/2007	--	ND	--	--
	266001-V6	04/23/2007	--	ND	--	--

Notes:
-- = not analyzed
AL = action level
mg/kg = milligram(s) per kilogram
mg/L = milligram(s) per liter
ND = not detected above analytical limits
pCi/g = picocurie(s) per gram

4.1 DATA QUALITY ASSESSMENT

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

4.1.1 Quality Assurance/Quality Control Procedures

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

4.1.2 Data Validation

Data validation was performed according to the Industrial Sites QAPP (NNSA/NV, 2002). All sample data were internally validated using Tier I criteria. No anomalies were discovered in the data that would discredit any of the waste classification or verification samples collected and analyzed for CAU 300. Summary laboratory QA/QC data for verification samples are presented in Appendix B of this report. The complete data set and verification reports are available on request. These data are maintained in NSTec project files located in the Environmental Restoration Project offices at the NTS.

4.1.3 Conceptual Site Model

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

4.2 USE RESTRICTIONS

The preferred closure alternatives for all CASs requiring remediation activities were no further action or clean closure, and as a result, no use restrictions were required or implemented during the closure of CAU 300.

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5.0 CONCLUSIONS AND RECOMMENDATIONS

CAU 300 was closed according to the FFACO and the NDEP-approved CAP for CAU 300 (NNSA/NSO, 2006). Closure of CAU 300 was accomplished by completing the following tasks:

- Removing 48 ft of TPH-DRO-impacted piping at CAS 23-25-02 as a BMP for disposal as hydrocarbon waste
- Removing approximately 40 yd^3 of PCB-, SVOC-and Cs-137-impacted soil at the northern portion of CAS 25-60-01 for disposal as sanitary waste
- Removing approximately 40 yd^3 of TPH-DRO-, PCB-, SVOC-and Cs-137-impacted soil at the southern portion of CAS 25-60-01 for disposal as LLW and approximately 2 yd^3 of TPH-DRO-impacted soil for disposal as hydrocarbon waste
- Removing approximately 7 yd^3 of TPH-DRO-impacted soil at 25-60-02 for disposal as hydrocarbon waste
- Removing approximately 22 yd^3 of Cs-137-impacted soil at CAS 25-62-01 for disposal as sanitary waste
- Removing approximately 6 yd^3 of TPH-DRO-impacted soil at 26-60-01 for disposal as hydrocarbon waste
- Collecting verification samples to verify that clean-up criteria were met
- Backfilling and grading excavations to surrounding topographic contours

5.1 POST-CLOSURE MONITORING REQUIREMENTS

5.1.1 Inspections

Since no use restrictions were implemented, no post-closure inspections are required for the CAU 300 CASs.

5.2 NOTICE OF COMPLETION

Based upon the completion of site activities, it is requested that a "Notice of Completion" be provided by NDEP for CAU 300. Upon closure approval, CAU 300 will be moved from Appendix III to Appendix IV, "Closed Corrective Action Units," of the FFACO.

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6.0 REFERENCES

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

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

National Security Technologies. LLC, 2007a. *Field Management Plan for Corrective Action Unit 300: Surface Release Areas, Nevada Test Site, Nevada.* Las Vegas, NV.

National Security Technologies. LLC, 2007b. *Site-Specific Health and Safety Plan for Corrective Action Unit 300: Surface Release Areas, Nevada Test Site, Nevada.* Las Vegas, NV.

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

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

NSTec, see National Security Technologies, LLC.

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

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2004. *Corrective Action Investigation Plan for Corrective Action Unit 300: Surface Release Areas, Nevada Test Site, Nevada,* Rev. 0. DOE/NV--980. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2005. *Corrective Action Decision Document for Corrective Action Unit 300: Surface Release Areas, Nevada Test Site, Nevada,* Rev. 0. DOE/NV--1039. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2006. *Corrective Action Plan for Corrective Action Unit 300: Surface Release Areas, Nevada Test Site, Nevada,* Rev. 0. DOE/NV--1137. Las Vegas, NV.

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APPENDIX A

DATA QUALITY OBJECTIVES*

* As previously published in the approved Corrective Action Investigation Plan for Corrective Action Unit 300: Surface Release Areas, Nevada Test Site, Nevada, Rev. 0. DOE/NV--980. Las Vegas, NV. All cross-references and page numbers in this appendix refer to the original document.

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Appendix A.1

Data Quality Objectives for CAU 300, Surface Release Areas

A.1 Data Quality Objectives Process for CAU 300

The DQO process described in this appendix is a seven-step strategic planning approach based on the scientific method that is used to plan data collection activities at CAU 300, Surface Release Areas. The DQOs are designed to ensure that the data collected will provide sufficient and reliable information to identify, evaluate, and technically defend recommended corrective actions (i.e., no further action, closure in place, or clean closure). Information about the nature and extent of contamination at the CASs in CAU 300 is insufficient to evaluate and select preferred corrective actions at this time; therefore, a CAI will be required.

The CAU 300 CAI will be based on the DQOs presented in this appendix as developed by representatives of the NDEP and the NNSA/NSO. The seven steps of the DQO process developed for CAU 300 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, 1998). 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

The seven CASs in CAU 300 are located in Areas 23, 25, and 26 of the NTS, as shown in Figure A.1-1. The CASs include:

- 23-21-03, Building 750 Surface Discharge
- 23-25-02, Building 750 Outfall
- 23-25-03, Building 751 Outfall
- 25-60-01, Building 3113A Outfall
- 25-60-02, Building 3901 Outfall
- 25-62-01, Building 3124 Contaminated Soil
- 26-60-01, Building 2105 Outfall and Decon Pad

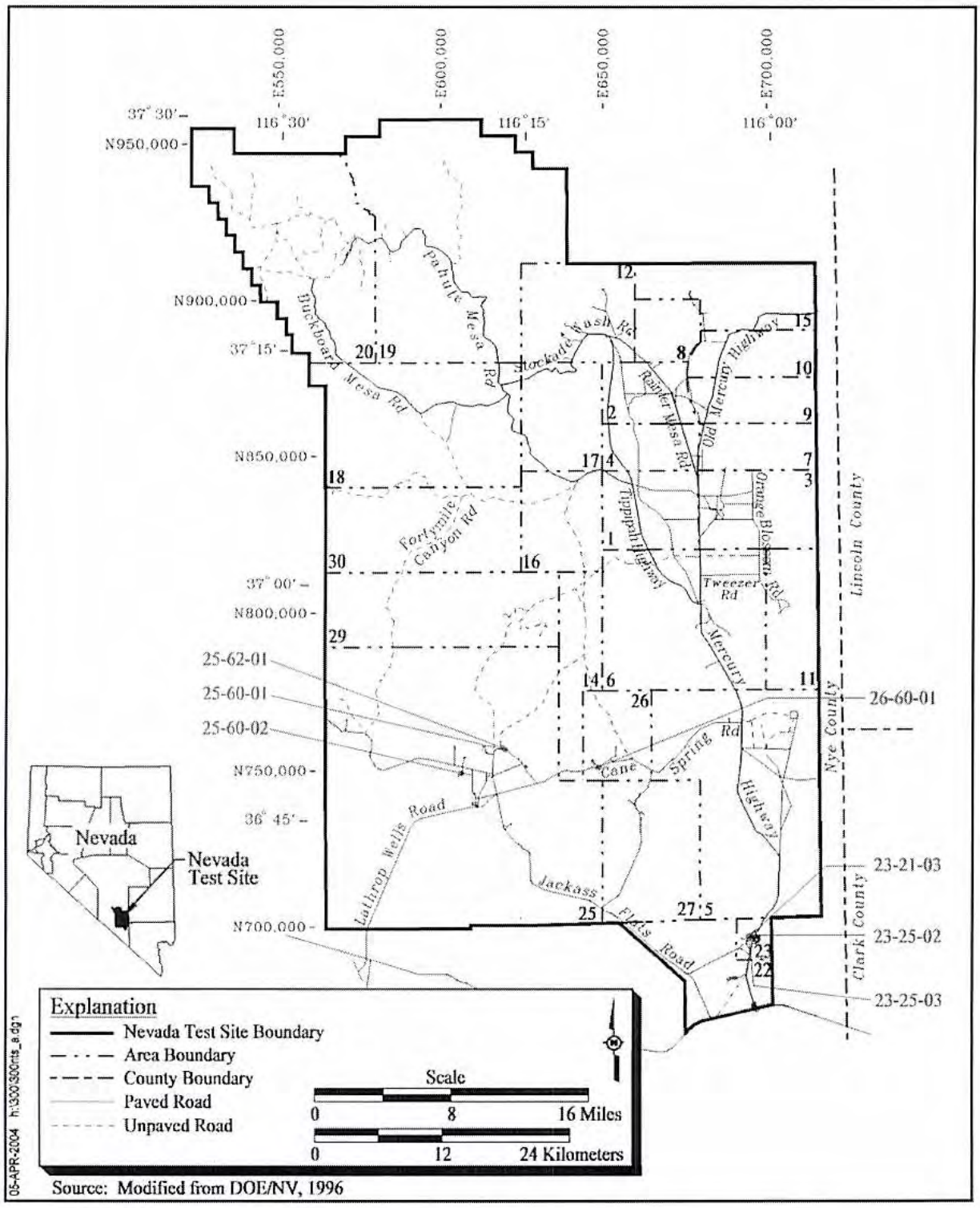

Figure A.1-1
Nevada Test Site Map with CAU 300 CAS Locations

The following sections (Section A.1.1.1 through Section A.1.1.7) present CAS-specific information on the physical setting, operational history, sources of potential contamination, previous investigation results, and COPCs.

The suspected COPCs are described in the following CAS descriptions and listed in Table A.1-1. 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 suspected contaminants are considered the class of contaminants for a given analytical method. 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 a broader range of COPCs that are not considered critical assist in reducing the uncertainty concerning the history and potential release from the CAS and allow for an accurate evaluation of potential contamination.

A.1.1.1 CAS 23-21-03, Bldg. 750 Surface Discharge

Corrective Action Site 23-21-03, Bldg. 750 Surface Discharge, consists of a shallow drainage ditch affected with intermittent surface water run-off from the Bldg. 750 parking lot as well as the affected soil in and around the discharge point into the MBD. The CAS does not include the dirt and asphalt parking lot of Bldg. 750.

Physical Setting and Operational History - CAS 23-21-03 is located in Area 23 of the NTS, approximately 0.2 mi north of the Mercury Bypass and Jackass Flats Road intersection. The CAS is one of three identified discharge sites from the Area 23 Fleet Operations Facility. This site was originally identified in 1988 during a DOE report review (DOE, 1988a). A shallow drainage ditch is present at the western edge of the Bldg. 750 parking lot. The asphalt parking lot is sloped such that it causes surface run-off to flow from northeast to southwest through the shallow drainage ditch to the Fleet Operations Yard fenceline. At this point, the ditch narrows into a 4-ft wide channel where the surface run-off discharges into the MBD. Currently, small amounts of soil staining are visible within the shallow drainage and at the discharge point. Historically, dark oily stains were documented at the MBD discharge point as well (DOE, 1988a and 1988b).

The MBD runs north to south, adjacent to the Mercury Bypass and has sparse vegetation with some sanitary trash present. It appears that concrete is present at various locations within the MBD. The

Table A.1-1
CAU 300 Contaminants of Potential Concern

Corrective Action Site	23-21-03 Bldg. 750 Surface Discharge	23-25-02 Bldg. 750 Outfall	23-25-03 Bldg. 751 Outfall	25-60-01 Bldg. 3113A Outfall	25-60-02 Bldg. 3901 Outfall	25-62-01 Bldg. 3124 Contaminated Soil	26-60-01 Bldg. 2105 Outfall and Decon Pad
Chemical COPCs	**Critical Analyte(s)**						
Petroleum Hydrocarbons Engine Oil Waste Oil Diesel Fuel	TPH-DRO TPH-GRO	TPH-DRO TPH-GRO	TPH-DRO TPH-GRO	TPH-DRO	TPH-DRO TPH-GRO	--	TPH-DRO TPH-GRO
PCBs	Aroclor-1260	Aroclor-1260	Aroclor-1260	Aroclor-1260	--	--	--
VOCs	Solvents Degreasers 1,1,1-trichlorethane Methylene chloride	Solvents Degreasers 1,1,1-trichlorethane Methylene chloride	Solvents Degreasers 1,1,1-trichlorethane Methylene chloride	--	--	--	Solvents Degreasers
SVOCs	Ethylene glycol 2-butonone Bis(2-ethylhexyl)phthalate	Ethylene glycol 2-butonone Bis(2-ethylhexyl)phthalate	Ethylene glycol 2-butonone Bis(2-ethylhexyl)phthalate	--	--	--	--
Polyaromatic Hydrocarbons (PAHs)	Benzo(a)anthracene	Benzo(a)anthracene	Benzo(a)anthracene	--	--	--	--
Other	--	--	--	Asbestos	--	--	--
RCRA Metals plus beryllium	Lead	Lead	Lead	Lead	--	Mercury	--
Radiological COPCs	**Critical Analyte(s)**						
Gamma Spectroscopy[a]	--	Cs-137	Cs-137	Cs-137 Co-60 Nb-94 Eu-152	Am-241 Radium Thorium	Am-241 Cs-137	Cs-137 Am-241
Other Radioisotopes	--	--	--	Sr-90	--	Sr-90	Sr-90
Isotopic Uranium	--	--	--	U-234 U-235 U-238	U-234 U-235 U-238	U-234 U-235 U-238	U-234 U-235 U-238
Isotopic Plutonium	--	--	--	Pu-238 Pu-239/240	Pu-238 Pu-239/240	Pu-238 Pu-239/240	Pu-238 Pu-239/240

[a] Results of gamma spectroscopy will be used to determine if further radiochemical analyses are necessary
-- Critical COPCs have not been identified for this class of contaminants

ditch bottom is mostly sandy with a hard subsurface of cemented sands and gravel and/or concrete. There is no obvious staining along the ditch bottom downgradient of the discharge area. The boundaries of this CAS may intersect downgradient with the boundaries of CASs 23-25-02 and 23-25-03. Figure A.1-2 is a site sketch of the potential intersecting CAS boundaries.

Operationally, this CAS is associated with the active parking lot adjacent to Bldg. 750. The topography of the parking lot and surrounding soil is sloped to channel run-off into the shallow surface drainage to the MBD. The parking lot has been used by Fleet Maintenance Facility employees for over 30 years and is currently still in use. Building 750 is the Motor/Vehicle Maintenance building where operations include vehicle maintenance and steam cleaning since the mid-1960s. Although Bldg. 751 is part of the Fleet Maintenance Facility, it is located downgradient from the surface drainage and not expected to contribute run-off to CAS 23-21-03.

Sources of Potential Contamination - Releases of vehicle fluids and/or spills of various materials related to vehicle maintenance and cleaning onto the Bldg. 750 parking lot and surrounding area may have migrated into the surface drainage and MBD via surface run-off. Effluent associated with Bldg. 750 operations may have been washed down the asphalt parking lot to the surface drainage. Direct releases (i.e., dumping used oil) may have occurred at the MBD discharge point since significant soil staining has been observed and documented both historically (DOE, 1988) and during a recent site visit (SNJV, 2004).

An off-normal occurrence report was filed for historic spill areas in the general area of the Motor Pool Compound Area of the Fleet Operations Facility (DOE/NV, 1991a). The spills occurred in the previous 22 years prior to the report and consisted of petroleum products. The area was excavated and approximately 360 cubic yards (yd^3) of contaminated soil was removed. The excavation was located southwest of Bldg. 751 and is not expected to have impacted this CAS. However, the report states that in the past it was common practice to leave petroleum products in the soil as a dust control measure (DOE/NV, 1991a) so other historic and recent releases may still be present within the surface soils surrounding the drainage.

Previous Investigation Results - No previous investigation results have been identified specifically for this CAS.

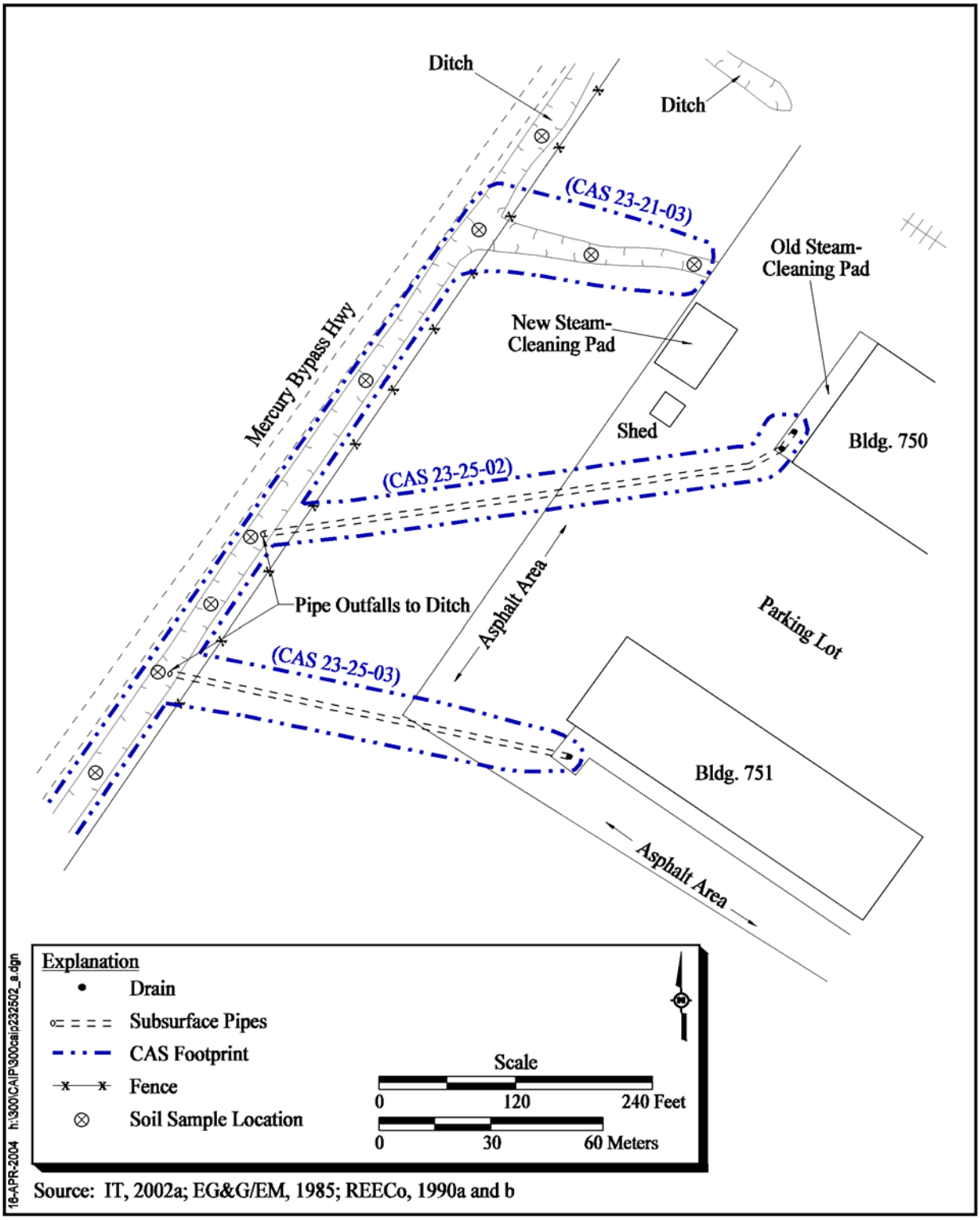

Figure A.1-2
Site Sketch of CAS 23-21-01, 23-25-02, and 23-25-03

Contaminants of Potential Concern - The COPCs identified for CAS 23-21-03 are shown in Table A.1-1. The COPCs identified for this CAS include diesel, engine and gear oils, grease, coolant, diesel, gasoline, solvents, and lead based on the types of fluid releases expected from parked vehicles and vehicle maintenance operations. Based on process knowledge of the NTS, other classes of COPCs include PCBs, VOCs, SVOCs, RCRA metals, beryllium, and gamma-emitting radionuclides.

A.1.1.2 CAS 23-25-02, Bldg. 750 Outfall

Corrective Action Site 23-25-02, Bldg. 750 Outfall, consists of an outfall that discharges into the MBD, the associated subsurface piping that originates within the steam-cleaning pad at Bldg. 750, and affected surface/near-surface soils surrounding and downgradient of the outfall.

Physical Setting and Operational History - CAS 23-25-02 is located in Area 23 of the NTS, approximately 0.3 mi north of the Mercury Bypass and Jackass Flat Road intersection. The CAS is one of three identified discharge sites from the Area 23 Fleet Operations Facility. This site was originally identified in 1988 (DOE, 1988a). The CAS consists of a 6-in. diameter, metal drain pipe that originates from the Bldg. 750 steam-cleaning pad and extends approximately 350 ft to the MBD just outside the Vehicle Maintenance Yard fenceline. The drain pipe protrudes from the eastern sidewall of the MBD as an outfall and is approximately 2 to 3 ft above the ground surface. A butterfly valve is attached at the pipe outlet and appears to be in working condition.

The outfall is located between two other CASs (23-21-03 and 23-25-03) that have also released effluent to the MBD. Figure A.1-2 shows all three CASs in relation to each other and their respective locations within the MBD. The MBD is devoid of vegetation and shows evidence of erosion. The floor of the ditch is covered in either concrete or a thick caliche layer with a thin veneer of sands and gravels at various points along the length of the ditch. The sidewalls of the ditch vary in height from 2 to 5 ft above the ditch floor. Currently, no visible staining or odors are present and the ditch is relatively free of debris.

Building 750 is the Vehicle Maintenance Facility and has been in operation since 1963. The building, which services light and heavy vehicles, and the parking lot are currently active. The former steam-cleaning pad was attached to the western side of Bldg. 750 and was reportedly in service from 1965 to about 1992 (Davis, 1999; Radack, 2002). The pad was used to clean light- and heavy-duty vehicles,

engines, engine parts, drinking water cans, and cafeteria grease hoods. Estimates on the amount of effluent generated at the pad are as high as 2.6 million gallons of wastewater per year (Madsen, 2002). The steam-cleaning drain was sealed with cement in 1992 and eventually a closed loop system was installed in 1994 on a new steam-cleaning pad installed near the fenceline (REECo, 1995; Davis, 1998; Russell, 1999). An interviewee reported the valve was installed on the pipe on November 2, 1992 (Davis, 1998); additionally, it was reported that the discharge pipe with the valve was used after a discharge permit was issued (Russell, 1999) so its unclear if discharges were released into the ditch following the sealing of the pad.

Sources of Potential Contamination - The primary source of potential contamination is based on assumption that the steam-cleaning pad and Bldg. 750 were the only effluent sources to the outfall pipe. According to historical records, the drain pipe was sealed where it originates from the closed steam-cleaning pad (Davis, 1998 and 1999). Prior to sealing, the source of effluent to the outfall was the drain and outdoor sumps installed within the floor of the steam-cleaning pad. Wastewater discharges from cleaning vehicles and various equipment flowed directly into the pad drain. Discharges from cleaning the Bldg. 750 floors flowed into the outdoor sumps located on the steam-cleaning pad (Davis, 1999). The steam-cleaning pad and Bldg. 750 floors would potentially contribute degreasers, oils, coolants, hydrocarbons, and cleaning fluids and possibly solvents. Other potential sources would include migration of COPCs from the upgradient source at CAS 23-21-03 (i.e., surface run-off). Soil in direct contact with the pipe could be impacted if any breaches in the associated piping are identified.

There is one documented release of water containing grease/oil sludge and sediment to the soil while clearing a plugged effluent line at the steam-cleaning pad in October 1992 (DOE/NV, 1993; REECo, 1994). The 1993 DOE occurrence report states the impact to the environment was approximately 25 gallons of oil-contaminated sludge were released down the drainage ditch. Field observations indicate an excess of 10 cubic ft (ft^3) of soil was impacted and discoloration of the soil from the release was approximately 100-ft long by 1- to 2-ft wide. Samples were collected but results have not been identified; additionally, it is unclear from the final report whether the spill was remediated.

An off-normal occurrence report was filed for historic spill areas in the general area of the Motor Pool Compound Area of the Fleet Operations Facility. The spills occurred in the 22 years prior to the report and consisted of petroleum products. The area was excavated and approximately 360 yd^3 of contaminated soil were removed. The excavation was located southwest of Bldg. 751 (Woods, 2004) and is not expected to have impacted this CAS. However, the report states that in the past it was common practice to leave petroleum products in the soil as a dust control measure (DOE/NV, 1991a) so other historic and recent releases may still be present within the surface and/or shallow subsurface soils near the CAS elements (i.e., piping). The potential also exists for hydrocarbons from these historic spills to have contributed surface run-off to the MBD near or downgradient of CAS 23-25-03.

Previous Investigation Results - A July 1991 memo states that water and sediment samples were collected from the north trap below the steam-cleaning pad and analyzed. Results indicate 1,1,1-trichloroethane; methylene chloride; 2-butanone; and Cs-137 were present (Radack, 1991). It is believed there may have been a discrepancy in reporting the Cs-137 result at 1.67×10^7 microcuries per gram so the actual concentration is questionable.

One sample was collected at the outfall in August 1997 (Forsgren, 1998) and benzo(a)anthracene, waste oil, aroclor-1260, arsenic, and lead were detected. The waste oil concentration exceeded the State of Nevada regulatory level for TPH in soils. The arsenic concentration is considered consistent with ambient background concentrations at the NTS.

An Environmental Compliance Office (ECO) memo indicates that soil was excavated at the Fleet Operations Yard to evaluate hydrocarbon concentrations at depth from separate releases of diesel fuel and new oil as reported in May 1991. The memo offers no actual analytical results for samples collected during remediation efforts of these two spills; however, the report states: "...the areas were excavated to be below the NAC 459.9921 through .999 Action Level for the cleanup of soil" (DOE/NV, 1991b). Based on the timing of these reports, it appears the memo refers to the excavation of the historic spills referenced in the May 1991 off-normal occurrence report (DOE/NV, 1991a).

Potential Contamination - General COPCs associated with run-off and wastewater from the steam-cleaning pad, Bldg. 750 floors, and the parking lot include solvents, degreasers, coolants, oils, gasoline, diesel, and cleaning fluids such as Simple Green, Liqui-Terge, and Stinger (Radack, 1991; Bingham, 1992; Davis, 1999; Russell, 1999). Analytical results suggest 1,1,1-trichloroethane;

methylene chloride; 2-butanone; benzo(a)anthracene; waste oil; aroclor-1260; lead; and Cs-137 may be present. The following classes of contaminants are included because of common NTS concerns and/or process knowledge: gamma-emitting radionuclides, PCBs, VOCs, SVOCs, TPH, and RCRA metals with beryllium.

A.1.1.3 CAS 23-25-03, Bldg. 751 Outfall

Corrective Action Site 23-25-03, Bldg. 751 Outfall, consists of an outfall that discharges into the MBD, the associated subsurface piping that originates within the steam-cleaning pad at Bldg. 751, and affected surface/near surface soils surrounding and downgradient of the outfall.

Physical Setting and Operational History - CAS 23-25-03 is located in Area 23 of the NTS, approximately 0.2 mi north of the Mercury Bypass and Jackass Flat Road intersection. The CAS is one of three identified discharge sites from the Area 23 Fleet Operations Facility. This site was originally identified in 1988 during a DOE report review (DOE, 1988a). The CAS consists of a 6-in. diameter, metal drain pipe that originates from the Bldg. 751 cleaning pad and extends approximately 350 ft to the MBD. The drain pipe protrudes from the eastern sidewall of the MBD as an outfall and is approximately 2 to 3 ft above the ground surface. Currently, visible soil staining is present directly below the pipe. The ditch is relatively free of debris in the outfall area. The outfall is located furthest downgradient of two other CASs (23-21-03 and 23-25-02) that have also released effluent to the MBD. Figure A.1-2 shows all three CASs in relation to each other and their respective locations within the MBD.

The outfall pipe originates from a drain at the closed steam-cleaning pad at Bldg. 751. Building 751 was operational from 1965 to 1992 and was used for rebuilding diesel engines and cooling operations, while the associated cleaning pad was used to clean engines and engine parts. Both the Bldg. 751 and its associated cleaning pad are inactive and the drain(s) in the cleaning pad were sealed in 1992 (Davis, 1999; Russell, 1999). Operations at this facility included using water during engine rebuilding and cooling operations; the use of coolants (e.g., antifreeze) for this purpose is unconfirmed.

Sources of Potential Contamination - The primary source of potential contamination is based on assumption that the steam-cleaning pad and Bldg. 751 were the only effluent sources to the outfall

pipe. According to historical records, the drain pipe was sealed where it originates from the closed steam-cleaning pad (Davis, 1998; Davis, 1999). Prior to sealing, the source of effluent to the outfall was the drain and outdoor sumps installed within the floor of the steam-cleaning pad. Wastewater discharges from cleaning and cooling engines and various equipment flowed directly into the pad drain while discharges from cleaning the Bldg. 751 floors flowed into the outdoor sumps located on the cleaning pad (Davis, 1999). The steam-cleaning pad and Bldg. 751 floors could have potentially contributed degreasers, oils, coolants, hydrocarbons, and cleaning fluids and possibly solvents.

Other potential sources would include migration of COPCs from the upgradient sources at CASs 23-21-03 and CAS 23-25-02 (i.e., surface run-off). Additional potential sources from historic surface spills are documented under the description for CAS 23-25-02. The only additional COPC is bis(2-ethylhexyl)phthalate based on previous investigation results.

Previous Investigation Results - One sample was collected at the outfall in August 1997 (Bordelois, 1998) and bis(2-ethylhexyl)phthalate, waste oil, aroclor-1260, and arsenic were detected. The waste oil concentration exceeded the State of Nevada regulatory level for TPH in soils. The arsenic concentration is considered consistent with ambient background concentrations at the NTS.

Potential Contamination - The COPCs are similar to the previous two related CASs because the effluent discharge from all three CASs originated from the Fleet Management Facility operations.

A.1.1.4 CAS 25-60-01, Bldg. 3113A Outfall

Corrective Action Site 25-60-01, Bldg. 3113A Outfall, consists of a concrete outfall, the associated subsurface piping that originates from drains located within and around Bldg. 3113A, and the affected surface/near-surface soils surrounding and downgradient of the outfall.

Physical Setting and Operational History - CAS 25-60-01 is located at the TCA Facility in Area 25 of the NTS. This CAS is a newly identified site approved for inclusion into the FFACO on January 3, 2002. The CAS is located on the south side of the TCA facility and extends from Bldg. 3113A to a ground surface area about 160 ft south of the facility fenceline. Two subsurface pipes, associated with drains in and outside of Bldg. 3113A, extend south from the building for approximately 60 ft where they combine into one 10-in. diameter pipe. The single pipe extends further south from the building where it exits at the ground surface at an outfall area about 100 ft

south of Road "F." The outfall consists of a broken concrete culvert with associated soil. It appears that a portion of the pipe has been removed between the current location of the pipe opening and the broken concrete culvert. The ground surface surrounding the outfall is relatively flat with a slight gradient to the south. A narrow, shallow wash emanates from the outfall and extends in a southerly direction. The wash shows no evidence of staining and contains a higher density of vegetation than the surrounding area. Currently, a Radioactive Materials Area sign is posted near the outfall (SNJV, 2003).

The TCA Facility operations were conducted from the mid-1950s through 1973 when the NRDS program was terminated. Building 3113A was constructed in 1961 as an addition to the south side of Bldg. 3113, and reportedly was used for a restroom and emergency power generation. Both Bldg. 3113 and 3113A included a piping system for the storage and transfer of fluids including liquid and gaseous hydrogen, nitrogen, helium, liquid oxygen, and demineralized cooling water. The facility was also used for cryogenic tests to test corrosivity on simulated fuel rods, bearings, and pump components; however, this process did not involve nuclear contaminants, only liquid hydrogen. The Flow Control Room contained electrical systems, piping, etc. that would be plugged into the test articles on the reactor pad outside the building shield wall; however, no process radioactive waste was used in this room (Garey, 2002). Electrical and mechanical technicians and welders worked inside the Flow Control Room (Garey, 2000). A penthouse room located in the building was used as an instrumentation room where raw data from the reactor tests were collected and transmitted through a cable access tunnel.

The concrete reactor pad adjacent to the east side of Bldg. 3113A was used for firing up nuclear rocket engine reactors that generated and released an effluent cloud composed of noncombustible, radioactive gases and particles (RSN, 1995). According to records, the reactor pad was washed down following the tests. Historical documentation indicates that in addition to the reactor pad, Bldg. 3113A, and other surrounding buildings and materials were subject to various levels of radioactive contamination from the effluent ejected into the air. In particular, the roof was exposed along with the possibility that dust and debris may have filtered into various rooms of the building (RSN, 1995; Garey, 2002).

Sources of Potential Contamination - The source of soil contamination is the effluent discharged from drains within and around Bldg. 3113A to the outfall via subsurface pipes. Sources of potential contamination to the drains of Bldg. 3113A include radioactive effluent from washing down the reactor pad following testing; radioactive dust and debris from reactor testing; contaminants from maintenance and use of the emergency generator and other electrical equipment; and any potential releases into drains from deterioration and/or corrosion of solid materials located within the facility such as lead and asbestos.

Previous Investigation Results - Several radiological surveys, consisting of both aerial and land surveys, have been conducted at the TCA Facility between 1970 and 2002 (EG&G/EM, 1972, RSL, 1979; Miller, 1984; DRI, 1989; REECo, 1993). The survey results confirm radiological contamination at the TCA with exposure rates between 0.15 to 0.40 mR/hr at Bldg. 3113A and removable contamination levels less than 1,000 dpm/100cm^2 beta plus gamma in surrounding areas of the TCA (Miller, 1984). A low altitude aerial survey of TCA in 1999 showed high gamma levels (primarily Cs-137) located centrally in TCA (BN, 1999). The most recent walk-over radiological survey conducted at the outfall area indicates radiological readings 2 to 3 times background are present within the wash (IT, 2002b).

Five soil screening samples were collected downstream from the Bldg. 3113A outfall and analyzed using gamma spectroscopy. Results indicate Cs-137, Nb-94, Eu-152, and Bi-211 were above background levels (IT, 2002b). Bismuth-211 is a naturally-occurring radioisotope as part of the U-235 decay chain.

The investigation of TCA Septic System, CAU 500, included soil sampling at the sanitary leachfield/septic system associated with drains from Bldg. 3113B (DOE/NV, 2000a). Building 3113B is located adjacent to floor drains being investigated for CAU 300. Although the analytical results for leachfield soil samples indicate no COPCs above PALs, sludge samples collected within the septic tank had detections of arochlor-1260, TPH-DRO, and uranium isotopes above PALs.

Potential Contamination - General COPCs associated with the deterioration and/or release of materials located within the facility such as asbestos from pipes within TCA buildings; lead from lead bricks located within the facility; and PCBs related to electrical components in the facility.

Radionuclides from reactor testing and wash-down activities that have been detected through soil screening and/or radiological surveys include Cs-137, Eu-152, Nb-94, Cobalt (Co)-60, and U and Pu isotopes (Adams, 1999; IT, 2002b; BN, 1999). Based on previous investigation results for the sanitary septic system associated with Bldg. 3113B, TPH-DRO is a possible COPC (DOE/NV, 2000a). The following classes of contaminants are included because of common NTS concerns and/or process knowledge: gamma-emitting radionuclides, Sr-90, VOCs, SVOCs, TPH, and RCRA metals with beryllium.

A.1.1.5 CAS 25-60-02, Bldg. 3901 Outfall

Corrective action site 25-60-02, Bldg. 3901 Outfall, consists of an outfall that discharges into a wash, the associated subsurface steel pipe that originates from a grease pit drain inside Bldg. 3901, and affected surface/near-surface soils surrounding and downgradient of the outfall.

Physical Setting and Operational History - CAS 25-60-02 is located within the E-MAD complex in Area 25 of the NTS, southwest of Bldg. 3901. This CAS is a newly identified site approved for inclusion into the FFACO on January 3, 2002. The outfall and associated pipe are connected to a grease pit drain located inside Bldg. 3901. The pipe outfall exits the southwest facing slope into a man-made wash approximately 42 ft from the southwest corner of Bldg. 3901. The pipe outfall, composed of a 6-in. diameter steel pipe surrounded by eroded concrete, is located near the base of the slope about 4 to 5 ft above the wash floor. The slope surrounding and beneath the outfall indicates erosion from run-off and/or effluent discharge. There is no indication of soil staining near the outfall. The wash, composed of sands and gravel, is relatively flat with a gentle, southerly gradient and bounded on the west by railroad tracks that are elevated about 1.0 to 1.5 ft above the bottom of the wash. There is significant erosion at several locations along the length of the southwest-facing slope of the wash. The erosion is caused by run-off from the ground surface surrounding the west and south sides of Bldg. 3901, which is elevated about 12 ft above the floor of the wash.

Building 3901, referred to as the Engine Transport System Maintenance (ETSM) Building or the E-MAD Train Shed was built in 1965 (Vitro, 1961, 1964a and b; REECo, 1983). The building was initially used for maintenance of locomotives associated with transporting nuclear rocket engines to and from the E-MAD building (Vitro, 1961; and 1964a and b) associated with the NRDS program. The building was designed with a floor pit drain, referred to as a grease pit drain, for working beneath

the train cars or locomotive engines. Based on available information, it is believed decontamination activities were not performed within the building (Garey, 2000). Operations associated with the NRDS program ended in 1973.

In 1987, Bldg. 3901 was used for testing soil decontamination methods related to the TRUClean II, Volume Reduction Research and Development Project (AWC, 1987b). Soils treatment processes were conducted in Bldg. 3901 from January to September 1987 and involved the removal of radionuclides from contaminated soils including Am-241 and alpha emitters Pu-238, Pu-239, and radium-thorium (AWC, 1987a and b). Available information reports the grease pit drains were sealed off with plywood, caulking, and plastic prior to soil testing operations. Decontamination of equipment and walls with water was performed within the building; however, the effluent was reportedly vacuumed and disposed of properly and not allowed to drain through the floor pit (Waters, 2000; Garey, 2002). The building is currently inactive with restricted access and posted as a Contamination Area (SNJV, 2003).

Sources of Potential Contamination - Historical records are unclear as to if, or what, effluent was discharged into the floor drain but it is assumed the drains were open during locomotive maintenance activities. Those activities may have discharged COPCs associated with engine maintenance such as diesel, grease, oils, and other engine fluids into the floor pit. The potential exists for the inadvertent discharge of radioactive effluent from decontamination activities and soil testing through the "sealed" drains during the TRUClean II operations. Upstream sources unrelated to the outfall, such as septic system and the railroad spur could deposit potential contamination in the soils surrounding and downstream of the outfall area.

Previous Investigation Results - One walk-over radiological survey was performed in conjunction with the CAU 516 investigation. Results indicate no evidence of gamma-emitting radionuclides in the soils above background (IT, 2002b). During this time, two soil screening samples were collected downstream of the outfall pipe and analyzed with gamma spectroscopy. Results indicated that no gamma-emitting nuclides outside the expected regional soil constituents were present (IT, 2002b).

The Bldg. 3901 septic system (CAU 165, CAS 25-59-01) was investigated in 2002. The septic system serviced only the restroom drains. Results of the investigation confirmed the restroom discharge pipe was plugged at the source. Soil analytical results show there were no COPCs above

PALs. The only COCs identified above action levels were diesel- and gasoline-range organics found in the septic tank sludge residue. Plutonium-239 was detected in the sludge but was below regulatory limits (NNSA/NSO, 2003).

Potential Contamination - The following COPCs are suspected based on historical operations and previous investigation results associated with Bldg. 3901: grease, oils, and diesel from locomotive engine maintenance; and Pu-238, Pu-239, radium-thorium, and Am-241 from soil decontamination testing during TRUClean activities. Information was not identified that can confirm whether or not nuclear engines were brought into the Train Shed so fission and activation products associated with nuclear engine testing may also be present (e.g., Cs-137, Co-60, U-235). The following classes of contaminants are included because of common NTS concerns and/or process knowledge: gamma-emitting radionuclides, isotopic uranium, VOCs, SVOCs, TPH, PCBs, and RCRA metals with beryllium.

A.1.1.6 CAS 25-62-01, Bldg. 3124 Contaminated Soil

Corrective Action Site 25-62-01, Bldg. 3124 Contaminated Soil, consists of radiologically contaminated surface and potentially shallow subsurface soils north of Bldg. 3124.

Physical Setting and Operational History - CAS 25-62-01 is located north of Bldg. 3124 at the TCA facility. Test Cell A and Bldg. 3124 are located in Area 25 of the NTS with Bldg. 3124 located east of the TCA complex. This CAS is a newly identified site approved for inclusion into the FFACO on January 3, 2002. The CAS is a flat surface area measuring approximately 70 by 70 ft and is marked off with yellow rope. Posted signs, both “Caution Contamination Area” and “Caution Radioactive Material” indicate radiological contamination is present. The yellow-rope boundary begins at the north wall of Bldg. 3124 and extends about 20 ft beyond the chain-link fence that surrounds the Bldg. 3124 compound. Four metal posts have been driven into the ground and are aligned through the center of the roped-off area. Additionally, a twin-shell mixer is located within the roped area adjacent to the building. These metal structures are not included in the scope of the CAS.

Building 3124 is currently inactive. It was built as part of the TCA complex and was originally designated as the ETL. The building was used as a testing facility during the NERVA program from 1962 to 1973 in which valve and gauge fittings were tested prior to installation on reactor and engine

test cars. During this time, other operations included water and gas flow testing, static pressure testing, equipment maintenance and cleaning, and limited analytical work.

Based on interviews, the building was used for various animal testing programs during the 1970s and 1980s (Garey, 1999 and 2002). However, the actual tenants, periods of occupation, and activities during this period are unclear. One experiment was known as the Comparative Animal Research Lab (CARL) that involved injecting pigs with either Am or californium (Patton, 2002). Although the tests were performed at the EPA Farm in Area 15, the frozen pigs were moved to Bldg. 3124 for storage. Power was shut off to the building at some point, allowing the pigs to thaw and release fluids into the building (Garey, 2002). Reports indicate that cleanup of the building and contaminated materials began during the 1970s prior to refurbishment in the 1990s (Sorom, 1978; Trump, 1991).

In the 1990s, the building was again refurbished and designated as the TTF where testing the treatability of soils containing trace amounts of Pu-239, Am-241, U-235, and U-238 was performed (Bliss, 1992; Starrett, 1992). It is reported that contaminated process water resulting from these operations were stored in containers, filtered, and analyzed prior to disposal (Finney, 1998). These operations ceased in 1995 (Finney, 1998).

Sources of Potential Contamination - The actual source of soil contamination north of Bldg. 3124 has not been identified. Based on various operations conducted within the building, potential sources have been identified that may have released radioactivity. Process water related to TTF testing operations was stored in containers (Finney, 1998); however, inadvertent releases or spills may have allowed run-off to migrate to the surface soils behind Bldg. 3124. Soil contamination may have occurred during the building cleanup during the 1970s following the period in which frozen pigs thawed and released potentially radioactive fluids on the floors (Garey, 2002). Radionuclides may have been released to the soils from various materials stored within the building compound which have subsequently been removed (Lyons, 2001). Floor drains within the building were serviced by leachfield systems (CAUs 261 and 266) and are not considered possible sources of contamination (DOE/NV, 1998a and b; and 1999a and b).

Previous Investigation Results - Analytical results from samples of TTF related process water show levels of Pu and Am were below Derived Concentration Guides and allowed into the Area 23 lagoons for disposal (Lyons, 1993). Based on interviews, analytical results from soil sample(s) collected near

the posted area suggest the presence of cesium, strontium, and possibly americium radionuclides (Lyons, 2001 and 2002). The concentrations and isotopes of the radionuclides were not provided. Recent sampling performed for the CAU 168 investigation of contaminated materials within Bldg. 3124 confirmed the presence of radioactive contamination above releasable limits in the NV/YMP Radcon Manual (DOE/NV, 2000b).

Soil samples were collected beneath the leachfield for laboratory analyses as part of the CAI of CAU 266, (Area 25 Bldg. 3124 Leachfield) in April and May 1999. Results indicate the presence of Am-241 exceeding the PALs in two soil samples (DOE/NV, 1999b). Cesium-137 and strontium (Sr)-90 were also detected in soil samples collected from leachfield piping at location IO-3 as part of the CAI of CAU 261 (Area 25 Test Cell A Leachfield System) (DOE/NV, 1999a).

Radiological personnel surveying locations outside the original posted area behind Bldg. 3124 detected elevated Electra readings for beta. The readings ranged from 300 to 250,000 dpm Beta above background levels (IT, 2001a and 2001b). A radiological walk-over survey was performed in the fall of 2001. The survey area included the soil and graveled/paved area within the posted contamination area. The survey confirmed elevated radioactivity with the highest readings located immediately north of the graveled/paved area. The highest count was 5,303 counts per second (cps), which was about 20 times the established background level. The report suggests that removable beta contamination is present in excess of the Table 4-2 limits of the NV/YMP Radcon Manual (DOE/NV, 2000b); however, actual concentrations were not provided (IT, 2001c). This report indicated that cesium is the primary nuclide contributing to the elevated readings.

Potential Contamination - Based on the identified potential sources of contamination (i.e., animal testing and TTF activities) and the radiological surveys performed, Pu isotopes, U isotopes, Am-241, Cs-137, and Sr-90 were identified as COPCs (Bliss, 1992; Garey, 2002; Patton, 2002). Other identified COPCs include mercury (found in floor tiles of Bldg. 3124) (Kershner, 1999). The following classes of contaminants are included because of common NTS concerns and/or process knowledge: gamma-emitting radionuclides, VOCs, SVOCs, TPH, PCBs, and RCRA metals with beryllium.

A.1.1.7 CAS 26-60-01, Bldg. 2105 Outfall and Decon Pad

Corrective Action Site 26-60-01, Bldg. 2105 Outfall and Decon Pad, consists of an outfall and pipe originating from Bldg. 2105, the Check Station decon pad and associated concrete culvert, affected surface/near-surface soils surrounding the decon pad and Bldg. 2105 cement pad, and the affected surface/near-surface soils within the drainage below and downgradient from the outfall and culvert.

Physical Setting and Operational History - CAS 26-60-01 is associated with Bldg. 2105, which is located in Area 26 of the NTS. This CAS is a newly identified site approved for inclusion into the FFACO on January 3, 2002. Building 2105 has been removed, leaving only the cement building pad and the concrete decon pad surrounded by a graded parking area and a 4-ft deep wash on the northern and eastern sides. Available information indicates the presence of a 6-in. VCP pipe and outfall on the north side of Bldg. 2105 that drains into the wash (Burns and McDonnell, 1960b and d). However, the pipe from Bldg. 2105 associated with the outfall is not visible due to gravel and debris at the expected location of the outfall. The decon pad is about 18 by 18 ft with a visible 3-ft wide concrete drain/culvert on the northeast corner that discharges into the wash (Burns and McDonnell, 1960d). The culvert and decon pad are in good condition (i.e., not broken apart). The soils surrounding both cement pads is flat with a broken/eroded asphalt base and is still used as a parking and storage area (e.g., waste accumulation area and drill rig were present during site visit).

The northern portion of the wash is about 4 ft deep at the outfall and concrete culvert (approximated from edge of graded surface), appears disturbed, and contains rock and wood debris. Loose sand and small gravel comprise the floor of the wash and no soil staining was identified. The wash is wider and more shallow on the eastern side then steepens and narrows towards the north and west with downgradient flow apparently to the west. Vegetation within the wash varies from sparse on the east side to moderately thick on the northern side.

Building 2105 was constructed around 1957 to support Project Pluto and is referred to as the Check Station (REECo, 1961; Burns and McDonnell, 1960a). Project Pluto was program to develop a reactor for a nuclear ramjet propulsion system (AEC, Date unknown). The Check Station and decon pad were located between the Control Building and Disassembly Building. The Check Station was used for limiting access to the test areas (LRL, 1964). The check station was used as a check point for radiological-safety personnel where anti-contamination clothing and associated equipment were

stored; portable survey instruments were maintained and calibrated; vehicles, personnel, and miscellaneous equipment were deconned; and the personnel radiation dosimetry program was conducted (REECo, 1961). The building was used as an office and counting laboratory for Lawrence Radiation Laboratory (LRL) and REECo Health and Safety staff (REECo, 1961; LRL, date unknown). Funding for Project Pluto ended in 1964 so it is assumed activities ceased at the Check Station at this time. Information on the uses of Bldg. 2105 after 1964 was not identified. The building was documented as inactive but not abandoned in 1991 and has been removed since that time.

Sources of Potential Contamination - Effluent may have been discharged through five floor drains within Bldg. 2105 connected to the outfall pipe leading to the wash north of the building. The following rooms had floor drains connected to the outfall pipe: the drying room, shower room, undressing room, and entry No. 2 (Burns and McDonnel, 1960b). Information on specific activities within these rooms was not identified; however, it can be assumed the activities were related to radiological safety operations (i.e., personnel decontamination). Decontamination and cleaning fluids associated with the decon pad may have discharged directly to the wash through the concrete culvert located on the northeast corner of the pad or spread as run-off into surrounding soils. Any residual contamination from the Bldg. 2105 pad may create potentially contaminated storm run-off into surrounding soils.

Previous Investigation Results - Sludge samples collected from the former Check Station (Bldg. 2105) septic system tank as part of the CAU 271 investigation indicate elevated levels of the following radionuclides were present: Cs-137, Pu-239, Sr-90, U-234, U-235, and U-238 (Hutchinson, 2002; NNSA/NV, 2002a). A walk-over radiological survey conducted at the site indicate the potential for low-level radiological contamination in soils located near the decon pad culvert (IT, 2002b). Surface-soil screening samples collected at CAS 26-60-01 based on the walk-over survey were analyzed by gamma spectroscopy. Results identified the presence of Bi-211, a U-235 decay product (IT, 2002b).

Potential Contamination - Based on the radiological-safety activities conducted within the Check Station, results from the Check Station septic system investigation, and soil-screening results, radiological COPCs include: Cs-137, Pu-239, Sr-90, U-234, U-235, and U-238. Activities at the decon

pad may have contributed COPCs common to decontamination operations such as cleaning fluids, engine oils, hydrocarbons, degreasers. Classes of contaminants included because of common NTS concerns and/or process knowledge include gamma-emitting radionuclides, VOCs, SVOCs, TPH, PCBs, and RCRA metals with beryllium.

A.1.2 Step 1 - State the Problem

This step identifies the DQO planning team members and decision makers, describes the problem that has initiated the CAU 300 investigation, and develops the CSMs.

A.1.2.1 Planning Team Members

The DQO planning team consisted 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, final DQO meeting.

Table A.1-2
DQO Meeting Participants for CAU 300
February 26, 2004

Participant	Affiliation
Dawn Arnold	SNJV
Stacey Alderson	SNJV
Sabine Curtis	NNSA/NSO
Brian Hoenes	SNJV
Harry Perry	BN
David Schrock	SNJV
David Strand	SNJV
Kathryn Umbarger	BN
Jeanne Wightman	SNJV
John Wong	NDEP

BN - Bechtel Nevada
SNJV - Stoller-Navarro Joint Venture
NDEP - Nevada Division of Environmental Protection
NNSA/NSO - U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office

A.1.2.2 Describe the Problem

Corrective Action Unit 300 is being investigated because controlled and/or uncontrolled surface releases of unknown substances may have contaminated surrounding media, particularly soil. As a result of these possible releases, hazardous and/or radioactive constituents may be present at CAU 300 at concentrations that could potentially pose a threat to human health and the environment.

The problem statement for CAU 300 is: "Existing information on the nature and extent of potential contamination is insufficient to evaluate and recommend corrective action alternatives for the CASs in CAU 300."

A.1.2.3 Develop Conceptual Site Models

Conceptual site models describe the most probable scenarios for current conditions at a CAS and define the assumptions that are the basis for identifying appropriate sampling strategy and data collection methods. They are the basis for assessing how contaminants could reach receptors both in the present and future by addressing contaminant nature and extent, transport mechanisms and pathways, potential receptors, and potential exposures to those receptors. Accurate CSMs are important 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. Table A.1-3 summarizes the land-use designations and associated descriptions for the CAU 300 CASs. Based on land use, current and future receptors are limited to industrial and construction workers as well as military personnel conducting training. These human receptors may be exposed to COPCs through oral ingestion, inhalation, dermal contact (absorption) of soil and/or debris due to inadvertent disturbance of these materials or irradiation by radioactive materials.

Three CSMs have been developed for CAU 300 using information from the physical setting, potential contaminant sources, knowledge from similar sites, release information, historical background information, and physical and chemical properties of the potentially affected media and COPCs. The CSMs that are pertinent to this CAU are:

- Surface Release CSM
- Outfall CSM
- Soil Contamination Area CSM

Table A.1-3
Future Land-Use Scenarios

CAS	Zone	Zone Description
25-06-01	Research, Test, and Experiment	This area is designated for small-scale research and development projects and demonstrations; pilot projects; outdoor tests; and experiments for the development, quality assurance, or reliability of material and equipment under controlled conditions. This zone includes compatible defense and nondefense research, development and testing projects and activities.
25-62-01		
26-60-01		
25-60-02	Yucca Mountain Site Characterization	
23-21-03	Reserved	This area includes land and facilities that provide widespread flexible support for diverse short-term testing and experimentation. This zone is also used for short duration exercises and training such as nuclear emergency response, and Federal Radiological Monitoring and Assessment Center training, and DoD land-navigation exercises and training.
23-25-02		
23-25-03		

Source: (DOE/NV, 1998c)

The applicability of the these CSMs to each CAS is summarized in Table A.1-4 and discussed below. Table A.1-4 provides information on additional CSM elements that were used throughout the remaining steps of the DQO process. If additional elements are identified during the investigation that are outside the scope of the CSMs, the situation will be reviewed and a recommendation will be made as to how to proceed. In such cases, identified decision makers will be notified and given the opportunity to comment on, or concur with, the recommendation.

A.1.2.3.1 Surface Release CSM

The Surface Release CSM applies to CASs 23-21-03 and 26-60-01 and is shown in Figure A.1-3. At each of these CASs, a general nonpoint source(s) is identified (typically a small building/concrete structure or parking lot) as contributing to potential contamination. Potential soil contamination is directly associated with the operation of the facility or the materials contained within that facility. The location of release points are assumed to be contiguous with the general source but could be potentially widespread throughout the CAS boundary. The extent of contamination is unknown; however, based on the transport mechanism of surface run-off lateral contamination would be predominant over vertical contamination.

Table A.1-4
Conceptual Site Models
Description of Elements for Each CAS in CAU 300
(Page 1 of 2)

CSM	Surface Release		Outfall					Contamination Area
CAS Identifier	**23-21-03**	**26-60-01**	**23-25-02**	**23-25-03**	**25-60-01**	**25-60-02**	**26-60-01**	**25-62-01**
CAS Description	**Bldg. 750 Surface Discharge**	**Bldg. 2105 Outfall and Decon Pad**	**Bldg. 750 Outfall**	**Bldg. 751 Outfall**	**Bldg. 3113A Outfall**	**Bldg. 3901 Outfall**	**Bldg. 2105 Outfall and Decon Pad**	**Bldg. 3124 Contaminated Soil**
Site Status	Active	Sites are inactive and/or abandoned						
Exposure Scenario	The potential for contamination exposure is limited to industrial and construction workers, and military personnel conducting training. These human receptors may be exposed to COPCs through oral ingestion, inhalation, dermal contact (absorption) of soil and/or debris due to inadvertent disturbance of these materials or irradiation by radioactive materials.							
Affected Media	Surface and shallow subsurface soils and piping (if applicable)							
Sources of Potential Soil Contamination	Leaking containers or vehicles and surface disposal of discarded equipment and materials		Effluent discharge through an outfall via subsurface piping connected to building/facility drains.					Radioactive materials and/or fluids stored or released to surface.
Location of Contamination/ Release Point	Surface soils immediately surrounding source of contamination such as parking lot or decon pad		Surface soils beneath outfalls; subsurface soils at breaks or junctions in piping					Location of highest elevated radiological readings
Transport Mechanisms	Percolation of precipitation through subsurface media serves as the major driving force for migration of contaminants. However, due to the arid environment of the NTS, percolation of precipitation is very small and migration of contaminants has been shown to be very limited. Evaporation potentials significantly exceed available soil moisture from precipitation (i.e., 3 to 10 inches) (USGS, 1995a). Surface water run-off may provide for the lateral transportation of some contaminants within or outside of the footprints of the CASs.							
Preferential Pathways	Sloped parking area to surface drainage provides preferred pathway for lateral migration	Surface drainages downgradient of outfalls have minor impact due to low grade. The MBD is an exception where higher volume of run-off creates preferred lateral migration within ditch. In general, lateral migration dominate over vertical migration.						

Table A.1-4
Conceptual Site Models
Description of Elements for Each CAS in CAU 300
(Page 2 of 2)

CSM	Surface Release		Outfall					Contamination Area
CAS Identifier	**23-21-03**	**26-60-01**	**23-25-02**	**23-25-03**	**25-60-01**	**25-60-02**	**26-60-01**	**25-62-01**
CAS Description	**Bldg. 750 Surface Discharge**	**Bldg. 2105 Outfall and Decon Pad**	**Bldg. 750 Outfall**	**Bldg. 751 Outfall**	**Bldg. 3113A Outfall**	**Bldg. 3901 Outfall**	**Bldg. 2105 Outfall and Decon Pad**	**Bldg. 3124 Contaminated Soil**
Lateral and Vertical Extent of Contamination	Unknown. Contamination, if present, is expected to be contiguous to the release points. Concentrations are expected to decrease with distance and depth from the source. Groundwater contamination is not expected. Depth to groundwater in Jackass Flats (Area 25) varies from 710 to 1,160 ft bgs (USGS, 1995b). Depth to groundwater in Area 23 (Mercury) is approximately 785 ft bgs (DRI, 1988; BN, 1997). In Area 26, a perched water table occurs throughout the area with static water levels ranging from 81 to 167 ft bgs. The regional water table is assumed to be around 1,700 ft bgs (USGS, 1964). Surface migration may occur as a result of run-off.							
Amount Released	Unknown							
Potentially Released Material	COPCs released from fluids associated with vehicle maintenance and parking lots	COPCs released from vehicle decon, storage, and maintenance	COPCs released from fluids associated with vehicle and/or engine decontamination and/or cooling operations		COPCs released from fluids associated with reactor cooling operations, stored materials, mechanical operations			COPCs released from contaminated fluids and/or materials
Existing Historical Data on COPCs	Engine oil Coolant Waste oil Gear oil Diesel Gasoline Solvents Lead/RCRA metals PCBs Gamma-emitting radionuclides Beryllium	Oil Coolant Diesel Gasoline Degreasers Solvents Cs-137 Sr-90 Pu-239 U-234 U-235 U-238 Beryllium	Engine oil Benzo(a)anthracene Coolant Waste Oil Gear Oil Diesel Gasoline 2-butanone Solvents Degreasers Methylene chloride Lead/RCRA metals 1,1,1 tricloroethane PCBs (Aroclor-1260) Gamma-emitting radionuclides Beryllium		Cs-137 Sr-90 U isotopes Pu isotopes Co-60 Nb-94 Eu-152 Beryllium Asbestos RCRA metals	Oil Grease Diesel PCBs Pu isotopes Am-241 Radium Thorium	Oil Coolant Diesel Gasoline Degreasers Solvents Cs-137 Sr-90 Pu-239 U-234 U-235 U-238 Beryllium	Cs-137 Sr-90 Am-241 U isotopes Pu isotopes Mercury PCBs Beryllium

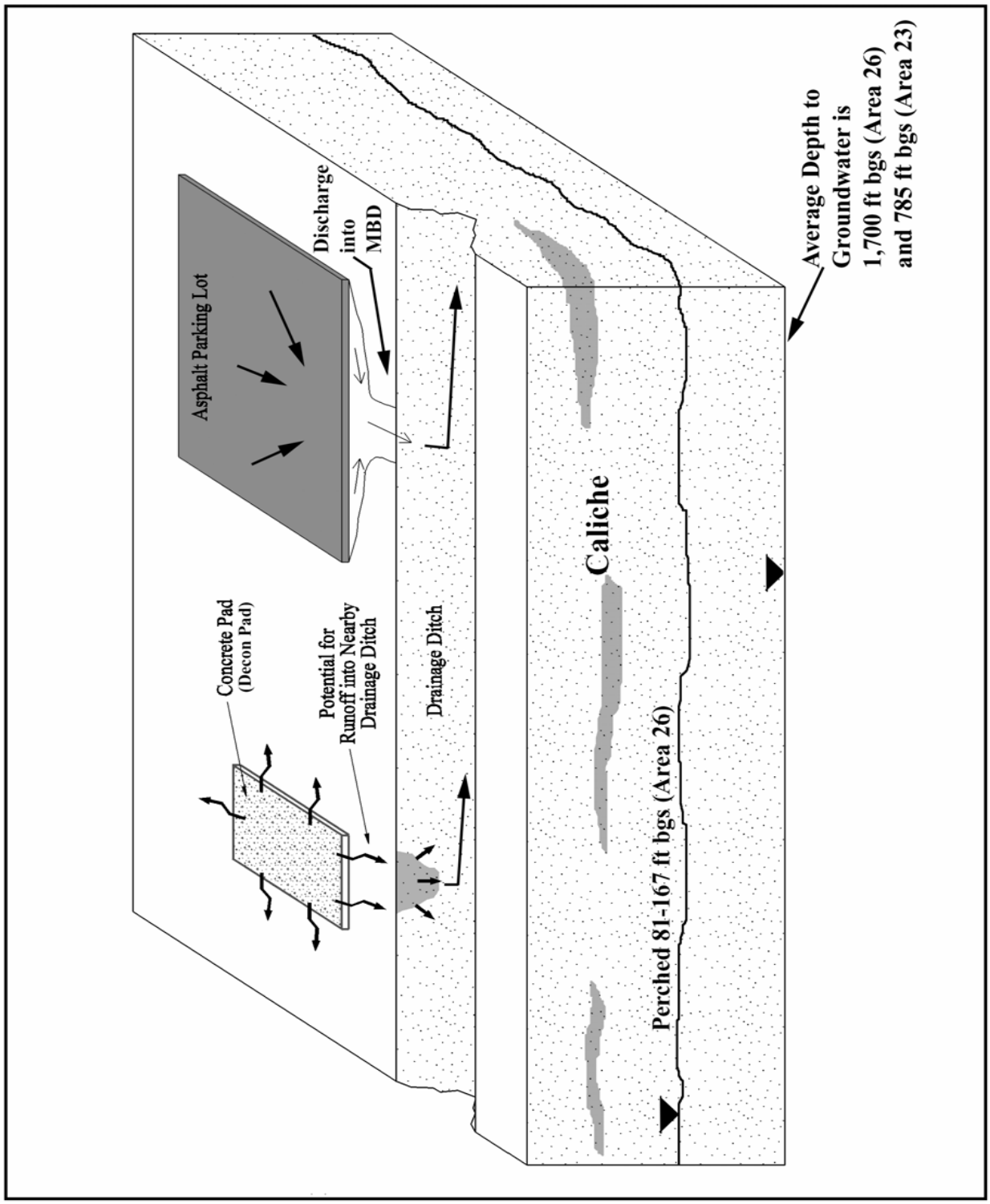

Figure A.1-3
CAU 300, Surface Release CSM

A.1.2.3.2 Outfall CSM

This CSM applies to CASs 23-25-02, 23-25-03, 25-60-01, 25-60-02, 26-60-01 and shows conceptually how effluent was discharged from an identified source (e.g., steam-cleaning pad) and dispersed to an outfall via subsurface piping. These systems were designed to release effluent via the outfalls to a drainage system as conceptually shown on Figure A.1-4. The designed release points in this model (i.e., outfall) are known point sources for soil contamination. The location of potential contamination can be expected within a defined boundary based on the outfall and channeling of effluent into a respective wash/drainage ditch. Although effluent at the outfall contributes as a possible vertical driving force, lateral migration may dominate at the MBD locations based on the assumed higher volume of stormwater run-off generated through this ditch.

A.1.2.3.3 Soil Contamination Area CSM

This CSM applies only to CAS 25-62-01, which has been designated a radiological "Contamination Area" due to elevated gamma measurements and removable beta contamination above the criteria outlined the NV/YMP Radcon Manual (DOE/NV, 2000b). The CSM (see Figure A.1-5) depicts the release of radiologically contaminated fluids and/or materials to surface and/or shallow subsurface soils and the potential migration pathways based these release points. The shallow subsurface source is represented as buried materials that may be potentially contributing to the elevated radiological readings in the soils at the surface rather than a fluid release at the surface. This site is conceptually different than the previous CASs described because of known radiological contamination, limited COPC migration based on the physical setting, point of release, and process knowledge of the expected fate and transport of radiological COPCs, and data on the lateral boundaries of surface contamination.

Affected Media **-** For the Surface Release CSM the affected media are the surface soils surrounding and downgradient of the source areas (e.g., parking lot). For the Outfall CSM, the affected media are the surface/near-surface soils at and downgradient of the outfall discharge point, associated piping in direct contact with the effluent, and subsurface soils beneath the piping if a breach or rupture of the piping occurred. The affected media for the Contamination Area CSM includes surface and subsurface soils in direct contact with radiologically contaminated materials or fluids.

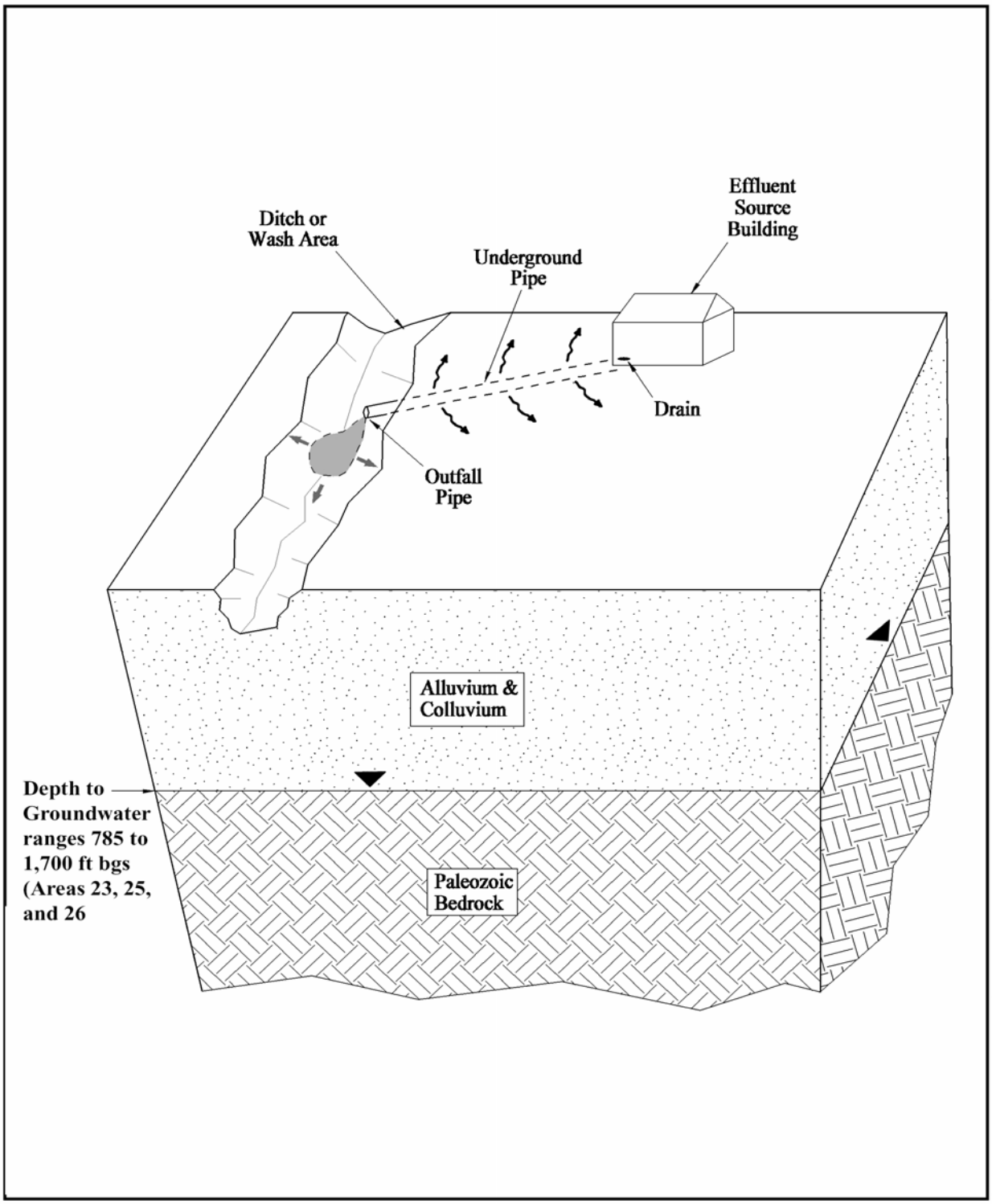

Figure A.1-4
CAU 300, Outfall CSM

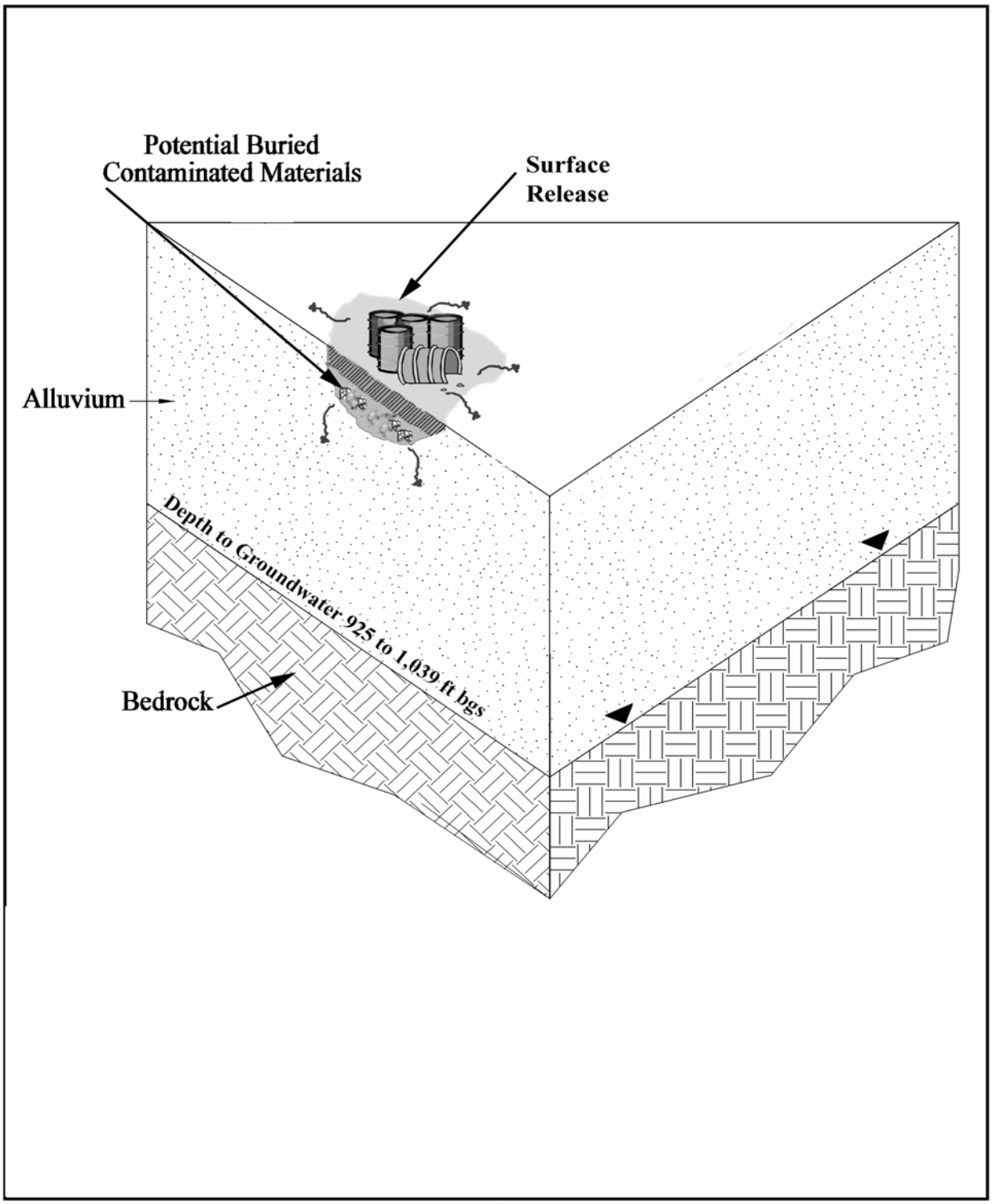

Figure A.1-5
CAU 300, Soil Contamination Area CSM

Location of Contamination/Release Points - For CAU 300 CASs, the presence of COPCs in soils may have resulted from designed or accidental releases as discussed above and depicted on the CSMs (Figure A.1-2 through Figure A.1-4). The location of contamination CAU 300 CASs is unknown with the exception of CAS 25-62-01, and potential release points are assumed consistent with the CSM.

Transport Mechanism - An important element of a CSM is the expected fate and transport of contaminants in the environment, which infer how contaminants move through site media and where they can be expected in the environment. The expected fate and transport is based on distinguishing physical and chemical characteristics of the contaminants and media. Contaminant characteristics include biodegradation potential, solubility, density, particle size, and affinity for nonmobile particles (adsorption). Media characteristics include permeability, porosity, hydraulic conductivity, total organic carbon content, 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 are more susceptible to factors that can move them through various media; therefore, can be expected to be found further from release points.

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. Run-off could cause lateral migration of contaminants over the ground surface for the release scenarios described. Contaminants may also have been transported by infiltration and percolation of precipitation through soil, which would serve as the primary driving force for downward migration. Mixing of the surface soils as a result of grading or construction activities could also move COPCs into deeper intervals (e.g., surface grading at CAS 26-60-01). The migration of organic constituents (e.g., petroleum hydrocarbons) 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 in waste oil, radionuclides) is controlled by geochemical processes, such as adsorption, ion exchange, and precipitation of solids from solution.

Contaminants migrating to regional aquifers is not considered a significant pathway at CAU 300 based on the significant depth to groundwater. Groundwater levels at the Area 23, 25, and 26 CAS

locations are approximately 1,300 ft bgs. Environmental conditions at the NTS (e.g., low annual average precipitation rates, high potential evapotranspiration, and low permeability soils) are not conducive to significant downward migration.

Airborne release subsequent to initial contaminant 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 the CAU 300 CASs are expected to have only a minor impact on contaminant migration or none at all. Four CASs (three in Area 23 and one in Area 26) are known to have discharged effluent into drainage ditches which have significant potential to channelize run-off and increase lateral transport prior to infiltration. The CASs with surface releases may have rain/run-off wash COPCs off the concrete pads or parking lot onto the surrounding soils and increase the potential for lateral migration. For CAS 23-21-03, the preferential pathway for surface run-off is the existing and easily defined surface drainage from the parking lot to the ditch. When the outfall systems were operational, any breaches that may have occurred in the distribution piping may have allowed liquids to contaminate soils preferentially along the pipeline due to the disturbed nature of the subsurface soils. This could allow contamination to travel laterally to a small degree. Although the preferential pathways for contaminant migration is considered in the development of the sampling strategies and sampling contingencies discussed in the CAIP, primary consideration will be given to the release and transport mechanisms.

Lateral and Vertical Extent of Contamination - If contamination is present at a CAS, it is expected to be confined to the surface and near surface soils at the site. Concentrations of contaminants are expected to decrease with distance (both laterally and vertically) from the release point(s). For releases at the surface, lateral migration may occur as a result of storm events when precipitation rates exceed infiltration (stormwater run-off). However, these events are infrequent. For the three CASs within the MBD, stormwater is engineered to flow into this ditch from surrounding areas so run-off could have been significant over the years. Surface migration is a biasing factor considered in the

selection of sampling locations. As stated previously, downward contaminant transport is expected to be limited but is unknown because the volumes of hazardous materials released in unknown.

A.1.3 Step 2 - Identify the Decisions

This step develops a decision statement and defines alternative actions appropriate for Decision I and Decision II.

A.1.3.1 Develop a Decision Statement

The Decision I statement is: "Is a COC present in environmental media within the CAS at a concentration that could pose an unacceptable risk to human health and the environment?"

Any site-related contaminant detected in environmental media at concentrations exceeding the corresponding PALs defined in Section A.1.4.2 will be considered a COC. The presence of a contaminant within a CAS is defined as the analytical detection of a COC. Samples used to resolve Decision I are identified as Decision I samples.

The Decision II statement is: "If a COC is present, is sufficient information available to evaluate appropriate corrective action alternatives?"

Sufficient information is defined as the data needs identified in this DQO Process to 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 no COCs are present, further assessment of the CAS is not required. If COCs are present, resolve Decision II.

If the extent of COCs is defined in both the lateral and vertical directions, further assessment of the CAS is not required. If the extent of COCs 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 will meet the data requirements. To determine if a COC is present, each sample result or population parameter is compared to the PAL (Section A.1.4.2). If any sample result or population parameter is greater than the PAL, then the CAS is advanced to Decision II for that parameter.

A.1.4.1 Information Needs and Information Sources

In order to determine if a COC is present at a given 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 minimum detection limits (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
- Visual evidence of discoloration, textural discontinuities, disturbance of native soils, or any other indication of potential contamination
- Presence of debris or equipment
- Presence of radioactive contamination based on radiological survey results
- Presence of residual materials within piping based on video survey data
- Field-screening results
- Previous sample or screening results
- Experience and data from investigations of similar sites

To determine the extent of a COC, Decision II sample data must be collected and analyzed at locations to bound the lateral and vertical extent of COCs. Decision II samples will include the analytical suites to detect the COCs identified during Decision I sampling. The data required to satisfy the information needed for Decision II for each COC is a sample concentration that is below the corresponding PAL. Step-out locations will be selected based on the CSM, biasing factors, and

existing data. Biasing factors to support these information needs may include the factors previously listed plus Decision I analytical results.

Table A.1-5 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 data in decision making. 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.

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 in the following sections.

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 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.

Table A.1-5
Information Needs to Resolve Decision I and Decision II

Information Need.	Information Source.	Collection Method.	Data Type/Metric.
Decision I: Determine if a COC is present. Criteria I: Samples must be collected in areas most likely to contain a COC.			
Source and location of release points.	Process knowledge compiled during the PA process 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.
	Radiological surveys.	Review and interpret radiological surveys .	Semiquantitative - Sampling based on biasing criteria stipulated in DQO Step 3.
	Field screening.	Review and interpret field-screening results.	Semiquantitative - Sampling based on biasing criteria stipulated in DQO Step 3.
	Video mole survey.	Review and interpret survey results.	Semiquantitative - Sampling based on biasing criteria stipulated in DQO Step 3.
	Biased Samples.	Selection of locations utilizing technical expertise.	Semiquantitative - Sampling based on process knowledge.
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 PA process 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.
Analytical results.	Data packages of biased samples.	Appropriate sampling techniques and approved analytical methods will be used.	Quantitative - Detection limits will be less than PALs.
Decision II: Determine the extent of a COC.			
Identification of applicable Decision II contaminants.	Data packages of Decision I samples.	Review analytical results to select Decision II COCs.	Quantitative – Only COCs previously 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 – field screening results 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 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.

A.1.4.2 Determine the Basis for the Preliminary Action Levels

Site workers and military personnel may be exposed to contaminants through oral ingestion, inhalation, external (radiological), or dermal contact (absorption) of soil during disturbance of environmental media. Laboratory analytical results for soils will be compared to the following PALs to evaluate if COPCs are present at levels that may pose an unacceptable risk to human health and/or the environment (i.e., COCs):

- EPA *Region 9 Risk-Based Preliminary Remediation Goals* for Industrial Soils (EPA, 2002).
- Background concentrations for RCRA metals will be evaluated when natural background exceeds the PAL, as is often the case with arsenic. Background is considered the mean plus two times the standard deviation of the mean based on data published in *Mineral and Energy Resource Assessment of the Nellis Air Force Range* (NBMG, 1998; Moore, 1999).
- TPH concentrations above the action level of 100 mg/kg per NAC 445A.2272 (NAC, 2002).
- For COPCs without established PRGs, a protocol similar to EPA Region 9 will be used to establish an action level; otherwise, an established PRG from another EPA region may be chosen.
- The PALs for material, equipment, and structures with residual surface contamination are: the allowable total residual surface contamination values for unrestricted release of material and equipment listed in the DOE Order 5400.5 (DOE, 1993), which is also Table 4-2 of the NV/YMP Radcon Manual (DOE/NV, 2000b).
- The PALs for radioactive contaminants are based on the NCRP Report No. 129 recommended screening limits for construction, commercial, industrial land-use scenarios (NCRP, 1999) scaled from 25 to 15 mrem per year dose and the generic guidelines for residual concentration of radionuclides in DOE Order 5400.5 (DOE, 1993).

The specific radiological PALs for CAU 300 are listed in Table A.1-6.

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 (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 mg/kg for TPH is based on a regulatory mandate from the State of Nevada.

Table A.1-6
Preliminary Action Level Concentrations for Radionuclides

Isotope	PAL (pCi/g)	Isotope	PAL (pCi/g)
Ac-228[b]	5/15	Am-241	7.62
Bi-212[b]	5/15	Co-60	1.61
Cs-137	7.3	Eu-152	3.4
Eu-154	3.24	Eu-155	81.1
Nb-94	2.43	Pb-212[b]	5/15
Pb-214[a]	5/15	Pu-238	7.78
Pu-239/240	7.62	Pu-241	259
Ra-226[a]	5/15	Sr-90	503
Th-230[a]	5/15	Th-232[b]	5/15
Th-234	63.2	U-234	85.9
U-235	10.5	U-238	63.2

References: (NCRP, 1999) and (DOE, 1993)

[a]Th-230 and its daughter products Ra-226 and Pb-214 are considered to be in equilibrium and will use the DOE 5400.5 general guidance of 5 pCi/g for surface (0 - 6 in.) samples and 15 pCi/g for subsurface (> 6 in.) samples.
[b]Th-232 and its daughter products Ac-228, Bi-212, and Pb-212 are considered to be in equilibrium and will use the DOE 5400.5 general guidance of 5 pCi/g for surface samples and 15 pCi/g for subsurface samples.

pCi/g = Picocuries per gram
Ac = Actinium
Pb = Lead
Ra = Radium
Th = Thorium

Radiochemistry PALs are based on a scaling of the NCRP 25 mrem/yr dose-based levels (NCRP, 1999) to a conservative 15 mrem/yr dose 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 the results will be generated for all COPCs at CAU 300. 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 of the CAIP.

A.1.4.3.1 Field Screening

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

- TPH (DRO) - A gas chromatograph or equivalent instrument or method may be used to screen for weathered diesel or other heavier carbon chain compounds. The TPH-DRO FSL is established at 75 ppm.

- VOCs - A photoionization detector (PID) using the headspace method, or equivalent instrument or method may be used to screen for volatiles in soil. The VOC FSL is established as 20 ppm or 2.5 times background, whichever is greater.

- Radiation - Radiation detection instruments (e.g., NE Technology Electra, or equivalent instrument) may be used to screen for alpha and beta/gamma-emitting radioactive contaminants. Field-screening levels, which are based on site-specific background radiation levels, will be calculated prior sample collection. If determined appropriate, on-site gamma spectroscopy or similar instrumentation may be used to screen samples.

Field-screening techniques provide semiquantitative data that can be used to guide additional soil sampling activities and waste management decisions.

A.1.4.3.2 Video Mole Surveys

A video mole survey of outfall lines may be conducted to inspect the current physical condition and layout of the CAS distribution systems, as necessary. Video surveys allow a visual assessment of the system's integrity and can be used to identify breaches which may have resulted in a release. Subsurface features may be excavated to gain additional access for inspection or sampling or to introduce the video system. The video survey may also include the introduction of a gamma detector into the pipeline to detect residual radioactivity which may provide additional baising factors for sampling. Based on CAU 300 site history and documentation, it is not expected to encounter piping associated with an active distribution system.

A.1.4.3.3 Radiological Surveys

Direct radiation and contamination surveys and swipe surveys may be conducted on drain pipes and/or materials. A handheld detector such as an NE Technologies Electra or equivalent instrument, will be used to scan the item of interest. If contamination is identified, swipe surveys will be collected and counted to determine the amount of removable contamination. This technique identifies radiological conditions of the drain pipes and/or materials and determines their subsequent release status.

A.1.4.3.4 Soil Sampling and Measurement Methods

Based on the results of the video mole survey, piping may be excavated at points of suspected residual hold-up or breaches and visually inspected. If an adequate volume of residual material is present and accessible, samples will be collected. Soil beneath detectable breaches will also be sampled.

The concrete structures of the decontamination pad and culvert at CAS 26-60-01 and concrete outfall at CAS 25-60-02 will be sampled by scabbling, coring, or other appropriate method for waste management purposes.

Samples will be collected by grab sampling, hand auguring, direct-push, backhoe excavation, drilling, or other appropriate sampling methods. Sample collection and handling activities will be conducted

in accordance with approved procedures. It may be appropriate to use excavation in selected areas to determine if contaminated soil has been covered with clean fill.

A.1.4.3.5 Analytical Program

The analytical program for the seven CASs of CAU 300 shown in Table A.1-7 has been developed based on the contamination information presented in Section A.1.1 and Table A.1-1. Because some of the CASs have different sets of COPCs, Table A.1-7 identifies by CAS what analytical suite will be performed on samples submitted for laboratory analysis. For instance, asbestos has been identified as a COPC only at CAS 25-60-01; therefore, only samples collected from this CAS will be analyzed for asbestos. All Decision I samples will be analyzed for gamma-emitting isotopes regardless of which man-made radionuclides have been identified as suspected isotopes. The gamma spectroscopy results will serve as an indicator for the need to perform additional isotopic analysis (e.g., isotopic plutonium analysis if Am-241 is detected). The additional isotopes that may require isotopic analysis may be treated as critical COPCs for additional Decision I analysis. Alternatively, a newly identified isotope above PALs may become a COC for Decision II sampling and analysis.

Table A.1-7
Analytical Methods for Laboratory Analysis

Analytical Parameter	Applicable CAS						
	23-21-03	23-25-02	23-25-03	25-60-01	25-60-02	25-62-01	26-60-01
VOCs	X	X	X	X	X	X	X
SVOCs	X	X	X	X	X	X	X
RCRA Metals plus beryllium	X	X	X	X	X	X	X
PCBs	X	X	X	X	X	X	X
TPH (C_6 - C_{38})	X	X	X	X	X	X	X
Asbestos				X			
Gamma Spectroscopy	X	X	X	X	X	X	X
Strontium-90				X		X	X
Isotopic Plutonium				X	X	X	X
Isotopic Uranium				X	X	X	X

The analytes that have been identified as COPCs for CAU 300 are included within the analytical suites (e.g., VOC, SVOC, PCB, etc.) identified in Table A.1-7. To support the efficient decision-making activities, the COPCs for CAU 300 have been divided into critical and noncritical categories. The critical COPCs for Decision I sampling are chemical and radiological constituents that are reasonably suspected to be present at the site based on documented use, previous analytical results, or process knowledge. Because information such as documented use or process knowledge exist for critical analytes, these analytes are given greater importance in the decision-making process relative to other COPCs. For the critical analytes, more stringent performance criteria are specified during the data quality assessment (Section 6.0). Noncritical COPCs include all the remaining analytes reported within an analytical method that have PALs. The noncritical COPCs also aid in reducing the uncertainty concerning the history and potential releases from the CAS and help in the accurate identification of potential contamination. The analytes reported for the various analytical methods proposed for the CAI are listed in Table A.1-8.

Table A.1-1 identifies the COPCs and critical analytes for CAU 300 Decision I sampling and analysis. Each COPC that is detected in a sample at concentrations exceeding the corresponding PAL becomes a COC for subsequent sampling to define the extent of contamination (Decision II or step-out samples). These step-out (Decision II) samples will be collected and analyzed for the COCs identified by the Decision I sampling. If COPCs are detected in Decision I samples at a concentration that exceeds the respective PAL, whether critical or noncritical, it will become a COC and the extent will be determined with a 90 percent completeness goal. If Decision II samples are collected prior to nature-of-contamination data becoming available, then the step-out samples will be analyzed for the full list of parameters specified in Table A.1-7.

Section 3.0 and Section 6.0 provide the analytical methods and laboratory requirements (e.g., detection limits, precision, and accuracy) to be followed during this CAI. Sample volumes are laboratory- and method-specific and will be determined in accordance with laboratory requirements. Analytical requirements (e.g., methods, detection limits, precision, and accuracy) are specified in the Industrial Sites QAPP (NNSA/NV, 2002b), 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.

Table A.1-8
Analytes for CAU 300

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

[a]May 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.

A.1.5.1 Define the Target Population

Target populations are dependant upon the CSMs developed for CAU 300. These target populations represent locations within the CAS that, when sampled, will provide sufficient data to resolve the primary problem statement. Decision I target populations represent locations within the CAS that contain COCs, if present. Decision II target populations are locations within the CASs where COC concentrations are less than PALs and are contiguous to areas of COC contamination.

A.1.5.2 Identify the Spatial and Temporal Boundaries

Spatial boundaries are the maximum lateral and vertical extent of expected contamination at each CAS, as shown in Table A.1-9. Contamination found beyond these boundaries may require re-evaluation of the CSM before the investigation could continue. With the exception of three CASs located in Area 23, each CAS is considered geographically independent and intrusive activities are not intended to extend into the boundaries of neighboring CASs. The exceptions are that CASs 23-21-03, 23-25-02, and 23-25-03 may be treated as a single investigative unit with respect to potential contamination within the MBD. Of particular importance regarding spatial boundaries is CAS 23-21-03, which consists of the active surface drainage in the Bldg. 750 parking area. The boundaries of this CAS are within an active parking area where historic and possibly recent releases of contaminants to the ground surface from parked vehicles may affect the ability to properly define the lateral extent of contamination where surface run-off is the assumed source. The CAS 23-21-02 investigation will be concerned only with the potential contamination that may be present within the drainage and its assumed overflow boundaries resulting from surface run-off. The intent of the investigation is not to characterize historic surface and/or subsurface contamination resulting from spills or releases in the parking area similar to the 1991 cleanup as described in Section A.1.1.2.

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

Table A.1-9
Spatial Boundaries of CAU 300 CASs

Corrective Action Site	Spatial Boundaries
23-21-03, Bldg. 750 Surface Discharge	Surface soils 20 ft laterally from the surface drainage starting at head of drainage to fence; soils within the ditch up to 100 ft downstream; 20 ft bgs vertically
23-25-02, Bldg. 750 Outfall	Location where piping exits the building foundation to the outfall; soils 20 ft laterally from pipe; surface soils within ditch/wash up to 100 ft downstream from outfall; 20 ft laterally from ditch/wash boundaries; 20 ft bgs vertically For CAS 25-60-02 not to come within 3 ft of railroad track
23-25-03, Bldg. 751 Outfall	
25-60-01, Bldg. 3113A Outfall	
25-60-02, Bldg. 3901 Outfall	
25-62-01, Bldg. 3124 Contaminated Soil	The boundaries of elevated radiological readings based on survey data plus a 50 ft lateral buffer; 20 ft bgs vertically
26-60-01, Bldg. 2105 Outfall and Decon Pad	Graded asphalt area bounded by drainage ditch and roads for concrete pad discharges; 20 ft laterally from drainage ditch boundaries; 100 ft downstream from outfall/culvert; 20 ft from piping; 20 ft bgs vertically

place constraints on sampling and field screening of contaminated soils because of the attenuating effect of moisture in samples (e.g., alpha-emitting radionuclides). There are no time constraints on collecting 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 site was last used.

A.1.5.3 Identify Practical Constraints

Other NTS activities may affect the ability to characterize this CAU. Underground utilities may exist at the site, which may limit intrusive sampling locations. Other practical constraints include rough terrain and access restrictions. Access restrictions include scheduling conflicts on the NTS with other entities, areas posted as contamination areas requiring appropriate work controls, physical barriers (e.g., fences, buildings, steep slopes), and areas requiring authorized access.

A.1.5.4 Define the Scale of Decision Making

The scale of decision making in Decision I is defined as the 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 is the maximum observed concentration of each COC within the target population. The population parameter for Decision II data will be the observed concentration of each unbounded COC in any sample.

A.1.6.2 Choose an Action Level

Action levels are defined as the PALs, which are specified in Section A.1.4.2.

A.1.6.3 Decision Rule

The decision rule for Decision I is:

> "If the population parameter of any COPC in a target population exceeds the PAL for that COPC, then that COPC is identified as a COC, and Decision II samples will be collected and the extent determined. If biasing factors (e.g., staining) are present, then Decision II sampling may be conducted prior to confirming contamination through analytical results. If COPC concentrations are less than the corresponding PAL, then the decision will be no further action. Based on radiological survey data, the CAI for CAS 25-62-01 will include extent (Decision II) sampling for radionuclides during the initial field effort."

The decision rule for Decision II is:

> "If the observed concentration of any COC in a Decision II sample exceeds the PALs, then additional samples will be collected to complete the determination of extent. 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."

If contamination is inconsistent with the CSM or extends beyond the spatial boundaries identified in Table A.1-9, then work will be suspended and the investigation strategy will be reevaluated. If contamination is consistent with the CSM and is within spatial boundaries, then the decision will be to continue sampling to define the extent.

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

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

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

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), or 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 environment.

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

- Having a high degree of confidence that the sample locations selected will identify COCs if present anywhere within the CAS.
- Having a high degree of confidence that analyses conducted will be sufficient to detect any COCs present in the samples.
- Having a high degree of confidence that the data set is of sufficient quality and completeness.

For Decision II, this error is reduced by:

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

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

- Having a high degree of confidence that the data set is of sufficient quality and completeness.

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

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

These characteristics were considered during the development of the CSMs and selection of sampling locations. The biasing factors listed in Section A.1.4.1 will be used to further ensure that these criteria are met.

To satisfy the second criterion, Decision I samples will be analyzed for the appropriate chemical and radiological parameters presented in Section A.1.1 and listed in Section A.1.4.3. Decision II samples will be analyzed for those chemical and radiological parameters that identified unbounded COCs.

To satisfy the third criterion, the entire data set, 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, 2002b). The goal is 90 percent completeness for critical COPCs at biased sample locations. The goal is also 90 percent for identified COCs in Decision II locations. The data set and individual sample results will be evaluated to determine if these goals have been met and/or if the data is sufficient to make a decision. A discussion of this evaluation will be included in the CADD. 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 protects against false negatives.

A.1.7.2 False Acceptance Decision Error

The false acceptance (beta) decision error would mean deciding that a COC is present when it is not, or a COC is unbounded when it is not, resulting in increased costs for unnecessary sampling and analysis.

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

A.1.7.3 Quality Assurance/Quality Control

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

Quality control samples will be collected as required by established procedures. The required QC samples include the following (additional QC samples may be submitted based on site conditions).

- 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 20 environmental samples or 1 per CAS, if less than 20 collected)
- Field blanks (minimum of 1 per 20 environmental samples, to best exemplify field conditions)
- Laboratory QC samples (minimum of 1 per matrix per 20 environmental samples)
- Matrix spike/matrix spike duplicate (minimum of 1 per 20 environmental samples or 1 per CAS, if less than 20 collected, not required for all radionuclide measurements)

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

This section provides an overview of the resource-effective strategy planned to obtain the data required to meet the project DQOs developed in the 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 statements for CAU 300. 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 seven CASs, as well as video surveys within piping at the CASs with pipe outfalls. A judgemental (nonprobabilistic approach) sampling design has been developed for the general investigation strategy for CAU 300. 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.

At the five CASs with outfalls, a video survey will be conducted in 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 to reach the surrounding soils, then Decision I samples may be collected at those locations for laboratory analysis. If no breaches or residual effluent is identified during the survey, than Decision I sampling adjacent to and within the buried portions of the pipelines will not be necessary.

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

surface and shallow subsurface soil samples will be collected for laboratory analysis of the parameters identified in Section A.1.4.3.5.

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-specific investigation activities, including proposed sample locations.

A.1.8.3 CASs 23-21-03, 23-25-02, and 23-25-03

This section discusses all three CASs located at the Area 23 Fleet Operations Facility:

- CAS 23-21-03, Bldg. 750 Surface Discharge
- CAS 23-25-02, Bldg. 750 Outfall
- CAS 23-25-03, Bldg. 751 Outfall

The CASs are combined for discussion of investigation activities because all three CASs have discharged effluent from common sources to the MBD; additionally, lateral migration of COPCs within the ditch have the potential to impact each subsequent downgradient CAS. Due to the potential for overlapping CAS boundaries as a result of downgradient COPC impact, certain Decision I and potential Decision II samples within the ditch may be representative of one or more CASs. Prior to Decision I sample collection, miscellaneous surface debris at the fenceline discharge points and within the ditch will be collected and staged for waste disposal, as needed.

During Decision I sampling, a minimum of seven soil samples will be collected from the bottom of MBD. One sample will be collected approximately 10 ft upgradient of CAS 23-21-03 to capture potential contamination emanating from any upstream source. At each of the three discharge points along the fenceline, a minimum of one sample will be collected directly below the respective discharge point/outfall. A minimum of one sample will be collected approximately 10 to 15 ft downgradient of each discharge point/outfall. The actual locations will be selected based on biasing factors (i.e., staining) and site conditions as documented during the initial visual inspection.

At CAS 23-21-03 (Surface Discharge), a minimum of two surface soil samples will be collected between the discharge point at the fenceline and the parking lot to the east. The sample locations will be selected within the channel boundaries of the surface drainage based on the preferential pathway for surface run-off as depicted in the CSM. Proposed Decision I sampling locations at CASs 23-21-03, 23-25-02, and 23-25-03 are shown in Figure A.1-6.

In addition to sampling the discharge points at the fenceline, a video survey of the outfall pipes will be conducted on CASs 23-25-02 and 23-25-03 to investigate the general condition of the pipe for breaches or unknown tie-ins. The original steam-cleaning drains contributing effluent to the outfalls have been sealed (Davis, 1999). If breaches are encountered along the length of the pipe, biased soil samples will be collected and analyzed. The pipe may not be surveyed 100 percent due to typical blockages such as rodent nests and debris. In areas of blockage, excavation may be necessary to access the piping and visually inspect the integrity of the subsurface piping.

Decision II step-out samples may be collected, as described Section A.1.8.1. The Site Supervisor and Task Manager will determine if Decision II sampling is appropriate based on biasing factors, primarily field screening of Decision I samples.

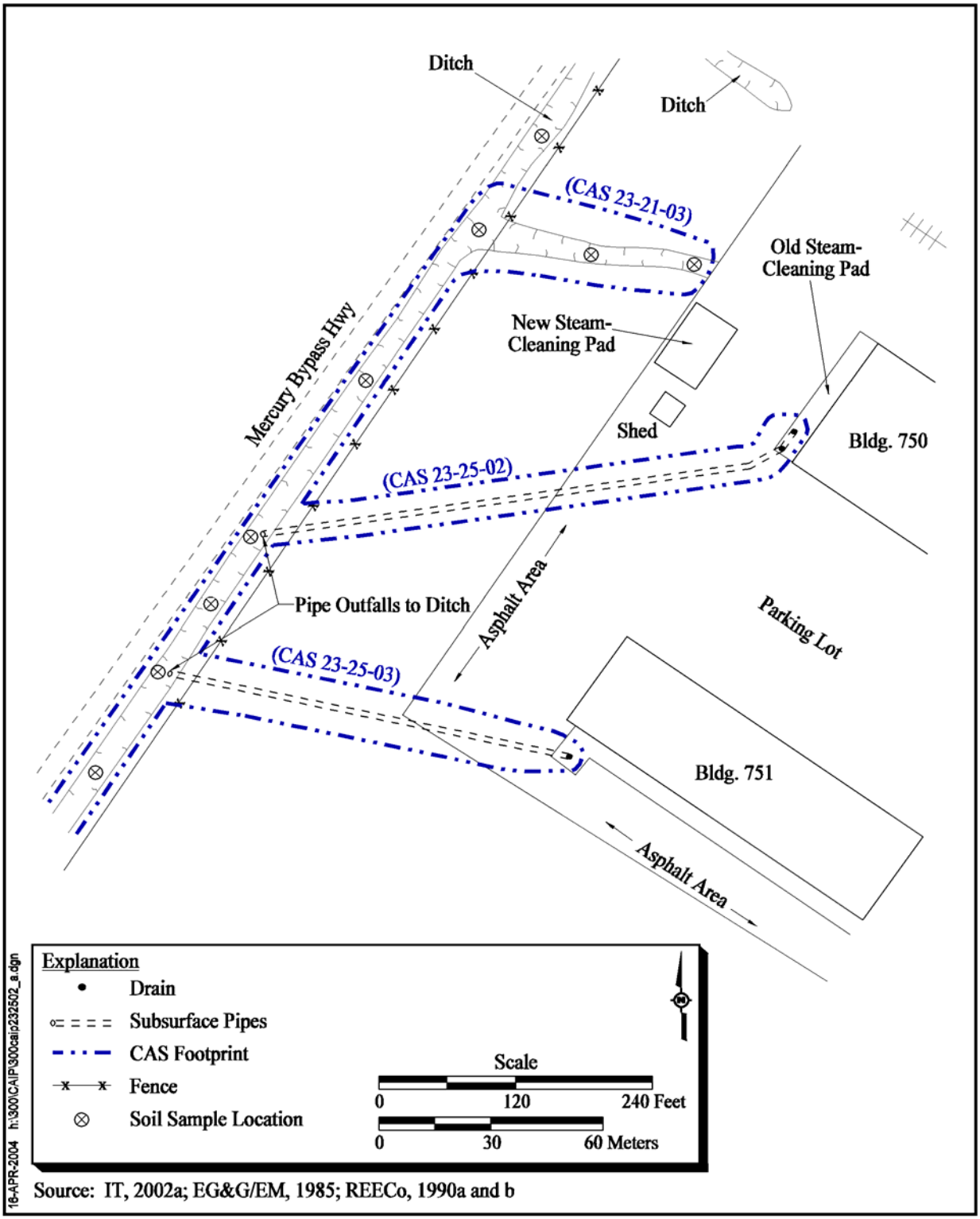

Figure A.1-6
Proposed Sampling Locations at Area 23 Mercury Bypass Ditch

A.1.8.4 CAS 25-60-01, Bldg. 3113A Outfall

During Decision I sampling, a minimum of eight samples will be collected between the two release points and downstream of those points. One surface soil sample will be collected from each of the following locations: the metal pipe opening, the concrete outfall area, approximately 10 ft downstream, and approximately 30 ft downstream within the visible wash channel. At each of the surface sample locations a subsurface sample will be collected from a depth of 6 to 18 in. to capture potential contamination that may have been covered by subsequent soil erosion. Biasing factors will aid in the selection of soil to be collected. A video survey will be performed on as much of the subsurface outfall pipe as practical. If any breaches are identified, excavation and sampling will be implemented to determine if COPCs are present. Figure A.1-7 shows the proposed Decision I sample locations.

Decision II step-out samples may be collected, as described in the introduction to Section A.1.8. The Site Supervisor will determine if Decision II sampling is appropriate based on biasing factors, primarily field screening of Decision I samples.

A.1.8.5 CAS 25-60-02, Bldg. 3901 Outfall

During Decision I sampling, a minimum of three surface soil samples will be collected with one directly below the outfall area, one approximately 10-ft downstream within the visible wash channel, and one approximately 10-ft upgradient to capture potential contamination emanating from any upstream source. Biasing factors will aid in the selection of soil to be collected. The concrete media of the outfall will also be sampled with biasing towards the visible staining. A video survey will be performed on as much of the subsurface outfall pipe as practical. If any breaches are identified, excavation and sampling will be implemented to determine if COPCs are present. Proposed Decision I sampling locations at CAS 25-60-02 are shown in Figure A.1-8.

Decision II step-out samples may be collected, as described in the introduction to Section A.1.8. The Site Supervisor will determine if Decision II sampling is appropriate based on biasing factors, primarily field screening of Decision I samples.

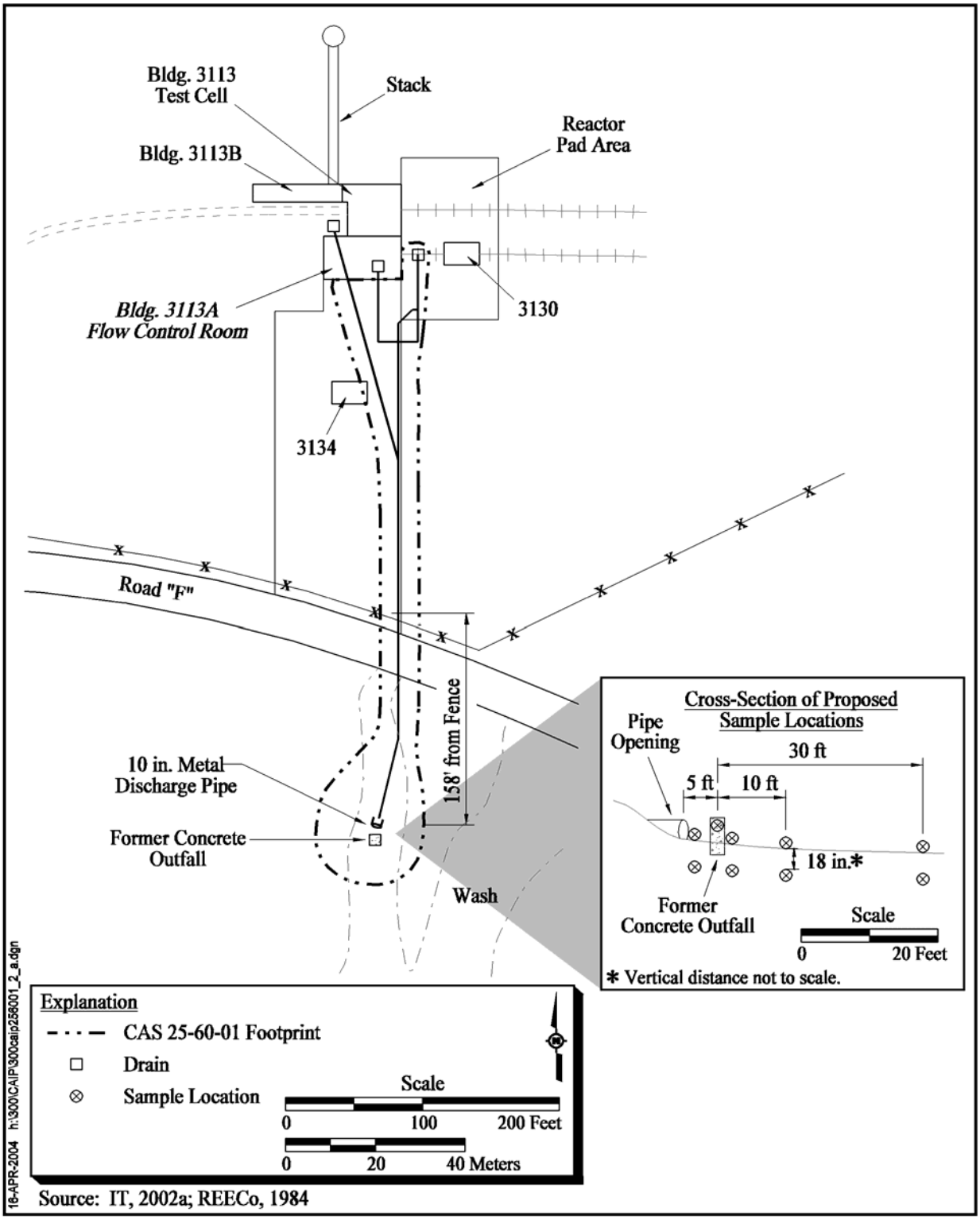

Figure A.1-7
Proposed Sampling Locations at CAS 25-60-01, Bldg. 3113A Outfall

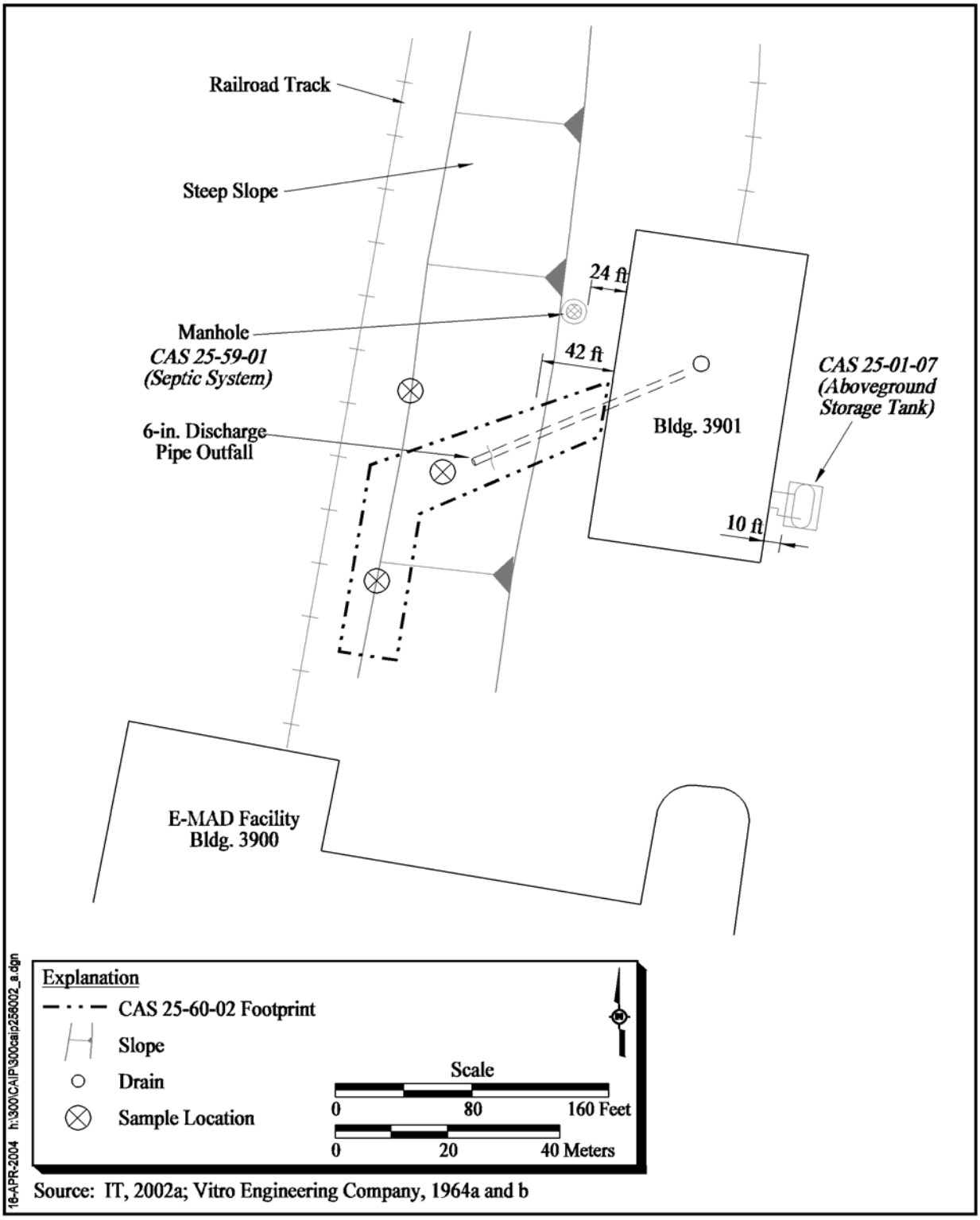

Figure A.1-8
Proposed Sampling Locations at CAS 25-60-02, Bldg. 3901 Outfall

A.1.8.6 CASs 25-62-01, Bldg. 3124 Contaminated Soil

Previous walk-over radiological survey data collected at this CAS (IT, 2001c) identified the presence of radiological contamination above PALs indicating the need for both Decision I and Decision II sampling. The nature of the gamma and beta counts from the survey, along with process knowledge of historical operations at the site, suggest there is a potential for a subsurface source contributing to the elevated gamma count rate. Therefore, the investigation will address both surface and potential subsurface soil contamination.

To address the nature of radiological contamination, Decision I surface soil samples will be collected at locations within areas of elevated gamma emission rates statistically exceeding background as determined by the post-process contour plot of the radiological survey data. To determine if chemical COPCs (e.g., PCBs) are present, these surface samples will also be submitted for chemical analysis with the assumption that the presence of chemical COPCs will be co-located with the radiological contamination. Sample locations may be modified in the field or additional locations added to address chemical COPCs, if conditions suggest this assumption is incorrect.

To address the lateral and vertical extent of the radiological contamination, Decision II sampling will be conducted either simultaneously or immediately following Decision I sampling. The lateral extent of radiological contamination will be confirmed with surface soil samples collected at locations where survey data indicate soils are indistinguishable from background concentrations.

To investigate vertical contamination and the potential for a subsurface radiological source of contamination, an appropriate method will be implemented to access and collect subsurface samples (e.g., hand auger). A cone-penetrometer truck (CPT) with gamma detection capabilities may be used if subsurface conditions are amenable to access subsurface soils to an adequate depth. The CPT uses a probe equipped with a gamma detector to push into subsurface soils at Decision I locations and collect vertical gamma emission rates in the surrounding soils as well as subsurface soil samples for laboratory analysis. The locations of the CPT pushes (i.e., Decision II locations) are expected to be coincident with the Decision I locations based on the assumption that if a buried source exists, its location will be associated with the highest elevated surface readings. Proposed Decision I and II sampling locations are shown in Figure A.1-9.

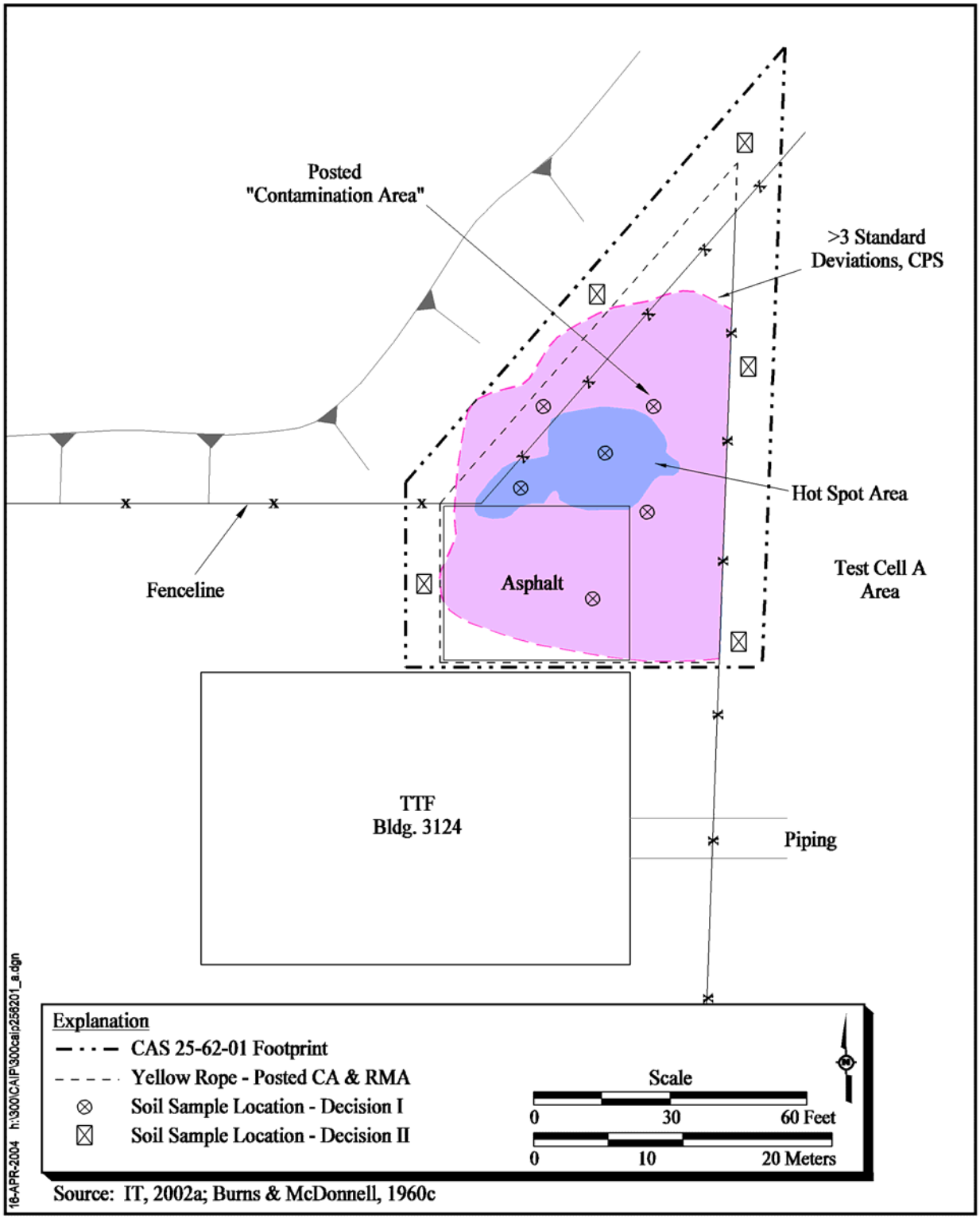

Figure A.1-9
Proposed Sampling Locations at CAS 26-62-01, Bldg. 3124 Contaminated Soil

Additional Decision II step-out samples may be collected for any chemical COCs identified, as described in the introduction to Section A.1.8. The Site Supervisor will determine if additional Decision II sampling is appropriate based on biasing factors, primarily field screening of Decision I samples.

A.1.8.7 CAS 26-60-01, Bldg. 2105 Outfall and Decon Pad

During Decision I sampling, soil samples will be collected from the native soil interface below the base of the asphalt pad surrounding both the concrete decon pad and the concrete building pad to address the potential for surface run-off of COPCs. A sample of the concrete media comprising the decon pad will also be collected for analysis. To address effluent discharge into the ditch, a minimum of one surface soil sample will be collected at the discharge point of both the decon pad culvert and the Bldg. 2105 outfall. A minimum of one surface sample will be collected both upstream and downstream of these two discharge locations within the ditch. Biasing factors will aid in the selection of soil to be collected. A video survey may be performed on as much of the subsurface outfall pipe as practical, if the outfall pipe can be located. If any breaches are identified, excavation and sampling will be implemented to determine if COPCs are present. Figure A.1-10 shows the proposed Decision I sampling locations for CAS 26-60-01.

Decision II step-out samples may be collected, as described in the introduction to Section A.1.8. The Site Supervisor, in concert with the Task Manager, will determine if Decision II sampling is appropriate based on biasing factors, primarily field screening of Decision I samples.

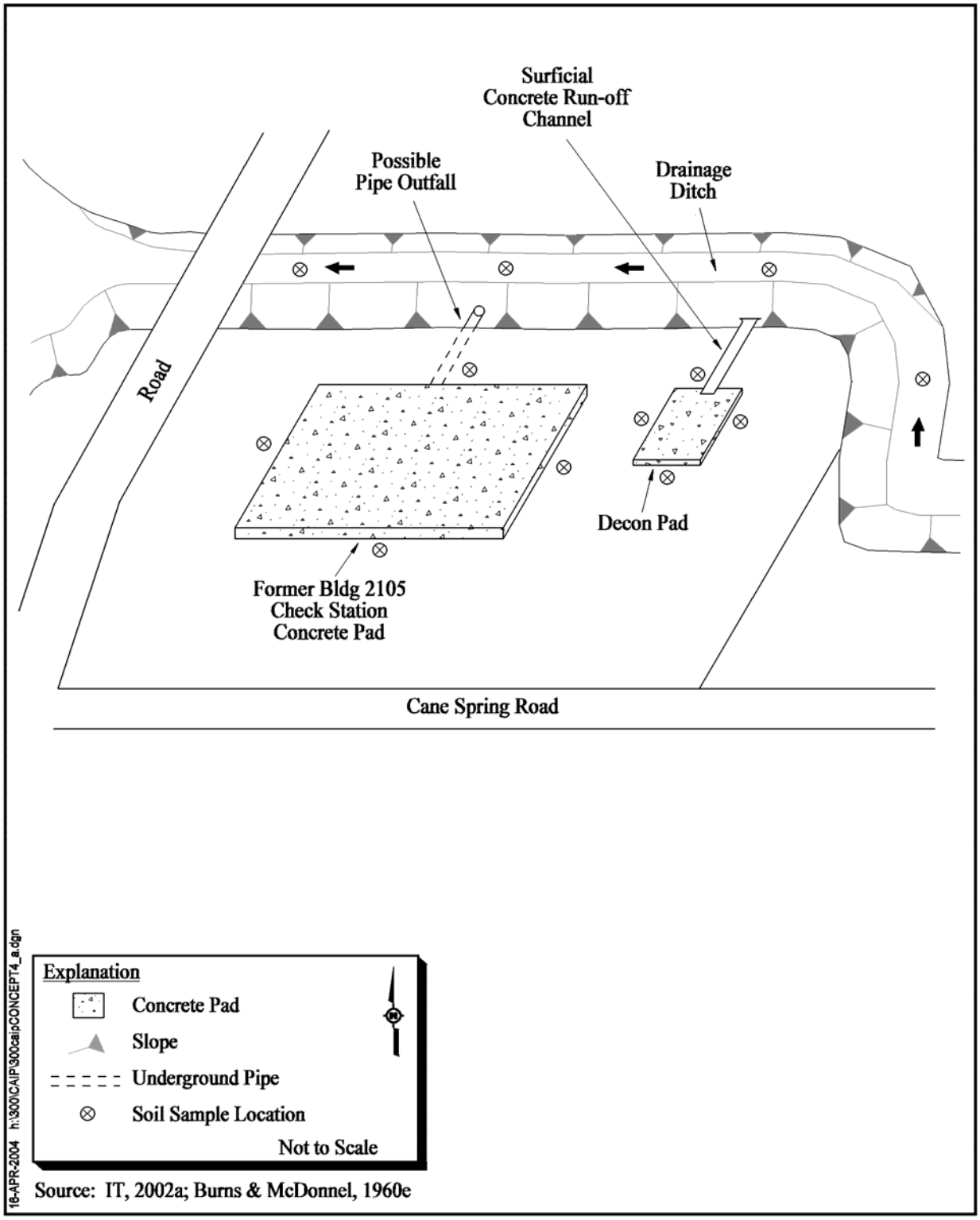

Figure A.1-10
Proposed Sampling Locations at CAS 26-60-01, Bldg. 2105 Outfall and Decon Pad

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APPENDIX B

ANALYTICAL RESULTS

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Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V1-N
Lab ID: 0705023-7

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 431 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070738d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.83E+00 +/- 3.99E-01	4.98E-01	
14596-10-2	Am-241	-1.21E-01 +/- 6.39E-01	1.12E+00	U
14733-03-0	Bi-214	9.15E-01 +/- 2.53E-01	2.76E-01	J
14762-78-8	Ce-144	0E+00 +/- 4.91E-01	8.44E-01	U
13981-50-5	Co-57	5.52E-01 +/- 1.10E-01	1.08E-01	SI
10198-40-0	Co-60	4.10E-02 +/- 9.37E-02	1.63E-01	U
13967-70-9	Cs-134	2.26E-02 +/- 7.58E-02	1.31E-01	U
10045-97-3	Cs-137	7.67E-01 +/- 1.82E-01	1.85E-01	LT
14683-23-9	Eu-152	2.03E+00 +/- 3.54E-01	3.67E-01	
15585-10-1	Eu-154	1.40E-01 +/- 4.72E-01	8.28E-01	U
14391-16-3	Eu-155	1.49E-01 +/- 2.99E-01	5.00E-01	U
13966-00-2	K-40	3.08E+01 +/- 4.76E+00	1.69E+00	
15092-94-1	Pb-212	1.60E+00 +/- 2.77E-01	2.21E-01	
15067-28-4	Pb-214	1.01E+00 +/- 2.13E-01	2.29E-01	J
14834-73-2	Pm-144	-2.50E-02 +/- 7.91E-02	1.46E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V1-N
Lab ID: 0705023-7

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 431 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070738d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	-2.72E-02 +/- 8.97E-02	1.64E-01	U
13967-48-1	Ru-106	-4.30E-01 +/- 7.22E-01	1.36E+00	U
14234-35-6	Sb-125	1.70E-01 +/- 2.09E-01	3.42E-01	U
15065-10-8	Th-234	1.74E+00 +/- 2.38E+00	3.90E+00	U
14913-50-9	Tl-208	5.88E-01 +/- 1.45E-01	1.44E-01	
15117-96-1	U-235	-2.39E-01 +/- 4.72E-01	8.33E-01	U
13982-36-0	Y-88	2.45E-02 +/- 9.35E-02	1.64E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V2-N
Lab ID: 0705023-8

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 407 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070610d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.96E+00 +/- 3.27E-01	3.91E-01	G
14596-10-2	Am-241	-5.37E-02 +/- 5.70E-01	9.64E-01	U,G
14913-49-6	Bi-212	2.54E+00 +/- 1.15E+00	1.69E+00	G
14733-03-0	Bi-214	9.97E-01 +/- 1.99E-01	2.14E-01	G,J
14762-78-8	Ce-144	-2.64E-01 +/- 4.37E-01	7.54E-01	U,G
13981-50-5	Co-57	3.14E-01 +/- 7.76E-02	9.85E-02	G,SI
10198-40-0	Co-60	1.37E-02 +/- 6.96E-02	1.20E-01	U,G
13967-70-9	Cs-134	7.34E-02 +/- 6.97E-02	1.13E-01	U,G
10045-97-3	Cs-137	7.07E-02 +/- 6.43E-02	1.03E-01	U,G
14683-23-9	Eu-152	9.02E-01 +/- 1.83E-01	2.76E-01	G
15585-10-1	Eu-154	1.78E-01 +/- 3.62E-01	6.08E-01	U,G
14391-16-3	Eu-155	2.22E-03 +/- 2.65E-01	4.48E-01	U,G
13966-00-2	K-40	3.07E+01 +/- 4.03E+00	1.08E+00	G
15092-94-1	Pb-212	1.89E+00 +/- 2.82E-01	2.01E-01	G
15067-28-4	Pb-214	9.25E-01 +/- 1.66E-01	1.92E-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

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V2-N
Lab ID: 0705023-8

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 407 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070610d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-73-2	Pm-144	3.28E-02 +/- 5.65E-02	9.40E-02	U,G
14834-74-3	Pm-146	-5.10E-03 +/- 6.97E-02	1.20E-01	U,G
13967-48-1	Ru-106	4.04E-02 +/- 5.14E-01	8.85E-01	U,G
14234-35-6	Sb-125	1.15E-01 +/- 1.38E-01	2.43E-01	U,G
15065-10-8	Th-234	1.14E+00 +/- 1.31E+00	2.14E+00	U,G
14913-50-9	Tl-208	5.41E-01 +/- 1.05E-01	9.95E-02	G
15117-96-1	U-235	-1.29E-01 +/- 4.33E-01	7.40E-01	U,G
13982-36-0	Y-88	1.60E-02 +/- 6.80E-02	1.16E-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.

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

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

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V3-N
Lab ID: 0705023-9

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 449 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070592d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.09E+00 +/- 3.06E-01	5.34E-01	
14596-10-2	Am-241	-5.48E-01 +/- 6.25E-01	1.15E+00	U
14733-03-0	Bi-214	8.97E-01 +/- 2.21E-01	2.14E-01	J
14762-78-8	Ce-144	-2.69E-01 +/- 3.96E-01	7.15E-01	U
10198-40-0	Co-60	-8.00E-02 +/- 7.77E-02	1.66E-01	U
13967-70-9	Cs-134	1.71E-01 +/- 5.87E-01	9.72E-01	U
10045-97-3	Cs-137	-8.09E-02 +/- 7.14E-02	1.44E-01	U
14683-23-9	Eu-152	3.42E-01 +/- 1.58E-01	2.24E-01	TI
15585-10-1	Eu-154	-1.78E-01 +/- 3.93E-01	7.68E-01	U
14391-16-3	Eu-155	1.96E-01 +/- 2.30E-01	3.76E-01	U
13966-00-2	K-40	2.66E+01 +/- 4.13E+00	1.36E+00	
15092-94-1	Pb-212	1.75E+00 +/- 2.99E-01	2.35E-01	
15067-28-4	Pb-214	7.62E-01 +/- 1.79E-01	2.24E-01	J
14834-73-2	Pm-144	5.76E-02 +/- 7.21E-02	1.18E-01	U
14834-74-3	Pm-146	2.47E-02 +/- 8.31E-02	1.44E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V3-N
Lab ID: 0705023-9

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 449 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070592d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13967-48-1	Ru-106	3.80E-02 +/- 5.74E-01	1.04E+00	U
14234-35-6	Sb-125	-1.14E-03 +/- 1.81E-01	3.22E-01	U
15065-10-8	Th-234	2.02E+00 +/- 1.39E+00	2.17E+00	U
14913-50-9	Tl-208	5.56E-01 +/- 1.38E-01	1.42E-01	
15117-96-1	U-235	-1.87E-01 +/- 3.91E-01	6.98E-01	U
13982-36-0	Y-88	3.38E-02 +/- 6.96E-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.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V4-N
Lab ID: 0705023-10

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 424 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070574d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.79E+00 +/- 3.77E-01	3.45E-01	G
14596-10-2	Am-241	3.17E-01 +/- 5.60E-01	9.36E-01	U,G
14733-03-0	Bi-214	8.25E-01 +/- 2.44E-01	2.67E-01	G,J
14762-78-8	Ce-144	-2.29E-01 +/- 3.64E-01	6.63E-01	U,G
13981-50-5	Co-57	2.10E-01 +/- 6.46E-02	7.90E-02	G,SI
10198-40-0	Co-60	-4.12E-02 +/- 7.29E-02	1.53E-01	U,G
13967-70-9	Cs-134	4.06E-03 +/- 6.35E-02	1.15E-01	U,G
10045-97-3	Cs-137	1.25E-01 +/- 8.54E-02	1.26E-01	U,G
14683-23-9	Eu-152	7.96E-01 +/- 2.46E-01	3.51E-01	G,TI
15585-10-1	Eu-154	-2.94E-01 +/- 4.10E-01	8.34E-01	U,G
14391-16-3	Eu-155	1.44E-01 +/- 2.26E-01	3.76E-01	U,G
13966-00-2	K-40	2.96E+01 +/- 4.58E+00	1.38E+00	G
15092-94-1	Pb-212	1.68E+00 +/- 2.96E-01	2.40E-01	G
15067-28-4	Pb-214	9.88E-01 +/- 2.10E-01	2.34E-01	G,J
14834-73-2	Pm-144	3.18E-02 +/- 6.49E-02	1.11E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V4-N
Lab ID: 0705023-10

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 424 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070574d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	8.69E-02 +/- 7.76E-02	1.20E-01	U,G
13967-48-1	Ru-106	3.77E-01 +/- 6.22E-01	1.05E+00	U,G
14234-35-6	Sb-125	7.18E-02 +/- 1.60E-01	3.05E-01	U,G
15065-10-8	Th-234	3.46E+00 +/- 2.04E+00	3.17E+00	G,TI
14913-50-9	Tl-208	6.47E-01 +/- 1.44E-01	1.20E-01	G
15117-96-1	U-235	-1.10E-01 +/- 3.68E-01	6.55E-01	U,G
13982-36-0	Y-88	2.51E-02 +/- 8.10E-02	1.44E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V5-N
Lab ID: 0705023-11

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 428 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070697d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	2.01E+00 +/- 4.36E-01	6.02E-01	
14596-10-2	Am-241	-8.16E-01 +/- 1.31E+00	2.35E+00	U
14733-03-0	Bi-214	1.06E+00 +/- 2.56E-01	2.55E-01	J
14762-78-8	Ce-144	-5.55E-01 +/- 5.46E-01	9.84E-01	U
13981-50-5	Co-57	1.62E-01 +/- 8.31E-02	1.24E-01	SI
10198-40-0	Co-60	6.88E-02 +/- 7.38E-02	1.15E-01	U
13967-70-9	Cs-134	-1.62E-02 +/- 7.79E-02	1.42E-01	U
10045-97-3	Cs-137	-4.95E-02 +/- 8.87E-02	1.68E-01	U
14683-23-9	Eu-152	4.68E-01 +/- 2.08E-01	3.20E-01	TI
15585-10-1	Eu-154	1.57E-01 +/- 4.29E-01	7.52E-01	U
14391-16-3	Eu-155	-7.86E-02 +/- 3.74E-01	6.48E-01	U
13966-00-2	K-40	3.04E+01 +/- 4.67E+00	1.44E+00	
15092-94-1	Pb-212	1.97E+00 +/- 3.15E-01	1.88E-01	
15067-28-4	Pb-214	1.03E+00 +/- 2.17E-01	2.38E-01	J
14834-73-2	Pm-144	-1.40E-02 +/- 7.21E-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.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V5-N
Lab ID: 0705023-11

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 428 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070697d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	6.65E-03 +/- 9.17E-02	1.63E-01	U
13967-48-1	Ru-106	-2.51E-01 +/- 6.15E-01	1.18E+00	U
14234-35-6	Sb-125	2.30E-01 +/- 1.98E-01	3.38E-01	U
15065-10-8	Th-234	2.41E+00 +/- 1.76E+00	2.76E+00	U
14913-50-9	Tl-208	6.52E-01 +/- 1.50E-01	1.30E-01	
15117-96-1	U-235	-1.95E-01 +/- 5.29E-01	9.28E-01	U
13982-36-0	Y-88	2.23E-02 +/- 9.51E-02	1.68E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V6-N
Lab ID: 0705023-12

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 440 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070739d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.57E+00 +/- 3.55E-01	5.37E-01	
14596-10-2	Am-241	1.50E-01 +/- 6.11E-01	1.04E+00	U
14913-49-6	Bi-212	3.56E+00 +/- 1.60E+00	2.18E+00	
14733-03-0	Bi-214	8.93E-01 +/- 2.36E-01	2.74E-01	J
14762-78-8	Ce-144	-3.15E-01 +/- 4.31E-01	7.74E-01	U
10198-40-0	Co-60	1.24E-02 +/- 8.47E-02	1.55E-01	U
13967-70-9	Cs-134	-3.04E-02 +/- 7.08E-02	1.32E-01	U
10045-97-3	Cs-137	1.29E-02 +/- 8.10E-02	1.43E-01	U
14683-23-9	Eu-152	3.01E-01 +/- 3.54E-01	5.65E-01	U
15585-10-1	Eu-154	3.79E-01 +/- 3.93E-01	6.19E-01	U
14391-16-3	Eu-155	2.77E-01 +/- 2.57E-01	4.11E-01	U
13966-00-2	K-40	3.40E+01 +/- 5.13E+00	1.66E+00	
15092-94-1	Pb-212	2.02E+00 +/- 3.10E-01	1.65E-01	
15067-28-4	Pb-214	1.08E+00 +/- 2.22E-01	2.54E-01	J
14834-73-2	Pm-144	-4.96E-02 +/- 7.61E-02	1.44E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V6-N
Lab ID: 0705023-12

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 440 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070739d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	6.66E-02 +/- 9.22E-02	1.52E-01	U
13967-48-1	Ru-106	7.10E-02 +/- 6.81E-01	1.21E+00	U
14234-35-6	Sb-125	8.27E-02 +/- 1.64E-01	3.00E-01	U
15065-10-8	Th-234	1.06E+00 +/- 1.25E+00	2.05E+00	U
14913-50-9	Tl-208	6.39E-01 +/- 1.43E-01	1.30E-01	
15117-96-1	U-235	-9.04E-02 +/- 4.37E-01	7.63E-01	U
13982-36-0	Y-88	1.49E-03 +/- 8.74E-02	1.59E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V7-N
Lab ID: 0705023-13

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 427 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070593d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.55E+00 +/- 3.78E-01	6.01E-01	
14596-10-2	Am-241	1.90E-01 +/- 6.94E-01	1.19E+00	U
14913-49-6	Bi-212	2.78E+00 +/- 1.34E+00	1.78E+00	TI
14733-03-0	Bi-214	1.02E+00 +/- 2.72E-01	2.92E-01	J
14762-78-8	Ce-144	4.10E-01 +/- 4.49E-01	7.28E-01	U
10198-40-0	Co-60	3.39E-02 +/- 8.62E-02	1.51E-01	U
13967-70-9	Cs-134	9.20E-02 +/- 7.00E-02	1.43E-01	U
10045-97-3	Cs-137	-1.89E-02 +/- 7.33E-02	1.37E-01	U
14683-23-9	Eu-152	3.31E-01 +/- 4.29E-01	7.01E-01	U
15585-10-1	Eu-154	-4.05E-01 +/- 4.64E-01	9.29E-01	U
14391-16-3	Eu-155	7.63E-02 +/- 2.78E-01	4.73E-01	U
13966-00-2	K-40	2.83E+01 +/- 4.43E+00	1.77E+00	
15092-94-1	Pb-212	2.14E+00 +/- 3.45E-01	2.37E-01	
15067-28-4	Pb-214	1.11E+00 +/- 2.33E-01	2.75E-01	J
14834-73-2	Pm-144	7.36E-02 +/- 7.94E-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.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V7-N
Lab ID: 0705023-13

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 427 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070593d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	-1.44E-02 +/- 8.05E-02	1.48E-01	U
13967-48-1	Ru-106	-2.40E-01 +/- 6.69E-01	1.25E+00	U
14234-35-6	Sb-125	1.50E-01 +/- 1.82E-01	3.23E-01	U
15065-10-8	Th-234	1.81E+00 +/- 1.75E+00	2.83E+00	U
14913-50-9	Tl-208	7.27E-01 +/- 1.59E-01	1.36E-01	
15117-96-1	U-235	-8.42E-02 +/- 4.18E-01	7.35E-01	U
13982-36-0	Y-88	-3.56E-02 +/- 9.50E-02	1.79E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V8-N
Lab ID: 0705023-14

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 441 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070575d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.82E+00 +/- 3.93E-01	4.78E-01	
14596-10-2	Am-241	-6.35E-03 +/- 6.28E-01	1.08E+00	U
14913-49-6	Bi-212	2.35E+00 +/- 1.38E+00	1.99E+00	
14733-03-0	Bi-214	1.09E+00 +/- 2.60E-01	2.70E-01	J
14762-78-8	Ce-144	1.49E-01 +/- 4.31E-01	7.29E-01	U
13981-50-5	Co-57	1.18E+00 +/- 1.76E-01	1.06E-01	SI
10198-40-0	Co-60	3.73E-02 +/- 7.99E-02	1.39E-01	U
13967-70-9	Cs-134	2.74E-02 +/- 7.94E-02	1.37E-01	U
10045-97-3	Cs-137	6.60E-01 +/- 1.58E-01	1.46E-01	LT
14683-23-9	Eu-152	3.68E+00 +/- 5.34E-01	3.54E-01	
15585-10-1	Eu-154	0E+00 +/- 4.71E-01	8.59E-01	U
14391-16-3	Eu-155	1.85E-01 +/- 2.96E-01	4.91E-01	U
13966-00-2	K-40	2.70E+01 +/- 4.22E+00	1.17E+00	
15092-94-1	Pb-212	1.76E+00 +/- 3.05E-01	2.49E-01	
15067-28-4	Pb-214	1.10E+00 +/- 2.37E-01	2.78E-01	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.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V8-N
Lab ID: 0705023-14

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 441 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070575d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-73-2	Pm-144	-4.36E-03 +/- 7.35E-02	1.34E-01	U
14834-74-3	Pm-146	7.97E-02 +/- 9.59E-02	1.56E-01	U
13967-48-1	Ru-106	7.24E-01 +/- 7.16E-01	1.13E+00	U
14234-35-6	Sb-125	1.91E-01 +/- 1.89E-01	3.29E-01	U
15065-10-8	Th-234	1.09E+00 +/- 1.56E+00	2.58E+00	U
14913-50-9	Tl-208	5.25E-01 +/- 1.39E-01	1.45E-01	
15117-96-1	U-235	4.28E-04 +/- 4.19E-01	7.25E-01	U
13982-36-0	Y-88	8.10E-02 +/- 9.35E-02	1.51E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V9-N
Lab ID: 0705023-15

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 426 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070698d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.81E+00 +/- 4.37E-01	5.33E-01	TI
14596-10-2	Am-241	-8.42E-01 +/- 1.37E+00	2.45E+00	U
14733-03-0	Bi-214	8.31E-01 +/- 2.51E-01	2.85E-01	J
14762-78-8	Ce-144	-1.14E-01 +/- 5.23E-01	9.13E-01	U
13981-50-5	Co-57	3.07E-01 +/- 8.21E-02	9.43E-02	SI
10198-40-0	Co-60	-2.57E-02 +/- 8.95E-02	1.74E-01	U
13967-70-9	Cs-134	8.23E-02 +/- 6.31E-02	1.40E-01	U
10045-97-3	Cs-137	9.13E-02 +/- 9.99E-02	1.62E-01	U
14683-23-9	Eu-152	1.01E+00 +/- 2.45E-01	3.59E-01	
15585-10-1	Eu-154	1.88E-01 +/- 4.27E-01	7.41E-01	U
14391-16-3	Eu-155	3.95E-02 +/- 3.62E-01	6.18E-01	U
13966-00-2	K-40	3.20E+01 +/- 4.86E+00	1.44E+00	
15092-94-1	Pb-212	1.74E+00 +/- 2.93E-01	2.03E-01	
15067-28-4	Pb-214	8.98E-01 +/- 2.02E-01	2.42E-01	J
14834-73-2	Pm-144	-4.59E-02 +/- 7.76E-02	1.48E-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 halflives.

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

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V9-N
Lab ID: 0705023-15

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 426 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070698d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	4.25E-03 +/- 9.67E-02	1.72E-01	U
13967-48-1	Ru-106	-5.04E-01 +/- 7.99E-01	1.51E+00	U
14234-35-6	Sb-125	-7.57E-03 +/- 2.11E-01	3.76E-01	U
15065-10-8	Th-234	1.65E+00 +/- 1.53E+00	2.44E+00	U
14913-50-9	Tl-208	5.21E-01 +/- 1.34E-01	1.26E-01	
15117-96-1	U-235	1.66E-01 +/- 5.31E-01	8.99E-01	U
13982-36-0	Y-88	-1.87E-02 +/- 8.18E-02	1.56E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V10-N
Lab ID: 0705023-16

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 418 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070740d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.55E+00 +/- 3.69E-01	5.22E-01	G
14596-10-2	Am-241	1.31E-01 +/- 6.81E-01	1.16E+00	U,G
14733-03-0	Bi-214	1.04E+00 +/- 2.70E-01	3.09E-01	G,J
14762-78-8	Ce-144	-1.66E-01 +/- 5.01E-01	8.77E-01	U,G
13981-50-5	Co-57	7.90E-01 +/- 1.37E-01	1.15E-01	G,SI
10198-40-0	Co-60	-2.11E-02 +/- 1.02E-01	1.93E-01	U,G
13967-70-9	Cs-134	-3.00E-02 +/- 7.84E-02	1.44E-01	U,G
10045-97-3	Cs-137	2.44E+00 +/- 3.68E-01	1.58E-01	G
14683-23-9	Eu-152	2.52E+00 +/- 4.13E-01	4.01E-01	G
15585-10-1	Eu-154	1.60E-01 +/- 5.33E-01	9.29E-01	U,G
14391-16-3	Eu-155	1.13E-01 +/- 3.19E-01	5.37E-01	U,G
13966-00-2	K-40	2.99E+01 +/- 4.72E+00	1.94E+00	G
15092-94-1	Pb-212	1.61E+00 +/- 2.81E-01	2.33E-01	G
15067-28-4	Pb-214	9.59E-01 +/- 2.11E-01	2.38E-01	G,J
14834-73-2	Pm-144	-8.06E-03 +/- 8.22E-02	1.48E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V10-N
Lab ID: 0705023-16

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 418 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070740d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	7.93E-02 +/- 1.06E-01	1.74E-01	U,G
13967-48-1	Ru-106	1.99E-02 +/- 7.41E-01	1.32E+00	U,G
14234-35-6	Sb-125	9.81E-02 +/- 2.14E-01	3.85E-01	U,G
15065-10-8	Th-234	6.34E-01 +/- 1.64E+00	2.76E+00	U,G
14913-50-9	Tl-208	5.38E-01 +/- 1.39E-01	1.39E-01	G
15117-96-1	U-235	2.90E-01 +/- 5.12E-01	8.51E-01	U,G
13982-36-0	Y-88	7.25E-02 +/- 8.75E-02	1.42E-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.

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

M - The requested MDC was not met.

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SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V11-N
Lab ID: 0705023-17

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 426 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070612d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.79E+00 +/- 3.07E-01	3.55E-01	
14596-10-2	Am-241	-1.76E-01 +/- 4.29E-01	7.34E-01	U
14913-49-6	Bi-212	2.19E+00 +/- 1.09E+00	1.64E+00	
14733-03-0	Bi-214	8.31E-01 +/- 1.85E-01	2.31E-01	J
14762-78-8	Ce-144	-3.49E-01 +/- 4.39E-01	7.58E-01	U
13981-50-5	Co-57	3.23E-01 +/- 7.40E-02	8.94E-02	SI
10198-40-0	Co-60	4.01E-02 +/- 5.84E-02	9.67E-02	U
13967-70-9	Cs-134	-4.13E-02 +/- 4.36E-01	7.21E-01	U
10045-97-3	Cs-137	1.18E-01 +/- 5.78E-02	8.39E-02	LT
14683-23-9	Eu-152	1.18E+00 +/- 2.11E-01	2.75E-01	
15585-10-1	Eu-154	3.96E-02 +/- 3.28E-01	5.66E-01	U
14391-16-3	Eu-155	6.02E-02 +/- 2.56E-01	4.29E-01	U
13966-00-2	K-40	2.92E+01 +/- 3.84E+00	1.05E+00	
15092-94-1	Pb-212	1.75E+00 +/- 2.70E-01	2.15E-01	
15067-28-4	Pb-214	1.00E+00 +/- 1.79E-01	2.02E-01	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.

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M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256001-V11-N
Lab ID: 0705023-17

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 426 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070612d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-73-2	Pm-144	-3.71E-03 +/- 5.75E-02	9.94E-02	U
14834-74-3	Pm-146	-1.87E-02 +/- 6.67E-02	1.17E-01	U
13967-48-1	Ru-106	-4.35E-01 +/- 5.31E-01	9.52E-01	U
14234-35-6	Sb-125	4.28E-02 +/- 1.31E-01	2.43E-01	U
15065-10-8	Th-234	2.47E+00 +/- 1.53E+00	2.43E+00	TI
14913-50-9	Tl-208	4.51E-01 +/- 9.36E-02	9.38E-02	
15117-96-1	U-235	-1.76E-01 +/- 4.15E-01	7.11E-01	U
13982-36-0	Y-88	4.47E-02 +/- 6.67E-02	1.10E-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.

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SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 05/10/07 17:58

RFW Batch Number: **0705L223** Client: **NSTEC V2911** Work Order: 60052001001 Page: 1

	Cust ID:	256001-V1-N	256001-V1-N	256001-V1-N	256001-V2-N	256001-V3-N	256001-V4-N
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	10.0	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		D %	80 %	298 * %	86 %	86 %	69 %
Decachlorobiphenyl		D %	86 %	81 %	90 %	95 %	83 %
Aroclor-1016		130 U	110 %	I %	13 U	13 U	13 U
Aroclor-1221		130 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1232		130 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1242		130 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1248		130 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1254		130 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1260		130 U	I %	I %	13 U	13 U	13 U
Aroclor-1268		130 U	13 U	13 U	13 U	13 U	13 U
TOTAL PCB'S		~~400~~ NR U LK 5-10-07	NR	NR	NR	NR	NR

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:	**256001-V5-N**		**256001-V6-N**		**256001-V7-N**		**256001-V8-N**		**256001-V9-N**		**256001-V10-N**	
Sample	RFW#:	**005**		**006**		**007**		**008**		**009**		**010**	
Information	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		10.0		1.00		10.0	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate:	Tetrachloro-m-xylene	84	%	85	%	77	%	D	%	78	%	D	%
	Decachlorobiphenyl	93	%	101	%	95	%	D	%	92	%	D	%
			fl		fl		fl		fl		fl		fl
Aroclor-1016		13	U	13	U	13	U	130	U	13	U	130	U
Aroclor-1221		13	U	13	U	13	U	130	U	13	U	130	U
Aroclor-1232		13	U	13	U	13	U	130	U	13	U	130	U
Aroclor-1242		13	U	13	U	13	U	130	U	13	U	130	U
Aroclor-1248		13	U	13	U	13	U	130	U	13	U	130	U
Aroclor-1254		50		13	U	13	U	130	U	13	U	130	U
Aroclor-1260		13	U	13	U	13	U	130	U	13	U	130	U
Aroclor-1268		13	U	13	U	13	U	130	U	13	U	130	U
TOTAL PCB'S		NR		NR		NR		NR		NR		NR	

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:	**256001-V11-N**	**PBLKAE**	**PBLKAE BS**
Sample Information		RFW#:	**011**	**07LE0243-MB1**	**07LE0243-MB1**
		Matrix:	SOIL	SOIL	SOIL
		D.F.:	10.0	1.00	1.00
		Units:	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene		D %	77 %	72 %
	Decachlorobiphenyl		D %	98 %	91 %
Aroclor-1016			130 U	13 U	81 %
Aroclor-1221			130 U	13 U	13 U
Aroclor-1232			130 U	13 U	13 U
Aroclor-1242			130 U	13 U	13 U
Aroclor-1248			130 U	13 U	13 U
Aroclor-1254			130 U	13 U	13 U
Aroclor-1260			130 U	13 U	94 %
Aroclor-1268			130 U	13 U	13 U
TOTAL PCB'S			NR	NR	NR

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.

Semivolatiles by GC/MS, TCLP Leachate — Report Date: 05/10/07 10:18

RFW Batch Number: 0705L223 — Client: NSTEC V2911 — Work Order: 60052001001 — Page: 1a

	Cust ID:	256001-V1-N		256001-V2-N		256001-V3-N		256001-V4-N		256001-V5-N		256001-V6-N	
Sample Information	RFW#:	012		013		014		015		016		017	
	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	
Surrogate Recovery	Nitrobenzene-d5	98	%	66	%	69	%	74	%	92	%	75	%
	2-Fluorobiphenyl	85	%	55	%	62	%	69	%	79	%	68	%
	p-Terphenyl-d14	113	%	97	%	90	%	90	%	121	%	98	%
	Phenol-d5	96 *	%	61	%	67	%	77	%	95 *	%	80	%
	2-Fluorophenol	93	%	58	%	65	%	72	%	87	%	73	%
	2,4,6-Tribromophenol	105	%	69	%	76	%	82	%	95	%	86	%
Pyridine		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
1,4-Dichlorobenzene		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
2-Methylphenol		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
3/4-Methylphenol		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Hexachloroethane		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Nitrobenzene		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Hexachlorobutadiene		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
2,4,6-Trichlorophenol		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
2,4,5-Trichlorophenol		0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U
2,4-Dinitrotoluene		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Hexachlorobenzene		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Pentachlorophenol		0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U

*= Outside of EPA CLP QC limits.

	Cust ID:	256001-V7-N		256001-V8-N		256001-V9-N		256001-V10-N		256001-V10-N		256001-V10-N	
Sample Information	RFW#:	018		019		020		021		021 MS		021 MSD	
	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	
Surrogate Recovery	Nitrobenzene-d5	79	%	74	%	66	%	75	%	62	%	65	%
	2-Fluorobiphenyl	71	%	65	%	55	%	62	%	71	%	64	%
	p-Terphenyl-d14	104	%	101	%	105	%	126	%	97	%	108	%
	Phenol-d5	84	%	84	%	72	%	85	%	80	%	86	%
	2-Fluorophenol	76	%	85	%	72	%	84	%	70	%	77	%
	2,4,6-Tribromophenol	93	%	72	%	64	%	84	%	91	%	86	%
Pyridine		0.050	U	0.050	U	0.050	U	0.050	U	69	%	62	%
1,4-Dichlorobenzene		0.050	U	0.050	U	0.050	U	0.050	U	60	%	56	%
2-Methylphenol		0.050	U	0.050	U	0.050	U	0.050	U	81	%	100	%
3/4-Methylphenol		0.050	U	0.050	U	0.050	U	0.050	U	81	%	98	%
Hexachloroethane		0.050	U	0.050	U	0.050	U	0.050	U	54	%	50	%
Nitrobenzene		0.050	U	0.050	U	0.050	U	0.050	U	63	%	67	%
Hexachlorobutadiene		0.050	U	0.050	U	0.050	U	0.050	U	52	%	53	%
2,4,6-Trichlorophenol		0.050	U	0.050	U	0.050	U	0.050	U	84	%	82	%
2,4,5-Trichlorophenol		0.12	U	0.12	U	0.12	U	0.12	U	88	%	89	%
2,4-Dinitrotoluene		0.050	U	0.050	U	0.050	U	0.050	U	95	%	90	%
Hexachlorobenzene		0.050	U	0.050	U	0.050	U	0.050	U	86	%	86	%
Pentachlorophenol		0.12	U	0.12	U	0.12	U	0.12	U	102	%	85	%

*= Outside of EPA CLP QC limits.

		Cust ID:	256001-V11-N		SBLKKO		SBLKKO BS		LCHBLK	
Sample Information		RFW#:	022		07LE0245-MB1		07LE0245-MB1		07LTO063-LB1	
		Matrix:	WATER		WATER		WATER		WATER	
		D.F.	1.00		1.00		1.00		1.00	
		Units:	mg/L		mg/L		mg/L		mg/L	
Surrogate Recovery	Nitrobenzene-d5		72	%	82	%	75	%	70	%
	2-Fluorobiphenyl		64	%	79	%	94	%	62	%
	p-Terphenyl-d14		92	%	107	%	114	%	98	%
	Phenol-d5		76	%	82	%	101 *	%	72	%
	2-Fluorophenol		70	%	80	%	90	%	69	%
	2,4,6-Tribromophenol		75	%	85	%	111	%	74	%
Pyridine			0.050	U	0.050	U	85	%	0.050	U
1,4-Dichlorobenzene			0.050	U	0.050	U	70	%	0.050	U
2-Methylphenol			0.050	U	0.050	U	93	%	0.050	U
3/4-Methylphenol			0.050	U	0.050	U	93	%	0.050	U
Hexachloroethane			0.050	U	0.050	U	67	%	0.050	U
Nitrobenzene			0.050	U	0.050	U	68	%	0.050	U
Hexachlorobutadiene			0.050	U	0.050	U	59	%	0.050	U
2,4,6-Trichlorophenol			0.050	U	0.050	U	97	%	0.050	U
2,4,5-Trichlorophenol			0.12	U	0.12	U	97	%	0.12	U
2,4-Dinitrotoluene			0.050	U	0.050	U	104 *	%	0.050	U
Hexachlorobenzene			0.050	U	0.050	U	100	%	0.050	U
Pentachlorophenol			0.12	U	0.12	U	122 *	%	0.12	U

*= Outside of EPA CLP QC limits.

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS1
Lab ID: 0704142-1

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 426 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070507d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.75E+00 +/- 3.77E-01	4.35E-01	
14596-10-2	Am-241	-1.38E-01 +/- 5.63E-01	9.95E-01	U
14913-49-6	Bi-212	2.94E+00 +/- 1.17E+00	1.29E+00	
14733-03-0	Bi-214	1.06E+00 +/- 2.54E-01	2.43E-01	J
14762-78-8	Ce-144	2.59E-01 +/- 3.83E-01	6.34E-01	U
10198-40-0	Co-60	1.53E-02 +/- 7.34E-02	1.36E-01	U
13967-70-9	Cs-134	3.19E-02 +/- 4.36E-02	8.88E-02	U
10045-97-3	Cs-137	9.37E-02 +/- 8.38E-02	1.30E-01	U
14683-23-9	Eu-152	1.82E-01 +/- 3.50E-01	6.08E-01	U
15585-10-1	Eu-154	2.28E-01 +/- 4.75E-01	8.14E-01	U
14391-16-3	Eu-155	2.28E-01 +/- 2.34E-01	3.77E-01	U
13966-00-2	K-40	2.97E+01 +/- 4.57E+00	1.23E+00	
15092-94-1	Pb-212	2.32E+00 +/- 3.53E-01	1.80E-01	
15067-28-4	Pb-214	1.19E+00 +/- 2.27E-01	2.25E-01	J
14834-73-2	Pm-144	-6.35E-02 +/- 6.00E-02	1.25E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS1
Lab ID: 0704142-1

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 426 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070507d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	4.65E-02 +/- 8.37E-02	1.41E-01	U
13967-48-1	Ru-106	-2.92E-01 +/- 5.36E-01	1.06E+00	U
14234-35-6	Sb-125	1.69E-01 +/- 1.78E-01	3.18E-01	U
15065-10-8	Th-234	2.03E+00 +/- 1.61E+00	2.55E+00	U
14913-50-9	Tl-208	5.29E-01 +/- 1.36E-01	1.32E-01	
15117-96-1	U-235	2.65E-01 +/- 3.72E-01	6.14E-01	U
13982-36-0	Y-88	9.06E-04 +/- 7.27E-02	1.36E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS2
Lab ID: 0704142-2

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 440 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070611d08

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.64E+00 +/- 3.57E-01	3.95E-01	
14596-10-2	Am-241	4.56E-02 +/- 1.36E-01	2.30E-01	U
14913-49-6	Bi-212	2.08E+00 +/- 1.03E+00	1.33E+00	
14733-03-0	Bi-214	1.08E+00 +/- 2.49E-01	2.55E-01	J
14762-78-8	Ce-144	-4.83E-02 +/- 3.23E-01	5.71E-01	U
10198-40-0	Co-60	2.54E-02 +/- 5.99E-02	1.07E-01	U
13967-70-9	Cs-134	-4.68E-02 +/- 6.43E-02	1.24E-01	U
10045-97-3	Cs-137	4.40E-02 +/- 6.24E-02	1.03E-01	U
14683-23-9	Eu-152	1.01E-01 +/- 3.23E-01	5.86E-01	U
15585-10-1	Eu-154	4.13E-01 +/- 4.03E-01	6.29E-01	U
14391-16-3	Eu-155	-3.29E-03 +/- 1.73E-01	3.02E-01	U
13966-00-2	K-40	3.08E+01 +/- 4.64E+00	1.33E+00	
15092-94-1	Pb-212	2.08E+00 +/- 3.22E-01	1.89E-01	
15067-28-4	Pb-214	1.17E+00 +/- 2.26E-01	2.50E-01	J
14834-73-2	Pm-144	6.07E-02 +/- 6.36E-02	1.01E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS2
Lab ID: 0704142-2

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 440 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070611d08

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	-1.44E-02 +/- 7.16E-02	1.32E-01	U
13967-48-1	Ru-106	1.49E-01 +/- 5.05E-01	8.94E-01	U
14234-35-6	Sb-125	5.91E-03 +/- 1.60E-01	2.86E-01	U
15065-10-8	Th-234	2.39E+00 +/- 9.23E-01	1.67E+00	
14913-50-9	Tl-208	6.82E-01 +/- 1.47E-01	1.21E-01	
15117-96-1	U-235	6.57E-02 +/- 3.33E-01	5.72E-01	U
13982-36-0	Y-88	-1.48E-02 +/- 7.53E-02	1.43E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS3
Lab ID: 0704142-3

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 408 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070672d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.61E+00 +/- 3.95E-01	6.60E-01	G
14596-10-2	Am-241	2.51E-01 +/- 6.45E-01	1.09E+00	U,G
14913-49-6	Bi-212	1.88E+00 +/- 1.09E+00	1.50E+00	G
14733-03-0	Bi-214	1.17E+00 +/- 2.69E-01	2.64E-01	G,J
14762-78-8	Ce-144	2.70E-01 +/- 4.48E-01	7.45E-01	U,G
10198-40-0	Co-60	-3.13E-02 +/- 7.71E-02	1.57E-01	U,G
13967-70-9	Cs-134	-6.82E-02 +/- 7.20E-02	1.40E-01	U,G
10045-97-3	Cs-137	7.72E-02 +/- 9.33E-02	1.52E-01	U,G
14683-23-9	Eu-152	1.19E-01 +/- 4.08E-01	7.37E-01	U,G
15585-10-1	Eu-154	-3.48E-01 +/- 4.74E-01	9.39E-01	U,G
14391-16-3	Eu-155	3.18E-01 +/- 2.84E-01	4.54E-01	U,G
13966-00-2	K-40	3.29E+01 +/- 5.05E+00	1.60E+00	G
15092-94-1	Pb-212	1.59E+00 +/- 2.85E-01	2.44E-01	G
15067-28-4	Pb-214	9.88E-01 +/- 2.09E-01	2.23E-01	G,J
14834-73-2	Pm-144	-6.28E-03 +/- 8.30E-02	1.50E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS3
Lab ID: 0704142-3

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 408 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070672d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	-8.14E-02 +/- 8.35E-02	1.64E-01	U,G
13967-48-1	Ru-106	-3.69E-01 +/- 6.75E-01	1.29E+00	U,G
14234-35-6	Sb-125	-8.97E-02 +/- 1.84E-01	3.45E-01	U,G
15065-10-8	Th-234	2.42E+00 +/- 1.80E+00	2.85E+00	U,G
14913-50-9	Tl-208	6.73E-01 +/- 1.54E-01	1.36E-01	G
15117-96-1	U-235	-5.71E-02 +/- 4.24E-01	7.42E-01	U,G
13982-36-0	Y-88	-2.84E-02 +/- 8.46E-02	1.62E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS4
Lab ID: 0704142-4

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 398 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070527d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.70E+00 +/- 3.99E-01	5.17E-01	G
14596-10-2	Am-241	2.25E-01 +/- 7.07E-01	1.21E+00	U,G
14733-03-0	Bi-214	1.16E+00 +/- 2.84E-01	2.65E-01	G,J
14762-78-8	Ce-144	4.46E-03 +/- 4.49E-01	7.79E-01	U,G
10198-40-0	Co-60	3.13E-02 +/- 8.51E-02	1.51E-01	U,G
13967-70-9	Cs-134	1.67E-02 +/- 9.72E-02	1.66E-01	U,G
10045-97-3	Cs-137	9.12E-02 +/- 9.78E-02	1.57E-01	U,G
14683-23-9	Eu-152	-1.49E-01 +/- 4.07E-01	8.14E-01	U,G
15585-10-1	Eu-154	1.67E-01 +/- 4.38E-01	7.67E-01	U,G
14391-16-3	Eu-155	-5.45E-02 +/- 2.68E-01	4.72E-01	U,G
13966-00-2	K-40	2.87E+01 +/- 4.49E+00	1.38E+00	G
15092-94-1	Pb-212	2.10E+00 +/- 3.34E-01	2.05E-01	G
15067-28-4	Pb-214	1.05E+00 +/- 2.32E-01	2.96E-01	G,J
14834-73-2	Pm-144	1.86E-02 +/- 8.23E-02	1.44E-01	U,G
14834-74-3	Pm-146	-3.10E-02 +/- 9.62E-02	1.77E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS4
Lab ID: 0704142-4

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 398 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070527d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13967-48-1	Ru-106	-5.16E-01 +/- 6.90E-01	1.35E+00	U,G
14234-35-6	Sb-125	-1.74E-01 +/- 1.81E-01	3.55E-01	U,G
15065-10-8	Th-234	1.89E+00 +/- 1.70E+00	2.73E+00	U,G
14913-50-9	Tl-208	6.11E-01 +/- 1.45E-01	1.29E-01	G
15117-96-1	U-235	-1.96E-01 +/- 4.44E-01	7.91E-01	U,G
13982-36-0	Y-88	5.78E-02 +/- 9.38E-02	1.58E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS5
Lab ID: 0704142-5

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 434 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070648d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.39E+00 +/- 3.47E-01	4.78E-01	
14596-10-2	Am-241	-2.41E-01 +/- 5.71E-01	1.03E+00	U
14733-03-0	Bi-214	8.18E-01 +/- 2.43E-01	2.90E-01	J
14762-78-8	Ce-144	-1.92E-01 +/- 3.72E-01	6.66E-01	U
10198-40-0	Co-60	7.25E-02 +/- 9.16E-02	1.50E-01	U
13967-70-9	Cs-134	-2.33E-02 +/- 8.98E-02	1.62E-01	U
10045-97-3	Cs-137	-4.05E-03 +/- 6.73E-02	1.22E-01	U
14683-23-9	Eu-152	9.99E-02 +/- 3.19E-01	5.73E-01	U
15585-10-1	Eu-154	-1.56E-01 +/- 4.51E-01	8.43E-01	U
14391-16-3	Eu-155	1.82E-02 +/- 2.24E-01	3.88E-01	U
13966-00-2	K-40	2.97E+01 +/- 4.41E+00	1.18E+00	
15092-94-1	Pb-212	1.79E+00 +/- 3.06E-01	2.60E-01	
15067-28-4	Pb-214	1.22E+00 +/- 2.34E-01	2.48E-01	J
14834-73-2	Pm-144	-1.86E-02 +/- 6.62E-02	1.22E-01	U
14834-74-3	Pm-146	-3.97E-03 +/- 7.05E-02	1.27E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS5
Lab ID: 0704142-5

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 434 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070648d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13967-48-1	Ru-106	2.06E-01 +/- 6.14E-01	1.06E+00	U
14234-35-6	Sb-125	5.68E-02 +/- 1.57E-01	2.88E-01	U
15065-10-8	Th-234	1.89E+00 +/- 1.43E+00	2.25E+00	U
14913-50-9	Tl-208	5.00E-01 +/- 1.22E-01	1.15E-01	
15117-96-1	U-235	-3.47E-01 +/- 3.72E-01	6.78E-01	U
13982-36-0	Y-88	-1.03E-02 +/- 8.23E-02	1.51E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS6
Lab ID: 0704142-6

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 419 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070528d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	2.19E+00 +/- 4.46E-01	5.30E-01	G
14596-10-2	Am-241	-2.52E-01 +/- 7.77E-01	1.37E+00	U,G
14913-49-6	Bi-212	3.30E+00 +/- 1.63E+00	2.28E+00	G
14733-03-0	Bi-214	1.16E+00 +/- 2.64E-01	2.48E-01	G,J
14762-78-8	Ce-144	-3.92E-02 +/- 4.89E-01	8.47E-01	U,G
10198-40-0	Co-60	8.35E-03 +/- 9.51E-02	1.74E-01	U,G
13967-70-9	Cs-134	-1.72E-02 +/- 6.15E-02	1.50E-01	U,G
10045-97-3	Cs-137	-2.90E-02 +/- 8.31E-02	1.55E-01	U,G
14683-23-9	Eu-152	-3.19E-01 +/- 4.27E-01	8.79E-01	U,G
15585-10-1	Eu-154	4.76E-01 +/- 4.66E-01	7.30E-01	U,G
14391-16-3	Eu-155	2.34E-01 +/- 2.81E-01	4.59E-01	U,G
13966-00-2	K-40	3.08E+01 +/- 4.72E+00	1.55E+00	G
15092-94-1	Pb-212	1.97E+00 +/- 3.50E-01	3.18E-01	G
15067-28-4	Pb-214	1.30E+00 +/- 2.57E-01	2.70E-01	G,J
14834-73-2	Pm-144	4.43E-03 +/- 8.27E-02	1.47E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS6
Lab ID: 0704142-6

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 419 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070528d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	8.25E-03 +/- 9.53E-02	1.68E-01	U,G
13967-48-1	Ru-106	2.04E-01 +/- 6.60E-01	1.15E+00	U,G
14234-35-6	Sb-125	1.45E-01 +/- 1.86E-01	3.57E-01	U,G
15065-10-8	Th-234	2.94E+00 +/- 2.21E+00	3.52E+00	U,G
14913-50-9	Tl-208	8.03E-01 +/- 1.76E-01	1.59E-01	G
15117-96-1	U-235	3.86E-01 +/- 4.57E-01	7.46E-01	U,G
13982-36-0	Y-88	2.45E-02 +/- 1.01E-01	1.78E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS7
Lab ID: 0704142-7

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 424 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070508d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	2.24E+00 +/- 4.36E-01	4.64E-01	G
14596-10-2	Am-241	-6.29E-01 +/- 5.99E-01	1.10E+00	U,G
14733-03-0	Bi-214	1.05E+00 +/- 2.51E-01	2.61E-01	G,J
14762-78-8	Ce-144	2.13E-01 +/- 3.96E-01	6.63E-01	U,G
13981-50-5	Co-57	1.54E-01 +/- 7.52E-02	1.12E-01	G
10198-40-0	Co-60	-4.86E-02 +/- 7.14E-02	1.53E-01	U,G
13967-70-9	Cs-134	-8.13E-03 +/- 6.90E-02	1.26E-01	U,G
10045-97-3	Cs-137	9.11E-02 +/- 7.44E-02	1.13E-01	U,G
14683-23-9	Eu-152	6.25E-01 +/- 2.17E-01	3.28E-01	G,TI
15585-10-1	Eu-154	-3.26E-02 +/- 4.18E-01	7.85E-01	U,G
14391-16-3	Eu-155	1.84E-01 +/- 2.54E-01	4.19E-01	U,G
13966-00-2	K-40	2.84E+01 +/- 4.46E+00	1.60E+00	G
15092-94-1	Pb-212	2.28E+00 +/- 3.56E-01	2.19E-01	G
15067-28-4	Pb-214	1.32E+00 +/- 2.49E-01	2.28E-01	G,J
14834-73-2	Pm-144	-8.00E-05 +/- 7.78E-02	1.40E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS7
Lab ID: 0704142-7

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 424 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070508d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	3.38E-02 +/- 7.00E-02	1.20E-01	U,G
13967-48-1	Ru-106	-5.03E-01 +/- 6.19E-01	1.23E+00	U,G
14234-35-6	Sb-125	-8.75E-02 +/- 1.90E-01	3.98E-01	U,G
15065-10-8	Th-234	2.63E+00 +/- 1.93E+00	3.06E+00	U,G
14913-50-9	Tl-208	7.10E-01 +/- 1.61E-01	1.44E-01	G
15117-96-1	U-235	-1.42E-01 +/- 3.96E-01	7.04E-01	U,G
13982-36-0	Y-88	-4.18E-02 +/- 6.94E-02	1.43E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS8
Lab ID: 0704142-8

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 432 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070649d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.84E+00 +/- 4.04E-01	6.55E-01	
14596-10-2	Am-241	-2.64E-01 +/- 5.87E-01	1.06E+00	U
14733-03-0	Bi-214	9.99E-01 +/- 2.34E-01	2.26E-01	J
14762-78-8	Ce-144	-3.08E-01 +/- 4.00E-01	7.21E-01	U
10198-40-0	Co-60	-1.06E-02 +/- 8.72E-02	1.62E-01	U
13967-70-9	Cs-134	1.39E-01 +/- 9.31E-02	1.39E-01	U
10045-97-3	Cs-137	3.25E-02 +/- 8.45E-02	1.45E-01	U
14683-23-9	Eu-152	4.31E-01 +/- 3.33E-01	4.72E-01	U
15585-10-1	Eu-154	3.08E-01 +/- 3.89E-01	6.35E-01	U
14391-16-3	Eu-155	1.09E-01 +/- 2.44E-01	4.10E-01	U
13966-00-2	K-40	3.13E+01 +/- 4.62E+00	1.34E+00	
15092-94-1	Pb-212	2.06E+00 +/- 3.34E-01	2.56E-01	
15067-28-4	Pb-214	1.19E+00 +/- 2.33E-01	2.49E-01	J
14834-73-2	Pm-144	-1.12E-02 +/- 6.64E-02	1.21E-01	U
14834-74-3	Pm-146	2.39E-02 +/- 7.30E-02	1.26E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS8
Lab ID: 0704142-8

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 432 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070649d02

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13967-48-1	Ru-106	-3.44E-01 +/- 6.17E-01	1.17E+00	U
14234-35-6	Sb-125	1.16E-01 +/- 1.82E-01	3.03E-01	U
15065-10-8	Th-234	8.16E-01 +/- 1.28E+00	2.12E+00	U
14913-50-9	Tl-208	7.70E-01 +/- 1.55E-01	1.20E-01	
15117-96-1	U-235	4.92E-02 +/- 4.20E-01	7.20E-01	U
13982-36-0	Y-88	-5.68E-02 +/- 8.48E-02	1.64E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS9
Lab ID: 0704142-9

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 427 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070529d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.60E+00 +/- 3.77E-01	5.18E-01	
14596-10-2	Am-241	4.82E-01 +/- 5.82E-01	9.49E-01	U
14733-03-0	Bi-214	8.85E-01 +/- 2.55E-01	2.85E-01	J
14762-78-8	Ce-144	-4.93E-01 +/- 4.24E-01	7.82E-01	U
10198-40-0	Co-60	4.68E-03 +/- 8.43E-02	1.56E-01	U
13967-70-9	Cs-134	4.31E-02 +/- 6.41E-02	1.34E-01	U
10045-97-3	Cs-137	2.84E-02 +/- 7.92E-02	1.37E-01	U
14683-23-9	Eu-152	2.49E-01 +/- 1.90E-01	3.25E-01	U
15585-10-1	Eu-154	2.49E-01 +/- 4.59E-01	7.79E-01	U
14391-16-3	Eu-155	2.04E-01 +/- 2.76E-01	4.54E-01	U
13966-00-2	K-40	2.79E+01 +/- 4.35E+00	1.52E+00	
15092-94-1	Pb-212	1.99E+00 +/- 3.16E-01	1.88E-01	
15067-28-4	Pb-214	1.02E+00 +/- 2.22E-01	2.83E-01	J
14834-73-2	Pm-144	-3.91E-02 +/- 7.44E-02	1.41E-01	U
14834-74-3	Pm-146	-8.15E-02 +/- 9.71E-02	1.84E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS9
Lab ID: 0704142-9

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 427 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070529d03

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13967-48-1	Ru-106	3.61E-01 +/- 6.07E-01	1.02E+00	U
14234-35-6	Sb-125	1.50E-01 +/- 1.92E-01	3.15E-01	U
15065-10-8	Th-234	1.56E+00 +/- 1.51E+00	2.43E+00	U
14913-50-9	Tl-208	5.55E-01 +/- 1.40E-01	1.39E-01	
15117-96-1	U-235	4.21E-02 +/- 4.12E-01	7.10E-01	U
13982-36-0	Y-88	3.60E-02 +/- 9.15E-02	1.59E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS10
Lab ID: 0704142-10

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 426 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070509d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.50E+00 +/- 3.48E-01	4.30E-01	
14596-10-2	Am-241	-6.37E-01 +/- 5.00E-01	9.46E-01	U
14733-03-0	Bi-214	5.97E-01 +/- 2.05E-01	2.37E-01	J
14762-78-8	Ce-144	3.47E-01 +/- 3.46E-01	5.55E-01	U
14093-03-9	Co-56	3.28E-01 +/- 1.94E-01	2.70E-01	TI
10198-40-0	Co-60	-5.52E-03 +/- 7.44E-02	1.44E-01	U
13967-70-9	Cs-134	2.84E-02 +/- 6.13E-02	1.05E-01	U
10045-97-3	Cs-137	-1.97E-02 +/- 6.55E-02	1.26E-01	U
14683-23-9	Eu-152	1.82E-01 +/- 3.65E-01	6.35E-01	U
15585-10-1	Eu-154	-3.26E-02 +/- 4.07E-01	7.66E-01	U
14391-16-3	Eu-155	8.50E-02 +/- 2.25E-01	3.82E-01	U
13966-00-2	K-40	3.06E+01 +/- 4.69E+00	1.28E+00	
15092-94-1	Pb-212	1.68E+00 +/- 2.90E-01	2.19E-01	
15067-28-4	Pb-214	1.01E+00 +/- 2.07E-01	1.99E-01	J
14834-73-2	Pm-144	2.26E-02 +/- 5.89E-02	1.03E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-VS10
Lab ID: 0704142-10

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 426 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070509d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	-8.82E-03 +/- 7.22E-02	1.34E-01	U
13967-48-1	Ru-106	4.18E-01 +/- 6.16E-01	1.02E+00	U
14234-35-6	Sb-125	1.50E-02 +/- 1.67E-01	2.99E-01	U
15065-10-8	Th-234	2.66E+00 +/- 1.81E+00	2.85E+00	U
14913-50-9	Tl-208	6.20E-01 +/- 1.44E-01	1.20E-01	
15117-96-1	U-235	1.20E-01 +/- 3.44E-01	5.87E-01	U
13982-36-0	Y-88	-6.56E-02 +/- 6.90E-02	1.48E-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.

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TI - Nuclide identification is tentative.

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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: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-V11
Lab ID: 0704142-11

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 427 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070636d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.94E+00 +/- 4.21E-01	5.66E-01	
14596-10-2	Am-241	5.44E-01 +/- 1.31E+00	2.21E+00	U
14733-03-0	Bi-214	1.14E+00 +/- 2.72E-01	2.39E-01	J
14762-78-8	Ce-144	2.61E-01 +/- 5.52E-01	9.23E-01	U
10198-40-0	Co-60	2.14E-02 +/- 8.34E-02	1.51E-01	U
13967-70-9	Cs-134	6.94E-02 +/- 8.16E-02	1.33E-01	U
10045-97-3	Cs-137	-2.98E-02 +/- 8.31E-02	1.56E-01	U
14683-23-9	Eu-152	3.03E-03 +/- 3.63E-01	6.95E-01	U
15585-10-1	Eu-154	-1.88E-01 +/- 4.22E-01	8.27E-01	U
14391-16-3	Eu-155	1.28E-01 +/- 3.49E-01	5.89E-01	U
13966-00-2	K-40	3.02E+01 +/- 4.66E+00	1.43E+00	
15092-94-1	Pb-212	2.14E+00 +/- 3.35E-01	1.99E-01	
15067-28-4	Pb-214	1.06E+00 +/- 2.23E-01	2.35E-01	J
14834-73-2	Pm-144	-4.56E-02 +/- 7.54E-02	1.45E-01	U
14834-74-3	Pm-146	8.50E-03 +/- 8.85E-02	1.57E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0704142-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0704142
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2898

Field ID: 256001-V11
Lab ID: 0704142-11

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 12-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: 427 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070636d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13967-48-1	Ru-106	0E+00 +/- 7.24E-01	1.30E+00	U
14234-35-6	Sb-125	4.33E-02 +/- 1.89E-01	3.64E-01	U
15065-10-8	Th-234	7.50E-01 +/- 2.01E+00	3.37E+00	U
14913-50-9	Tl-208	7.38E-01 +/- 1.59E-01	1.30E-01	
15117-96-1	U-235	1.95E-01 +/- 5.41E-01	9.12E-01	U
13982-36-0	Y-88	-3.46E-02 +/- 9.10E-02	1.74E-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.

Abbrevations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Data Package ID: *GSS0704142-1*

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 05/02/07 18:13

RFW Batch Number: **0704L147** Client: **NSTEC V2897** Work Order: 60052001001 Page: 1

	Cust ID:	25-60-01-VS1	25-60-01-VS1	25-60-01-VS1	25-60-01-VS2	25-60-01-VS3	25-60-01-VS4
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	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		107 %	95 %	110 %	110 %	102 %	189 * %
		fl	fl	fl	fl	fl	fl
Diesel Range Organics		3580 U	94 %	102 %	3510 U	3680 U	3570 U
Motor Oil Range Organics		10700 U	NS	NS	10500 U	11000 U	10700 U

	Cust ID:	25-60-01-VS5	25-60-01-VS6	25-60-01-VS7	25-60-01-VS8	25-60-01-VS9	25-60-01-VS10
Sample Information	RFW#:	005	006	007	008	009	010
	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		180 * %	206 * %	183 * %	207 * %	190 * %	135 * %
		fl	fl	fl	fl	fl	fl
Diesel Range Organics		3470 U	3460 U	19000	45000	3460 U	3470 U
Motor Oil Range Organics		10400 U	12000	61000	110000	10400 U	10400 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:	**25-60-01-VS1**	**25-60-01-RB2**	**BLK**	**BLK BS**	**BLK**	**BLK BS**
		1					
Sample	RFW#:	**011**	**012**	**07LE0205-MB1**	**07LE0205-MB1**	**07LE0207-MB1**	**07LE0207-MB1**
Information	Matrix:	SOIL	WATER	SOIL	SOIL	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/L
p-Terphenyl		78 %	129 %	103 %	102 %	136 * %	111 %
Diesel Range Organics		3500 U	100 U	3330 U	102 %	100 U	88 %
Motor Oil Range Organics		10500 U	300 U	10000 U	NS	300 U	NS

	Cust ID:	**BLK BSD**
Sample	RFW#:	**07LE0207-MB1**
Information	Matrix:	WATER
	D.F.:	1.00
	Units:	ug/L
p-Terphenyl		131 * %
Diesel Range Organics		106 %
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.
DIESEL RANGE ORGANICS BY GC

RFW Batch Number: 0707L510 Client: NSTEC V2934 Work Order: 60052001001 Page: 1 Report Date: 07/10/07 12:25

	Cust ID:	256001-8-2-5	256001-8-2-5	256001-8-2-5	BLK	BLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	07LE0372-MB1	07LE0372-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
p-Terphenyl		62 %	77 %	82 %	71 %	82 %
Diesel Range Organics		3440 U	83 %	84 %	3330 U	87 %
Motor Oil Range Organics		3500 J	I	I	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.

PCBs by GC

Report Date: 04/27/07 12:34

RFW Batch Number: **0704L147** Client: **NSTEC V2897** Work Order: 60052001001 Page: 1

	Cust ID:	25-60-01-VS1		25-60-01-VS1		25-60-01-VS1		25-60-01-VS2		25-60-01-VS3		25-60-01-VS4	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		004	
	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		78	%	79	%	89	%	118	%	42	%	92	%
Decachlorobiphenyl		90	%	93	%	96	%	140 *	%	58	%	94	%
		fl		fl		fl		fl		fl		fl	
Arochlor-1016		14	U	87	%	91	%	14	U	15	U	14	U
Arochlor-1221		14	U	14	U	14	U	14	U	15	U	14	U
Arochlor-1232		14	U	14	U	14	U	14	U	15	U	14	U
Arochlor-1242		14	U	14	U	14	U	14	U	15	U	14	U
Arochlor-1248		14	U	14	U	14	U	14	U	15	U	14	U
Arochlor-1254		14	U	14	U	14	U	14	U	15	U	14	U
Arochlor-1260		14	U	I	%	I	%	14	U	15	U	14	U
Arochlor-1262		220		240		280		34		45		110	
Arochlor-1268		14	U	14	U	14	U	14	U	15	U	14	U
TOTAL PCB'S		220		240		280		34	J	45		110	

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:	25-60-01-VS5		25-60-01-VS6		25-60-01-VS7		25-60-01-VS8		25-60-01-VS9		25-60-01-VS10	
Sample Information	RFW#:	005		006		007		008		009		010	
	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	92	%	72	%	83	%	91	%	84	%	84	%
	Decachlorobiphenyl	94	%	81	%	91	%	87	%	89	%	86	%
			fl		fl		fl		fl		fl		fl
Arochlor-1016		14	U	14	U	14	U	14	U	14	U	14	U
Arochlor-1221		14	U	14	U	14	U	14	U	14	U	14	U
Arochlor-1232		14	U	14	U	14	U	14	U	14	U	14	U
Arochlor-1242		14	U	14	U	14	U	14	U	14	U	14	U
Arochlor-1248		14	U	14	U	14	U	14	U	14	U	14	U
Arochlor-1254		14	U	14	U	14	U	14	U	14	U	14	U
Arochlor-1260		14	U	14	U	14	U	14	U	14	U	14	U
Arochlor-1262		14	U	13	J	46		44		5.4	J	12	J
Arochlor-1268		14	U	14	U	14	U	14	U	14	U	14	U
TOTAL PCB'S		42	U	13	J	46		44		5.4	J	12	J

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

4/27/7

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 04/27/07 10:40

RFW Batch Number: **0704L147** Client: **NSTEC V2897** Work Order: 60052001001 Page: 3

Sample Information	Cust ID:	25-60-01-VS1 1	25-60-01-RB3	PBLKZJ	PBLKZJ BS	PBLKZK	PBLKZK BS
	RFW#:	011	013	07LE0206-MB1	07LE0206-MB1	07LE0208-MB1	07LE0208-MB1
	Matrix:	SOIL	WATER	SOIL	SOIL	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/L	UG/KG	UG/KG	UG/L	UG/L
Surrogate: Tetrachloro-m-xylene		85 %	159 * %	80 %	87 %	71 %	80 %
Decachlorobiphenyl		89 %	152 * %	85 %	92 %	88 %	88 %
Arochlor-1016		14 U	0.40 U	13 U	88 %	0.40 U	93 %
Arochlor-1221		14 U	0.40 U	13 U	13 U	0.40 U	0.40 U
Arochlor-1232		14 U	0.40 U	13 U	13 U	0.40 U	0.40 U
Arochlor-1242		14 U	0.40 U	13 U	13 U	0.40 U	0.40 U
Arochlor-1248		14 U	0.40 U	13 U	13 U	0.40 U	0.40 U
Arochlor-1254		14 U	0.40 U	13 U	13 U	0.40 U	0.40 U
Arochlor-1260		14 U	0.40 U	13 U	91 %	0.40 U	97 %
Arochlor-1262		92	0.40 U	13 U	13 U	0.40 U	0.40 U
Arochlor-1268		14 U	0.40 U	13 U	13 U	0.40 U	0.40 U
TOTAL PCB'S		92	1.2 U	40 U	NA	1.2 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

4/27/07

Cust ID: **PBLKZK BSD**

Sample Information

RFW#: **07LE0208-MB1**
Matrix: WATER
D.F.: 1.00
Units: UG/L

Surrogate:	Tetrachloro-m-xylene	73	%
	Decachlorobiphenyl	90	%
Arochlor-1016		91	%
Arochlor-1221		0.40	U
Arochlor-1232		0.40	U
Arochlor-1242		0.40	U
Arochlor-1248		0.40	U
Arochlor-1254		0.40	U
Arochlor-1260		96	%
Arochlor-1262		0.40	U
Arochlor-1268		0.40	U
TOTAL PCB'S		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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, TCLP Leachate — Report Date: 04/25/07 11:11

RFW Batch Number: **0704L147** — Client: **NSTEC V2897** — Work Order: 60052001001 — Page: 1a

	Cust ID:	25-60-01-RB4		25-60-01-VS1		25-60-01-VS1 MS		25-60-01-VS1 MSD		25-60-01-VS2		25-60-01-VS3	
Sample Information	RFW#:	014		015		015 MS		015 MSD		016		017	
	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	
Surrogate Recovery	Nitrobenzene-d5	71	%	77	%	63	%	72	%	80	%	71	%
	2-Fluorobiphenyl	63	%	60	%	70	%	66	%	60	%	62	%
	p-Terphenyl-d14	96	%	76	%	81	%	85	%	70	%	87	%
	Phenol-d5	70	%	44	%	52	%	77	%	83	%	68	%
	2-Fluorophenol	69	%	72	%	70	%	73	%	78	%	70	%
	2,4,6-Tribromophenol	92	%	84	%	91	%	83	%	75	%	85	%
		fl		fl		fl		fl		fl		fl	
Pyridine		0.010	U	0.050	U	0 *	%	76	%	0.050	U	0.050	U
1,4-Dichlorobenzene		0.010	U	0.050	U	57	%	56	%	0.050	U	0.050	U
2-Methylphenol		0.010	U	0.050	U	68	%	80	%	0.050	U	0.050	U
3/4-Methylphenol		0.010	U	0.050	U	67	%	81	%	0.050	U	0.050	U
Hexachloroethane		0.010	U	0.050	U	53	%	53	%	0.050	U	0.050	U
Nitrobenzene		0.010	U	0.050	U	68	%	80	%	0.050	U	0.050	U
Hexachlorobutadiene		0.010	U	0.050	U	64	%	59	%	0.050	U	0.050	U
2,4,6-Trichlorophenol		0.010	U	0.050	U	84	%	72	%	0.050	U	0.050	U
2,4,5-Trichlorophenol		0.025	U	0.12	U	88	%	83	%	0.12	U	0.12	U
2,4-Dinitrotoluene		0.010	U	0.050	U	84	%	83	%	0.050	U	0.050	U
Hexachlorobenzene		0.010	U	0.050	U	87	%	101	%	0.050	U	0.050	U
Pentachlorophenol		0.025	U	0.12	U	105 *	%	130 *	%	0.12	U	0.12	U

*= Outside of EPA CLP QC limits.

	Cust ID:	25-60-01-VS4		25-60-01-VS5		25-60-01-VS6		25-60-01-VS7		25-60-01-VS8		25-60-01-VS9	
Sample Information	RFW#:	018		019		020		021		022		023	
	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	
Surrogate Recovery	Nitrobenzene-d5	75	%	65	%	64	%	69	%	76	%	62	%
	2-Fluorobiphenyl	59	%	63	%	64	%	53	%	63	%	58	%
	p-Terphenyl-d14	78	%	94	%	87	%	77	%	94	%	71	%
	Phenol-d5	60	%	61	%	64	%	58	%	77	%	28	%
	2-Fluorophenol	72	%	68	%	71	%	70	%	77	%	63	%
	2,4,6-Tribromophenol	84	%	82	%	87	%	77	%	87	%	91	%
Pyridine		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
1,4-Dichlorobenzene		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
2-Methylphenol		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
3/4-Methylphenol		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Hexachloroethane		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Nitrobenzene		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Hexachlorobutadiene		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
2,4,6-Trichlorophenol		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
2,4,5-Trichlorophenol		0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U
2,4-Dinitrotoluene		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Hexachlorobenzene		0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Pentachlorophenol		0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U

*= Outside of EPA CLP QC limits.

	Cust ID:	25-60-01-VS10		25-60-01-VS11		SBLKJY		SBLKJY BS		SBLKJY BSD		LCHBLK	
Sample Information	RFW#:	024		025		07LE0209-MB1		07LE0209-MB1		07LE0209-MB1		07LTO054-LB1	
	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	
Surrogate Recovery	Nitrobenzene-d5	68	%	70	%	94	%	83	%	90	%	87	%
	2-Fluorobiphenyl	60	%	66	%	80	%	86	%	94	%	68	%
	p-Terphenyl-d14	72	%	72	%	97	%	95	%	77	%	111	%
	Phenol-d5	35	%	70	%	101 *	%	73	%	37	%	88	%
	2-Fluorophenol	65	%	74	%	89	%	80	%	85	%	86	%
	2,4,6-Tribromophenol	86	%	91	%	89	%	109	%	118	%	90	%
Pyridine		0.050	U	0.050	U	0.050	U	41	%	29	%	0.050	U
1,4-Dichlorobenzene		0.050	U	0.050	U	0.050	U	52	%	59	%	0.050	U
2-Methylphenol		0.050	U	0.050	U	0.050	U	73	%	82	%	0.050	U
3/4-Methylphenol		0.050	U	0.050	U	0.050	U	73	%	86	%	0.050	U
Hexachloroethane		0.050	U	0.050	U	0.050	U	48	%	58	%	0.050	U
Nitrobenzene		0.050	U	0.050	U	0.050	U	79	%	85	%	0.050	U
Hexachlorobutadiene		0.050	U	0.050	U	0.050	U	60	%	62	%	0.050	U
2,4,6-Trichlorophenol		0.050	U	0.050	U	0.050	U	86	%	94	%	0.050	U
2,4,5-Trichlorophenol		0.12	U	0.12	U	0.12	U	87	%	108	%	0.12	U
2,4-Dinitrotoluene		0.050	U	0.050	U	0.050	U	89	%	106 *	%	0.050	U
Hexachlorobenzene		0.050	U	0.050	U	0.050	U	90	%	106	%	0.050	U
Pentachlorophenol		0.12	U	0.12	U	0.12	U	132 *	%	154 *	%	0.12	U

*= Outside of EPA CLP QC limits.

Cust ID: **LCHBLK**

Sample Information
RFW#: **07LTO055-LB1**
Matrix: WATER
D.F.: 1.00
Units: mg/L

Surrogate Recovery	Nitrobenzene-d5	80	%
	2-Fluorobiphenyl	65	%
	p-Terphenyl-d14	89	%
	Phenol-d5	39	%
	2-Fluorophenol	76	%
	2,4,6-Tribromophenol	85	%
Pyridine		0.050	U
1,4-Dichlorobenzene		0.050	U
2-Methylphenol		0.050	U
3/4-Methylphenol		0.050	U
Hexachloroethane		0.050	U
Nitrobenzene		0.050	U
Hexachlorobutadiene		0.050	U
2,4,6-Trichlorophenol		0.050	U
2,4,5-Trichlorophenol		0.12	U
2,4-Dinitrotoluene		0.050	U
Hexachlorobenzene		0.050	U
Pentachlorophenol		0.12	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0704L079** Client: **NSTEC V2887** Work Order: 60052001001 Page: 1

	Cust ID:	25-60-02-V1	25-60-02-V1	25-60-02-V1	25-60-02-V2	25-60-02-V3	25-60-02-V4
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	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		32 * %	59 %	38 %	41 %	44 %	34 * %
Diesel Range Organics		3380 U	185 * %	69 %	3410 U	3470 U	3370 U
Motor Oil Range Organics		10100 U	NS	NS	10200 U	10400 U	10100 U

	Cust ID:	25-60-02-V5	25-60-02-V6	BLK	BLK BS
Sample Information	RFW#:	005	006	07LE0177-MB1	07LE0177-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
p-Terphenyl		37 %	37 %	50 %	45 %
Diesel Range Organics		3410 U	3400 U	3330 U	77 %
Motor Oil Range Organics		10200 U	10200 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

4/13/07

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256201-V1
Lab ID: 0705023-1

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 449 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070608d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.94E+00 +/- 3.27E-01	3.71E-01	
14596-10-2	Am-241	-3.34E-01 +/- 3.85E-01	6.68E-01	U
14913-49-6	Bi-212	1.99E+00 +/- 9.10E-01	1.32E+00	
14733-03-0	Bi-214	9.45E-01 +/- 1.78E-01	1.81E-01	J
14762-78-8	Ce-144	4.87E-02 +/- 3.98E-01	6.70E-01	U
10198-40-0	Co-60	7.76E-04 +/- 5.73E-02	1.00E-01	U
13967-70-9	Cs-134	1.09E-01 +/- 3.71E-01	6.12E-01	U
10045-97-3	Cs-137	2.11E-02 +/- 5.64E-02	9.52E-02	U
14683-23-9	Eu-152	1.06E-01 +/- 2.61E-01	4.44E-01	U
15585-10-1	Eu-154	6.99E-02 +/- 3.35E-01	5.73E-01	U
14391-16-3	Eu-155	-8.86E-03 +/- 2.36E-01	3.99E-01	U
13966-00-2	K-40	3.33E+01 +/- 4.29E+00	9.41E-01	
13967-76-5	Nb-95	1.01E-01 +/- 6.03E-02	9.14E-02	TI
15092-94-1	Pb-212	1.94E+00 +/- 2.79E-01	1.74E-01	
15067-28-4	Pb-214	9.89E-01 +/- 1.71E-01	1.77E-01	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.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256201-V1
Lab ID: 0705023-1

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 449 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070608d01

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-73-2	Pm-144	4.49E-02 +/- 5.04E-02	8.19E-02	U
14834-74-3	Pm-146	-2.22E-02 +/- 5.88E-02	1.04E-01	U
13967-48-1	Ru-106	1.71E-01 +/- 4.72E-01	7.98E-01	U
14234-35-6	Sb-125	3.58E-03 +/- 1.25E-01	2.37E-01	U
15065-10-8	Th-234	2.07E+00 +/- 1.33E+00	2.10E+00	U
14913-50-9	Tl-208	5.75E-01 +/- 1.04E-01	9.68E-02	
15117-96-1	U-235	2.68E-01 +/- 3.89E-01	6.41E-01	U
13982-36-0	Y-88	-2.59E-02 +/- 6.18E-02	1.10E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256201-V2
Lab ID: 0705023-2

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 425 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070572d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.72E+00 +/- 3.81E-01	4.73E-01	
14596-10-2	Am-241	1.74E-01 +/- 5.58E-01	9.51E-01	U
14913-49-6	Bi-212	1.63E+00 +/- 1.07E+00	1.52E+00	
14733-03-0	Bi-214	9.61E-01 +/- 2.38E-01	1.98E-01	J
14762-78-8	Ce-144	6.22E-02 +/- 3.65E-01	6.30E-01	U
13981-50-5	Co-57	6.36E-02 +/- 4.04E-02	5.99E-02	
10198-40-0	Co-60	-1.53E-02 +/- 6.11E-02	1.26E-01	U
13967-70-9	Cs-134	1.22E-02 +/- 6.22E-02	1.11E-01	U
10045-97-3	Cs-137	4.44E-02 +/- 7.98E-02	1.35E-01	U
14683-23-9	Eu-152	4.38E-01 +/- 3.14E-01	3.93E-01	TI
15585-10-1	Eu-154	-1.63E-01 +/- 4.57E-01	8.76E-01	U
14391-16-3	Eu-155	1.63E-01 +/- 2.40E-01	3.96E-01	U
13966-00-2	K-40	3.17E+01 +/- 4.79E+00	9.24E-01	
15092-94-1	Pb-212	1.97E+00 +/- 3.16E-01	1.97E-01	
15067-28-4	Pb-214	1.04E+00 +/- 2.13E-01	2.45E-01	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.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256201-V2
Lab ID: 0705023-2

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 425 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070572d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-73-2	Pm-144	2.71E-02 +/- 7.24E-02	1.26E-01	U
14834-74-3	Pm-146	-2.33E-02 +/- 8.81E-02	1.62E-01	U
13967-48-1	Ru-106	-1.25E-01 +/- 6.18E-01	1.16E+00	U
14234-35-6	Sb-125	8.33E-03 +/- 1.78E-01	3.18E-01	U
15065-10-8	Th-234	2.53E+00 +/- 1.82E+00	2.87E+00	U
14913-50-9	Tl-208	6.54E-01 +/- 1.44E-01	1.17E-01	
15117-96-1	U-235	-3.34E-02 +/- 3.41E-01	6.02E-01	U
13982-36-0	Y-88	-4.88E-02 +/- 7.05E-02	1.46E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256201-V3
Lab ID: 0705023-3

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 413 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070695d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.78E+00 +/- 3.86E-01	5.67E-01	G
14596-10-2	Am-241	3.56E-01 +/- 1.28E+00	2.18E+00	U,G
14913-49-6	Bi-212	2.01E+00 +/- 1.15E+00	1.55E+00	G
14733-03-0	Bi-214	9.58E-01 +/- 2.54E-01	2.45E-01	G,J
14762-78-8	Ce-144	-1.01E-01 +/- 5.75E-01	9.97E-01	U,G
10198-40-0	Co-60	3.91E-02 +/- 7.99E-02	1.39E-01	U,G
13967-70-9	Cs-134	0E+00 +/- 6.94E-02	1.26E-01	U,G
10045-97-3	Cs-137	1.98E-01 +/- 1.29E-01	1.96E-01	LT,G
14683-23-9	Eu-152	-2.50E-02 +/- 3.13E-01	6.27E-01	U,G
15585-10-1	Eu-154	-3.65E-01 +/- 4.00E-01	8.40E-01	U,G
14391-16-3	Eu-155	3.05E-02 +/- 3.47E-01	5.96E-01	U,G
13966-00-2	K-40	2.59E+01 +/- 4.16E+00	1.36E+00	G
15092-94-1	Pb-212	2.23E+00 +/- 3.47E-01	1.87E-01	G
15067-28-4	Pb-214	1.01E+00 +/- 2.08E-01	1.96E-01	G,J
14834-73-2	Pm-144	2.77E-02 +/- 7.99E-02	1.39E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256201-V3
Lab ID: 0705023-3

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 413 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070695d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	-1.02E-01 +/- 1.02E-01	1.96E-01	U,G
13967-48-1	Ru-106	-8.66E-02 +/- 7.75E-01	1.41E+00	U,G
14234-35-6	Sb-125	1.55E-01 +/- 2.03E-01	3.32E-01	U,G
15065-10-8	Th-234	2.76E+00 +/- 1.97E+00	3.29E+00	U,G
14913-50-9	Tl-208	6.31E-01 +/- 1.51E-01	1.36E-01	G
15117-96-1	U-235	-1.40E-01 +/- 5.55E-01	9.67E-01	U,G
13982-36-0	Y-88	-6.15E-02 +/- 9.13E-02	1.81E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256201-V4
Lab ID: 0705023-4

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 441 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070737d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.90E+00 +/- 4.06E-01	4.47E-01	
14596-10-2	Am-241	4.65E-01 +/- 6.77E-01	1.12E+00	U
14913-49-6	Bi-212	2.61E+00 +/- 1.19E+00	1.52E+00	
14733-03-0	Bi-214	8.66E-01 +/- 2.36E-01	2.80E-01	J
14762-78-8	Ce-144	2.49E-01 +/- 4.74E-01	7.91E-01	U
10198-40-0	Co-60	-1.12E-02 +/- 9.10E-02	1.72E-01	U
13967-70-9	Cs-134	-2.76E-02 +/- 7.95E-02	1.45E-01	U
10045-97-3	Cs-137	4.48E+00 +/- 6.00E-01	1.44E-01	
14683-23-9	Eu-152	1.79E-01 +/- 1.66E-01	2.82E-01	U
15585-10-1	Eu-154	-3.54E-01 +/- 4.44E-01	8.82E-01	U
14391-16-3	Eu-155	6.14E-02 +/- 2.69E-01	4.58E-01	U
13966-00-2	K-40	3.22E+01 +/- 4.93E+00	1.83E+00	
15092-94-1	Pb-212	1.69E+00 +/- 2.86E-01	2.25E-01	
15067-28-4	Pb-214	1.06E+00 +/- 2.36E-01	2.87E-01	J
14834-73-2	Pm-144	-4.95E-02 +/- 7.59E-02	1.44E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256201-V4
Lab ID: 0705023-4

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 441 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070737d09

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	-5.76E-02 +/- 1.03E-01	1.89E-01	U
13967-48-1	Ru-106	3.54E-01 +/- 6.72E-01	1.14E+00	U
14234-35-6	Sb-125	2.40E-01 +/- 2.40E-01	3.86E-01	U
15065-10-8	Th-234	1.63E+00 +/- 1.86E+00	3.04E+00	U
14913-50-9	Tl-208	5.86E-01 +/- 1.48E-01	1.54E-01	
15117-96-1	U-235	1.41E-02 +/- 4.59E-01	7.88E-01	U
13982-36-0	Y-88	-2.66E-02 +/- 7.72E-02	1.48E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256201-V5
Lab ID: 0705023-5

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 433 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070573d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.72E+00 +/- 3.68E-01	4.23E-01	
14596-10-2	Am-241	-2.36E-01 +/- 5.45E-01	9.75E-01	U
14913-49-6	Bi-212	2.63E+00 +/- 1.30E+00	1.74E+00	
14733-03-0	Bi-214	8.91E-01 +/- 2.43E-01	2.44E-01	J
14762-78-8	Ce-144	1.72E-01 +/- 3.60E-01	6.05E-01	U
10198-40-0	Co-60	-2.23E-02 +/- 5.83E-02	1.24E-01	U
13967-70-9	Cs-134	-2.78E-02 +/- 6.42E-02	1.22E-01	U
10045-97-3	Cs-137	2.91E-02 +/- 7.89E-02	1.37E-01	U
14683-23-9	Eu-152	1.08E-01 +/- 3.29E-01	5.98E-01	U
15585-10-1	Eu-154	0E+00 +/- 3.62E-01	6.82E-01	U
14391-16-3	Eu-155	-5.39E-02 +/- 2.11E-01	3.76E-01	U
13966-00-2	K-40	2.85E+01 +/- 4.41E+00	1.13E+00	
15092-94-1	Pb-212	1.92E+00 +/- 3.06E-01	1.79E-01	
15067-28-4	Pb-214	1.10E+00 +/- 2.17E-01	2.18E-01	J
14834-73-2	Pm-144	-4.00E-02 +/- 7.07E-02	1.36E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256201-V5
Lab ID: 0705023-5

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 433 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070573d04

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14834-74-3	Pm-146	3.23E-02 +/- 7.92E-02	1.36E-01	U
13967-48-1	Ru-106	-2.46E-01 +/- 6.35E-01	1.20E+00	U
14234-35-6	Sb-125	1.76E-03 +/- 1.58E-01	3.17E-01	U
15065-10-8	Th-234	1.90E+00 +/- 1.68E+00	2.70E+00	U
14913-50-9	Tl-208	6.05E-01 +/- 1.42E-01	1.21E-01	
15117-96-1	U-235	2.69E-01 +/- 3.48E-01	5.71E-01	U
13982-36-0	Y-88	-1.13E-01 +/- 8.15E-02	1.74E-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 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256201-V6
Lab ID: 0705023-6

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 421 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070696d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
14331-83-0	Ac-228	1.58E+00 +/- 3.60E-01	4.93E-01	G
14596-10-2	Am-241	1.51E+00 +/- 1.33E+00	2.11E+00	U,G
14733-03-0	Bi-214	1.02E+00 +/- 2.53E-01	2.52E-01	G,J
14762-78-8	Ce-144	2.26E-01 +/- 5.51E-01	9.26E-01	U,G
10198-40-0	Co-60	5.26E-02 +/- 8.41E-02	1.42E-01	U,G
13967-70-9	Cs-134	3.30E-02 +/- 7.93E-02	1.36E-01	U,G
10045-97-3	Cs-137	1.98E-01 +/- 9.45E-02	1.23E-01	LT,G
14683-23-9	Eu-152	-1.63E-01 +/- 4.30E-01	8.50E-01	U,G
15585-10-1	Eu-154	-2.20E-01 +/- 4.31E-01	8.51E-01	U,G
14391-16-3	Eu-155	-2.99E-02 +/- 3.41E-01	5.90E-01	U,G
13966-00-2	K-40	3.15E+01 +/- 4.82E+00	1.37E+00	G
15092-94-1	Pb-212	1.95E+00 +/- 3.12E-01	1.85E-01	G
15067-28-4	Pb-214	1.06E+00 +/- 2.30E-01	2.90E-01	G,J
14834-73-2	Pm-144	8.75E-03 +/- 7.72E-02	1.38E-01	U,G
14834-74-3	Pm-146	4.61E-02 +/- 9.74E-02	1.65E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Gamma Spectroscopy Results

PAI 713 Rev 9

Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0705023
Client Name: National Security Technologies, LLC
ClientProject ID: CAU 300 V2912

Field ID: 256201-V6
Lab ID: 0705023-6

Library: LNG_GAM-A-001
Analysis ReqCode: NGS-A-002

Sample Matrix: SOIL
Prep SOP: PAI 739 Rev 8
Date Collected: 26-Apr-07
Date Prepared: 04-May-07
Date Analyzed: 08-May-07

Prep Batch: GS070504-1
QCBatchID: GS070504-1-1
Run ID: GS070504-1A
Count Time: 30 minutes
Report Basis: Dry Weight

Final Aliquot: 421 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: 070696d06

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13967-48-1	Ru-106	-2.55E-01 +/- 7.01E-01	1.32E+00	U,G
14234-35-6	Sb-125	1.99E-01 +/- 1.99E-01	3.52E-01	U,G
15065-10-8	Th-234	1.55E+00 +/- 1.68E+00	2.73E+00	U,G
14913-50-9	Tl-208	5.29E-01 +/- 1.34E-01	1.24E-01	G
15117-96-1	U-235	1.07E-01 +/- 5.34E-01	9.09E-01	U,G
13982-36-0	Y-88	-4.02E-02 +/- 8.82E-02	1.71E-01	U,G

Comments:

Qualifiers/Flags:

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

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

Y2 - Chemical Yield outside default limits.

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

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

M - The requested MDC was not met.

SQ - Spectral quality prevents accurate quantitation.

SI - Nuclide identification and/or quantitation is tentative.

TI - Nuclide identification is tentative.

R - Nuclide has exceeded 8 halflives.

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

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: *GSS0705023-1*

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 05/04/07 08:41

RFW Batch Number: **0704L198** Client: **NSTEC V2907** Work Order: 60052001001 Page: 1

	Cust ID:	26-60-01-V1		26-60-01-V2		26-60-01-V3		26-60-01-V4		26-60-01-V5		26-60-01-V6	
Sample Information	RFW#:	001		002		003		004		005		006	
	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		101	%	101	%	100	%	98	%	99	%	98	%
Diesel Range Organics		3330	U	3330	U	3330	U	3330	U	3330	U	3330	U
Motor Oil Range Organics		10000	U	10000	U	10000	U	10000	U	10000	U	10000	U

	Cust ID:	26-60-01-RB2		BLK		BLK BS		BLK		BLK BS		BLK BSD	
Sample Information	RFW#:	007		07LE0226-MB1		07LE0226-MB1		07LE0225-MB1		07LE0225-MB1		07LE0225-MB1	
	Matrix:	WATER		SOIL		SOIL		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/kg		ug/kg		ug/L		ug/L		ug/L	
p-Terphenyl		104	%	115	%	96	%	12 *	%	97	%	100	%
Diesel Range Organics		130		3330	U	NS		100	U	75	%	74	%
Motor Oil Range Organics		300	U	10000	U	NS		300	U	NS		NS	

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

APPENDIX C

WASTE DISPOSITION DOCUMENTATION

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

Waste Generator: M. La Florio Phone Number: 5-6653

Location / Origin: CAU 200 CAS 26-60-01 3.5 cy soil

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:

☐ 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) ☐ Decommed 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-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 Management Area (CWMA) and to the best of my knowledge, does not contain radiological materials.

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

Print Name: M. La Florio

Signature: _____ Date: 4/23/07

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 _____ DATE: 4/23/07

BN0644 (09/99)

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 MT Signature of Certifier: 4-23-07

(2)

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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 GERERATOR INFORMATION

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

Waste Generator: Mike FLOYD Phone Number: 5-6653

Location / Origin: A-23 CAU 300 CAS 23-25.02 PIPE, Soil, PLASTIC Liner

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:

☐ Asphalt	☒ Metal	☐ Wood	☒ Soil	☐ Rubber (excluding tires)	☐ Empty containers	
☒ Plastic	☐ Wire	☐ Cable	☐ Cloth	☐ Insulation (non-Asbestosform)	☐ Demolition debris	
☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)					☐ Cement & concrete	

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-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 Management Area (CWMA) and to the best of my knowledge, does not contain radiological materials.

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

Print Name: Mike FLOYD

Signature: _____ Date: 4/10/07

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 _____ DATE: 4-10-07

BN-0640 (03/99)

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): 10,000 4-10-07 Signature of Certifier: _____

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 5-7896.

REQUIRED: WASTE GERERATOR INFORMATION

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

Waste Generator: Mike Flynn Phone Number: 8-6653

Location / Origin: CAU 300 Cas 25-60-02 5 cu/sq Concrete Log

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:

☐ Asphalt ☐ Metal ☐ Wood ☑ Soil ☐ Rubber (excluding tires) ☐ Empty containers
☐ Demolition debris
☑ Plastic ☐ Wire ☐ Cable ☐ Cloth ☐ Insulation (non-Asbestosform) ☑ Cement & concrete
☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

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

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐ _____

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

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

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

Print Name: Mike Flynn

Signature: _____ Date: 4/3/07

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: _____ DATE: 4/3/07

BN-0646 (09/99)

SWO USE ONLY

Load Weight (net from scale or estimate): 18 4-3-07 Signature of Certifier _____

NSTec Form FRM-0918

NTS LANDFILL LOAD VERIFICATION

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

4

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 GERERATOR INFORMATION

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

Waste Generator: M.L Floyd Phone Number: 6-6653

Location / Origin: CAU 300 CAS 25-62-01 Soil

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

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

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

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill:

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

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

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐ _____

☐ Septic sludge	☐ Rags	☐ Drained fuel filters (gas & diesel)	☐ Crushed non-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 Management Area (CWMA) and to the best of my knowledge, does not contain radiological materials.

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

Print Name: M.L. Floyd

Signature: _____ Date: 4/26/07

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: _____ DATE: 4-26-07

BN-0646 (09/99)

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): 1382 Signature of Certifier: _____ 4-26-07

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 GERERATOR INFORMATION

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

Waste Generator: [illegible] Phone Number: 5-6-53

Location / Origin: CAU 300 (RS 03-23-01) Sec. 1

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

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

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

REQUIRED: WASTE CONTENTS ALLOWABLE WASTES

Check all allowable wastes that are contained within this load:

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

Acceptable waste at any NTS landfill:

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

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

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐ _____

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

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

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

Print Name: [illegible]

Signature: _____ Date: 4-26-07

Note: "Food waste, office trash and animal carcasses do not require a radiological cl 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: _____ DATE: 4-27-07

BN-0646 (09/99)

SWO USE ONLY

Load Weight (net from scale or estimate): 44,000 4-26-07 Signature of Certifier: _____

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 GERERATOR INFORMATION 5-6653

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

Waste Generator: ~~Shaughn Burnison~~ MSF Mike Floyd Phone Number: ~~5-0328 / 358-1080~~ MSF

Location / Origin: CAU 300, CAS 25-60-01, Bldg 3113A Outfall Impacted Soil

Waste Category: (check one)		☐ Commercial	☒ Industrial	
Waste Type: (check one)	☐ NTS	☐ Putrescrible	☒ 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:

☐ Asphalt	☐ Metal	☐ Wood	☒ Soil	☐ Rubber (excluding tires)	☐ Empty containers	☐ Demolition debris
☒ Plastic	☐ Wire	☐ Cable	☐ Cloth	☐ Insulation (non-Asbestosform)	MSF ☒ Cement & concrete	

☐ Manufactured items: (swamp coolers, furniture, rugs, carpet, electronic components, PPE, etc.)

Additional waste accepted at the Area 23 Mercury Landfill: ☐ Office Waste ☐ Food Waste ☐ Animal Carcasses

☐ Asbestos ☐ Friable ☐ Non-Friable (contact SWO if regulated load) Quantity: _____

Additional waste accepted at the Area 9 U10c Landfill:

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

Additional waste accepted at the Area 6 Hydrocarbon Landfill: ☐ _____

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

REQUIRED: WASTE GENERATOR SIGNATURE

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

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

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

Print Name: ~~Shaughn Burnison~~ MSF Mike Floyd

Signature: _____ Date: 6/26/07

Note: "Food waste, office trash and animal carcasses do not require a radiological clea 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.
- ☐ JH This container/load is free of radioactive contamination based on radioanalysis.

SIGNATURE: _____ DATE 6-26-07

BN-0646 (09/99)

SWO USE ONLY

Load Weight (net from scale or estimate): ~~Est~~ 4,000 6-26-07 Signature of Certifier _____

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APPENDIX D

FIELD PHOTOGRAPHS

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PHOTOGRAPHIC LOG

IMAGE NUMBER	DATE	CORRECTIVE ACTION SITE	DESCRIPTION
1	03/21/2007	CAS 23-25-02	Pipe location during pipe removal
2	04/10/2007	CAS 23-25-02	Pipe location after pipe removal and backfill
3	04/19/2007	CAS 25-60-01	North area prior to excavation
4	04/24/2007	CAS 25-60-01	North area during excavation
5	04/24/2007	CAS 25-60-01	South area during excavation
6	08/14/2007	CAS 25-60-01	South area after excavation and backfill
7	04/26/2007	CAS 25-62-01	Soil location during excavation
8	08/14/2007	CAS 25-62-01	Soil location after excavation and backfill
9	05/08/2007	CAS 26-60-01	Soil location after excavation and backfill

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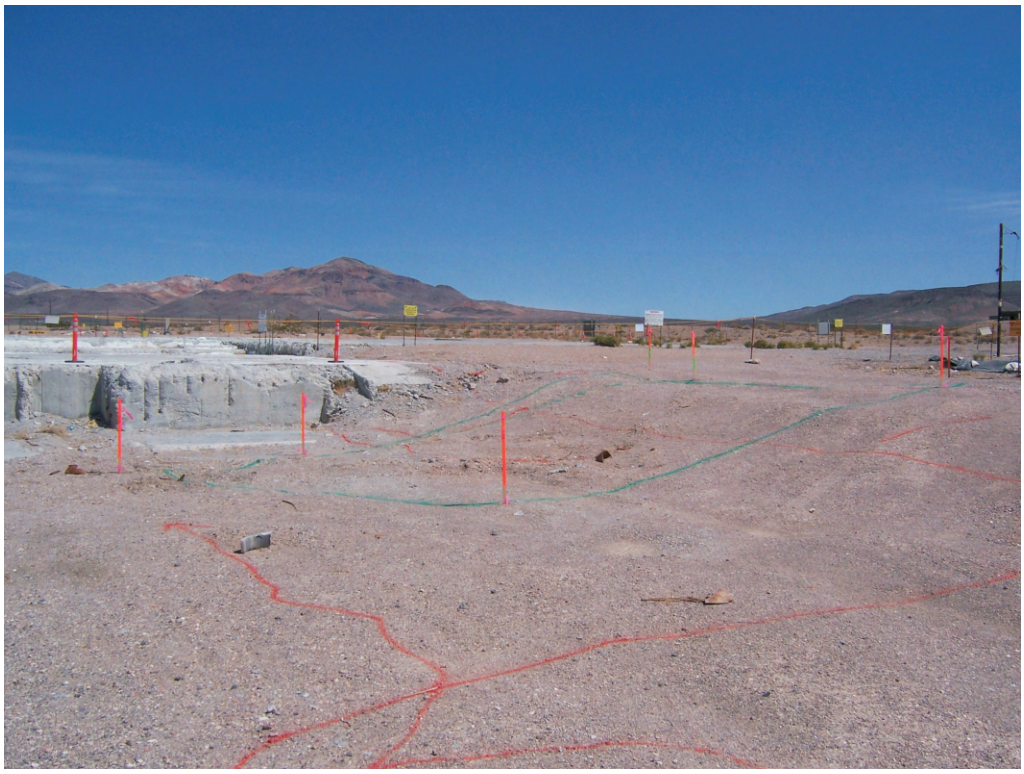
Photograph 1: CAS 23-25-02, Pipe location during pipe removal (03/21/2007)

Photograph 2: CAS 23-25-02, Pipe location after pipe removal and backfill (04/10/2007)



Photograph 3: CAS 25-60-01, North area prior to excavation (04/19/2007)

Photograph 4: CAS 25-60-01, North area during excavation (04/24/2007)

Photograph 5: CAS 25-60-01, South area during excavation (04/24/2007)

Photograph 6: CAS 25-60-01, South area after excavation and backfill (08/14/2007)

Photograph 7: CAS 25-62-01, Soil location during excavation (04/26/2007)

Photograph 8: CAS 26-62-01, Soil location after excavation and backfill (08/14/2007)

Photograph 9: CAS 26-60-01, Soil location after excavation and backfill (05/08/2007)

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APPENDIX E

NATIONAL ENVIRONMENTAL POLICY ACT ENVIRONMENTAL EVALUATION CHECKLIST

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NV-2007-036

NV-16
(Rev. 11/2003)

Other Editions Obsolete

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

FOLLOW ATTACHED PROCEDURES FOR COMPLETING CHECKLIST	Date
A. Project/Activity Title (Attach a brief description of proposed project) **CAU 300: Surface Release Areas**	**01/23/2007** Anticipated Start Date **02/13/2007**

Project Location	Proposed By (if other than NNSA/NSO)
NTS Areas 23, 25 and 26	
NNSA/NSO Line Management Organization	NNSA/NSO Project/Program Manager **Bill Wilborn**

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

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

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

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

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

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

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

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

NNSA/NSO NEPA Compliance Officer	25 January 2007 Date

CAU 300: SURFACE RELEASE AREAS, NEVADA TEST SITE

Project Description

Corrective Action Unit (CAU) 300, Surface Release Areas, is located at the Nevada Test Site, and consists of seven Corrective Action Sites (CASs) located in Areas 23, 25, and 26:

- 23-21-03, Bldg 750 Surface Discharge
- 23-25-02, Bldg 750 Outfall
- 23-25-03, Bldg 751 Outfall
- 25-60-01, Bldg 3113A Outfall
- 25-60-02, Bldg 3901 Outfall
- 25-62-01, Bldg 3124 Contaminated Soil
- 26-60-01, Bldg 2105 Outfall and Decon Pad

The recommended closure alternative for CASs 23-21-03, 23-25-02, and 23-25-03 is No Further Action, and the recommended closure alternative for CASs 25-60-01, 25-60-02, 25-62-01, and 26-60-01 is Clean Closure. Remediation activities include removing approximately 48 feet of piping containing total petroleum hydrocarbons-diesel range organics (TPH-DRO) from CAS 23-25-02 as a Best Management Practice, removing approximately 9.5 cubic yards (yd^3) of semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and radionuclide contaminated soil from beneath the pipe tie-in location at the northern area of CAS 25-60-01, removing approximately 31 yd^3 of SVOC, TPH-DRO, PCB and radionuclide contaminated soil along with approximately 1.2 yd^3 of concrete at the pipe outfall location at the southern area of CAS 25-60-01, removing approximately 1.3 yd^3 of TPH-DRO contaminated concrete from the collar surrounding the outfall pipe at CAS 25-60-02, removing approximately 33 yd^3 of radioactive contaminated soil from behind the TTF at CAS 25-62-01, and removing approximately 2.7 yd^3 of TPH-DRO and radioactive contaminated soil from directly below the concrete outfall at CAS 26-60-01. All contaminated soil and debris will be appropriately disposed.

Environmental Considerations

Waste

1. **Non-Rad Solid Waste:** Non-rad solid waste will be generated at CAU 300 as pipe and concrete debris contaminated with TPH-DRO. All debris will be disposed of at the Area 6 Hydrocarbon Landfill.

3. **Low-Level Rad Waste:** Low-level waste will be generated as impacted soil contaminated with radionuclides above the action level. Low-level waste will be packaged and disposed of appropriately.

4. **Mixed Waste:** Mixed waste will be generated as impacted soil and concrete debris contaminated with radionuclides and SVOCs above the action level. The mixed waste will also contain PCBs above the action level. Mixed waste will be packaged and disposed of appropriately.

Hazardous Materials

1. **Petroleum/Fuel (storage/use):** Heavy equipment utilized on site for the excavation of soil will use petroleum fuel. No fuel will be stored on site outside of the equipment. Absorbent pads will be used if equipment appears to be leaking petroleum.

4. **PCBs / Asbestos:** PCBs will be encountered in the form of impacted soil that is also contaminated with radionuclides and SVOCs. All material contaminated above actions levels will be removed, packaged, and disposed of appropriately.

6. **Radioactive Materials:** Radioactive materials may be encountered in the form of contaminated soil. Any material contaminated above action levels will be removed, packaged, and disposed of as low-level waste.

8. **Beryllium:** All work will be reviewed for Beryllium and Legacy Metals, and work control measures as detailed in the Toxic Metals Work Permit(s) and/or Beryllium Work Permit(s) will be in place to control exposures to potential airborne beryllium or toxic metals. IH will be consulted prior to performing any work regarding legacy metal hazards.

Air Emissions

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

Site Location/Other

1. **Environmental Restoration Site:** CAU 300 is included in the Federal Facility Agreement and Consent Order between the Department of Energy and the state of Nevada.

2. **Excavation/Land Surface Disturbance:** Excavation will be required to remove contaminated soil at CAU 300. All excavations will be backfilled with clean fill from an approved borrow source and contoured to the surrounding grade.

3. **Off road travel:** Off road travel may be necessary, but will be kept to a minimum and at slow speeds.

4. **Tortoise:** CAU 300 is located in an area of high desert tortoise density. If a desert tortoise is encountered in a work area not considered to be a roadway, and it is determined that the tortoise is not in immediate harm's way, the tortoise is to be left undisturbed. The sighting must be immediately reported to the NSTec Site Superintendent, NSTec Ecological Services, and the "NTS Biological Opinion Form" must be completed.

8. **UXO:** There exists the potential to come into contact with some type of Unexploded Ordinance (UXO). If UXO is discovered, mark off the area to identify the location of the item, leave the immediate area to a minimum distance of 1000 ft, notify Field Operations and ER management, notify Operations Coordination Center (OCC), and follow directions from OCC for securing the area.

9. **Noise:** Elevated noise levels may result from the operation of heavy equipment associated with CAU 300 closure activities. Personnel not directly involved with operation of this equipment will be kept back at least 15 feet while equipment is in use. The equipment operator will follow the instructions as directed in the CAU 300 Site Specific Health and Safety Plan.

10. **Radiation controlled area:** CASs in CAU 300 are located in controlled areas, and work will be performed under the supervision of a radiological control technician as needed. An RWP will be obtained if required by Health Physics.

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