Closure Report for Corrective Action Unit 135: Areas 25 Underground Storage Tanks, Nevada Test Site, Nevada

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Revision: 1

June 2001
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CLOSURE REPORT
FOR CORRECTIVE ACTION UNIT 135:
AREA 25 UNDERGROUND STORAGE TANKS
NEVADA TEST SITE, NEVADA

Controlled Copy No.:__
Revision 1

June 2001

Prepared for the U.S. Department of Energy
National Nuclear Security Administration
Nevada Operations Office
under Contract No. DE-AC08-96NV11718
CLOSURE REPORT FOR
CORRECTIVE ACTION UNIT 135:
AREA 25 UNDERGROUND STORAGE TANKS
NEVADA TEST SITE, NEVADA

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Date: 6/11/01

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Date: 6/11/01
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<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>BN</td>
<td>Bechtel Nevada</td>
</tr>
<tr>
<td>cm</td>
<td>centimeters</td>
</tr>
<tr>
<td>CADD</td>
<td>Corrective Action Decision Document</td>
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<td>Corrective Action Investigation Plan</td>
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<td>CAU</td>
<td>Corrective Action Unit</td>
</tr>
<tr>
<td>CR</td>
<td>Closure Report</td>
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<tr>
<td>dpm</td>
<td>disintegrations per minute</td>
</tr>
<tr>
<td>DOE/NV</td>
<td>U.S. Department of Energy, Nevada Operations Office</td>
</tr>
<tr>
<td>E-MAD</td>
<td>Engine Maintenance, Assembly, and Disassembly</td>
</tr>
<tr>
<td>ft</td>
<td>feet</td>
</tr>
<tr>
<td>FFACO</td>
<td>Federal Facility Agreement and Consent Order</td>
</tr>
<tr>
<td>gal</td>
<td>gallon</td>
</tr>
<tr>
<td>in</td>
<td>inch</td>
</tr>
<tr>
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<td>meter</td>
</tr>
<tr>
<td>m³</td>
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</tr>
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</tr>
<tr>
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<td>Nevada Division of Environmental Protection</td>
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<td>Nevada Test Site</td>
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ACRONYMS AND ABBREVIATIONS (continued)

PAL                    Preliminary Action Levels
PCB                    Polychlorinated Biphenyls
pCi/g                  picoCuries per gram
RCRA                   Resource Conservation and Recovery Act
RCT                    Radiological Control Technician
SVOCs                  Semi-Volatile Organic Compounds
SSHASP                 Site-Specific Health and Safety Plan
TCLP                   Toxicity Characteristic Leaching Procedure
TPH                    Total Petroleum Hydrocarbon
ug/kg                  micrograms per kilogram
ug/L                   micrograms per liter
VOCs                   Volatile Organic Compounds
yd³                    cubic yard
VSS                    Verification Soil Sample
EXECUTIVE SUMMARY

Corrective Action Unit (CAU) 135, Area 25 Underground Storage Tanks, was closed in accordance with the approved Corrective Action Plan (DOE/NV, 2000). CAU 135 consists of three Corrective Action Sites (CAS). Two of these CAS’s were identified in the Corrective Action Investigation Data Quality Objective meeting as being improperly identified as underground storage tanks. CAS 25-02-03 identified as the Deluge Valve Pit was actually an underground electrical vault and CAS 25-02-10 identified as an Underground Storage Tank was actually a former above ground storage tank filled with demineralized water. Both of these CAS’s are recommended for a no further action closure. CAS 25-02-01 the Underground Storage Tanks commonly referred to as the Engine Maintenance Assembly and Disassembly Waste Holdup Tanks and Vault was closed by decontaminating the vault structure and conducting a radiological verification survey to document compliance with the Nevada Test Site unrestricted use release criteria.

The Area 25 Underground Storage Tanks, (CAS 25-02-01), referred to as the Engine Maintenance, Assembly, and Disassembly (E-MAD) Waste Holdup Tanks and Vault, were used to receive liquid waste from all of the radioactive and cell service area drains at the E-MAD Facility.

Based on the results of the Corrective Action Investigation conducted in June 1999, discussed in the Corrective Action Investigation Plan for Corrective Action Unit 135: Area 25 Underground Storage Tanks, Nevada Test Site, Nevada (DOE/NV, 1999a), one sample from the radiological survey of the concrete vault interior exceeded radionuclide preliminary action levels. The analytes from the sediment samples exceeded the preliminary action levels for polychlorinated biphenyls, Resource Conservation and Recovery Act metals, total petroleum hydrocarbons as diesel-range organics, and radionuclides.

The CAU 135 closure activities consisted of scabbling radiological “hot spots” from the concrete vault, and the drilling removal of the cement-lined vault sump. Field activities began on November 28, 2000, and ended on December 4, 2000. After verification samples were collected, the vault was repaired with cement. The concrete vault sump, soil excavated beneath the sump, and compactable hot line trash were disposed at the Area 23 Sanitary Landfill. The vault interior was field surveyed following the removal of waste to verify that unrestricted release criteria had been achieved. Since the site is closed by unrestricted release decontamination and verification, post-closure care is not required.
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1.0 INTRODUCTION

This Closure Report (CR) describes the remediation activities performed by the U.S. Department of Energy, Nevada Operations Office (DOE/NV) at the Nevada Test Site (NTS) Area 25 Underground Storage Tanks site. The Area 25 Underground Storage Tanks site is identified in the Federal Facility Agreement and Consent Order (FFACO) as Corrective Action Unit (CAU) 135 (FFACO, 1996) (Figure 1). CAU 135 consists of the following Corrective Action Sites (CAS) at the NTS:

- 25-02-01- Area 25 Underground Storage Tanks, referred to as the E-MAD Waste Holdup Tanks and Vault (Figure 2)
- 25-02-03 - Underground Electrical Vault, referred to as the Deluge Valve Pit at the Test Cell A Facility
- 25-02-10 - Underground Storage Tank, referred to as the former location of an aboveground storage tank for demineralized water at the Test Cell A Facility

Two of these CASs were identified in the Corrective Action Investigation Data Quality Objective meeting as being improperly identified as underground storage tanks. CAS 25-02-03 identified as the Deluge Valve Pit was actually a underground electrical vault and CAS 25-02-10 identified as an Underground Storage Tank was actually a former above ground storage tank filled with demineralized water. Both of these CASs are recommended for a no further action closure.

The remaining CAS 25-02-01, was used from about 1966, when the Engine Maintenance, Assembly, and Disassembly (E-MAD) became operational, to about 1987, when E-MAD was abandoned. The Area 25 Underground Storage Tanks were used to receive liquid waste from all of the radioactive and cell service area drains at the E-MAD Facility. Process wastewater was occasionally routed to the tanks to dilute radioactive-contaminated effluent. Liquids were generated from disassembly and analysis of reactor test units as well as from the decontamination of personnel and equipment.

1.1 PURPOSE

The purpose of this CR is to provide documentation of the completed corrective action and to provide data confirming the corrective action. The corrective action was performed in accordance with the approved Corrective Action Plan (CAP) (DOE/NV, 2000) and consisted of closure by decontaminating the vault structure and conducting a radiological verification survey to document compliance with the NTS unrestricted use release criteria.

A complete site history for the CAS is provided in the Corrective Action Investigation Plan (CAIP) (DOE/NV, 1999a).
A site corrective action investigation was conducted at the E-MAD Waste Holdup Tanks and Vault in June 1999 in two phases in accordance with the approved CAP (DOE/NV, 1999a). Phase I consisted of grouting the process water drains inside the E-MAD Building and removal of the Waste Holdup Tanks and the associated piping from the vault. Phase II consisted of a radiological survey and the collection of analytical and radiological samples from the vault. Phase I and II activities were documented in the Corrective Action Decision Document (CADD) (DOE/NV, 1999b). The disposal of two-1500 gallon tanks and associated piping and valves from the Area 25 E-MAD facility was completed in August 2000.

Analysis of the data generated from the corrective action investigation activities conducted at the E-MAD Waste Holdup Tanks and Vault indicated the following:

- For the radiological survey of the vault interior, one direct frisk measurement from a pipe at survey grid location NO3 (25,269 disintegrations per minute [dpm] /100 square centimeters [cm²]) (DOE/NV, 1999b) exceeded the DOE/NV allowable values of total residual radiological surface contamination (5,000 [average] 15,000 dpm/100 cm² [maximum]) (DOE/NV, 1999c).

- Eight radionuclides (Cobalt-60, Cesium-137, Niobium-94, Plutonium-239/240, Strontium-90, Uranium-234, and Uranium-235) (DOE/NV, 1999b) were detected in two sump sediment samples in concentrations exceeding the background concentration ranges.

- Total Petroleum Hydrocarbon (TPH) concentrations for diesel range organics exceeded the Nevada Division of Environmental Protection (NDEP) action level of 100 milligrams per kilogram (mg/kg) for the sediment samples.

- Total Resource Conservation and Recovery Act (RCRA) metals exceeded the established Preliminary Action Levels (PALs) for arsenic and lead for the sediment samples.

- In the sediment samples, the PAL was exceeded for polychlorinated biphenyls (PCBs) (i.e., Aroclor-1254 and Aroclor-1260).

1.2 SCOPE

The corrective action, as implemented, consisted of the following activities:

- Preplanning and site preparation, including the development of all plans and permits, delineation of excavation boundaries, and mobilization of equipment to the site.

- Decontamination of all surface contamination greater than unrestricted release levels (1,000 dpm/100 cm² alpha, 5,000 dpm/100 cm² beta-gamma [DOE/NV, 1999c]), including a 15.24 cm (6 inch [in]) diameter area around one vault wall inlet pipe and removal of the cement-lined pump sump.
The Nevada Test Site, Area 25, CENTRAL SUPPORT AREA

CAU 135 E-MAD HOLDUP TANKS

ENGINE TEST STAND

TEST CELL C

TEST CELL A

R-MAD FACILITY

FORMER SITE OF RADIOACTIVE MATERIALS STORAGE

E-MAD FACILITY

REACTOR CONTROL POINT

Cane Springs Road

THE NEVADA TEST SITE
AREA 25

SCALE:

FIGURE 1 - CAU 135 SITE LOCATION MAP
A PHONE IS LOCATED AT THE ENTRANCE TO THE E-MAD COMPOUND

FIGURE 2 - CAU 135 SITE LAYOUT
• Radiological verification survey to determine/document that the unrestricted release criteria was achieved.

• Disposal of the concrete vault sump, soil excavated beneath the sump, and compactable hot line trash at the Area 23 Sanitary Landfill following applicable federal, state, and DOE/NV regulations in accordance with Section 2.3 of the CAP (DOE/NV 2000).

• Decontamination of equipment.

• Sealing the vault floor with cement where the sump was removed.

1.3 CR CONTENTS

This document is divided into the following sections in accordance with the approved FFACO CR standardized outline:

• Section 1.0 - Introduction (purpose, scope, contents)

• Section 2.0 - Closure Activities (description, deviations, schedule, site plan)

• Section 3.0 - Waste Disposition (wastes encountered and their appropriate disposal)

• Section 4.0 - Closure Verification Results (laboratory analysis)

• Section 5.0 - Summary and Recommendations

• Section 6.0 - References

Certain sections and appendices of this document have been modified from the approved FFACO outline. The following FFACO sections and appendices have not been included or revised as indicated below:

• Use Restriction - Not applicable. The site was clean closed.

• Closure Certification - Not applicable.

• Modifications to the Post-Closure Plan - Not applicable. The site was clean closed.
The appendices included in this document are provided as follows:

- Appendix A: As-built Drawing and Modified Vault Layout Drawing
- Appendix B: Photographs of Closure Activity Work Areas
- Appendix C: Waste Disposition Documentation
- Appendix D: Verification Sample Analytical Reports
- Appendix E: Field Notes
- Appendix F: Comment Review Documentation
2.0 CLOSURE ACTIVITIES

This section of the CR details the specific corrective action activities implemented and completed during the closure of CAU 135. The piping upstream of the vault at CAU 135 will be addressed with CAU 165, Train Decontamination Area. The piping downstream of the vault will be addressed with CAU 262, Septic Systems and Underground Discharge Point (formerly CAU 264). This section also provides a detailed schedule of site activities as completed. Photographs showing the work areas during closure activities are included in Appendix B.

2.1 DESCRIPTION OF CORRECTIVE ACTION ACTIVITIES

2.1.1 Preplanning and Site Preparation

Planning documents prepared prior to beginning CAU 135 corrective action activities include the CAP (DOE/NV, 2000), Field Management Plan (Bechtel Nevada [BN], 2000a), Site Specific Health and Safety Plan (SSHASP) (BN, 2000b), a construction work package, and an excavation permit. Above-ground and underground utilities were surveyed prior to starting work. No utilities were found. A National Environmental Policy Act Checklist and a Real Estate/Operations Permit were prepared and approved. Planned excavation boundaries were identified (removal of the vault sump). The project involved a confined space entry into the vault. Confined space entry requirements were discussed in more detail in the SSHASP for this project (BN, 2000b). A Readiness Review meeting was held on November 15, 2000. On November 27, 2000, the pre-job briefing was held and personnel and equipment began the mobilization to the site.

2.1.2 Field Activities Performed Prior to/Upon Entry

A preliminary survey of the vault was performed, including vault lid removal, vault atmosphere monitoring, and a radiological survey of the locations identified in the CADD (DOE/NV, 1999b) to confirm concentrations and a visual inspection of the vault interior. The Radiological Control Technician (RCT) reported 35,000 to 40,000 dpm around the pipe in vault sample grid “hot spot” NO3 (Figure 3).

2.1.3 Decontamination Activities and Pump Sump Removal

Personnel began decontamination of the surface contamination greater than unrestricted release levels (1,000 dpm/100 cm² alpha, 5,000 dpm/100 cm² beta-gamma [NV/YMP, 1999c]), including the 6-in (15.24 cm) diameter area around one vault wall inlet pipe (i.e., sample grid location NO3). Decontamination was accomplished by scabbling an area below the pipe approximately 1 foot (30.48 cm) x 4 in (10.16 cm) x 1/4 in (0.60 cm). A survey indicated 2,500 dpm from the scabbled area below the pipe after the scabbling was completed. A sample was collected of the scabbled concrete and moved away from the work area inside of the vault. The sample was measured at 600 dpm which was the same as background.
FIGURE 3 - CAU 135 VAULT LAYOUT

Modified from N.R.D.S. E-MAD Facility Waste Holdup Tank Pit Plan, Sections and Details (USAEC, 1962)
The presumption was made that the contamination was "shine" from inside the pipe. The crew continued scabbling around the "NO3" pipe following the statement of work in the CAP. The RCT collected another sample of the scabbled concrete, removed the sample from the vault, and measured the sample at 80 dpm, approximately background outside of the vault. Upon completion of the scabbling operation, the crew then set up and began drilling the vault sump.

Thirteen holes were drilled in the vault sump, and the cuttings were collected for waste determination. Drilling continued on the vault sump until rebar was encountered; however, the crew was able to excavate most of the floor of the vault sump inside of the rebar. Verification samples of the soil below the excavated sump were taken at this time. The corner of the vault where the sump had been located, and the scabbled area around the inlet pipe were repaired with cement (Figure 3). The remediation was completed on December 4, 2000.

2.1.4 Field Activities Performed After Entry-Field Survey/Closure Verification

To verify that unrestricted release criteria has been met, a radiological survey of the vault and closure verification samples from the concrete and soil below the excavated sump were taken after decontamination activities were completed. A NE Electra portable survey instrument was used along with a swipe survey to document that total and removable contamination levels in the vault are below the unrestricted release criteria. The verification samples were analyzed for TPH, RCRA metals, PCBs, and radionuclides. Two samples were required: one composite soil sample was analyzed for verification once the sump was removed and one sample of concrete cuttings was analyzed for waste characterization for disposal of the sump.

On receipt of the analytical data (Table 2 and Appendix D), sample number VSS#1-2, a soil sample taken beneath the sump and analyzed for TPH, had a result of 870 mg/kg. The sample was flagged F2 and it was noted by the laboratory that the gas chromatograph pattern was atypical of gasoline, diesel or oil (Appendix D). The vault sump was reopened and two additional verification samples were collected. One soil sample was taken immediately below the sump and one soil sample was taken following the excavation of an area approximately 45- by 45- cm (18- by 18- in) and 1 meter (3 feet) deep. Both samples were analyzed for Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), and TPH. No constituents of concern were identified above the detection levels in these additional samples. The excavation was backfilled with clean pea gravel and the sump was re-cemented.

2.1.5 Decontamination of Equipment

After decontamination activities and vault sump removal, hand-held equipment that had contacted the debris was cleaned by first brushing off visible residue, then washing with a laboratory-grade detergent solution, and followed by a tap water rinse. Equipment decontamination was performed over a drum in order to contain rinsate in the excavated debris. Less than 4 liters (1 gallon [gal]) of detergent solution and water rinse were used and were completely absorbed (no free liquid) into the waste debris.
2.2 DEVIATIONS FROM THE CAP AS APPROVED

One deviation occurred from the approved scope of work as outlined in the CAP (DOE/NV, 2000). Waste was disposed at the Area 23 Sanitary Landfill, not at the Area 5 RWMS.

2.3 CORRECTIVE ACTION SCHEDULE AS COMPLETED

The corrective action field activities began on November 28, 2000, and were completed on December 4, 2000. A corrective action schedule, as completed, is provided in Table 1.

2.4 SITE PLAN/SURVEY PLAT

Survey data were not required for this closure. The original As-Built Drawing for the vault along with a drawing showing the modifications made to the vault during the corrective action investigation and during closure activities are provided in Appendix A. The drawing showing the modifications made to the vault has also been submitted to the BN Engineering Library.
## TABLE I

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<td>NOV 2000</td>
<td>SEPT 2000</td>
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<td>1002</td>
<td>Monitor Equipment &amp; Labor</td>
<td>NOV 2000</td>
<td>SEPT 2000</td>
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<tr>
<td>1003</td>
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<td>DEC 2000</td>
<td>DEC 2000</td>
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<tr>
<td>1004</td>
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<td>Collect/Send Verification Samples to Lab</td>
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**Closure Report - CAU No. 135**

**Section:** CLOSURE ACTIVITIES

**Revision:** 1

**Date:** June 2001

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**Area 25 Underground Storage Tanks**

**Corrective Action Unit 135**

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3.0 WASTE DISPOSITION

Wastes generated during the closure of CAU 135 consisted of waste concrete, soil, and compactable hotline trash all of which was contained in a 55-gal drum and staged on-site in a designated Waste Management Area. The radiologically impacted concrete was sampled in order to develop a waste profile. All the above generated wastes were disposed at the Area 23 Sanitary Landfill.

Waste disposition records, including NTS landfill documents and waste characterization data, are available in NTS Waste Operations files and are included in Appendix C.
4.0 CLOSURE VERIFICATION RESULTS

4.1 DATA QUALITY ASSESSMENT

Verification sampling is required for a clean closure. A verification program must support the field decision that any remaining chemical constituents of concern (COC) are less than remediation standards, radiological COCs are below the unrestricted release criteria, and provide the regulator with confidence that sufficient samples have been collected to verify that the site has been remediated.

Based on the results of the corrective action investigation conducted in June 1999 and discussed in the CAIP (DOE/NV, 1999a), a radiological verification survey was required to determine/document that the unrestricted release criteria was achieved following decontamination of the vault surfaces. In addition, analytes from sediment sampled from the sump exceeded the action levels for PCBs, RCRA metals, TPH as diesel-range organics, and radionuclides. As outlined in the approved CAP (DOE/NV, 2000), in addition to radiological verification survey, 2 verification samples were required to verify clean closure. The verification samples consisted of a grab sample from the soil under the sump and a composite sample of the sump for waste characterization and disposal purposes. Sampling was biased and limited to the areas identified in the CADD (DOE/NV, 1999b).

The following sections discuss the results of the QA/QC data for CAU 135 verification sampling. Accuracy, precision, representativeness, completeness, and comparability are used in the DQO process to measure quality control and are presented below.

4.1.1 Accuracy

Accuracy is the closeness of a measurement or the mean of a set of results to the true value. Accuracy is a measure of the bias of the measurement system. Indicators for measurement are based on the percent recoveries associated the laboratory analytical control spikes, surrogate spikes, or matrix spikes. Accuracy is then determined by calculation of the percent recovery (\(\%R\)) which is the amount recovered divided by the actual amount added times 100 percent.

In addition there are legal requirements involved in accuracy. Samples must be collected at the correct locations with carefully recorded dates and times. This is done through the use of a chain of custody form with custody tape attached to prevent tampering. The chain of custody form follows the samples to the contract laboratory to prove samples were not tampered with and to show that the required hold times were not exceeded. The temperature inside the ice chest used to ship samples must be maintained at \(4^\circ C \pm 2^\circ C\). This is checked before shipment and upon receipt by the contract laboratory.

All samples collected for this project were properly collected and sent to the contract laboratory as described in the CAP.
4.1.2 Precision

Precision is a measurement which represents the repeatability of the analytical system. Indicators for measurement are based on field duplicates, laboratory splits, or laboratory replicate analysis. It is usually expressed as the relative percent difference (RPD) or standard deviation. Because a small number of samples were collected (two on December 4, 2000 and two on March 23, 2001) no field duplicates were submitted. Therefore, precision does not apply.

4.1.3 Representativeness

Representativeness is a qualitative judgement which refers to a sample or group of samples that reflect the characteristics of the media at the sampling point. It also includes how well the sampling point represents the actual parameter variations which are under study.

For CAU 135 professional judgement, process knowledge, and historical knowledge were used to set the number of samples needed to sufficiently determine that the site was cleaned of COCs. The closure of CAU 135 was complicated by the small size of the vault and the limited areal extent of soil under the pump sump. All samples collected adequately represented the media characteristics (soil and concrete) and parameter variations at each sampling point.

4.1.4 Completeness

Indicators for this measurement is the amount of valid data obtained from a measurement system compared to the amount that was expected and needed to be obtained to meet the project data goals.

All samples collected for this project had acceptable QA/QC. In addition, all hold times were met, giving this project a 100 percent completeness.

4.1.5 Comparability

Comparability is a qualitative judgement which expresses the confidence with which one data set can be compared to another. Items used to determine comparability include the analytical method and reporting units. Standardized methods for collection of environmental samples were used to perform sampling. This allows the data to be compared to other results obtained for other projects or over time.
4.1.6 Data Evaluation

Laboratory data obtained for CAU 135 have been evaluated for data quality. Data was evaluated using the following criteria:

- Chain of custody is complete and legible.
- Cover letter (case narrative) reviewed for significant problems.
- All requested analyses were performed on all samples.
- Holding times are not beyond specified standards.
- Note cooler temperature on cooler is not above 6 degrees Celsius.
- Was the proper preservation and pH for each Matrix used?
- Check the laboratory log-in report for completeness and errors.
- All field forms are present and complete.
- Report forms inventory includes all CLP or CLP-like forms.
- Reporting values are at the appropriate level.

4.1.7 Quality Control Samples

Two trip blanks were collected and sent to the contract laboratory for analysis.

4.1.8 Laboratory Quality Control Samples

Each sample delivery group (SDG) has a matrix spike/matrix spike duplicate (MS/MSD), laboratory control spike/laboratory control spike duplicate (LCS/LCSD), and method blank. A surrogate spike was also added to each sample. This data was used to qualify the associated sample results.

Surrogates check each environmental sample to determine if the extraction and analysis procedure was performed correctly and if the instrumentation is operating as expected. Surrogates are compounds which are highly unlikely to be present in the environment, but have been determined to be similar in behavior to the COCs. The surrogate is added before extraction is started, and the amount recovered is used to calculate percent recovery.

The acceptable range for surrogate recovery is determined by each laboratory. The laboratory is not required to reanalyze the sample. The laboratory is only required to report the acceptable range and percent recovery.

4.2 RADIOLOGICAL RELEASE SURVEY

Analysis of the data generated from the corrective action investigation activities conducted at the E-MAD Waste Holdup Tanks and Vault (DOE/NV, 1999b) indicated that:
• For the radiological survey of the vault interior, only one direct frisk measurement, from the pipe at survey grid location NO3, exceeded the DOE/NV allowable values of total residual radiological surface contamination.

To verify that unrestricted release criteria were achieved, a field survey of the vault and the soil below the excavated sump was taken after decontamination activities and sump removal. A portable instrument and swipe survey were done to document that total and removable levels in the vault and the soil below the excavated sump are below the radiological unrestricted release criteria. Based on the survey performed, results indicate that no levels were detected above radiological unrestricted release levels, (1,000 dpm/100 cm² alpha, 5,000 dpm/100 cm² beta-gamma [DOE/NV, 1999c]) and confirm that no further decontamination is needed. The survey reports are found in Appendix D.

4.3 VERIFICATION SAMPLE ANALYSES

Two verification soil samples were collected from under the sump after all sump debris was removed, and no visible staining of the soil was observed in either sample. The samples were collected with a decontaminated stainless steel sampling scoop, placed in labeled sample containers, and then secured with custody seals. An Electra was used to help determine if soil samples exceeded radiological background levels. The containers were placed in an ice-filled chest and transported under chain-of-custody to the Analytical Services Laboratory in Mercury, Nevada, for handling.

The initial verification soil sample was collected on December 4, 2000 from under the sump and was analyzed for TPH, RCRA metals, PCBs, and radionuclides (gamma spectroscopy). One composite sample was also collected from the concrete sump for waste characterization and was analyzed for TPH, RCRA metals, VOCs, SVOCs, and radionuclides. Based on the data from the original verification sample, additional soil needed to be removed from under the sump. This work was completed on March 23, 2001. A final verification sample was collected and analyzed for TPH, VOCs, and SVOCs, (see Section 2.1.4). Verification sample results are provided in Table 2 and waste characterization sample results are provided in Table 3.
<table>
<thead>
<tr>
<th>SAMPLE NUMBER</th>
<th>LOCATION</th>
<th>DATE</th>
<th>PARAMETER</th>
<th>RESULT</th>
<th>CLOSURE ACTION LEVELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSS#1-1</td>
<td>Under the Vault Sump</td>
<td>12/04/00</td>
<td>RCRA Metals - Arsenic</td>
<td>&lt;5.0 mg/kg&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.0 mg/kg&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>VSS#1-1</td>
<td>Under the Vault Sump</td>
<td>12/04/00</td>
<td>RCRA Metals - Barium</td>
<td>62 mg/kg</td>
<td>100,000 mg/kg</td>
</tr>
<tr>
<td>VSS#1-1</td>
<td>Under the Vault Sump</td>
<td>12/04/00</td>
<td>RCRA Metals - Cadmium</td>
<td>&lt;0.5 mg/kg</td>
<td>850 mg/kg</td>
</tr>
<tr>
<td>VSS#1-1</td>
<td>Under the Vault Sump</td>
<td>12/04/00</td>
<td>RCRA Metals - Chromium</td>
<td>4.6 mg/kg</td>
<td>450 mg/kg</td>
</tr>
<tr>
<td>VSS#1-1</td>
<td>Under the Vault Sump</td>
<td>12/04/00</td>
<td>RCRA Metals - Lead</td>
<td>6.4 mg/kg</td>
<td>1,000 mg/kg</td>
</tr>
<tr>
<td>VSS#1-1</td>
<td>Under the Vault Sump</td>
<td>12/04/00</td>
<td>RCRA Metals - Mercury</td>
<td>&lt;0.1 mg/kg</td>
<td>68 mg/kg</td>
</tr>
<tr>
<td>VSS#1-1</td>
<td>Under the Vault Sump</td>
<td>12/04/00</td>
<td>RCRA Metals - Selenium</td>
<td>&lt;5.0 mg/kg</td>
<td>8,500 mg/kg</td>
</tr>
<tr>
<td>VSS#1-1</td>
<td>Under the Vault Sump</td>
<td>12/04/00</td>
<td>RCRA Metals - Silver</td>
<td>&lt;1.0 mg/kg</td>
<td>8,500 mg/kg</td>
</tr>
<tr>
<td>VSS#1-2</td>
<td>Under the Vault Sump</td>
<td>12/04/00</td>
<td>TPH (Full Scan)</td>
<td>870 mg/kg&lt;sup&gt;c&lt;/sup&gt;</td>
<td>100 mg/kg</td>
</tr>
<tr>
<td>VSS#1-3</td>
<td>Under the Vault Sump</td>
<td>12/04/00</td>
<td>PCBs</td>
<td>&lt;20.0 ug/kg&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1,300 ug/kg</td>
</tr>
<tr>
<td>VSS#1-4</td>
<td>Under the Vault Sump</td>
<td>12/04/00</td>
<td>Gammaspec-Cesium-137</td>
<td>0.318 pCi/g&lt;sup&gt;f&lt;/sup&gt;</td>
<td>0.04 - 7.0pCi/g&lt;sup&gt;f&lt;/sup&gt;</td>
</tr>
<tr>
<td>VSS#1-5</td>
<td>Under the Vault Sump</td>
<td>3/23/01</td>
<td>VOCs</td>
<td>&lt;25 ug/kg</td>
<td>None above Reporting Limit</td>
</tr>
<tr>
<td>SAMPLE NUMBER</td>
<td>LOCATION</td>
<td>DATE</td>
<td>PARAMETER</td>
<td>RESULT</td>
<td>CLOSURE ACTION LEVELS</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------</td>
<td>---------</td>
<td>-----------------</td>
<td>------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>VSS#1-6</td>
<td>Under the Vault Sump</td>
<td>3/23/01</td>
<td>SVOCs</td>
<td>&lt;330 ug/kg</td>
<td>None Above Reporting Limit</td>
</tr>
<tr>
<td>VSS#1-7</td>
<td>Under the Vault Sump</td>
<td>3/23/01</td>
<td>TPH (Full Scan)</td>
<td>&lt;20 mg/kg</td>
<td>100 mg/kg</td>
</tr>
<tr>
<td>VSS#1-8 TB⁶</td>
<td>Under the Vault Sump</td>
<td>3/23/01</td>
<td>VOCs - Acetone</td>
<td>33 ug/L¹</td>
<td>610 ug/L¹</td>
</tr>
<tr>
<td>VSS#1-9 TB</td>
<td>Under the Vault Sump</td>
<td>3/23/01</td>
<td>VOCs - Acetone</td>
<td>27 ug/L</td>
<td>610 ug/L¹</td>
</tr>
<tr>
<td>VSS#1-10</td>
<td>Under the Vault Sump</td>
<td>3/23/01</td>
<td>VOCs</td>
<td>&lt;25 ug/kg</td>
<td>None Above Reporting Limit</td>
</tr>
<tr>
<td>VSS#1-11</td>
<td>Under the Vault Sump</td>
<td>3/23/01</td>
<td>SVOCs</td>
<td>&lt;330 ug/kg</td>
<td>None Above Reporting Limit</td>
</tr>
<tr>
<td>VSS#1-12</td>
<td>Under the Vault Sump</td>
<td>3/23/01</td>
<td>TPH (Full Scan)</td>
<td>&lt;20 mg/kg</td>
<td>100 mg/kg</td>
</tr>
</tbody>
</table>

A - milligrams per kilogram
B - arsenic concentrations exceeding the EPA Region IX Industrial PRG are not unusual for this portion of the State of Nevada (NBMG, 1998; Moore, 1999).
C - see Section 2.1.4 for a discussion of the sample results
D - micrograms per kilogram
E - picoCuries per gram
F - The laboratory analysis for Cesium-137 (Cs-137) is within the low end of the reported background concentration for the NTS. Since all other radionuclides are a fraction of the Cs-137 activity, scaling factors from radioanalytical results from previous investigations (DOE/NV, 1999b) demonstrate that other radionuclides are below closure action levels.
G - Trip Blank
H - micrograms per liter
I - EPA Region IX Industrial PRG for tap water (EPA, 1998)

Refer to Appendix D for Laboratory Data Reports
### TABLE 3 - SUMMARY OF WASTE CHARACTERIZATION SAMPLE RESULTS

<table>
<thead>
<tr>
<th>SAMPLE NUMBER</th>
<th>LOCATION</th>
<th>DATE COLLECTED</th>
<th>PARAMETER</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>TCLP(^A) RCRA Metals - Arsenic</td>
<td>24.0 µg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>TCLP RCRA Metals - Barium</td>
<td>421 µg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>TCLP RCRA Metals - Cadmium</td>
<td>3.0 µg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>TCLP RCRA Metals - Chromium</td>
<td>44.9 µg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>TCLP RCRA Metals - Lead</td>
<td>21.0 µg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>TCLP RCRA Metals - Mercury</td>
<td>0.10 µg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>TCLP RCRA Metals - Selenium</td>
<td>33.0 µg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>TCLP RCRA Metals - Silver</td>
<td>11.0 µg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>TPH (Gasoline Range Organics)</td>
<td>0.097 mg/kg</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>TPH (Diesel Range Organics)</td>
<td>150 mg/kg</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Pyridine</td>
<td>&lt;0.050 mg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>1,4-Dichlorobenzene</td>
<td>&lt; 0.050 mg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>2-Methylphenol</td>
<td>&lt; 0.50 mg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>3- and/or 4-Methylphenol</td>
<td>&lt; 0.050 mg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Hexachloroethane</td>
<td>&lt; 0.050 mg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Nitrobenzene</td>
<td>&lt; 0.050 mg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Hexachlorobutadiene</td>
<td>&lt; 0.050 mg/L</td>
</tr>
</tbody>
</table>
### TABLE 3 - SUMMARY OF WASTE CHARACTERIZATION SAMPLE RESULTS (Continued)

<table>
<thead>
<tr>
<th>SAMPLE NUMBER</th>
<th>LOCATION</th>
<th>DATE COLLECTED</th>
<th>PARAMETER</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>2,4,6-Trichlorophenol</td>
<td>&lt; 0.050 mg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>2,4,5-Trichlorophenol</td>
<td>&lt; 0.12 mg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>2,4-Dinitrotoluene</td>
<td>&lt; 0.050 mg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Hexachlorobenzene</td>
<td>&lt; 0.050 mg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Pentachlorophenol</td>
<td>&lt; 0.12 mg/L</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>TCLP PCBs</td>
<td>450 μg/kg</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Alphaspec-Pu238</td>
<td>0.014 pCi/g</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Alphaspec-Pu239/240</td>
<td>0.00674 pCi/g</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Alphaspec-U233/234</td>
<td>1.22 pCi/g</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Alphaspec-U235/236</td>
<td>0.065 pCi/g</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Alphaspec-U238</td>
<td>0.474 pCi/g</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Gammaspec-Am241</td>
<td>&lt; 0.0568 pCi/g</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Gammaspec-Cs 137</td>
<td>5.34 pCi/g</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Gammaspec-K40</td>
<td>7.51 pCi/g</td>
</tr>
</tbody>
</table>
### TABLE 3 - SUMMARY OF WASTE CHARACTERIZATION SAMPLE RESULTS (Continued)

<table>
<thead>
<tr>
<th>SAMPLE NUMBER</th>
<th>LOCATION</th>
<th>DATE COLLECTED</th>
<th>PARAMETER</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Gammaspec-U235</td>
<td>&lt; 0.236 pCi/g</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>Gammaspec-U238</td>
<td>1.35 pCi/g</td>
</tr>
<tr>
<td>CAU1350001</td>
<td>Vault Sump</td>
<td>12/04/00</td>
<td>GFPC&lt;sup&gt;f&lt;/sup&gt; Sr90</td>
<td>1.31 pCi/g</td>
</tr>
</tbody>
</table>

A - toxicity characteristic leaching procedure  
B - micrograms per kilogram  
C - milligrams per kilogram  
D - milligrams per liter  
E - picoCuries per gram  
F - gas flow proportional counting  

Refer to Appendix C for Laboratory Data Reports
All samples were labeled with a unique sample number and handled under strict chain-of-custody procedures.

Samples were numbered using the following nomenclature:

VSS#1-1 thru 12

Where:

- Verification Soil Sample (VSS) represents the site location
- 1 represents Sample Set 1
- 1 through 12 is the relative sample within the group

The analytical reports are found in Appendix D.

4.4 USE RESTRICTION

A closure by unrestricted release decontamination and verification survey was performed at this CAS. Land use is unrestricted. A Post-Closure Plan is not necessary for this site.
5.0 SUMMARY AND RECOMMENDATIONS

5.1 SUMMARY

The following site closure activities were performed at the CAU 135 site located at the NTS and are documented in this report:

- Preplanning and site preparation
- Field activities performed prior to/upon entry
- Decontamination activities and sump removal
- Field activities performed after entry
- Decontamination of equipment.

The field closure activities conducted at CAU 135 were completed following the approved CAP (DOE/NV, 2000) as specified in Section 2.2.

5.2 RECOMMENDATIONS

Since the closure by unrestricted release decontamination and verification survey for CAU 135 has been completed following the NDEP-approved CAP (DOE/NV, 1999a) as documented in this CR, the DOE/NV requests:

- A Notice of Completion be provided by the NDEP to DOE/NV for the closure of CAU 135 (CAS 25-02-01).
- A request for a no further action closure of CAS 25-02-03 and CAS 25-02-10 as is detailed in the Corrective Action Decision Document (DOE/NV, 1999b).
- CAU 135 be moved from Appendix III to Appendix IV of the FFACO “Closed Corrective Action Units.”
6.0 REFERENCES

BN, see Bechtel Nevada.


DOE/NV, see U.S. Department of Energy.

EPA, see U.S. Environmental Protection Agency.

FFACO, see Federal Facility Agreement and Consent Order.


Moore, J. 1999. IT Corporation, Las Vegas memo to M. Todd (ITLV), Background Concentrations for NTS and TTR Soil Samples, 3 February, Las Vegas, NV: IT Corporation

NBMG, see Nevada Bureau of Mines and Geology.


USAEC, see U.S. Atomic Energy Commission


6.0 REFERENCES (Continued)


APPENDIX A

AS-BUILT DRAWING AND MODIFIED VAULT LAYOUT DRAWING
FIGURE 3 - CAU 135 VAULT LAYOUT

Modified from N.R.D.S. E-MAD Facility Waste Holdup Tank Pit Plan, Sections and Details (USAEC, 1962)
APPENDIX B

PHOTOGRAPHS OF CLOSURE ACTIVITY WORK AREAS
APPENDIX C

WASTE DISPOSITION DOCUMENTATION
## Solid Waste Operations

**Solid Waste Received Between 19-MAR-2001 and 19-MAR-2001**

**Sorted by Landfill ID, Receipt Date**

<table>
<thead>
<tr>
<th>Landfill Id</th>
<th>Date of Receipt</th>
<th>Type of Waste</th>
<th>Weight in Pounds</th>
<th>Origin of Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>AREA 23</td>
<td>19-MAR-2001</td>
<td>FFACO-ONSITE</td>
<td>500</td>
<td>23 CAU 135</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Comments:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19-MAR-2001</td>
<td>PUTRESCIBLE</td>
<td>820</td>
<td>06 CAFE</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Comments:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total for AREA 23</strong></td>
<td></td>
<td></td>
<td><strong>1,320 Pounds</strong></td>
<td>0.66 Tons</td>
</tr>
<tr>
<td>AREA 9</td>
<td>19-MAR-2001</td>
<td>NTS</td>
<td>5,360</td>
<td>03 3-910793</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Comments:</strong></td>
<td></td>
<td>Mfg.items, demolition debris.</td>
</tr>
<tr>
<td></td>
<td>19-MAR-2001</td>
<td>NTS</td>
<td>9,920</td>
<td>03 3-910793</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Comments:</strong></td>
<td></td>
<td>Mfg.items, demolition debris.</td>
</tr>
<tr>
<td></td>
<td>19-MAR-2001</td>
<td>NTS</td>
<td>13,100</td>
<td>03 3-910793</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Comments:</strong></td>
<td></td>
<td>Mfg.items, demolition debris.</td>
</tr>
<tr>
<td></td>
<td>19-MAR-2001</td>
<td>NTS</td>
<td>5,240</td>
<td>03 3C-22</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Comments:</strong></td>
<td></td>
<td>Mfg.items, demolition debris.</td>
</tr>
<tr>
<td></td>
<td>19-MAR-2001</td>
<td>NTS</td>
<td>8,220</td>
<td>03 3C-22</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Comments:</strong></td>
<td></td>
<td>Mfg.items, demolition debris.</td>
</tr>
<tr>
<td></td>
<td>19-MAR-2001</td>
<td>NTS</td>
<td>25,980</td>
<td>03 3C-22</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Comments:</strong></td>
<td></td>
<td>Mfg.items, demolition debris.</td>
</tr>
<tr>
<td></td>
<td>19-MAR-2001</td>
<td>NTS</td>
<td>6,560</td>
<td>03 3C-24</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Comments:</strong></td>
<td></td>
<td>Mfg.items, demolition debris.</td>
</tr>
<tr>
<td></td>
<td>19-MAR-2001</td>
<td>NTS</td>
<td>5,800</td>
<td>03 3C-24</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Comments:</strong></td>
<td></td>
<td>Mfg.items, demolition debris.</td>
</tr>
<tr>
<td></td>
<td>19-MAR-2001</td>
<td>NTS</td>
<td>13,760</td>
<td>03 3C-24</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Comments:</strong></td>
<td></td>
<td>Mfg.items, demolition debris.</td>
</tr>
<tr>
<td></td>
<td>19-MAR-2001</td>
<td>NTS</td>
<td>19,060</td>
<td>05 SUB-STA</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Comments:</strong></td>
<td></td>
<td>Demolition debris from Frenchman Flats Substation.</td>
</tr>
<tr>
<td></td>
<td>19-MAR-2001</td>
<td>NTS</td>
<td>8,160</td>
<td>03 3C-24</td>
</tr>
<tr>
<td></td>
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<td><strong>Comments:</strong></td>
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</tr>
<tr>
<td></td>
<td>19-MAR-2001</td>
<td>NTS</td>
<td>30,520</td>
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<td></td>
<td></td>
<td><strong>Comments:</strong></td>
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<td>Demolition debris.</td>
</tr>
</tbody>
</table>

**Total for AREA 9**

209,120 Pounds

104.56 Tons
<table>
<thead>
<tr>
<th>Landfill Id</th>
<th>Date of Receipt</th>
<th>Type of Waste</th>
<th>Weight in Pounds</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>AREA 9</td>
<td>19-MAR-2001</td>
<td>NTS</td>
<td>13,560</td>
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<td>19-MAR-2001</td>
<td>NTS</td>
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<td>NTS</td>
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<td>Mfg.items, demolition debris.</td>
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</table>
**LANDFILL DAILY ACCESS REGISTER**

<table>
<thead>
<tr>
<th>WASTE GENERATOR Name, Phone #</th>
<th>WASTE ORIGIN Area, Building</th>
<th>WASTE CODE</th>
<th>TICKET NUMBER</th>
<th>NET WEIGHT (lbs)</th>
<th>TIME IN</th>
<th>TIME OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dennis Gustafson</td>
<td>A-25 E MADISON</td>
<td>F</td>
<td>1</td>
<td>Est. 500</td>
<td>10:25</td>
<td>10:40</td>
</tr>
</tbody>
</table>

**DRIVER**

Last Name, Initials: [Kerry K](#)

---

**Site Conditions:**
- Do berms/walls need repair? [No] [Yes]
- Does cover need repair / evidence of settling? [No] [Yes]
- Does fence need repair? [No] [Yes]
- Does road(s) need repair? [No] [Yes]
- Has litter accumulated? [No] [Yes]
- Has water accumulated? [No] [Yes]

**Corrective Actions Needed:**

---

**INSPECTION INFORMATION**

**Random Load Inspection:**

- No prohibited waste was found
- Yes, the prohibited waste(s) identified below were found.
  - Putrescible waste (prohibited in U10c and Area 6 Landfills).
  - Hazardous waste per NAC 444.580
  - PCB waste regulated by TSCA
  - Waste containing free liquids
  - TSCA-regulated
  - Waste falling the "no added radioactivity" per the POC requirement.
  - Friable asbestos (prohibited in U10c and Area 6 Landfills)
  - Hydrocarbon soil at >100 ppm TPH (prohibited in 23, allowed in U10c provided less than 50 cubic yards/week are disposed)

**Corrective Actions Taken:** (description, name, date, who notified):

---

**INSPECTED BY**

(date/time):
<table>
<thead>
<tr>
<th>Landfill Id</th>
<th>Date of Receipt</th>
<th>Type of Waste</th>
<th>Weight in Pounds</th>
<th>Origin of Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>AREA 23</td>
<td>28-MAR-2001</td>
<td>FFACO-ONSITE</td>
<td>240</td>
<td>CAU135</td>
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<tr>
<td></td>
<td>28-MAR-2001</td>
<td>PUTRESCIBLE</td>
<td>520</td>
<td>&amp;CP CAF</td>
</tr>
<tr>
<td>AREA 9</td>
<td>28-MAR-2001</td>
<td>NTS</td>
<td>3,000</td>
<td>U1A</td>
</tr>
</tbody>
</table>

Comments:
- soil, concrete, manufactured items.
- Wood.

Total for AREA 23: 760 Pounds, 0.38 Tons
Total for AREA 9: 3,000 Pounds, 1.5 Tons
<table>
<thead>
<tr>
<th>WASTE GENERATOR Name, Phone #</th>
<th>WASTE ORIGIN Area, Building</th>
<th>WASTE CODE</th>
<th>TICKET NUMBER</th>
<th>NET WEIGHT (lbs)</th>
<th>TIME IN</th>
<th>TIME OUT</th>
<th>DRIVER Last Name, Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dennis Gustafson</td>
<td>425 E MAD</td>
<td>C-24</td>
<td>11020</td>
<td>2.40</td>
<td>10:55</td>
<td>11:10</td>
<td>Kaczynski K</td>
</tr>
<tr>
<td></td>
<td>B-N - Chemists</td>
<td>P</td>
<td>11021</td>
<td>5.20</td>
<td>15:25</td>
<td>15:40</td>
<td>Kaczynski K</td>
</tr>
</tbody>
</table>

**Waste Codes:**
- ASB - Asbestos
- C - Construction
- H - Hydrocarbon
- P - Putrescible
- NP - Non-Putrescible
- S - Sewage Sludge
- F - FFACO

**Site Conditions:**
- Do berms/walls need repair? [ ] No [ ] Yes
- Does road(s) need repair? [ ] No [ ] Yes
- Does litter accumulated? [ ] No [ ] Yes
- Has water accumulated? [ ] No [ ] Yes

**Corrective Actions Needed:**

**Corrective Actions Taken:** (description, name, date):

**INSPECTION INFORMATION**

**Random Load Inspection:**

**Ticket Number:**

- [] No prohibited waste was found
- [ ] Yes, the prohibited waste(s) identified below were found.
  - Putrescible waste (prohibited in U10c and Area 6 Landfills).
  - Hazardous waste per NAC 444.580
  - PCB waste regulated by TSCA
  - Waste containing free liquids
  - TSCA-regulated
  - Waste failing the "no added radioactivity" per the POC requirement.
  - Friable asbestos (prohibited in U10c and Area 6 Landfills)
  - Hydrocarbon soil at >100 ppm TPH (prohibited in 23, allowed in U10c provided less than 50 cubic yards/week are disposed)

**Corrective Actions Taken:** (description, name, date, who notified):

**INSPECTED BY** (date/time):

**INSPECTED BY** (date/time):
**Waste definitions are available on page 2**

**Required: Waste Generator Information**

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial</td>
<td>X</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
</tr>
</tbody>
</table>

**Location/Origin:** Area 23 Dorm "C" / Waste in Area 25 E-MAD, Underground Storage Tank CAU-135

**Waste Category:**
- Commercial
- Industrial

**Waste Type:**
- NTS
- Putrescible
- FFCO-on-site
- WAC Exception
- Historic DOE/MV

**Pollution Prevention Category:**
- Environmental management
- Defense Projects
- Clean-Up
- Routine

**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**

**Acceptable waste at any NTS landfill:**
- Paper
- Rocks/unaltered geologic materials
- Empty containers
- Plastic
- Wire
- Cable
- Cloth
- Insulation (non-Asbestos form)
- Asbestos
- Friable
- Non-Friable (contact SWO if regulated load)

**Additional waste accepted at the Area 23 Mercury Landfill:**
- Office waste
- Food Waste
- Animal Carcasses

**Additional waste accepted at the Area 9 U10c Landfill:**
- Drained automobiles and military vehicles
- Drained fuel filters (gas & diesel)
- Deconned Underground and Above Ground
- Tanks

**Additionl waste accepted at the Area 6 Hydrocarbon Landfill:**
- Crushed non-terme plated oil filters
- PCBs below 50 parts per million

**Required: Waste Generator Signature**

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

To the best of my knowledge, the waste described above contains only those materials prohibited and allowable waste items.

Print Name: Dennis L. Gustafson
Signature: [Signature]
Date: 03/24/10

Note: Food waste, office trash and/or animal carcasses are considered not to contain added radioactivity, and therefore do not require a radiological clearance.

**SWO USE ONLY**

Load Weight (net from scale or estimate): 240
Signature of Certifier: [Signature]

---

Radioactive Survey Release for Waste Disposal

- This container/loaf is free of external radioactive contamination.
- This container/loaf is exempt from survey due to process knowledge and origin.
- This container/loaf is free of radioactive contamination based on analysis.

Signature: [Signature]
Date: 03/24/10

Note: Food waste, office trash and/or animal carcasses are considered not to contain added radioactivity, and therefore do not require a radiological clearance.
Gustafson, Dennis

From: Perry, Harry
Sent: Thursday, February 22, 2001 12:29 PM
To: Gustafson, Dennis
Cc: Cowley, Jan; Knapp, Kraig; Cox, Donald
Subject: CAU135 Concrete Vault Sump Waste Determination

Dennis,

RE: CAU135 Concrete Debris, MEF#F01002 Waste Determination

Upon review of the RDG-V959 (radiological) and SDG-959 (hazardous) analytical data, and Kraig Knapp's review of the SVOA results, I conclude that the referenced waste should be classified as solid waste. I recommend that you provide the BN Solid Waste organization with the radiological and hazardous analytical data for their review and acceptance for solid waste disposal.

If you need any additional data or have any questions, call me at 295-0685.

Harry Perry
SECTION I - GENERATOR INFORMATION  (To be completed by Generator)

1. Date submitted to WCS:  09 Oct. 00
2. SAA number:  N/A
3. Type of generation:
   - One time generation
   - Total volume: 15 cubic feet
   - Continuous generation
   - Generation rate:

4. Is waste or material containerized?  Yes ☐ No ☐
   Type of containers:  55 gal, drums
   Number of containers:  Two

5. Description (or name if known) of waste or material:
   Concrete pump sump, concrete scabbled from vault wall, and PPE

6. Describe process which generates waste or material:
   Decontamination activities around one vault wall inlet pipe and removal of the cement-lined pump sump.

7. Describe location where waste is generated and the specific location where waste or material is currently accumulated:
   Area 25 Underground Storage Tanks location, CAU 135, Engine-Maintenance Assembly and Disassembly (E-MAD) Waste Holdup Tanks vault.

8. Physical state (check all that apply):
   - Liquid
   - Semi-solid sludge
   - Solid
   - Containerized gas
   - Other, specify
   Describe for combinations or "other":
   Concrete debris

9. Indicate which (if any) of the following constituents or properties the waste or material is known or suspected of having (for constituents or properties indicated, explain in the space provided how it is known that constituents or properties are present in the waste or material):
   - Hazardous
   - Toxic
   - Reactive
   - Ignitable
   - Corrosive
   - Listed
   - Petroleum products
   - Polychlorinated biphenyls (PCBs)
   - Pesticides
   - Asbestos
   - Radionuclides
   - Etiologic agents
   (Examples provided on instruction page)
   See attached investigation results from the Corrective Action Decision Document (CADD).
   Also PPE will be generated during clean-up process.
   Explain how it is known that constituents and/or properties are present in the waste or material:

10. Documentation:
    Attach a copy of any information which will aid in characterizing the waste or material. This type of documentation includes MSDS sheets for the waste or material components, radiological surveys, historical analytical data, information on the generation process, personal attestments signed by the generator as to the constituents in the waste or material.

11. Generator Identification:
    I certify to the best of my knowledge that the information provided on this form or contained in the attachments is true and accurate describing the waste or material.

    Jeffrey Smith  Facility Manager (Printed name)
    Facility Manager (Signature)
    Dennis Gustafson  Generator (Printed name)
    Generator (Signature)

    Charge No.: C7B19D
    Company: BN
    Phone: 702-295-0684
    M/S: NTS-306
### SECTION II - RADIOLOGICAL EVALUATION

1. Determination based on:
   - [ ] Process knowledge
   - [ ] Sampling and analysis

2. Radiological classification of waste or material generation and storage location:
   - Generation points: [ ] CWMA [ ] Radiological area
   - Current storage: [ ] CWMA [ ] Radiological area

3. Evaluation of generator information and/or sampling and analytical data indicate that waste or material contains:
   - [ ] No detectable radioactivity
   - [ ] Only naturally occurring radionuclides
   - [ ] Only naturally occurring radionuclides, but at concentrations that require handling as radioactive
   - [ ] Radionuclides that require handling as radioactive

   List the nuclides and their concentrations contained in the waste or material that provide the basis for the evaluation indicated. This information may result from radiological surveys, historical analytical data, or analytical data obtained during characterization.

   - Pu238: 6.15 ± 1.22 Bq/L
   - Pu239/240: 0.02 ± 0.05 Bq/L

4. Identification of individual performing evaluation:
   - [ ] Phone: 702-295-0665

### SECTION III - HAZARDOUS EVALUATION

1. Determination based on:
   - [ ] Process knowledge
   - [ ] Sampling and analysis

2. Based on the generator information or sampling and analysis data, does the waste or material:
   - [ ] Contain listed hazardous constituents as defined in 40 CFR 261.30 through 261.33?
   - [ ] Exhibit any hazardous characterizations as defined in 40 CFR 261.20 through 262.247?

3. List the constituent(s) (either listed or characteristic) that are present in the waste or material. Provide the hazardous waste code for each constituent present in the waste or material.

   N/A

4. Identification of individual performing evaluation:
   - [ ] Phone: 702-295-0665

### SECTION IV - CHARACTERIZATION

1. Regulatory status of waste or material: Is it waste? Yes [ ] No [ ]

   Provide explanation for either case of waste or material:

   Process knowledge and review of sampling and analysis data were used to make this determination (ME= F 01002).

2. Characterization completed by:
   - [ ] Process knowledge only
   - [ ] Sampling and analytical data
   - [ ] Combination of process knowledge/sampling and analytical data

   Maintain with this form a copy of any and all process knowledge and/or analytical data documents used in the characterization.

3. Identification of individual performing evaluation:
   - [ ] Phone: 702-295-0665

   Process knowledge and review of sampling and analysis data were used to make this determination (ME= F 01002).
Dear Mr. Redding:

Enclosed please find the data report for 1 solid sample received 6 December 2000 for analysis for PCBs, TPH DRO and GRO, and TCLP metals and SVOAs. The EDD will be emailed. The invoice and the original chain-of-custody form are enclosed.

Please do not hesitate to contact me at (610) 280-3029 with any questions or at any time we may be of service.

Very truly yours,

Lionville Laboratory, Inc.

Judith L. Stone
Senior Project Manager

Enclosure:
Recra LabNet - Lionville Laboratory
PCB ANALYTICAL DATA PACKAGE FOR
BECHTEL NEVADA V959

DATE RECEIVED: 12/06/00
RFW LOT #: 0012L476

<table>
<thead>
<tr>
<th>CLIENT ID</th>
<th>RFW #</th>
<th>MTX</th>
<th>PREP #</th>
<th>COLLECTION</th>
<th>EXTR/PREP</th>
<th>ANALYSIS</th>
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<tbody>
<tr>
<td>CAU1350001</td>
<td>001</td>
<td>SO</td>
<td>00LE1605</td>
<td>11/29/00</td>
<td>12/07/00</td>
<td>12/16/00</td>
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LAB QC:

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PBLKJX</td>
<td>MB1</td>
<td>S</td>
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<td>12/07/00</td>
<td>12/12/00</td>
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<tr>
<td>PBLKJX</td>
<td>MB1 BS</td>
<td>S</td>
<td>00LE1605</td>
<td>N/A</td>
<td>12/07/00</td>
<td>12/12/00</td>
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<tr>
<td>PBLKJX</td>
<td>MB1 BSD</td>
<td>S</td>
<td>00LE1605</td>
<td>N/A</td>
<td>12/07/00</td>
<td>12/12/00</td>
</tr>
<tr>
<td>Surrogate:</td>
<td>Tetrachloro-m-xylene</td>
<td>Decachlorobiphenyl</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>----------------------</td>
<td>--------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D %</td>
<td>70 %</td>
<td>75 %</td>
<td>72 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D %</td>
<td>72 %</td>
<td>22 %</td>
<td>83 %</td>
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**Sample Information**

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<tr>
<th>Cust ID:</th>
<th>CAU1350001</th>
<th>PBLKJX</th>
<th>PBLKJX BS</th>
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<tbody>
<tr>
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<td>00LE1605-MBI</td>
<td>00LE1605-MBI</td>
<td>00LE1605-MBI</td>
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<tr>
<td>Matrix:</td>
<td>SOLID</td>
<td>SOIL</td>
<td>SOIL</td>
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</tr>
<tr>
<td>D.F.:</td>
<td>10.0</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Units:</td>
<td>UG/KG</td>
<td>UG/KG</td>
<td>UG/KG</td>
<td>UG/KG</td>
</tr>
</tbody>
</table>

| Aroclor-1016  | 350 U      | 33 U   | 33 U      | 33 U       |
| Aroclor-1221  | 700 U      | 67 U   | 67 U      | 67 U       |
| Aroclor-1232  | 350 U      | 33 U   | 33 U      | 33 U       |
| Aroclor-1242  | 350 U      | 33 U   | 33 U      | 33 U       |
| Aroclor-1248  | 350 U      | 33 U   | 33 U      | 33 U       |
| Aroclor-1254  | 350 U      | 33 U   | 87 %      | 90 %       |
| Aroclor-1260  | 450 U      | 33 U   | 33 U      | 33 U       |

Note: 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.
### SOIL PESTICIDE SURROGATE RECOVERY

**Lab Name:** Recra.LabNet  
**Contract:** 60052.D1-01-001-00

**Case No.:** BECHTEL NEVADA V952  
**RFW Lot No.:** 0012L476

<table>
<thead>
<tr>
<th>CLIENT SAMPLE NO.</th>
<th>S1</th>
<th>OTHER</th>
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<tbody>
<tr>
<td>01 CAU1350001</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>02 PBLKJXLE1605-MB1</td>
<td>70</td>
<td>72</td>
</tr>
<tr>
<td>03 PBLKJXLE1605-MB1 BS</td>
<td>75</td>
<td>22</td>
</tr>
<tr>
<td>04 PBLKJXLE1605-MB1 BSD</td>
<td>72</td>
<td>83</td>
</tr>
</tbody>
</table>

---

**Column to be used to flag recovery values**  
- S1 ( ) = Tetrachloro-m-xylene  
- S2 ( ) = Decachlorobiphenyl

**Values outside of QC limits**  
- D Surrogates diluted out

---

**ADVISORY QC LIMITS**  
- (28-118)
- (38-122)

---

Page 1 of 1  
FORM II PEST-2  
01/89 Rev.
Case Narrative
Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
B E C H T E L N E V A D A V 9 5 9

DATE RECEIVED: 12/06/00

<table>
<thead>
<tr>
<th>CLIENT ID / ANALYSIS</th>
<th>RFW #</th>
<th>MTX</th>
<th>PREP #</th>
<th>COLLECTION EXTR/PREP</th>
<th>ANALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHROMIUM, TCLP LEACH</td>
<td>MB2</td>
<td>W</td>
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<tr>
<td>CHROMIUM, TCLP LEACH</td>
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<td>MERCURY, TCLP LEACH</td>
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<td>LEAD LABORATORY</td>
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<td>LEAD, TCLP LEACHATE</td>
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<td>W</td>
<td>99L1788</td>
<td>N/A</td>
<td>12/09/00</td>
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<tr>
<td>LEAD, TCLP LEACHATE</td>
<td>MB2</td>
<td>W</td>
<td>99L1788</td>
<td>N/A</td>
<td>12/09/00</td>
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<tr>
<td>LEAD, TCLP LEACHATE</td>
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<td>W</td>
<td>99L1788</td>
<td>N/A</td>
<td>12/09/00</td>
</tr>
<tr>
<td>LEAD, TCLP LEACHATE</td>
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<td>W</td>
<td>99L1788</td>
<td>N/A</td>
<td>12/09/00</td>
</tr>
<tr>
<td>SELENIUM LABORATORY</td>
<td>LC1 BS</td>
<td>W</td>
<td>99L1788</td>
<td>N/A</td>
<td>12/09/00</td>
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<tr>
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<td>MB1</td>
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<td>99L1788</td>
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<td>12/09/00</td>
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<td>99L1788</td>
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<td>12/09/00</td>
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<td>12/09/00</td>
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<tr>
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<td>12/09/00</td>
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**LAB QC:**

|                   |          |     |           |            |           |          |
| SILVER LABORATORY | LC1 BS   | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| SILVER, TCLP LEACHAT | MB1     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| SILVER, TCLP LEACHAT | MB2     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| SILVER, TCLP LEACHAT | MB3     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| SILVER, TCLP LEACHAT | MB4     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| ARSENIC LABORATORY | LC1 BS   | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| ARSENIC, TCLP LEACHA | MB1     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| ARSENIC, TCLP LEACHA | MB2     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| ARSENIC, TCLP LEACHA | MB3     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| ARSENIC, TCLP LEACHA | MB4     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| BARIUM LABORATORY | LC1 BS   | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| BARIUM, TCLP LEACHAT | MB1     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| BARIUM, TCLP LEACHAT | MB2     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| BARIUM, TCLP LEACHAT | MB3     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| BARIUM, TCLP LEACHAT | MB4     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| CADMIUM LABORATORY | LC1 BS   | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| CADMIUM, TCLP LEACHA | MB1     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| CADMIUM, TCLP LEACHA | MB2     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| CADMIUM, TCLP LEACHA | MB3     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| CADMIUM, TCLP LEACHA | MB4     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| CHROMIUM LABORATORY | LC1 BS   | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |
| CHROMIUM, TCLP LEACHA | MB1     | W   | 99L1788   | N/A        | 12/09/00  | 12/09/00 |

**Note:** The table contains inorganic analytical data for various elements and their respective leachates, along with dates and specific reference numbers. The data is organized by client ID and analysis type, with each entry detailing the type of analysis, the reference number, and the dates of collection and analysis.
Chain of Custody
**Custody Transfer Record/Lab Work Request**

**Client**: Bartel, Nevada 9559

**Est. Final Proj. Sampling Date**: [Date]

**Project #**: [Project Code]

**Project Contact/Phone #**: [Contact Information]

**RECR A Project Manager**: [Name]

**QC** [Suppl Le Del CIP TAT Alday]

**Date Rec'd**: 12/00

**Date Due**: 12-27-80

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<th>A</th>
<th>B</th>
<th>C</th>
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<tbody>
<tr>
<td>#/Type Container</td>
<td>Liquid</td>
<td>Solid</td>
<td>Liquid</td>
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<tr>
<td>Volume</td>
<td>10</td>
<td>10</td>
<td>10</td>
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**Preservatives**: [Preservation Details]

**ANALYSES REQUESTED**: [Analysis Requested Details]

**Matrix Codes**:
- S - Soil
- SE - Sediment
- SO - Solid
- SL - Sludge
- W - Water
- O - Oil
- A - Air
- DS - Drum Solids
- DL - Drum Liquids
- L - EP/TCCL
- WI - Wipe
- X - Other
- F - Fish

<table>
<thead>
<tr>
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<tbody>
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<td>001CAW 350001</td>
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<th>MS</th>
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<tr>
<td>[Matrix Details]</td>
<td>[MS Details]</td>
<td>[MS Details]</td>
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</tbody>
</table>

**Matrix Collected Date**: [Date]

**Time Collected**: [Time]

**RECREA LabNet Use Only**

**Special Instructions**: 1. See lab chron

**DATE/REVISES**: [Date]

**Notes**: [Additional Notes]

**Reinluded by**: [Fedex]

**Received by**: [Received Item]

**Date**: [Date]

**Time**: [Time]

**Discrepancies Between Samples Labels and COC Record? Y or N**: [Yes or No]

**Condition of COC Tape**: [Condition]

**COC Record Present Upon Sample Recpt**: [Yes or No]

**Temp**: [Temperature]

**COC Tape**: [Tape Details]

**Shipped**: [Shipped Details]

**Hand Delivered**: [Hand Delivered Details]

**Ambient or Chilled**: [Ambient or Chilled Details]

**Received in Good Condition**: [Condition Details]

**Present on Sample**: [Yes or No]

**Unbroken on Sample**: [Yes or No]

**Samples Labels**: [Labels Details]

**Properly Preserved**: [Yes or No]

**Received Within Holding Times**: [Yes or No]
<table>
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<tr>
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<th>Berkel Nevada v959</th>
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| Project # | L00002-001-001-
| Contact/Phone # | 001-00 |
| QC Project Manager | J.S. |
| QC SWPHLO Del CP TAT | 1-2day |
| Date Rec'd | 12-6-00 |
| Date Due | 12-27-00 |

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<th>C</th>
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<td>RECRA LabNet Use Only</td>
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<th>MATRIX CODES:</th>
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<td>S - Soil</td>
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<td>W - Water</td>
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<tr>
<td>Solids</td>
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<tr>
<td>W - Wipes</td>
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<td>F. Ed.</td>
<td>T. Neopol P. O.</td>
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**COMPOSITE ORIGINAL**
Custody Transfer Record/Lab Work Request

| Field Personnel: Complete Only Shaded Areas |

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<td>Project Contact/Phone #</td>
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<td>JS</td>
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<td>QC</td>
<td>Sweeley, Del</td>
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<tr>
<th>Matrix Codes:</th>
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<td>S - Soil</td>
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<tr>
<td>SE - Sediment</td>
</tr>
<tr>
<td>SO - Solid</td>
</tr>
<tr>
<td>SL - Sludge</td>
</tr>
<tr>
<td>W - Water</td>
</tr>
<tr>
<td>O - Oil</td>
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<tr>
<td>A - Air</td>
</tr>
<tr>
<td>DS - Drum Solids</td>
</tr>
<tr>
<td>DL - Drum Liquids</td>
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<tr>
<td>L - EPT/CLP Leachate</td>
</tr>
<tr>
<td>WI - Wipe</td>
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<td>X - Other</td>
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<td>F - Fish</td>
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<td>1) Shipped</td>
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<tr>
<td>2) Unbroken on Package</td>
<td>Y or N</td>
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<tr>
<td>3) Present on Sample</td>
<td>Y or N</td>
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<tr>
<td>4) Labels Indicate Properly Preserved</td>
<td>Y or N</td>
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<tr>
<td>5) Received Within Holding Time</td>
<td>Y or N</td>
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# NTS - PRODUCTION

**CHAIN OF CUSTODY RECORD: CAU135CHAR NRAD**

- **Job Number:** 23220
- **Facility ID:** NTS
- **Sampling Event:** CAU 135 HEF F01002
- **COC Number:** CAU135CHAR NRAD
- **Laboratory:** RECRA
- **Delivery Order ID:** SDG: V95
- **SEIR No.:** CAU 135 HEF F01002-1-0
- **Charge Code:** C7B19B11

**Requested Analysis:**

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<th>Station ID</th>
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<th>Samp Type</th>
<th>Matrix Code</th>
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<th>Start Time</th>
<th>Collection End Date</th>
<th>End Time</th>
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<td>CAU 135 HEF F01002-1-0 CAU1350081</td>
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<td></td>
<td>1/30 11/24/00</td>
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<th>Filtr Cd</th>
<th>Phr Lvl</th>
<th>Anal Lvl</th>
<th>Comments</th>
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<tbody>
<tr>
<td>10.19</td>
<td>Total Petroleum Hydrocarbons - Gasoline</td>
<td>NORM</td>
<td>U</td>
<td>20</td>
<td>D</td>
<td></td>
<td>Take gas aliquot first from sample.</td>
</tr>
<tr>
<td>10.21</td>
<td>Total Petroleum Hydrocarbons - Diesel</td>
<td>NORM</td>
<td>U</td>
<td>20</td>
<td>D</td>
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<tr>
<td>7.3</td>
<td>TCLP SVOCs</td>
<td>NORM</td>
<td>U</td>
<td>20</td>
<td>D</td>
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<td>8.1</td>
<td>PCBs only</td>
<td>NORM</td>
<td>U</td>
<td>20</td>
<td>D</td>
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<td>Take aliquot from SVOC container.</td>
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<tr>
<td>9.23</td>
<td>TCLP Metals</td>
<td>NORM</td>
<td>U</td>
<td>20</td>
<td>D</td>
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### Containers Included on C.o.C.:

<table>
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<tr>
<th>Sample ID</th>
<th>Container ID</th>
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<tbody>
<tr>
<td>CAU1350001</td>
<td>CAU1350000102</td>
<td>COOL 4C</td>
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<td>CLEAR WIDE-MOUTH GLASS 250 ML</td>
<td>TPH-Gas &amp; Diesel</td>
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<td>CAU1350001</td>
<td>CAU135000103</td>
<td>COOL 4C</td>
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<td>CLEAR WIDE-MOUTH GLASS 250 ML</td>
<td>TCLP SVOCs &amp; PCBs</td>
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<tr>
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<td>CAU135000104</td>
<td>COOL 4C</td>
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<td>CLEAR WIDE-MOUTH GLASS 250 ML</td>
<td>TCLP Metals</td>
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This package conforms to the conditions and limitations specified in 49 CFR 173.421 for excepted radioactive material, limited quantity, n.o.s., UN2610.
<table>
<thead>
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<th>Transfer Date/Time</th>
<th>Reason</th>
<th>Shipper</th>
<th>Airbill No.</th>
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Comments:

Potential Contamination: Yes No

Radiological  
Chemical
**GENERAL SHIPPING ORDER**

**SHIP FROM**

BECHTEL NEVADA FOR USDOE
NEVADA TEST SITE
RECEIVING WAREHOUSE 180
MERCURY, NV 89023, USA
C CASTANEDA at 702/295-7884

**SHIPMENT INFORMATION**

REASON: LAB ANALYSIS
REQUIRED AT DESTINATION: 12/06/2000
CHARGES: PREPAID
CARRIER: FEDEX PRIORITY OVERNIGHT
PIECE(S): 1
WEIGHT: 10 LBS
SHIP DATE: 12/05/2000
ARRIVAL DATE: 12/06/2000
CHARGE/ORG NO: C7B19D11/2131

**SHIP TO**

RECRA LABNET
208 WELSH POOL ROAD
LIONVILLE, PA 19341, USA
JUDY STONE at 610/280-3000
REFERENCE NO.: N/A

1
POWDER CONCRETE SAMPLES
FEDERAL EXPRESS TRACKING #81609097822

3 EA
Recra LabNet Philadelphia
Analytical Report

Client : BECHTEL NEVADA
RFW# : 0012L476
W.O.# : 60052-001-001-0001-00
Date Received : 12-06-00

SW846 METALS

1. This narrative covers the analyses of 1 TCLP sample.

2. The samples were prepared and analyzed in accordance with SW-846 protocol and reported with CLP deliverable.

3. ICVs, CCVs, and LCSs stock standards were purchased from Inorganic Ventures Laboratory and High Purity.

4. All analyses were performed within the required holding times.

5. The cooler temperature has been recorded on the Chain of Custody.

6. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within control limits.

7. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within method criteria.

8. All preparation/method blanks were within method criteria (less than the Practical Quantitation Limit (3X the IDL), with the exception of Barium which was less than 5% of the RCRA limit. Refer to form 3.

9. All ICP Interference Check Standards were within control limits. Refer to form 4.

10. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to form 7.

11. All sample IDs were changed to accommodate the EPA naming convention which allows a maximum of 6 characters on all CLP Forms. Refer to the comments section of form 1 for the original ID.

Note: Report includes analytical data only. Raw data is available in project file.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 700 pages (inclusive of 2000 pages).
12. The TCLP extract from sample CAU1350001 was selected for the matrix spike (MS) for this analytical batch. Matrix QC was not performed on ICP analytes.

J. Michael Taylor  
VP, Laboratory General Manager  
Lionville Laboratory

01-10-01  
Date
The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot:

Leaching Procedure: _1310 _1311 _1312 Other:_________

CLP Metals _ Digestion and _ Analysis Methods: _ILM03.0 _ILM04.0

Metals Digestion Methods: _3005A _3010A _3015 _3020A _3050B _3051 _200.7 SS17

Other: __________

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Other: __________

Method: __________
DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

B = Indicates that the parameter was between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL).

O QUALIFIERS

E = The reported value is estimated because of the presence of interference.

M = Duplicate injection precision not met.

N = Spiked sample recovery not within control limits.

S = The reported value was determined by the Method of Standard Additions (MSA).

W = Post Digestion spike for Furnace AA analysis is out of control limits (85 -115 %), while sample absorbance is less than 50% of spike absorbance.

* = Duplicate analysis not within control limits.

+ = Correlation coefficient for the MSA is less than 0.995.

ABBREVIATIONS

PB = Method or Preparation Blank.

S = Matrix Spike.

T = Matrix Spike Duplicate.

R or D = Sample Replicate

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).

4. Flame AA.

5. Graphite Furnace AA.

RFW 21-21L-033/O-01/97
Inorganic Analysis Data Package
U.S. EPA
COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: RECRA_LABNET________ Contract: 60052-1____
Lab Code: RECRA_ Case No.: V959_ SAS No.: _____ SDG No.:CAU135
SOW No.: SW846

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Were ICP interelement corrections applied? Yes/No YES
Were ICP background corrections applied? Yes/No YES
If yes - were raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the manager's designee, as verified by the following signature.

Signature: [Signature]
Name: [Name]
Date: 01-10-01
Title: [Title]

COVER PAGE - IN

0013
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Clarity Before:  
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Artifacts:  

Comments:  
CAU1350001  
TCLP_OF_001  

FORM 1 - IN
Lab Name: RECRA_LABNET Contract: 60052-1
Lab Code: RECRA Case No.: V959 SAS No.: SDG No.: CAU135
Initial Calibration Source: IV
Continuing Calibration Source: IV

Concentration Units: ug/L

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*Note: Form II (Part 1) - IN*
**INITIAL AND CONTINUING CALIBRATION VERIFICATION**

**Lab Name:** RECRA_LABNET 
**Contract:** 60052-1

**Lab Code:** RECRA 
**Case No.:** V959 
**SAS No.:** ___ 
**SDG No.:** CAU135

**Initial Calibration Source:** IV 
**Continuing Calibration Source:** IV

**Concentration Units:** µg/L

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**FORM II (PART 1) - IN**
# U.S. EPA

## INITIAL AND CONTINUING CALIBRATION VERIFICATION

**Lab Name:** RECRA_LABNET  
**Contract:** 60052-1__

**Lab Code:** RECRA_  
**Case No.:** V959_  
**SAS No.:**  
**SDG No.:** CAU__

**Initial Calibration Source:** IV__

**Continuing Calibration Source:** IV__

### Concentration Units: ug/L

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**FORM II (PART 1) - IN**

0023
Lab Name: RECRA_LABNET  
Lab Code: RECRA  
Case No.: V959  
SAS No.:  
SDG No.: CAU135

AA CRDL Standard Source: HIGH PURITY  
ICP CRDL Standard Source: HIGH PURITY

Concentration Units: ug/L

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| CRDL Standard for ICP |         |         |         |
|-----------------------|---------|---------|
| True Found Initial    |         |         |
| Found                 |         |         |
| %R                    |         |         |
| True Found Final      |         |         |
| Found                 |         |         |
| %R                    |         |         |

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FORM II (PART 2) - IN
Lab Name: RECRA_LABNET  
Lab Code: RECRA  
Preparation Blank Matrix (soil/water): WATER  
Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

| Analyte     | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) | Prepar- | |
|-------------|------------------------------|---|-------------------------------------|---------|
|             |                              |   | 1         | 2         | 3         | Blank | |
| Arsenic     | 2.4                          | U | 2.4       | 2.4       | 2.4       | U  | 2.400 |
| Barium      | 0.2                          | U | 0.2       | 0.2       | 0.2       | U  | 0.679 |
| Cadmium     | 0.3                          | U | 0.3       | 0.3       | 0.3       | U  | 0.300 |
| Chromium    | 0.6                          | U | 0.6       | 0.6       | 0.6       | U  | 0.600 |
| Lead        | 2.1                          | U | 2.1       | 2.1       | 2.1       | U  | 2.100 |
| Mercury     | 0.1                          | U | 0.1       | 0.1       | 0.1       | U  | 0.100 |
| Selenium    | 3.3                          | U | 3.3       | 3.3       | 3.3       | U  | 3.300 |
| Silver      | 1.1                          | U | 1.1       | 1.1       | 1.1       | U  | 1.100 |

FORM III - IN
### BLANKS

Lab Name: RECRA_LABNET  Contract: 60052-1

Lab Code: RECRA  Case No.: V959  SAS No.:  SDG No.: CAU135

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

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**FORM III - IN**

0023
Lab Name: RECRA_LABNET  Contract: 60052-1
Lab Code: RECRA  Case No.: V959  SAS No.:  SDG No.: CAU133
Preparation Blank Matrix (soil/water): WATER
Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

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FORM III - IN
Lab Name: RECRA_LABNET  
Lab Code: RECRA_  
Preparation Blank Matrix (soil/water): WATER  
Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

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FORM III - IN
Lab Name: RECRA_LABNET  Contract: 60052-1  
Lab Code: RECRA  Case No.: V959  SAS No:  SDG No.: CAU135  
ICP ID Number: TR  ICS Source: IV  

Concentration Units: ug/L  

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FORM IV - IN
Lab Name: RECRA_LABNET
Lab Code: RECRA
Matrix: WATER

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

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Comments:
CAU1350001
TCLP_OF_001

FORM V (Part 1) - IN
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Lab Name: RECRA_LABNET  
Contract: 60052-1  
Lab Code: RECRA  
Case No.: V959  
SAS No.:  
SDG No.: CAU135  
Solid LCS Source:  
Aqueous LCS Source: IV  

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FORM VII - IN
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Comments:

FORM X - IN
Lab Name: RECRA_LABNET  Contract: 60052-1
Lab Code: RECRA_  Case No.: V959_  SAS No.:  SDG No.: CAU135
ICP ID Number: TR  Date: 02/09/00

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Comments:

FORM XI (Part 1) - IN
### ICP Interelement Correction Factors (Annually)

**Lab Name:** RECRA_LABNET  
**Contract:** 60052-1  
**Lab Code:** RECRA  
**Case No.:** V959  
**SAS No.:**  
**SDG No.:** CAU135

**ICP ID Number:** TR  
**Date:** 02/09/00

#### Analyte | Wavelength (nm) | BI_ | CD_ | CO_ | CR_ | CU_
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Barium | 493.40 | -0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 | -0.0000000
Cadmium | 226.50 | -0.0000000 | 0.0000000 | 0.0000000 | 0.0003860 | 0.0000000
Chromium | 267.70 | -0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000
Lead | 220.30 | -0.0000360 | 0.0000000 | 0.0000000 | 0.0006280 | 0.0000000
Mercury |  |  |  |  |  |  
Selenium | 196.00 | -0.0001320 | 0.0000000 | 0.0000000 | 0.0005000 | 0.0000000
Silver | 328.00 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000

#### Comments:

FORM XI (Part 2) - IN
**U.S. EPA**

**11B**

ICP Interelement Correction Factors (Annually)

Lab Name: RECRA_LABNET

Contract: 60052-1

Lab Code: RECRA_  Case No.: V959_  SAS No.:  SDG No.: CAU135

ICP ID Number: TR

Date: 02/09/00

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# U.S. EPA

## ICP Linear Ranges (Quarterly)

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**FORM XII - IN**

[030]
### PREPARATION LOG

**Lab Name:** RECRA_LABNET  
**Contract:** 60052-1  
**Lab Code:** RECRA  
**Case No.:** V959  
**SAS No.:**  
**SDG No.:** CAU135  
**Method:** P  

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FORM XIII - IN
# U.S. EPA

## PREPARATION LOG

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Lab Code: RECRA-  
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FORM XIII - IN

GD041
**U.S. EPA**

**ANALYSIS RUN LOG**

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**FORM XIV - IN**

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Analytes:

FORM XIV - IN
Lab Name: RECRA_LABNET

Lab Code: RECRA  Case No.: V959

Instrument ID Number: HG1

Start Date: 12/10/00

End Date: 12/10/00

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FORM XIV - IN
U.S. EPA
ANALYSIS RUN LOG

Lab Name: RECRA_LABNET
Lab Code: RECRA_  Case No.: V959_
Instrument ID Number: TR
Start Date: 12/09/00

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Contract: 60052-1_
SAS No.: _____  SDG No.: CAU135
Method: P_
End Date: 12/10/00

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FORM XIV - IN

0045
## U.S. EPA

### ANALYSIS RUN LOG

**Lab Name:** RECRA_LABNET

**Lab Code:** RECRA

**Case No.:** V959

**Instrument ID Number:** TR

**Start Date:** 12/09/00

**Contract:** 60052-1

**SAS No.:** __

**SDG No.:** CAU135

**Method:** P

**End Date:** 12/10/00

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**FORM XIV - IN**

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Lab Code: RECRA_  
Case No.: V959_  
Instrument ID Number: TR_  
Start Date: 12/09/00  
End Date: 12/10/00

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<td>103 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>71 %</td>
<td>31 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>47 %</td>
<td>47 %</td>
</tr>
</tbody>
</table>

|                      | Nitrobenzene-d5 | 9 * % | 57 % | 21 * % | 42 % | 72 % |
|                      | 2,4,6-Tribromophenol | 10 % | 59 % | 26 % | 77 % |

|                      | Pyridine | 0.050 U | 0.050 U | 0.010 U | 3 * % | 4 * % | 0.050 U |
|                      | 1,4-Dichlorobenzene | 0.050 U | 0.050 U | 0.010 U | 33 * % | 59 % | 0.050 U |
|                      | 2-Methylphenol | 0.050 U | 0.050 U | 0.010 U | 25 % | 43 % | 0.050 U |
|                      | 3- and/or 4-Methylphenol | 0.050 U | 0.050 U | 0.010 U | 18 % | 33 % | 0.050 U |
|                      | Hexachloroethane | 0.050 U | 0.050 U | 0.010 U | 31 % | 55 % | 0.050 U |
|                      | Nitrobenzene | 0.050 U | 0.050 U | 0.010 U | 35 % | 61 % | 0.050 U |
|                      | Hexachlorobutadiene | 0.050 U | 0.050 U | 0.010 U | 30 % | 52 % | 0.050 U |
|                      | 2,4,6-Trichlorophenol | 0.050 U | 0.050 U | 0.010 U | 19 % | 37 % | 0.050 U |
|                      | 2,4,5-Trichlorophenol | 0.12 U | 0.12 U | 0.025 U | 19 % | 40 % | 0.12 U |
|                      | 2,4-Dinitrotoluene | 0.050 U | 0.050 U | 0.010 U | 42 % | 88 % | 0.050 U |
|                      | Hexachlorobenzene | 0.050 U | 0.050 U | 0.010 U | 33 % | 69 % | 0.050 U |
|                      | Pentachlorophenol | 0.12 U | 0.12 U | 0.025 U | 18 % | 39 % | 0.12 U |

* = Outside of EPA CLP QC limits.
<table>
<thead>
<tr>
<th></th>
<th>SBLKLY BS</th>
<th>LCHBLK</th>
<th>SBLKKF</th>
<th>SBLKKF BS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample Information</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RFW#:</td>
<td>01LE0022-MB1</td>
<td>00LT0138-LB1</td>
<td>00LE1643-MB1</td>
<td>00LE1643-MB1</td>
</tr>
<tr>
<td>D.F.:</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Units:</td>
<td>MG/L</td>
<td>MG/L</td>
<td>MG/L</td>
<td>MG/L</td>
</tr>
<tr>
<td>Nitrobenzene-d5</td>
<td>80 %</td>
<td>67 %</td>
<td>54 %</td>
<td>53 %</td>
</tr>
<tr>
<td>Surrogate</td>
<td>80 %</td>
<td>66 %</td>
<td>48 %</td>
<td>45 %</td>
</tr>
<tr>
<td>2-Fluorobiphenyl</td>
<td>111 %</td>
<td>122 %</td>
<td>85 %</td>
<td>83 %</td>
</tr>
<tr>
<td>Recovery</td>
<td>35 %</td>
<td>14 %</td>
<td>18 %</td>
<td>18 %</td>
</tr>
<tr>
<td>p-Terphenyl-d14</td>
<td>56 %</td>
<td>25 %</td>
<td>29 %</td>
<td>26 %</td>
</tr>
<tr>
<td>Phenol-d5</td>
<td>91 %</td>
<td>76 %</td>
<td>58 %</td>
<td>61 %</td>
</tr>
<tr>
<td>2-Fluorophenol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,4,6-Tribromophenol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pyridine</td>
<td>56 %</td>
<td>0.050 U</td>
<td>0.010 U</td>
<td>0 *</td>
</tr>
<tr>
<td>1,4-Dichlorobenzene</td>
<td>72 %</td>
<td>0.050 U</td>
<td>0.010 U</td>
<td>49 %</td>
</tr>
<tr>
<td>2-Methylphenol</td>
<td>75 %</td>
<td>0.050 U</td>
<td>0.010 U</td>
<td>50 %</td>
</tr>
<tr>
<td>3- and/or 4-Methylphenol</td>
<td>66 %</td>
<td>0.050 U</td>
<td>0.010 U</td>
<td>45 %</td>
</tr>
<tr>
<td>Hexachloroethane</td>
<td>69 %</td>
<td>0.050 U</td>
<td>0.010 U</td>
<td>45 %</td>
</tr>
<tr>
<td>Nitrobenzene</td>
<td>80 %</td>
<td>0.050 U</td>
<td>0.010 U</td>
<td>58 %</td>
</tr>
<tr>
<td>Hexachlorobutadiene</td>
<td>69 %</td>
<td>0.050 U</td>
<td>0.010 U</td>
<td>39 %</td>
</tr>
<tr>
<td>2,4,6-Trichlorophenol</td>
<td>85 %</td>
<td>0.050 U</td>
<td>0.010 U</td>
<td>51 %</td>
</tr>
<tr>
<td>2,4,5-Trichlorophenol</td>
<td>93 %</td>
<td>0.12 U</td>
<td>0.025 U</td>
<td>54 %</td>
</tr>
<tr>
<td>2,4-Dinitrotoluene</td>
<td>80 %</td>
<td>0.050 U</td>
<td>0.010 U</td>
<td>68 %</td>
</tr>
<tr>
<td>Hexachlorobenzene</td>
<td>88 %</td>
<td>0.050 U</td>
<td>0.010 U</td>
<td>63 %</td>
</tr>
<tr>
<td>Pentachlorophenol</td>
<td>56 %</td>
<td>0.12 U</td>
<td>0.025 U</td>
<td>40 %</td>
</tr>
</tbody>
</table>

*= Outside of EPA CLP QC limits.
GCVOA DATA SUMMARY/
SAMPLE QC
THIS PAGE INTENTIONALLY LEFT BLANK
### Sample Information

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>RFW#</th>
<th>RFW Matrix</th>
<th>TBLKTU</th>
<th>TBLKTU BS</th>
<th>TBLKTU BSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAU1350001</td>
<td>001</td>
<td>SOLID</td>
<td>00LVJL20-MB1</td>
<td>00LVJL20-MB1</td>
<td>00LVJL20-MB1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fluorobenzene</th>
<th>72%</th>
<th>93%</th>
<th>94%</th>
<th>104%</th>
</tr>
</thead>
</table>

**Gasoline Range Organics (GRO)**: 97% of 40% U 87% 96%
**SOIL VOLATILE SURROGATE RECOVERY**

Lab Name: Recra.LabNet  
Contract: 0052-01-01

Case No.: BECHTEL NEVADA V959

RFW Lot No.: 00121476

<table>
<thead>
<tr>
<th>CLIENT SAMPLE NO.</th>
<th>S1 (FLB)</th>
<th>S2</th>
<th>S3</th>
<th>OTHER</th>
<th>TOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAU1350001</td>
<td>72</td>
<td></td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>TBLKTULVJL20-MB1</td>
<td>93</td>
<td></td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>TBLKTULVJL20-MB1 BS</td>
<td>94</td>
<td></td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>TBLKTULVJL20-MB1 BSD</td>
<td>104</td>
<td></td>
<td></td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

S1 (FLB) = Fluorobenzene

# Column to be used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

QC LIMITS (40-150)
**3B**

**SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY**

Lab Name: Recra.LabNet  
Case No.: BECHTEL NEVADA V959  
Contract: 0052-01-01  
RFW Lot No.: 0012L476

**MATRIX Spike - Sample No.: TBLKTULVJL20-MB1**  
Level: (low/med) LOW

<table>
<thead>
<tr>
<th>COMPOUND</th>
<th>SPIKE</th>
<th>SAMPLE</th>
<th>MS</th>
<th>QC LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ADDED</td>
<td>CONCENTRATION</td>
<td>CONCENTRATION</td>
<td>% REC #</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------</td>
<td>----------------</td>
<td>----------------</td>
<td>--------</td>
</tr>
<tr>
<td>Gasoline Range Organics (GRO)</td>
<td>400</td>
<td>0</td>
<td>350</td>
<td>87</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPOUND</th>
<th>SPIKE</th>
<th>MSD</th>
<th>QC LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ADDED</td>
<td>% REC #</td>
<td>RPD</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------</td>
<td>--------</td>
<td>-----</td>
</tr>
<tr>
<td>Gasoline Range Organics (GRO)</td>
<td>400</td>
<td>96</td>
<td>9</td>
</tr>
</tbody>
</table>

* Column to be used to flag recovery and RPD values with an asterisk.
* Values outside of QC limits

RPD: _0_ out of _1_ outside limits
Spike Recovery: _0_ out of _2_ outside limits

**COMMENTS:**

FORM III VOA-2  
5/88 Rev.
Lab Name: Recra.LabNet  
Contract: 0052-01-01  

Case No.: BECHTEL NEVADA V959  
Lab File ID: RAW3:BLKOOPPB  
Lab Sample ID: 00LVJL20-MBl  
Date Analyzed: 12/20/00  
Time Analyzed: 00  
Matrix: (Soil/Water) SOIL  
Level: (low/med) LOW  
Instrument ID: 6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

<table>
<thead>
<tr>
<th>CLIENT SAMPLE NO.</th>
<th>LAB SAMPLE ID</th>
<th>LAB FILE ID</th>
<th>TIME ANALYZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 CAU1350001</td>
<td>00121476-001</td>
<td>00121476-001</td>
<td>12/20/00</td>
</tr>
<tr>
<td>02 TBLKTULVJL20-MBl BS</td>
<td>00LVJL20-MB1S</td>
<td>00LVJL20-MB1S</td>
<td>12/20/00</td>
</tr>
<tr>
<td>03 TBLKTULVJL20-MBl BSD</td>
<td>00LVJL20-MB1T</td>
<td>00LVJL20-MB1T</td>
<td>12/20/00</td>
</tr>
</tbody>
</table>

COMMENTS:
DRO DATA SUMMARY/ SAMPLE QC
THIS PAGE INTENTIONALLY LEFT BLANK
<table>
<thead>
<tr>
<th>Sample Information</th>
<th>RFW#</th>
<th>BLK</th>
<th>BLK BS</th>
<th>BLK BSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matrix:</td>
<td></td>
<td>SOIL</td>
<td>SOIL</td>
<td>SOIL</td>
</tr>
<tr>
<td>D.F.:</td>
<td>1.00</td>
<td></td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Units:</td>
<td>mg/kg</td>
<td></td>
<td>mg/kg</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Surrogate:</td>
<td>p-Terphenyl</td>
<td>102 %</td>
<td>84 %</td>
<td>104 %</td>
</tr>
</tbody>
</table>

---

**Diesel Range Organics**

|                    | 150 | 12 U | 89 % | 83 % |

---

# Soil Volatile Surrogate Recovery

## Lab Information

**Lab Name:** Recra.LabNet  
**Case No.:** BECHTEL NEVADA V959  
**RFW Lot No.:** 0012L476  
**Contract:** 0052-01-01

## Table

<table>
<thead>
<tr>
<th>CLIENT SAMPLE NO.</th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>OTHER</th>
<th>TOT</th>
<th>OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAU1350001</td>
<td>102</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>BLKLE1619-MBl</td>
<td>84</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>BLKLE1619-MBl BS</td>
<td>104</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>BLKLE1619-MBl BSD</td>
<td>97</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**QC LIMITS (35-130)**

- S1 ( ) = p-Terphenyl
- Column to be used to flag recovery values
- Values outside of QC limits
- D Surrogates diluted out

---

**Page 1 of 1**

**Form II VOA-2**

**01/89 Rev.**
### SOIL VOLATILE BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

**Lab Name:** Recra.LabNet  
**Contract:** 0052-01-01

**Case No.:** BECHTEL NEVADA V959  
**RFW Lot No.:** 0012L476

**BLANK Spike - Sample No.:** BLKLE1619-MB1  
**Level:** (low/med) LOW

<table>
<thead>
<tr>
<th>COMPOUND</th>
<th>SPIKE ADDED (mg/kg)</th>
<th>SAMPLE CONCENTRATION (mg/kg)</th>
<th>BS CONCENTRATION (mg/kg)</th>
<th>BS %</th>
<th>QC LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel Range Organics</td>
<td>60.0</td>
<td>0</td>
<td>53.4</td>
<td>89</td>
<td>30 -130</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPOUND</th>
<th>SPIKE ADDED (mg/kg)</th>
<th>BSD CONCENTRATION (mg/kg)</th>
<th>BSD %</th>
<th>QC LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel Range Organics</td>
<td>60.0</td>
<td>50.0</td>
<td>83</td>
<td>99</td>
</tr>
</tbody>
</table>

* Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

**RPD:** 0 out of 1 outside limits

**Spike Recovery:** 0 out of 2 outside limits

**COMMENTS:**

---

**FORM III VOA-2**

5/88 Rev.
**VOLATILE METHOD BLANK SUMMARY**

Lab Name: Recra.LabNet  
Case No.: BECHTEL NEVADA V959  
Lab File ID: RAH3:BLK0OPPB  
Date Analyzed: 01/03/01  
Matrix: (Soil/Water) SOIL  
Instrument ID: 6

This method blank applies to the following samples, MS and MSD:

<table>
<thead>
<tr>
<th>CLIENT SAMPLE NO.</th>
<th>LAB SAMPLE ID</th>
<th>LAB FILE ID</th>
<th>TIME ANALYZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAU1350001</td>
<td>0012L476-001</td>
<td>01/03/01</td>
<td></td>
</tr>
<tr>
<td>BLKLE1619-MBl BS</td>
<td>00LE1619-MBlT</td>
<td>01/03/01</td>
<td></td>
</tr>
<tr>
<td>BLKLE1619-MBl BSD</td>
<td>00LE1619-MBlT</td>
<td>01/03/01</td>
<td></td>
</tr>
</tbody>
</table>

Comments:

---

page 1 of 1  
FORM IV VOA  
5/88 Rev.
Method/Analysis Information
Batch Number: 57281
Procedure: Determination of Strontium 89/90 in Water, Soil, Milk, Filters, Vegetation and Tissues
Analytical Method: EPA 905.0

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Client ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>35000001</td>
<td>CAU1350001</td>
</tr>
<tr>
<td>1000140462</td>
<td>MB for HBN 57281</td>
</tr>
<tr>
<td>1000140463</td>
<td>CAU1350001(35000001DUP)</td>
</tr>
<tr>
<td>1000140464</td>
<td>CAU1350001(35000001MS)</td>
</tr>
<tr>
<td>1000140465</td>
<td>LCS for HBN 57281</td>
</tr>
</tbody>
</table>

SOP Reference
Procedures for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, Inc. as Standard Operating Procedures (SOP). The data discussed in this narrative has been prepared and analyzed in accordance with GL-EP1-A-004.

Calibration Information:
Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:
Blank Information
The blank volume is representative of the sample volume(s) in this batch.

Designated QC
The following sample(s) was used for QC: 35000001.

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:
Holding Time
All sample procedures for this sample set were performed within the required holding time.

Preparation Information
All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

**Miscellaneous Information:**

**NCR Documentation**
No NCR were generated for the preparation or analysis of this sample set.

**Method/Analysis Information**
- Batch Number: 58089
- Procedure: Determination of Gamma Isotopes in Water and Soil
- Analytical Method: DOE EML HASL 300

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Client ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>35000001</td>
<td>CAU1350001</td>
</tr>
<tr>
<td>1000142719</td>
<td>MB for HBN 58089</td>
</tr>
<tr>
<td>1000142720</td>
<td>CAU1350001(350000001DUP)</td>
</tr>
<tr>
<td>1000142721</td>
<td>LCS for HBN 58089</td>
</tr>
</tbody>
</table>

**SOP Reference**
Procedures for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, Inc. as Standard Operating Procedures (SOP). The data discussed in this narrative has been prepared and analyzed in accordance with GL-EPI-A-013.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met.

**Standards Information**
Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
The blank volume is representative of the sample volume(s) in this batch.

**Designated QC**
The following sample(s) was used for QC: 35000001.

**QC Information**
All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Preparation Information**
All preparation criteria have been met for these analyses.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.
**Miscellaneous Information:**

NCR Documentation
GEL-AS-RC-2893—Bi-214 and Th-230 did not pass RER for samples 1000142720 and 35000001. Bi-214 and Th-230 passed duplicate RPD.

**Manual Integration**
No manual integrations were performed on data in this batch.

**Additional Comments**
The following data was rejected due to low abundance:
Sample 1000142719; U-235.
Sample 1000142720; Ag-110m.
The following data was rejected due to no valid peak:
Sample 1000142720; Nb-94.

**Method/Analysis Information**
Batch Number: 59169
Procedure: Isotopic Determination of Americium, Curium, Plutonium, and Uranium
Analytical Method: DOE EML HASL 300

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Client ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>35000001</td>
<td>CAU1350001</td>
</tr>
<tr>
<td>1000145541</td>
<td>MB for HBN 59169</td>
</tr>
<tr>
<td>1000145542</td>
<td>CAU1350001(35000001DUP)</td>
</tr>
<tr>
<td>1000145543</td>
<td>CAU1350001(35000001MS)</td>
</tr>
<tr>
<td>1000145544</td>
<td>LCS for HBN 59169</td>
</tr>
</tbody>
</table>

**SOP Reference**
Procedures for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, Inc. as Standard Operating Procedures (SOP). The data discussed in this narrative has been prepared and analyzed in accordance with GL-EPI-A-011.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met.

**Standards Information**
Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
The blank volume is representative of the sample volume(s) in this batch.

**Designated QC**
The following sample(s) was used for QC: 35000001.

**QC Information**
All of the QC samples met the required acceptance limits.
Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Preparation Information
All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

NCR Documentation
No NCR were generated for the preparation or analysis of this sample set.

Manual Integration
No manual integrations were performed on data in this batch.

Method/Analysis Information

Batch Number: 59177
Procedure: Isotopic Determination of Americium, Curium, Plutonium, and Uranium
Analytical Method: DOE EML HASL 300

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Client ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>35000001</td>
<td>CAU1350001</td>
</tr>
<tr>
<td>1000145569</td>
<td>MB for HBN 59177</td>
</tr>
<tr>
<td>1000145570</td>
<td>CAU1350001(35000001DUP)</td>
</tr>
<tr>
<td>1000145571</td>
<td>CAU1350001(35000001MS)</td>
</tr>
<tr>
<td>1000145572</td>
<td>LCS for HBN 59177</td>
</tr>
</tbody>
</table>

SOP Reference
Procedures for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, Inc. as Standard Operating Procedures (SOP). The data discussed in this narrative has been prepared and analyzed in accordance with GL-EPI-A-011.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume(s) in this batch.

Designated QC
The following sample(s) was used for QC: 35000001.
QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Preparation Information
All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis
The batch was reprepped on 1/17/01 due to insufficient aliquot being used to meet U-235 MDA. The batch was reprepped again on 1/22/01 because U-234 contamination in batch resulted in failed RER. The blank was recounted due to false activity greater than MDA.

Miscellaneous Information:

NCR Documentation
No NCR were generated for the preparation or analysis of this sample set.

Manual Integration
No manual integrations were performed on data in this batch.

Review Validation:
GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: [Signature]  Date: 1/Feb/2001
**COMPANY-WIDE NONCONFORMANCE REPORT**

**COMPLETE EVERY ITEM**

(See Instructions on Reverse Side)

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Nonconformance Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bi-214 and Th-220 did not pass RQR. Duplicate RPD for Bi-214 and Th-220 passes.</td>
</tr>
</tbody>
</table>

**NRG Disposition:**

- [ ] Data Required

**NRG's Printed Name & Signature**

[Signature]

**Date**

11/20/07

**List NRG Participants:**

- [ ] Management Review
- [x] or Management Approval

**Please review within 24 hours of receipt.**

**NCR Review & Disposition Review or Approval:**

<table>
<thead>
<tr>
<th>Date</th>
</tr>
</thead>
</table>

**Corrective Action Request and Approval:**

<table>
<thead>
<tr>
<th>Date</th>
</tr>
</thead>
</table>

**Originator's Director/Group Leader:**

[Signature]

**Date**

[Signature]

**Date**
Certificate of Analysis

Company: Bechtel Nevada Corp.
Address: 2621 Lomas Road
North Las Vegas, NV 89030-4134

Contact: Ted Redding
Project: Environmental Rad Services

Client Sample ID: CAU1330001
Sample ID: 25000001
Matrix: Soil
Collect Date: 29-NOV-00
Receive Date: 06-DEC-00
Collector: Client

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Qualifier</th>
<th>Result</th>
<th>DL</th>
<th>TPU</th>
<th>RL</th>
<th>Units</th>
<th>DF</th>
<th>Analyst Date</th>
<th>Time</th>
<th>Batch M#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rad Alpha Spec</td>
<td>Alphaspec Pa, solid</td>
<td>0.014 +/-0.0104</td>
<td>0.00506</td>
<td>0.0105</td>
<td>0.020</td>
<td>pCi/g</td>
<td>HOT1 01/10/01</td>
<td>1903</td>
<td>91169 1</td>
<td></td>
</tr>
<tr>
<td>Piontium-238</td>
<td>0.0674 +/-0.00661</td>
<td>0.00506</td>
<td>0.00664</td>
<td>0.020</td>
<td>pCi/g</td>
<td>HOT1 01/26/01</td>
<td>1421</td>
<td>91177 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piontium-239/240</td>
<td>0.014</td>
<td>+/-0.00354</td>
<td>0.0148</td>
<td>0.0786</td>
<td>0.020</td>
<td>pCi/g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alphaspec U, solid</td>
<td>1.22</td>
<td>+/-0.0858</td>
<td>0.0249</td>
<td>0.175</td>
<td>0.020</td>
<td>pCi/g</td>
<td>SRB 01/17/01</td>
<td>1219</td>
<td>58089 3</td>
<td></td>
</tr>
<tr>
<td>Uranium-233</td>
<td>0.065 +/-0.0223</td>
<td>0.0223</td>
<td>0.0241</td>
<td>0.020</td>
<td>pCi/g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uranium-235/238</td>
<td>0.474</td>
<td>+/-0.0353</td>
<td>0.0148</td>
<td>0.0796</td>
<td>0.020</td>
<td>pCi/g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rad Gamma Spec</td>
<td>Americium-241</td>
<td>0.00813</td>
<td>+/-0.032</td>
<td>0.0568</td>
<td>0.032</td>
<td>0.200</td>
<td>pCi/g</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cesium-137</td>
<td>5.34</td>
<td>+/-0.139</td>
<td>0.0442</td>
<td>0.143</td>
<td>1.00</td>
<td>pCi/g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potassium-40</td>
<td>7.51</td>
<td>+/-0.680</td>
<td>0.340</td>
<td>0.682</td>
<td>0.500</td>
<td>pCi/g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uranium-233</td>
<td>0.140</td>
<td>+/-0.189</td>
<td>0.236</td>
<td>0.189</td>
<td>0.200</td>
<td>pCi/g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uranium-235</td>
<td>1.35</td>
<td>+/-0.691</td>
<td>0.543</td>
<td>0.692</td>
<td>2.00</td>
<td>pCi/g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rad Gas Flow</td>
<td>Strontium-90</td>
<td>1.31</td>
<td>+/-0.145</td>
<td>0.184</td>
<td>0.163</td>
<td>1.00</td>
<td>pCi/g</td>
<td>LOMI 12/16/00</td>
<td>2005</td>
<td>57281 4</td>
</tr>
</tbody>
</table>

The following Prep Methods were performed

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>Analyst</th>
<th>Date</th>
<th>Time</th>
<th>Prep Batch</th>
</tr>
</thead>
</table>

The following Analytical Methods were performed

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DOE EML HASL 300</td>
</tr>
<tr>
<td>2</td>
<td>DOE EML HASL 300</td>
</tr>
<tr>
<td>3</td>
<td>DOE EML HASL 300</td>
</tr>
<tr>
<td>4</td>
<td>EPA 905.0</td>
</tr>
</tbody>
</table>

Notes:
The Qualifiers in this report are defined as follows:

* Indicates the analyte is a surrogate compound.

P O Box 30712 * Charleston, SC 29417 * 2040 Savage Road * 29407
(R21) (965) 91711 * Fax (R21) 760-1178

13
Certificate of Analysis

Company: Bechtel Nevada Corp.
Address: 2621 Lomax Road
North Las Vegas, NV 89030-4134

Contact: Ted Redding
Project: Environmental Rad Services

Client Sample ID: CAU1350001
Sample ID: 35000001
Project: NEVA102000
Client ID: NEVA001

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Qualifier</th>
<th>Result</th>
<th>DL</th>
<th>TPU</th>
<th>RL</th>
<th>Units</th>
<th>DF</th>
<th>Analyst Date</th>
<th>Time Batch Mtd.</th>
</tr>
</thead>
</table>

< Actual result is less than amount reported
> Actual result is greater than amount reported
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the compound was analyzed for but not detected above the detection limit.

The above sample is reported on an "as received" basis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Lee M. Heath at 843-556-8171 Ext. 4433.

Reviewed by

P O Box 30712 * Charleston, SC 29417 * 2040 Savage Road * 29407
(843) 556-8171 * Fax (843) 766-1179
APPENDIX D

VERIFICATION SAMPLE ANALYTICAL REPORTS
**Radiation Survey Report**

**Number:** A 03012  
**Page:** 1 of 1

**Event/RWP No.:** 00-0025-13  
**Project/Work Order:** CA-135

**Purpose:** Post job survey of EMAD vault CA-135

**Time** | **Description of Survey** |
--- | ---
14:30 | Swipes on vault fire grid EMAD
14:30 | on tank supports
14:30 | on wall
15:30 | on ladder

**Unit:** Fixed + Remove SWPE

<table>
<thead>
<tr>
<th><strong>No. of Points</strong></th>
<th><strong>14:30</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>2.5</td>
</tr>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>12</td>
<td>4500</td>
</tr>
<tr>
<td>16</td>
<td>3100</td>
</tr>
<tr>
<td>17</td>
<td>2300</td>
</tr>
</tbody>
</table>

**Comments:** See attached map

**Follow up required?** Yes □  No □

**All readings are net above background unless noted**
\( \bigcirc \) Denotes a specific location in each grid.
This Tier I review is being completed based on:

( ) the project's written direction that this level of review will satisfy the data quality objectives, or

X the project's lack of written direction, in which case this review is performed as a contract compliance screen.

## I. GENERAL PROJECT & SUBCONTRACTOR INFORMATION

<table>
<thead>
<tr>
<th>BN Package ID:</th>
<th>9301</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling Event:</td>
<td>AREA 25 E-MAA</td>
</tr>
<tr>
<td>BN Project:</td>
<td>ERA</td>
</tr>
<tr>
<td>Task Manager:</td>
<td>Demirio Guadalupe</td>
</tr>
<tr>
<td>Laboratory:</td>
<td>NEL</td>
</tr>
<tr>
<td>Laboratory Package ID:</td>
<td>NEL 522012005</td>
</tr>
<tr>
<td>Analyses:</td>
<td>Total Metals, TPH, PCB</td>
</tr>
</tbody>
</table>

## II. COMPLETENESS

<table>
<thead>
<tr>
<th>a. Chain of custody was complete and legible</th>
<th>Yes</th>
<th>No</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Case Narrative was reviewed for significant problems</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. All requested analyses were performed on all samples</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Samples were extracted, prepared, and analyzed within holding times</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Cooler temperature was recorded upon receipt</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Proper preservation / pH was used for each matrix and analysis</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Laboratory log-in report was delivered</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Field forms are present as provided by the field personnel</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Report forms are present for all analyses</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Report format is appropriate for requested QC level, if applicable</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments: TPH value reported as electing in the gasoline range, but the pattern doesn't resemble gasoline, diesel or oil.
CLIENT: Bechtel Nevada
P.O. Box 98521, M/S NTS273
Las Vegas, NV 89193-8521
ATTN: Ted Redding

PROJECT NAME: V963
PROJECT NUMBER: 17777
NEL ORDER ID: L0012045

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 12/5/00.

Should you have any questions or comments, please feel free to contact our Client Services department at (702) 657-1010.

Some results have been flagged as follows:
F2  - Hydrocarbon pattern atypical of gasoline, diesel or oil.

Michael Van Wagenen
Laboratory Manager

Date 12/13/00

CERTIFICATIONS:

<table>
<thead>
<tr>
<th></th>
<th>Reno</th>
<th>Las Vegas</th>
<th>S. California</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona</td>
<td>AZ0520</td>
<td>AZ0518</td>
<td>AZ0605</td>
</tr>
<tr>
<td>California</td>
<td>1707</td>
<td>2002</td>
<td>2264</td>
</tr>
<tr>
<td>US Army Corps of Engineers</td>
<td>Certified</td>
<td>Certified</td>
<td>Certified</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Idaho</td>
<td>Certified</td>
<td>Certified</td>
<td></td>
</tr>
<tr>
<td>Montana</td>
<td>Certified</td>
<td>Certified</td>
<td></td>
</tr>
<tr>
<td>Nevada</td>
<td>NV033</td>
<td>NV052</td>
<td>CA084</td>
</tr>
<tr>
<td>L.A.C.S.D.</td>
<td></td>
<td></td>
<td>10228</td>
</tr>
</tbody>
</table>
## NEL LABORATORIES

**CLIENT:** Bechtel Nevada  
**PROJECT ID:** V963  
**PROJECT #:** 17777

**TEST:** RCRA-8 GROUP  
**MATRIX:** Solid

---

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>RESULT</th>
<th>REPORTING LIMIT</th>
<th>D. F.</th>
<th>METHOD</th>
<th>DIGESTED</th>
<th>ANALYZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>ND</td>
<td>5. mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
</tr>
<tr>
<td>Barium</td>
<td>62</td>
<td>0.25 mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
</tr>
<tr>
<td>Cadmium</td>
<td>ND</td>
<td>0.5 mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
</tr>
<tr>
<td>Chromium</td>
<td>4.6</td>
<td>0.5 mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
</tr>
<tr>
<td>Lead</td>
<td>6.4</td>
<td>2.5 mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
</tr>
<tr>
<td>Mercury</td>
<td>ND</td>
<td>0.1 mg/kg</td>
<td>500</td>
<td>EPA 7471A</td>
<td>12/11/00</td>
<td>12/11/00</td>
</tr>
<tr>
<td>Selenium</td>
<td>ND</td>
<td>5. mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
</tr>
<tr>
<td>Silver</td>
<td>ND</td>
<td>1. mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
</tr>
</tbody>
</table>

**D.F.** - Dilution Factor  
**ND** - Not Detected

*This report shall not be reproduced except in full, without the written approval of the laboratory.*
**NEL LABORATORIES**

CLIENT: Bechtel Nevada  
CLIENT ID: Method Blank  
PROJECT ID: V963  
DATE SAMPLED: NA  
PROJECT #: 17777  
NREL SAMPLE ID: L120451-BLK  

**TEST:** RCRA-8 GROUP

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>RESULT</th>
<th>REPORTING LIMIT</th>
<th>D. F.</th>
<th>METHOD</th>
<th>DIGESTED</th>
<th>ANALYZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>ND</td>
<td>5. mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
</tr>
<tr>
<td>Barium</td>
<td>ND</td>
<td>0.25 mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
</tr>
<tr>
<td>Cadmium</td>
<td>ND</td>
<td>0.5 mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
</tr>
<tr>
<td>Chromium</td>
<td>ND</td>
<td>0.5 mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
</tr>
<tr>
<td>Lead</td>
<td>ND</td>
<td>2.5 mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
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<tr>
<td>Selenium</td>
<td>ND</td>
<td>5. mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
</tr>
<tr>
<td>Silver</td>
<td>ND</td>
<td>1. mg/kg</td>
<td>50</td>
<td>EPA 6010</td>
<td>12/8/00</td>
<td>12/8/00</td>
</tr>
</tbody>
</table>

D.F. - Dilution Factor  
ND - Not Detected  

This report shall not be reproduced except in full, without the written approval of the laboratory.
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>RESULT</th>
<th>LIMIT</th>
<th>D. F.</th>
<th>METHOD</th>
<th>DIGESTED</th>
<th>ANALYZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury</td>
<td>ND</td>
<td>0.1 mg/kg</td>
<td>500</td>
<td>EPA 7471A</td>
<td>12/11/00</td>
<td>12/11/00</td>
</tr>
</tbody>
</table>

D.F. - Dilution Factor
ND - Not Detected

This report shall not be reproduced except in full, without the written approval of the laboratory.
## PCB's (Polychlorinated Biphenyls) by EPA 8082, Dec. 1996

**CLIENT:** Bechtel Nevada  
**PROJECT ID:** V963  
**PROJECT #:** VSS #1-3  
**DATE SAMPLED:** 12/4/00  
**NEL SAMPLE ID:** L0012045-03  

### TEST METHODS AND ANALYSIS

- **METHOD:** EPA 8082  
- **ANALYST:** JRW - Las Vegas Division  
- **MATRIX:** Solid  
- **DILUTION:** 1  

### Quality Control Data

<table>
<thead>
<tr>
<th>Surrogate</th>
<th>% Recovery</th>
<th>Acceptable Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decachlorobiphenyl</td>
<td>71</td>
<td>56 - 151</td>
</tr>
<tr>
<td>Tetrachloro-m-xylene</td>
<td>75</td>
<td>45 - 127</td>
</tr>
</tbody>
</table>

**Reporting Limit:**
- 20. µg/kg

**ND - Not Detected**

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NEL LABORATORIES

CLIENT: Bechtel Nevada
PROJECT ID: V963
PROJECT #: 17777

CLIENT ID: Method Blank
DATE SAMPLED: NA
NEL SAMPLE ID: 001207PCBS-BLK

TEST: PCB's (Polychlorinated Biphenyls) by EPA 8082, Dec. 1996
METHOD: EPA 8082
MATRIX: Solid

ANALYST: JRW - Las Vegas Division
EXTRACTED: 12/7/00
ANALYZED: 12/11/00

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>Result</th>
<th>Reporting Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aroclor-1016</td>
<td>ND</td>
<td>20. µg/kg</td>
</tr>
<tr>
<td>Aroclor-1221</td>
<td>ND</td>
<td>20. µg/kg</td>
</tr>
<tr>
<td>Aroclor-1232</td>
<td>ND</td>
<td>20. µg/kg</td>
</tr>
<tr>
<td>Aroclor-1242</td>
<td>ND</td>
<td>20. µg/kg</td>
</tr>
<tr>
<td>Aroclor-1248</td>
<td>ND</td>
<td>20. µg/kg</td>
</tr>
<tr>
<td>Aroclor-1254</td>
<td>ND</td>
<td>20. µg/kg</td>
</tr>
<tr>
<td>Aroclor-1260</td>
<td>ND</td>
<td>20. µg/kg</td>
</tr>
</tbody>
</table>

QUALITY CONTROL DATA:

<table>
<thead>
<tr>
<th>Surrogate</th>
<th>% Recovery</th>
<th>Acceptable Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decachlorobiphenyl</td>
<td>101</td>
<td>56 - 151</td>
</tr>
<tr>
<td>Tetrachloro-m-xylene</td>
<td>99</td>
<td>45 - 127</td>
</tr>
</tbody>
</table>

ND - Not Detected

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**NEL LABORATORIES**

**CLIENT:** Bechtel Nevada  
**PROJECT ID:** V963  
**PROJECT #:** 17777  
**TEST:** Total Extractable Petroleum Hydrocarbons by EPA Method 8015M, December 1996  
**METHOD:** EPA 8015M  
**ORDER ID:** L0012045  
**MATRIX:** Solid

<table>
<thead>
<tr>
<th>SAMPLE ID</th>
<th>DATE</th>
<th>SAMPLE ID</th>
<th>mg/kg</th>
<th>C.R.</th>
<th>Reporting Limit</th>
<th>Surrogate Recovery*</th>
<th>EXTRACTED</th>
<th>ANALYZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSS #1-2</td>
<td>12/4/00</td>
<td>L0012045-02</td>
<td>870 F2 G</td>
<td>20. mg/kg</td>
<td>112 %</td>
<td>12/6/00</td>
<td>12/6/00</td>
<td></td>
</tr>
</tbody>
</table>

**C.R.: Carbon Range**

G Gas Range Organics (C4 to C14).

**QUALITY CONTROL DATA (Total for Diesel Range):**

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Result</th>
<th>Acceptable Range</th>
<th>Surrogate Recovery*</th>
<th>Sample Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank, 001206TP-BLK</td>
<td>ND</td>
<td>&lt; 20 mg/kg</td>
<td>110 %</td>
<td>NA</td>
</tr>
<tr>
<td>LCS, 001206TPHSLCS</td>
<td>62 %</td>
<td>54 - 91 %</td>
<td>88 %</td>
<td>NA</td>
</tr>
<tr>
<td>LCSD, 001206TPHSLCSD</td>
<td>67 %</td>
<td>54 - 91 %</td>
<td>91 %</td>
<td>NA</td>
</tr>
<tr>
<td>MS, 001206TPHSM</td>
<td>78 %</td>
<td>34 - 110 %</td>
<td>115 %</td>
<td>L0012045-02</td>
</tr>
<tr>
<td>MSD, 001206TPHSM</td>
<td>70 %</td>
<td>34 - 110 %</td>
<td>103 %</td>
<td>L0012045-02</td>
</tr>
</tbody>
</table>

* Surrogate used was Octacosane, acceptance limits 55-130%.

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Quantitation Report

Data File: C:\HPCHEM\2\DATA\001206\1206-24.D
Acq On: 6 Dec 2010 4:23 pm
Sample: L0012045-02
Misc: SOIL SAMPLE
IntFile: events.e
Quant Time: Dec 7 9:17 2000

Quant Results File: TP0012Fl.RES

Quant Method: C:\HPCHEM\2\METHODS\TP0012F1.M (Chemstation Integrator)
Title: 6/21/99 Seymour Front TPH
Last Update: Wed Nov 29 12:18:08 2000
Response via: Initial Calibration
DataAcq Meth: TP9907R1.M

Volume Inj.:
Signal Phase:
Signal Info:

<table>
<thead>
<tr>
<th>Compound</th>
<th>R.T.</th>
<th>Response</th>
<th>Conc Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Octacosane</td>
<td>23.07</td>
<td>6397904</td>
<td>0.112 mg/ml</td>
</tr>
<tr>
<td>Gasoline</td>
<td>10.33</td>
<td>558852196</td>
<td>26.203 mg/ml</td>
</tr>
<tr>
<td>Diesel</td>
<td>21.15</td>
<td>20638128</td>
<td>0.020 mg/ml</td>
</tr>
</tbody>
</table>

\[
\frac{26.203 \times 1.0}{30.0} \times 100 = 873.1\%
\]

\(=870\)
Quantitation Report

Data File: C:\HPCHEM\2\DATA\001206\1206-24.D
Acq On: 6 Dec 2010 4:23 pm
Sample: L0012045-02
Misc: SOIL SAMPLE
IntFile: events.e
Quant Time: Dec 7 9:17 2000
Quant Results File: TP0012Fl.RES

Quant Method: C:\HPCHEM\2\METHODS\TP0012Fl.M (Chemstation Integrator)
Title: 6/21/99 Seymour Front TPH
Last Update: Wed Nov 29 12:18:08 2000
Response via: Multiple Level Calibration
DataAcq Meth: TP9907RL.M

Volume Inj.:
Signal Phase:
Signal Info:

![Graph of TP0012Fl.M]
CLIENT: Bechtel Nevada  
P.O. Box 98521, M/S NTS273  
Las Vegas, NV 89193-8521  
ATTN: Ted Redding  

PROJECT NAME: V1043  
PROJECT NUMBER: 23081  
NEL ORDER ID: L0103250  

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 3/23/01.

Should you have any questions or comments, please feel free to contact our Client Services department at (702) 657-1010.

Some results have been flagged as follows:
J - This concentration should be considered an estimate due laboratory control sample failure.

Certifications:

<table>
<thead>
<tr>
<th>State</th>
<th>Reno</th>
<th>Las Vegas</th>
<th>S. California</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona</td>
<td>AZ0520</td>
<td>AZ0518</td>
<td>AZ0605</td>
</tr>
<tr>
<td>California</td>
<td>1707</td>
<td>2002</td>
<td>2264</td>
</tr>
<tr>
<td>US Army Corps of Engineers</td>
<td>Certified</td>
<td>Certified</td>
<td></td>
</tr>
</tbody>
</table>

Stan Van Wagener  
Laboratory Manager  

Certifications:  

<table>
<thead>
<tr>
<th>State</th>
<th>Reno</th>
<th>Las Vegas</th>
<th>S. California</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idaho</td>
<td>Certified</td>
<td>Certified</td>
<td></td>
</tr>
<tr>
<td>Montana</td>
<td>Certified</td>
<td>Certified</td>
<td></td>
</tr>
<tr>
<td>Nevada</td>
<td>NV033</td>
<td>NV052</td>
<td>CA084</td>
</tr>
<tr>
<td>L.A.C.S.D.</td>
<td>10228</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## QUALITY CONTROL DATA:

<table>
<thead>
<tr>
<th>Surrogate</th>
<th>% Recovery</th>
<th>Acceptable Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Dibromo-3-chloropropane (DBCP)</td>
<td>98</td>
<td>74 - 121</td>
</tr>
<tr>
<td>1,2-Dibromoethane (EDB)</td>
<td>99</td>
<td>80 - 120</td>
</tr>
<tr>
<td>1,2-Dichlorobenzene (o-DCB)</td>
<td>100</td>
<td>81 - 117</td>
</tr>
<tr>
<td>1,1,1-Trichloroethane (1,1,1-TCA)</td>
<td>99</td>
<td>74 - 121</td>
</tr>
<tr>
<td>1,1,2-Trichloroethane (1,1,2-TCA)</td>
<td>99</td>
<td>80 - 120</td>
</tr>
<tr>
<td>Trichlorofluoromethane (Freon 11)</td>
<td>99</td>
<td>74 - 121</td>
</tr>
</tbody>
</table>

ND - Not Detected

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---

### Parameter Results

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Reporting Limit</th>
<th>Result</th>
<th>Parameter</th>
<th>Reporting Limit</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>25 µg/kg</td>
<td>ND</td>
<td>1,1-Dichloropropene</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Benzene</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>cis-1,3-Dichloropropene</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Bromobenzene</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>trans-1,3-Dichloropropene</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Bromochloromethane</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>Ethylbenzene</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Bromodichloromethane</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>Hexachlorobutadiene</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Bromoform</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>2-Hexanone</td>
<td>25 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Bromomethane</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>Iodomethane</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>2-Butanone</td>
<td>25 µg/kg</td>
<td>ND</td>
<td>Isopropylbenzene</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>n-Butylbenzene</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>p-Isopropyltoluene</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>sec-Butylbenzene</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>Methylene chloride (Dichloromethane)</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>tert-Butylbenzene</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>4-Methyl-2-pentanone</td>
<td>25 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Carbon disulfide</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>MTBE</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Carbon tetrachloride</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>Naphthalene</td>
<td>10 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Chlorobenzene</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>n-Propylbenzene</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Chloroethane</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>Styrene</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Chloromethane</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>1,1,1,2-Tetrachloroethane</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Chloromethane</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>1,1,2,2-Tetrachloroethane</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>2-Chlorotoluene</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>Tetrachloroethene (PCE)</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>4-Chlorotoluene</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>Toluene</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Dibromochloromethane</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>1,2,3-Trichlorobenzene</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>1,2-Dibromo-3-chloropropane (DBCP)</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>1,2,4-Trichlorobenzene</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>1,2-Dibromoethane (EDB)</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>1,1,1-Trichloroethane (1,1,1-TCA)</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Dibromomethane</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>1,1,2-Trichloroethane (1,1,2-TCA)</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>1,2-Dichlorobenzene (o-DCB)</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>Trichloroethene (TCE)</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>1,3-Dichlorobenzene (m-DCB)</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>Trichlorofluoromethane (Freon 11)</td>
<td>10 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>1,4-Dichlorobenzene (p-DCB)</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>1,2,3-Trichloropropane</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>Dichlorodifluoromethane (Freon 12)</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>1,2,4-Trimethylbenzene</td>
<td>5 µg/kg</td>
<td>ND</td>
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<tr>
<td>1,1-Dichloroethene (1,1-DCA)</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>1,3,5-Trimethylbenzene</td>
<td>5 µg/kg</td>
<td>ND</td>
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<tr>
<td>1,2-Dichloroethene (1,2-DCA)</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>Vinyl chloride</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>1,1-Dichloroethene (1,1-DCE)</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>o-Xylene</td>
<td>5 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>cis-1,2-Dichloroethene</td>
<td>5 µg/kg</td>
<td>ND</td>
<td>m,p-Xylene</td>
<td>10 µg/kg</td>
<td>ND</td>
</tr>
<tr>
<td>trans-1,2-Dichloroethene</td>
<td>5 µg/kg</td>
<td>ND</td>
<td></td>
<td></td>
<td>ND</td>
</tr>
<tr>
<td>1,2-Dichloropropene</td>
<td>5 µg/kg</td>
<td>ND</td>
<td></td>
<td></td>
<td>ND</td>
</tr>
<tr>
<td>1,3-Dichloropropene</td>
<td>5 µg/kg</td>
<td>ND</td>
<td></td>
<td></td>
<td>ND</td>
</tr>
<tr>
<td>2-Dichloropropene</td>
<td>10 µg/kg</td>
<td>ND</td>
<td></td>
<td></td>
<td>ND</td>
</tr>
<tr>
<td>PARAMETER</td>
<td>Result</td>
<td>Reporting Limit</td>
<td>PARAMETER</td>
<td>Result</td>
<td>Reporting Limit</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------</td>
<td>-----------------</td>
<td>--------------------------------</td>
<td>--------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Acenaphthene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>Dimethylphthalate</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>Acenaphthylene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>4,6-Dinitro-2-methyl phenol</td>
<td>ND</td>
<td>330.0 µg/kg</td>
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<tr>
<td>Aniline</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>2,4-Dinitrofluorobenzene (DNT)</td>
<td>ND</td>
<td>330.0 µg/kg</td>
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<tr>
<td>Anthracene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>2,6-Dinitrotoluene (DNT)</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>Azobenzene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>2,4-Dinitrophenol</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>Benzo (a) anthracene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>Di-n-octyl phthalate</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>Benzo (b) fluoranthene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>Fluoranthene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>Benzo (k) fluoranthene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>Fluorene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>Benzoic Acid</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>Hexachlorobenzene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>Benzo (g,h,i) perylene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>Hexachlorobutadiene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>Benzo (a) pyrene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>Hexachlorocyclopentadiene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>Benzyl alcohol</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>Hexachloroethane</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>bis (2-Chloroethyl) ether</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>Indeno (1,2,3-c,d) pyrene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>bis (2-Chloroethoxy) methane</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>Isophorone</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>bis (2-chloroisopropyl) ether</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>2-Methylindeno (1,2,3-c,d) pyrene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
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<tr>
<td>bis (2-Ethylhexyl)phthalate</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>2-Methylphenol</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>Butylbenzylphthalate</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>3,4-Methylphenol (isomeric pair)</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
<tr>
<td>4-Bromophenyl phenyl ether</td>
<td>ND</td>
<td>330.0 µg/kg</td>
<td>Naphthalene</td>
<td>ND</td>
<td>330.0 µg/kg</td>
</tr>
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<td>Carbazole</td>
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**QUALITY CONTROL DATA:**

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ND - Not Detected

*This report shall not be reproduced except in full, without the written approval of the laboratory.*
**CLIENT:** Bechtel Nevada  
**PROJECT ID:** V1043  
**PROJECT #:** 23081  
**CLIENT ID:** VSS #1-8  
**DATE SAMPLED:** 3/23/01  
**NEL SAMPLE ID:** L0103250-04

**TEST:** Volatile Organic Compounds by EPA 8260B, December 1996  
**METHOD:** EPA 8260  
**MATRIX:** Aqueous  
**ANALYST:** SKV - Las Vegas Division  
**ANALYZED:** 3/26/01

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**QUALITY CONTROL DATA:**

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ND - Not Detected

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<th>PARAMETER</th>
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**QUALITY CONTROL DATA:**

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<th>Surrogate</th>
<th>% Recovery</th>
<th>Acceptable Range</th>
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<tr>
<td>4-Bromofluorobenzene</td>
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<td>Toluene-88</td>
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ND - Not Detected

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### Volatile Organic Compounds by EPA 8260B, December 1996

**Test:** Volatile Organic Compounds by EPA 8260B, December 1996  
**Method:** EPA 8260B  
**Matrix:** Solid  
**Dilution:** 1

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<th>Parameter</th>
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<th>Reporting Limit µg/kg</th>
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**Quality Control Data:**

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<th>Acceptable Range</th>
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ND - Not Detected

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<th>PARAMETER</th>
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**QUALITY CONTROL DATA:**

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<th>Surrogate</th>
<th>% Recovery</th>
<th>Acceptable Range</th>
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<tbody>
<tr>
<td>2,4,6-Tribromophenol</td>
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<td>2-Fluorobiphenyl</td>
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ND - Not Detected

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<th>PARAMETER</th>
<th>Result µg/kg</th>
<th>Reporting Limit µg/kg</th>
<th>PARAMETER</th>
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<td>Benzoic Acid</td>
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ND - Not Detected

*This report shall not be reproduced except in full, without the written approval of the laboratory.*
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**QUALITY CONTROL DATA:**

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ND - Not Detected

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<td>m,p-Xylene</td>
<td>ND</td>
<td>10 µg/L</td>
</tr>
</tbody>
</table>

**QUALITY CONTROL DATA:**

<table>
<thead>
<tr>
<th>Surrogate</th>
<th>% Recovery</th>
<th>Acceptable Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Bromofluorobenzene</td>
<td>101</td>
<td>86 - 115</td>
</tr>
<tr>
<td>Dibromofluoromethane</td>
<td>104</td>
<td>86 - 118</td>
</tr>
<tr>
<td>Toluene-d8</td>
<td>103</td>
<td>88 - 110</td>
</tr>
</tbody>
</table>

ND - Not Detected

This report shall not be reproduced except in full, without the written approval of the laboratory.
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>Result µg/kg</th>
<th>Reporting Limit µg/kg</th>
<th>PARAMETER</th>
<th>Result µg/kg</th>
<th>Reporting Limit µg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>ND</td>
<td>25 µg/kg</td>
<td>1,3-Dichloropropene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>Benzene</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>2,2-Dichloropropene</td>
<td>ND</td>
<td>10 µg/kg</td>
</tr>
<tr>
<td>Bromobenzene</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>1,1-Dichloropropene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>Bromochloromethane</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>cis-1,3-Dichloropropene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>Bromodichloromethane</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>trans-1,3-Dichloropropene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>Bromoform</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>Ethylbenzene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>Bromomethane</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>Hexachlorobutadiene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>2-Butanone</td>
<td>ND</td>
<td>25 µg/kg</td>
<td>2-Hexanone</td>
<td>ND</td>
<td>25 µg/kg</td>
</tr>
<tr>
<td>n-Butylbenzene</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>Iodomethane</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>sec-Butylbenzene</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>Isopropylbenzene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>tert-Butylbenzene</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>p-Isopropyltoluene</td>
<td>ND</td>
<td>5 µg/kg</td>
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<td>Carbon disulfide</td>
<td>ND</td>
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<td>Methylene chloride (Dichloromethane)</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>Carbon tetrachloride</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>4-Methyl-2-pentanone</td>
<td>ND</td>
<td>25 µg/kg</td>
</tr>
<tr>
<td>Chlorobenzene</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>MTBE</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>Chloroethane</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>Naphthalene</td>
<td>ND</td>
<td>10 µg/kg</td>
</tr>
<tr>
<td>Chloroform</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>n-Propylbenzene</td>
<td>ND</td>
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<td>Chloromethane</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>Styrene</td>
<td>ND</td>
<td>5 µg/kg</td>
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<tr>
<td>2-Chlorotoluene</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>1,1,1,2-Tetrachloroethane</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>4-Chlorotoluene</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>1,1,2,2-Tetrachloroethane</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>Dibromochloromethane</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>Tetrachloroethene (PCE)</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>1,2-Dibromo-3-chloropropene (DBCP)</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>Toluene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>1,2-Dibromoethane (EDB)</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>1,2,3-Trichlorobenzene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>Dibromomethane</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>1,2,4-Trichlorobenzene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>1,2-Dichlorobenzene (o-DCB)</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>1,1-Trichloroethane (1,1,1-TCA)</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>1,3-Dichlorobenzene (m-DCB)</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>1,1,2-Trichloroethane (1,1,2-TCA)</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>1,4-Dichlorobenzene (p-DCB)</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>Trichloroethene (TCE)</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>Dichlorodifluoromethane (Freon 12)</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>Trichlorofluoromethane (Freon 11)</td>
<td>ND</td>
<td>10 µg/kg</td>
</tr>
<tr>
<td>1,1-Dichloroethane (1,1-DCA)</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>1,2,3-Trichloropropene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>1,2-Dichloroethane (1,2-DCA)</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>1,2,4-Trimethylbenzene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>1,1-Dichloroethene (1,1-DCE)</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>1,3,5-Trimethylbenzene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>cis-1,2-Dichloroethene</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>Vinyl chloride</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>trans-1,2-Dichloroethene</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>o-Xylene</td>
<td>ND</td>
<td>5 µg/kg</td>
</tr>
<tr>
<td>1,2-Dichloropropene</td>
<td>ND</td>
<td>5 µg/kg</td>
<td>m,p-Xylene</td>
<td>ND</td>
<td>10 µg/kg</td>
</tr>
</tbody>
</table>

**QUALITY CONTROL DATA:**

<table>
<thead>
<tr>
<th>Surrogate</th>
<th>% Recovery</th>
<th>Acceptable Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Bromofluorobenzene</td>
<td>97</td>
<td>74 - 121</td>
</tr>
<tr>
<td>Dibromofluoromethane</td>
<td>101</td>
<td>80 - 120</td>
</tr>
<tr>
<td>Toluene-d8</td>
<td>99</td>
<td>81 - 117</td>
</tr>
</tbody>
</table>

ND - Not Detected

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```
CLIENT: Bechtel Nevada
PROJECT ID: V1043
PROJECT #: 23081

TEST: Total Extractable Petroleum Hydrocarbons by EPA Method 8015M, December 1996
METHOD: EPA 8015M
ORDER ID: L0103250

MATRIX: Solid

<table>
<thead>
<tr>
<th>CLIENT SAMPLE ID</th>
<th>SAMPLE DATE</th>
<th>NEL SAMPLE ID</th>
<th>RESULT mg/kg</th>
<th>C.R.</th>
<th>Reporting Limit</th>
<th>Surrogate Recovery*</th>
<th>EXTRACTED</th>
<th>ANALYZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSS #1-7</td>
<td>3/23/01</td>
<td>L0103250-03</td>
<td>ND</td>
<td>ND</td>
<td>20 mg/kg</td>
<td>79 %</td>
<td>3/23/01</td>
<td>3/23/01</td>
</tr>
<tr>
<td>VSS #1-12</td>
<td>3/23/01</td>
<td>L0103250-08</td>
<td>ND</td>
<td>ND</td>
<td>20 mg/kg</td>
<td>85 %</td>
<td>3/23/01</td>
<td>3/23/01</td>
</tr>
</tbody>
</table>

C.R.: Carbon Range

QUALITY CONTROL DATA (Total for Diesel Range):

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Result</th>
<th>Acceptable Range</th>
<th>Surrogate Recovery*</th>
<th>Sample Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank, 010323TP -BLK</td>
<td>ND</td>
<td>&lt; 20 mg/kg</td>
<td>90 %</td>
<td>NA</td>
</tr>
<tr>
<td>LCS, 010323TPHS-LCS</td>
<td>64 %</td>
<td>54 - 91 %</td>
<td>114 %</td>
<td>NA</td>
</tr>
<tr>
<td>LCSD, 010323TPHS-LCSD</td>
<td>59 %</td>
<td>54 - 91 %</td>
<td>101 %</td>
<td>NA</td>
</tr>
<tr>
<td>MS, 010323TPHS-MS</td>
<td>85 %</td>
<td>34 - 110 %</td>
<td>101 %</td>
<td>L0103213-01</td>
</tr>
<tr>
<td>MSD, 010323TPHS-MSD</td>
<td>83 %</td>
<td>34 - 110 %</td>
<td>106 %</td>
<td>L0103213-01</td>
</tr>
</tbody>
</table>

* Surrogate used was Octacosane, acceptance limits 55-130%.

ND - Not Detected

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```
Method/Analysis Information
Batch Number: 58089
Procedure: Determination of Gamma Isotopes in Water and Soil
Analytical Method: DOE EML HASL 300

Sample ID | Client ID
---|---
35136001 | VSS#1-4
1000142719 | MB for HBN 58089
1000142720 | CAU1350001(3500001DUP)
1000142721 | LCS for HBN 58089

SOP Reference
Procedures for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, Inc. as Standard Operating Procedures (SOP). The data discussed in this narrative has been prepared and analyzed in accordance with GL-EPT-A-013.

Calibration Information:
Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:
Blank Information
The blank volume is representative of the sample volume(s) in this batch.

Designated QC
The following sample was used for QC: 35000001.

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:
Holding Time
All sample procedures for this sample set were performed within the required holding time.

Preparation Information
All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:
NCR Documentation
GEL-AS-RC-2893—Bi-214 and Th-230 did not pass RER. Bi-214 and Th-230 passed duplicate RPD.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The following data was rejected due to low abundance:
  Sample 1000142719; U-235.
  Sample 1000142720; Ag-110m.
The following data was rejected due to no valid peak:
  Sample 1000142720; Nb-94.

Review Validation:
GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: [Signature] Date: 20-Jan-2001
# Certificate of Analysis

**Company:** Bechtel Nevada Corp.  
**Address:** 2621 Losee Road, North Las Vegas, NV 89030-4134  
**Project:** Environmental Rad Services  
**Contact:** Ted Redding

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Qualifier</th>
<th>Result</th>
<th>DL</th>
<th>TPU</th>
<th>RL</th>
<th>Units</th>
<th>DF</th>
<th>Analyst Date</th>
<th>Time</th>
<th>Batch Mtd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rad Gamma Spec</td>
<td>Amelculium-241</td>
<td>U</td>
<td>-0.00805</td>
<td>+/-0.103</td>
<td>0.165</td>
<td>0.103</td>
<td>0.200</td>
<td>pCi/g</td>
<td>SBK 01/18/01 0615</td>
<td>58089</td>
</tr>
<tr>
<td></td>
<td>Cesium-137</td>
<td></td>
<td>0.313</td>
<td>+/-0.0498</td>
<td>0.0445</td>
<td>0.0499</td>
<td>1.00</td>
<td>pCi/g</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Potassium-40</td>
<td></td>
<td>28.9</td>
<td>+/-1.25</td>
<td>0.363</td>
<td>1.27</td>
<td>0.500</td>
<td>pCi/g</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uranium-235</td>
<td></td>
<td>0.332</td>
<td>+/-0.265</td>
<td>0.246</td>
<td>0.265</td>
<td>0.200</td>
<td>pCi/g</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Uranium-238</td>
<td>U</td>
<td>0.844</td>
<td>+/-1.25</td>
<td>1.30</td>
<td>1.25</td>
<td>2.00</td>
<td>pCi/g</td>
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<td></td>
</tr>
</tbody>
</table>

The following Prep Methods were performed

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>Analyst</th>
<th>Date</th>
<th>Time</th>
<th>Prep Batch</th>
</tr>
</thead>
</table>

The following Analytical Methods were performed

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DOE EML HASL 300</td>
</tr>
</tbody>
</table>

Notes:

- The Qualifiers in this report are defined as follows:
  - ** Indicates the analyte is a surrogate compound.
  - < Actual result is less than amount reported
  - > Actual result is greater than amount reported
  - J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
  - U Indicates the compound was analyzed for but not detected above the detection limit.

The above sample is reported on an "as received" basis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Lee M. Heath at 843-556-8171 Ext. 4433.

Reviewed by

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407  
(843) 556-8171 • Fax (843) 766-1178
## SERVICES REQUEST & CHAIN OF CUSTODY RECORD

### SAMPLE INFORMATION
- **Area:** ZS E-MAD
- **Sampling Site:**
- **The samples submitted contain:**
  - **Hazards:**
  - **Radioactive:**
  - **Unknown contamination:**
- **Turnaround:** 30 days Non-rad, 60 days Rad, Other.
- **Rush Preliminary:** Final by:
- **Final report format:**
  - **Standard:**
  - **NTS-VAC:**
  - **Other:**

### LAB USE ONLY
- **Sample No.:** 9463
- **Non-Rad No.:** 9463
- **Red Packet:** Non-Rad Packet
- **Non-Rad Packet:**
- **Client Services Representative:**
- **Will these analyses be performed under a signed SOW?**
  - **YES**
  - **NO**
- **If so, do analyses entered here agree with the SOW?**
  - **YES**
  - **NO**
  - **NA**
- **CSR initials indicating review and approval:**
- **Date:**

### ANALYSES & METHOD

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ID / DESCRIPTION</th>
<th>SAMPLING</th>
<th>MATRIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>VSS # 1 - 1</td>
<td>04/20/09</td>
<td>1030 SOIL X 01</td>
</tr>
<tr>
<td>1</td>
<td>VSS # 1 - 2</td>
<td>04/20/09</td>
<td>1030 SOIL X 02</td>
</tr>
<tr>
<td>2</td>
<td>VSS # 1 - 3</td>
<td>04/20/09</td>
<td>1030 SOIL X 03</td>
</tr>
<tr>
<td>3</td>
<td>VSS # 1 - 4</td>
<td>04/20/09</td>
<td>1030 SOIL X</td>
</tr>
</tbody>
</table>

### COMMENTS
- **(Preservative, size/volume, MM/MSD, special analysis, lab matrix code, count type, etc.)**
- **Cold, 250ml GLASS**
- **Cold, 250ml GLASS**
- **Cold, 250ml GLASS**
- **Cold, 500ml Nalgene**
- **Run Total:** RCRAB on mats
- **Per NJOE E1106.000**

### Custody/Seal
- **Intact:** Y
- **None:**
- **Condition when received:** Poor

### Transfer of samples submitted for analysis

<table>
<thead>
<tr>
<th>Sampled/Received (Signatures/Organization)</th>
<th>DATE / TIME</th>
<th>Received by (Signature/Organization)</th>
<th>Complete for samples shipped to an OFF-SITE Subcontract Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Janet Acosta&quot;</td>
<td>12/01/14</td>
<td>&quot;CA Castaneda&quot;</td>
<td>&quot;Nigel GEL&quot;</td>
</tr>
</tbody>
</table>

**Distribution:**
- **Original:** To be retained by laboratory performing final analysis
- **Copy:** To be retained by Analytical Services Laboratory
- **Copy:** To be retained by sampling

---

*SN-0732 (5/09)*
<table>
<thead>
<tr>
<th>ITEM</th>
<th>ID / DESCRIPTION</th>
<th>SAMPLING DATE/TIME</th>
<th>MATRIX</th>
<th>VOSCS 8260</th>
<th>SEMINO 8270</th>
<th>TPH 825 Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>VSS #1 - 5</td>
<td>3/23/01</td>
<td>SOIL</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>VSS #1 - 6</td>
<td>3/23/01</td>
<td>SOIL</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>VSS #1 - 7</td>
<td>3/23/01</td>
<td>SOIL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>VSS #1 - 8</td>
<td>3/23/01</td>
<td>OCEO</td>
<td>TB</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>VSS #1 - 9</td>
<td>3/23/01</td>
<td>OCEO</td>
<td>TB</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>VSS #1 - 10</td>
<td>3/23/01</td>
<td>SOIL</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>VSS #1 - 11</td>
<td>3/23/01</td>
<td>SOIL</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>VSS #1 - 12</td>
<td>3/23/01</td>
<td>SOIL</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Custody Seal Intact:** Y N None Temp

**Sample Information:**
- **Sampling Site:** E-MAD VAULT SUMP
- **The samples submitted contain:** (check): Radioactive X Hazardous
- **Unknown contamination. If known, attach a brief narrative summary identifying contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials.

**Sample Receipt Information:**
- Are all sample containers received intact? ( ) Yes ( ) No
- Do the labels agree with this form? ( ) Yes ( ) No
- Was a Material Clearance Tag submitted? ( ) Yes ( ) No

**Comments:**
(Preservative, size/volume, MS/MSD, special analysis, rad matrix code, count time, etc.)
- COLD, 2-125 ml
- COLD, 2-125 ml
- COLD, 2-125 ml
- COLD, 1-250 ml
- COLD, 1-250 ml
- COLD, 1-250 ml
- COLD + HCl, 40 ml
- COLD + HCl, 40 ml
- COLD, 1-250 ml

**Distribution:**
- Original: To be retained by laboratory performing final analysis
- Copy 1: To be retained by laboratory performing intermediate analysis
- Copy 2: To be retained by analytical services laboratory
- Copy 3: To be retained by sampler
THIS PAGE INTENTIONALLY LEFT BLANK
1000 - GATHERED EQUIPMENT AND PROJECT DOCUMENTS AND HEADED FOR E-MAD
1130 - AT E-MAD, RIGGING UP, SETTING UP EQUIPMENT

- CLEAR, CALM, 165°F.
1145 - Tom Gomez read lessons learned re wire rope slings.
1150 - TAILGATE SAFETY BRIEFING - TECH CHANGE, TABLE #125s REQUIRED

- SCOPE OF WORK. SCABBLING WORK WILL BE DONE FIRST, THEN PUMP SUMP.
1200 - LUNCH. ---

1230 - REVIEWED CONFINED SPACE DIRECTIVE, FINISHED UP SAFETY BRIEFING, INCLUDING

- CONFINED SPACE PERMIT, EMERGENCY PROCEDURES.
1300 - CONDUCTED CONFINED SPACE RESCUE DRILL WITH THE STOKES STRETCHER -

- RESCUE BASKET, PHOTOS (RL VIDEO RECORDER ON-SITE AS WELL).
1315 - SET-UP TO PULL LIDS OFF OF VAULT.
1325 - RIG-UP AND PULL ALUMINUM LID.

1330 - PULL CONCRETE AND STEEL LIDS FROM VAULT.
1340 - CONDUCTED AIR MONITORING OF VAULT, 21.4 O2, LEL 0°C = 0, 21.3 TO 21.7.
1405 - 1ST ENTRANT INTO VAULT, TOOLS INTO VAULT, PHOTOS. CONTINUOUS AIR MONITORING.
1425 - 2ND ENTRANT, RCT INTO VAULT, RADIOLOGICAL SURVEY TO CONFIRM CONCENTRATIONS.

- RCT REPORTS 35 - 40 K DPM AROUND “NO3” PIPE, PIPE IS APPROXIMATELY

20 FT FROM FLOOR OF VAULT. RCT WILL TAKE ADDITIONAL SLOPES OF

CONTAMINATED AREA. LAY OUT BRATTICE CLOTH.
1455 - BEGIN SCABBLING AROUND "NO3" PIPE, SCABBBLED AREA BELOW PIPE,

AREA IS APPROXIMATELY 1 FT X 4 IN X 1/4 IN. RCT REPORTS 2500 DPM

FROM SCABBBLED AREA. RCT COLLECTS SAMPLE OF SCABBBLED CONCRETE

AND WALKS AWAY FROM WORK AREA, MEASURES SAMPLE, "SAMPLE INDICATES 600 DPM, SAME AS BACKGROUND." WE ** RESUME AT

THIS POINT THAT THE CONTAMINATION IS "SHINE" FROM THE INSIDE OF THE PIPE.

** LABORER ** IN ADDITION TO SLOPES TAKEN DURING ITS INVESTIGATION.

*** TECHNICAL LEAD, RCT, EH P
AREA 25 UNDERGROUND STORAGE TANKS

TITLE CAU-135 E-MAD-CLOSURE

PROJECT NO. 83

BOOK NO. 3

Work continued from Page EZ 26 Nov. 00

1500-1510-ENTRANTS EXIT VAULT, FRISK OUT OF EZ

1530-SECURE LOCATION, REPLACE LIDS, ETC.

1600-DEPART LOCATION.

WORK CONTINUED TO PAGE ___

SIGNATURE: Donald H. Cole

DISCLOSED TO AND UNDERSTOOD BY
AREA 25 UNDERGROUND STORAGE TANKS

TITLE: CAA 135 E-MAD - CLOSURE

Work continued from Page 28 Nov 00

CEOC - ARRIVED ON LOCATION, 56°F, HIGH CLOUDS, CALM. RN TEAM ON SITE.

CREW BEGINS TO ARRIVE, SEE TAILGATE SAFETY BRIEFING FOR PERSONNEL LIST.

CEO - TIA GÓMEZ CONDUCTS PRETASK HAZARD REVIEW.

- CHECK & WARM-UP EQUIPMENT, WE ARE PREPARED CALLING ON THE MECHANIC TO REPAIR Hook - SAFETY ON CRANE.

CR45 - MECHANIC ON SITE, REPAIRS Hook.

CR30 - TAILGATE SAFETY BRIEFING, MODIFY CONFINE SPACE ENTRY PERMIT TO SHOW THAT WORKERS MAY UNCLIP FROM RETRIEVAL DEVICE ONCE THEY ARE IN THE FLOOR OF VAULT. SEE PERMIT.

0100 - Pulled LIDS from VAULT, AIR OUT VAULT. WIND WARNING ANNOUNCED OVER RADIO

1030 - Conducted AIR monitoring of VAULT: O2 = 20.9%, LEL = 0%, CO = 0 PPM.

1040 - Entrain (2 LABORERS AND RCT) INTO VAULT; ADDITIONAL EQUIPMENT: SCAFFOLD, ETC.

into VAULT, CONTINUOUS MONITORING.

1100 - BEGIN SCABBLING AROUND "NO3" PIPE. INCREASING WINDS

1140 - Entrain OUT OF VAULT FOR LUNCH

1200 - LUNCH, WINDS ARE NOW 30-40 MPH.

1230 - SET-UP, PREP TO GO BACK TO WORK.

1300 - Entrain INTO VAULT, RESUME SCABBLING, RCT COLLECTS SAMPLE OF SCABBLING CONCRETE, Brought OUT OF VAULT, AND MEASURED AT 80 DPM.

APPROXIMATELY 30 MINUTES AFTER, HIGH WINDS AND BLOWING DUST, PERSONNEL NOT ACTUALLY INVOLVED WITH ENTRY ARE ADVISED TO STAY IN E-MAD BUILDING, OR IN VEHICLES.

1330 - COMPLETE SCABBLING AROUND "NO3" PIPE, SET-UP TO BEGIN DRILLING SUMP.

1335 - BEGIN DRILLING SUMP, DRILLED 13 HOLES INTO SUMP & COLLECT CUTTINGS FOR SAMPLE.

1420 - Entrain OUT OF VAULT, FRESH OUT OF EZ.

1430 - Replace LIDS, Take concrete sample for WASTE OPERATIONS.

1500 - Secure AND DEPART SITE, OVER TO TEST CELL C FOR GREEN TAG.

SCIENTIFIC SENSORY PRODUCTS CHICAGO 60606 MADE IN USA
Work continued from Page 31 NOV. 00

0800 - ARRIVED ON LOCATION, 71°F, HIGH CLIMBS, CASUL
- BN TEAM ON SITE, CREW INTRODUCED

0830 - TAILGATE SAFETY BRIEFING AND PRETASK HAZARD REVIEW
- SEE BRIEFING OR REVIEW FOR PERSONNEL LIST.

- CHECK AND WARM-UP EQUIPMENT

0900 - PULL LIDS FROM VAULT, CONDUCT AIR MONITORING OF VAULT, O2 21.2%, CO = 0, LEL = 0

0930 - ENTERANTS (two laborers, RCI) INTO VAULT, CONTINUOUS AIR MONITORING

0950 - CONTINUE DRILLING, PUMP, SUMP

1130 - ENTERANTS OUT OF VAULT, FRISK OUT

1200 - LUNCH

1230 - CREW SUITS UP

1300 - RESUME DRILLING, SUMP FLOOR

1430 - LABORERS REPORT HITTING RE-BAR IN SUMP
- RESUME DRILLING, SUMP FLOOR, OPENING "HOLE" THROUGH SUMP TO SOIL BELOW

1530 - ENTERANTS OUT OF VAULT, FRISK OUT

1540 - REPLACE LIDS

1550 - SECURE AND DEPART SITE.
TITLE: CAU. 135, C-MAD, CLOSURE

0930 - Crew assembles on site & gets ready. High clouds, light breeze, 74°F.
- Tom Gomez reviews today's tasks.
- Tailgate safety briefing.
- Gomez - pre-task hazard review.

1000 - Pulled lids from vault.
1015 - Entrants into vault (Cox, Larry, RCT), equipment into vault.
1030 - Take soil samples.
1045 - Cox out of vault, frisk out.
- Mix and place concrete into sump.

1115 - Entrants out of vault.
1125 to 1400 - Lunch and downtime. Construction personnel had to attend mandatory meeting in Area 6 at 12:30. Secured and departed site.

1409 - Resumed work.

1426 - Monitored confined space oxygen 20.67%; LEL 0; CO 0.
Followed by entry into vault (Mike Van Dillen, RCT) and Dave Milligan (clammer), to patch scabbling around "No 3" pipe. Remove equipment materials from vault. RCT surveys equipment materials before releasing for EZ and/or CA. Cleaning of appointed space.

RCT wiped the floor. We had survey. For more details, contact Mike Van Dillen or Jim McCloskey, RCT. In addition pedestal (cement block) supported rails in vault. The walls & ladders were wiped for read.

Continuous monitoring of vault/confined space.
1528 Oxygen time 20.5%, LEL 0, CO 0, No health hazards.

Work continued to Page 87

SIGNATURE: David M. Cox

DISCLOSED TO AND UNDERSTOOD BY

DATE 04/08/02

WITNESS

DATE


**AREA 25 UNDERGROUND STORAGE TANKS**

**TITLE**
CAU 135: E-MAD - CLOSURE

**PROJECT NO.**

**BOOK NO.** 3

- **04 DEC. 00**

1533 Lost air monitoring of vault/confined space.

Oxygen level: 20.5% O2, 0% CO2

1538 Laborer and RCT exited vault/confined space and frisked.

Waste consisted of 15" in bottom of drum. Drum is 34" height.

Apron: 4 or 5 cloth sack + concrete rubble and PPE.

1546 Replace 3 lids. The lid closest to where the hot spot was established was replaced by aluminum access lid past as contamination area. After rad. swipes are evaluated, the CA may be downgraded, until then, the vault/confined space is a CT.

1550 Confined space permit was closed, job completed.

De-mobilized site.

1615 Left site. Secured area.

---

* Notes by Gina Cook

04 DEC. 00
MARCH 23, 2001

C00 - ARRIVE ON SITE, CREW ASSEMBLES, CLEAR 1 65FT, LT. BREEZE.

- TAILGATE SAFETY BRIEFING, SCOPE OF WORK.
- SET UP EQUIPMENT, PREP FOR ENTRY.

0900 - ENTRANCE INTO VAULT (COX & FLOYD).

0900 - BROKE THRU CONCRETE (CEMENT) WITH IMPACT DRILL, CLEARING DEBRIS.

0910 - INSTRUCTED TO EXIT VAULT - CO2 LEVELS INCREASING, BECAUSE OF GENERATOR EXHAUST ENTERING THE VAULT (?), NOT FAN SINCE FAN IS EXHAUSTING AT GENERATOR.

0920 - CO2 LEVEL OK, RESUMED WORK.

0930 - PETROFLAG SAMPLE TO KRAIG, HEADSPACE SAMPLE TAKEN.

0940 - SURFACE SOIL SAMPLE OUT OF VAULT FOR PROCESSING.

- SOIL IS LT-M BRN TO RED BROWN, SILTY, SANDY, MINOR COARSE GRAVELS, NO STAINING, NO OBVIOUS OBGR.

0958 - PETROFLAG RESULTS = 0, HEADSPACE = 750PPM

1000 - OVER EXCAVATE SOIL UNDER SUMP.

- SECOND PETROFLAG, HEADSPACE OUT OF VAULT

1015 - SECOND SOIL SAMPLE TO SURFACE

- 2ND PETROFLAG = 25, HEADSPACE = 3.3 - 6.8 PPB.

- ALL EXCAVATED CEMENT AND SOIL TO SURFACE

1140 - BACKFILLED EXCAVATION WITH CLEAN GRAVEL

C - CEMENT SUMP SURFACE

- CLEAN-UP VAULT AND REMOVE EQUIPMENT

1400 - ENTRANCE OUT OF VAULT

1515 - SECURE AND DEPART LOCATION.
APPENDIX F

COMMENT REVIEW DOCUMENTATION
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<tr>
<td>1. General</td>
<td>M</td>
<td>Table 1, Table 2, Appendix B, Appendix C, and Modified As-Built Drawings: These items are missing and are critical portions of the CR.</td>
<td>Table 1, Table 2, Appendix A; As-built drawings, Appendix B, Appendix C, have been included in the final Closure Report.</td>
<td>Y</td>
</tr>
<tr>
<td>2. Section 2.3 Corrective Action Schedule Page 13</td>
<td>M</td>
<td>The Closure Report Standardized Outline requires a Corrective Action Schedule. The draft Closure Report states that Table 1 contains this item, however, Table 1 is missing from the report.</td>
<td>Table 1 CAU 135 Corrective Action Schedule as Completed has been included in the final Closure Report.</td>
<td>Y</td>
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<td>3. Section 3.0 Waste Deposition Page17</td>
<td>M</td>
<td>The Closure Report Standardized Outline requires Waste Disposition information. The draft Closure Report refers to Appendix B for the record summary; however, Appendix B is missing from the report.</td>
<td>Waste Disposition Documentation has been included in the final Closure Report in Appendix C.</td>
<td>Y</td>
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<tr>
<td>4. Section 4 Closure Verification Results Page 19</td>
<td>M</td>
<td>The Closure Report Standardized Outline requires Closure Verification Results. Table 2 of the draft Closure Report is labeled Summary of Verification Sample Results, but has been left blank. The draft report also references Appendix C for Radiological Release Survey reports; however, Appendix C is missing.</td>
<td>Table 2: CAU 135 Verificaion Sample Results and Appendix D: Verification Sample Analytical Reports have been included in the final Closure Report.</td>
<td>Y</td>
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## DOCUMENT REVIEW SHEET

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<td>5. Section 5.0 Page 23</td>
<td>M</td>
<td>Section 5.0 of the Closure Report Stantarized Outline requires References - Supporting Documents. Specifically, modified as-built drawings have not been included the draft report.¹⁴</td>
<td>The original As-built drawing for the vault has been included in the final Closure Report in Appendix A. Also, included in Appendix A, is a drawing showing the modifications made to the vault during the corrective action investigation and during closure activities.</td>
<td>Y</td>
</tr>
<tr>
<td>6. Executive Summery Page ix Last Paragraph and Section 3.0, Waste Disposition, Page 17</td>
<td>M</td>
<td>The Executive Summary states the waste was disposed of at the Area 5 Radioactive Waste Management Site. Section 3.0 states the waste was staged on site and will be disposed before the final CR is distributed. The final CR should definitively state the status of the reference waste.</td>
<td>The final Closure Report states that waste was disposed at the Area 23 Sanitary Landfill.</td>
<td>Y</td>
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<td>7. Executive Summary Page ix Last Paragraph</td>
<td>M</td>
<td>&quot;...After verification samples were collected, the vault was repaired with cement...&quot;. The Corrective Action Plan of July 2000, Executive Summary and page 5, state that concrete would be used for repair. Page 9 of the report said that cement would be used. The CR report, in the noted paragraph and in Section 1.2, states that cement was used. Please clarify whether concrete or cement was used. Also, the word &quot;where&quot; should be &quot;were&quot; in the noted paragraph.</td>
<td>The final Closure Report has been change to read &quot;the vault was repaired with cement&quot;. The word &quot;where&quot; has been changed to &quot;were&quot;.</td>
<td>Y</td>
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<td>8. Section 2.0 Closure Activities Page 9 and Appendix A</td>
<td>M</td>
<td>Mention should be made of the status and disposition of the radioactive inlet piping. In addition, photographs should be added to illustrate the scabbled area around the inlet pipe, and all photographs should be labeled.</td>
<td>Text has been added to the final Closure Report stating that “The piping upstream of the vault at CAU 135 will be addressed with CAU 165, Train Decontamination Area. The piping downstream of the vault will be addressed with CAU 262, Septic Systems and Underground Discharge Point (formerly CAU 264)”. The piping in the vault has been labeled “Radioactive Material”. Additional photographs have been added to the final CR and all photographs have been labeled.</td>
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<td>9.</td>
<td>Decontamination Activities and Pump Sump Removal Page 9 and 10</td>
<td>M</td>
<td>The statement made on page 9, &quot;...The sample was measured at 600 dpm which was the same as background...&quot;, does not agree with the page 10 statement, &quot;...and measured the sample at 80 dpm, approximately background...&quot;. The Appendix D Field notes for November 28 and November 29, 2000 also indicated these two background readings as 600 dpm and 80 dpm. Please explain how these two differing readings can both approximate background radiation.</td>
<td>The 600 dpm was a measurement of beta/gamma radiation inside of the vault and the 80 dpm was a measure of beta/gamma radiation outside of the vault. The final Closure Report has been change to clarify these measurements.</td>
<td>Y</td>
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<td>10.</td>
<td>Corrective Action Schedule As Completed Page 13</td>
<td>M</td>
<td>&quot;...The corrective action field activities began on November 15, 2000...&quot;. The Executive Summary and the Appendix D Field Notes indicate the field activities began on November 28, 2000.</td>
<td>The text in the final Closure Report has been changed to read that field activities began on November 28, 2000.</td>
<td>Y</td>
</tr>
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## DOCUMENT REVIEW SHEET

1. Document Title/Number: Final Closure Report for Corrective Action Unit 135: Area 25 Underground Storage Tanks, Nevada Test Site, Nevada  
2. Document Date: March 2001  
3. Revision Number: 0  
4. Originator/Organization: BN  
5. Date Comments Due:  
6. Reviewer/Organization: NDEP

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<tr>
<td>1. Section 1.0 Introduction Page 1, Second Bullet Item</td>
<td>M</td>
<td>CAS 25-02-03 - Deluge Valve Pit is referred to as the Underground Electrical Vault and not as the Test Cell A Facility Underground Storage Tank, in the FFACO (Appendix III), the Corrective Action Investigation Plan (CAIP) and the Corrective Action Decision Document (CADD). A correction is needed.</td>
<td>Section 1.0 has been revised to read “25-02-03 - Underground Electrical Vault, referred to as the Deluge Valve Pit at the Test Cell A Facility.”</td>
<td>Y</td>
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Page 1 of 5
**DOCUMENT REVIEW SHEET**

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<tr>
<td>2. Section 1.2 Scope</td>
<td>M</td>
<td>Appendix C Waste Disposition Documentation contains records which show the wastes were disposed in the Area 23 Sanitary Landfill. Section 3.0 Waste Disposition and the Executive Summary also indicate that the wastes were disposed in the Area 23 Sanitary Landfill. The item on page 5 states that the wastes were disposed in the Area 5 Radioactive Waste Management Site. Correction is required.</td>
<td>Section 1.2 has been revised to read “Disposal of the concrete vault sump, soil excavated beneath the sump, and compactable hot line trash at the Area 23 Sanitary Landfill following applicable federal, state, and DOE/NV regulations in accordance with Section 2.3 of the CAP (DOE/NV 2000).”</td>
<td>Y</td>
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<td>3. Section 2.2 Deviations From the CAP As Approved Page 10</td>
<td>M</td>
<td>This section states that no deviations were made from the Corrective Action Plan (CAP) approved scope of work; however, the CAP stated the waste would be transported to the Area 5 RWMS and the final Closure Report indicates the wastes were delivered to the Area 23 Sanitary Landfill. If the waste was disposed in the Area 23 Sanitary Landfill, then Section 2.2 must be corrected to show the deviation from the approved scope of work.</td>
<td>Section 2.2 has revised to show the deviation from the approved scope of work where waste was disposed at the Area 23 Sanitary Landfill.</td>
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<tr>
<td>4. Section 2.4 Site Plan/Survey Plat, Page 10</td>
<td>M</td>
<td>This section states that as-built drawings were not included in the final Closure Report. Appendix A, “As-Built Drawing and Modified Vault Layout Drawing”, contains an as-built drawing and a drawing showing tanks and piping which have been removed. The indicated section must be revised to acknowledge the inclusion of the drawings in Appendix A.</td>
<td>Section 2.4 has been revised to acknowledge the inclusion of the original As-Built Drawing for the vault along with a drawing showing the modifications made to the vault during the corrective action investigation and during closure activities.</td>
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<tbody>
<tr>
<td>5. Section 4.2 Verification Sample Analyses Pages15-18</td>
<td>M</td>
<td>This section should clearly indicate whether or not all potential contaminants tested, after cleanup was conducted, demonstrated results were within regulatory limits. Table 2 of Section 4 and laboratory sheets in the appendices do not clearly demonstrate whether or not all results are within acceptable parameters. It must be shown that the data meets requirements for a clean closure and for final disposition of the wastes. It also must be shown that the data quality objectives have been met. Earlier reports, including the CAIP, CADD and CAP, discussed various aspects of data quality planned for the CAU including collection, accuracy, completeness and statistical validity of the numbers and samples collected. The final Closure Report should specify how these objectives were met.</td>
<td>Section 4.0 has been revised to include a discussion of sample collection, accuracy, completeness and statistical validity of the number of samples collected. Section 4.3 has been revised to include additional discussion of the potential constituents of concern tested after cleanup was conducted and that the verification results were within regulatory limits. Table 2 of Section 4.0 has also been revised showing that Preliminary Remediation Goals (PRGs) for the constituents of potential concern. An additional table has been included showing that results of waste characterization samples.</td>
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**Bechtel Nevada**

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<tbody>
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<td>Don Cox</td>
<td>Bechtel Nevada, P.O. Box 98521 M/S NTS306, Las Vegas, NV 89193-8521</td>
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<tr>
<td>Dennis Gustafson</td>
<td>Bechtel Nevada, P.O. Box 98521 M/S NTS306, Las Vegas, NV 89193-8521</td>
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<td>Ann Heidema</td>
<td>Bechtel Nevada, P.O. Box 98521 M/S NLV022, Las Vegas, NV 89193-8521</td>
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<tr>
<td>Wayne Johnson</td>
<td>Bechtel Nevada, P.O. Box 98521 M/S NTS306, Las Vegas, NV 89193-8521</td>
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<tr>
<td>Steve Nacht</td>
<td>Bechtel Nevada, P.O. Box 98521 M/S NTS306, Las Vegas, NV 89193-8521</td>
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<td>Jerel Nelson</td>
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### IT Corporation

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<tr>
<td>Lynn Kidman</td>
<td>IT Corporation, P.O. Box 93838, M/S 439, Las Vegas, NV 89193-3838</td>
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IT Corporation (continued)

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