Closure Report for CAU No. 416
Project Shoal Area

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CLOSURE REPORT FOR CAU 416:
PROJECT SHOAL AREA

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Prepared by
Bechtel Nevada
Environmental Restoration Program

January 1998
CLOSURE REPORT FOR CAU 416:
PROJECT SHOAL AREA

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Date: 1/9/98
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ACRONYMS AND ABBREVIATIONS

AEC  U.S. Atomic Energy Commission
CAS  Corrective Action Site
CAU  Corrective Action Unit
COC  Constituent of Concern
CR   Closure Report
DOE/NV U.S. Department of Energy, Nevada Operations Office
FFACO Federal Facilities Agreement and Compliance Order
ft   feet
ft²  square feet
gal  gallon
in   inch
km   kilometer
L    liter
m    meter
m²   square meter
m³   cubic meter
mg/kg milligrams per kilogram
mi   mile
NDEP Nevada Division of Environmental Protection
NTS  Nevada Test Site
ACRONYMS AND ABBREVIATIONS (continued)

PSA  Project Shoal Area
SAFER  Streamlined Approach for Environmental Restoration
TPH  Total Petroleum Hydrocarbons
U.S.  United States
yd³  cubic yard
EXECUTIVE SUMMARY

This Closure Report provides the documentation for closure of the United States Department of Energy/Nevada Operations Office (DOE/NV) Project Shoal Area (PSA) Surface Corrective Action Unit (CAU) 416. CAU 416 consists of a mud pit (Corrective Action Site [CAS] 57-09-01), muckpile (CAS 57-06-01), and housekeeping site (CAS 57-98-01). The PSA is located approximately 48.3 kilometers (30 miles) southeast of Fallon, Nevada.

The closure of the PSA CAU 416 has been completed in accordance with the Nevada Division of Environmental Protection approved Streamlined Approach For Environmental Restoration Plan For Corrective Action Unit 416, Mud Pit, Project Shoal Area (DOE, 1997a), Record of Technical Change No. 1 For Streamlined Approach For Environmental Restoration Plan For Corrective Action Unit 416, Mud Pit, Project Shoal Area (DOE, 1997b), and Housekeeping Category Corrective Action Unit Workplan (DOE, 1996).

The mud pit was the result of drilling activities at the PSA in 1963. Investigation activities completed in 1996 determined drilling mud in the mud pit was impacted with petroleum hydrocarbons in excess of the State of Nevada 100 milligram per kilogram (mg/kg) Total Petroleum Hydrocarbon (TPH) Action Level (NAC, 1996). The mud pit closure activities consisted of excavation, transportation, and disposal of approximately 184 cubic meters (m³) (240 cubic yards [yd³]) of petroleum hydrocarbon impacted drilling mud and weathered granite, verification sampling and analysis, and regrading of the mud pit area. The impacted materials were disposed of in the Area 6 Hydrocarbon Landfill located at the Nevada Test Site (NTS). The verification samples collected from the bottom of the excavation area indicate the materials exceeding the Action Level were successfully removed.

The muckpile consists of broken granite from emplacement shaft and drift (tunnel) mining activities at the PSA in 1963. Approximately 5,000 m³ (6,535 yd³) of broken granite is stockpiled at the surface in an area of approximately 930 square meters (10,000 square feet). Analytical results of samples collected in weathered granite approximately 274 meters (m) (900 feet [ft]) northeast of the muckpile indicate constituents of concern (COC’s) do not exceed regulatory action levels. Geological data from a site report (DRI, 1988) indicates the granite removed from the emplacement shaft and drift is similar in composition from the surface to the maximum depth of the shaft (402 m [1,320 ft]).

The housekeeping site consisted of approximately 20 used, empty, rusted, steel 0.9 liter (1 quart) oil cans. The oil cans were potentially from the site activities in the 1960's based upon the construction material and style of can. The cans were removed from the site and disposed of the Area 23 Landfill located at the NTS.

The DOE/NV requests the Nevada Division of Environmental Protection to issue a Notice of Completion and move the Project Shoal Area Surface CAU 416 (CAS 57-09-01, CAS 57-06-01, and CAS 57-98-01) from Appendix III to Appendix IV of the Federal Facility Agreement and
Consent Order because the following corrective action activities were completed as proposed:

- The impacted materials exceeding the 100 mg/kg TPH Action Limit were removed and properly disposed of from the mud pit (CAS 57-09-01).

- The process knowledge (analytical results from the weathered granite samples and site geological data) indicates no COC's exceed regulatory levels in the muckpile (CAS 57-06-01).

- The housekeeping site (CAS 57-98-01) was remediated.
1.0 INTRODUCTION

The U.S. Department of Energy, Nevada Operations Office (DOE/NV) operates the Nevada Test Site (NTS) and entered into a trilateral agreement with the state of Nevada and the U.S. Defense Special Weapons Agency. The trilateral agreement, which is entitled the Federal Facilities Agreement and Consent Order (FFACO), provides a framework for identifying, characterizing, remediating, and closing DOE/NV environmental sites in Nevada (NDEP, 1996). Two Corrective Action Units (CAUs) are identified for the DOE/NV Project Shoal Area (PSA) in the FFACO (CAU 416 and CAU 447). The PSA Surface is identified as CAU 416, and the PSA Subsurface is identified as CAU 447.

This Closure Report (CR) provides the documentation for the Streamlined Approach for Environmental Restoration (SAFER) closure of the PSA Surface CAU 416. The PSA is located approximately 48.3 kilometers (km) (30 miles [mi]) southeast of Fallon, Nevada, in the Sand Springs Range of Churchill County (see Figure 1). CAU 416 consists of a mud pit (Corrective Action Site [CAS] 57-09-01), muckpile (CAS 57-06-01), and housekeeping site (CAS 57-98-01).

Project Shoal was part of the Vela Uniform Program, a U.S. Department of Defense and U.S. Atomic Energy Commission (AEC) study to evaluate the effects of different geologic media (e.g., granite) on seismic waves produced by underground nuclear tests and to determine whether seismic waves from underground nuclear tests could be differentiated from seismic waves from naturally occurring earthquakes (DRI, 1988).

The Shoal event was a 12.5-kiloton device detonated on October 26, 1963. The device was placed in granite 369 meters (m) (1,211 feet [ft]) below the ground surface (DOE, 1997a). Emplacement of the device was accomplished by mining an approximate 3.6 m (12 ft) by 1.8 m (6 ft) shaft to approximately 402 m (1,320 ft). A drift (tunnel) was mined from the shaft approximately 320 m (1,050 ft) to the east (AEC, 1970). The muckpile (CAS 57-06-01) was the result of stockpiling the broken granite from the mining activities associated with the construction of the shaft. The muckpile is located approximately 46 m (150 ft) east of the shaft (see Figure 2). The shaft was permanently closed in 1996 by backfilling with materials from the muckpile. Approximately 2,445 cubic meters (m$^3$) (3,200 cubic yards [yd$^3$]) was used to backfill the shaft. Approximately 5,000 m$^3$ (6,535 yd$^3$) of broken granite remains at the surface in an area of approximately 930 square meters (m$^2$) (10,000 square ft [ft$^2$]).

The mud pit was constructed in a natural drainage area approximately 350 m (1150 ft) east of the emplacement shaft (Figure 2). The mud pit was used to contain drilling effluent and cuttings from the Post Shot Borehole PS-1 in 1963. During drilling activities for Post Shot Borehole PS-1, short-lived gaseous radionuclides (iodine-131, xenon 131m, and xenon-133) were brought to the surface through the drill rig effluent vent-line system (DOE, 1997a). The radionuclides were
FIGURE 1
LOCATION OF PROJECT SHOAL AREA
FIGURE 2
PROJECT SHOAL AREA SITE MAP
trapped by filters and were subsequently mixed with clean soil and buried in the mud pit (DOE, 1997a). Results from the 1996 characterization activities indicated that no radionuclides were detected above expected values for a granitic terrain; however, Total Petroleum Hydrocarbons (TPH) as diesel and oil were detected above the 100 mg/kg action level (NAC, 1996). The diesel and oil are suspected to have been used in the drilling mud. No other constituents were detected exceeding regulatory limits (DOE, 1997a).

The housekeeping site is located approximately 701 m (2,300 ft) southeast of the mudpit (Figure 2). The housekeeping site consisted of approximately 20 used, empty, rusted, steel 0.9 liter (1 quart) oil cans. The oil cans were potentially from the site activities in the 1960's based upon the construction material and style of can.

DOE/NV proposed to close the mud pit by excavating and disposing of the TPH impacted materials which exceeded the 100 milligram per kilogram (mg/kg) Action Level (NAC, 1996) in July 1997 (DOE, 1997a). The process knowledge to support closure in-place of the muckpile by no further action was proposed to be added to the SAFER Closure Plan in a Record of Technical Change in September 1997 (DOE, 1997b). Remediation of the housekeeping site using the Housekeeping Site Work Plan (DOE, 1996) with the documentation for closure to be included in the CR was proposed on August 13, 1997 (DOE, 1997c).

The Nevada Division of Environmental Protection (NDEP) approved the proposed activities in the SAFER Closure Plan on August 5, 1997 (NDEP, 1997a). The Record of Technical Change (DOE, 1997b) and proposal to remediate the housekeeping site using the Housekeeping Site Work Plan (DOE, 1996) were recorded as approved on September 19, 1997 (NDEP, 1997b).

The Field closure activities began on August 17, 1997 and were completed on August 27, 1997.

1.1 PURPOSE

The purpose of this CR is to:

- provide the information collected during the closure activities as proposed in the SAFER Plan (DOE, 1997a), Record of Technical Change (DOE, 1997b), and Housekeeping Site Work Plan (DOE, 1996).
- Obtain a Notice of Completion from the NDEP.
- Recommend the movement of CAU 416 from Appendix III to Appendix IV of the FFACO.
1.2 SCOPE

The following remedial actions implemented for the closure of the mud pit (CAS 57-09-01) were:

- Excavated and removed of impacted materials from the mud pit area which exceeded the 100 mg/kg TPH Action Level.
- Conducted verification sampling at the bottom of the excavation in the area of the mud pit to confirm TPH concentrations were below the 100 mg/kg Action Level.
- Transported and disposed of the excavated hydrocarbon impacted materials in the Area 6 Hydrocarbon Landfill located at the Nevada Test Site (NTS).
- Regraded the mud pit area using soil from the mud pit retention berm.

The scope of work for the muckpile (CAS 57-06-01) was to provide sufficient information to close the muckpile in-place with no further action. Remedial activities for the housekeeping site (CAS 57-98-01) consisted of removal and disposal of the debris (approximately 20 used steel oil cans). Closure activities and justifications for closure of the mud pit, muckpile, and housekeeping site are documented in the following sections and appendices.

1.3 CLOSURE REPORT CONTENTS

This CR is divided into the following sections:

- Section 1.0 - Introduction: Site background, purpose, scope, and report contents
- Section 2.0 - Closure Activities: Corrective action activities, deviations from SAFER Plan as approved, corrective action schedule as completed, and site plan
- Section 3.0 - Waste Disposition
- Section 4.0 - Closure Verification Results
- Section 5.0 - Conclusions
- Section 6.0 - References
- Appendix A - Laboratory Analytical Results, Granite Samples Near Muckpile
- Appendix B - Housekeeping Site Closure Verification Documentation
- Appendix C - Waste Disposal Documentation
Appendix D - Laboratory Analytical Results, Mud Pit Verification Samples

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

- Corrective Action Investigation Plan for Project Shoal Area, CAU No. 416, DOE, 1996.
- Housekeeping Category Corrective Action Unit Workplan, Rev. 0, DOE, August 1996.
- Nevada Environmental Restoration Project, Industrial Sites, Quality Assurance Project Plan, Nevada Test Site, Revision 1, DOE, 1996.
- Record of Technical Change No. 1 For Streamlined Approach For Environmental Restoration Plan For Corrective Action Unit 416, Mud Pit, Project Shoal Area, Rev. 1, DOE, August 8, 1997.
- Streamlined Approach For Environmental Restoration Plan For Corrective Action Unit 416, Mud Pit, Project Shoal Area, Rev. 1, DOE, July 1997.
2.0 CLOSURE ACTIVITIES

This section of the CR details the specific activities involved in the closure of the PSA mud pit (CAS 57-09-01), the process knowledge to support closure in-place of the muckpile (CAS 57-06-01) with no further action, and the remedial activities to close the housekeeping site (CAS 57-98-01). This section also includes the rationale for any deviations from the approved SAFER Plan (DOE, 1997a) and a detailed schedule of site activities as completed.

2.1 DESCRIPTION OF CORRECTIVE ACTION ACTIVITIES

2.1.1 Mud Pit

Prior to excavating the hydrocarbon impacted materials in the mud pit, a site clearance for excavation was obtained by reviewing As-Built Engineering Drawings and contacting “Call Before You Dig.” Subsurface utilities were not identified in the area of the excavation activities.

All sample location stakes from the 1996 characterization activities were located at the site prior to excavation activities which facilitated demarcation of the excavation area in relation to the 1996 sample points. The soil was excavated to an approximate depth of 0.6 m (2.0 ft) to 0.9 m (3.0 ft) in an approximate area of 250 m² (2,700 ft²) between August 18, 1997 and August 25, 1997. A front end loader was used to excavate and stockpile the excavated material. A backhoe equipped with a bucket without excavating teeth was used to cut and scrape the bottom and edges of the excavation as a waste volume reduction activity. Confirmational sampling activities and analytical results are discussed in Section 4.0.

Two phases of excavation were required to remove the hydrocarbon impacted soils above the 100 mg/kg TPH Action Level. The first phase of excavation consisted of removing approximately 0.6 m (2.0 ft) of hydrocarbon impacted drilling mud and weathered granite followed by verification sampling and analysis. A second phase of excavation was required in the approximate northern one-third to one-half of the excavation area based upon analytical results of samples collected from the base of the excavation on August 19, 1997 (Figure 3). During the second phase of excavation, an additional approximate 0.3 m (1 ft) was removed and placed in the soil stockpile area as described previously.

All excavated soil was stockpiled approximately 30 m (100 ft) south of the mud pit (adjacent to the site access road) on two layers of 10 mil (0.01 inch [in]) plastic. At the end of each excavation day, the excavated soil was covered with 10 mil (0.01 in) plastic and weighted on the edges for stabilization and management purposes.
MUD PIT SAMPLING LOCATIONS AND EXCAVATION AREA
The excavation equipment buckets were cleaned after completion of the excavation and loading activities. Site personnel used brooms and hand sprayers containing Alconox™ and tap water to clean the equipment buckets. Approximately 7.6 liters (L) (2 gallons [gal]) of water was used to clean the equipment. The cleaning activities were conducted over the final end-dump truck loaded with the hydrocarbon impacted soil excavated from the mud pit area. The final end-dump truck contained approximately 15.3 m³ (20 yd³) of impacted soil. For the discussion regarding waste management and disposal, see Section 3.0.

On August 27, 1997, analytical results were received indicating TPH concentrations were below the 100 mg/kg Action Level at all sample locations. Upon receipt of the results, the retention dam located on the south side of the mud pit was removed and used for backfill in the mud pit area. The area was graded as proposed in the SAFER Plan (DOE, 1997a). The area immediately south of the retention dam was regraded to blend with the adjacent topography.

Water for dust suppression activities associated with the excavation and regrading activities was obtained from the City of Fallon through Stockman's Equipment in Fallon, Nevada and the Kennecott Rawhide Mine located approximately 11.3 km (7 mi) south of the site (Figure 1). Approximately 15,140 L (4,000 gal) of water were used at the site. Dust suppression was accomplished through the use of the spray bars and hose on the water truck.

### 2.1.2 Muckpile

The PSA muckpile (CAS 57-06-01) consists of broken granite removed from the subsurface during the mining (construction) of the emplacement shaft and drifts (tunnels) in 1963. The broken granite was placed on the existing sloping topographic surface with a maximum relief from natural grade of approximately 5.5 m (18 ft) on the eastern perimeter. The muckpile tapers to meet natural grade on the western perimeter.

In 1996, approximately 2,445 m³ (3,200 yd³) of the muckpile were used to backfill the emplacement shaft. The emplacement shaft was backfilled because small collapse features were observed in the soil adjacent to the existing concrete cover which could pose a threat to the public, livestock, or wildlife at the site. Approximately 5,000 m³ (6,535 yd³) of broken granite remains at the surface in an area of approximately 930 m² (10,000 ft²). See Figure 2 for locations of the emplacement shaft and muckpile.

No remedial activities were taken at the muckpile in 1997. The following details the justification for no action:

- Process knowledge (DOE, 1997b) indicated that the muck pile was created prior to the testing of any nuclear devices at Project Shoal.
The post-detonation investigation (drill back) operation was conducted at a distance of approximately 320 m (1,050 ft) east of the site and did not affect the broken rock material that comprises the muckpile (AEC, 1970).

The emplacement shaft and drifts (tunnels) at Project Shoal were constructed by mining into the granitic rocks that comprise the bulk of the Sand Springs Range where the Project Shoal site is located. Based on geologic descriptions of cuttings generated during the drilling efforts near the emplacement shaft in identical rock types, it was determined that the mineral composition of these rocks did not contain metals in greater than background concentrations (DOE, 1997b).

Samples (DP-15, DP-16, and DP-17) were collected from weathered granite equivalents of the muckpile (approximately 274 m [900 ft] northeast of the muckpile and 150 m [500 ft] north of the mud pit) during the September 1996 mud pit characterization activities (see Figure 2 for sample locations). The weathered granite samples were collected to provide analytical data regarding native background concentrations. Sample analytical results are summarized in Table 1 and are provided in Appendix A. The analytical results indicated no COC's were detected in excess of regulatory limits.

Recontouring/regrading of the existing muckpile would be of minimal benefit as the resulting surface area would be significantly larger, and the existing native vegetation would be significantly impacted.

Considering the process knowledge presented above, DOE/NV recommends that the muckpile be closed in-place with no further action.

2.1.3 Housekeeping Site

The housekeeping site consisted of approximately 20 used, empty, rusted, steel 0.9 liter (1 quart) oil cans. The oil cans were probably generated during site activities in the 1960's based upon the construction material and style of can.

Closure activities consisted of removal and disposal of the empty oil cans and preparation of housekeeping documentation (Housekeeping Closure Verification Form in Appendix B). Copies of the photographs of the site before and after the remedial activities were completed and can be found in the Housekeeping Closure Verification Form (Appendix B). The oil cans were removed from the site on August 19, 1997. No discoloration of the soil adjacent to or below the cans was observed during removal activities. The cans were transported to the NTS for disposal on August 27, 1997. The cans were disposed of in the Area 23 Landfill located at the NTS.
TABLE 1 - SAMPLE ANALYTICAL RESULTS, GRANITE SAMPLES NEAR MUCKPILE

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>Sample Number</th>
<th>Sample Date</th>
<th>Matrix</th>
<th>Barium mg/kg&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Chromium mg/kg</th>
<th>Gross Alpha pCi/g&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Gross Beta pCi/g</th>
<th>Bismuth-214 pCi/g</th>
<th>Cesium-137 pCi/g</th>
<th>Lead-212 pCi/g</th>
<th>Notes:</th>
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<tbody>
<tr>
<td>DP-15</td>
<td>PSS00022</td>
<td>9/16/96</td>
<td>Soil</td>
<td>104</td>
<td>7.4</td>
<td>23.9</td>
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<td>PSS00026</td>
<td>9/16/96</td>
<td>Soil</td>
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<td>35.9</td>
<td>30.0</td>
<td>0.82</td>
<td>0.23 (ND)</td>
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</table>

<table>
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<th>Sample Date</th>
<th>Matrix</th>
<th>Potassium-40 pCi/g</th>
<th>Lead-214 pCi/g</th>
<th>Radium-226 pCi/g</th>
<th>Radium-228 pCi/g</th>
<th>Thallium-208 pCi/g</th>
<th>Thorium-234 pCi/g</th>
<th>Tritium pCi/g</th>
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<tr>
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<td></td>
</tr>
</tbody>
</table>

Notes:

<sup>a</sup> mg/kg = milligrams per kilogram

<sup>b</sup> pCi/g = pico Curies per gram

<sup>ND</sup> = Not detected above laboratory/method limit
2.2 DEVIATIONS FROM SAFER PLAN AS APPROVED

No deviations from the approved SAFER Plan (DOE, 1997a) were implemented in the field for the mud pit closure activities.

A Record of Technical Change (DOE, 1997b) was submitted to the NDEP on September 3, 1997, to provide process knowledge in the CR for the closure in place of the muckpile (CAS 57-06-01) by no further action. Additionally, DOE/NV proposed in DOE, 1997c to remediate the housekeeping site (CAS 57-98-01) using the Housekeeping Site Work Plan (DOE, 1996) and provide the documentation in this CR. The Record of Technical Change (DOE, 1997b) and proposal to remediate the housekeeping site were recorded as approved on October 6, 1997 (NDEP, 1997b).

2.3 CORRECTIVE ACTION SCHEDULE AS COMPLETED

The project activities were completed as indicated in Figure 4.

The oil cans were removed from the housekeeping site on August 19, 1997. Transportation and disposal of the housekeeping site waste was completed on August 27, 1997.

The mud pit excavation and stockpiling activities were conducted from August 18, 1997 to August 25, 1997. The mud pit waste disposal activities were conducted on August 25 and 26, 1997. The verification samples were collected on August 19 and 25, 1997. Analytical results indicating the impacted materials exceeding the 100 mg/kg TPH action level were removed were received on August 27, 1997. Regrading and demobilization activities were completed on August 27, 1997.

2.4 SITE PLAN/SURVEY PLAT

A site plan reflecting the areas of closure activity addressed in this report is provided as Figure 2. As-Built surveys of the mud pit and muckpile areas were not proposed in the SAFER Plan (DOE, 1997a) or Record of Technical Change (DOE, 1997b) and were not implemented during or after field activities.
<table>
<thead>
<tr>
<th>Activity ID</th>
<th>Activity Description</th>
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<th>Actual Finish</th>
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<td>17AUG97</td>
<td>18AUG97</td>
</tr>
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<td>20</td>
<td>Excavate mud pit &amp; stockpile materials</td>
<td>18AUG97</td>
<td>18AUG97</td>
</tr>
<tr>
<td>25</td>
<td>Housekeeping site remediation</td>
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<tr>
<td>30</td>
<td>Phase 1 verification sampling</td>
<td>19AUG97</td>
<td>19AUG97</td>
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<td>40</td>
<td>Phase 1 verification sample analysis</td>
<td>19AUG97</td>
<td>22AUG97</td>
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<td>50</td>
<td>Analytical result receipt/data evaluation</td>
<td>22AUG97</td>
<td>22AUG97</td>
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<td>Excavate mud pit &amp; stockpile materials</td>
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<td>25AUG97</td>
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<td>70</td>
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<td>80</td>
<td>Load &amp; transport 6 loads of soil to NTS</td>
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<td>90</td>
<td>Phase 2 verification sample analysis</td>
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<td>Analytical result receipt/data evaluation</td>
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</tr>
<tr>
<td>120</td>
<td>Remove berm &amp; regrade area</td>
<td>27AUG97</td>
<td>27AUG97</td>
</tr>
<tr>
<td>125</td>
<td>Transport &amp; dispose of housekeeping waste</td>
<td>27AUG97</td>
<td>27AUG97</td>
</tr>
<tr>
<td>130</td>
<td>Demobilize from site</td>
<td>27AUG97</td>
<td>27AUG97</td>
</tr>
</tbody>
</table>

Figure 4
Corrective Action Schedule
As Completed
3.0 WASTE DISPOSITION

3.1 WASTE MANAGEMENT ACTIVITIES

The excavated soil from the mud pit was stockpiled on and covered with plastic approximately 30 m (100 ft) south of the mud pit and adjacent to the site access road. The soil was stockpiled on two layers of 10 mil (0.01 in) plastic, covered with 10 mil (0.01 in) plastic, and weighted on the edges for stabilization and management purposes. Excavation and stockpiling activities were conducted from August 18, 1997 to August 25, 1997.

Approximately 7.6 L (2 gal) of rinsate were generated from cleaning the excavation equipment buckets on August 26, 1997. The excavation equipment was cleaned with brooms and a light spray of Alconox™ and tap water from a hand sprayer. The cleaning activities were conducted over the final end-dump truck loaded with the last hydrocarbon impacted soil excavated from the mud pit area. The final end-dump truck contained approximately 15.3 m³ (20 yd³) of impacted soil and the plastic used to underlay and cover the excavated soil stockpile.

To eliminate the cleaning of the end-dump trucks (and the generation of additional equipment rinsate), 10 mil (0.01 in) plastic was placed in each end dump truck prior to loading with soil. The trucks were also covered with a tarpaulin to comply with U.S. Department of Transportation regulations and requirements prior to transportation of the soil from the site to the Area 6 Hydrocarbon Landfill located at the NTS.

The used oil cans from the housekeeping site were removed from the site, placed in a plastic bag, and stored in a site vehicle on August 19, 1997. The housekeeping waste was transported to the NTS on August 27, 1997.

3.2 WASTE DISPOSAL

Mud pit waste disposal activities were conducted on August 25 and 26, 1997. Twelve approximately 15.3 m³ (20 yd³) loads of hydrocarbon impacted materials (drill cuttings, soil, weathered granite, and the plastic used to underlay and cover the soil stockpile) were disposed in the Area 6 Hydrocarbon Landfill located at the NTS. The total weight of material transported from the mud pit and disposed of in the Area 6 Hydrocarbon Landfill was approximately 294,800 kilograms (649,922 pounds). Copies of the Bills of Ladings, Weight Tickets, and Material Clearances (radiological green tags) required for disposal at the Area 6 Hydrocarbon Landfill can be found in Appendix C.

The used oil cans from the housekeeping site were disposed of in the NTS Area 23 Landfill on August 27, 1997. A copy of the Housekeeping Closure Verification Form and Material Clearance (radiological green tag) can be found in Appendix B.
4.0 CLOSURE VERIFICATION RESULTS

Closure verification results are applicable for the mud pit and housekeeping site. The process knowledge (analytical results of granite samples collected near the muckpile and site geological data) for the closure of the muckpile is presented in Section 2.1.3. Two phases of excavation and verification sampling activities were required to remove the hydrocarbon impacted drilling mud and weathered granite from the mud pit area.

4.1 MUD PIT

4.1.1 First Phase Of Verification Sampling/Analysis

After removal of the hydrocarbon contaminated material from the mud pit, nine samples were collected from the bottom of the excavation area at eight sample points. Two samples were collected at the same location (Sample PSA-V04 is a field duplicate of Sample PSA-V03). The eight sample points were collected at the approximate locations of the 1996 direct-push characterization samples that exceeded the 100 mg/kg Action Level (DOE, 1997a). See Figure 3 for the locations of the 1996 characterization sample points and the verification sample points.

The verification samples were collected on August 19, 1997, from the exposed surface in the excavated area in accordance with the SAFER Plan (DOE, 1997a). Samples were collected using clean stainless-steel trowels. The samples were placed in 250 milliliter (8 ounce) glass jars, sealed, labeled, and stored in an ice-filled cooler pending delivery to the analytical laboratory. The samples were hand-carried to NEL Laboratories in Reno, Nevada, to be analyzed for TPH by method SW 846-8015 Modified. A 24-hour turn-around on the analyses was requested; however, problems with the laboratory equipment resulted in a 48-hour turn-around. The results were received and evaluated on August 22, 1997.

Analytical results are summarized in Table 2 and are provided in Appendix D. TPH concentrations for the nine verification samples ranged from below 15 mg/kg to 170 mg/kg. Five samples (PSA-V03, PSA-V04 [field duplicate of PSA-V03], PSA-V05, PSA-V06, and PSA-V09) exceeded the action level of 100 mg/kg. Results for these samples ranged from 110 mg/kg to 170 mg/kg TPH. The location of the samples exceeding the 100 mg/kg action level was confined to the approximate northern half of the excavation area (Figure 3).

4.1.2 Second Phase Of Verification Sampling/Analysis

The second phase of excavation activities was initiated in the approximate northern half of the excavation area on August 25, 1997, after receipt and evaluation of the results indicating the 100 mg/kg TPH action level was exceeded. Approximately 0.3 m (1 ft) of additional material
TABLE 2 - SAMPLE ANALYTICAL RESULTS, FIRST PHASE OF VERIFICATION SAMPLES

<table>
<thead>
<tr>
<th>SAMPLE NUMBER</th>
<th>DIRECT PUSH LOCATION</th>
<th>TPH RESULTS (mg/kg)</th>
<th>CRDL(^3) (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSA-V01</td>
<td>DP-1</td>
<td>21</td>
<td>15</td>
</tr>
<tr>
<td>PSA-V02</td>
<td>DP-4</td>
<td>ND(^4)</td>
<td>ND</td>
</tr>
<tr>
<td>PSA-V03</td>
<td>DP-7</td>
<td>62</td>
<td>15</td>
</tr>
<tr>
<td>PSA-V04 (duplicate of PSA-V03)</td>
<td>DP-7</td>
<td>38</td>
<td>15</td>
</tr>
<tr>
<td>PSA-V05</td>
<td>DP-2</td>
<td>44</td>
<td>15</td>
</tr>
<tr>
<td>PSA-V06</td>
<td>DP-5</td>
<td>51</td>
<td>15</td>
</tr>
<tr>
<td>PSA-V07</td>
<td>DP-8</td>
<td>33</td>
<td>15</td>
</tr>
<tr>
<td>PSA-V08</td>
<td>DP-18</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>PSA-V09(^5)</td>
<td>DP-6</td>
<td>48</td>
<td>15</td>
</tr>
</tbody>
</table>

Notes:
1 Diesel and fuel oil are C\(_{10-24}\) range hydrocarbons
2 Waste and lubricating are >C\(_{24}\) range hydrocarbons
3 Contract-Required Detection Limit
4 ND= Not detected above the laboratory/method limits
5 Sample PSA-V09 collected approximately 3 meters (10 feet) southeast of DP-6
was removed from the northern portion of the excavation area encompassed by sample points PSA-V03, PSA-V04 (field duplicate of PSA-V03), PSA-V05, PSA-V06, and PSA-V09.

Following removal of the additional material, the sample locations which exceeded the 100 mg/kg TPH action level were resampled. The sample locations can be found in Figure 3. Five additional verification samples (PSA-V10, PSA-V11 [field duplicate of PSA-V10], PSA-V12, PSA-V13, and PSA-V14) were collected in the same manner as described in Section 4.1. The samples were hand-carried to NEL Laboratories in Reno, Nevada, for analysis on August 25, 1997. The analytical results were received on August 27, 1997.

The analytical results are summarized in Table 3 and are provided in Appendix B. TPH concentrations for the five samples were below 15 mg/kg.

The results of the analyses confirmed that the excavation of the additional material was successful in removing materials in the mud pit that exceeded the 100 mg/kg TPH action level, and that no further excavation was necessary.

4.2 HOUSEKEEPING SITE

Verification results of the remediation activities consisted of taking photographs of the site before and after removal of the oil cans and preparation of the Housekeeping Closure Verification Form. Copies of the photographs are provided in the Housekeeping Closure Verification Form located in Appendix B.
### TABLE 3 - SAMPLE ANALYTICAL RESULTS, SECOND PHASE OF VERIFICATION SAMPLES

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<th>CRDL(^3) (mg/kg)</th>
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</thead>
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<tr>
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<td>ND(^4)</td>
<td>ND</td>
</tr>
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<td>PSA-V11</td>
<td>DP-2</td>
<td>ND</td>
<td>ND</td>
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<tr>
<td>(duplicate of PSA-V10)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PSA-V12</td>
<td>DP-5</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>PSA-V13</td>
<td>DP-7</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>PSA-V14(^5)</td>
<td>DP-6</td>
<td>ND</td>
<td>ND</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>DIESEL(^1)</th>
<th>OIL(^2)</th>
<th></th>
</tr>
</thead>
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<tr>
<td>PSA-V10</td>
<td>ND</td>
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<td>PSA-V11</td>
<td>ND</td>
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<td>15</td>
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<tr>
<td>(duplicate of PSA-V10)</td>
<td>ND</td>
<td>ND</td>
<td>15</td>
</tr>
<tr>
<td>PSA-V12</td>
<td>ND</td>
<td>ND</td>
<td>15</td>
</tr>
<tr>
<td>PSA-V13</td>
<td>ND</td>
<td>ND</td>
<td>15</td>
</tr>
<tr>
<td>PSA-V14(^5)</td>
<td>ND</td>
<td>ND</td>
<td>15</td>
</tr>
</tbody>
</table>

Notes:
1 Diesel and fuel oil are C\(_{10-24}\) range hydrocarbons
2 Waste and lubricating are C\(_{24}\) range hydrocarbons
3 Contract-Required Detection Limit
4 ND = Not Detected above the laboratory/method limits
5 Sample PSA-V14 collected approximately 3 meters (10 feet) southeast of DP-6
5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

The closure of the PSA mud pit (CAS 57-09-01) was completed in accordance with the approved Streamlined Approach For Environmental Restoration Plan For Corrective Action Unit 416, Mud Pit, Project Shoal Area (DOE, 1997a) by excavation and disposal of the hydrocarbon impacted materials exceeding the 100 mg/kg TPH action level. The mud pit excavation area was backfilled, and the area was regraded using the clean soils from the retention berm.

The process knowledge was provided to substantiate the petition for closure in-place of the PSA muckpile (CAS 57-06-01) as proposed in the Record of Technical Change No. 1 For Streamlined Approach For Environmental Restoration Plan For Corrective Action Unit 416, Mud Pit, Project Shoal Area (DOE, 1997b). The process knowledge regarding the composition of the muckpile indicates that no COC’s exceed regulatory action levels.

The housekeeping site was remediated in accordance with the approved the Houskeeping Site Work Plan (DOE, 1996) by removal and disposal of the debris and preparation of the Housekeeping Closure Verification Form.

5.2 RECOMMENDATIONS

The DOE/NV provides the following recommendations since the closure activities were completed as proposed:

- A Notice of Completion be provided by the NDEP to DOE/NV for the closure of the three CASs in CAU 416 (PSA mud pit [CAS 57-09-01], muckpile [CAS 57-06-01], and housekeeping site [CAS 57-98-01]).

- CAU 416 be moved from Appendix III to Appendix IV of the FFACO.
6.0 REFERENCES

U.S. Atomic Energy Commission, see AEC


U.S. Department of Energy, see DOE


Desert Research Institute, see DRI


Nevada Administrative Code, see NAC


Nevada Division of Environmental Protection, see NDEP


APPENDIX A

LABORATORY ANALYTICAL RESULTS
GRANITE SAMPLES NEAR MUCKPILE
CERTIFICATE OF ANALYSIS

IT Las Vegas
4330 South Valley View
Suite 114
Las Vegas, NV 89103-4047

Attention: Mr. Kurt Schmidt

October 13, 1996

IT Las Vegas Project Number : Project Shoal
Quanterra, St. Louis Project Number : 317.55
SDG Number : 12173
Date Received : September 17, 1996
Number of Samples : Twenty-six (26)
Sample type : Water and Soil

INTRODUCTION

The following samples from the Nevada Test Site were received at Quanterra, St. Louis for TCLP Volatiles, TCLP Semi-Volatiles, TCLP Metals, Total Barium, Chromium, Gamma, Rad-Screen, Tritium, Total Petroleum Hydrocarbon (Diesel and Gasoline), and Gross Alpha/Beta.

Reviewed and Approved

Allen M. Field
Quanterra Project Manager
The samples were labeled as follows:

<table>
<thead>
<tr>
<th>CLIENT ID</th>
<th>LAB ID</th>
<th>Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSS000001</td>
<td>12173-001</td>
<td>Soil</td>
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<td>PSS000008</td>
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<td>PSS000009</td>
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<td>12173-005</td>
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<td>12173-012</td>
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<td>PSS00021</td>
<td>12173-019</td>
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<td>PSS00031</td>
<td>12173-025</td>
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</tr>
<tr>
<td>PST00004</td>
<td>12173-026</td>
<td>Water</td>
</tr>
</tbody>
</table>

**ANALYTICAL RESULTS/METHODOLOGY**

The analytical results are presented in the enclosed Certificate of Analysis and EDD Disk. This report includes information on client identification numbers, lab identification numbers, preparation date, analysis date, results, units, and results for quality control samples.

The following table is a list of the analyses requested and the methods used for the above samples:
October 13, 1996

IT Las Vegas Project Number: Project Shoal
Quanterra, St. Louis Project Number: 317.55

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Method</th>
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<tbody>
<tr>
<td>Barium, Chromium</td>
<td>EPA 6010</td>
</tr>
<tr>
<td>TCLP Metals</td>
<td>EPA 1311/7470/6010</td>
</tr>
<tr>
<td>Gamma Scan</td>
<td>EPA 901.1</td>
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<td>Tritium</td>
<td>EERF H.01</td>
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<td>TPH (Diesel and Oil)</td>
<td>EPA 8015</td>
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<td>Gross Alpha/Beta</td>
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<td>TCLP Volatiles</td>
<td>EPA 1311/8240</td>
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<tr>
<td>TCLP Semivolatiles</td>
<td>EPA 1311/8270</td>
</tr>
</tbody>
</table>

**QUALITY CONTROL**

Method blanks and laboratory control samples were analyzed with the samples listed above for each parameter. Duplicates, matrix spike and matrix spike duplicate were performed as indicated above and as requested by the client.

**NONCONFORMANCE**

**Metals**

The was a nonconformance associated with SDG 12173. The digestion batch for waters of which sample PSS00030 (12173-024) was associated was digested containing 21 analytical samples, one more than the twenty sample limit. Do to a QC requirement of another sample within the batch two laboratory control samples were also analyzed, within the batch.

**COMMENTS**

Login 12173 was received at a temperature of 2/2/2° C.

**Analytical Notes**

**Metals**

The relative percent difference for chromium in sample PSS00022 (12173-013) was 25.1% and above the 20% limit. The associated data was flagged with an asterisk.
QUALIFIERS/DEFINITIONS

*: Values outside of QC limits.
B: Results were between the PQL and the IDL.
U: Results are less than the IDL.
J: An estimated value.
ND: Parameter was analyzed for but not detected.
UG/L: Micrograms per Liter.
MG/L: Milligrams per Liter.
pCi/L: Picocuries per liter.
NA: Not applicable.
%REC: Percent Recovery.
DUP: Duplicate.
QCBLK: Laboratory Method Blank.
QCLCS: Laboratory Control Sample.
Qual.: Qualifier.
LCL: Lower Control Limits.
UCL: Upper Control Limits.
PQL: Practical Quantitation Limit.
MDA: Minimum Detectable Activity.
<table>
<thead>
<tr>
<th>Analyte</th>
<th>CAS Number</th>
<th>Blank Sample Name</th>
<th>Prep. Date</th>
<th>Analyses Date</th>
<th>Result Unit</th>
<th>Qual. Limit</th>
<th>Detection Limit</th>
<th>Dilution</th>
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<tbody>
<tr>
<td>Barium</td>
<td>7440-39-3</td>
<td>QCBLK115574-1</td>
<td>10/04/96</td>
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<td>104 mg/kg</td>
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IT-Las Vegas  
4330 S Valley View  
Suite 114  
Las Vegas, NV 89103

Project: 317.55  
Sample Date: 09/16/96  
Receipt Date: 09/17/96  
Report Date: 10/19/96

Client ID: PSS0000220UP  
Quanterra ID: 12173-013D

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<th>Result Unit</th>
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---|---|---|---|---|---|---|---|---|---|---|---
PSS00027 | 12173-016 | Soil | 09/16/96 | 09/17/96 | 09/23/96 | 10/07/96 | Cesium-137 | 0.39 | --- | 0.39 | pCi/g
Potassium-40 | 17.0 | 5.5 | 3.9 | pCi/g
Thallium-208 | 0.74 | 0.30 | 0.33 | pCi/g
Cesium-137 | 0.25 | --- | 0.25 | pCi/g
Potassium-40 | 24.8 | 4.6 | 2.4 | pCi/g
Radium-226 | 5.78 | 4.13 | 3.37 | pCi/g
Lead-212 | 1.12 | 0.36 | 0.31 | pCi/g
Thallium-208 | 0.36 | 0.21 | 0.30 | pCi/g
Lead-214 | 1.03 | 0.41 | 0.40 | pCi/g
Cesium-137 | 0.20 | --- | 0.20 | pCi/g
Potassium-40 | 27.7 | 5.0 | 2.1 | pCi/g
Radium-226 | 1.76 | 0.68 | 0.80 | pCi/g
Lead-212 | 1.34 | 0.22 | 0.19 | pCi/g
Thallium-208 | 0.57 | 0.21 | 0.20 | pCi/g
Bismuth 214 | 1.26 | 0.42 | 0.40 | pCi/g
Lead-214 | 1.12 | 0.32 | 0.28 | pCi/g
Cesium-137 | 0.24 | --- | 0.24 | pCi/g
Potassium-40 | 20.7 | 4.0 | 1.8 | pCi/g
Lead-212 | 2.04 | 0.39 | 0.27 | pCi/g
Thallium-208 | 0.39 | 0.23 | 0.16 | pCi/g
Bismuth 214 | 1.33 | 0.36 | 0.38 | pCi/g
Lead-214 | 1.11 | 0.32 | 0.36 | pCi/g
Cesium-137 | 0.22 | --- | 0.22 | pCi/g
## Project: 317.55

### Client ID | Laboratory ID | Matrix | Date Sampled | Date Received | Prep Date | Date Analyzed | Parameter | Result | Sigma Error (+/-) | Category: Gross Alpha/Beta | MDA | Units
---|---|---|---|---|---|---|---|---|---|---|---|---|---
PSS00022 | 12173-013 | Soil | 09/16/96 | 09/17/96 | 09/26/96 | 10/02/96 | Gross Alpha | 23.9 | 3.5 | 1.8 | pCi/g
| | | | | | | Gross Beta | 27.1 | 3.0 | 1.8 | pCi/g
| | | | | | | | | | | | | | |
PSS00022DUP | 12173-013DUP | Soil | 09/16/96 | 09/17/96 | 09/26/96 | 10/02/96 | Gross Alpha | 25.3 | 3.6 | 1.7 | pCi/g
| | | | | | | Gross Beta | 25.1 | 2.8 | 1.7 | pCi/g
| | | | | | | | | | | | | | |
PSS00023 | 12173-014 | Soil | 09/16/96 | 09/17/96 | 09/26/96 | 10/02/96 | Gross Alpha | 25.4 | 3.7 | 2.0 | pCi/g
| | | | | | | Gross Beta | 27.3 | 3.0 | 1.7 | pCi/g
| | | | | | | | | | | | | | |
PSS00026 | 12173-015 | Soil | 09/16/96 | 09/17/96 | 09/26/96 | 10/02/96 | Gross Alpha | 35.9 | 4.7 | 1.8 | pCi/g
| | | | | | | Gross Beta | 30.0 | 3.3 | 1.6 | pCi/g
| | | | | | | | | | | | | | |
PSS00027 | 12173-016 | Soil | 09/16/96 | 09/17/96 | 09/26/96 | 10/02/96 | Gross Alpha | 27.3 | 3.9 | 2.3 | pCi/g
| | | | | | | Gross Beta | 25.8 | 2.9 | 1.8 | pCi/g
| | | | | | | | | | | | | | |
PSS00019 | 12173-017 | Soil | 09/16/96 | 09/17/96 | 09/26/96 | 10/02/96 | Gross Alpha | 19.6 | 3.1 | 1.9 | pCi/g
| | | | | | | Gross Beta | 24.2 | 2.8 | 1.8 | pCi/g
| | | | | | | | | | | | | | |
PSS00020 | 12173-018 | Soil | 09/16/96 | 09/17/96 | 09/26/96 | 10/02/96 | Gross Alpha | 40.6 | 5.1 | 1.8 | pCi/g
| | | | | | | Gross Beta | 57.9 | 6.0 | 1.7 | pCi/g
| | | | | | | | | | | | | | |
PSS00021 | 12173-019 | Soil | 09/16/96 | 09/17/96 | 09/26/96 | 10/02/96 | Gross Alpha | 53.9 | 6.5 | 1.9 | pCi/g
| | | | | | | Gross Beta | 37.7 | 4.0 | 1.8 | pCi/g
| | | | | | | | | | | | | | |
PSS00010 | 12173-020 | Soil | 09/15/96 | 09/17/96 | 09/23/96 | 09/26/96 | Gross Alpha | 27.7 | 3.9 | 1.9 | pCi/g
| | | | | | | Gross Beta | 18.5 | 2.2 | 1.7 | pCi/g
| | | | | | | | | | | | | | |
PSS00010DUP | 12173-020DUP | Soil | 09/15/96 | 09/17/96 | 09/23/96 | 09/26/96 | Gross Alpha | 24.0 | 3.8 | 2.6 | pCi/g
| | | | | | | Gross Beta | 15.6 | 2.0 | 1.9 | pCi/g
| | | | | | | | | | | | | | |
PSS00005 | 12173-021 | Soil | 09/15/96 | 09/17/96 | 09/26/96 | 10/02/96 | Gross Alpha | 10.6 | 2.9 | 3.5 | pCi/g
| | | | | | | Gross Beta | 22.3 | 2.6 | 1.6 | pCi/g
| | | | | | | | | | | | | | |
PSS00006 | 12173-022 | Soil | 09/15/96 | 09/17/96 | 09/26/96 | 10/02/96 | Gross Alpha | 21.0 | 3.4 | 2.4 | pCi/g
## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No. 51.9801
Page 1 of 2

### Project Name/No.
444043/030800

### Samples Shipment Date
7/16/96

### Lab Destination
Quanterra

### Lab Contact
Allen Field

### Project Manager
P. Gretzky

### Project Contact/Phone
B. Schmidt/H. 1743

### Carrier/Waybill No.
Fed Ex 8718056874

### ONE CONTAINER PER LINE

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### Special Instructions: 23 Perform Full Laboratory QC on sample P5500022

### Possible Hazard Identification: 24 Non-hazard

### Turnaround Time Required: 26 Normal

### QC Level: 27

### Project Specific (specify): CLP Data Packages

### Comments: 29

\[\text{Grox 1 Alb Ba Cr - FPA 16010 Tritium EERF 01}\]
SAMPLE COLLECTION LOG

PROJECT NAME: Shoal Mudpit Characterization

SAMPLE NO.: P500022

SAMPLE LOCATION: DP-15 (Background Location)

SAMPLE TYPE: Soil - shallow

COMPOSITE: Yes

COMPOSITE TYPE: Spatial of DP-15

DEPTH OF SAMPLE: 0-2ET

WEATHER: Partly sunny, temp 40F, breezy

CONTAINERS USED

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DATE: 09/14/96
TIME: 08:45

TOTAL AMOUNT COLLECTED: 24 oz

PREPARED BY: Maria Weber, 09/16/96
SAMPLE COLLECTION LOG

PROJECT NAME: Smoke Monitoring Characterization

SAMPLE NO.: P5500023

SAMPLE LOCATION: DP-15 (Duplicate of P5500022) (background location)

SAMPLE TYPE: Soil - shallow

COMPOSITE: Yes

COMPOSITE TYPE: Spatial of DP-15

DEPTH OF SAMPLE: 0 - 2 ft

WEATHER: Partly sunny, temp 90°, breezy

CONTAINERS USED

AMOUNT COLLECTED

8 oz. amber glass 8 oz.
16 oz. amber glass 16 oz.

COMMENTS:

See Faul dated 9/16/76 for further details.

See attempt map for location of DP-15 soil boring.

P5500023 will be analyzed after 6/23/76 sampling.

Sample of P5500022 was added to DP-15 with sufficient volume to fill sample jars for P5500022 and P5500023. This soil was composited according to ITN-SOF-OC077 and put into sample jars.

From the previously mentioned samples, soil was collected through direct ash blending method. After the dailies, composite washing, they removed the six-inch stainless steel sampling sleeves from the bottom of the sampling rods in the presence of the IT geologist. The ends of each sleeve were looked at to describe the soil with the visual classification of soils from DP-15. After the rods were disposed, each rod was capped. They remained capped until they were composited according to ITN-SOF-OC077. They were then put in sample jars. A red tech scanned and swapped the equipment.

Greek drilling pushed a total of 7 times in a 2 ft. drill.
SAMPLE COLLECTION LOG

PROJECT NAME  Shoal Mirepit Characterization
SAMPLE NO.  P5500026
SAMPLE LOCATION  DP-16 (background location)
SAMPLE TYPE  Soil - Shallow
COMPOSITE  ✓ YES  ❌ NO
COMPOSITE TYPE  Spatial of DP-16
DEPTH OF SAMPLE  0-3 ft
WEATHER  Partly sunny temp 60's breezy

CONTAINERS USED  AMOUNT COLLECTED
8-oz Amber Glass  8-oz
16-oz Amber Glass  16-oz

COMMENTS:
SEE FAQ DATED 9/6/96 FOR FURTHER DETAILS.
SEE ATTACHED MAP FOR LOCATION OF DP-16 soil borings.
P5500026 will be analyzed for gross A/B. The samples were collected at Quantico, St. Louis.
Soil was collected through direct-bush drilling method. After the drones completed pulling, they removed the six-inch stainless steel sampling sleeves from the bottom of the sampling rods in the presence of the technician. The ends of each sleeve were looked at to describe the soil. Nothing significant to comment on other than the visual classification of soils from DP-16. After the soil was described, each sample was capped. They remained capped until they were composited according to ITIL-SP-0600. The samples were then put in sample tray and put on ice. A geo. tech. scanned and digitized the equipment and samples after they were pulled from the boring. Nothing above background was detected.
Geo- techs completed 2 pushers to 4 ft. Only used from 0 to 3 ft for sample P5500026. This location is approx. 500 ft upstream from the shoal improvements.

PREPARED BY: [Signature] 9/6/96
### INTERNATIONAL TECHNOLOGY CORPORATION

#### SAMPLE COLLECTION LOG

**PROJECT NAME**
Shoal Mudpit Characterization  
**SAMPLE NO.**
PSS00027  
**SAMPLE LOCATION**
DP-17 (Background Location)  
**SAMPLE TYPE**
Soil - Shallow  
**COMPOSITE**
Yes  
**COMPOSITE TYPE**
Spatial of DP-17  
**DEPTH OF SAMPLE**
0-3 ft.  
**WEATHER**
Partly Sunny, Temp 70's, Breezy

<table>
<thead>
<tr>
<th>CONTAINERS USED</th>
<th>AMOUNT COLLECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-oz Amarelli Glass</td>
<td>8-oz</td>
</tr>
<tr>
<td>16-oz Amarelli Glass</td>
<td>16-oz</td>
</tr>
</tbody>
</table>

**COMMENTS:**

She FACP dated 07/14/96 for further details.  
She attached MAP for location of DP-17, box locations.  
PSS00027 will be analyzed for gross 0.18, Gamma Spec.  
Pit, CT, at 6/15/96  
Soil was collected through direct-push drilling method.  
After the drilling completed normally, they removed the six inch stainless steel sampling sleeves from the bottom of the sampling rods in the presence of the IT geologist. The ends of each sleeve were looked at to describe the soil within.  
After the visual classification of soils from 0-1 ft, DP-17  
After the soil was obtained, each end was capped. They remained capped until they were composited according to ITL-SEP-0004.  
They were then put in the sample jars and put on ice.  
A Road Co. Tech. cleaned and shipped the equipment and samples  
After they were piled from the equipment, nothing above  
Background was detected.  
Gross parking completed 2 pushers to 9 ft. Only used from 0 to 3 ft for sample PSS00027. This location is approx. 500 ft upgradient from the shoal impoundment.

**PREPARED BY:**
L. Marie Waydo 9/16/96
**FFACO CORRECTIVE ACTION SITE**  
**HOUSEKEEPING CLOSURE VERIFICATION FORM**

**Closure Verification Date:** August 19, 1997  
**CAS Number:** 57-98-01  
**CAU Number:** 416  
**General Location:** Project Shoal Area  
**Elevation:** 5198 ft  
**Latitude:** 39° 11' 56"  
**Northing:** 4,338,653.629 (UTM)  
**Longitude:** 118° 22' 35"  
**Easting:** 546,682.546 (UTM)

Coordinate/Elevation Data Obtained from Garmin 40 Global Position System: Accuracy is within 300 ft Horizontal - Vertical Varies with Locality

**Site Access Route:**  
From US 50 turn south on SR 839 approximately 4.9 miles to corrals (on east side of road). Continue 0.1 mile on SR 839, turn west on dirt road and proceed approximately 3.9 miles. Site is approximately 120 feet to the south of the road.

<table>
<thead>
<tr>
<th>Waste Item(s) Originally at Site</th>
<th>Apparent Waste Type*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty quart steel oil cans</td>
<td>Ordinary (Debris)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS Status Prior To Cleanup</th>
<th>CAS Status After Cleanup</th>
</tr>
</thead>
</table>

* Ordinary, Scrap Metal, Asbestos, PCB, Salvageable, Hazardous, Radioactive, Mixed, Unknown, Other

**Current Site Description/Observations:**  
IT Corp. field staff identified approximately six oil cans at the site on March 12, 1996, BN Environmental Remediation (ER) staff verified that the oil cans (and approx. 14 more in the same general area) were still present.
Current Site Description/Observations (continued):
on August 19, 1997, ER staff retrieved the cans on August 19, 1997 (approximately 20) for
disposal at the solid waste landfill located at the Nevada Test Site.

✔ No Further Action Required at Corrective Action Site

Dave Madsen
Corrective Action Coordinator/Designee (Signature) Date

Page 2 of 2 CAU 416, CAS 57-98-01
DATE: 8-19-97

Reynolds Electrical & Engineering Co., Inc. 
Radiological Control Department-Ramatrol

Material Clearance

MONITOR: Mccloskey
ORGANIZATION: BN RP
SURVEY LOCATION: PROJECT SHORL
FROM: PROJECT SHORL - FALLON NV
TO: NTS

☐ UNRESTRICTED
☑ OFF-SITE
☐ ON-SITE
☐ SALVAGE
☐ EXCESS

This material has been surveyed for radioactivity and meets DOE standards for release to public use

☐ CONTROLLED

DESCRIPTION:

BAG OF OLD RUSTY OIL CANS PICKED UP FROM PROJECT SHORL AREA VIC FALLON NV

CAT 4116 CAS 57-98-01

REMARKS: EXP 8-29-97

☆ U.S. GPO: 1994-554-857
RE-1581 (06/93)
APPENDIX C

WASTE DISPOSAL DOCUMENTATION
AREA 6 HYDROCARBON LANDFILL ACCEPTANCE CHECKLIST

SOURCE OF MATERIAL

| a. Generator: | BN Remediation Projects |
| b. Contact and phone #: | Dave Maddox, 5-721 |
| c. Location: | Project Shop, near Fallon, NV |

d. Charge #: | C5CB10EB |
e. Organization code: | E110 |
f. Who will transport?: | RP |

PACKAGE WILL INCLUDE THE FOLLOWING ITEMS

<table>
<thead>
<tr>
<th>Brady #</th>
<th>BN-0087</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Characterization letter</td>
<td>YES</td>
</tr>
<tr>
<td>b. Analytical results</td>
<td>YES</td>
</tr>
<tr>
<td>c. Process knowledge</td>
<td>YES</td>
</tr>
<tr>
<td>d. Is the package complete?</td>
<td>YES</td>
</tr>
<tr>
<td>e. Basic description</td>
<td>YES</td>
</tr>
</tbody>
</table>

Schedule a date and time for disposal

| a. Date scheduled: | 7-2-97 |
| b. Start date: | 8-1-97 |
| c. End date: | 8-26-97 |

SCHEDULE A DATE AND TIME FOR DISPOSAL

\[
8/25/97 = 6 \text{ loads} \times 48,000 \text{ lbs.} = 288,000\# \\
8/26/97 = 6 \text{ loads} = 326,900\# \\
\]

d. Drum #'s: |

AT THE LANDFILL, THE GENERATOR MUST HAVE

| Brady # | YES |
| a. Bill of Lading | YES |
| b. Rad certification | YES |
| c. Weight ticket | YES |

COMPLETE PACKAGE

| Brady # | BN-0087 |
| a. Enter weight into database | YES |
| b. Enter into billing log | YES |
|-------|----------------|-------|----------------|
|       | Reynolds Electrical & Engineering Co., Inc. | Reynolds Electrical & Engineering Co., Inc. |
|       | Radiological Control Department-Ramatrol | Radiological Control Department-Ramatrol |
| **Material Clearance** | | **Material Clearance** | |
| **MONITOR:** | McCloskey | **MONITOR:** | McCloskey |
| **ORGANIZATION:** | BNL RP | **ORGANIZATION:** | BNL RP |
| **SURVEY LOCATION:** | Project Shoal | **SURVEY LOCATION:** | Shoal Mudpit |
| **FROM:** | Project Shoal | **FROM:** | Project Shoal Site |
| **TO:** | NTS | **TO:** | NTS |
| **UNRESTRICTED** | ☑ | **UNRESTRICTED** | ☑ |
| **OFF-SITE** | ☑ | **OFF-SITE** | ☑ |
| **ON-SITE** | | **ON-SITE** | |
| **SALVAGE** | | **SALVAGE** | |
| **EXCESS** | | **EXCESS** | |

<table>
<thead>
<tr>
<th>INITIAL</th>
<th>INITIAL</th>
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<tbody>
<tr>
<td>C</td>
<td>C</td>
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</table>

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<tr>
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<th>INITIAL</th>
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<tbody>
<tr>
<td>C</td>
<td>C</td>
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</table>

<table>
<thead>
<tr>
<th>THIS MATERIAL HAS BEEN SURVEYED FOR RADIOACTIVITY AND MEETS DOE STANDARDS FOR RELEASE TO PUBLIC USE</th>
<th>INITIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ CONTROLLED</td>
<td>C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DESCRIPTION:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROCARBON Impacted Soil from Project Shoal-Pit - Galway NV.</td>
<td>CAU 416</td>
</tr>
<tr>
<td>Waste Tracking # BN0087</td>
<td>6 Loads of Soil</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REMARKS:</th>
<th>Exp. 9-20-97</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>REMARKS:</th>
<th>Exp 9-20-97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load No.</td>
<td>1-20 yr. old soil with petroleum</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Delivery</td>
<td>Hydrocarbon Storage Tanks</td>
</tr>
</tbody>
</table>

**Bill of Lading**

*INFORM STRAIGHT BILL OF LADING-Not Negotiable-Domestic*

**Description of Goods:** 1-20 yr. old soil with petroleum by disposal at Bighorn Airfield (not exceed 8 tons)

**Carrier:** Bighorn Airfield

**Shipper:** Smedley's

**Date:** 08/25/1977

**State of Nevada Public Weighmaster's Certificate of Weight and Measure No. 68177

**Rated Weight:** 1-20 yr. old soil with petroleum by disposal at Bighorn Airfield (not exceed 8 tons)
STATE OF NEVADA

PUBLIC WEIGHTMASTER'S CERTIFICATE OF WEIGHT AND MEASURE
This is to certify that the following described merchandise was weighed by a Public
Weightmaster as prescribed by the Public Weightmaster Law, NRS, Chapter 562
79980 LB 8132A 6-25-97

SMEDLEY'S
1755 RENO HIGHWAY PHONE 702-423-3300
FALCON, NEVADA 89404

GROSS
TARE
NET

CUSTOMERS NAME

ADDRESS

COMMODITY

EQUIPMENT NO

TRUCK LICENSE NO

MFD
DRIVER LICENSE NO
DRIVER ON
DRIVER OFF

SMEDLEY'S
PUBLIC WEIGHTMASTER

BY

J.H. SMITHE - OWNER

UNIFORM STRAIGHT BILL OF LADING Original—Not Negotiable—Domestic

RECEIVED, subject to the classifications and tariffs in effect on the date of issue of the Bill of Lading.

8/25/97 from SMEDLEY'S
delivered to BECHTEL NEVADA

Mail or street address of consignee—For purposes of notification only.

Consignment to BECHTEL NEVADA (For DO/NV)
Destination NEVADA TEST SITE (NTI)
State of NV Zip Code 89091 County of NYE

Collect On Delivery $ and remit to:

Street

City
State

No. 68179

No. 68179

Charge

Subject to Section 7 of conditions, if the shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of the shipment without payment of freight and all other lawful charges.

Signature of Consignee

First Initial No. Carrier

Present address of consignee:

Per

Charges Advanced

Shipper, Per

Agent or Carrying

Permanent post-office address of shipper.

This Bill of Lading is to be signed by the shipper and agent of the carrier issuing same.

Bill of Lading
STATE OF NEVADA
PUBLIC WEIGHMASTER'S CERTIFICATE OF WEIGHT AND MEASURE

This is to certify, that the following described merchandise was weighed by a Public Weighmaster as prescribed by the Public Weighmaster Law, NRS, Chapter 582.

GROSS 79980 LB 8132A 8-25-97
TARE
NET

CUSTOMERS NAME: RC MCVAY
ADDRESS:

COMMODITY: COAL
NO. OF UNITS:

SAMEDY'S
1715 RENO HIGHWAY PHONE 702-421-1580 FALLON, NEVADA 89406

SNIPPER: BECKEL
RECEIVER: NV TEST SITE

BY: SAMEDY BROWN
J.H. SMITTHE - DEPUTY
PUBLIC WEIGHMASTER

UNIFORM STRAIGHT BILL OF LADING Original—Not Negotiable—Domestic

RECEIVED, subject to the classifications and tariffs in effect on the date of issue of this Bill of Lading,
at 8/25/97 from SHORT SITE (30 mi SE of Fallon, NV)

Gonsigned to BECKER, NEVADA (For Del Ivory)
Destination NEVADA TEST SITE State of NV Zip Code 89431 County of Nye
Routing Carrying McVay Vehicle
Collect On Delivery

Street City State

N. Packaging Description of Articles, Special Marks, and Exceptions Weight (lb or gal.) Length of Load (ft) Width of Load (ft) Height of Load (ft)

1. 20yd³_load soil with petroleum

Hydrocarbons (10% or more of volume)
for disposal not NTS

(10% or more of volume)

(10% or more of volume)

Signatures of Consignor:

C.O.O:

Shipper:

Agent:

Per: (This Bill of Lading is to be signed by the shipper and agent of the carrier issuing same)
**Uniform Straight Bill of Lading**

Original - Not Negotiable - Domestic

**Shipper's**

- **Name**: Smedley's
- **Address**: 1735 Reno Highway, P.O. Box 471, Fallon, NEVADA 89406
- **Phone**: (775) 473-1600
- **License**: (State or street address of consignee for purposes of notification only)

**Consignee**

- **Name**: Bechtel Nevada (for DOE/NV)

**Destination**

- **Address**: Nevada Test Site
- **State**: NEV
- **Zip Code**: 89066

**Routing**

- **From**: Shool Site (300 SE of Fallon, NV)
- **To**: Nevada Test Site

**Collect On Delivery** $ and remit to:

**Carrier**

- **Name**: Martin
- **License**: NV 06
- **Vehicle**: RS 06

**Shipment Details**

- **Number of Packages**: 1
- **Description**: 20 yds 2100 lb. Sun Lock petrolenum
- **Highway**: 1600 mph
- **Billing Rate**: $1.00 per unit
- **Class of Rate**: Less than 5000 pounds

**Bill of Lading**

**Shipper**, **Per**, **Agent**, **Per**

**Date**: 8/25/97

**Signature of Consignee**:

**Note**: This Bill of Lading is to be signed by the shipper and agent of the carrier issuing same.
**STATE OF NEVADA**

PUBLIC WEIGHSMASTER'S CERTIFICATE OF WEIGHT AND MEASURE
This is to certify, That the following described merchandise was weighed by a Public Weighsmaster as prescribed by the Public Weighsmaster Law, NRS, Chapter 582.

<table>
<thead>
<tr>
<th>No.</th>
<th>68176</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>8/25/97</td>
</tr>
<tr>
<td>SHIPPER</td>
<td>Biechle</td>
</tr>
<tr>
<td>RECEIVED</td>
<td>NW Test Site</td>
</tr>
</tbody>
</table>

**SMEDLEY'S**

1781 RECO HIGHWAY PHONE (702) 473 5100
FALLON, NEVADA 89406

**ADDRESS**

**COMMODITY**

Contaminated Soil

**EQUIPMENT NO.**

<table>
<thead>
<tr>
<th>TRUCK LICENSE NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRIVER ON</td>
</tr>
<tr>
<td>DRIVER OFF</td>
</tr>
</tbody>
</table>

**SMEDLEY'S PUBLIC WEIGHSMASTER**

SANDY SHERMAN
DEPUTY
J.H. SMITTER, OWNER

---

**UNIFORM STRAIGHT BILL OF LADING Original—Not Negotiable—Domestic**

<table>
<thead>
<tr>
<th>Carrier</th>
<th>Agent’s No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>at</td>
<td>8/25-97 from NV Test Site (30mi SE of Fallon, NV)</td>
</tr>
</tbody>
</table>

Consignee: BECHTEL, NEVADA (573 DE/1W) |

Destination: NEVADA TEST SITE, State of NV |

Routing: Delivering Carrier | McVean |

Collect On Delivery: $ and remit to: |

<table>
<thead>
<tr>
<th>Street</th>
<th>City</th>
<th>State</th>
</tr>
</thead>
</table>

---

**Shipment Description**

1. 20 yd³ load of SILO grain, petroleum, 
   "not exptd. to exceed 600 lbs.

---

**Bill of Lading**

Shipper, Per: Barry Hearn

Agent, Per: 1

Permanent post-office address of shipper:

(This Bill of Lading is to be signed by the shipper and the agent of the carrier issuing same.)
STATE OF NEVADA
WBUC WEIGHTMASTER'S CERTIFICATE OF WEIGHT AND MEASURE
No. 68178

GROSS: 80200 LB 8128A 8-25-97
TARE: 34200
NET: 4600

SMEDLEY'S
1725 RENO HIGHWAY PHONE (702) 423 3566
FALLON, NEVADA 89406

SHIPPER: Belchle
RECEIVER: Nat Test Site

[Signature]
[Name]

[Signature]
[Name]

SMEDLEY'S
PUBLIC WEIGHTMASTER

UNIFORM STRAIGHT BILL OF LADING Original—Not Negotiable—Domestic

RECEIVED, subject to the classifications and terms in effect on the date of issue of the Bill of Lading,
8/25/97, from SHIPPER (Beneeva (for DELIV.), Nevada Test Site, State of NV, Zip Code 89032, County of Nye, and remit to:

Collection On Delivery $ and remit to:

Street City State

[Signature] [Signature] [Signature]
Shipper Consignee Agent

C. O. D. charge to be paid by

Agent's No.

Subject to Section 1 of consignee if this shipment is to be delivered to the consignee without recourse on the consignor, the consignee shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and other lawful charges

[Signature]
Agent or Cashier

Charges Advanced

Per

[Signature]
Per

[Signature]

This Bill of Lading is to be signed by the shipper and agent of the carrier issuing same.

Bill of Lading
STATE OF NEVADA

PUBLIC WEIGHMASTER'S CERTIFICATE OF WEIGHT AND MEASURE

This is to certify, That the following described merchandise was weighed by a Public Weighmaster as prescribed by the Public Weighmaster Law, NRS, Chapter 562.

87920 LB 6156A 8-25-97

DATE 8/26/97

CUSTOMER'S NAME Belchite

ADDRESS

SHIPPED BY Smedley's

WEIGHT AND MEASURE

CUTH OFWEIGHT No.

EQUIPMENT NO. TRUCK LICENSE NO.

TRAILER LICENSE NO. DRIVER ON

DRIVER

Smedley's

WEIGHT AND MEASURE

PUBLIC WEIGHMASTER

J.H. SMITH - OWNER

UNIFORM STRAIGHT BILL OF LADING

Original - Not Negotiable - Domestic

Consignor

Consinee

Destination

Nevada Test Site, State of NV

Zip Code

Delivering Vehicle

McVane

Vehicle Initial No.

Collect On Delivery

$ and remit to:

Shipped By

Smedley's

Address

1715 Reno Highay Phone (702) 43 1500

FALLON, NEVADA 89404

C. O. D. Charges to be paid by

Signature of Consignee

Address or street of consignee - For purposes of notification only

EENDING VEHICLE

DATE OF Issue

SHIPPER

RECEIVED: subject to the classifications and tariffs in effect on the date of issue of the Bill of Lading.

Shipped From Site (3D mil SE of Fallon NV)

8/26/97

To be delivered to the consignee without reconsignment.

The carrier shall not make delivery of the shipment without payment of freight and all other lawful charges.

The signature hereon is given as evidence that the consignee has accepted the amount paid for the service.

Charges Advanced

Agent, Per

Shipped by

November 1

Permanent post-office address of shipper.

(Bill of Lading is to be signed by the shipper and agent of the carrier issuing same)
STATE OF NEVADA
No. 68200
PUBLIC WEIGHMASTER'S CERTIFICATE OF WEIGHT AND MEASURE
This is to certify, That the following described merchandise was weighed by a Public Weighmaster as prescribed by the Public Weighmaster Law, NRS, Chapter 562.

GROSS: 1036.60 LB 7100A 8-25-97
TARE: 635.00#
NET: 361.60#

SMEDLEY'S
1735 RENO HIGHWAY PHONE: 775-323 5100
FALLON, NEVADA 89406

SHIPPER: BECHTEL NEVADA
RECEIVER: Nevada Test Site

CUSTOMER NAME: BECHTEL

ADDRESS: Contingent

COMMODITY: NO. OF UNITS

TABLE:

<table>
<thead>
<tr>
<th>Equipment No.</th>
<th>Truck License No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>633</td>
</tr>
</tbody>
</table>

SMEDLEY'S
PUBLIC WEIGHMASTER

J.H. SMITHEE - DEPUTY

UNIFORM STRAIGHT BILL OF LADING Original—Not Negotiable—Domestic

Caractor's No.

RECEIVED: subject to the conditions and terms in effect on the date of the issue of this Bill of Lading.

C.R. 1997 from SNEVADA SITE (300 MILE SOUTH OF FALLON, NV)

Consigned to: BECHTEL NEVADA (F.O.S. DEL.)

Destination: NEVADA TEST SITE

State: NV Zip Code: 89406 County of NV

Collect On Delivery

C. O. D. charge to be paid by Agent or Consignee

Street City State

1. 20yd³ load of petroleum hydrocarbon soil (does not exceed 1600 mg/kg TPH)
   For disposal at NTS Area 6 Hydrocar.
   Landfill - BN Tracing # BN-0087

Shipper, Per

Agent, Per

(1) The Bill of Lading is to be signed by the shipper and agent of the carrier issuing same.)
This is to certify, that the following described merchandise was weighed by a Public Weighmaster as prescribed by the Public Weighmaster Law, NRS, Chapter 952, of the State of Nevada.

**Bill of Lading**

**No. 68198**

**Shipper:** Belchtle

**Recevier:** Nevada Test Site

**Cargoes:**
- **Description:** 3,902 lb. of petroleum hydrocarbon soil (does not exceed 160 Btu/gal. TPH) for disposal at NTS Area C Hydrocarbon Landfill BTR 812, BN Trade, BN0087

**Equipment:**
- **Equipment No.:** 19
- **Truck License No.:** 19
- **Driver:** Rick

**Carriers:**
- **Carrier:** Nevada Test Site
- **State:** NV
- **Zip Code:** 89406
- **County:** Nye
- **Vehicle:** 1

**Shipment Details:**
- **Gross Weight:** 9,589 lb.
- **Net Weight:** 6,390 lb.
- **Date:** 8/26/97
- **Cash**

**Uniform Straight Bill of Lading**

**Original—Not Negotiable—Domestic**

**Port of Loading:** Reno, Nevada (US-50)

**Port of Destination:** Fallon, Nevada (US-50)

**Commodity:** petroleum hydrocarbon soil (does not exceed 160 Btu/gal. TPH) for disposal at NTS Area C Hydrocarbon Landfill BTR 812, BN Trade, BN0087

**Signatures:**
- Shipment was weighed by the Public Weighmaster.
- Shipper, Per,
- Agent, Per,
- **Cash**

**Bill of Lading**

The Bill of Lading is to be signed by the shipper and agent of the carrier issuing same.
UNIFORM STRAIGHT BILL OF LADING Original—Not Negotiable—Domestic

SMEDLEY’S
1735 RENO HIGHWAY PHONE (702) 433 3500
FALLON, NEVADA 89406

SHIPPER: B.B. ARTHUR
RECEIVER: N.E.A. TEST SITE

STATE OF NEVADA
No. 68201

TARE: 4906

CUSTOMERS NAME: B.B. ARTHUR

COMMODITY: 20 YD³ LOAD OF PETROLEUM HYDROCARBON SOIL (DOES NOT EXCEED 1,000 CYL/LY FT³)

TRAILER LICENSE NO: 33

DRIVER: Beane

SAMEDLEY’S
PUBLIC WEIGHMASTER

FEE: 

DEPUTY
J.H. SMITNER, OWNER

RECEIVED, subject to the conditions and terms in effect on the date of the issue of this Bill of Lading.

at 8/26/97 from SHOALS SITE (300 N SE OF FALLON, NV)

Consignment to RECHTEL, NEVADA (FOR DE/PU)

Destination NEVADA TEST SITE State of NV Zip Code 89406 County of Nye

Delivering Carrier MCVANE Vehicle

Collect On Delivery $ and remit to:

Agent’s No. C4U 416

Shipment to be paid by Consignee

C. O. D. charge to be paid by Consignee

Subject to Section 7 of conditions if the shipment is to be delivered to the consignee without notice from the consignor, the consignor must sign the following statements:

The carrier shall not make delivery of this shipment without payment of the charges and all other lawful charges.

(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "TO BE PREPAID." 

Received $ to apply to prepayment of the charges on the property described herein

Agent or Cashier

Per (the signature here acknowledges only the amount prepaid)

Charges Advanced

Shipper, Per: Barry L. Diner

Agent, Per: 

This Bill of Lading is to be signed by the shipper and a duly licensed carrier issuing same.
**STATE OF NEVADA**

**PUBLIC WEIGHMASTER'S CERTIFICATE OF WEIGHT AND MEASURE**

This is to certify, That the following described merchandise was weighed by a Public Weighmaster as prescribed by the Public Weighmaster Law, NRS, Chapter 582.

**Bill of Lading**

- **Gross**: 8,260 LB
- **Tare**: 7,132 A
- **Net**: 4,928 LB

**Date**: 6-26-97

**Shippers Name**: BBT Transit

**SPM RECIPIENT**: Nevada Test Site

**WEIGHT AND MEASURE CERTIFICATE**

<table>
<thead>
<tr>
<th>Equipment No.</th>
<th>Truck License No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**R. M. P.**

**SMEDLEY'S PUBLIC WEIGHMASTER**

**SHIPPERS**

**J. H. SMEDLEY**

**RECEIVERS**

**J. H. SMEDLEY**

**CUSTODIAN**

**J. H. SMEDLEY**

**BY**: J. H. SMEDLEY - OWNER

**FORM OF BILL OF LADING**

**UNIFORM STRAIGHT BILL OF LADING**

*Original—Not Negotiable—Domestic*

**Carrier**

**Agent's No.**

**RECEIVED, subject to the classifications and tariffs in effect on the date of issue of this bill of lading,**

- **On June 26, 1997 from**: School Site (30.896 N, 114.566 W)
- **To**: Nevada Test Site, State of NV, Zip Code 89032

**Consignee**: Bechtel Nevada (FOR DOE/NV)

**Routing**

**Collect On Delivery**

**Street**

<table>
<thead>
<tr>
<th>No.</th>
<th>City</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description of Articles, Special Marks, and Exceptions**

- **220 yd² load of petroleum hydrocarbon soil (does not exceed 6,000 mg/Kg TPH)**

**Load Size**: 8,260 LB

**Charges**: Advanced

**Shipper**, By: J. H. SMEDLEY

**Agent**, By: J. H. SMEDLEY

**Date**: 6-26-97

**Bill of Lading**

(This Bill of Lading is to be signed by the shipper and agent of the carrier issuing same.)
**State of Nevada**

**No. 68202**

**Public Weighmaster's Certificate of Weight and Measure**

This is to certify, that the following described merchandise was weighed by a Public Weighmaster as prescribed by the Public Weighmaster Law, NRS, Chapter 582.

<table>
<thead>
<tr>
<th>Description of Articles, Special Marks, and Exceptions</th>
<th>Weight (Gross)</th>
<th>Value (Gross)</th>
<th>Class of Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1200 lb. load of petroleum hydrocarbons</strong></td>
<td>1200 lb.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Bill of Lading**

- **Shipper:** R B Transit
- **Consignee:** Nevada Test Site
- **State of:** NV
- **Zip Code:** 89421
- **City:** Fallon, Nevada
- **Vehicle:** McVan

**Bill of Lading Original—Not Negotiable—Domestic**

**Collect/On Delivery**

**Shipment Description:** 1200 lb. load of petroleum hydrocarbons.

**Charges:**

- **C. O. D. charge:** To be paid by Consignor
- **Shipment Cost:** To be prepaid by Consignee

**Shipping Instructions:**
- **Loader:** To be received at Nevada Test Site.
- **Crate:** Not to be opened.
- **Pack:** To be received without inspection.
- **Receiving:** To be received by a duly authorized representative of the Consignee.

**Shipment Information:**

- **Weight:** 1200 lb.
- **Value:** $1000
- **Class:** General Freight

**Authorized Signatures:**

- **Shipper:** R B Transit
- **Consignee:** Nevada Test Site
- **Driver:** McVan

**Date:** 8-26-97

**Bill of Lading**
APPENDIX D

LABORATORY ANALYTICAL RESULTS
MUD PIT VERIFICATION SAMPLES
CLIENT: International Technology Corporation
4330 S. Valley View #114
Las Vegas, Nevada 89103
ATTN: Kurt Schmidt

PROJECT NAME: Project Shoal
PROJECT NUMBER: 771060.07.03

PURCHASE ORDER: 081597BC
NEL ID: R9708050-01/09

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 8/19/97, and analyzed as received.

Where applicable we have included the following quality control data; a method blank, used to document contamination resulting from the analytical process, a Laboratory Control Spike (LCS), used to document laboratory performance, and Surrogates, organic compounds which are similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

Surrogate results were determined following a new calibration curve on 8/23/97. TPH results were not affected.

Should you have any questions or comments, please feel free to contact our Client Services department (702) 348-2522.
**NEL LABORATORIES**

**CLIENT:** International Technology Corporation  
**PROJECT NAME:** Project Shoal  
**PROJECT NUMBER:** 771060.07.03  
**ANALYST:** RA

**METHOD:** TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS BY EPA 8015M,  
September 1994  
**SAMPLE MATRIX:** SOIL

<table>
<thead>
<tr>
<th>CLIENT ID</th>
<th>DATE SAMPLED</th>
<th>NEL ID</th>
<th>RESULTS mg/kg</th>
<th>REPORTING LIMIT</th>
<th>Surrogate Recovery</th>
<th>EXTRACTED</th>
<th>ANALYZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSA-V01</td>
<td>8/19/97</td>
<td>R9708050-01</td>
<td>C(_{10-24}) 21</td>
<td>15 mg/kg</td>
<td>104%</td>
<td>8/20/97</td>
<td>8/22/97</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C(_{24}) 53</td>
<td>15 mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSA-V02</td>
<td>8/19/97</td>
<td>R9708050-02</td>
<td>C(_{10-24}) ND</td>
<td>15 mg/kg</td>
<td>79%</td>
<td>8/20/97</td>
<td>8/22/97</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C(_{24}) ND</td>
<td>15 mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSA-V03</td>
<td>8/19/97</td>
<td>R9708050-03</td>
<td>C(_{10-24}) 62</td>
<td>15 mg/kg</td>
<td>115%</td>
<td>8/20/97</td>
<td>8/21/97</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C(_{24}) 120</td>
<td>15 mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Surrogate used was n-triacontane, acceptance limits 65-135%.

**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>Acceptable Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method Blank, 082097-E2-BLK</td>
<td>ND</td>
<td>&lt; 15 mg/kg</td>
<td>92%</td>
<td>65-135%</td>
</tr>
<tr>
<td>LCS, 082097-E2-LCS</td>
<td>85%</td>
<td>65-135%</td>
<td>107%</td>
<td>65-135%</td>
</tr>
<tr>
<td>MS, R9708050-06 MS</td>
<td>76%</td>
<td>65-135%</td>
<td>107%</td>
<td>65-135%</td>
</tr>
<tr>
<td>MSD, R9708050-06 MSD</td>
<td>79%</td>
<td>65-135%</td>
<td>105%</td>
<td>65-135%</td>
</tr>
</tbody>
</table>

ND - Not Detected

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NEL LABORATORIES

CLIENT: International Technology Corporation
PROJECT NAME: Project Shoal
PROJECT NUMBER: 771060.07.03

METHOD: TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS BY EPA 8015M,
September 1994
SAMPLE MATRIX: SOIL

<table>
<thead>
<tr>
<th>CLIENT ID</th>
<th>DATE SAMPLED</th>
<th>NEL ID</th>
<th>RESULTS mg/kg</th>
<th>REPORTING LIMIT mg/kg</th>
<th>Surrogate Recovery %</th>
<th>EXTRACTED</th>
<th>ANALYZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSA-V04</td>
<td>8/19/97</td>
<td>R9708050-04</td>
<td>C_{10-24} 38</td>
<td>15 mg/kg</td>
<td>91%</td>
<td>8/20/97</td>
<td>8/21/97</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&gt;C_{24} 130</td>
<td>15 mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSA-V05</td>
<td>8/19/97</td>
<td>R9708050-05</td>
<td>C_{10-24} 44</td>
<td>15 mg/kg</td>
<td>119%</td>
<td>8/20/97</td>
<td>8/21/97</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&gt;C_{24} 170</td>
<td>15 mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSA-V06</td>
<td>8/19/97</td>
<td>R9708050-06</td>
<td>C_{10-24} 51</td>
<td>15 mg/kg</td>
<td>108%</td>
<td>8/20/97</td>
<td>8/22/97</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&gt;C_{24} 130</td>
<td>15 mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSA-V06</td>
<td>8/19/97</td>
<td>R9708050-06</td>
<td>DUP.</td>
<td>15 mg/kg</td>
<td>97%</td>
<td>8/20/97</td>
<td>8/22/97</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C_{10-24} 47</td>
<td>15 mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&gt;C_{24} 120</td>
<td>15 mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Surrogate used was n-triacontane, acceptance limits 65-135%.

QUALITY CONTROL DATA (Total for Diesel Range):

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</thead>
<tbody>
<tr>
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<td>ND</td>
<td>&lt;15 mg/kg</td>
<td>92%</td>
<td>65-135%</td>
</tr>
<tr>
<td>LCS, 082097-E2-LCS</td>
<td>85%</td>
<td>65-135%</td>
<td>107%</td>
<td>65-135%</td>
</tr>
<tr>
<td>MS, R9708050-06 MS</td>
<td>76%</td>
<td>65-135%</td>
<td>107%</td>
<td>65-135%</td>
</tr>
<tr>
<td>MSD, R9708050-06 MSD</td>
<td>79%</td>
<td>65-135%</td>
<td>105%</td>
<td>65-135%</td>
</tr>
</tbody>
</table>

ND - Not Detected

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### NEL LABORATORIES

**CLIENT:** International Technology Corporation  
**PROJECT NAME:** Project Shoal  
**PROJECT NUMBER:** 771060.07.03  
**ANALYST:** RA

**METHOD:** TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS BY EPA 8015M, September 1994  
**SAMPLE MATRIX:** SOIL

<table>
<thead>
<tr>
<th>CLIENT ID</th>
<th>DATE SAMPLED</th>
<th>NEL ID</th>
<th>RESULTS</th>
<th>REPORTING LIMIT</th>
<th>Surrogate Recovery</th>
<th>EXTRACTED</th>
<th>ANALYZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSA-V07</td>
<td>8/19/97</td>
<td>R9708050-07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>C_{10-24}</td>
<td>33</td>
<td>15 mg/kg</td>
<td>115%</td>
<td>8/20/97</td>
<td>8/22/97</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;C_{24}</td>
<td>92</td>
<td>15 mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSA-V08</td>
<td>8/19/97</td>
<td>R9708050-08</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>C_{10-24}</td>
<td>ND</td>
<td>15 mg/kg</td>
<td>76%</td>
<td>8/20/97</td>
<td>8/22/97</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;C_{24}</td>
<td>ND</td>
<td>15 mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSA-V09</td>
<td>8/19/97</td>
<td>R9708050-09</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>C_{18-24}</td>
<td>48</td>
<td>15 mg/kg</td>
<td>109%</td>
<td>8/20/97</td>
<td>8/22/97</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;C_{24}</td>
<td>110</td>
<td>15 mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Surrogate used was n-triacontane, acceptance limits 65-135%.

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

<table>
<thead>
<tr>
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<th>Acceptable Range</th>
</tr>
</thead>
<tbody>
<tr>
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<td>ND</td>
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</tr>
<tr>
<td>LCS, 082097-E2-LCS</td>
<td>85%</td>
<td>65-135%</td>
<td>107%</td>
<td>65-135%</td>
</tr>
<tr>
<td>MS, R9708050-06 MS</td>
<td>76%</td>
<td>65-135%</td>
<td>107%</td>
<td>65-135%</td>
</tr>
<tr>
<td>MSD, R9708050-06 MSD</td>
<td>79%</td>
<td>65-135%</td>
<td>105%</td>
<td>65-135%</td>
</tr>
</tbody>
</table>

ND - Not Detected

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**ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD**

Samples Shipment Date: 8-19-97

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Description/Type</th>
<th>Date/Time Collected</th>
<th>Container Type</th>
<th>Sample Volume</th>
<th>Pre-analytic</th>
<th>Requested Testing Program</th>
<th>Condition on Receipt</th>
<th>Disposal Record No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSA-V01</td>
<td>Soil - Dry</td>
<td>8-19-97 1/155</td>
<td>8 oz bottle</td>
<td>8 oz</td>
<td>Ice/ Cool</td>
<td>TPH by 8/15-97</td>
<td>R9703050-01</td>
<td></td>
</tr>
<tr>
<td>PSA-V02</td>
<td></td>
<td>8-19-97 1/155</td>
<td>8 oz bottle</td>
<td>8 oz</td>
<td>Ice/ Cool</td>
<td>TPH by 8/15-97</td>
<td>R9703050-02</td>
<td></td>
</tr>
<tr>
<td>PSA-V03</td>
<td></td>
<td>8-19-97 1/155</td>
<td>8 oz bottle</td>
<td>8 oz</td>
<td>Ice/ Cool</td>
<td>TPH by 8/15-97</td>
<td>R9703050-03</td>
<td></td>
</tr>
<tr>
<td>PSA-V04</td>
<td></td>
<td>8-19-97 1/155</td>
<td>8 oz bottle</td>
<td>8 oz</td>
<td>Ice/ Cool</td>
<td>TPH by 8/15-97</td>
<td>R9703050-04</td>
<td></td>
</tr>
<tr>
<td>PSA-V05</td>
<td></td>
<td>8-19-97 1/155</td>
<td>8 oz bottle</td>
<td>8 oz</td>
<td>Ice/ Cool</td>
<td>TPH by 8/15-97</td>
<td>R9703050-05</td>
<td></td>
</tr>
<tr>
<td>PSA-V06</td>
<td></td>
<td>8-19-97 1/155</td>
<td>8 oz bottle</td>
<td>8 oz</td>
<td>Ice/ Cool</td>
<td>TPH by 8/15-97</td>
<td>R9703050-06</td>
<td></td>
</tr>
<tr>
<td>PSA-V07</td>
<td></td>
<td>8-19-97 1/155</td>
<td>8 oz bottle</td>
<td>8 oz</td>
<td>Ice/ Cool</td>
<td>TPH by 8/15-97</td>
<td>R9703050-07</td>
<td></td>
</tr>
</tbody>
</table>

Special Instructions: M.S./MSO FROM PSA-V06

Possible Hazard Identification: Non-hazard ☑ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

**Sample Disposal:**
- Return to Client
- Disposal by Lab
- Archive

**Project Specific (specify):**

<table>
<thead>
<tr>
<th>Requisition No.</th>
<th>QC Level</th>
<th>Project Specific (specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>Project Specific (specify)</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>Project Specific (specify)</td>
</tr>
</tbody>
</table>

**Comments:**
- Fax Results to K. Schmidt @ 702-794-1744
- Custody Seal Intact? Y N
- None
- Temp. 80°

**Reference Document No. 522355**
Page 1 of ___
## Analysis Request and Chain of Custody Record (cont.)*

### Project Name: Project XYZ

**Date:** 8-19-97

### Project No.: 77/060 97.00 0000

### Sample Description/Type

<table>
<thead>
<tr>
<th>Sample Description/Type</th>
<th>Date/Time Collected</th>
<th>Container Type</th>
<th>Sample Volume</th>
<th>Pre-19</th>
<th>Requested Testing Program</th>
<th>Condition on Receipt</th>
<th>Disposal Record No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSA-V08 Soil DRY</td>
<td>8-19-97 1235</td>
<td>Box C18 Glass</td>
<td>8 oz</td>
<td>Ice</td>
<td>TPH BY 8015.0</td>
<td>R97008450-08</td>
<td>FOR LAB USE ONLY</td>
</tr>
<tr>
<td>PSA-V09 Soil DRY</td>
<td>8-19-97 1240</td>
<td>L L L L L L L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FOR LAB USE ONLY</td>
</tr>
</tbody>
</table>

### Last Line ABC 8-19-97

**Note:** To accompany samples. Yellow: Field copy.

*See back of form for special instructions.*
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 8/25/97, and analyzed as received.

Where applicable we have included the following quality control data: a method blank, used to document contamination resulting from the analytical process, a Laboratory Control Spike (LCS), used to document laboratory performance, and Surrogates, organic compounds which are similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

Should you have any questions or comments, please feel free to contact our Client Services department (702) 348-2522.

Eileen M. Ferguson
Laboratory Manager

Date: 8/28/97
NEL LABORATORIES

CLIENT: International Technology Corporation
PROJECT NAME: Project Shoal
PROJECT NUMBER: 771060.07.03

ANALYST: RA

METHOD: TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS BY EPA 8015M, September 1994
SAMPLE MATRIX: SOIL

<table>
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<tr>
<th>CLIENT ID</th>
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<th>NEL ID</th>
<th>RESULTS mg/kg</th>
<th>REPORTING LIMIT</th>
<th>Surrogate Recovery</th>
<th>EXTRACTED</th>
<th>ANALYZED</th>
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<tbody>
<tr>
<td>PSA-V10</td>
<td>8/25/97</td>
<td>R9708065-01</td>
<td>ND</td>
<td>15 mg/kg</td>
<td>97%</td>
<td>8/26/97</td>
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<td>C_{10-24}</td>
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<td>PSA-V11</td>
<td>8/25/97</td>
<td>R9708065-02</td>
<td>ND</td>
<td>15 mg/kg</td>
<td>103%</td>
<td>8/26/97</td>
<td>8/26/97</td>
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<td>C_{10-24}</td>
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<td>&gt;C_{24}</td>
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<td>PSA-V12</td>
<td>8/25/97</td>
<td>R9708065-03</td>
<td>ND</td>
<td>15 mg/kg</td>
<td>96%</td>
<td>8/26/97</td>
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<td>&gt;C_{24}</td>
<td>ND</td>
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<td>PSA-V12</td>
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<td>15 mg/kg</td>
<td>102%</td>
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<td>&gt;C_{24}</td>
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<tr>
<td>PSA-V13</td>
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<td>R9708065-04</td>
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<td>15 mg/kg</td>
<td>98%</td>
<td>8/26/97</td>
<td>8/26/97</td>
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<tr>
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<td>&gt;C_{24}</td>
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<tr>
<td>PSA-V14</td>
<td>8/25/97</td>
<td>R9708065-05</td>
<td>ND</td>
<td>15 mg/kg</td>
<td>97%</td>
<td>8/26/97</td>
<td>8/26/97</td>
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<tr>
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<td></td>
<td></td>
<td>C_{10-24}</td>
<td>ND</td>
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<tr>
<td></td>
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<td></td>
<td>&gt;C_{24}</td>
<td>ND</td>
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<td></td>
</tr>
</tbody>
</table>

*Surrogate used was n-triacontane, acceptance limits 65-135%.

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>Acceptable Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method Blank, 082697-E1-BLK</td>
<td>ND</td>
<td>&lt; 15 mg/kg</td>
<td>88%</td>
<td>65-135%</td>
</tr>
<tr>
<td>LCS, 082697-E1-LCS</td>
<td>83%</td>
<td>65-135%</td>
<td>81%</td>
<td>65-135%</td>
</tr>
<tr>
<td>MS, R9708065-03 MS</td>
<td>81%</td>
<td>65-135%</td>
<td>96%</td>
<td>65-135%</td>
</tr>
<tr>
<td>MSD, R9708065-03 MSD</td>
<td>81%</td>
<td>65-135%</td>
<td>92%</td>
<td>65-135%</td>
</tr>
</tbody>
</table>

ND - Not Detected

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2 of 2
# Analysis Request and Chain of Custody Record

**Reference Document No.** 522353

**Project Name:** Soil Analysis Request and Chain of Custody Record

**Lab Destination:** NV Environ. Lab

**Lab Contact:** Eileen Ferguson

**Project Contact/Phone:** C. B Mattei

**Carrier/Waybill No.:** NA

## ONE CONTAINER PER LINE

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Sample Description/Type</th>
<th>Date/Time Collected</th>
<th>Container Type</th>
<th>Sample Volume</th>
<th>Preservative</th>
<th>Requested Testing Program</th>
<th>Condition on Receipt</th>
<th>Disposal Record No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSA-V10</td>
<td>Soil</td>
<td>9/25/97 13:10</td>
<td>Glass Jars</td>
<td>7000 g</td>
<td>TPH by 2015 M</td>
<td></td>
<td></td>
<td>R9708065-01</td>
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<td>Soil</td>
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<td>Glass Jars</td>
<td>7000 g</td>
<td>TPH by 2015 M</td>
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<td>R9708065-02</td>
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<td>Glass Jars</td>
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<td>TPH by 2015 M</td>
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<td>R9708065-03</td>
</tr>
<tr>
<td>PSA-V13</td>
<td>Soil</td>
<td>9/25/97 14:30</td>
<td>Glass Jars</td>
<td>1600 g</td>
<td>TPH by 2015 M</td>
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<td></td>
<td>R9708065-04</td>
</tr>
<tr>
<td>PSA-V14</td>
<td>Soil</td>
<td>9/25/97 12:20</td>
<td>Glass Jars</td>
<td>800 g</td>
<td>TPH by 2015 M</td>
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<td></td>
<td>R9708065-05</td>
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</tbody>
</table>

### Special Instructions:
- **MS/MSD on Sample PSA-V12**

### Possible Hazard Identification:
- **Non-hazard**
- **Flammable**
- **Skin Irritant**
- **Poison B**
- **Unknown**

### Turnaround Time Required:
- **Normal**
- **Rush**

### GC Level:
- **I, II, III**

### Project Specific (specify):

### QC Level:
- **Per Analytical Request**

### Sample Disposal:
- **Return to Client**
- **Disposal by Lab**

### Archive (mos.):

### Form:

**1. Relinquished by:** Marie wheat, Date: 9/25/97, Time: 17:30
**2. Relinquished by:** Marie wheat, Date: , Time: 
**3. Relinquished by:** Marie wheat, Date: , Time: 

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