National Range Directorate of Environment and Safety

Mr. James Bearzi
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo
P.O. Box 26110
Santa Fe, New Mexico 87502

SUBJECT: Annual Unit Audit Revision Request - Clarification

Dear Mr. Bearzi:

We wish to clarify that portion of our response 5 which discussed Solid Waste Management Units (SWMUs) 121-123, Stallion Asphalt Tanks, submitted in our July 29, 1999 letter responding to your letter to us dated July 19, 1999, wherein you addressed our concerns on a number of specific SWMU sites that appeared on our Annual Unit Audit (AUA) and fee schedule. Our original response 5 on this issue read as follows:

**SWMUs 121-123** - The underground storage tanks at Stallion Range Center identified by these SWMUs were removed and clean closed in 1993. At that time the action was coordinated with Ms. Nina Wells of the NMED UST Bureau. Closure records are on file with the UST Bureau. For that reason we believe that these sites should be removed from the AUA baseline.

In a telephone conversation on August 4, 1999, Mr. Phillip Solano of your staff requested Ms. Robin Smith of our staff provide the registration numbers on the Stallion Asphalt Tanks so that the stated coordination with the NMED UST Bureau could be verified. While researching this requested information, it was discovered that the Stallion Asphalt Tanks were not registered with the NMED UST Bureau. The asphalt tanks were not buried, but were placed on the side of a terraced hill with the soil on the north side of the tanks extending approximately halfway up the tank sides. No piping or vent lines were associated with the tanks.
Approximately 5,550 gallons of product (asphalt primer solution) was removed from tank 3 on April 26, 1993, and transported for recycling to Koch Materials Company located in Albuquerque, New Mexico. Approximately one foot of a solidified asphalt-like material that was floating on the primer could not be pumped and was left in the tank, which was disposed in the Stallion Range Center Landfill.

Approximately 8,470 gallons of product (asphalt emulsion) in tanks 1 and 2 was removed on June 28, 1993, and transported for recycling to Koch Materials Company. The tanks themselves were transported for recycling to Tom Black’s Enterprises, a scrap recycler located in Dona Ana, New Mexico.

A copy of the Final Closure Report for the Storage Tank Removal and Remediation at Stallion Range Center, White Sands Missile Range dated August 30, 1993, is enclosed for your information. The stated coordination with Ms. Nina Wells who at that time was attached to the Las Cruces office of the NMED UST Bureau consisted of a field visit with Ms. Robin Smith of our staff.

If you have any questions, please do not hesitate to call or contact Ms. Robin Smith at (505) 678-2224.

Sincerely,

Thomas A. Ladd
Director, National Range Directorate of Environment and Safety

Copies Furnished w/enclosure:
Julie Jacobs, DSMOA, NMED
Robert S. Dinwiddie, HRMB, NMED
Steve Pullen, HRMB, NMED
Philip Solano, HRMB, NMED
David Neleigh, EPA Region VI (6PD-N)
James Harris, EPA Region VI (6PD-N)
Mark Melnyk, SJA, White Sands Missile Range
Nancy Kosko, AMSTE-SM-E, Test and Evaluation Command
FINAL CLOSURE REPORT FOR THE
STORAGE TANK REMOVAL AND REMEDIATION

AT

STALLION RANGE CENTER, WHITE SANDS MISSILE RANGE

30 AUGUST 1993
FINAL CLOSURE REPORT FOR THE
STORAGE TANK REMOVAL AND REMEDIATION

AT
STALLION RANGE CENTER, WHITE SANDS MISSILE RANGE

CONTRACT DAAD07-90-C-0018
WORK ASSIGNMENT ORDER 400-11, REVISION 4 AND 5

30 August 1993

Submitted to:

U. S. Army
White Sands Missile Range
Director of Contracting
Services Contracting Branch
White Sands Missile Range, New Mexico 88002-5201

Submitted By:

Advanced Sciences, Inc.
555 South Telshor, Suite 310
Las Cruces, New Mexico 88001
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1.0 INTRODUCTION

This report presents a description of actions taken during the draining of three above ground storage tanks and the removal of two of those storage tanks. These storage tanks were located approximately 1/4 mile North of the Stallion Ranger Center, White Sands Missile Range (WSMR) (See Figure 1.0). The work described was conducted in response to Work Assignment Order (WAO) 400-11 Revisions 4 and 5.

The three above ground storage tanks were used approximately 30 years ago during the paving of the Stallion Range Center roads. The storage tanks were labeled tank #1, tank #2, and tank #3 (Figure 2.0). Tanks #1 and #2 contained an asphalt emulsion, and tank #3 contained a thin watery asphalt primer substance which was observed to have a viscous asphalt like material floating on it. Tanks #1 and #2 were constructed of plate steel and tank #3 was constructed of aluminum. Each storage tank had a capacity of approximately 15,000 gallons, and dimensions of 26 feet in length by 9 feet in diameter.

2.0 PHASE I EFFORTS/PRELIMINARY INVESTIGATION

Efforts accomplished under Phase I included the following:

- Site visit by ASI, D&C Construction (selected subcontractor) and ES-E personnel on 23 September 1992;
- The collection of a composite sample of the storage tank contents to evaluate its suitability for recycling. The sample was analyzed for pH and Toxicity Characteristic Leaching Procedure (TCLP) which included RCRA metals, volatile organics, and semi-volatiles; and
- The preparation of a site specific Health and Safety Plan (HASP) for tank draining and removal activities.

2.1 Site Reconnaissance

On 23 September 1992, a site visit was made to the storage tanks located at Stallion Range Center by ASI, ES-E and the selected subcontractor. The storage tanks are located approximately 1/4 mile North of Stallion Range Center in an open semi-vegetated area. The site reconnaissance revealed that the tanks contained a total of approximately 15,000 gallons of an asphalt type substance. The storage tanks were not buried, but were placed on the side of a terraced hill where the soil on the north side of the tanks extends approximately halfway up the tank sides. The soil on the south side of the tanks covered approximately 1/8 of the tank sides. No piping or vent lines were observed to be associated with these tanks.

2.2 TCLP Sampling

On 15 April 1993, a single composite sample of the contents of all three tanks was collected. This sample was analyzed for TCLP, by U.S. EPA Method 1311 and for pH by U.S. EPA Method 9040. The TCLP analysis included the eight Resource Conservation Recovery Act (RCRA)
Figure 1.0 Location of Stallion Range Center
Metals, analyzed by U.S. EPA Method 6010, Organic Volatiles by U.S. EPA Method 8260, and Semi-Volatiles by U.S. EPA Method 8270. Only one value in the TCLP analysis was above detection limits, but below TCLP regulatory limits. The exceedance of was barium at 0.12 milligrams per liter (mg/L) which was acceptable for recycling. Results of the pH analysis indicated a pH value of 8.8 standard units (S.U.), which was also acceptable for recycling. The recycler of the asphalt was the determining factor in the criteria for acceptance. The recycler used internal constraints on the analytical results. See Table 1.0 for complete TCLP and pH results.
### TABLE 1.0

**STORAGE TANK CONTENTS COMPOSITE TCLP AND pH RESULTS**

**SAMPLE COLLECTED 04/15/93**

<table>
<thead>
<tr>
<th>PARAMETERS</th>
<th>RESULT</th>
<th>UNIT</th>
<th>DETECTION LIMIT</th>
<th>TCLP REGULATORY LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARSENIC</td>
<td>ND</td>
<td>mg/L</td>
<td>0.05</td>
<td>5.0</td>
</tr>
<tr>
<td>BARIUM</td>
<td>0.12</td>
<td>mg/L</td>
<td>0.05</td>
<td>100</td>
</tr>
<tr>
<td>CADMIUM</td>
<td>ND</td>
<td>mg/L</td>
<td>0.05</td>
<td>1.0</td>
</tr>
<tr>
<td>CHROMIUM</td>
<td>ND</td>
<td>mg/L</td>
<td>0.05</td>
<td>5.0</td>
</tr>
<tr>
<td>LEAD</td>
<td>ND</td>
<td>mg/L</td>
<td>0.05</td>
<td>5.0</td>
</tr>
<tr>
<td>MERCURY</td>
<td>ND</td>
<td>mg/L</td>
<td>0.01</td>
<td>0.2</td>
</tr>
<tr>
<td>SELENIUM</td>
<td>ND</td>
<td>mg/L</td>
<td>0.05</td>
<td>1.0</td>
</tr>
<tr>
<td>SILVER</td>
<td>ND</td>
<td>mg/L</td>
<td>0.05</td>
<td>5.0</td>
</tr>
<tr>
<td>ORGANIC VOLATILES</td>
<td>ND</td>
<td>mg/L</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>SEMI-VOLATILES</td>
<td>ND</td>
<td>mg/L</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>pH</td>
<td>8.8</td>
<td>S.U.</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**NOTES:**

1) ND=Not detected
2) mg/L=milligram per liter/parts per million
3) N/A Not applicable
4) S.U.=Standard unit
5) *=Listed as separate compounds
6) Metals analyzed by U.S. EPA Method 6010
7) Organic Volatiles analyzed by U.S. EPA Method 8260
8) Semi-volatiles analyzed by U.S. EPA Method 8270
9) ph analyzed by U.S. EPA Method 9040
10) TCLP extraction by U.S. EPA Method 1311
3.0 PHASE II EFFORTS TO REMOVE THE TANK CONTENTS AND TANKS

On 26 April 1993, an attempt to remove the three tanks and heat the contained asphalt was only partially successful. The method used to heat the asphalt material utilized a heat exchanger in which 180°Fahrenheit water was recirculated continually as the heat transfer fluid. After the asphalt had softened sufficiently, in tank #3 a mechanical pump was used to transfer the asphalt to a tanker truck. The tanker truck was then taken to the recycler. Heating of tank #3 began at approximately 12:30 pm on 26 April 1993, the tank contents were heated for 32 hours. Approximately 5,550 gallons of asphalt was successfully removed from tank #3. Approximately one foot of unpumpable asphalt was left in tank #3. An attempt at removing any of the contents of tanks #1 and #2 in the same manner was unsuccessful. Therefore due to the remaining asphalt in tank #1, #2, and #3 the tanks were left in place.

It was determined that the contents of tank #3 differed greatly from the contents of tanks #1 and #2. The contents of tank #3 was found to be an asphalt primer solution which had stratified in the tank. The watery fraction sank to the bottom and the unpumpable portion had floated to the top. Therefore it was impossible to get a probe through the floating faction to detect the stratification. When a probe was pushed through the top layer the probe became coated and the underlying layer was not detected.

Tanks #1 and #2 contained a different type of asphalt. It was found that these tanks contained an asphalt emulsion. This substance did not stratify but was too viscous to pump even when heated with a 180°Fahrenheit water circulation system.

3.1 Second Attempt to Remove the Contents and Tanks

On 28 June 1993 a new experimental process was developed to remove the product from tanks #1 and #2. This method involved the placement of a tanker truck down hill of tanks #1 and #2, and tapping a 4-inch drain line into the bottom end of tanks #1 and #2 (Figures 2 and 3). These drain lines were then laid down gradient to the manway atop the tanker truck. Total elapsed time for gravity drainage of the asphalt from tanks #1 and #2 was 10 days for both tanks. At the point that normal flow had ceased, the tanks were tilted slightly on one end to allow the remaining product to flow to the tapped end to further aid in removing the product. Approximately 8,470 gallons of product was removed from tanks #1 and #2. The product was transported for recycling to Koch Materials Company located in Albuquerque, New Mexico. See Appendix C for confirmation letter.

After tanks #1 and #2 were probed and found to be empty, a backhoe was used to remove the soil from the north side of the tanks. A WSMR supplied crane was then used to lift the tanks for subsequent inspection and cleaning of the outside of the tanks. A visual inspection of the tank bottoms did not reveal any apparent perforations. The tank surfaces were cleaned of any loose debris for transport. The tanks were transported for recycling to Tom Black’s Enterprises; a scrap recycler located in Dona Ana, New Mexico. The tanks will be cut up and melted down. Receipts for tanks #1 and #2 are also contained in Appendix C.

Inspection of the ground surface beneath the tanks revealed a large amount of a semi-solid
TANK #1  TANK #2  TANK #3

TANKER TRUCK

MANWAY

TRENCH

NORTH

LEGEND

FIGURE 2.0.
SITE PLAN
NOT TO SCALE
asphalt. During the construction of the trenches for the tanker truck and drain lines some asphalt was observed flowing from the excavated areas.

3.2 Soil Excavation and Sampling

Three feet of soil containing the semi-solid asphalt was excavated from beneath tanks #1 and #2 and placed on bermed visqueen. Although the remaining soil was not completely free of asphalt, soil samples were collected at the bottom of the excavation on July 8, 1993 at an approximate depth of three feet below the ground surface, See Figure 4.0.

It was not possible to sample beneath tank #3 because it is still in place. Soil samples were collected using a pre-cleaned stainless steel scoop. Each soil was placed into a laboratory supplied, pre-labeled, one liter glass jar fitted with a teflon lined lid. The sample was immediately placed on ice. The stainless steel scoops were decontaminated between each sampling location. The decontamination procedure consisted of a Alconox and deionized water scrub followed by a triple deionized water rinse and subsequent air drying. A total of four soil samples were collected; one sample from beneath each end of each tank. These soil samples were shipped to Westech Laboratories located in El Paso, Texas under strict chain-of-custody protocols for analysis.

The soil samples were labeled Tank #1 West, Tank #1 East, Tank #2 West, and Tank #2 East. See Figure 4.0 for sample locations. The samples were analyzed for total petroleum hydrocarbons (TPH) by U.S. EPA Method 418.1. All TPH results were above detection limits with TPH values ranging from 61 parts per million (ppm) to 3800 ppm. See Table 2.0 for complete TPH results. The certificate of analytical results and chain-of-custody are contained in Appendix B.
PLAN VIEW

TANK #1 EXCAVATION        TANK #2 EXCAVATION

TANK #1 WEST          TANK #1 EAST          TANK #2 WEST          TANK #2 EAST

SAMPLE LOCATIONS

SIDE CUT AWAY VIEW OF EXCAVATION LOOKING NORTH

3'   TANK #1 WEST          TANK #1 EAST          TANK #2 WEST          TANK #2 EAST
X   X   X   X

SAMPLE LOCATIONS

EAST

LEGEND

FIGURE 4.0
SAMPLE LOCATION PLAN
○ = SAMPLE LOCATION
X = SAMPLE LOCATION

NOT TO SCALE
### TABLE 2.0
SOIL SAMPLES TPH ANALYTICAL RESULTS
STALLION RANGE CENTER
SAMPLES COLLECTED 07/08/93

<table>
<thead>
<tr>
<th>SAMPLE I.D.</th>
<th>PARAMETER</th>
<th>RESULT</th>
<th>UNIT</th>
<th>DETECTION LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TANK#1 WEST</td>
<td>TPH</td>
<td>280</td>
<td>mg/kg</td>
<td>10</td>
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<tr>
<td>TANK#1 EAST</td>
<td>TPH</td>
<td>61</td>
<td>mg/kg</td>
<td>10</td>
</tr>
<tr>
<td>TANK#2 WEST</td>
<td>TPH</td>
<td>3800</td>
<td>mg/kg</td>
<td>10</td>
</tr>
<tr>
<td>TANK#2 EAST</td>
<td>TPH</td>
<td>1700</td>
<td>mg/kg</td>
<td>10</td>
</tr>
</tbody>
</table>

NOTES:
1) TPH=Total Petroleum Hydrocarbons
2) mg/kg=milligram per kilogram
4.0 SUMMARY OF FINDINGS

1) Semi-solid asphalt was observed on the surface of the ground and seeped out from the subsurface along the trench walls when heated by the sun.

2) Tanks #1 and #2 were emptied of their asphalt contents and removed from the site for recycling.

3) Tank #3 had approximately 5,550 gallons of product removed, but still contains one foot of a hard asphalt-like substance in the bottom of the tank. This tank was left in place.

4) It is unknown where the product found in and on the soil originated from. Possible sources include past tank overflows, leakage from tank #3, or leakage from tanks #1 and #2 not visually detected.

5) All soil sample TPH results exceeded detection limits ranging from 61 ppm to 3800 ppm.

5.0 RECOMMENDATIONS

There is an unknown amount of asphalt that appears to be located in the subsurface soils, and approximately one foot of semi-solid asphalt in tank #3. Tank #3 can not be transported on state highways with any material remaining in the tank. ASI recommends that tank #3 be hauled to the Stallion landfill and disposed of properly. ASI also recommends that an area immediately below the tanks of approximately 100 feet in a North-South direction and 100 feet in an East-West direction and up to five feet deep be excavated. This excavated soil can be landfilled, or used as dust suppression on dirt roads within WSMR.

Tank #3 may be disposed of in a sanitary landfill due to the TCLP results reported above. Due to the TCLP results the asphalt in the soil may also be placed into the WSMR landfill. The asphalt was originally intended to be used for road paving, thus the asphalt in the soil can be used for dust suppression on dirt roads. This use would not deviate from the original purpose of the asphalt, and should be acceptable.

After the excavation has been completed confirmatory soil samples should be collected. The excavated area should be divided into 25 equal sample locations. Each sample to be collected should be analyzed for TPH by U.S. EPA Method 418.1 to verify that the soils with detectable TPH levels have been removed.
APPENDIX A
PHOTOGRAPHS
View looking North-northwest of tanks #1 and #2
A view looking West of the tanker truck in the trench.
Top photo: asphalt seeping from subsurface soils in pipe trench. Bottom photo: close up of same trench with shovel for scale.
Asphalt flowing from the subsurface into the tanker trench. Note 12-inch ruler for scale.
Top photo: area below tank #1. Bottom photo: area below tank #2.
Asphalt flowing into the manway on top of the tanker truck.
View of the 4-inch tapping device. Note asphalt on ground is flowing from beneath the tank.
APPENDIX B
CERTIFICATE OF ANALYSIS
AND CHAIN-OF-CUSTODY FORMS
CLIENT SAMPLE ID: Tank Composite
SAMPLE TYPE: Sludge
SAMPLED BY: Kevin Sedlak
SUBMITTED BY: George Esqueda
SAMPLE SOURCE: Asphalt Tank

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Result</th>
<th>Unit</th>
<th>Detection Limit</th>
<th>Analysis Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic (TCLP)</td>
<td>&lt;0.05</td>
<td>mg/L</td>
<td>0.05</td>
<td>04-22-93</td>
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<tr>
<td>Barium (TCLP)</td>
<td>0.12</td>
<td>mg/L</td>
<td>0.05</td>
<td>04-22-93</td>
</tr>
<tr>
<td>Cadmium (TCLP)</td>
<td>&lt;0.05</td>
<td>mg/L</td>
<td>0.05</td>
<td>04-22-93</td>
</tr>
<tr>
<td>Chromium (TCLP)</td>
<td>&lt;0.05</td>
<td>mg/L</td>
<td>0.05</td>
<td>04-22-93</td>
</tr>
<tr>
<td>Lead (TCLP)</td>
<td>&lt;0.05</td>
<td>mg/L</td>
<td>0.05</td>
<td>04-22-93</td>
</tr>
<tr>
<td>Mercury (TCLP)</td>
<td>&lt;0.01</td>
<td>mg/L</td>
<td>0.01</td>
<td>04-23-93</td>
</tr>
<tr>
<td>Selenium (TCLP)</td>
<td>&lt;0.05</td>
<td>mg/L</td>
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<td>04-22-93</td>
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<tr>
<td>Silver (TCLP)</td>
<td>&lt;0.05</td>
<td>mg/L</td>
<td>0.05</td>
<td>04-22-93</td>
</tr>
</tbody>
</table>

(1) Copy to Client

Managing Director
CLIENT SAMPLE ID : Tank Composite
SAMPLE TYPE ......: Sludge
SAMPLED BY ......: Kevin Sedlak
SUBMITTED BY ....: George Esqueda
SAMPLE SOURCE ...: Asphalt Tank
ANALYST ...........: R.Peck

Organic TCLP Volatiles

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Result</th>
<th>Unit</th>
<th>Detection Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
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<tr>
<td>Carbon tetrachloride</td>
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<td>mg/L</td>
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<td>Chlorobenzene</td>
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<td>mg/L</td>
<td>100</td>
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<tr>
<td>Chloroform</td>
<td>&lt;6.0</td>
<td>mg/L</td>
<td>6.0</td>
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<tr>
<td>1,2-Dichloroethane</td>
<td>&lt;0.5</td>
<td>mg/L</td>
<td>0.5</td>
</tr>
<tr>
<td>1,1-Dichloroethylene</td>
<td>&lt;0.7</td>
<td>mg/L</td>
<td>0.7</td>
</tr>
<tr>
<td>Methyl ethyl ketone</td>
<td>&lt;200.</td>
<td>mg/L</td>
<td>200</td>
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<tr>
<td>Tetrachloroethylene</td>
<td>&lt;0.7</td>
<td>mg/L</td>
<td>0.7</td>
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<tr>
<td>Trichloroethylene</td>
<td>&lt;0.5</td>
<td>mg/L</td>
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<tr>
<td>Vinyl Chloride</td>
<td>&lt;0.2</td>
<td>mg/L</td>
<td>0.2</td>
</tr>
</tbody>
</table>

(1) Copy to Client

Managing Director
CLIENT SAMPLE ID : Tank Composite
SAMPLE TYPE ........: Sludge
SAMPLED BY .........: Kevin Sedlak
SUBMITTED BY .......: George Esqueda
SAMPLE SOURCE ......: Asphalt Tank
ANALYST .............: R. PECK

**Organic TCLP Semi-Volatiles**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Result</th>
<th>Unit</th>
<th>Detection Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlordane</td>
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<td>mg/L</td>
<td>0.03</td>
</tr>
<tr>
<td>o-Cresol</td>
<td>&lt;200.</td>
<td>mg/L</td>
<td>200.</td>
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<tr>
<td>m-Cresol</td>
<td>&lt;200.</td>
<td>mg/L</td>
<td>200.</td>
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<tr>
<td>p-Cresol</td>
<td>&lt;200.</td>
<td>mg/L</td>
<td>200.</td>
</tr>
<tr>
<td>2,4-D</td>
<td>&lt;10.</td>
<td>mg/L</td>
<td>10.</td>
</tr>
<tr>
<td>1,4-Dichlorobenzene</td>
<td>&lt;7.5</td>
<td>mg/L</td>
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</tr>
<tr>
<td>2,4-Dinitrotoluene</td>
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<td>mg/L</td>
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</tr>
<tr>
<td>Endrin</td>
<td>&lt;0.02</td>
<td>mg/L</td>
<td>0.02</td>
</tr>
<tr>
<td>Heptachlor</td>
<td>&lt;0.008</td>
<td>mg/L</td>
<td>0.008</td>
</tr>
<tr>
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<td>&lt;0.13</td>
<td>mg/L</td>
<td>0.13</td>
</tr>
<tr>
<td>Hexachloro-1,3-butadiene</td>
<td>&lt;0.5</td>
<td>mg/L</td>
<td>0.5</td>
</tr>
<tr>
<td>Hexachloroethane</td>
<td>&lt;3.0</td>
<td>mg/L</td>
<td>3.0</td>
</tr>
<tr>
<td>Lindane</td>
<td>&lt;0.4</td>
<td>mg/L</td>
<td>0.4</td>
</tr>
<tr>
<td>Methoxychlor</td>
<td>&lt;10.</td>
<td>mg/L</td>
<td>10</td>
</tr>
<tr>
<td>Nitrobenzene</td>
<td>&lt;2.0</td>
<td>mg/L</td>
<td>2.0</td>
</tr>
<tr>
<td>Heptachlor epoxide</td>
<td>&lt;0.008</td>
<td>mg/L</td>
<td>0.008</td>
</tr>
<tr>
<td>Pentachlorophenol</td>
<td>&lt;100.</td>
<td>mg/L</td>
<td>100</td>
</tr>
<tr>
<td>Pyridine</td>
<td>&lt;5.0</td>
<td>mg/L</td>
<td>5.0</td>
</tr>
<tr>
<td>Toxaphene</td>
<td>&lt;0.5</td>
<td>mg/L</td>
<td>0.5</td>
</tr>
<tr>
<td>2,4,5-Trichlorophenol</td>
<td>&lt;400.</td>
<td>mg/L</td>
<td>400</td>
</tr>
<tr>
<td>2,4,6-Trichlorophenol</td>
<td>&lt;2.0</td>
<td>mg/L</td>
<td>2.0</td>
</tr>
<tr>
<td>2,4,5-TP (Silvex)</td>
<td>&lt;1.0</td>
<td>mg/L</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*(1) Copy to Client*
QUALITY CONTROL REPORT

QC IDENTIFIER ....: 34-071593-2
REFERENCE NOTEBOOK : TPH #3
REFERENCE PAGE ....: 19

INSTRUMENT : IR-TPH
ANALYZED BY : B. Flynn
ANALYZED ON : 07-15-93

NOTE -

1) NC: Not Calculable because result is < 5 times the MDL

2) NP: Not Practical because sample result is 4 times or more greater than spike added.

3) Percent Recovery is:

\[
\frac{\text{Sample+Spike Result} - \text{Sample Result}}{\text{Spike Amount}} \times 100
\]

4) Relative Percent Difference (RPD) is:

\[
\frac{\text{Sample Result} - \text{Replicate Result}}{(\text{Sample Result} + \text{Replicate Result})/2} \times 100
\]
# Chain of Custody Record

**Client:** ASI  
**Address:** Los Cruces, NM 88001  
**Telephone:** 505-562-2129  
**Project:** 40.11.R5  
**Job/P.O. No.:** 40.11.R5

---

**Sample Type Codes**
- S = Soil  
- O = Oil  
- T = Travel Blank  
- W = Water  
- G = Sludge  
- F = Field Blank  
- X = Other (Specify)

---

**Requested Analyses**

<table>
<thead>
<tr>
<th>COMPOSITE</th>
<th>SAMPLE TYPE</th>
<th>NUMBER OF CONTAINERS</th>
<th>HOLD</th>
<th>TEH HS/EJ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Sample Identification**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Identification</th>
<th>Date</th>
<th>Time</th>
<th>Sample Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank #1 West</td>
<td>7/18/91</td>
<td>8:00</td>
<td>1st of the Tanks</td>
<td></td>
</tr>
<tr>
<td>Tank #1 East</td>
<td>6/17</td>
<td>6:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tank #2 West</td>
<td>7/18/91</td>
<td>10:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tank #2 East</td>
<td>6/17</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Remarks**

- Sample Process Turnaround Time: 10 Business Days
- Other (Specify): 5
APPENDIX C
RECEIPTS FOR RECYCLED MATERIALS
April 30, 1993

Mr. Ron Davis
D & C Construction
Las Cruces, NM

Dear Ron:

This letter is to acknowledge the receipt of one (1) 5550 gallon truck load of asphalt material from the Stallion Site on White Sands Missile Range. Groendyke Transport brought the load to our plant in Albuquerque on the morning of April 30.

The material was blended with 120/150 pen asphalt to be processed into emulsified asphalt.

Sincerely,

Dick Heintzelman
Regional Operations Manager

DH/jt
July 13, 1993

Mr. Ron Davis  
D & C CONSTRUCTION  
FAX# 1-523-6076

Dear Ron:

This letter is to acknowledge the receipt of two (2) truck loads of asphalt material from the Stallion Flight on White Sands Missile Range. Groendyke Transport brought the first load on morning of July 1st of 3980 gallons. Second load was received on morning of July 13th of 4040 gallons.

Material was blended with 180,000 gallons of (125 pen) virgin asphalt and then processed into emulsified asphalt.

Thanks for the inexpensive material and glad we could help.

Sincerely,

[Signature]

Dick Steinthalman  
Regional Operations Manager

DH/jt
**PH. (505) 382-9008**

**Tom Black's Enterprises**

**AUTO SALVAGE & GARAGE & USED CARS**

P.O. BOX 296
Dona Ana, New Mexico 88032

**WE GUARANTEE OUR PARTS TO BE IN GOOD WORKING CONDITION AND TO FIT - BUT WE CANNOT GUARANTEE THAT THE PARTS YOU PURCHASE WILL SOLVE YOUR PROBLEMS. NO CASH REFUNDS.**

<table>
<thead>
<tr>
<th>Customer's Order No.</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7/4 93</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>A J C CONSTRUCTION</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Address</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>QUAN.</th>
<th>DESCRIPTION</th>
<th>PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPRX 12.000 TANK RECD FROM ARBOE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FOR RE SALE</th>
<th>SALES TAX</th>
<th>TOTAL</th>
</tr>
</thead>
</table>

**OUR SALES POLICIES**

NO REFUNDS ON DEPOSITS ON MERCHANDISE ORDERED OUT OF TOWN.

We do guarantee motors not to have cracked blocks, heads, and crankshafts for 30 days from date of this invoice.

We do guarantee parts to be in good working condition when purchased.

Exchange Must be returned within 7 days for deposit refund.

We do not make refunds through no fault of this firm.

We do not guarantee labor on defective parts.

Our liability is limited to the purchase price of above items.

NO CASH REFUNDS — NO REFUNDS ON DEPOSITS AFTER 10 DAYS.

**Thank You**
## Our Sales Policies

- **No Refunds on Deposits on Merchandise Ordered Out of Town.**
- We do guarantee motors not to have cracked blocks, heads, bad crankshafts for 30 days from date of this invoice.
- We do guarantee parts to be in good working condition when purchased.
- Exchange must be returned within 7 days for deposit refund.
- We do not make refunds through no fault of this firm.
- We do not guarantee labor on defective parts.
- Our liability is limited to the purchase price above items.
- **No Cash Refunds — No Refunds on Deposits After 10 Days.**

---

**Thank You**
**REMARKS**

Q.C. on this sample does not meet normal criteria. This is probably due to the presence of unequally distributed asphalt-like clumps in the sample.

**Modified 418.1 - Total Petroleum Fuel Hydrocarbons**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Result</th>
<th>Unit</th>
<th>Detection Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Petroleum Hydrocarbons .......</td>
<td>3800.</td>
<td>mg/kg</td>
<td>10.</td>
</tr>
</tbody>
</table>

(1) Copy to Client

Managing Director
CLIENT SAMPLE ID: Tank Composite
SAMPLE TYPE: Sludge
SAMPLED BY: Kevin Sedlak
SUBMITTED BY: George Esqueda
SAMPLE SOURCE: Asphalt Tank

Inorganic Non-Metals

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Result</th>
<th>Unit</th>
<th>Detection Limit</th>
<th>Analysis Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>8.8</td>
<td>S.U.</td>
<td>N/A</td>
<td>04-16-93</td>
</tr>
</tbody>
</table>

(1) Copy to Client

Managing Director
## Chain of Custody Record

### Client
- **Name:** ASI
- **Address:** 555 Teller Bluff St., Suite 310, Las Cruces, NM 88001
- **Telephone:** 505-524-7129
- **Project:** 51-01
- **ID/P.O. No:** 9982411003

### Sample Details

<table>
<thead>
<tr>
<th>Sampler (Signature)</th>
<th>Sampler (Please Print)</th>
<th>Client Sample Identification Number</th>
<th>Date</th>
<th>Time</th>
<th>Sample Location</th>
<th>Hold</th>
<th>Composite</th>
<th>Grab</th>
<th>Sample Type</th>
<th>Requested Analyses</th>
<th>Comments</th>
<th>Laboratory Sample Identification Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Kevin Stoldt</td>
<td>Tank Composite</td>
<td>4/198</td>
<td>1800</td>
<td>Asphalt Tank</td>
<td>X</td>
<td>G</td>
<td></td>
<td></td>
<td>X</td>
<td>Tar</td>
<td>6301215</td>
</tr>
</tbody>
</table>

### Sample Type Codes
- S - Soil
- G - Sludge
- X - Other
- W - Water
- T - Travel Blank
- O - Oil
- F - Field Blank

### Other Details
- **RECEIVED BY (SIGNATURE):**
  - George Espinosa
- **RECEIVED BY (SIGNATURE):**
  - B. Thompson
- **REMARKS:** Please Fax Results ASAP as report is available.

### RUSH:
- RUSH
Q.C. on this run does not meet normal criteria. This is probably due to the presence of unequally distributed asphalt-like clumps in the sample.

**Modified 418.1 - Total Petroleum Fuel Hydrocarbons**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Result</th>
<th>Unit</th>
<th>Detection Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Petroleum Hydrocarbons</td>
<td>280.</td>
<td>mg/kg</td>
<td>10.</td>
</tr>
</tbody>
</table>

(1) Copy to Client

Managing Director
Q.C. on this sample does not meet normal criteria. This is probably due to the presence of unequally distributed asphalt-like clumps in the sample.

**Modified 418.1 - Total Petroleum Fuel Hydrocarbons**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Result</th>
<th>Unit</th>
<th>Detection Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Petroleum Hydrocarbons</td>
<td>61.</td>
<td>mg/kg</td>
<td>10.</td>
</tr>
</tbody>
</table>

(1) Copy to Client

Managing Director
Q.C. on this sample does not meet normal criteria. This is probably due to the presence of unequally distributed asphalt-like clumps in the sample.

**Modified 418.1 - Total Petroleum Fuel Hydrocarbons**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Result</th>
<th>Unit</th>
<th>Detection Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Petroleum Hydrocarbons</td>
<td>1700.</td>
<td>mg/kg</td>
<td>10.</td>
</tr>
</tbody>
</table>

(1) Copy to Client

Managing Director
QUALITY CONTROL REPORT

QC IDENTIFIER ......: 34-071593-2
REFERENCE NOTEBOOK : TPH #3
REFERENCE PAGE ......: 19

INSTRUMENT : IR-TPH
ANALYZED BY : B. Flynn
ANALYZED ON : 07-15-93

TEST DESCRIPTION ...: Total Petroleum Hydrocarbons
TEST METHOD ........: 418.1

SAMPLES IN THIS RUN: 6302057 6302058 6302059 6302060 6302077 6302078 6302079 6302080 6302083

CALIBRATION CHECK -

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>UNIT</th>
<th>TRUE VALUE</th>
<th>FOUND VALUE</th>
<th>%RECOVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Petroleum Hydrocarbons</td>
<td>mg/L</td>
<td>200</td>
<td>180.</td>
<td>90.0</td>
</tr>
<tr>
<td>Total Petroleum Hydrocarbons</td>
<td>mg/L</td>
<td>200</td>
<td>180.</td>
<td>90.0</td>
</tr>
</tbody>
</table>

REPLICATES -

<table>
<thead>
<tr>
<th>SAMPLE NUMBER</th>
<th>PARAMETER</th>
<th>UNIT</th>
<th>RESULT</th>
<th>REPLICATE</th>
<th>RPD%</th>
</tr>
</thead>
<tbody>
<tr>
<td>6302058</td>
<td>Total Petroleum Hydrocarbons</td>
<td>mg/kg</td>
<td>61.</td>
<td>84.</td>
<td>31.7</td>
</tr>
</tbody>
</table>

SPIKES -

<table>
<thead>
<tr>
<th>SAMPLE NUMBER</th>
<th>PARAMETER</th>
<th>UNIT</th>
<th>SAMPLE RESULT</th>
<th>SPIKE AMOUNT</th>
<th>SAMPLE+SPIKE RESULT</th>
<th>%RECOVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>6302058</td>
<td>Total Petroleum Hydrocarbons</td>
<td>mg/kg</td>
<td>61.</td>
<td>80.</td>
<td>130.</td>
<td>86.3</td>
</tr>
</tbody>
</table>