GW - 177

# REPORTS

# YEAR(S):

2001

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES, INC.
2900 N. Big Spring, Midland, Texas 79705
Bus: (915) 682-7404 • (915) 570-REGS • Metro: (915) 570-6007 • Fax: (915) 682-7440

# Site Assessment Report and Remedial Action Plan

Performed for

Duke Energy Field Services
3300 North "A" Street, Building 7
Midland, Texas 79705

Performed at

**Maljamar Booster Site**
Lea County, New Mexico
Section 20, T-17-S, R-33-E

July 2001

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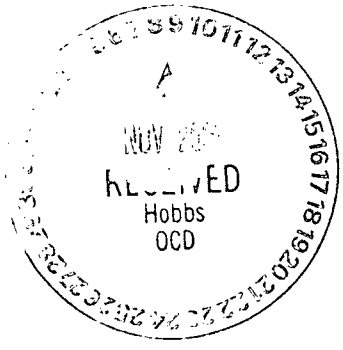
**Section 20, T-17-S, R-33-E**




**July 2001**

**Duke Energy Field Services**
**Site Assessment Report and Remedial Action Plan**

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## 1.0 Introduction

This report will document the findings and provide a recommended site remediation plan for the release of liquids from the Maljamar Booster Site located in the NW/4 of the SE/4 of Section 20, Township 17 South, Range 33 East, Lea County, New Mexico.

The Maljamar Booster Site is a natural gas compressor facility that is located approximately five (5) miles southeast of the Maljamar town site. The booster site is operated by Duke Energy Field Services, LP (DEFS). Two (2) condensate tanks were previously removed and it was suspected at the time of removal that the tanks had historically leaked, due to the fact that visual evidence of soil staining was present beneath the location of the tanks. Evidence of a release was also indicated on March 8, 2001, when DEFS personnel and a representative from Ritter Environmental were on-site to conduct a preliminary site visit. The purpose of the visit was to determine whether a site investigation was warranted in order to detail and document the potential release of condensate from either of the two (2) aboveground condensate tanks.

Upon the initial inspection of the site, which was conducted on March 8, 2001, it was determined that a potential release had occurred. This was due to staining of the pea gravel and soils that were located under the tanks and the presence of free product near the surface, beneath one of the tanks. A backhoe was utilized to excavate under the two (2) tanks. The shallow excavation gave an early indication that product was present at the ground surface. Free product was encountered after the removal of the first one (1) to two (2) feet of soil beneath the northernmost tank. At that time, it was determined that a site investigation consisting of the placement of soil borings and potentially groundwater monitoring wells was warranted due to the potential size of the release. The fact that the highly volatile free product presented an explosion hazard (due to the ignition sources from the machinery utilized for excavation) was also a consideration in the decision to further investigate the site by placement of soil borings instead of excavation.

## 2.0 Sample Protocol

Soil samples were collected from the air rotary drilling rig by the split spoon sampling method. Each sample was collected in the sampling device and brought to the surface for evaluation. Each boring was advanced in five (5) foot intervals and each interval was sampled by the split spoon unless a particular interval was unable to be sampled with the sample device. In that event, the samples were collected from the cuttings of the rotary drilling rig as a grab sample. All sampling devices and down hole tools were properly decontaminated between samples and between borings.

The soil was collected in a sealed plastic bag. The sample was kept sealed for approximately ten to fifteen (10-15) minutes holding time prior to evaluation by measurement of headspace volatilization of VOCs. This was accomplished by measuring the accumulated VOCs inside the bag with an Organic Vapor Monitor (OVM) calibrated to Benzene. Portions of each sample were preserved on ice in a glass container with a Teflon lined septum pending the determination of the necessity of laboratory analysis. As each soil sample was field analyzed by headspace measurement, the maximum OVM readings were documented on the drilling log, along with the sample descriptions, the indications of odor, any soil staining and the time of the sample. For reference to the drilling log information, please refer to the appendix of this report.

The samples were selected for laboratory analysis based on one or more of the following:

1. The sample that exhibited the highest OVM reading for that boring
2. The sample from the total depth of the boring, and/or
3. The sample from a particular zone of interest based on either field characteristics or its relevance to the evaluation or characterization of the site

The field samples were properly preserved in accordance with US EPA methodology and NMOCD guidelines by placing the samples on ice and maintaining at a temperature of four degrees Celsius until they reached the laboratory. Proper Chain of Custody

documentation was maintained for transporting the samples to the lab. Trace Analysis Laboratory of Lubbock, Texas performed the analysis.

## 3.0 Site Investigation and Soil Borings

The Site Investigation Plan and Scope of Work was submitted to Mr. Chris Williams and Mr. Paul Sheeley with the NMOCD district offices in Hobbs, New Mexico, on May 30, 2001. Verbal approval to proceed with the plan was granted by Mr. Sheeley via telephone one week prior to proceeding with the site investigation. Mr. Mitchell Ritter and Mr. Dean Flatt with REGS conducted a site assessment on June 5 and 6, 2001.

The investigation consisted of a visual inspection of the surface of the impacted area, the placement of five (5) soil borings and the placement of one (1) temporary monitor well. The first boring, SB-1, was located in close proximity (within two (2) feet) of the former tank pad and drilled to a total depth of one hundred twenty (120) feet below ground surface (bgs). This location was chosen in order to determine the vertical extent of contamination at the point source. The horizontal extent of the release was confirmed by the placement of four (4) soil borings around the perimeter of the tank area. All four (4) of the perimeter soil borings were drilled to a depth of approximately fifty (50) feet from the surface. The borings were located on the north, south, east and west boundaries of the release area.

### Soil Boring SB-1

The purpose of the location of SB-1 was that of delineation of the vertical extent of the impacted soils. This boring was drilled immediately adjacent to the tank (within two (2) feet) and the release area (See site map- appendix). It was noted during the drilling of SB-1 that the OVM readings and odor of the samples significantly decreased below a depth of forty to fifty (40-50) feet. Based on the information from the State Engineer's office, it was determined that the depth to groundwater was greater than one hundred ninety (190) feet from the surface. This information was collected from a water well located approximately one thousand one hundred twenty-five (1,125) feet north of the

site. It was desired to obtain a groundwater sample, if possible, to make a determination of any potential groundwater impact. Therefore, the drilling of soil boring SB-1 was advanced to a depth of ninety (90) feet, during which time indications of potential groundwater (moisture in the samples) was encountered, beginning at a depth of seventy five (75) feet. The sample from seventy five (75) to eighty (80) feet was very moist and groundwater was anticipated in the next few feet. Drilling was continued to a depth of one hundred twenty (120) feet, during which time the hole was caving from a depth of ninety (90) feet to the total depth of the hole at one hundred twenty (120) feet. Sampling was not accomplished below ninety (90) feet and the last sample that was recovered was from the eighty (80) to ninety (90) foot horizon.

Based on the indicated groundwater in the soil samples at seventy five (75) to eighty (80) feet, it was decided to set a temporary groundwater monitoring well (TMW-1) at one hundred five (105) feet from the surface in order to attempt to collect a groundwater sample. The hole had caved in from one hundred twenty (120) feet back to one hundred five (105) feet. A 0.010 slot PVC screened casing was set from one hundred five (105) feet back to fifty five (55) feet from the surface and blank casing was set from fifty five (55) feet back to the surface. The well was allowed to stand overnight to determine if groundwater was present. No groundwater accumulated from the screened interval in the approximately 24-hour period from the time the well was placed. It was determined that the indicated wet zone would not produce a sufficient amount of groundwater to allow a sample to be collected. The temporary well TMW-1 was then abandoned by removal of the casing, plugging back to the surface with bentonite and placement a cement cap.

Four (4) samples from SB-1 were collected for analysis. The sample from ten (10) feet, the sample from forty (40) feet, the sample from forty five (45) feet and the sample from ninety (90) feet were collected for analysis. The sample from ten (10) feet was selected over the sample from five (5) feet due to the higher OVM reading of the ten (10) foot sample (46 ppm vs. 42 ppm). The forty (40) and forty five (45) foot samples were selected due to the elevated OVM reading of the forty (40) foot sample and the significantly reduced reading of the forty five (45) foot sample as possibly being a lower

limit to impacted soils. The ninety (90) foot sample was selected as the lowermost sample that was collected from the boring.

**Soil Boring SB-2**

The purpose of soil borings SB-2 through SB-5 was for horizontal delineation of the impacted area. Soil boring SB-2 is located approximately forty (40) feet west of SB-1. SB-2 was drilled and sampled to a depth of fifty one and one half (51.5) feet. No staining or odor was documented in the field sampling. The OVM readings were very low, ranging from zero (0) to a peak of 0.4 mg/kg. No evidence of any petroleum or other chemical release was apparent from the field analysis. The sample from thirty (30) feet and the sample from fifty (50) feet were collected and shipped to the laboratory for analysis.

**Soil Boring SB-3**

Soil boring SB-3 is located sixty-six (66) feet east of soil boring SB-1. SB-2 was drilled to a depth of fifty (50) feet and sampled to a depth of fifty one and one half (51.5) feet. No staining or odor was documented in the field sampling. The OVM readings were very low, ranging from zero (0) to a peak of 0.7 mg/kg. No evidence of any petroleum or other chemical release was apparent from the field analysis. Three (3) samples were collected for analysis. The sample from ten (10) feet, the sample from forty (40) feet and the sample from fifty (50) feet were collected for analysis.

**Soil Boring SB-4**

Soil boring SB-4 is located sixty (60) feet north and thirteen (13) feet east of SB-1. SB-4 was drilled to a depth of fifty (50) feet and sampled to a depth of fifty one and one half (51.5) feet. No staining or odor was documented in the field sampling. The OVM readings were very low, ranging from zero to a peak of 1.0 mg/kg. No evidence of any petroleum or other chemical release was apparent from the field analysis. The sample from five (5) feet and the sample from fifty (50) feet were collected for analysis.

**Soil Boring SB-5**

Soil boring SB-5 is located eighty (80) feet south and sixteen (16) feet east of SB-1. SB-4 was drilled to a depth of fifty (50) feet and sampled to a depth of fifty one and one half (51.5) feet. No staining or odor was documented in the field sampling. The OVM readings were very low, ranging from zero to a peak of 0.6 mg/kg. No evidence of any petroleum or other chemical release was apparent from the field analysis. The sample from forty-five (45) feet and the sample from fifty (50) feet were collected for analysis.

## 4.0 Analytical Results and Methodology

The analytical results of the selected samples chosen for analysis are presented in the following table:

**ANALYTICAL RESULTS**
**DUKE ENERGY/MALJAMAR BOOSTER SITE**
**ANALYTICAL RESULTS IN Mg/Kg**

| Sample | Depth | DRO | GRO | Total BTEX | Benzene | Toluene | E. Benzene | Xylene |
|---|---|---|---|---|---|---|---|---|
| SB1-1 | 10' | 260 | 12.02 | 1.84 | .121 | .342 | .343 | 1.03 |
| SB1-8 | 40' | 112 | 14.9 | <0.025 | <0.025 | <0.025 | <0.025 | <0.025 |
| SB1-10 | 50' | 51 | 4.98 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 |
| SB1-17 | 90' | <50 | 2.21 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 |
| SB2-6 | 30' | <50 | 2.49 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 |
| SB2-10 | 50' | <50 | 2.13 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 |
| SB3-2 | 10' | <50 | 3.19 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 |
| SB3-8 | 40' | <50 | <2.5 | <0.025 | <0.025 | <0.025 | <0.025 | <0.025 |
| SB3-10 | 50' | <50 | 2.4 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 |
| SB4-1 | 5' | <50 | <2.5 | <0.025 | <0.025 | <0.025 | <0.025 | <0.025 |
| SB4-10 | 50' | <50 | <1.3 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 |
| SB5-9 | 45' | <50 | <1.3 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 |
| SB5-10 | 50' | <50 | <1.3 | <0.013 | <0.013 | <0.013 | <0.0135 | <0.013 |

Methodology

- EPA analytical Method 8021B was utilized for the analysis of BTEX compounds
- EPA analytical Method 8015B was utilized for the analysis of TPH GRO/DRO compounds

## 5.0 Findings and Conclusions

Analysis of the soil samples from SB-1 documented the highest levels of DRO (Diesel Range Organics) at the site at the depth of ten (10) feet. The DRO at ten (10) feet in SB-1 was reported in the lab report as 260 mg/kg. The documented level of DRO at forty (40) feet was 112 mg/kg, at fifty (50) feet was 51 mg/kg and at ninety (90) feet was <50 mg/kg. All of these levels, as well as the remainder of the sample results, were well below the 5000 ppm guideline limits set forth in the 1993 NMOCD document "Guidelines for Remediation of Leaks, Spills and Releases."

Soil boring SB-2 and SB-3 were placed in order to delineate the east and west horizontal limits of the spill. Each of these borings was drilled and sampled to a depth of fifty feet from the surface. Soil samples from each of these borings determined that DRO was not measured in any sample above the detection limit. GRO was documented in SB-2 at a peak level of 2.49 mg/Kg and a low of 2.13 mg/Kg. GRO was documented in SB-3 at a peak of 3.19 mg/Kg and a low of <2.5mg/Kg. BTEX results were non-detect for all samples from SB-2 and SB-3. Therefore, SB-2 and SB-3 have delineated the east/west component of the spill.

Soil boring SB-4 and SB-5 were placed in order to delineate the north and south horizontal limits of the spill. Each of these borings was drilled and sampled to a depth of fifty (50) feet from the surface. Soil samples from SB-4 documented that DRO, GRO and BTEX levels were below detection limits for all samples. The north/south component of the spill has been delineated by the placement of SB-4 and SB-5.

Maps of the DRO concentrations have been included in the appendix. A detailed site map depicting the surface extent of the spill as well as the selected sample locations is

included in the appendix of this report. Photographic documentation of the spill site and the excavated areas is also included in the appendix.

According to the records of the State of New Mexico Engineering office in Santa Fe, it was determined that the groundwater depth in the vicinity of the release was greater than one hundred ninety (190) feet. There is no surface water within one (1) mile of the site. The nearest windmill is located over one thousand one hundred twenty-five (1,125) feet to the north; therefore, the total ranking score according to the recommended guidelines is zero (0). Thus, according to the NMOCD guidelines, the acceptable Benzene level is 10 ppm, the Total BTEX level is 50 ppm and the TPH level is 5000 ppm for this site. No samples were analyzed that approached the recommended levels established in the guidelines. The highest levels documented at the site were those in SB-1 with DRO at 260 mg/kg.

Based upon the work performed on the site investigation and results of the analyses performed on the near surface soils, the following conclusions concerning the site condition can be drawn:

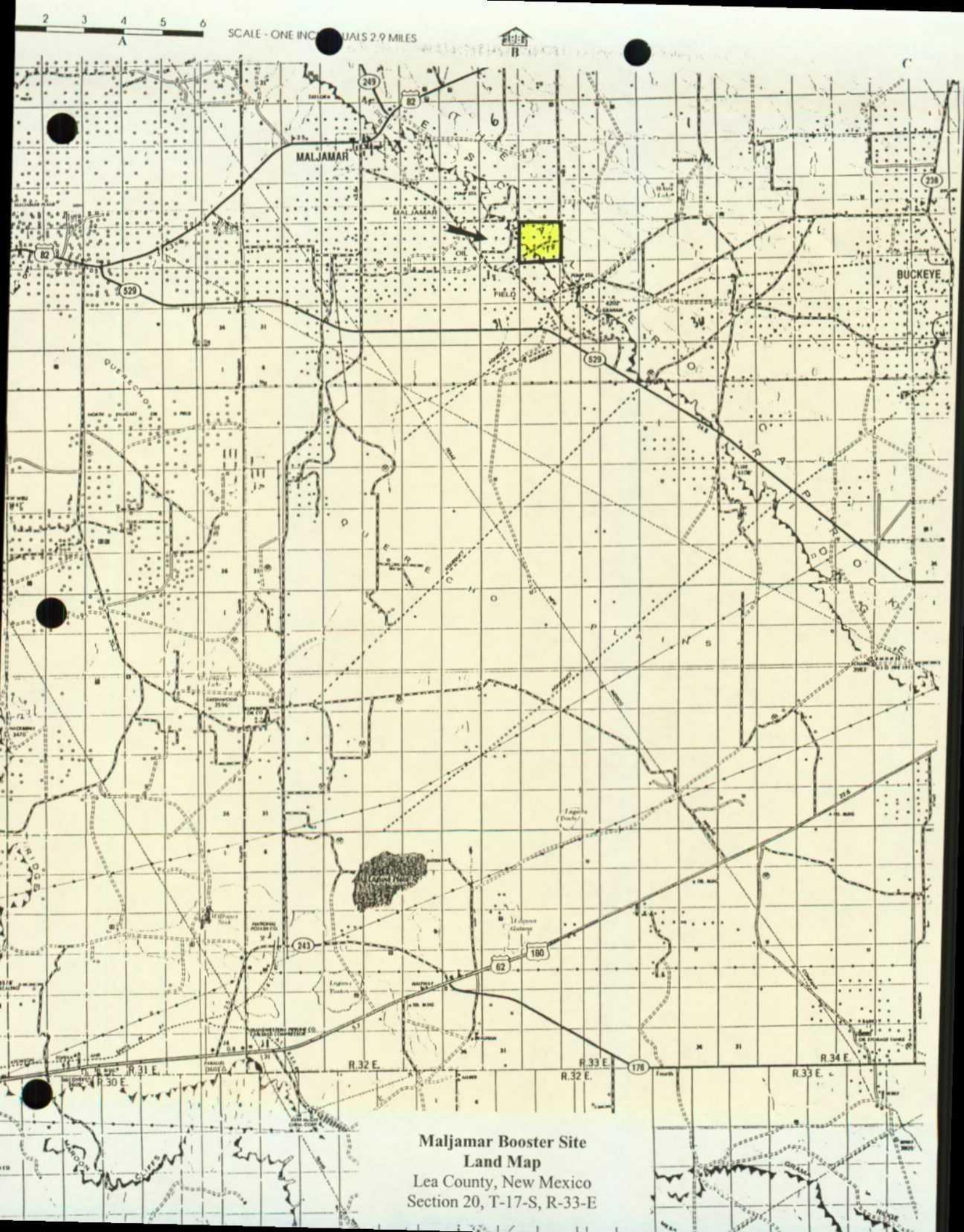
A. The spill has been completely delineated both horizontally and vertically by the placement of the soil borings along the length and width of the spill. The vertical limit of the impacted soils is defined by the soil boring SB-1. The bottom sample analyzed from this boring documented DRO at non-detect or less than 50 mg/kg, GRO at non-detect or less than 5 mg/kg and BTEX at non-detect or less than 0.05 mg/kg. The horizontal limit of the spill has been defined by SB-2, SB-3, SB-4 and SB-5, which documented that all constituents of concern were non-detect.

B. The impacted soils are limited to the near surface sands and limestones that are localized within the top two (2) feet of the surface and in the immediate vicinity of the former tank.

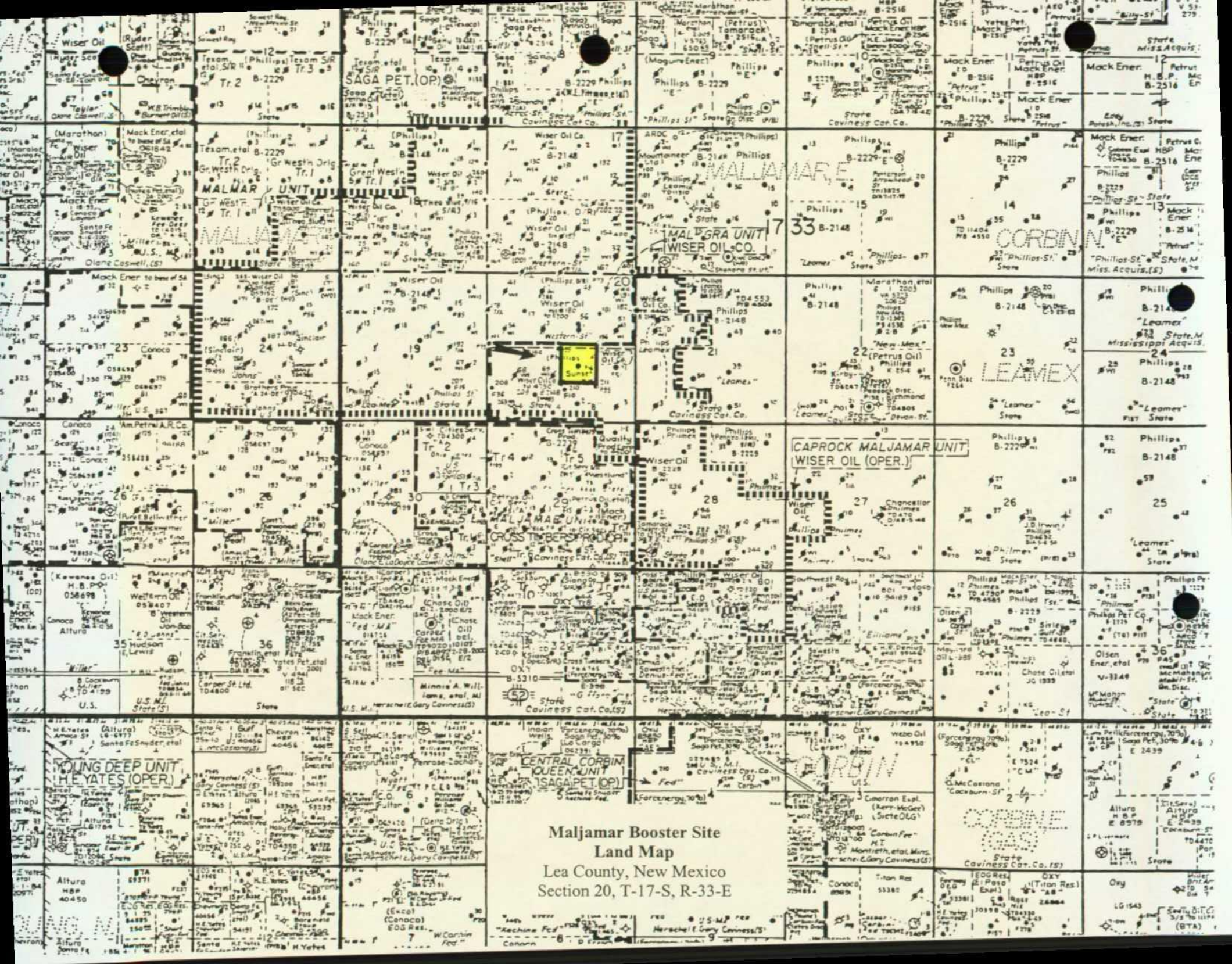
C. As evidenced by the results of the site investigation, no ongoing or long-term leaks have occurred at the slop oil tanks.

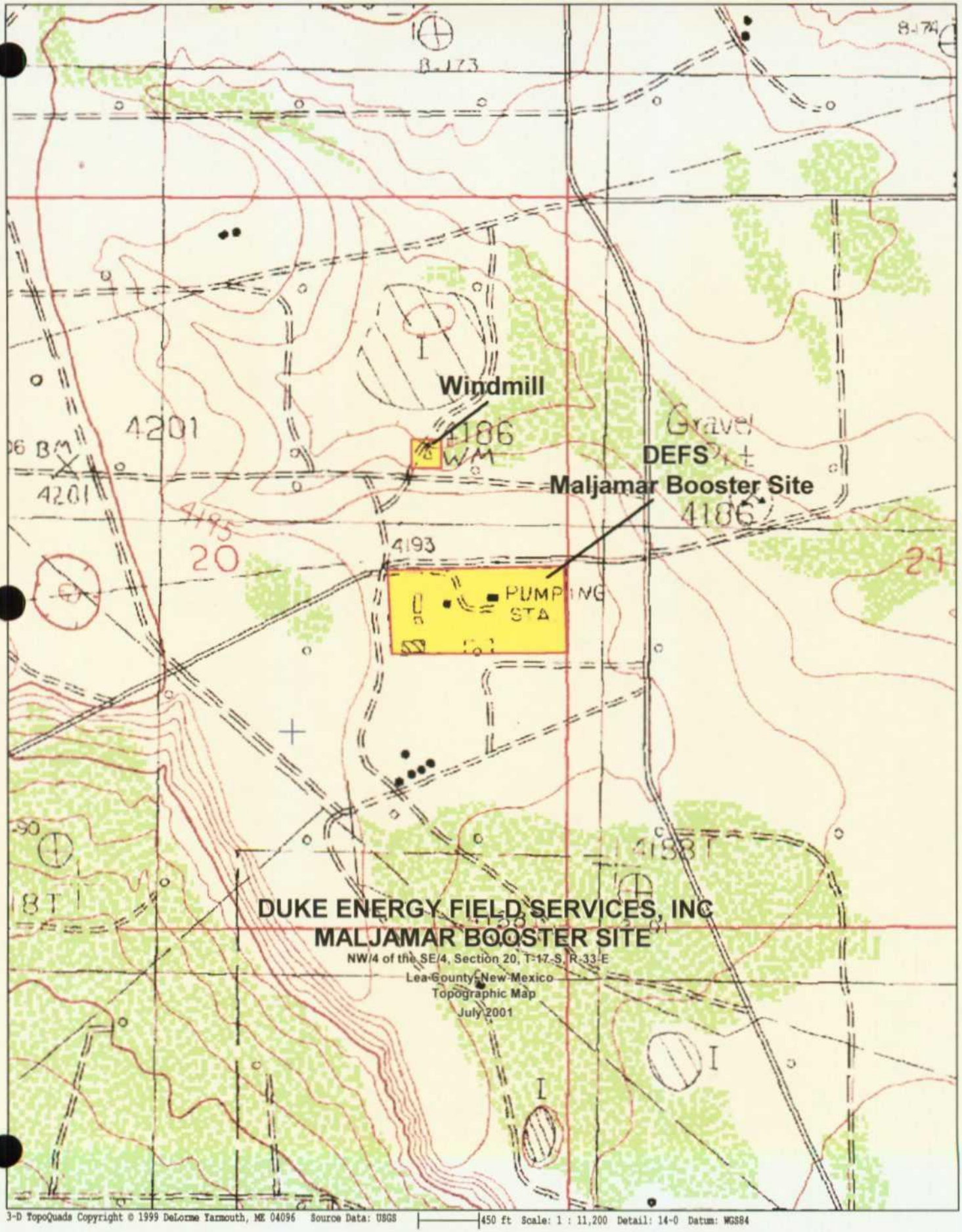
D. For those soils that were identified on the original site inspection that were obviously impacted by free product, a sampling event would normally have been conducted at the time the soil borings were placed; however, after the initial site visit on March 8, 2001 and prior to the time the borings were drilled on June 5, 2001, a new slop oil tank was inadvertently placed over portions of the area that was originally determined to be impacted. Surface sampling at the original location cannot be achieved at this time due to the placement of the new tank equipment and a new poly lined berm. It is the opinion of REGS that the surface was only impacted to a limited depth of less than five (5) feet and a limited area less than ten (10) feet in diameter. The originally impacted soils are now located beneath the new tank and the lined berm. This will prevent the downward percolation of the contaminants by rainwater and allow the process of natural attenuation and biodegradation to occur over a period of time. We do not feel that it is of sufficient benefit to the local environment to warrant the removal of the new tank for additional sampling and possible remediation of a very limited amount of soil. At this time, no soils have been documented at the sites that exceed the current guidelines for remediation. The boring SB-1 was located as close to one of the original tanks as physically possible. SB-1 was located within two (2) feet of the middle tank. SB –4 was located as close as possible (within five (5) feet) of the northern edge of the northernmost tank site. However, due to the placement of the new tank directly over the northernmost of the old tanks, it was impossible to drill in the exact location northernmost of the old tanks. Also, at the time we returned to the site to perform the site investigation, new buried piping had been placed to the south of the new tank. This piping connected the tank to the booster site for collection of the slop oil and transfer of the oil off the site (see Site Map Figure 1 in the appendix of this report). This also hindered the placement of the vertical clearance boring SB-1. Nevertheless, we feel that SB-1 was located in close enough proximity to the spill site to fully evaluate the potential impact and the vertical limits of the impact to the soil.

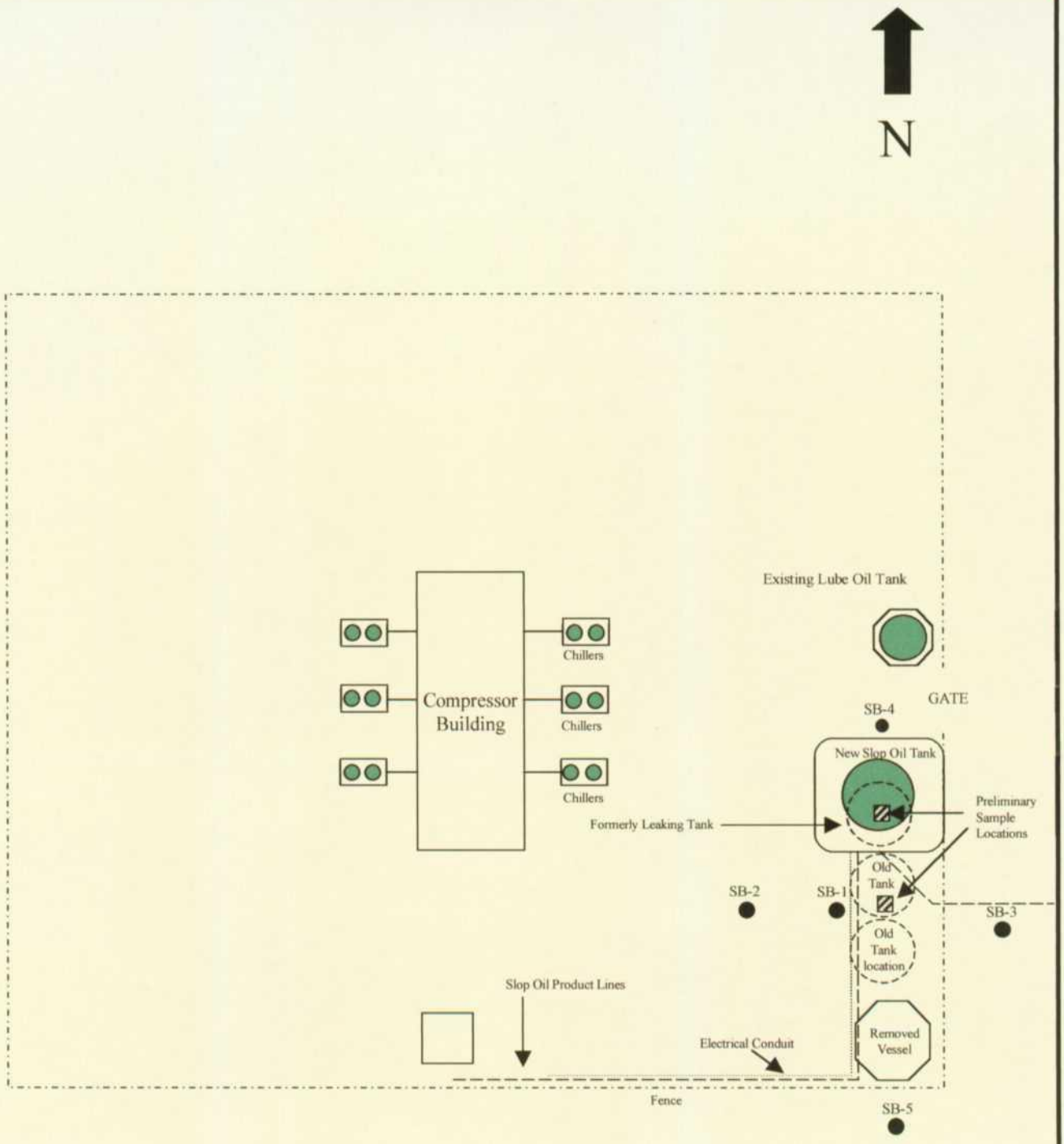
The current soil boring program has defined the limits of the impact and has conclusively documented that there is no groundwater impact or any soil impacts below ten (10) feet from the surface that are in excess of current guidelines. Therefore, we respectfully request that this site be allowed to be closed without further investigation.




**Maljamar Booster Site**
**Land Map**
Lea County, New Mexico
Section 20, T-17-S, R-33-E


MALJAMAR UNIT
MALJAMAR E.
CAPROCK MALJAMAR UNIT
WISER OIL (OPER.)
CORBIN
LEAMEX
SAGA PET. (OP)
CENTRAL CORBIN QUEEN UNIT
YOUNG DEEP UNIT
H.E. YATES (OPER.)
Maljamar Booster Site
Land Map
Lea County, New Mexico
Section 20, T-17-S, R-33-E


Windmill
DEFS
Maljamar Booster Site
DUKE ENERGY FIELD SERVICES, INC
MALJAMAR BOOSTER SITE
NW/4 of the SE/4, Section 20, T-17-S, R-33-E
Lea County, New Mexico
Topographic Map
July 2001
PUMPING STA
4201
4186
4193
20
21
Gravel
3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS
450 ft Scale: 1 : 11,200 Detail: 14-0 Datum: WGS84




## Ritter Environmental

Duke Energy Field Services, Inc.

Maljamar Booster Site

NW/4 of SE/4 Sec 20 T-17-S R-33-E

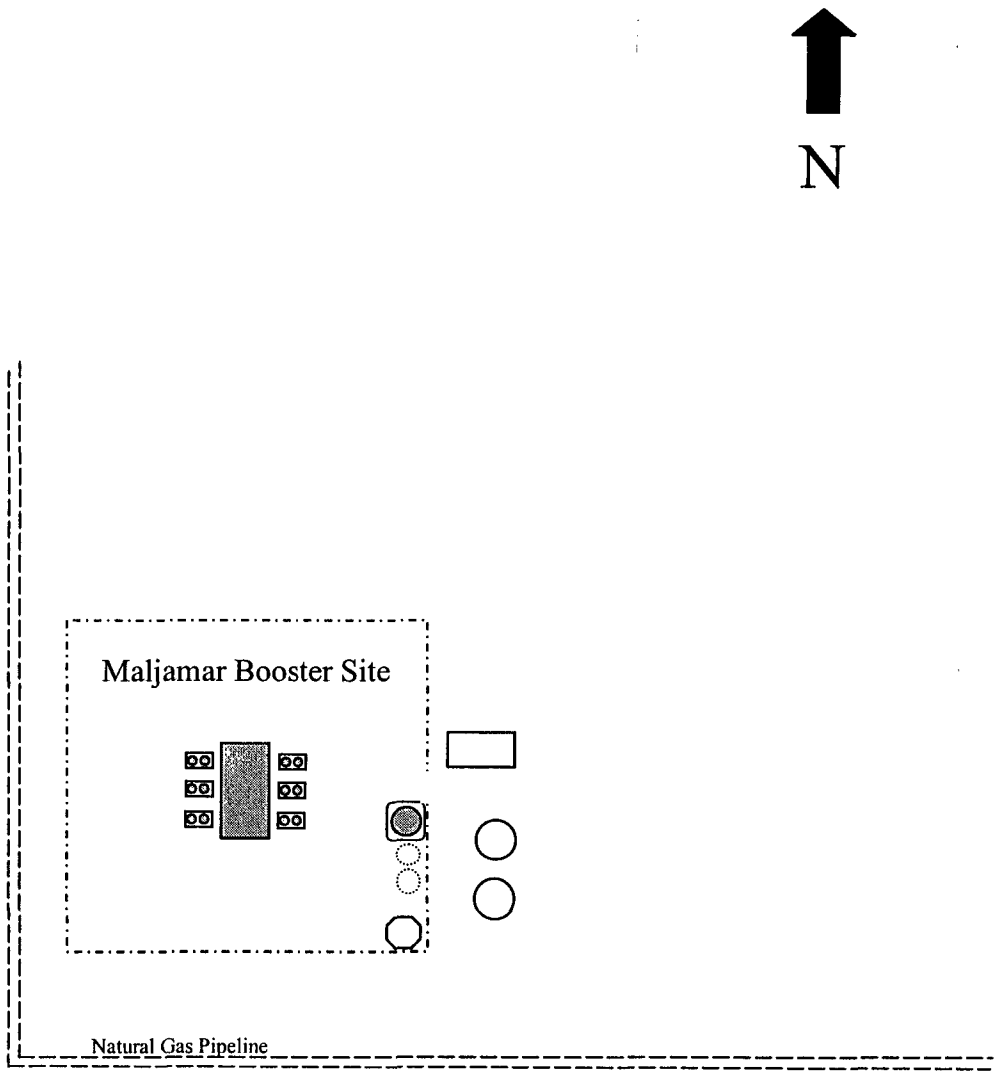
Lea County, New Mexico

**Site Map**

**Figure 1**

Scale 1"= 75'

7-19-01




**Ritter Environmental**

Duke Energy Field Services, Inc.

Maljamar Booster Site

NW/4 of SE/4 Sec 20 T-17-S R-33-E

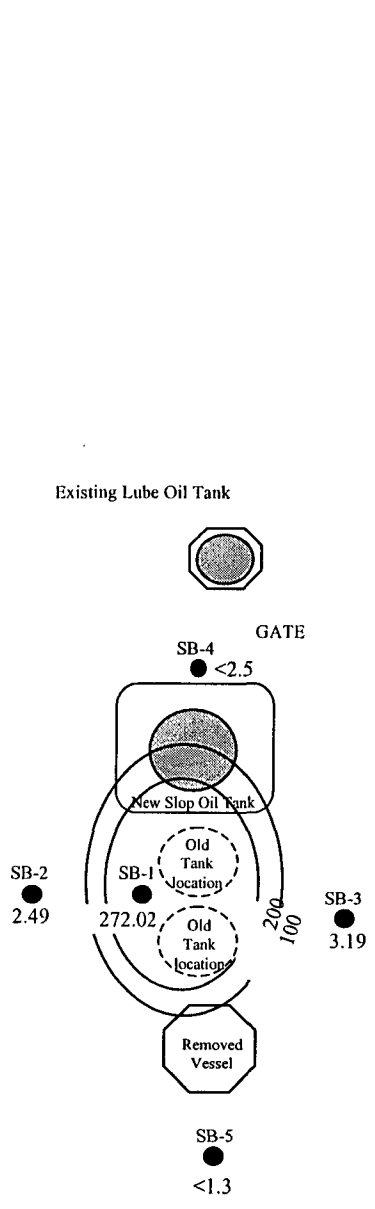
Lea County, New Mexico

**Area Map**

**Figure 2**

Scale 1" = 200 feet

7-19-01




**Ritter Environmental**

Duke Energy Field Services, Inc.
Maljamar Booster Site
NW/4 of SE/4 Sec 20 T-17-S R-33-E
Lea County, New Mexico

Total TPH Map GRO+DRO in Mg/kg
Figure 3

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES, INC.
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# DRILLING LOG

| HOLE / WELL NO.: | PROJECT: | DATE: | GEOLOGIST: |
|---|---|---|---|
| SB-1 | DEFS/ MALJAMAR BOOSTER | 6/5/01 | MRR/DF |
| **DRILL METHOD:** | **AUGER SIZE:** | **DRILLING COMPANY:** | |
| AIR ROTARY | 4" | HARRISON & COOPER | |

| DEPTH FROM | DEPTH TO | SOIL DESCRIPTION | SAMPLE NUMBER | SAMPLE INTERVAL | ODOR | SAMPLE TYPE | SOIL SYMBOL | HNU | LAB ANALYZED | STAIN | TIME |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 5 | Tan off white caliche limestone | 1-1 | 5-6.5 | Y | G | | 42 | | N | 9:05 |
| 5 | 10 | Brown soft tan, very fine grained SS, loose unconsolidated some limestone stringers, tan/dense | 1-2 | 10-11.5 | Y | G | SM | 46 | Y | N | 9:10 |
| 10 | 15 | Light brown, tan loose sand | 1-3 | 15-16.5 | SL | G | SW | 10 | | N | 9:13 |
| 15 | 20 | Light brown, tan loose sand | 1-4 | 20-21.5 | Y | SS | SW | 16 | | N | 9:15 |
| 20 | 25 | Light brown, tan loose sand | 1-5 | 25-26.5 | Y | SS | SW | 2.7 | | N | 9:23 |
| 25 | 30 | Light brown, tan loose sand | 1-6 | 30-31.5 | Y | SS | SW | 6 | | N | 9:26 |
| 30 | 35 | Light brown, tan loose sand | 1-7 | 35-36.5 | SL | SS | SW | 3 | | N | 9:32 |
| 35 | 40 | Off white limestone, light brown tan sand | 1-8 | 40-41.5 | Y | SS | SW | 32 | Y | N | 9:40 |
| 40 | 45 | Brown reddish very fine grained sand | 1-9 | 45-46.5 | Y | SS | SW | 6 | Y | N | 9:54 |
| 45 | 50 | Red, very fine grained loose sand | 1-10 | 50-51.5 | SL | SS | SW | 2 | | N | 10:06 |
| 50 | 55 | Red, very fine grained loose sand, trace white limestone | 1-11 | 55-56.5 | VSL | SS | SW | 1 | | N | 10:18 |
| 55 | 60 | Red, very fine grained, loose sand, trace brown chert, trace white limestone | 1-12 | 60-61.5 | VSL | SS | SW | 4 | | N | 10:38 |
| 60 | 65 | Red very fine grained, loose sand, trace brown chert trace white limestone | 1-13 | 65-66.5 | VSL | G | SW | 1 | | N | 10:40 |

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# DRILLING LOG

| HOLE / WELL NO.: | PROJECT: | DATE: | GEOLOGIST: |
|---|---|---|---|
| SB-1 | DEFS/ MALJAMAR BOOSTER | 6/5/01 | MRR/DF |
| **DRILL METHOD:** | **AUGER SIZE:** | **DRILLING COMPANY:** | |
| AIR ROTARY | 4" | HARRISON & COOPER | |

| DEPTH FROM | DEPTH TO | SOIL DESCRIPTION | SAMPLE NUMBER | SAMPLE INTERVAL | ODOR | SAMPLE TYPE | SOIL SYMBOL | HNU | LAB ANALYZED | STAIN | TIME |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 65 | 70 | Reddish brown very fine grained sand, trace brown chert, trace white limestone | 1-14 | 70-71.5 | N | SS | SW | 0.2 | | N | 10:52 |
| 70 | 75 | Reddish brown very fine grained loose sand, trace brown chert | 1-15 | 75-76.5 | N | SS | SW | 0 | | N | 11:08 |
| 75 | 80 | Reddish brown very fine grained loose sand, trace gypsum, slightly wet | 1-16 | 80-81.5 | N | SS | SW | 0 | | N | 11:20 |
| 80 | 90 | Slightly reddish brown very fine grained loose sand, trace gypsum | 1-17 | 90-91.5 | N | SS | SW | 0 | Y | N | 11:50 |
| 90 | 100 | No sample/ Caving In | 1-18 | 100-101.5 | | | | | | | |
| 100 | 120 | No sample/ Caving In | 1-19 | | | | | | | | |
| | | Decided to set Temp $H_2O$ monitor well at TD if possible | | | | | | | | | |
| | | Set TMW well @ 105 | | | | | | | | | |
| | | 105-55=.010 slot screen | | | | | | | | | |
| | | 55-0= Blank to surface | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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# DRILLING LOG

| HOLE / WELL NO.: | PROJECT: | DATE: | GEOLOGIST: |
|---|---|---|---|
| SB-2 | DEFS/ MALJAMAR BOOSTER | 6/5/01 | MRR/DF |
| **DRILL METHOD:** | **AUGER SIZE:** | **DRILLING COMPANY:** | |
| AIR ROTARY | 4" | HARRISON & COOPER | |

| DEPTH FROM | DEPTH TO | SOIL DESCRIPTION | SAMPLE NUMBER | SAMPLE INTERVAL | ODOR | SAMPLE TYPE | SOIL SYMBOL | HNU | LAB ANALYZED | STAIN | TIME |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 5 | Off white to cream limestone, caliche | SB2-1 | 5-6.5 | N | G | ML | 0 | | | 14:08 |
| 5 | 10 | Off white to cream limestone, very fine red loose sand | SB2-2 | 10-11.5 | N | G | SC | 0 | | | 14:09 |
| 10 | 15 | Brown very fine grained loose sand, trace white limestone | SB2-3 | 15-16.5 | N | SS | SM | 0 | | | 14:15 |
| 15 | 20 | Brown very fine grained loose sand | SB2-4 | 20-21.5 | N | SS | SP | 0 | | | 14:20 |
| 20 | 25 | Brown very fine grained loose sand | SB2-5 | 25-26.5 | N | SS | SP | 0.1 | | | 14:29 |
| 25 | 30 | Slightly reddish, brown very fine grained loose sand | SB2-6 | 30-31.5 | N | SS | SP | 0.4 | Y | | 14:38 |
| 30 | 35 | Slightly reddish, brown very fine grained loose sand | SB2-7 | 35-36.5 | N | SS | SP | 0.2 | | | 14:48 |
| 35 | 40 | Slightly reddish, brown very fine grained loose sand | SB2-8 | 40-41.5 | N | SS | SP | 0.2 | | | 14:57 |
| 40 | 45 | Slightly reddish, brown very fine grained loose sand | SB2-9 | 45-46.5 | N | SS | SP | 0 | | | 15:10 |
| 45 | 50 | Brown very fine grained loose sand | SB2-10 | 50-51.5 | N | SS | SP | 0 | Y | | 15:37 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
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RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES, INC.
2900 N. Big Spring, Midland, Texas 79705
Bus: (915) 682-7404 • (915) 570-REGS • Metro: (915) 570-6007 • Fax: (915) 682-7440

# DRILLING LOG

| HOLE / WELL NO.: | PROJECT: | DATE: | GEOLOGIST: |
|---|---|---|---|
| SB-3 | DEFS/ MALJAMAR BOOSTER | 6/6/01 | MRR/DF |
| **DRILL METHOD:** | **AUGER SIZE:** | **DRILLING COMPANY:** | |
| AIR ROTARY | 4" | HARRISON & COOPER | |

| DEPTH FROM | DEPTH TO | SOIL DESCRIPTION | SAMPLE NUMBER | SAMPLE INTERVAL | ODOR | SAMPLE TYPE | SOIL SYMBOL | HNU | LAB ANALYZED | STAIN | TIME |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 5 | Brown, fine grained loose sand, white limestone, caliche | SB3-1 | 5-6.5 | N | G | ML | 0.1 | | N | 7:13 |
| 5 | 10 | White caliche | SB3-2 | 10-11.5 | N | SS | ML | 0.3 | Y | N | 7:15 |
| 10 | 15 | Caliche, brown very fine grained loose sand | SB3-3 | 15-16.5 | N | SS | SM | 0 | | N | 7:20 |
| 15 | 20 | Caliche, brown very fine grained loose sand | SB3-4 | 20-21.5 | N | SS | SP | 0.1 | | N | 7:24 |
| 20 | 25 | Brown, very fine grained loose sand | SB3-5 | 25-26.5 | N | SS | SP | 0.3 | | N | 7:33 |
| 25 | 30 | Brown, very fine grained loose sand | SB3-6 | 30-31.5 | N | SS | SP | 0.2 | | N | 7:45 |
| 30 | 35 | Brown, very fine grained loose sand | SB3-7 | 35-36.5 | N | SS | SP | 0.5 | | N | 7:51 |
| 35 | 40 | Brown, very fine grained loose sand | SB3-8 | 40-41.5 | N | G | SP | 0.7 | Y | N | 8:02 |
| 40 | 45 | Light brown very fine grained loose sand | SB3-9 | 45-46.5 | N | G | SP | 0.7 | | N | 8:15 |
| 45 | 50 | Brown very fine grained loose sand | SB3-10 | 50-51.5 | N | G | SP | 0.7 | Y | N | 8:29 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
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RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES, INC.
2900 N. Big Spring, Midland, Texas 79705
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# DRILLING LOG

| HOLE / WELL NO.: | PROJECT: | DATE: | GEOLOGIST: |
|---|---|---|---|
| SB-4 | DEFS/ MALJAMAR BOOSTER | 6/6/01 | MRR/DF |
| **DRILL METHOD:** | **AUGER SIZE:** | **DRILLING COMPANY:** | |
| AIR ROTARY | 4" | HARRISON & COOPER | |

| DEPTH FROM | DEPTH TO | SOIL DESCRIPTION | SAMPLE NUMBER | SAMPLE INTERVAL | ODOR | SAMPLE TYPE | SOIL SYMBOL | HNU | LAB ANALYZED | STAIN | TIME |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 5 | Brown, fine grained loose sand, caliche | SB4-1 | 5-6.5 | N | G | ML | 1. | Y | N | 9:04 |
| 5 | 10 | Brown, fine grained loose sand, caliche | SB4-2 | 10-11.5 | N | G | ML | 0.4 | | N | 9:15 |
| 10 | 15 | Caliche, brown fine grained loose sand | SB4-3 | 15-16.5 | N | G | ML | 0.6 | | N | 9:20 |
| 15 | 20 | Brown, very fine grained loose sand | SB4-4 | 20-21.5 | N | SS | SP | 0.6 | | N | 9:25 |
| 20 | 25 | Brown, very fine grained loose sand | SB4-5 | 25-26.5 | N | SS | SP | 0.2 | | N | 9:30 |
| 25 | 30 | Light brown very fine grained loose sand | SB4-6 | 30-31.5 | N | G | SP | 0.2 | | N | 9:40 |
| 30 | 35 | Brown, very fine grained loose sand | SB4-7 | 35-36.5 | N | G | SP | 0.2 | | N | 9:48 |
| 35 | 40 | Brown, very fine grained loose sand | SB4-8 | 40-41.5 | N | G | SP | 0.1 | | N | 9:56 |
| 40 | 45 | Brown, very fine grained loose sand | SB4-9 | 45-46.5 | N | G | SP | 0 | | N | 10:08 |
| 45 | 50 | Brown, very fine grained loose sand | SB4-10 | 50-51.5 | N | G | SP | 0 | Y | N | 10:22 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES, INC.
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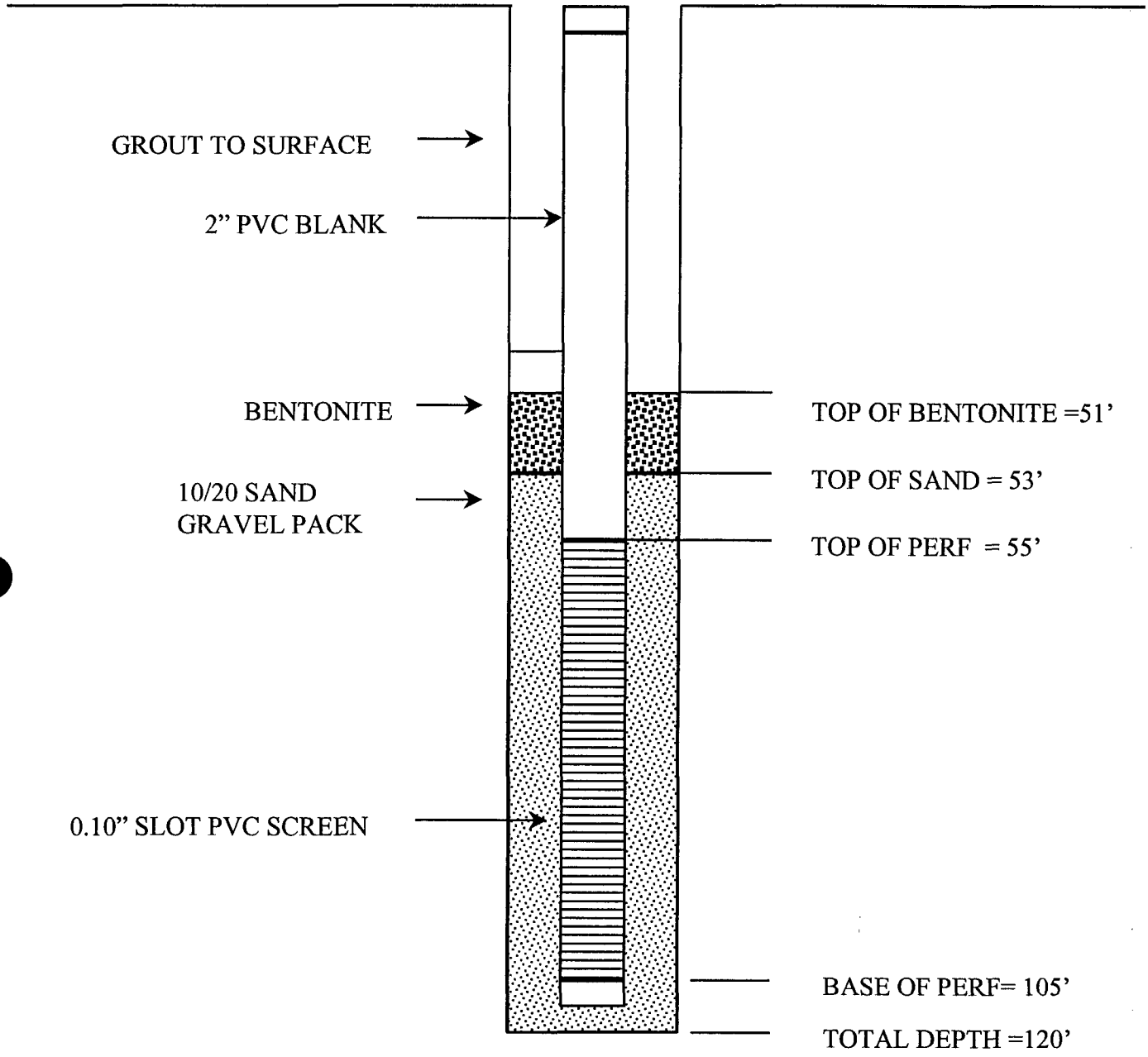
# DRILLING LOG

| HOLE / WELL NO.: | PROJECT: | DATE: | GEOLOGIST: |
|---|---|---|---|
| SB-5 | DEFS/ MALJAMAR BOOSTER | 6/6/01 | MRR/DF |
| **DRILL METHOD:** | **AUGER SIZE:** | **DRILLING COMPANY:** | |
| AIR ROTARY | 4" | HARRISON & COOPER | |

| DEPTH FROM | DEPTH TO | SOIL DESCRIPTION | SAMPLE NUMBER | SAMPLE INTERVAL | ODOR | SAMPLE TYPE | SOIL SYMBOL | HNU | LAB ANALYZED | STAIN | TIME |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 5 | Brown, very fine grained loose sand, caliche | SB5-1 | 5-6.5 | N | G | ML | 0 | | N | 10:40 |
| 5 | 10 | Caliche | SB5-2 | 10-11.5 | N | G | ML | 0 | | N | 10:45 |
| 10 | 15 | Brown, very fine grained loose sand | SB5-3 | 15-16.5 | N | SS | SC | 0 | | N | 10:50 |
| 15 | 20 | Light brown very fine grained loose sand | SB5-4 | 20-21.5 | N | SS | SP | 0 | | N | 10:55 |
| 20 | 25 | Brown very fine grained loose sand | SB5-5 | 25-26.5 | N | SS | SP | 0 | | N | 11:00 |
| 25 | 30 | Brown very fine grained loose sand | SB5-6 | 30-31.5 | N | G | SP | 0 | | N | 11:09 |
| 30 | 35 | Brown very fine grained loose sand | SB5-7 | 35-36.5 | N | SS | SP | 0 | | N | 11:15 |
| 35 | 40 | Brown very fine grained loose sand | SB5-8 | 40-41.5 | N | SS | SP | 0 | | N | 11:22 |
| 40 | 45 | Brown very fine grained loose sand | SB5-9 | 45-46.5 | N | SS | SP | 0.6 | Y | N | 11:33 |
| 45 | 50 | Brown very fine grained loose sand | SB5-10 | 50-51.5 | N | SS | SP | 0 | Y | N | 11:45 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

MONITOR WELL #




CLIENT: DEFS
PROJECT: Maljamar Booster Site, Lea County, NM
LOCATION: Sec 20 T-17-S, R-33-E
WELL #:TMW-1

TOTAL DEPTH: 120
HOLE SIZE:
CASING: 4" PVC
SCREEN: 0.10" SLOT

**RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES, INC.**

# TAILGATE SAFETY MEETING

DIVISION/SUBSIDIARY Ritter Environmental FACILITY _____

DATE 6-5-01 TIME 8:30 AM/PM JOB # _____

CUSTOMER DEFS ADDRESS Midland

SPECIFIC LOCATION Malaimar Booster

TYPE OF WORK Driving

CHEMICALS USED _____

## SAFETY TOPICS PRESENTED

| | |
|---|---|
| **PROTECTIVE CLOTHING/EQUIPMENT:** ✓ | |
| | |
| **CHEMICAL HAZARDS:** ✓ | |
| | |
| **PHYSICAL HAZARDS:** ✓ | |
| | |
| **EMERGENCY PROCEDURES:** ✓ | |
| | |
| **HOSPITAL/CLINIC:** Hobbs | **PHONE:** **EMS:** |
| **HOSPITAL ADDRESS:** ✓ | |
| **SPECIAL EQUIPMENT:** ✓ | |
| **OTHER:** | |

## ATTENDEES

| PRINTED NAME: | SIGNATURE: |
|---|---|
| Sam Martinez | |
| Claiborne Harrison | |
| Leonard Herrera | |
| J.L. Flatt | |

**MEETING CONDUCTED BY:**

**SUPERVISOR:** _____ **MANAGER:** _____

# TAILGATE SAFETY MEETING

DIVISION/SUBSIDIARY REGS FACILITY DEFS/MALJAMAR

DATE 6/6/01 TIME 6:40 (AM)/PM JOB # _____

CUSTOMER DEFS ADDRESS _____

SPECIFIC LOCATION MALJAMAR Booster

TYPE OF WORK Drilling

CHEMICALS USED _____

## SAFETY TOPICS PRESENTED

| | |
|---|---|
| **PROTECTIVE CLOTHING/EQUIPMENT:** ✓ | Hard Hat, Safety Glasses, Hearing Protection, Steel Toe Boots |
| **CHEMICAL HAZARDS:** ✓ | VOC's |
| | |
| **PHYSICAL HAZARDS:** ✓ | Heat Stress - Sun - Snakes |
| | |
| **EMERGENCY PROCEDURES:** ✓ | |
| | |
| **HOSPITAL/CLINIC:** Hobbs | **PHONE:** **EMS:** |
| **HOSPITAL ADDRESS:** ✓ | |
| **SPECIAL EQUIPMENT:** ✓ | |
| **OTHER:** | |

## ATTENDEES

| PRINTED NAME: | SIGNATURE: |
|---|---|
| Leonard Henson | |
| Claiborne Harris | |
| Sam Martinez | |
| Dean Flores | |
| Mitch Ritter | |

**MEETING CONDUCTED BY:**

**SUPERVISOR:** M R Ritter **MANAGER:** _____

# DUKE ENERGY/MALJAMAR BOOSTER
## MARCH, 2001

Photo #1 Maljamar Booster

Photo #2 Maljamar Booster

**DUKE ENERGY/MALJAMAR BOOSTER**
**MARCH, 2001**

Photo #3 Maljamar Booster

Photo #4 Maljamar Booster

1-1 Maljamar Booster 3/8/01

1-2 Maljamar Booster 3/8/01

1-3 Maljamar Booster 3/8/01

1-4 Maljamar Booster 3/8/01

1-5 Maljamar Booster 3/8/01

1-1 Duke/Maljamar Booster SB-1 (TMW-1) 6/6/01

1-2 Duke/Maljamar Booster SB-1 (TMW-1) 6/6/01

1-3 Duke/Maljamar Booster SB-1 (TMW-1) 6/6/01

1-4 Duke/Maljamar Booster SB-1 (TMW-1) 6/6/01


1-5 Duke/Maljamar Booster 6/6/01


1-6 Duke/Maljamar Booster 6/6/01

1-7 Duke/Maljamar Booster SB-1 (TMW-1) 6/6/01

1-8 Duke/Maljamar Booster Tank Area 6/6/01

1-9 Duke/Maljamar Booster SB-3 6/6/01

1-10 Duke/Maljamar Booster SB-5 6/6/01

1-11 Duke/Maljamar Booster WB-4 6/6/01

1-12 Duke/Maljamar Booster SB-1 (TMW-1) 6/6/01

1-13 Duke/Maljamar Booster 6/6/01
SB-1 (TMW-1)

1-14 Duke/Maljamar Booster 6/6/01
SB-1 (TMW-1)

1-15 Duke/Maljamar Booster 6/6/01
SB-1 (TMW-1)

2-1 Duke/Maljamar Booster 6/6/01

2-2 Duke/Maljamar Booster 6/6/01
SB-3

2-3 Duke/Maljamar Booster 6/6/01

2-4 Duke/Maljamar Booster 6/6/01
SB-4

2-5 Duke/Maljamar Booster 6/6/01
SB-5

2-6 Duke/Maljamar Booster 6/6/01

2-7 Duke/Maljamar Booster 6/6/01
SB-1 (TMW-1)

2-8 Duke/Maljamar Booster 6/6/01
SB-3

2-9 Duke/Maljamar Booster 6/6/01
SB-5

# Summary Report

Mitch Ritter
Ritter Environmental
2900 N. Big Spring
Midland, TX 79705

Report Date: June 12, 2001

Order ID Number: A01060713

Project Number: Duke/Maljamar Booster
Project Name: N/A
Project Location: N/A

| Sample | Description | Matrix | Date Taken | Time Taken | Date Received |
|---|---|---|---|---|---|
| 172752 | SB1-2 060501-10 | Soil | 6/5/01 | 9:10 | 6/7/01 |
| 172753 | SB1-8 060501-40 | Soil | 6/4/01 | 9:40 | 6/7/01 |
| 172754 | SB1-10 060501-50 | Soil | 6/5/01 | 10:06 | 6/7/01 |
| 172755 | SB1-17 060501-90 | Soil | 6/5/01 | 10:50 | 6/7/01 |
| 172756 | SB2-6 060501-30 | Soil | 6/5/01 | 14:38 | 6/7/01 |
| 172757 | SB2-10 060501-50 | Soil | 6/5/01 | 15:37 | 6/7/01 |
| 172758 | SB3-2 060601-10 | Soil | 6/6/01 | 7:15 | 6/7/01 |
| 172759 | SB3-8 060601-40 | Soil | 6/6/01 | 8:02 | 6/7/01 |
| 172760 | SB3-10 060601-50 | Soil | 6/6/01 | 8:29 | 6/7/01 |
| 172761 | SB4-1 060601-5 | Soil | 6/6/01 | 9:04 | 6/7/01 |
| 172762 | SB4-10 060601-50 | Soil | 6/6/01 | 10:22 | 6/7/01 |
| 172763 | SB5-9 060601-45 | Soil | 6/6/01 | 11:33 | 6/7/01 |
| 172764 | SB5-10 060601-50 | Soil | 6/6/01 | 11:45 | 6/7/01 |

This report consists of a total of 1 page(s) and is intended only as a summary of results for the sample(s) listed above.

| | BTEX | | | | | TPH DRO | TPH GRO |
|---|---|---|---|---|---|---|---|
| | Benzene | Toluene | Ethylbenzene | M,P,O-Xylene | Total BTEX | DRO | GRO |
| Sample - Field Code | (mg/Kg) | (mg/Kg) | (mg/Kg) | (mg/Kg) | (mg/Kg) | (mg/Kg) | (mg/Kg) |
| 172752 - SB1-2 060501-10 | 0.121 | 0.342 | 0.343 | 1.03 | 1.84 | 260 | 12.02 |
| 172753 - SB1-8 060501-40 | <0.025 | <0.025 | <0.025 | <0.025 | < 0.025 | 112 | 14.9 |
| 172754 - SB1-10 060501-50 | <0.013 | <0.013 | <0.013 | <0.013 | < 0.013 | 51 | 4.98 |
| 172755 - SB1-17 060501-90 | <0.013 | <0.013 | <0.013 | <0.013 | < 0.013 | <50 | 2.21 |
| 172756 - SB2-6 060501-30 | <0.013 | <0.013 | <0.013 | <0.013 | < 0.013 | <50 | 2.49 |
| 172757 - SB2-10 060501-50 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 | <50 | 2.13 |
| 172758 - SB3-2 060601-10 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 | <50 | 3.19 |
| 172759 - SB3-8 060601-40 | <0.025 | <0.025 | <0.025 | <0.025 | <0.025 | <50 | < 2.5 |
| 172760 - SB3-10 060601-50 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 | <50 | 2.4 |
| 172761 - SB4-1 060601-5 | <0.025 | <0.025 | <0.025 | <0.025 | < 0.025 | <50 | < 2.5 |
| 172762 - SB4-10 060601-50 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 | <50 | < 1.3 |
| 172763 - SB5-9 060601-45 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 | <50 | < 1.3 |
| 172764 - SB5-10 060601-50 | <0.013 | <0.013 | <0.013 | <0.013 | < 0.013 | <50 | <1.3 |

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

# Analytical and Quality Control Report

Mitch Ritter
Ritter Environmental
2900 N. Big Spring
Midland, TX 79705

Report Date: June 12, 2001

Order ID Number: A01060713

Project Number: Duke/Maljamar Booster
Project Name: N/A
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

| Sample | Description | Matrix | Date Taken | Time Taken | Date Received |
|---|---|---|---|---|---|
| 172752 | SB1-2 060501-10 | Soil | 6/5/01 | 9:10 | 6/7/01 |
| 172753 | SB1-8 060501-40 | Soil | 6/4/01 | 9:40 | 6/7/01 |
| 172754 | SB1-10 060501-50 | Soil | 6/5/01 | 10:06 | 6/7/01 |
| 172755 | SB1-17 060501-90 | Soil | 6/5/01 | 10:50 | 6/7/01 |
| 172756 | SB2-6 060501-30 | Soil | 6/5/01 | 14:38 | 6/7/01 |
| 172757 | SB2-10 060501-50 | Soil | 6/5/01 | 15:37 | 6/7/01 |
| 172758 | SB3-2 060601-10 | Soil | 6/6/01 | 7:15 | 6/7/01 |
| 172759 | SB3-8 060601-40 | Soil | 6/6/01 | 8:02 | 6/7/01 |
| 172760 | SB3-10 060601-50 | Soil | 6/6/01 | 8:29 | 6/7/01 |
| 172761 | SB4-1 060601-5 | Soil | 6/6/01 | 9:04 | 6/7/01 |
| 172762 | SB4-10 060601-50 | Soil | 6/6/01 | 10:22 | 6/7/01 |
| 172763 | SB5-9 060601-45 | Soil | 6/6/01 | 11:33 | 6/7/01 |
| 172764 | SB5-10 060601-50 | Soil | 6/6/01 | 11:45 | 6/7/01 |

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.



Dr. Blair Leftwich, Director

# Analytical Report

## Sample: 172752 - SB1-2 060501-10

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | BTEX | Analytical Method: | S 8021B | QC Batch: | QC11805 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | E 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| Benzene | | 0.121 | mg/Kg | 25 | 0.001 |
| Toluene | | 0.342 | mg/Kg | 25 | 0.001 |
| Ethylbenzene | | 0.343 | mg/Kg | 25 | 0.001 |
| M,P,O-Xylene | | 1.03 | mg/Kg | 25 | 0.001 |
| Total BTEX | | 1.84 | mg/Kg | 25 | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | [1] | 1.04 | mg/Kg | 25 | 0.10 | 41 | 72 - 128 |
| 4-BFB | [2] | 1.21 | mg/Kg | 25 | 0.10 | 48 | 72 - 128 |

## Sample: 172752 - SB1-2 060501-10

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH DRO | Analytical Method: | Mod. 8015B | QC Batch: | QC11786 | Date Analyzed: | 6/7/01 |
| Analyst: | JJ | Preparation Method: | 3550 B | Prep Batch: | PB10079 | Date Prepared: | 6/7/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| DRO | | 260 | mg/Kg | 1 | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | 218 | mg/Kg | 1 | 250 | 87 | 70 - 130 |

## Sample: 172752 - SB1-2 060501-10

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH GRO | Analytical Method: | 8015B | QC Batch: | QC11806 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| GRO | | 12.02 | mg/Kg | 25 | 0.10 |

## Sample: 172753 - SB1-8 060501-40

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | BTEX | Analytical Method: | S 8021B | QC Batch: | QC11805 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | E 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| Benzene | | <0.025 | mg/Kg | 25 | 0.001 |
| Toluene | | <0.025 | mg/Kg | 25 | 0.001 |
| Ethylbenzene | | <0.025 | mg/Kg | 25 | 0.001 |

*Continued ...*

[1]Surrogate recovery outside normal limits due to matrix difficulties.
[2]Surrogate recovery outside normal limits due to matrix difficulties.

*... Continued* Sample: 172753 Analysis: BTEX

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| M,P,O-Xylene | | <0.025 | mg/Kg | 25 | 0.001 |
| Total BTEX | | < 0.025 | mg/Kg | 25 | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | [3] | 1.34 | mg/Kg | 25 | 0.10 | 53 | 72 - 128 |
| 4-BFB | [4] | 0.373 | mg/Kg | 25 | 0.10 | 14 | 72 - 128 |

## Sample: 172753 - SB1-8 060501-40

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH DRO | Analytical Method: | Mod. 8015B | QC Batch: | QC11786 | Date Analyzed: | 6/7/01 |
| Analyst: | JJ | Preparation Method: | 3550 B | Prep Batch: | PB10079 | Date Prepared: | 6/7/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| DRO | | 112 | mg/Kg | 1 | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | 215 | mg/Kg | 1 | 250 | 86 | 70 - 130 |

## Sample: 172753 - SB1-8 060501-40

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH GRO | Analytical Method: | 8015B | QC Batch: | QC11806 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| GRO | | 14.9 | mg/Kg | 25 | 0.10 |

## Sample: 172754 - SB1-10 060501-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | BTEX | Analytical Method: | S 8021B | QC Batch: | QC11805 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | E 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| Benzene | | <0.013 | mg/Kg | 13 | 0.001 |
| Toluene | | <0.013 | mg/Kg | 13 | 0.001 |
| Ethylbenzene | | <0.013 | mg/Kg | 13 | 0.001 |
| M,P,O-Xylene | | <0.013 | mg/Kg | 13 | 0.001 |
| Total BTEX | | < 0.013 | mg/Kg | 13 | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | [5] | 0.561 | mg/Kg | 13 | 0.10 | 43 | 72 - 128 |
| 4-BFB | [6] | 0.173 | mg/Kg | 13 | 0.10 | 13 | 72 - 128 |

[3]Surrogate recovery outside normal limits due to matrix difficulties.
[4]Surrogate recovery outside normal limits due to matrix difficulties.
[5]Surrogate recovery outside normal limits due to matrix difficulties.
[6]Surrogate recovery outside normal limits due to matrix difficulties.

## Sample: 172754 - SB1-10 060501-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH DRO | Analytical Method: | Mod. 8015B | QC Batch: | QC11786 | Date Analyzed: | 6/7/01 |
| Analyst: | JJ | Preparation Method: | 3550 B | Prep Batch: | PB10079 | Date Prepared: | 6/7/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| DRO | | 51 | mg/Kg | 1 | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | 220 | mg/Kg | 1 | 250 | 88 | 70 - 130 |

## Sample: 172754 - SB1-10 060501-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH GRO | Analytical Method: | 8015B | QC Batch: | QC11806 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| GRO | | 4.98 | mg/Kg | 13 | 0.10 |

## Sample: 172755 - SB1-17 060501-90

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | BTEX | Analytical Method: | S 8021B | QC Batch: | QC11805 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | E 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| Benzene | | <0.013 | mg/Kg | 13 | 0.001 |
| Toluene | | <0.013 | mg/Kg | 13 | 0.001 |
| Ethylbenzene | | <0.013 | mg/Kg | 13 | 0.001 |
| M,P,O-Xylene | | <0.013 | mg/Kg | 13 | 0.001 |
| Total BTEX | | < 0.013 | mg/Kg | 13 | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | [7] | 0.672 | mg/Kg | 13 | 0.10 | 51 | 72 - 128 |
| 4-BFB | [8] | 0.834 | mg/Kg | 13 | 0.10 | 64 | 72 - 128 |

## Sample: 172755 - SB1-17 060501-90

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH DRO | Analytical Method: | Mod. 8015B | QC Batch: | QC11786 | Date Analyzed: | 6/7/01 |
| Analyst: | JJ | Preparation Method: | 3550 B | Prep Batch: | PB10079 | Date Prepared: | 6/7/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| DRO | | <50 | mg/Kg | 1 | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | 221 | mg/Kg | 1 | 250 | 88 | 70 - 130 |

[7]Surrogate recovery outside normal limits due to matrix difficulties.
[8]Surrogate recovery outside normal limits due to matrix difficulties.

## Sample: 172755 - SB1-17 060501-90

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH GRO | Analytical Method: | 8015B | QC Batch: | QC11806 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| GRO | | 2.21 | mg/Kg | 13 | 0.10 |

## Sample: 172756 - SB2-6 060501-30

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | BTEX | Analytical Method: | S 8021B | QC Batch: | QC11805 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | E 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| Benzene | | <0.013 | mg/Kg | 13 | 0.001 |
| Toluene | | <0.013 | mg/Kg | 13 | 0.001 |
| Ethylbenzene | | <0.013 | mg/Kg | 13 | 0.001 |
| M,P,O-Xylene | | <0.013 | mg/Kg | 13 | 0.001 |
| Total BTEX | | < 0.013 | mg/Kg | 13 | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | [9] | 0.561 | mg/Kg | 13 | 0.10 | 43 | 72 - 128 |
| 4-BFB | [10] | 0.704 | mg/Kg | 13 | 0.10 | 54 | 72 - 128 |

## Sample: 172756 - SB2-6 060501-30

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH DRO | Analytical Method: | Mod. 8015B | QC Batch: | QC11786 | Date Analyzed: | 6/7/01 |
| Analyst: | JJ | Preparation Method: | 3550 B | Prep Batch: | PB10079 | Date Prepared: | 6/7/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| DRO | | <50 | mg/Kg | 1 | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | 224 | mg/Kg | 1 | 250 | 89 | 70 - 130 |

## Sample: 172756 - SB2-6 060501-30

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH GRO | Analytical Method: | 8015B | QC Batch: | QC11806 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| GRO | | 2.49 | mg/Kg | 13 | 0.10 |

## Sample: 172757 - SB2-10 060501-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | BTEX | Analytical Method: | S 8021B | QC Batch: | QC11805 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | E 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

[9]Surrogate recovery outside normal limits due to matrix difficulties.
[10]Surrogate recovery outside normal limits due to matrix difficulties.

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| Benzene | | <0.013 | mg/Kg | 13 | 0.001 |
| Toluene | | <0.013 | mg/Kg | 13 | 0.001 |
| Ethylbenzene | | <0.013 | mg/Kg | 13 | 0.001 |
| M,P,O-Xylene | | <0.013 | mg/Kg | 13 | 0.001 |
| Total BTEX | | <0.013 | mg/Kg | 13 | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | [11] | 0.404 | mg/Kg | 13 | 0.10 | 31 | 72 - 128 |
| 4-BFB | [12] | 0.57 | mg/Kg | 13 | 0.10 | 43 | 72 - 128 |

## Sample: 172757 - SB2-10 060501-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH DRO | Analytical Method: | Mod. 8015B | QC Batch: | QC11786 | Date Analyzed: | 6/7/01 |
| Analyst: | JJ | Preparation Method: | 3550 B | Prep Batch: | PB10079 | Date Prepared: | 6/7/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| DRO | | <50 | mg/Kg | 1 | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | 228 | mg/Kg | 1 | 250 | 91 | 70 - 130 |

## Sample: 172757 - SB2-10 060501-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH GRO | Analytical Method: | 8015B | QC Batch: | QC11806 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| GRO | | 2.13 | mg/Kg | 13 | 0.10 |

## Sample: 172758 - SB3-2 060601-10

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | BTEX | Analytical Method: | S 8021B | QC Batch: | QC11805 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | E 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| Benzene | | <0.013 | mg/Kg | 13 | 0.001 |
| Toluene | | <0.013 | mg/Kg | 13 | 0.001 |
| Ethylbenzene | | <0.013 | mg/Kg | 13 | 0.001 |
| M,P,O-Xylene | | <0.013 | mg/Kg | 13 | 0.001 |
| Total BTEX | | <0.013 | mg/Kg | 13 | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | [13] | 0.722 | mg/Kg | 13 | 0.10 | 55 | 72 - 128 |

*Continued ...*

[11] Surrogate recovery outside normal limits due to matrix difficulties.
[12] Surrogate recovery outside normal limits due to matrix difficulties.
[13] Surrogate recovery outside normal limits due to matrix difficulties.

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| 4-BFB | [14] | 0.828 | mg/Kg | 13 | 0.10 | 63 | 72 - 128 |

## Sample: 172758 - SB3-2 060601-10

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH DRO | Analytical Method: | Mod. 8015B | QC Batch: | QC11786 | Date Analyzed: | 6/7/01 |
| Analyst: | JJ | Preparation Method: | 3550 B | Prep Batch: | PB10079 | Date Prepared: | 6/7/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| DRO | | <50 | mg/Kg | 1 | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | 223 | mg/Kg | 1 | 250 | 89 | 70 - 130 |

## Sample: 172758 - SB3-2 060601-10

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH GRO | Analytical Method: | 8015B | QC Batch: | QC11806 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| GRO | | 3.19 | mg/Kg | 13 | 0.10 |

## Sample: 172759 - SB3-8 060601-40

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | BTEX | Analytical Method: | S 8021B | QC Batch: | QC11805 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | E 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| Benzene | | <0.025 | mg/Kg | 25 | 0.001 |
| Toluene | | <0.025 | mg/Kg | 25 | 0.001 |
| Ethylbenzene | | <0.025 | mg/Kg | 25 | 0.001 |
| M,P,O-Xylene | | <0.025 | mg/Kg | 25 | 0.001 |
| Total BTEX | | <0.025 | mg/Kg | 25 | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | [15] | 0.742 | mg/Kg | 25 | 0.10 | 70 | 72 - 128 |
| 4-BFB | [16] | 1.02 | mg/Kg | 25 | 0.10 | 40 | 72 - 128 |

## Sample: 172759 - SB3-8 060601-40

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH DRO | Analytical Method: | Mod. 8015B | QC Batch: | QC11786 | Date Analyzed: | 6/7/01 |
| Analyst: | JJ | Preparation Method: | 3550 B | Prep Batch: | PB10079 | Date Prepared: | 6/7/01 |

*Continued ...*

[14]Surrogate recovery outside normal limits due to matrix difficulties.
[15]Surrogate recovery outside normal limits due to matrix difficulties.
[16]Surrogate recovery outside normal limits due to matrix difficulties.

*... Continued* Sample: 172759 Analysis: TPH DRO

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| DRO | | <50 | mg/Kg | 1 | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | 228 | mg/Kg | 1 | 250 | 91 | 70 - 130 |

## Sample: 172759 - SB3-8 060601-40

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH GRO | Analytical Method: | 8015B | QC Batch: | QC11806 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| GRO | | < 2.5 | mg/Kg | 25 | 0.10 |

## Sample: 172760 - SB3-10 060601-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | BTEX | Analytical Method: | S 8021B | QC Batch: | QC11805 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | E 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| Benzene | | <0.013 | mg/Kg | 13 | 0.001 |
| Toluene | | <0.013 | mg/Kg | 13 | 0.001 |
| Ethylbenzene | | <0.013 | mg/Kg | 13 | 0.001 |
| M,P,O-Xylene | | <0.013 | mg/Kg | 13 | 0.001 |
| Total BTEX | | <0.013 | mg/Kg | 13 | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | [17] | 0.967 | mg/Kg | 13 | 0.10 | 74 | 72 - 128 |
| 4-BFB | [18] | 1.06 | mg/Kg | 13 | 0.10 | 81 | 72 - 128 |

## Sample: 172760 - SB3-10 060601-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH DRO | Analytical Method: | Mod. 8015B | QC Batch: | QC11786 | Date Analyzed: | 6/7/01 |
| Analyst: | JJ | Preparation Method: | 3550 B | Prep Batch: | PB10079 | Date Prepared: | 6/7/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| DRO | | <50 | mg/Kg | 1 | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | 227 | mg/Kg | 1 | 250 | 90 | 70 - 130 |

[17]Surrogate recovery outside normal limits due to matrix difficulties.
[18]Surrogate recovery outside normal limits due to matrix difficulties.

## Sample: 172760 - SB3-10 060601-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH GRO | Analytical Method: | 8015B | QC Batch: | QC11806 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| GRO | | 2.4 | mg/Kg | 13 | 0.10 |

## Sample: 172761 - SB4-1 060601-5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | BTEX | Analytical Method: | S 8021B | QC Batch: | QC11805 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | E 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| Benzene | | <0.025 | mg/Kg | 25 | 0.001 |
| Toluene | | <0.025 | mg/Kg | 25 | 0.001 |
| Ethylbenzene | | <0.025 | mg/Kg | 25 | 0.001 |
| M,P,O-Xylene | | <0.025 | mg/Kg | 25 | 0.001 |
| Total BTEX | | < 0.025 | mg/Kg | 25 | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | | 1.85 | mg/Kg | 25 | 0.10 | 74 | 72 - 128 |
| 4-BFB | | 1.93 | mg/Kg | 25 | 0.10 | 77 | 72 - 128 |

## Sample: 172761 - SB4-1 060601-5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH DRO | Analytical Method: | Mod. 8015B | QC Batch: | QC11786 | Date Analyzed: | 6/7/01 |
| Analyst: | JJ | Preparation Method: | 3550 B | Prep Batch: | PB10079 | Date Prepared: | 6/7/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| DRO | | <50 | mg/Kg | 1 | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | 224 | mg/Kg | 1 | 250 | 89 | 70 - 130 |

## Sample: 172761 - SB4-1 060601-5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH GRO | Analytical Method: | 8015B | QC Batch: | QC11806 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| GRO | | < 2.5 | mg/Kg | 25 | 0.10 |

## Sample: 172762 - SB4-10 060601-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | BTEX | Analytical Method: | S 8021B | QC Batch: | QC11805 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | E 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

*Continued ...*

... *Continued* Sample: 172762 Analysis: BTEX

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| Benzene | | <0.013 | mg/Kg | 13 | 0.001 |
| Toluene | | <0.013 | mg/Kg | 13 | 0.001 |
| Ethylbenzene | | <0.013 | mg/Kg | 13 | 0.001 |
| M,P,O-Xylene | | <0.013 | mg/Kg | 13 | 0.001 |
| Total BTEX | | <0.013 | mg/Kg | 13 | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | [19] | 0.802 | mg/Kg | 13 | 0.10 | 61 | 72 - 128 |
| 4-BFB | [20] | 0.888 | mg/Kg | 13 | 0.10 | 68 | 72 - 128 |

## Sample: 172762 - SB4-10 060601-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH DRO | Analytical Method: | Mod. 8015B | QC Batch: | QC11786 | Date Analyzed: | 6/7/01 |
| Analyst: | JJ | Preparation Method: | 3550 B | Prep Batch: | PB10079 | Date Prepared: | 6/7/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| DRO | | <50 | mg/Kg | 1 | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | 228 | mg/Kg | 1 | 250 | 91 | 70 - 130 |

## Sample: 172762 - SB4-10 060601-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH GRO | Analytical Method: | 8015B | QC Batch: | QC11806 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| GRO | | < 1.3 | mg/Kg | 13 | 0.10 |

## Sample: 172763 - SB5-9 060601-45

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | BTEX | Analytical Method: | S 8021B | QC Batch: | QC11805 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | E 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| Benzene | | <0.013 | mg/Kg | 13 | 0.001 |
| Toluene | | <0.013 | mg/Kg | 13 | 0.001 |
| Ethylbenzene | | <0.013 | mg/Kg | 13 | 0.001 |
| M,P,O-Xylene | | <0.013 | mg/Kg | 13 | 0.001 |
| Total BTEX | | <0.013 | mg/Kg | 13 | 0.001 |

[19] Surrogate recovery outside normal limits due to matrix difficulties.
[20] Surrogate recovery outside normal limits due to matrix difficulties.

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | [21] | 0.389 | mg/Kg | 13 | 0.10 | 30 | 72 - 128 |
| 4-BFB | [22] | 0.538 | mg/Kg | 13 | 0.10 | 41 | 72 - 128 |

## Sample: 172763 - SB5-9 060601-45

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH DRO | Analytical Method: | Mod. 8015B | QC Batch: | QC11786 | Date Analyzed: | 6/7/01 |
| Analyst: | JJ | Preparation Method: | 3550 B | Prep Batch: | PB10079 | Date Prepared: | 6/7/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| DRO | | <50 | mg/Kg | 1 | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | 224 | mg/Kg | 1 | 250 | 89 | 70 - 130 |

## Sample: 172763 - SB5-9 060601-45

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH GRO | Analytical Method: | 8015B | QC Batch: | QC11806 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | 5035 | Prep Batch: | PB10094 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| GRO | | < 1.3 | mg/Kg | 13 | 0.10 |

## Sample: 172764 - SB5-10 060601-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | BTEX | Analytical Method: | S 8021B | QC Batch: | QC11808 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | E 5035 | Prep Batch: | PB10095 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| Benzene | | <0.013 | mg/Kg | 13 | 0.001 |
| Toluene | | <0.013 | mg/Kg | 13 | 0.001 |
| Ethylbenzene | | <0.013 | mg/Kg | 13 | 0.001 |
| M,P,O-Xylene | | <0.013 | mg/Kg | 13 | 0.001 |
| Total BTEX | | < 0.013 | mg/Kg | 13 | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | [23] | 0.671 | mg/Kg | 13 | 0.10 | 51 | 72 - 128 |
| 4-BFB | [24] | 0.789 | mg/Kg | 13 | 0.10 | 60 | 72 - 128 |

## Sample: 172764 - SB5-10 060601-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH DRO | Analytical Method: | Mod. 8015B | QC Batch: | QC11786 | Date Analyzed: | 6/7/01 |
| Analyst: | JJ | Preparation Method: | 3550 B | Prep Batch: | PB10079 | Date Prepared: | 6/7/01 |

[21] Surrogate recovery outside normal limits due to matrix difficulties.
[22] Surrogate recovery outside normal limits due to matrix difficulties.
[23] Surrogate recovery outside normal limits due to matrix difficulties.
[24] Surrogate recovery outside normal limits due to matrix difficulties.

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| DRO | | <50 | mg/Kg | 1 | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | 232 | mg/Kg | 1 | 250 | 92 | 70 - 130 |

## Sample: 172764 - SB5-10 060601-50

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis: | TPH GRO | Analytical Method: | 8015B | QC Batch: | QC11809 | Date Analyzed: | 6/9/01 |
| Analyst: | CG | Preparation Method: | 5035 | Prep Batch: | PB10095 | Date Prepared: | 6/9/01 |

| Param | Flag | Result | Units | Dilution | RDL |
|---|---|---|---|---|---|
| GRO | | <1.3 | mg/Kg | 13 | 0.10 |

# Quality Control Report
# Method Blank

## Method Blank

QCBatch: QC11786

| Param | Flag | Results | Units | Reporting Limit |
|---|---|---|---|---|
| DRO | | <50 | mg/Kg | 50 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | | <0 | mg/Kg | 1 | 250 | 90 | 70 - 130 |

## Method Blank

QCBatch: QC11805

| Param | Flag | Results | Units | Reporting Limit |
|---|---|---|---|---|
| Benzene | | <0.013 | mg/Kg | 0.001 |
| Toluene | | <0.013 | mg/Kg | 0.001 |
| Ethylbenzene | | <0.013 | mg/Kg | 0.001 |
| M,P,O-Xylene | | <0.013 | mg/Kg | 0.001 |
| Total BTEX | | <0.013 | mg/Kg | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | | 1.27 | mg/Kg | 13 | 0.10 | 97 | 72 - 128 |
| 4-BFB | | 1.12 | mg/Kg | 13 | 0.10 | 86 | 72 - 128 |

## Method Blank

QCBatch: QC11806

| Param | Flag | Results | Units | Reporting Limit |
|---|---|---|---|---|
| GRO | | <1.3 | mg/Kg | 0.10 |

## Method Blank

QCBatch: QC11808

| Param | Flag | Results | Units | Reporting Limit |
|---|---|---|---|---|
| Benzene | | <0.013 | mg/Kg | 0.001 |
| Toluene | | <0.013 | mg/Kg | 0.001 |
| Ethylbenzene | | <0.013 | mg/Kg | 0.001 |
| M,P,O-Xylene | | <0.013 | mg/Kg | 0.001 |
| Total BTEX | | <0.013 | mg/Kg | 0.001 |

| Surrogate | Flag | Result | Units | Dilution | Spike Amount | Percent Recovery | Recovery Limits |
|---|---|---|---|---|---|---|---|
| TFT | | 1.28 | mg/Kg | 13 | 0.10 | 98 | 72 - 128 |
| 4-BFB | | 1.17 | mg/Kg | 13 | 0.10 | 90 | 72 - 128 |

## Method Blank

QCBatch: QC11809

| Param | Flag | Results | Units | Reporting Limit |
|---|---|---|---|---|
| GRO | | < 1.3 | mg/Kg | 0.10 |

# Quality Control Report
# Lab Control Spikes and Duplicate Spikes

## Laboratory Control Spikes

QCBatch: QC11786

| Param | LCS Result | LCSD Result | Units | Dil. | Spike Amount Added | Matrix Result | % Rec | RPD | % Rec Limit | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| DRO | 245 | 254 | mg/Kg | 1 | 250 | <50 | 98 | 3 | 70 - 130 | 20 |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Surrogate | LCS Result | LCSD Result | Units | Dilution | Spike Amount | LCS % Rec | LCSD % Rec | Recovery Limits |
|---|---|---|---|---|---|---|---|---|
| n-Octane | 228 | 232 | mg/Kg | 1 | 250 | 91 | 92 | 70 - 130 |

## Laboratory Control Spikes

QCBatch: QC11805

| Param | LCS Result | LCSD Result | Units | Dil. | Spike Amount Added | Matrix Result | % Rec | RPD | % Rec Limit | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| MTBE | 1.24 | 1.21 | mg/Kg | 13 | 0.10 | <0.013 | 95 | 2 | 80 - 120 | 20 |
| Benzene | 1.33 | 1.27 | mg/Kg | 13 | 0.10 | <0.013 | 102 | 4 | 80 - 120 | 20 |
| Toluene | 1.26 | 1.21 | mg/Kg | 13 | 0.10 | <0.013 | 96 | 4 | 80 - 120 | 20 |
| Ethylbenzene | 1.24 | 1.19 | mg/Kg | 13 | 0.10 | <0.013 | 95 | 4 | 80 - 120 | 20 |
| M,P,O-Xylene | 3.74 | 3.59 | mg/Kg | 13 | 0.30 | <0.013 | 95 | 4 | 80 - 120 | 20 |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Surrogate | LCS Result | LCSD Result | Units | Dilution | Spike Amount | LCS % Rec | LCSD % Rec | Recovery Limits |
|---|---|---|---|---|---|---|---|---|
| TFT | 1.25 | 1.23 | mg/Kg | 13 | 0.10 | 96 | 94 | 72 - 128 |
| 4-BFB | 1.22 | 1.22 | mg/Kg | 13 | 0.10 | 93 | 93 | 72 - 128 |

## Laboratory Control Spikes

QCBatch: QC11806

| Param | LCS Result | LCSD Result | Units | Dil. | Spike Amount Added | Matrix Result | % Rec | RPD | % Rec Limit | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| GRO | 1.007 | 1.034 | mg/Kg | 1 | 1 | <1.3 | 100 | 2 | 70 - 130 | 20 |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

## Laboratory Control Spikes

QCBatch: QC11808

| Param | LCS Result | LCSD Result | Units | Dil. | Spike Amount Added | Matrix Result | % Rec | RPD | % Rec Limit | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| MTBE | 1.28 | 1.29 | mg/Kg | 13 | 0.10 | <0.013 | 98 | 0 | 80 - 120 | 20 |
| Benzene | 1.32 | 1.31 | mg/Kg | 13 | 0.10 | <0.013 | 101 | 0 | 80 - 120 | 20 |
| Toluene | 1.32 | 1.31 | mg/Kg | 13 | 0.10 | <0.013 | 101 | 0 | 80 - 120 | 20 |
| Ethylbenzene | 1.28 | 1.28 | mg/Kg | 13 | 0.10 | <0.013 | 98 | 0 | 80 - 120 | 20 |
| M,P,O-Xylene | 3.85 | 3.82 | mg/Kg | 13 | 0.30 | <0.013 | 98 | 0 | 80 - 120 | 20 |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Surrogate | LCS Result | LCSD Result | Units | Dilution | Spike Amount | LCS % Rec | LCSD % Rec | Recovery Limits |
|---|---|---|---|---|---|---|---|---|
| TFT | 1.27 | 1.24 | mg/Kg | 13 | 0.10 | 97 | 95 | 72 - 128 |
| 4-BFB | 1.26 | 1.24 | mg/Kg | 13 | 0.10 | 96 | 95 | 72 - 128 |

## Laboratory Control Spikes

QCBatch: QC11809

| Param | LCS Result | LCSD Result | Units | Dil. | Spike Amount Added | Matrix Result | % Rec | RPD | % Rec Limit | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| GRO | 0.9981 | 1.0469 | mg/Kg | 1 | 1 | 0. | 99 | 4 | 70 - 130 | 20 |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

# Quality Control Report
# Matrix Spikes and Duplicate Spikes

## Matrix Spikes

QCBatch: QC11786

| Param | MS Result | MSD Result | Units | Dil. | Spike Amount Added | Matrix Result | % Rec | RPD | % Rec Limit | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| DRO | 309 | 329 | mg/Kg | 1 | 250 | 51 | 103 | 7 | 70 - 130 | 20 |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Surrogate | MS Result | MSD Result | Units | Dilution | Spike Amount | MS % Rec | MSD % Rec | Recovery Limits |
|---|---|---|---|---|---|---|---|---|
| n-Octane | 215 | 224 | mg/Kg | 1 | 250 | 86 | 89 | 70 - 130 |

## Matrix Spikes

QCBatch: QC11808

| Param | MS Result | MSD Result | Units | Dil. | Spike Amount Added | Matrix Result | % Rec | RPD | % Rec Limit | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1.26 | 1.25 | mg/Kg | 13 | 0.10 | <0.013 | 96 | 0 | 80 - 120 | 20 |
| Toluene | 1.28 | 1.27 | mg/Kg | 13 | 0.10 | <0.013 | 98 | 0 | 80 - 120 | 20 |
| Ethylbenzene | 1.2 | 1.2 | mg/Kg | 13 | 0.10 | <0.013 | 92 | 0 | 80 - 120 | 20 |
| M,P,O-Xylene | 3.57 | 3.57 | mg/Kg | 13 | 0.30 | <0.013 | 91 | 0 | 80 - 120 | 20 |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Surrogate | MS Result | MSD Result | Units | Dilution | Spike Amount | MS % Rec | MSD % Rec | Recovery Limits |
|---|---|---|---|---|---|---|---|---|
| TFT | 0.966 | [25] 0.588 | mg/Kg | 13 | 0.10 | 74 | 45 | 72 - 128 |
| 4-BFB | 1.09 | [26] 0.749 | mg/Kg | 13 | 0.10 | 83 | 58 | 72 - 128 |

# Quality Control Report
# Continuing Calibration Verification Standards

## CCV (1)

QCBatch: QC11786

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| DRO | | mg/Kg | 250 | 253 | 101 | 75 - 125 | 6/7/01 |
| n-Octane | | mg/Kg | 250 | 224 | 89 | 75 - 125 | 6/7/01 |

## CCV (2)

QCBatch: QC11786

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| DRO | | mg/Kg | 250 | 271 | 108 | 75 - 125 | 6/7/01 |
| n-Octane | | mg/Kg | 250 | 226 | 90 | 75 - 125 | 6/7/01 |

## CCV (3)

QCBatch: QC11786

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| DRO | | mg/Kg | 250 | 279 | 111 | 75 - 125 | 6/7/01 |
| n-Octane | | mg/Kg | 250 | 236 | 94 | 75 - 125 | 6/7/01 |

## ICV (1)

QCBatch: QC11786

[25] Surrogate recovery outside normal limits due to matrix difficulties.
[26] Surrogate recovery outside normal limits due to matrix difficulties.

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| DRO | | mg/Kg | 250 | 275 | 110 | 75 - 125 | 6/7/01 |
| n-Octane | | mg/Kg | 250 | 229 | 91 | 75 - 125 | 6/7/01 |

## CCV (1) QCBatch: QC11805

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| MTBE | | mg/Kg | 0.10 | 0.106 | 106 | 85 - 115 | 6/9/01 |
| Benzene | | mg/Kg | 0.10 | 0.104 | 104 | 85 - 115 | 6/9/01 |
| Toluene | | mg/Kg | 0.10 | 0.106 | 106 | 85 - 115 | 6/9/01 |
| Ethylbenzene | | mg/Kg | 0.10 | 0.103 | 103 | 85 - 115 | 6/9/01 |
| M,P,O-Xylene | | mg/Kg | 0.30 | 0.305 | 101 | 85 - 115 | 6/9/01 |

## CCV (2) QCBatch: QC11805

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| MTBE | | mg/Kg | 0.10 | 0.103 | 103 | 85 - 115 | 6/9/01 |
| Benzene | | mg/Kg | 0.10 | 0.101 | 101 | 85 - 115 | 6/9/01 |
| Toluene | | mg/Kg | 0.10 | 0.102 | 102 | 85 - 115 | 6/9/01 |
| Ethylbenzene | | mg/Kg | 0.10 | 0.101 | 101 | 85 - 115 | 6/9/01 |
| M,P,O-Xylene | | mg/Kg | 0.30 | 0.297 | 99 | 85 - 115 | 6/9/01 |

## ICV (1) QCBatch: QC11805

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| MTBE | | mg/Kg | 0.10 | 0.0991 | 99 | 85 - 115 | 6/9/01 |
| Benzene | | mg/Kg | 0.10 | 0.104 | 104 | 85 - 115 | 6/9/01 |
| Toluene | | mg/Kg | 0.10 | 0.102 | 102 | 85 - 115 | 6/9/01 |
| Ethylbenzene | | mg/Kg | 0.10 | 0.102 | 102 | 85 - 115 | 6/9/01 |
| M,P,O-Xylene | | mg/Kg | 0.30 | 0.309 | 103 | 85 - 115 | 6/9/01 |

## CCV (1) QCBatch: QC11806

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| GRO | | mg/Kg | 1 | 1.007 | 100 | 75 - 125 | 6/9/01 |

## CCV (2)

QCBatch: QC11806

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| GRO | | mg/Kg | 1 | 0.9645 | 96 | 75 - 125 | 6/9/01 |

## ICV (1)

QCBatch: QC11806

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| GRO | | mg/Kg | 1 | 0.9875 | 98 | 75 - 125 | 6/9/01 |

## CCV (1)

QCBatch: QC11808

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| MTBE | | mg/Kg | 0.10 | 0.106 | 106 | 85 - 115 | 6/9/01 |
| Benzene | | mg/Kg | 0.10 | 0.11 | 110 | 85 - 115 | 6/9/01 |
| Toluene | | mg/Kg | 0.10 | 0.108 | 108 | 85 - 115 | 6/9/01 |
| Ethylbenzene | | mg/Kg | 0.10 | 0.102 | 102 | 85 - 115 | 6/9/01 |
| M,P,O-Xylene | | mg/Kg | 0.30 | 0.305 | 101 | 85 - 115 | 6/9/01 |

## CCV (2)

QCBatch: QC11808

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| MTBE | | mg/Kg | 0.10 | 0.1066 | 106 | 85 - 115 | 6/9/01 |
| Benzene | | mg/Kg | 0.10 | 0.106 | 106 | 85 - 115 | 6/9/01 |
| Toluene | | mg/Kg | 0.10 | 0.1032 | 103 | 85 - 115 | 6/9/01 |
| Ethylbenzene | | mg/Kg | 0.10 | 0.0998 | 99 | 85 - 115 | 6/9/01 |
| M,P,O-Xylene | | mg/Kg | 0.30 | 0.2984 | 99 | 85 - 115 | 6/9/01 |

## ICV (1)

QCBatch: QC11808

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| MTBE | | mg/Kg | 0.10 | 0.0991 | 99 | 85 - 115 | 6/9/01 |
| Benzene | | mg/Kg | 0.10 | 0.101 | 101 | 85 - 115 | 6/9/01 |
| Toluene | | mg/Kg | 0.10 | 0.103 | 103 | 85 - 115 | 6/9/01 |
| Ethylbenzene | | mg/Kg | 0.10 | 0.1 | 100 | 85 - 115 | 6/9/01 |
| M,P,O-Xylene | | mg/Kg | 0.30 | 0.301 | 100 | 85 - 115 | 6/9/01 |

## CCV (1)

QCBatch: QC11809

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| GRO | | mg/Kg | 1 | 0.9726 | 97 | 75 - 125 | 6/9/01 |

## ICV (1)

QCBatch: QC11809

| Param | Flag | Units | CCVs True Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|
| GRO | | mg/Kg | 1 | 0.9645 | 96 | 75 - 125 | 6/9/01 |

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# CHAIN OF CUSTODY



RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES, INC.
2900 N. Big Spring, Midland, Texas 79705
Bus: (915) 682-7404 • (915) 570-REGS • Metro: (915) 570-6007 • Fax: (915) 682-7440

| REPORT TO | INVOICE TO |
|---|---|
| COMPANY: RITTER ENVIRONMENTAL | COMPANY: SAME |
| ADDRESS: 2900 N. BIG SPRING | ADDRESS: |
| CITY/STATE/ZIP: MIDLAND, TX 79705 | CITY/STATE/ZIP |
| ATTENTION: MITCH RITTER PHONE: 570-6007 | ATTENTION: PHONE: |

| PROJECT/SITE NAME: | REMARKS: | TURN AROUND TIME |
|---|---|---|
| DUKE/MALJAMAR BOOSTER | ANALYZED BY: | ■ NORMAL ☐ RUSH ☐ OTHER |

| | | | | | | | | REQUESTED ANALYSIS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DATE | TIME | COMP | GRAB | SAMPLE # | SAMPLE DESCRIPTION | MATRIX | # CONT | DRO MOD 8015 | GRO MOD 8015 | BTEX (8020) | | | | REMARKS |
| 6/6/01 | 11:33 | 172763 | ✔ | SB5-9 060601-45 | Soil @ 45' | Soil | 1 | ✔ | ✔ | ✔ | | | | |
| 6/6/01 | 11:45 | 764 | ✔ | SB5-10 060601-50 | Soil @ 50' | Soil | 1 | ✔ | ✔ | ✔ | | | | |
| | | | | | | | | | | | | | | |
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REVIEWED BY: ☐ MRR ☐ BNR

| RELINQUISHED BY | DATE/TIME | RECEIVED BY: | DATE / TIME | SAMPLE CONDITION | DATE / TIME |
|---|---|---|---|---|---|
| C. D. Hunt | 6/6/01 16:40 | | 6/6/01 16:40 | | |
| | | | | | |
| | | Vicki Hensley | 6-7-01 10:00 | | |

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# CHAIN OF CUSTODY



RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES, INC.
2900 N. Big Spring, Midland, Texas 79705
Bus: (915) 682-7404 • (915) 570-REGS • Metro: (915) 570-6007 • Fax: (915) 682-7440

| REPORT TO | INVOICE TO |
|---|---|
| COMPANY: RITTER ENVIRONMENTAL | COMPANY: SAME |
| ADDRESS: 2900 N. BIG SPRING | ADDRESS: |
| CITY/STATE/ZIP: MIDLAND, TX 79705 | CITY/STATE/ZIP |
| ATTENTION: MITCH RITTER PHONE: 570-6007 | ATTENTION: PHONE: |

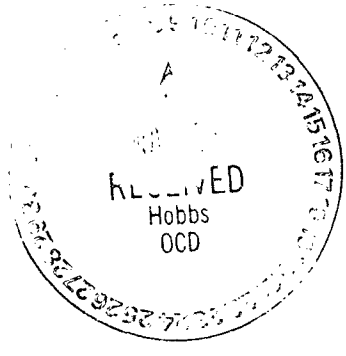
| PROJECT/SITE NAME: | REMARKS: | TURN AROUND TIME |
|---|---|---|
| DUKE/MALJAMAR BOOSTER | ANALYZED BY: TRACE ANALYSIS | ■ NORMAL ☐ RUSH ☐ OTHER |

| DATE | TIME | COMP | GRAB | SAMPLE # | SAMPLE DESCRIPTION | MATRIX | # CONT | REQUESTED ANALYSIS: DRO MOD 8015 | GRO MOD 8015 | BTEX (8020) | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6/5/01 | 9:10 | 172752 | ✔ | SB1-2 060501-10 | Soil @ 10' | Soil | 1 | ✔ | ✔ | ✔ | | | | |
| 6/4/01 | 9:40 | 53 | ✔ | SB1-8 060501-40 | Soil @ 40' | Soil | 1 | ✔ | ✔ | ✔ | | | | |
| 6/5/01 | 10:06 | 54 | ✔ | SB1-10 060501-50 | Soil @ 50' | Soil | 1 | ✔ | ✔ | ✔ | | | | |
| 6/5/01 | 10:50 | 55 | ✔ | SB1-17 060501-90 | Soil @ 90' | Soil | 1 | ✔ | ✔ | ✔ | | | | |
| 6/5/01 | 14:38 | 56 | ✔ | SB2-6 060501-30 | Soil @ 30' | Soil | 1 | ✔ | ✔ | ✔ | | | | |
| 6/5/01 | 15:37 | 57 | ✔ | SB2-10 060501-50 | Soil @ 50' | Soil | 1 | ✔ | ✔ | ✔ | | | | |
| 6/6/01 | 7:15 | 58 | ✔ | SB3-2 060601-10 | Soil @ 10' | Soil | 1 | ✔ | ✔ | ✔ | | | | |
| 6/6/01 | 8:02 | 59 | ✔ | SB3-8 060601-40 | Soil @ 40' | Soil | 1 | ✔ | ✔ | ✔ | | | | |
| 6/6/01 | 8:29 | 60 | ✔ | SB3-10 060601-50 | Soil @ 50' | Soil | 1 | ✔ | ✔ | ✔ | | | | |
| 6/6/01 | 9:04 | 61 | ✔ | SB4-1 060601-5 | Soil @ 5' | Soil | 1 | ✔ | ✔ | ✔ | | | | |
| 6/6/01 | 10:22 | 62 | ✔ | SB4-10 060601-50 | Soil @ 50' | Soil | 1 | ✔ | ✔ | ✔ | | | | |

REVIEWED BY: ☐ MRR ☐ BNR

| RELINQUISHED BY | DATE/TIME | RECEIVED BY: | DATE / TIME | SAMPLE CONDITION | DATE / TIME |
|---|---|---|---|---|---|
| | 6/6/01 16:40 | | 6/6/01 16:40 | | |
| | | | | | 6/13/01 |
| | | Vicki Hensley | 6-7-01 10:00 | | |

GLI 1035660 588 9 40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Hobbs
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