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February 20, 2009

Mr. Terry Fox
North Carolina Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Reference: Preliminary Site Assessment
Payne Oil Co., Inc. Property
209 Graham Road
Haw River, Alamance County, North Carolina
NCDOT Tip No. P-3414O
WBS Element 39364.1.1
Earth Tech AECOM Project No. 110879

Dear Mr. Fox:

Earth Tech of North Carolina, Inc., (Earth Tech AECOM) has completed the Preliminary Site Assessment conducted at the above-referenced property. The work was performed in accordance with the Technical and Cost proposal dated January 19, 2009, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated January 22, 2009. Activities associated with the assessment consisted of conducting a geophysical investigation, collecting soil samples for laboratory analysis, and reviewing applicable North Carolina Department of Environment and Natural Resources (NCDENR) records. The purpose of this report is to document the field activities, present the laboratory analyses, and provide recommendations regarding the property.

**Location and Description**

The Payne Oil Co., Inc., Property is located at 209 Graham Road in Haw River, North Carolina. The property is situated on the southwest quadrant of the intersection of Graham Road (NC 49) and Main Street (US 70) (Figure 1). Based on information supplied by the NCDOT and the site visit, Earth Tech AECOM understands that the site is a bulk fuel and propane storage and distribution facility. According to the owner, no active underground storage tanks (USTs) are present on the property; however, a 5,000-gallon mineral oil UST was closed in-place and was covered by the southwest corner of the building. A review of UST Section tank registration records indicates that a mineral oil UST was closed from the site in 1979. Eight bulk petroleum product above ground storage tanks (ASTs) are located on the property. One vertical 30,000-gallon AST contains on-road diesel fuel. The remaining 16,000-gallon horizontal ASTs contain off-road (dyed) diesel fuel, premium, mid-grade, and unleaded gasoline, and kerosene. One AST is empty, but formerly contained mineral spirits. Two propane bulk storage ASTs are also located on the property, one 18,000- and one 30,000-gallon tank. Structures on the property include one office/warehouse building and two storage sheds/garages (Figure 2). Scrap metal

and empty propane tanks are stored at the facility. The NCDOT has advised that right-of-way for the railroad will be acquired and the entire property will be taken. Because of the former UST and the existing ASTs, the NCDOT requested a Preliminary Site Assessment. The scope of work as defined in the Request for Technical and Cost Proposal was to evaluate the site with respect to the presence of USTs and assess where contamination exists on the property. An estimate of the quantity of impacted soil was to be provided. However, the investigation was confined to the Payne Oil Co. yard, not the entire property. An area outside the fenced property that was used to store empty propane tanks was not assessed.

Earth Tech AECOM reviewed the North Carolina Department of Environment and Natural Resources (NCDENR) Incident Management database and no incident number has been assigned to the site. Earth Tech AECOM also reviewed the UST registration database to obtain UST ownership information. No tank registration information was listed for the Payne Oil Co. address.

**Geophysical Survey**

Prior to Earth Tech AECOM's mobilization to the site, Pyramid Environmental conducted a geophysical survey as part of this project to evaluate if additional USTs, other than the one identified, were present on the proposed right-of-way. The geophysical survey consisted of an electromagnetic survey using a Geonics EM61 time-domain electromagnetic induction meter to locate buried metallic objects, specifically USTs. A survey grid was laid out at the property with the X-axis oriented approximately parallel to Graham Road and the Y-axis oriented approximately perpendicular to Graham Road. The grid was located to cover the accessible portions of the proposed right-of-way. The survey lines were spaced 5 feet apart. Magnetic data was collected continuously along each survey line with a data logger. After collection, the data was reviewed in the field with graphical computer software. Following the electromagnetic survey, a ground penetrating radar (GPR) survey was conducted to further evaluate any significant metallic anomalies if such a survey was considered necessary.

Access to all areas of the property was not available because of scrap metal and vehicles. Within the accessible areas, several anomalies were detected in the geophysical survey. However, these anomalies were generally attributed to buried utility lines or conduits, the known UST, or vehicles. The survey concluded that no metallic USTs were present on the proposed right-of-way. A detailed report of findings and interpretations is presented in Attachment A.

**Site Assessment Activities**

On February 5, 2009, Earth Tech AECOM mobilized to the site to conduct a Geoprobe® direct push investigation to evaluate soil conditions within the proposed right-of-way and easement. Continuous sampling using direct push technology (Regional Probing of Wake Forest, North Carolina) resulted in generally good recovery of soil samples from the direct-push holes. Soil samples were collected and contained in 4-foot long acetate sleeves inside the direct push

sampler. Each of these sleeves was divided in half for soil sample screening. Each 2-foot interval was placed in a resealable plastic bag and the bag was set aside for a sufficient amount of time to allow volatilization of organic compounds from the soil to the bag headspace. The probe of a flame ionization detector/photo ionization detector (FID/PID) was inserted into the bag and the reading was recorded. After terminating the sample hole, the soil sample from the depth interval with the highest FID/PID reading was submitted to Prism Laboratories in Charlotte, North Carolina, using standard chain-of-custody procedures. The laboratory analyzed the soil samples for total petroleum hydrocarbons (TPH) in the diesel range organics (DRO) and gasoline range organics (GRO).

Twelve direct-push holes (SS-1 through SS-12) were advanced within the proposed right-of-way to a depth of 10 feet as shown in Figure 2 and Attachment B. The borings were located to evaluate the entire property (Attachment C). Borings SS-1 through SS-3 were located to evaluate the soil conditions near the closed-in-place UST; borings SS-4 through SS-8 were placed to assess the area around the existing AST dispensers and bulk fueling pad; borings SS-9 and SS-10 were located at opposite corners of the AST containment structure; boring SS-1 was placed to estimate the horizontal extent of potential contamination; and boring SS-12 was located to evaluate the bulk propane AST area. The lithology encountered by the direct-push samples generally was consistent throughout the site. The ground surface was covered with about 6 inches of gravel or topsoil. Below the surface treatment to a depth of 10 feet was a medium to reddish brown silty clay to clayey silt. All the borings were terminated at a depth of 10 feet and no groundwater was encountered to that depth. Based on field screening, soil samples were submitted for laboratory analysis, which are summarized in Table 1.

During the course of the investigation, Earth Tech AECOM noted one area where surface staining was prevalent. Between the AST containment structure and the bulk fueling pad, surface gravel was heavily stained with spilled petroleum products. Because of the presence of underground piping in the area, no soil borings could be advanced. However, observations of soil samples from nearby borings suggest that the surface staining is confined to a small area with no apparent lateral migration.

**Analytical Results**

Based on the laboratory reports, summarized in Table 1 and presented in Attachment D, petroleum hydrocarbon compounds identified as DRO and/or GRO were detected in two of the twelve soil samples collected from the site (Figure 3). Soil samples from borings SS-9 and SS-10 contained DRO or GRO concentrations above the method quantitation limit. According to the North Carolina Underground Storage Tank Section's Underground Storage Tank Closure Policy dated August 24, 1998, the action level for TPH analyses is 10 milligrams per kilogram (mg/kg) for both gasoline and diesel fuel. However, that agency's "Guidelines for Assessment and Corrective Action," dated April 2001, does not allow for use of TPH analyses for confirmation of the extent of petroleum contamination or its cleanup. As a result, while TPH concentrations are no longer applicable in determining if soil contamination is present, this analysis is a legitimate

screening tool. Based on the TPH action level for UST closures, the assumed action level for this report is 10 mg/kg. Only the DRO concentration (860 mg/kg) and GRO concentration (160 mg/kg) in the soil sample from boring SS-10 were present at concentrations above the 10 mg/kg assumed action level.

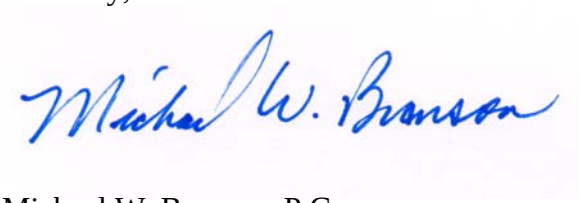
**Conclusions and Recommendations**

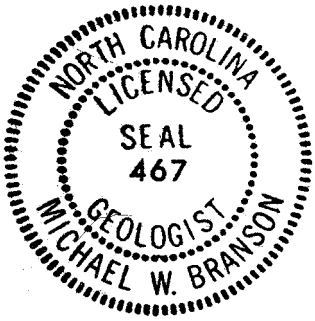
A Preliminary Site Assessment was conducted to evaluate the Payne Oil Co. Property located at 209 Graham Road in Haw River, Alamance County, North Carolina. Twelve soil borings were advanced to evaluate the soil conditions throughout the property. The laboratory reports of the soil samples from these borings suggest that DRO and/or GRO concentrations were present above the assumed action level in two of the twelve soil samples analyzed. Although not sampled, surface staining consistent with petroleum spillage was noted at the bulk loading pad. Laboratory analysis of soil samples from borings in the vicinity of the staining suggest that no lateral migration of the petroleum contamination has occurred.

To evaluate the volume of soil requiring possible remediation, the soil samples with TPH concentrations above 10 mg/kg were considered. The analytical results of the soil samples suggest that the soil from boring SS-10 contained TPH concentrations identified as DRO and GRO above the assumed action level. A review of the field screening readings (Table 1) and Figure 3 suggests that the thickness of the potentially contaminated soil is at about 2 feet, but at a depth of about 4 to 6 feet. From Figure 3, Earth Tech AECOM has assumed that the contamination is confined to a small area around boring SS-10. Based on the plume geometry, Earth Tech AECOM assumes a thickness of 2 feet and a radial diameter of 20 feet, which results in an estimated contaminated soil volume at boring SS-10 of approximately 23 cubic yards. In addition, an area at the bulk loading pad (Attachment C, Photos 13 and 14) with approximate dimensions of 10 feet wide and 60 feet long contains heavily stained soil. While no sampling of the stained soil occurred, Earth Tech AECOM assumes that the contamination from staining is contained within the upper 1 foot of the soil below the gravel. These dimensions result in an estimated potentially contaminated soil volume of 22 cubic yards. The total volume of potentially affected soil was estimated to be about 45 cubic yards. This volume is estimated from TPH analytical data, which are no longer valid for remediation of sites reported after January 2, 1998. After this date, MADEP EPH/VPH and EPA Method 8260/8270 analyses will likely be required to confirm cleanup. However, these analyses do not correlate exactly with TPH data and, as a result, the actual volume of contaminated soil may be higher or lower.

Earth Tech AECOM appreciates the opportunity to work with the NCDOT on this project. Because compounds were detected above the applicable action levels in the soil samples, Earth Tech AECOM recommends that a copy of this report be submitted to the Division of Waste Management, UST Section, in the Asheville Regional Office. If you have any questions, please contact me at (919)854-6238.

Sincerely,






Michael W. Branson, P.G.
Project Manager

Attachments

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**TABLE 1**

**SOIL FIELD SCREENING AND ANALYTICAL RESULTS**
**PAYNE OIL CO. PROPERTY**
**HAW RIVER, ALAMANCE COUNTY, NORTH CAROLINA**
**NCDOT PROJECT NO. P-3414O**
**WBS ELEMENT 39364.1.1**
**EARTH TECH PROJECT NO. 110879**

| LOCATION | DEPTH (ft) | FID READING (ppm) | SAMPLE ID | ANALYTICAL RESULTS (mg/kg) | ASSUMED ACTION LEVEL (mg/kg) |
|---|---|---|---|---|---|
| SS-1 | 0 - 2 | 0.19 | | | |
| | 2 - 4 | 0.31 | | | |
| | 4 - 6 | 0.34 | | | |
| | 6 - 8 | 0.41 | | | |
| | 8 - 10 | 0.45 | SS-1 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| SS-2 | 0 - 2 | 0.56 | | | |
| | 2 - 4 | 0.54 | | | |
| | 4 - 6 | 0.59 | | | |
| | 6 - 8 | 1.51 | SS-2 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 8 - 10 | 0.54 | | | |
| SS-3 | 0 - 2 | 0.53 | | | |
| | 2 - 4 | 0.55 | SS-3 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 4 - 6 | 0.51 | | | |
| | 6 - 8 | 0.54 | | | |
| | 8 - 10 | 0.53 | | | |
| SS-4 | 0 - 2 | 0.53 | | | |
| | 2 - 4 | 0.66 | | | |
| | 4 - 6 | 0.81 | SS-4 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 6 - 8 | 0.75 | | | |
| | 8 - 10 | 0.73 | | | |
| SS-5 | 0 - 2 | 0.96 | SS-5 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 2 - 4 | 0.66 | | | |
| | 4 - 6 | 0.64 | | | |
| | 6 - 8 | 0.68 | | | |
| | 8 - 10 | 0.6 | | | |
| SS-6 | 0 - 2 | 0.45 | | | |
| | 2 - 4 | 0.53 | | | |
| | 4 - 6 | 0.52 | | | |
| | 6 - 8 | 0.55 | SS-6 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 8 - 10 | 0.53 | | | |
| SS-7 | 0 - 2 | 0.48 | SS-7 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 2 - 4 | 0.7 | | | |
| | 4 - 6 | 0.45 | | | |
| | 6 - 8 | 0.45 | | | |
| | 8 - 10 | 0.43 | | | |
| SS-8 | 0 - 2 | 0.34 | | | |
| | 2 - 4 | 0.31 | | | |
| | 4 - 6 | 0.31 | | | |
| | 6 - 8 | 0.29 | | | |
| | 8 - 10 | 0.36 | SS-8 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |

**TABLE 1 (continued)**

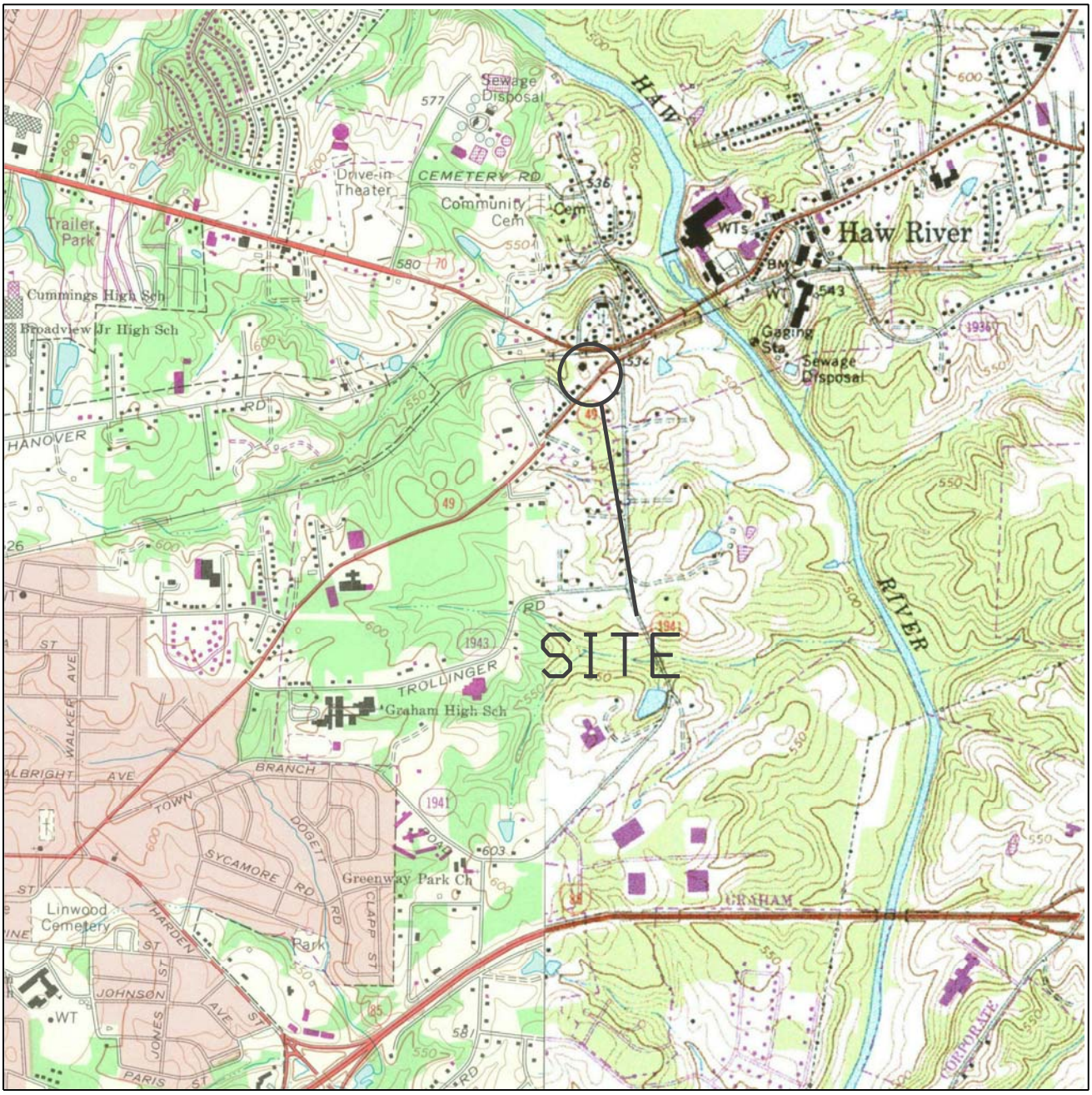
**SOIL FIELD SCREENING AND ANALYTICAL RESULTS**
**PAYNE OIL CO. PROPERTY**
**HAW RIVER, ALAMANCE COUNTY, NORTH CAROLINA**
**NCDOT PROJECT NO. P-3414O**
**WBS ELEMENT 39364.1.1**
**EARTH TECH PROJECT NO. 110879**

| LOCATION | DEPTH (ft) | FID READING (ppm) | SAMPLE ID | ANALYTICAL RESULTS (mg/kg) | ASSUMED ACTION LEVEL (mg/kg) |
|---|---|---|---|---|---|
| SS-9 | 0 - 2 | 16.43 | SS-9 | DRO (BQL)<br>GRO (8.5) | 10<br>10 |
| | 2 - 4 | 3.06 | | | |
| | 4 - 6 | 9.09 | | | |
| | 6 - 8 | 1.49 | | | |
| | 8 - 10 | 2.06 | | | |
| SS-10 | 0 - 2 | 0.06 | | | |
| | 2 - 4 | 2.11 | | | |
| | 4 - 6 | 41 | SS-10 | **DRO (860)**<br>**GRO (160)** | 10<br>10 |
| | 6 - 8 | 2.69 | | | |
| | 8 - 10 | 2.22 | | | |
| SS-11 | 0 - 2 | 0.11 | | | |
| | 2 - 4 | 0.15 | | | |
| | 4 - 6 | 0.14 | | | |
| | 6 - 8 | 0.18 | SS-11 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 8 - 10 | 0.11 | | | |
| SS-12 | 0 - 2 | 0.28 | | | |
| | 2 - 4 | 0.35 | | | |
| | 4 - 6 | 0.42 | | | |
| | 6 - 8 | 0.23 | | | |
| | 8 - 10 | 0.76 | SS-12 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |

Soil samples were collected on February 5, 2009.

DRO - Diesel range organics.
GRO - Gasoline range organics.
BQL - Below quantitation limit.
ppm - parts per million.
mg/kg - milligrams per kilogram.

**FIGURES**




SCALE 1:24,000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

SOURCE: U.S. GEOLOGICAL SURVEY 7.5 MIN QUADRANGLE: BURLINGTON, NC (REV 1981) AND MEBANE, NC (REV 1994)

EARTH TECH

# FIGURE 1
## VICINITY MAP
PAYNE OIL COMPANY PROPERTY
HAW RIVER, ALAMANCE COUNTY NORTH CAROLINA

FEBRUARY 2009

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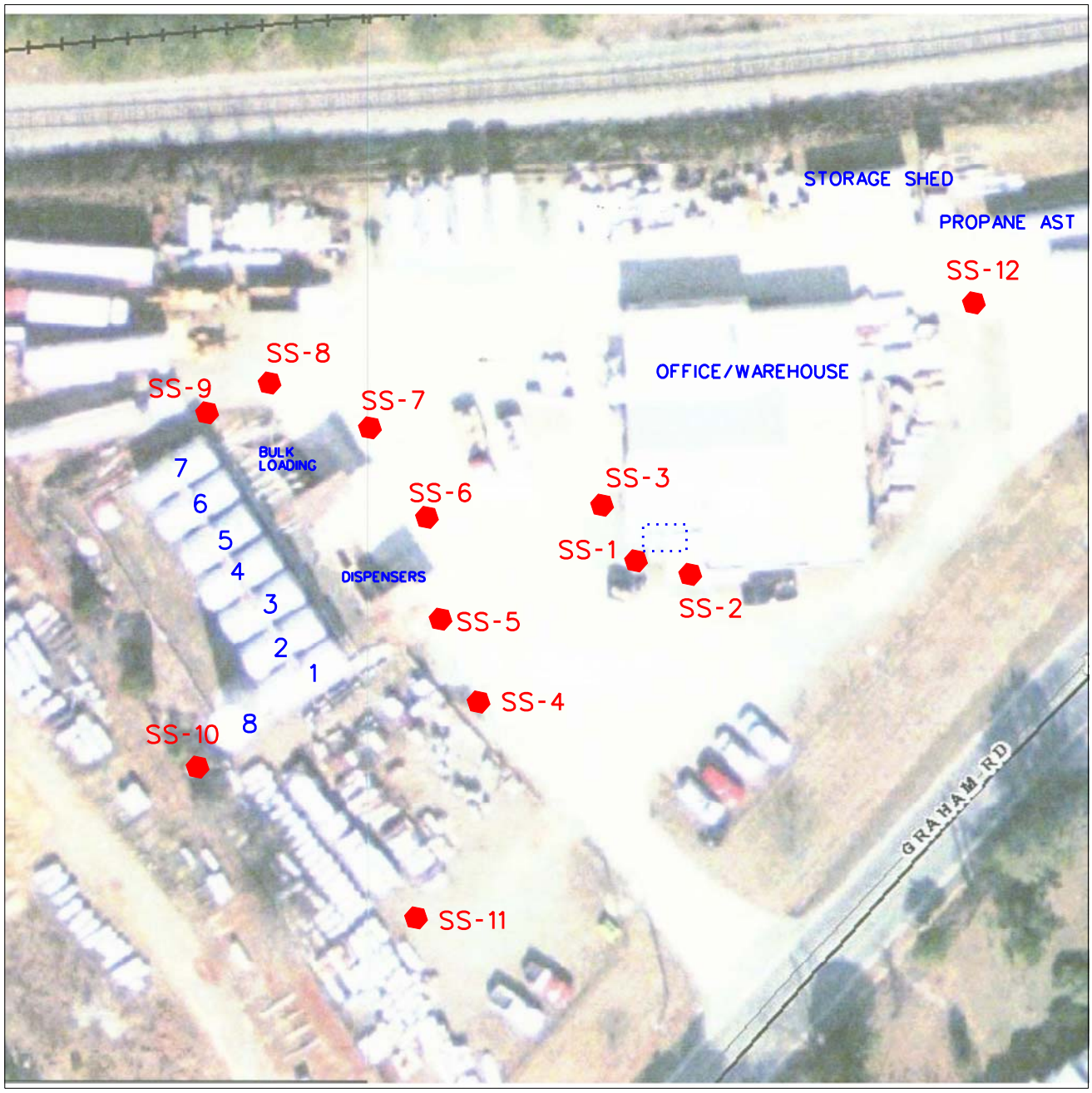


**LEGEND**

SS-1 — SOIL SAMPLE LOCATION AND IDENTIFICATION

CLOSED-IN-PLACE UST

2 — ABOVE GROUND STORAGE TANK

0 25 50

GRAPHIC SCALE (FEET)

EARTH TECH

# FIGURE 2

## SOIL SAMPLE LOCATION MAP

PAYNE OIL COMPANY PROPERTY

HAW RIVER, ALAMANCE COUNTY, NORTH CAROLINA

FEBRUARY 2009

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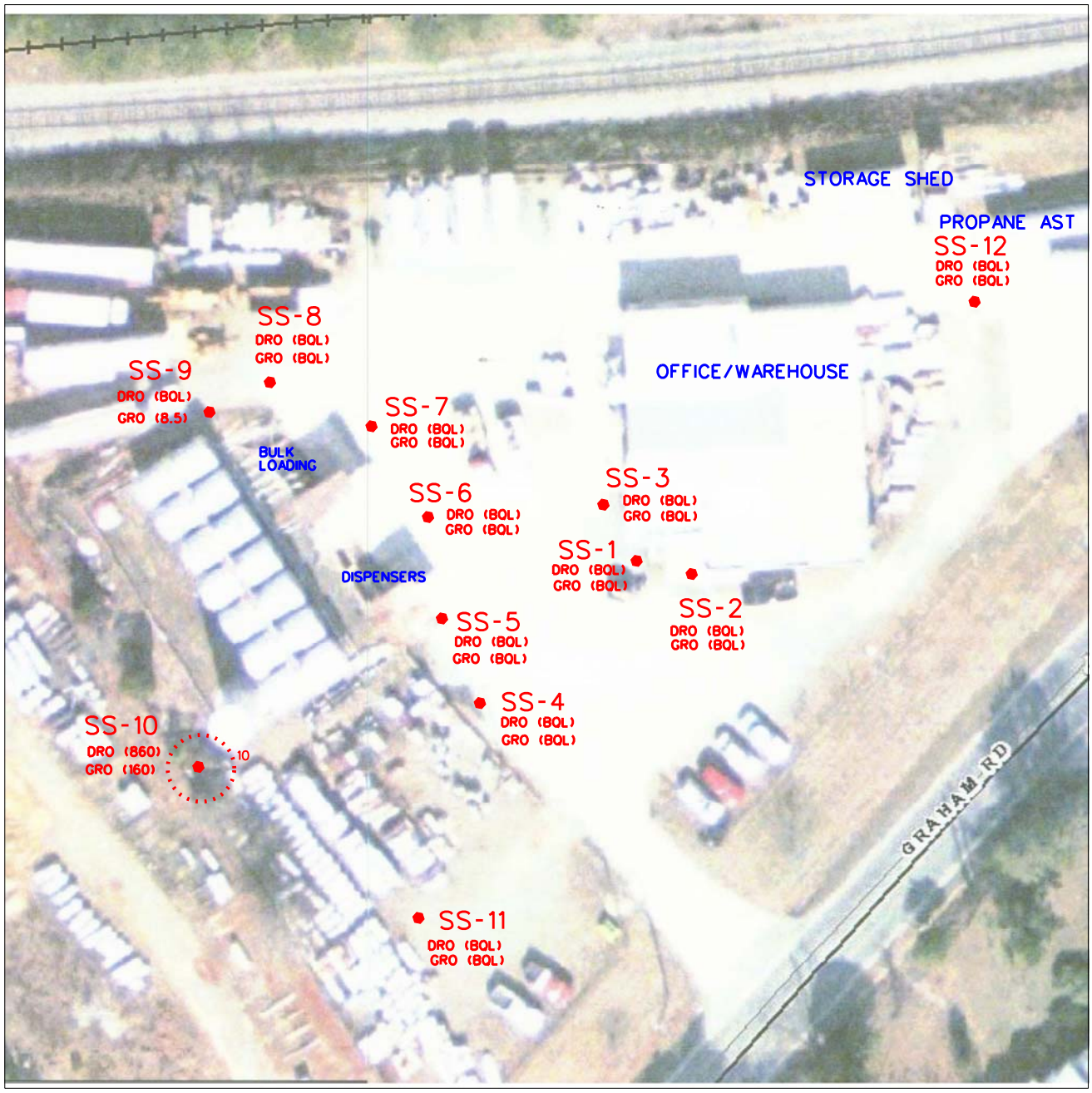


**LEGEND**

| | |
|---|---|
| SS-1 ⬢ | SOIL SAMPLE LOCATION AND IDENTIFICATION |
| DRO (123) | TPH AS DIESEL FUEL IN MG/KG |
| GRO (123) | TPH AS GASOLINE IN MG/KG |
| BQL | BELOW QUANTITATION LIMIT |
| 10 | TPH 10 MG/KG ISOCONCENTRATION CONTOUR |

0 25 50
GRAPHIC SCALE (FEET)

EARTH TECH

# FIGURE 3
## SOIL SAMPLE RESULTS MAP
### PAYNE OIL COMPANY PROPERTY
HAW RIVER, ALAMANCE COUNTY, NORTH CAROLINA

FEBRUARY 2009 110879

**ATTACHEMENT A**

Pyramid Project # 2009031

# GEOPHYSICAL INVESTIGATION REPORT

***EM61 & GPR SURVEYS***

**PAYNE OIL COMPANY, INC. PROPERTY**
**Graham, North Carolina**

**February 6, 2009**

**Report prepared for:** **Mike Branson**
**AECOM Environment**
**701 Corporate Center Drive, Suite 475**
**Raleigh, North Carolina 27607**

**Prepared by:** _____
**Mika Trifunovic**

**Reviewed by:** _____
**Douglas Canavello, PG**

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**AECOM Environment**
**GEOPHYSICAL INVESTIGATION REPORT**
**PAYNE OIL COMPANY, INC. PROPERTY**
**Graham, North Carolina**

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FIGURES

## 1.0 INTRODUCTION

Pyramid Environmental conducted geophysical investigations for AECOM Environment across the accessible portions of the Payne Oil Company, Inc. property located at 209 Graham Road in Graham, North Carolina. The site is an active petroleum products distribution facility and contains a number of active and large above ground storage tanks (ASTs) and an inventory of empty above ground propane tanks. Much of the relatively flat-lying site has a gravel surface, however steel reinforced concrete pads are located north and east of the office building. A steel reinforced concrete pad is also located immediately east of the containment area that houses several large ASTs. Based on information from Mr. Raymond Payne, a known and "closed" 6,000 gallon underground storage tank (UST) lies beneath the southwest corner of the office building and the visible fill/vent ports delineates one end of the UST.

The geophysical investigation was conducted on January 29-30, 2009 to determine if unknown, metallic USTs were present beneath the Payne Oil Company property. On the morning of January 29, 2009, AECOM Environment representative Mr. Michael Branson identified the geophysical survey area to Pyramid Environmental personnel. Photographs of the Payne Oil Company, Inc. property and the geophysical equipment used in this investigation are shown in **Figure 1**.

## 2.0 FIELD METHODOLOGY

Prior to conducting the geophysical investigation, a 10-foot by 10-foot survey grid was established across the accessible portions of the site using measuring tapes and water-based marking paint. These grid marks were used as X-Y coordinates for location control when collecting the geophysical data and establishing base maps for the geophysical results.

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection surveys and ground penetrating radar (GPR) surveys. The EM surveys were performed on January 29-30, 2009 using a Geonics EM61-MK1 metal detection instrument. According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8

feet. Most of the EM61 data were digitally collected along northerly-southerly parallel survey lines spaced five feet apart. The remainder of the EM61 data was collected along several easterly-westerly lines spaced five feet apart in the northern portion of the property. All of the data were downloaded to a computer and reviewed in the office using the Geonics DAT61W and Surfer for Windows Version 7.0 software programs.

GPR surveys were also conducted on January 30, 2009 across selected EM61 differential anomalies and areas containing steel reinforced concrete using a GSSI SIR-2000 unit equipped with a 400 MHz antenna. GPR reconnaissances were also conducted along the southwestern corner of the office building and along the western portion of the AST containment area. Data were digitally collected in a continuous mode along X and Y survey lines, spaced five feet apart using a vertical scan of 512 samples, at a rate of 48 scans per second. An 70 MHz high pass filter and an 800 MHz low pass filter were used during data acquisition with the 400 MHz antenna. GPR data were collected down to a maximum depth of approximately five feet, based on an estimated two-way travel time of 9 nanoseconds per foot. All of the GPR data were downloaded to a field computer and reviewed in the field and office using Radprint software.

In addition to the office building and storage shed, the Payne Oil Company property has approximately eight separate areas containing miscellaneous equipment, propane tanks and containers. These areas were not accessible with the EM61 metal detection or the GPR instruments and were excluded from the geophysical survey area.

Locations of the EM61 metal detection and the GPR survey lines are shown as red dots and purple lines, respectively in **Figure 2**. Each red dot represents an EM61 data point. GPR reconnaissance areas are outlined with purple polygons in Figure 2. Contour plots of the EM61 bottom coil results and the EM61 differential results for the Payne Oil Company property are presented in **Figures 3 and 4**, respectively. The bottom coil results represent the most sensitive component of the EM61 instrument and detect metal objects regardless of size. The bottom coil response can be used to delineate metal conduits or utility lines, small, isolated metal objects, and areas containing insignificant metal debris. The differential results are obtained from the difference between the top

and bottom coils of the EM61 instrument. The differential results focus on the larger metal objects such as drums and USTs and ignore the smaller insignificant metal objects. Each of the figures also shows the areas that contained equipment or tanks that were excluded from the geophysical survey investigation.

Preliminary contour plots of the EM61 bottom coil and differential results for the site were emailed to Mr. Branson on February 2, 2009.

## 3.0 DISCUSSION OF RESULTS

The linear EM61 bottom coil anomaly intersecting grid coordinates X=350 Y=195 is probably in response to a buried utility line running from the office building southward towards Graham Road. The linear bottom coil anomalies intersecting grid coordinates X=200 Y=333 and X=205 Y=175 are probably in response to railroad tracks. The linear bottom coil anomalies intersecting grid coordinates X=196 Y=100, X=360 Y=178, X=480 Y=355 are probably in response to the metal fence line that runs along the perimeter of the Payne Oil Company property.

GPR data suggest that the high amplitude bottom coil anomalies centered near grid coordinates X=220 Y=240 and X=460 Y=310 are in response to steel reinforced concrete pads. The high amplitude EM61 bottom coil anomalies centered near grid coordinates X=292 Y=205 and X=360 Y=305 are probably in response to the metallic dumpster and the propane tanks, respectively. Similarly, GPR data suggest the bottom coil anomalies centered around grid coordinates X=400 Y=305 and X=400 Y=340 are in response to the confluence of the steel reinforced concrete pad, surrounding equipment and/or buildings. The remaining EM61 bottom coil anomalies are probably in response to the buildings, equipment, tanks, steel reinforced concrete, or other known surface objects.

Similar to the bottom coil results, the negative EM61 differential anomalies (contours shaded in green) represent surface or above surface metallic objects such as the steel reinforced concrete, equipment, propane tanks, ASTs, buildings and other miscellaneous objects. The high amplitude

differential anomalies centered near grid coordinates X=460 Y=307 and X=500 Y=335 are probably in response to the steel reinforced concrete and the AST, respectively. The remaining differential anomalies are probably in response to known surface objects or equipment.

The GPR reconnaissance conducted along the southwest corner of the office building and adjacent to the UST fill/vent ports suggests that the known and "closed" UST lies entirely beneath the office building and/or air conditioning pad. The GPR reconnaissance conducted along the western portion of the containment area (centered around grid coordinates X=160 Y=210) suggests the area does not contain metallic USTs.

Excluding the known, closed UST that lies beneath the southwest corner of the office building, the geophysical investigation suggests that the surveyed portion of the Payne Oil Company property does not contain buried, unknown, metallic USTs.

## 4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across the Payne Oil Company, Inc. property located at 209 Graham Road in Graham, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the surveyed portions of the site.

- In addition to the office building and storage shed, the Payne Oil Company property has approximately eight separate areas containing miscellaneous equipment, propane tanks, and containers. These areas were not accessible with the EM61 metal detection or the GPR instruments and were excluded from the geophysical survey area.

- The linear EM61 bottom coil anomaly intersecting grid coordinates X=350 Y=195 is probably in response to a buried utility line running from the office building southward towards Graham Road.

- GPR data suggest that the high amplitude EM61 bottom coil anomalies centered near grid coordinates X=220 Y=240 and X=460 Y=310 are in response to steel reinforced concrete pads.

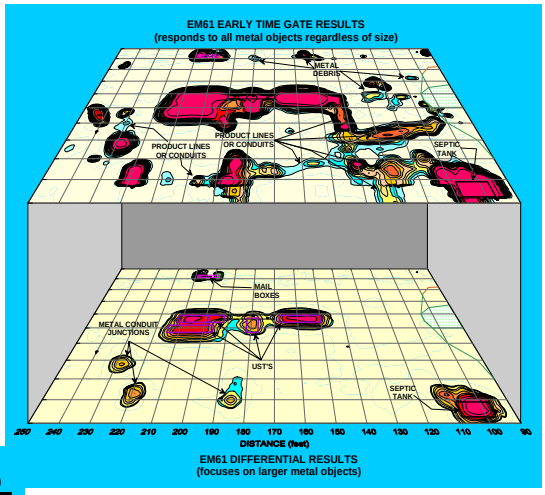
- The remaining EM61 bottom coil anomalies are probably in response to the buildings, equipment, tanks, steel reinforced concrete, or other known surface objects.

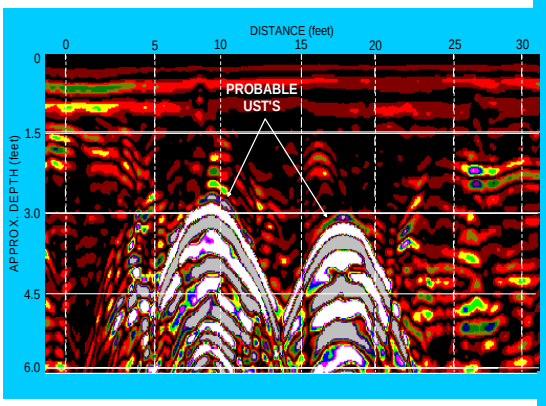
- The GPR reconnaissance conducted along the southwest corner of the office building and adjacent to the UST fill/vent ports suggests that the known and "closed" UST lies entirely beneath the office building and/or air conditioning pad.

- The geophysical investigation suggests that the surveyed portion of the Payne Oil Company property does not contain buried, unknown, metallic USTs.

## 5.0 LIMITATIONS

EM61 and GPR surveys have been performed and this report prepared for AECOM Environment in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project do not conclusively determine that the surveyed portion of the site does not contain unknown metallic USTs but that none were detected.




# FIGURES

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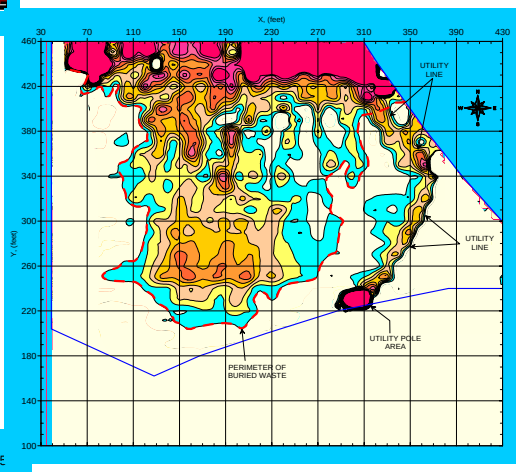


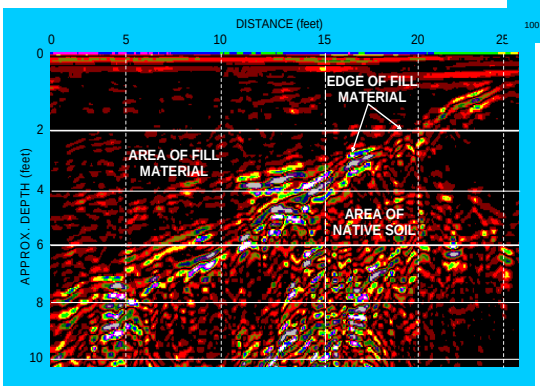

The photograph shows the Geonics EM61 metal detector that was used to conduct the metal detection survey across the Payne Oil Company property on January 29-30, 2009.

The photographs show the SIR-2000 GPR system equipped with a 400 MHz antenna that were used to conduct the ground penetrating radar investigation at the Payne Oil Company property on January 30, 2009.


The photograph shows a portion of the geophysical survey area located at the Payne Oil Company property. The photograph is viewed in a northeasterly direction.


The photograph shows the portion of the containment area located west of the large ASTs where a GPR reconnaissance was conducted. The photograph is viewed in a southerly direction.

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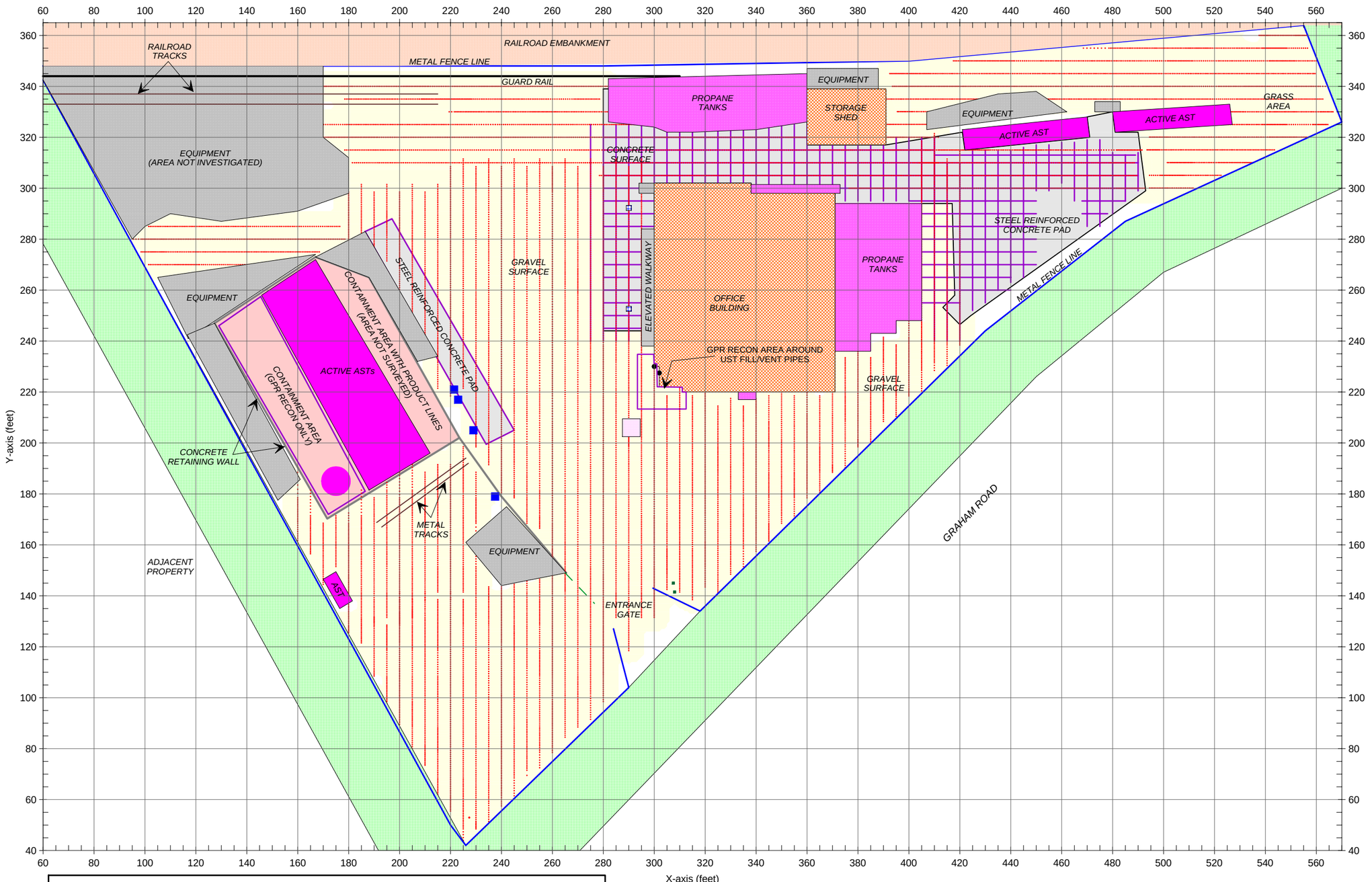
| | | | | | |
|---|---|---|---|---|---|
| CLIENT | AECOM ENVIRONMENT | DATE | 02/06/09 | DRWN | MJD |
| SITE | PAYNE OIL COMPANY, INC. PROPERTY | LAY | | CHKD | |
| CITY | GRAHAM | STATE | NORTH CAROLINA | DWG | |
| TITLE | GEOPHYSICAL RESULTS | JNO | 2008-188 | FIGURE | |

GEOPHYSICAL EQUIPMENT & SITE PHOTOGRAPHS

FIGURE 1




## LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- ABOVE GROUND PROPANE TANK (AST)
- LARGE AST
- EQUIPMENT (AREA NOT INVESTIGATED)
- DUMPSTER
- UST FILL PORT
- DRAIN GRATE
- GAS PUMP
- METAL FENCE LINE
- METAL GUARD RAIL
- RAILROAD TRACKS
- EM61 METAL DETECTION SURVEY LINE
- GPR SURVEY LINE
- AREA SCANNED WITH GPR UNIT

Note: The map shows the geophysical survey area at the Payne Oil Company property The red dots represent the EM61 survey lines that were acquired on January 29-30, 2009 using a Geonics EM61 metal detection instrument.The purple lines represent the ground penetrating radar (GPR) survey lines that were acquired on January 30, 2009 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna. Areas that were scanned with the GPR unit are shown as purple polygons.

# GEOPHYSICAL SURVEY LINE LOCATIONS

FIGURE 2

GRAPHIC SCALE IN FEET

| DRWN | CHKD | | FIGURE |
|---|---|---|---|
| MJD | | | |
| DATE | LAY | DWG | J.NO. |
| 02/06/09 | | | 2009-031 |

CLIENT: AECOM ENVIRONMENT
SITE: PAYNE OIL COMPANY, INC. PROPERTY
CITY: GRAHAM
STATE: NORTH CAROLINA
TITLE: GEOPHYSICAL RESULTS

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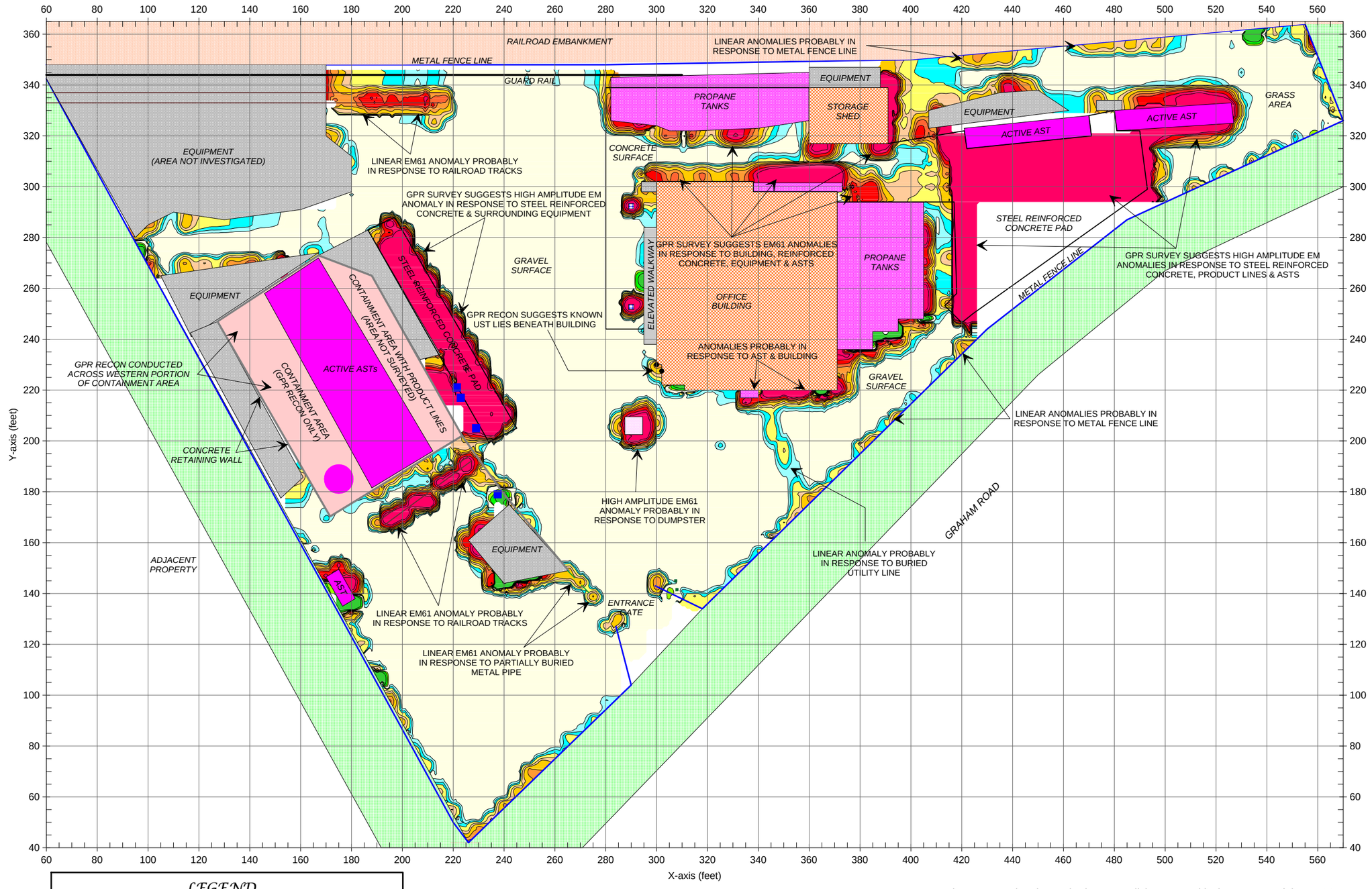
# EM61 METAL DETECTION BOTTOM COIL RESULTS

FIGURE 3




## LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- ABOVE GROUND PROPANE TANK (AST)
- LARGE AST
- EQUIPMENT (AREA NOT INVESTIGATED)
- DUMPSTER
- UST FILL PORT
- DRAIN GRATE
- GAS PUMP
- METAL FENCE LINE
- METAL GUARD RAIL
- RAILROAD TRACKS

Note: The contour plot shows the bottom coil (most sensitive) response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The EM metal detection data were collected on January 29-30, 2009 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on January 30, 2009 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

Excluding the known, but closed UST located beneath the office building, the geophysical investigation did not detect the presence of additional USTs.

GRAPHIC SCALE IN FEET

| DRWN | CHKD | LAY | DWG | FIGURE |
|---|---|---|---|---|
| MJD | | | | |
| DATE | | | J-NO. | |
| 02/06/09 | | | 2009-031 | |

CLIENT: AECOM ENVIRONMENT
SITE: PAYNE OIL COMPANY, INC. PROPERTY
CITY: GRAHAM
STATE: NORTH CAROLINA
TITLE: GEOPHYSICAL RESULTS

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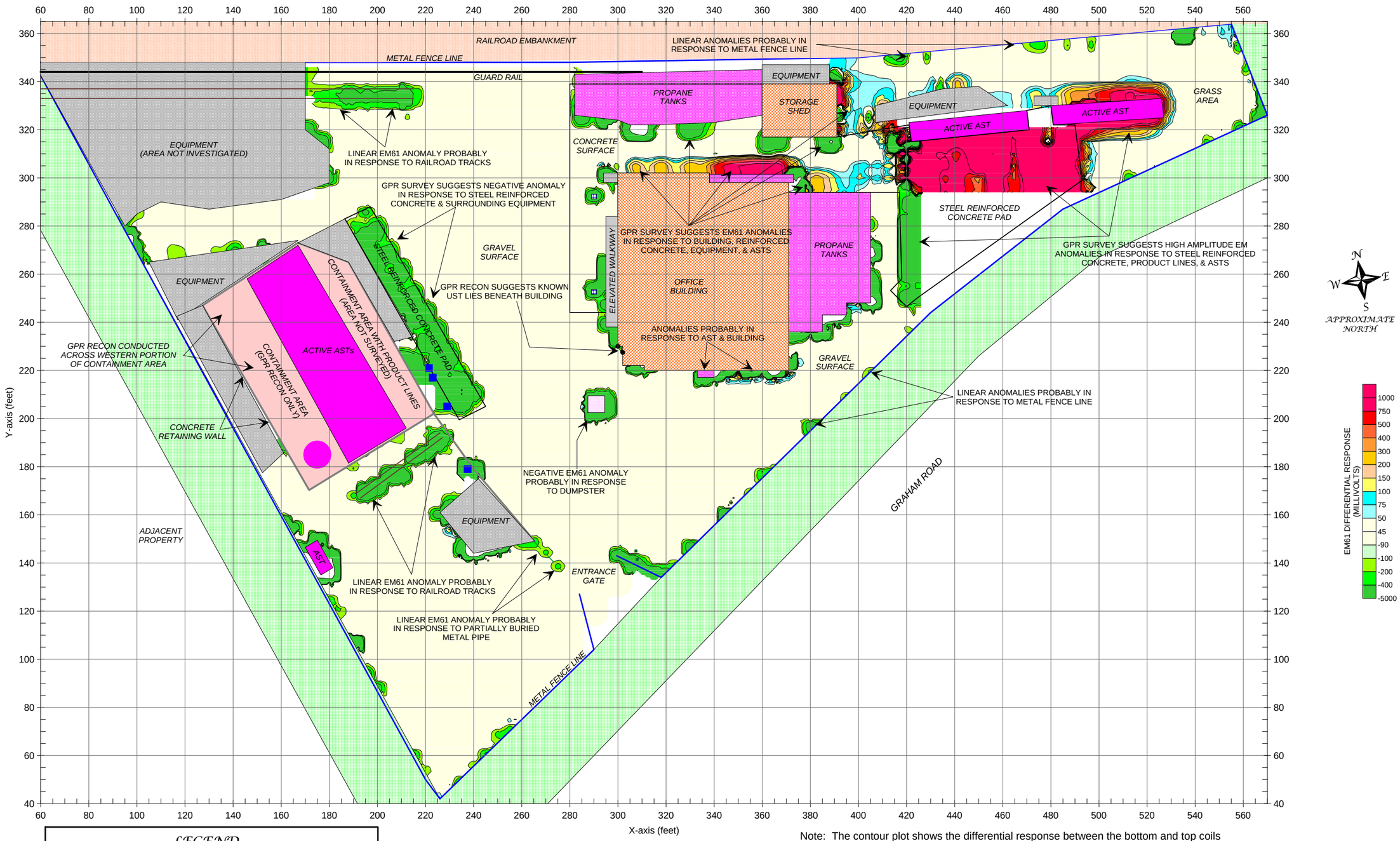
# EM61 METAL DETECTION DIFFERENTIAL RESULTS

FIGURE 4




## LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- ABOVE GROUND PROPANE TANK (AST)
- LARGE AST
- EQUIPMENT (AREA NOT INVESTIGATED)
- DUMPSTER
- UST FILL PORT
- DRAIN GRATE
- GAS PUMP
- METAL FENCE LINE
- METAL GUARD RAIL
- RAILROAD TRACKS

Note: The contour plot shows the differential response between the bottom and top coils of the EM61 instrument in millivolts (mV). The differential response focuses on larger, buried metallic objects such as drums and UST's and ignores smaller miscellaneous, buried, metal debris. The EM61 data were collected on January 29-30, 2009 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on January 30, 2009 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

Excluding the known, but closed UST located beneath the office building, the geophysical investigation did not detect the presence of additional USTs. All of the negative EM61 anomalies (contours shaded in green) are probably in response to surface metallic objects and equipment.

GRAPHIC SCALE IN FEET

| DRWN | CHKD | | FIGURE |
|---|---|---|---|
| MJD | | | |
| DATE | LAY | DWG | J.NO. |
| 02/06/09 | | | 2009-031 |

CLIENT: AECOM ENVIRONMENT

SITE: PAYNE OIL COMPANY, INC. PROPERTY

CITY: GRAHAM

STATE: NORTH CAROLINA

TITLE: GEOPHYSICAL RESULTS

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**ATTACHMENT B**

# TEST BORING REPORT

**PROJECT** PAYNE OIL CO. PSA
**CLIENT** NCDOT
**PROJECT NUMBER** 110879 (P-3414O)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** SS-1
**PAGE** 1
**ELEVATION**
**DATE** 2/5/09
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | OVA (ppm) | BLOWS PER 6 INCHES | SAMPLE NUMBER | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | 0.19 | | | | 6" GRAVEL, MEDIUM TO REDDISH BROWN SILTY CLAY, DRY, NO ODORS. |
| | 0.31 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.34 | | | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | 0.41 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.45 | | | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| 10.0 | | | | | BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** PAYNE OIL CO. PSA
**CLIENT** NCDOT
**PROJECT NUMBER** 110879 (P-3414O)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** SS-2
**PAGE** 1
**ELEVATION**
**DATE** 2/5/09
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | OVA (ppm) | BLOWS PER 6 INCHES | SAMPLE NUMBER | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | 0.56 | | | | 6" GRAVEL, MEDIUM TO REDDISH BROWN SILTY CLAY, DRY, NO ODORS. |
| | 0.54 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.59 | | | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | 1.51 | | | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| | 0.54 | | | | AS ABOVE, DRY, NO ODOR. |
| 10.0 | | | | | BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** PAYNE OIL CO. PSA
**CLIENT** NCDOT
**PROJECT NUMBER** 110879 (P-3414O)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** SS-3
**PAGE** 1
**ELEVATION**
**DATE** 2/5/09
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | OVA (ppm) | BLOWS PER 6 INCHES | SAMPLE NUMBER | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | 1.53 | | | | 6" GRAVEL, MEDIUM TO REDDISH BROWN SILTY CLAY, DRY, NO ODORS. |
| | 0.55 | | | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| | 0.51 | | | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | 0.54 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.53 | | | | AS ABOVE, DRY, NO ODOR. |
| 10.0 | | | | | BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** PAYNE OIL CO. PSA
**CLIENT** NCDOT
**PROJECT NUMBER** 110879 (P-3414O)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** SS-4
**PAGE** 1
**ELEVATION**
**DATE** 2/5/09
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | OVA (ppm) | BLOWS PER 6 INCHES | SAMPLE NUMBER | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | 0.53 | | | | 6" GRAVEL, MEDIUM TO REDDISH BROWN SILTY CLAY, DRY, NO ODORS. |
| | 0.66 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.81 | | | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| 5.0 | | | | | |
| | 0.75 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.73 | | | | AS ABOVE, DRY, NO ODOR. |
| 10.0 | | | | | BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** PAYNE OIL CO. PSA
**CLIENT** NCDOT
**PROJECT NUMBER** 110879 (P-3414O)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** SS-5
**PAGE** 1
**ELEVATION**
**DATE** 2/5/09
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | OVA (ppm) | BLOWS PER 6 INCHES | SAMPLE NUMBER | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | 0.96 | | | | 6" GRAVEL, MEDIUM TO REDDISH BROWN SILTY CLAY, DRY, NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS. |
| | 0.66 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.64 | | | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | 0.68 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.60 | | | | AS ABOVE, DRY, NO ODOR. |
| 10.0 | | | | | BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** PAYNE OIL CO. PSA
**CLIENT** NCDOT
**PROJECT NUMBER** 110879 (P-3414O)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** SS-6
**PAGE** 1
**ELEVATION**
**DATE** 2/5/09
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | OVA (ppm) | BLOWS PER 6 INCHES | SAMPLE NUMBER | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | 0.45 | | | | 6" GRAVEL, MEDIUM TO REDDISH BROWN SILTY CLAY, DRY, NO ODORS. |
| | 0.53 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.52 | | | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | 0.55 | | | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| | 0.53 | | | | AS ABOVE, DRY, NO ODOR. |
| 10.0 | | | | | BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** PAYNE OIL CO. PSA
**CLIENT** NCDOT
**PROJECT NUMBER** 110879 (P-3414O)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** SS-7
**PAGE** 1
**ELEVATION**
**DATE** 2/5/09
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | OVA (ppm) | BLOWS PER 6 INCHES | SAMPLE NUMBER | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | 0.48 | | | | 6" GRAVEL, MEDIUM BROWN SILTY CLAY TO CLAYEY SILT, DRY, NO ODORS. |
| | 0.70 | | | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| | 0.45 | | | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | 0.45 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.43 | | | | AS ABOVE, DRY, NO ODOR. |
| 10.0 | | | | | BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** PAYNE OIL CO. PSA
**CLIENT** NCDOT
**PROJECT NUMBER** 110879 (P-3414O)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** SS-8
**PAGE** 1
**ELEVATION**
**DATE** 2/5/09
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | OVA (ppm) | BLOWS PER 6 INCHES | SAMPLE NUMBER | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | 0.34 | | | | 6" GRAVEL, MEDIUM BROWN SILTY CLAY TO CLAYEY SILT, DRY, NO ODORS. |
| | 0.31 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.31 | | | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | 0.29 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.36 | | | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| 10.0 | | | | | BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** PAYNE OIL CO. PSA
**CLIENT** NCDOT
**PROJECT NUMBER** 110879 (P-3414O)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** SS-9
**PAGE** 1
**ELEVATION**
**DATE** 2/5/09
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | OVA (ppm) | BLOWS PER 6 INCHES | SAMPLE NUMBER | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | 16.43 | | | | 6" GRAVEL, MEDIUM BROWN SILTY CLAY TO CLAYEY SILT, DRY, NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS. |
| | 3.06 | | | | AS ABOVE, DRY, NO ODOR. |
| | 9.09 | | | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | 1.49 | | | | AS ABOVE, DRY, NO ODOR. |
| | 2.06 | | | | AS ABOVE, DRY, NO ODOR. |
| 10.0 | | | | | BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** PAYNE OIL CO. PSA
**CLIENT** NCDOT
**PROJECT NUMBER** 110879 (P-3414O)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** SS-10
**PAGE** 1
**ELEVATION**
**DATE** 2/5/09
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | OVA (ppm) | BLOWS PER 6 INCHES | SAMPLE NUMBER | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | 0.006 | | | | 6" GRAVEL, MEDIUM BROWN SILTY CLAY TO CLAYEY SILT, DRY, NO ODORS. |
| | 2.11 | | | | AS ABOVE, DRY, NO ODOR. |
| | 41 | | | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| 5.0 | | | | | |
| | 2.69 | | | | AS ABOVE, DRY, NO ODOR. |
| | 2.22 | | | | AS ABOVE, DRY, NO ODOR. |
| 10.0 | | | | | BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** PAYNE OIL CO. PSA
**CLIENT** NCDOT
**PROJECT NUMBER** 110879 (P-3414O)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** SS-11
**PAGE** 1
**ELEVATION**
**DATE** 2/5/09
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | OVA (ppm) | BLOWS PER 6 INCHES | SAMPLE NUMBER | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | 0.11 | | | | 6" GRAVEL, MEDIUM BROWN SILTY CLAY TO CLAYEY SILT, DRY, NO ODORS. |
| | 0.15 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.14 | | | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | 0.18 | | | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| | 0.11 | | | | AS ABOVE, DRY, NO ODOR. |
| 10.0 | | | | | BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** PAYNE OIL CO. PSA
**CLIENT** NCDOT
**PROJECT NUMBER** 110879 (P-3414O)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** SS-12
**PAGE** 1
**ELEVATION**
**DATE** 2/5/09
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | OVA (ppm) | BLOWS PER 6 INCHES | SAMPLE NUMBER | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | 0.28 | | | | 6" GRAVEL, MEDIUM BROWN SILTY CLAY TO CLAYEY SILT, DRY, NO ODORS. |
| | 0.35 | | | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | 0.42 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.23 | | | | AS ABOVE, DRY, NO ODOR. |
| | 0.76 | | | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| 10.0 | | | | | BORING TERMINATED AT 10 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

**ATTACHMENT C**


PHOTO 1 - BORINGS AT UST AREA LOOKING NORTH


PHOTO 2 - BORING AT UST AREA LOOKING NORTHEAST


PHOTO 3 - BORING AT DIESEL FUEL DISPENSER LOOKING WEST


PHOTO 4 - BORINGS AT BULK FUEL DISPENSERS LOOKING NORTHWEST


PHOTO 5 - BORING AT BULK FUEL DISPENSER LOOKING WEST


PHOTO 6 - BORINGS AT BULK FUEL LOADING PLATFORM LOOKING NORTHWEST

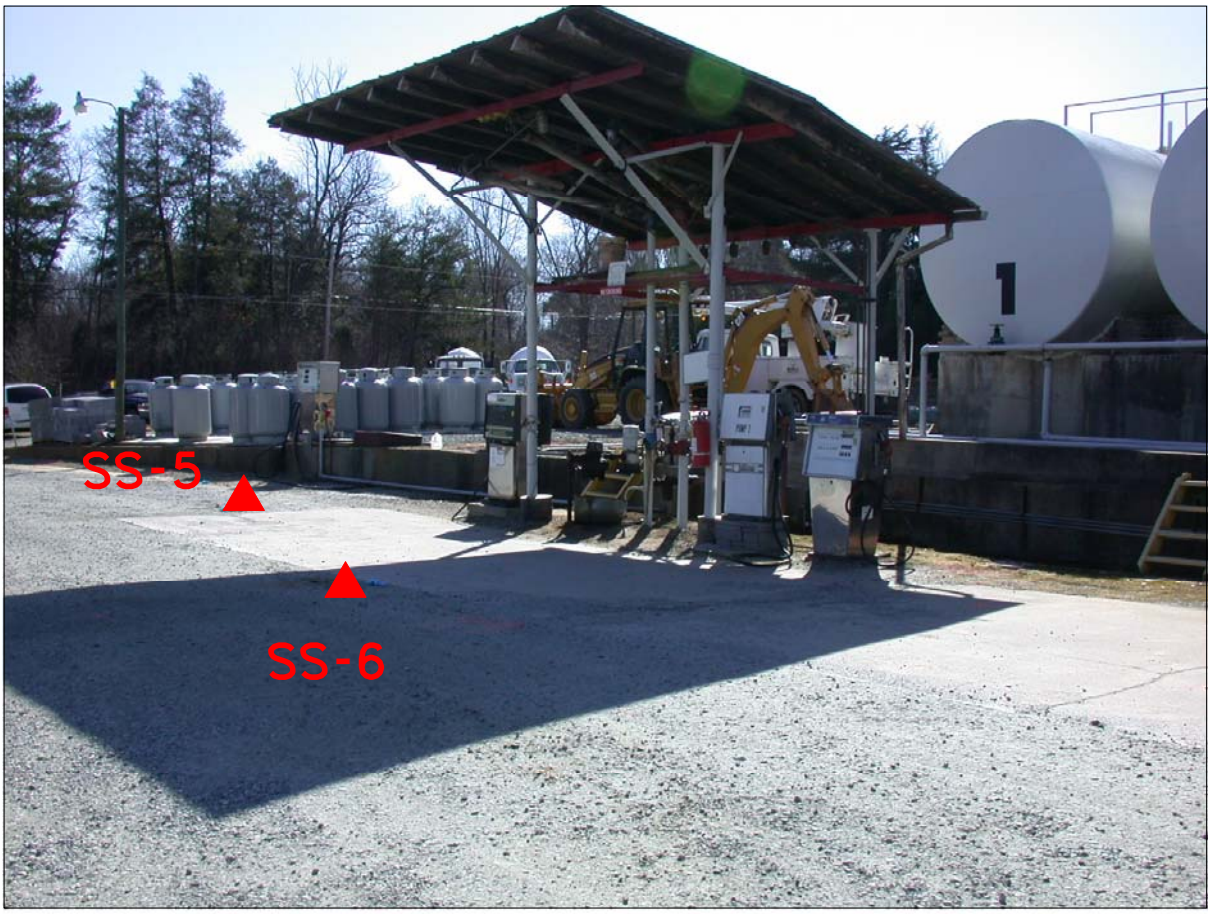


PHOTO 7 - BORINGS AT BULK FUEL DISPENSERS LOOKING SOUTH


PHOTO 8 - BORING AT BULK FUEL LOADING PLATFORM LOOKING WEST

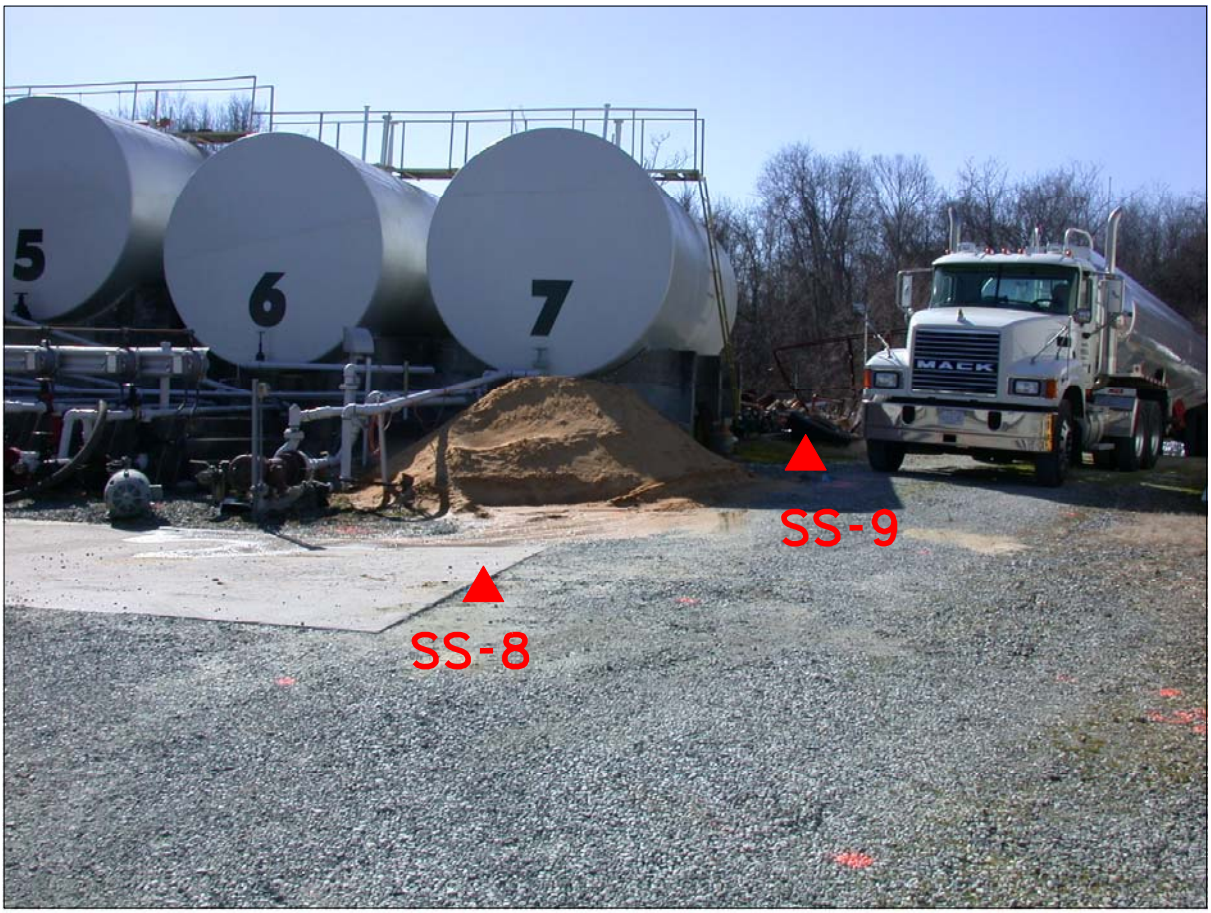


PHOTO 9 - BORINGS AT BULK FUEL LOADING PLATFORM AND CONTAINMENT AREA LOOKING WEST


PHOTO 10 - BORING AT AST CONTAINMENT AREA LOOKING NORTH


PHOTO 11 - STEP-OUT BORING IN PARKING AREA LOOKING WEST


PHOTO 12 - BORING AT PROPANE STORAGE AREA LOOKING NORTH

PHOTO 13 - SURFACE-STAINED SOIL AT BULK FUEL LOADING

PHOTO 14 - SURFACE-STAINED SOIL AT BULK FUEL LOADING

**ATTACHMENT D**

PRISM
LABORATORIES,INC.

# Case Narrative

| | | | |
|---|---|---|---|
| **Date:** | 02/13/09 | **Client Project ID:** | NCDOT - Payne Oil Co. |
| **Company:** | N. C. Department of Transportation | **Prism COC Group No:** | G0209229 |
| **Contact:** | Mike Branson | **Collection Date(s):** | 02/05/09 |
| **Address:** | c/o Earth Tech Remediation | **Lab Submittal Date(s):** | 02/06/09 |
| | 701 Corporate Center Dr. Ste 475 | | |
| | Raleigh, NC 27607 | **Client Project Name Or No:** | Alamance County WBS# 39364.1.1 |

This data package contains the analytical results for the project identified above and includes a Case Narrative, Laboratory Report and Quality Control Data totaling 15 pages. A chain-of-custody is also attached for the samples submitted to Prism for this project.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative. Quality control statements and/or sample specific remarks are included in the sample comments section of the laboratory report for each sample affected.

**Semi Volatile Analysis**

No Anomalies Reported

**Volatile Analysis**

No Anomalies Reported

**Metals Analysis**

N/A

**Wet Lab and Micro Analysis**

N/A

Please call if you have any questions relating to this analytical report.

| | | | |
|---|---|---|---|
| **Date Reviewed by:** | Robbi A. Jones | **Project Manager:** | Angela D. Overcash |
| **Signature:** | Robbi A. Jones | **Signature:** | |
| **Review Date:** | 02/13/09 | **Approval Date:** | 02/13/09 |

## Data Qualifiers Key Reference:

B: Compound also detected in the method blank.
#: Result outside of the QC limits.
DO: Compound diluted out.
E: Estimated concentration, calibration range exceeded.
J: The analyte was positively identified but the value is estimated below the reporting limit.
H: Estimated concentration with a high bias.
L: Estimated concentration with a low bias.
M: A matrix effect is present.

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735

# Laboratory Report

02/13/09

N. C. Department of Transportation
Attn: Mike Branson
c/o Earth Tech Remediation
701 Corporate Center Dr. Ste 475
Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1
Sample Matrix: Soil

Client Sample ID: SS-1
Prism Sample ID: 237249
COC Group: G0209229
Time Collected: 02/05/09 9:15
Time Submitted: 02/06/09 15:50

| Parameter | Result | Units | Report Limit | MDL | Dilution Factor | Method | Analysis Date/Time | Analyst | Batch ID |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Solids Determination** | | | | | | | | | |
| Percent Solids | **71.4** | % | | | 1 | SM2540 G | 02/09/09 14:00 | dsullivan | |
| **Diesel Range Organics (DRO) by GC-FID** | | | | | | | | | |
| Diesel Range Organics (DRO) | **BRL** | mg/kg | 9.8 | 1.6 | 1 | 8015B | 02/10/09 13:45 | jvogel | Q39122 |
| Sample Preparation: | | | | 25 g / | 1 mL | 3545 | 02/09/09 14:00 | pbarr | P23735 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| o-Terphenyl | 96 | 49 - 124 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sample Weight Determination** | | | | | | | | | |
| Weight 1 | **5.47** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| Weight 2 | **5.90** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| **Gasoline Range Organics (GRO) by GC-FID** | | | | | | | | | |
| Gasoline Range Organics (GRO) | **BRL** | mg/kg | 7.0 | 0.85 | 50 | 8015B | 02/09/09 15:56 | dliamm | Q39066 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| aaa-TFT | 75 | 55 - 129 |

Sample Comment(s):

*BRL = Below Reporting Limit*

*J- Estimated value between the Reporting Limit and the MDL*

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*All results are reported on a dry-weight basis*

Angela D. Overcash, V.P. Laboratory Services

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# Laboratory Report

02/13/09

N. C. Department of Transportation
Attn: Mike Branson
c/o Earth Tech Remediation
701 Corporate Center Dr. Ste 475
Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1
Sample Matrix: Soil

Client Sample ID: SS-2
Prism Sample ID: 237250
COC Group: G0209229
Time Collected: 02/05/09 9:40
Time Submitted: 02/06/09 15:50

| Parameter | Result | Units | Report Limit | MDL | Dilution Factor | Method | Analysis Date/Time | Analyst | Batch ID |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Solids Determination** | | | | | | | | | |
| Percent Solids | **72.5** | % | | | 1 | SM2540 G | 02/11/09 14:00 | dsullivan | |
| **Diesel Range Organics (DRO) by GC-FID** | | | | | | | | | |
| Diesel Range Organics (DRO) | **BRL** | mg/kg | 9.7 | 1.6 | 1 | 8015B | 02/10/09 14:17 | jvogel | Q39122 |
| Sample Preparation: | | | | 25 g / | 1 mL | 3545 | 02/09/09 14:00 | pbarr | P23735 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| o-Terphenyl | 67 | 49 - 124 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sample Weight Determination** | | | | | | | | | |
| Weight 1 | **5.88** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| Weight 2 | **5.78** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| **Gasoline Range Organics (GRO) by GC-FID** | | | | | | | | | |
| Gasoline Range Organics (GRO) | **BRL** | mg/kg | 6.9 | 0.84 | 50 | 8015B | 02/09/06 16:28 | dliamm | Q39066 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| aaa-TFT | 69 | 55 - 129 |

Sample Comment(s):

*BRL = Below Reporting Limit*

*J- Estimated value between the Reporting Limit and the MDL*

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# Laboratory Report

02/13/09

N. C. Department of Transportation
Attn: Mike Branson
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701 Corporate Center Dr. Ste 475
Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1
Sample Matrix: Soil

Client Sample ID: SS-3
Prism Sample ID: 237251
COC Group: G0209229
Time Collected: 02/05/09 10:00
Time Submitted: 02/06/09 15:50

| Parameter | Result | Units | Report Limit | MDL | Dilution Factor | Method | Analysis Date/Time | Analyst | Batch ID |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Solids Determination** | | | | | | | | | |
| Percent Solids | **68.1** | % | | | 1 | SM2540 G | 02/11/09 14:00 | dsullivan | |
| **Diesel Range Organics (DRO) by GC-FID** | | | | | | | | | |
| Diesel Range Organics (DRO) | **BRL** | mg/kg | 10 | 1.7 | 1 | 8015B | 02/10/09 14:52 | jvogel | Q39122 |
| Sample Preparation: | | | | 25 g | / 1 mL | 3545 | 02/09/09 14:00 | pbarr | P23735 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| o-Terphenyl | 74 | 49 - 124 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sample Weight Determination** | | | | | | | | | |
| Weight 1 | **6.18** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| Weight 2 | **6.13** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| **Gasoline Range Organics (GRO) by GC-FID** | | | | | | | | | |
| Gasoline Range Organics (GRO) | **BRL** | mg/kg | 7.3 | 0.90 | 50 | 8015B | 02/09/09 16:59 | dliamm | Q39066 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| aaa-TFT | 77 | 55 - 129 |

Sample Comment(s):

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*J- Estimated value between the Reporting Limit and the MDL*

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# Laboratory Report

02/13/09

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Attn: Mike Branson
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701 Corporate Center Dr. Ste 475
Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1
Sample Matrix: Soil

Client Sample ID: SS-4
Prism Sample ID: 237252
COC Group: G0209229
Time Collected: 02/05/09 10:15
Time Submitted: 02/06/09 15:50

| Parameter | Result | Units | Report Limit | MDL | Dilution Factor | Method | Analysis Date/Time | Analyst | Batch ID |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Solids Determination** | | | | | | | | | |
| Percent Solids | **70.3** | % | | | 1 | SM2540 G | 02/11/09 14:00 | dsullivan | |
| **Diesel Range Organics (DRO) by GC-FID** | | | | | | | | | |
| Diesel Range Organics (DRO) | **BRL** | mg/kg | 10 | 1.6 | 1 | 8015B | 02/10/09 15:28 | jvogel | Q39122 |
| Sample Preparation: | | | | 25 g / | 1 mL | 3545 | 02/09/09 14:00 | pbarr | P23735 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| o-Terphenyl | 63 | 49 - 124 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sample Weight Determination** | | | | | | | | | |
| Weight 1 | **5.46** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| Weight 2 | **5.80** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| **Gasoline Range Organics (GRO) by GC-FID** | | | | | | | | | |
| Gasoline Range Organics (GRO) | **BRL** | mg/kg | 7.1 | 0.87 | 50 | 8015B | 02/10/09 13:17 | dliamm | Q39109 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| aaa-TFT | 62 | 55 - 129 |

Sample Comment(s):

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# Laboratory Report

02/13/09

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Attn: Mike Branson
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701 Corporate Center Dr. Ste 475
Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1
Sample Matrix: Soil

Client Sample ID: SS-5
Prism Sample ID: 237253
COC Group: G0209229
Time Collected: 02/05/09 10:30
Time Submitted: 02/06/09 15:50

| Parameter | Result | Units | Report Limit | MDL | Dilution Factor | Method | Analysis Date/Time | Analyst | Batch ID |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Solids Determination** | | | | | | | | | |
| Percent Solids | **73.5** | % | | | 1 | SM2540 G | 02/11/09 14:00 | dsullivan | |
| **Diesel Range Organics (DRO) by GC-FID** | | | | | | | | | |
| Diesel Range Organics (DRO) | **BRL** | mg/kg | 9.5 | 1.5 | 1 | 8015B | 02/10/09 16:04 | jvogel | Q39122 |
| Sample Preparation: | | | | 25 g / | 1 mL | 3545 | 02/09/09 14:00 | pbarr | P23735 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| o-Terphenyl | 71 | 49 - 124 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sample Weight Determination** | | | | | | | | | |
| Weight 1 | **6.00** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| Weight 2 | **5.62** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| **Gasoline Range Organics (GRO) by GC-FID** | | | | | | | | | |
| Gasoline Range Organics (GRO) | **BRL** | mg/kg | 6.8 | 0.83 | 50 | 8015B | 02/10/09 13:48 | dliamm | Q39109 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| aaa-TFT | 71 | 55 - 129 |

Sample Comment(s):

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Angela D. Overcash, V.P. Laboratory Services



**449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543**

**Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409**

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# Laboratory Report

02/13/09

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Attn: Mike Branson
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701 Corporate Center Dr. Ste 475
Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1
Sample Matrix: Soil

Client Sample ID: SS-6
Prism Sample ID: 237254
COC Group: G0209229
Time Collected: 02/05/09 10:45
Time Submitted: 02/06/09 15:50

| Parameter | Result | Units | Report Limit | MDL | Dilution Factor | Method | Analysis Date/Time | Analyst | Batch ID |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Solids Determination** | | | | | | | | | |
| Percent Solids | **81.2** | % | | | 1 | SM2540 G | 02/11/09 14:00 | dsullivan | |
| **Diesel Range Organics (DRO) by GC-FID** | | | | | | | | | |
| Diesel Range Organics (DRO) | **BRL** | mg/kg | 8.6 | 1.4 | 1 | 8015B | 02/10/09 16:39 | jvogel | Q39122 |
| Sample Preparation: | | | | 25 g / | 1 mL | 3545 | 02/09/09 14:00 | pbarr | P23735 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| o-Terphenyl | 94 | 49 - 124 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sample Weight Determination** | | | | | | | | | |
| Weight 1 | **5.95** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| Weight 2 | **5.80** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| **Gasoline Range Organics (GRO) by GC-FID** | | | | | | | | | |
| Gasoline Range Organics (GRO) | **BRL** | mg/kg | 6.2 | 0.75 | 50 | 8015B | 02/10/09 14:20 | dliamm | Q39109 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| aaa-TFT | 81 | 55 - 129 |

Sample Comment(s):

*BRL = Below Reporting Limit*

*J- Estimated value between the Reporting Limit and the MDL*

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Angela D. Overcash, V.P. Laboratory Services

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SC Certification No. 99012
NC Drinking Water Cert. No. 37735

# Laboratory Report

02/13/09

N. C. Department of Transportation
Attn: Mike Branson
c/o Earth Tech Remediation
701 Corporate Center Dr. Ste 475
Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1
Sample Matrix: Soil

Client Sample ID: SS-7
Prism Sample ID: 237255
COC Group: G0209229
Time Collected: 02/05/09 11:00
Time Submitted: 02/06/09 15:50

| Parameter | Result | Units | Report Limit | MDL | Dilution Factor | Method | Analysis Date/Time | Analyst | Batch ID |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Solids Determination** | | | | | | | | | |
| Percent Solids | **79.6** | % | | | 1 | SM2540 G | 02/11/09 14:00 | dsullivan | |
| **Diesel Range Organics (DRO) by GC-FID** | | | | | | | | | |
| Diesel Range Organics (DRO) | **BRL** | mg/kg | 8.8 | 1.4 | 1 | 8015B | 02/10/09 17:15 | jvogel | Q39122 |
| Sample Preparation: | | | | 25 g / | 1 mL | 3545 | 02/09/09 14:00 | pbarr | P23735 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| o-Terphenyl | 68 | 49 - 124 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sample Weight Determination** | | | | | | | | | |
| Weight 1 | **5.72** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| Weight 2 | **6.51** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| **Gasoline Range Organics (GRO) by GC-FID** | | | | | | | | | |
| Gasoline Range Organics (GRO) | **BRL** | mg/kg | 6.3 | 0.77 | 50 | 8015B | 02/10/09 14:51 | dliamm | Q39109 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| aaa-TFT | 82 | 55 - 129 |

Sample Comment(s):

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Angela D. Overcash, V.P. Laboratory Services



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**Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409**

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# Laboratory Report

02/13/09

N. C. Department of Transportation
Attn: Mike Branson
c/o Earth Tech Remediation
701 Corporate Center Dr. Ste 475
Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1
Sample Matrix: Soil

Client Sample ID: SS-8
Prism Sample ID: 237256
COC Group: G0209229
Time Collected: 02/05/09 11:20
Time Submitted: 02/06/09 15:50

| Parameter | Result | Units | Report Limit | MDL | Dilution Factor | Method | Analysis Date/Time | Analyst | Batch ID |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Solids Determination** | | | | | | | | | |
| Percent Solids | **81.2** | % | | | 1 | SM2540 G | 02/11/09 14:00 | dsullivan | |
| **Diesel Range Organics (DRO) by GC-FID** | | | | | | | | | |
| Diesel Range Organics (DRO) | **BRL** | mg/kg | 8.6 | 1.4 | 1 | 8015B | 02/10/09 17:50 | jvogel | Q39122 |
| Sample Preparation: | | | | 25 g / | 1 mL | 3545 | 02/09/09 14:00 | pbarr | P23735 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| o-Terphenyl | 64 | 49 - 124 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sample Weight Determination** | | | | | | | | | |
| Weight 1 | **5.73** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| Weight 2 | **5.79** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| **Gasoline Range Organics (GRO) by GC-FID** | | | | | | | | | |
| Gasoline Range Organics (GRO) | **BRL** | mg/kg | 6.2 | 0.75 | 50 | 8015B | 02/10/09 15:22 | dliamm | Q39109 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| aaa-TFT | 82 | 55 - 129 |

Sample Comment(s):

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# Laboratory Report

02/13/09

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701 Corporate Center Dr. Ste 475
Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1
Sample Matrix: Soil

Client Sample ID: SS-9
Prism Sample ID: 237257
COC Group: G0209229
Time Collected: 02/05/09 11:50
Time Submitted: 02/06/09 15:50

| Parameter | Result | Units | Report Limit | MDL | Dilution Factor | Method | Analysis Date/Time | Analyst | Batch ID |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Solids Determination** | | | | | | | | | |
| Percent Solids | **73.3** | % | | | 1 | SM2540 G | 02/11/09 14:00 | dsullivan | |
| **Diesel Range Organics (DRO) by GC-FID** | | | | | | | | | |
| Diesel Range Organics (DRO) | **BRL** | mg/kg | 9.5 | 1.5 | 1 | 8015B | 02/10/09 18:26 | jvogel | Q39122 |
| Sample Preparation: | | | | 25 g / | 1 mL | 3545 | 02/09/09 14:00 | pbarr | P23735 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| o-Terphenyl | 65 | 49 - 124 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sample Weight Determination** | | | | | | | | | |
| Weight 1 | **6.59** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| Weight 2 | **5.65** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| **Gasoline Range Organics (GRO) by GC-FID** | | | | | | | | | |
| Gasoline Range Organics (GRO) | **8.5** | mg/kg | 6.8 | 0.83 | 50 | 8015B | 02/10/09 15:54 | dliamm | Q39109 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| aaa-TFT | 69 | 55 - 129 |

Sample Comment(s):

*BRL = Below Reporting Limit*

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# Laboratory Report

02/13/09

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Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1
Sample Matrix: Soil

Client Sample ID: SS-10
Prism Sample ID: 237258
COC Group: G0209229
Time Collected: 02/05/09 12:10
Time Submitted: 02/06/09 15:50

| Parameter | Result | Units | Report Limit | MDL | Dilution Factor | Method | Analysis Date/Time | Analyst | Batch ID |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Solids Determination** | | | | | | | | | |
| Percent Solids | **80.9** | % | | | 1 | SM2540 G | 02/11/09 14:00 | dsullivan | |
| **Diesel Range Organics (DRO) by GC-FID** | | | | | | | | | |
| Diesel Range Organics (DRO) | **860** | mg/kg | 87 | 14 | 10 | 8015B | 02/10/09 19:01 | jvogel | Q39122 |
| Sample Preparation: | | | | 25 g | / 1 mL | 3545 | 02/09/09 14:00 | pbarr | P23735 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| o-Terphenyl | DO # | 49 - 124 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sample Weight Determination** | | | | | | | | | |
| Weight 1 | **5.84** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| Weight 2 | **7.39** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| **Gasoline Range Organics (GRO) by GC-FID** | | | | | | | | | |
| Gasoline Range Organics (GRO) | **160** | mg/kg | 6.2 | 0.75 | 50 | 8015B | 02/10/09 17:28 | dliamm | Q39109 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| aaa-TFT | 70 | 55 - 129 |

Sample Comment(s):

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*All results are reported on a dry-weight basis*

Angela D. Overcash, V.P. Laboratory Services



**449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543**

**Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409**

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735

# Laboratory Report

02/13/09

N. C. Department of Transportation
Attn: Mike Branson
c/o Earth Tech Remediation
701 Corporate Center Dr. Ste 475
Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1
Sample Matrix: Soil

Client Sample ID: SS-11
Prism Sample ID: 237259
COC Group: G0209229
Time Collected: 02/05/09 12:30
Time Submitted: 02/06/09 15:50

| Parameter | Result | Units | Report Limit | MDL | Dilution Factor | Method | Analysis Date/Time | Analyst | Batch ID |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Solids Determination** | | | | | | | | | |
| Percent Solids | **74.3** | % | | | 1 | SM2540 G | 02/11/09 14:00 | dsullivan | |
| **Diesel Range Organics (DRO) by GC-FID** | | | | | | | | | |
| Diesel Range Organics (DRO) | **BRL** | mg/kg | 9.4 | 1.5 | 1 | 8015B | 02/10/09 19:36 | jvogel | Q39122 |
| Sample Preparation: | | | | 25 g / 1 mL | | 3545 | 02/09/09 14:00 | pbarr | P23735 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| o-Terphenyl | 73 | 49 - 124 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sample Weight Determination** | | | | | | | | | |
| Weight 1 | **5.90** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| Weight 2 | **5.94** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| **Gasoline Range Organics (GRO) by GC-FID** | | | | | | | | | |
| Gasoline Range Organics (GRO) | **BRL** | mg/kg | 6.7 | 0.82 | 50 | 8015B | 02/10/09 16:25 | dliamm | Q39109 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| aaa-TFT | 82 | 55 - 129 |

Sample Comment(s):

*BRL = Below Reporting Limit*

*J- Estimated value between the Reporting Limit and the MDL*

*The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.*

*All results are reported on a dry-weight basis*

Angela D. Overcash, V.P. Laboratory Services

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735

# Laboratory Report

02/13/09

N. C. Department of Transportation
Attn: Mike Branson
c/o Earth Tech Remediation
701 Corporate Center Dr. Ste 475
Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1
Sample Matrix: Soil

Client Sample ID: SS-12
Prism Sample ID: 237260
COC Group: G0209229
Time Collected: 02/05/09 13:00
Time Submitted: 02/06/09 15:50

| Parameter | Result | Units | Report Limit | MDL | Dilution Factor | Method | Analysis Date/Time | Analyst | Batch ID |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Solids Determination** | | | | | | | | | |
| Percent Solids | **82.8** | % | | | 1 | SM2540 G | 02/11/09 14:00 | dsullivan | |
| **Diesel Range Organics (DRO) by GC-FID** | | | | | | | | | |
| Diesel Range Organics (DRO) | **BRL** | mg/kg | 8.5 | 1.4 | 1 | 8015B | 02/10/09 20:47 | jvogel | Q39122 |
| Sample Preparation: | | | | 25 g / | 1 mL | 3545 | 02/09/09 14:00 | pbarr | P23735 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| o-Terphenyl | 72 | 49 - 124 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sample Weight Determination** | | | | | | | | | |
| Weight 1 | **6.49** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| Weight 2 | **6.26** | g | | | 1 | GRO | 02/09/09 0:00 | lbrown | |
| **Gasoline Range Organics (GRO) by GC-FID** | | | | | | | | | |
| Gasoline Range Organics (GRO) | **BRL** | mg/kg | 6.0 | 0.74 | 50 | 8015B | 02/10/09 16:57 | dliamm | Q39109 |

| Surrogate | % Recovery | Control Limits |
|---|---|---|
| aaa-TFT | 80 | 55 - 129 |

Sample Comment(s):

*BRL = Below Reporting Limit*

*J- Estimated value between the Reporting Limit and the MDL*

*The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.*

*All results are reported on a dry-weight basis*

Angela D. Overcash, V.P. Laboratory Services



**449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543**

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PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735

# Level II QC Report

2/13/2009

N. C. Department of Transportation
Attn: Mike Branson
c/o Earth Tech Remediation
701 Corporate Center Dr. Ste 475
Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1

COC Group Number: G0209229
Date/Time Submitted: 2/6/2009 15:50

**Gasoline Range Organics (GRO) by GC-FID, method 8015B**

| Method Blank | Result | RL | Control Limit | Units | QC Batch ID |
|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 5 | <2.5 | mg/kg | Q39066 |

| Laboratory Control Sample | Result | Spike Amount | Units | Recovery % | Recovery Ranges % | QC Batch ID |
|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 43.0 | 50 | mg/kg | 86 | 67-116 | Q39066 |

| Matrix Spike Sample ID: | Result | Spike Amount | Units | Recovery % | Recovery Ranges % | QC Batch ID |
|---|---|---|---|---|---|---|
| 237249 Gasoline Range Organics (GRO) | 32.1 | 50 | mg/kg | 64 | 57-113 | Q39066 |

| Matrix Spike Duplicate Sample ID: | Result | Spike Amount | Units | Recovery % | Recovery Ranges % | RPD % | RPD Range % | QC Batch ID |
|---|---|---|---|---|---|---|---|---|
| 237249 Gasoline Range Organics (GRO) | 34.5 | 50 | mg/kg | 69 | 57-113 | 7 | 0 - 23 | Q39066 |

**Gasoline Range Organics (GRO) by GC-FID, method 8015B**

| Method Blank | Result | RL | Control Limit | Units | QC Batch ID |
|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 5 | <2.5 | mg/kg | Q39109 |

| Laboratory Control Sample | Result | Spike Amount | Units | Recovery % | Recovery Ranges % | QC Batch ID |
|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 38.3 | 50 | mg/kg | 77 | 67-116 | Q39109 |

| Matrix Spike Sample ID: | Result | Spike Amount | Units | Recovery % | Recovery Ranges % | QC Batch ID |
|---|---|---|---|---|---|---|
| 237252 Gasoline Range Organics (GRO) | 31.8 | 50 | mg/kg | 64 | 57-113 | Q39109 |

| Matrix Spike Duplicate Sample ID: | Result | Spike Amount | Units | Recovery % | Recovery Ranges % | RPD % | RPD Range % | QC Batch ID |
|---|---|---|---|---|---|---|---|---|
| 237252 Gasoline Range Organics (GRO) | 34 | 50 | mg/kg | 68 | 57-113 | 7 | 0 - 23 | Q39109 |

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735

# Level II QC Report

2/13/2009

N. C. Department of Transportation
Attn: Mike Branson
c/o Earth Tech Remediation
701 Corporate Center Dr. Ste 475
Raleigh, NC 27607

Project Name: Alamance County
Project ID: NCDOT - Payne Oil Co.
Project No.: WBS# 39364.1.1

COC Group Number: G0209229
Date/Time Submitted: 2/6/2009 15:50

**Diesel Range Organics (DRO) by GC-FID, method 8015B**

| **Method Blank** | Result | RL | Control Limit | Units | QC Batch ID |
|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 7 | <3.5 | mg/kg | Q39122 |

| **Laboratory Control Sample** | Result | Spike Amount | Units | Recovery % | Recovery Ranges % | QC Batch ID |
|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 56.7 | 80 | mg/kg | 71 | 55-109 | Q39122 |

| **Matrix Spike** Sample ID: | Result | Spike Amount | Units | Recovery % | Recovery Ranges % | QC Batch ID |
|---|---|---|---|---|---|---|
| 237247 Diesel Range Organics (DRO) | 59.1 | 80 | mg/kg | 74 | 50-117 | Q39122 |

| **Matrix Spike Duplicate** Sample ID: | Result | Spike Amount | Units | Recovery % | Recovery Ranges % | RPD % | RPD Range % | QC Batch ID |
|---|---|---|---|---|---|---|---|---|
| 237247 Diesel Range Organics (DRO) | 73.0 | 80 | mg/kg | 91 | 50-117 | 21 | 0 - 24 | Q39122 |

**#-See Case Narrative**

# CHAIN OF CUSTODY RECORD

PRISM LABORATORIES, INC.

Full Service Analytical & Environmental Solutions

449 Springbrook Road • P.O. Box 240543 • Charlotte, NC 28224-0543
Phone: 704/529-6364 • Fax: 704/525-0409

PAGE 1 OF 2 QUOTE # TO ENSURE PROPER BILLING: _____

Project Name: NCDOT - Payne Dic Co.
Short Hold Analysis: (Yes) (No) UST Project: (Yes) (No)
*Please ATTACH any project specific reporting (QC LEVEL I II III IV) provisions and/or QC Requirements
Invoice To: NCDOT
Address: _____

Client Company Name: Earth Tech
Report To/Contact Name: Mike Branson
Reporting Address: 701 Corporate Center Dr. Suite 475 Raleigh NC 27607
Phone: 9198546238 Fax (Yes) (No): 9198546259
Email (Yes) (No) Email Address Mike.Branson@AECOM.com
EDD Type: PDF ✓ Excel ___ Other ___
Site Location Name: Payne DIC
Site Location Physical Address: Haw River

Purchase Order No./Billing Reference WBS 39364.1.1
Requested Due Date ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days ☐ 5 Days
"Working Days" ☐ 6-9 Days ☒ Standard 10 days ☐ Rush Work Must Be Pre-Approved
Samples received after 15:00 will be processed next business day.
Turnaround time is based on business days, excluding weekends and holidays.
(SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES RENDERED BY PRISM LABORATORIES, INC. TO CLIENT)

## LAB USE ONLY

| | YES | NO | N/A |
|---|---|---|---|
| Samples INTACT upon arrival? | ✓ | | |
| Received ON WET ICE? Temp 1.9 | ✓ | | |
| PROPER PRESERVATIVES indicated? | ✓ | | |
| Received WITHIN HOLDING TIMES? | ✓ | | |
| CUSTODY SEALS INTACT? | | | ✓ |
| VOLATILES rec'd W/OUT HEADSPACE? | | | ✓ |
| PROPER CONTAINERS used? | ✓ | | |

## TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: NELAC ___ USACE ___ FL ___ NC ✓
SC ___ OTHER ___ N/A ___
Water Chlorinated: YES ___ NO ___
Sample Iced Upon Collection: YES ✓ NO ___

| CLIENT SAMPLE DESCRIPTION | DATE COLLECTED | TIME COLLECTED MILITARY HOURS | MATRIX (SOIL, WATER OR SLUDGE) | SAMPLE CONTAINER *TYPE SEE BELOW | NO. | SIZE | PRESERVATIVES | ANALYSES REQUESTED DRO | GRO | REMARKS | PRISM LAB ID NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SS-1 | 2/5/09 | 0915 | Soil | CG | 4 | 4/VOA | MeOH | — | — | | 237249 |
| SS-2 | 2/5/09 | 0940 | Soil | CG | 4 | 4/VOA | MeOH | — | — | | 237250 |
| SS-3 | 2/5/09 | 1000 | Soil | CG | 4 | 4/VOA | MeOH | — | — | | 237251 |
| SS-4 | 2/5/09 | 1015 | Soil | CG | 4 | 4/VOA | MeOH | — | — | | 237252 |
| SS-5 | 2/5/09 | 1030 | Soil | CG | 4 | 4/VOA | MeOH | — | — | | 237253 |
| SS-6 | 2/5/09 | 1045 | Soil | CG | 4 | 4/VOA | MeOH | — | — | | 237254 |
| SS-7 | 2/5/09 | 1100 | Soil | CG | 4 | 4/VOA | MeOH | — | — | | 237255 |
| SS-8 | 2/5/09 | 1120 | Soil | CG | 4 | 4/VOA | MeOH | — | — | | 237256 |
| SS-9 | 2/5/09 | 1150 | Soil | CG | 4 | 4/VOA | MeOH | — | — | | 237257 |
| SS-10 | 2/5/09 | 1210 | Soil | CG | 4 | 4/VOA | MeOH | — | — | | 237258 |

PRESS DOWN FIRMLY - 3 COPIES

Sampler's Signature M Branson Sampled By (Print Name) M Branson Affiliation Earth Tech

Upon relinquishing, this Chain of Custody is your authorization for Prism to proceed with the analyses as requested above. Any changes must be submitted in writing to the Prism Project Manager. There will be charges for any changes after analyses have been initialized.

| | | Date | Military/Hours |
|---|---|---|---|
| Relinquished By: (Signature) M Branson | Received By: (Signature) Alex Lassiter | 2-6-9 | 1115 |
| Relinquished By: (Signature) Alex Lassiter | Received By: (Signature) David Morris | 2609 | 1310 |
| Relinquished By: (Signature) David Morris 2609 1550 | Received For Prism Laboratories By: | 2/6/09 | 1550 |

Method of Shipment: NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.

☐ Fed Ex ☐ UPS ☐ Hand-delivered ☒ Prism Field Service ☐ Other _____

COC Group No. G0209229

Additional Comments: Invoice NCDOT under Blanket PO

## PRISM USE ONLY

Site Arrival Time:
Site Departure Time:
Field Tech Fee:
Mileage:

| NPDES: | UST: | GROUNDWATER: | DRINKING WATER: | SOLID WASTE: | RCRA: | CERCLA | LANDFILL | OTHER: |
|---|---|---|---|---|---|---|---|---|
| ☐ NC ☐ SC ☐ ___ | ☒ NC ☐ SC ☐ ___ | ☐ NC ☐ SC ☐ ___ | ☐ NC ☐ SC ☐ ___ | ☐ NC ☐ SC ☐ ___ | ☐ NC ☐ SC ☐ ___ | ☐ NC ☐ SC ☐ ___ | ☐ NC ☐ SC ☐ ___ | ☐ NC ☐ SC ☐ ___ |

*CONTAINER TYPE CODES: A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL

# CHAIN OF CUSTODY RECORD

PAGE 2 OF 2 QUOTE # TO ENSURE PROPER BILLING: _____

**PRISM LABORATORIES, INC.**

Full Service Analytical & Environmental Solutions

449 Springbrook Road • P.O. Box 240543 • Charlotte, NC 28224-0543
Phone: 704/529-6364 • Fax: 704/525-0409

Client Company Name: EARTH TECH
Report To/Contact Name: MIKE BRANSON
Reporting Address: 701 CORPORATE CENTER DR SUITE 475 RALEIGH NC 27607
Phone: 9198546238 Fax (Yes) (No): 9198546259
Email (Yes) (No) Email Address: MIKE.BRANSON@AECOM.COM
EDD Type: PDF X Excel ___ Other ___
Site Location Name: PAYNE OIL
Site Location Physical Address: HAW RIVER

Project Name: NCDOT - PAYNE OIL CO.
Short Hold Analysis: (Yes) (No) UST Project: (Yes) (No)
*Please ATTACH any project specific reporting (QC LEVEL I II III IV) provisions and/or QC Requirements
Invoice To: NCDOT
Address: _____

Purchase Order No./Billing Reference WBS 39364.1.1
Requested Due Date ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days ☐ 5 Days
"Working Days" ☐ 6-9 Days ☒ Standard 10 days ☐ Rush Work Must Be Pre-Approved
Samples received after 15:00 will be processed next business day.
Turnaround time is based on business days, excluding weekends and holidays.
(SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES RENDERED BY PRISM LABORATORIES, INC. TO CLIENT)

**LAB USE ONLY**

| | YES | NO | N/A |
|---|---|---|---|
| Samples INTACT upon arrival? | ✓ | | |
| Received ON WET ICE? Temp 1.9 | ✓ | | |
| PROPER PRESERVATIVES indicated? | ✓ | | |
| Received WITHIN HOLDING TIMES? | ✓ | | |
| CUSTODY SEALS INTACT? | | | ✓ |
| VOLATILES rec'd W/OUT HEADSPACE? | | | ✓ |
| PROPER CONTAINERS used? | ✓ | | |

**TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL**

Certification: NELAC ___ USACE ___ FL ___ NC X
SC ___ OTHER ___ N/A ___
Water Chlorinated: YES ___ NO ___
Sample Iced Upon Collection: YES X NO ___

| CLIENT SAMPLE DESCRIPTION | DATE COLLECTED | TIME COLLECTED MILITARY HOURS | MATRIX (SOIL, WATER OR SLUDGE) | SAMPLE CONTAINER *TYPE SEE BELOW | NO. | SIZE | PRESERVATIVES | ANALYSES REQUESTED DRO | GRO | REMARKS | PRISM LAB ID NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SS-11 | 2/5/09 | 1230 | SOIL | CG | 4 | 4/VOA | MeOH | — | — | | 237259 |
| SS-12 | 2/5/09 | 1300 | SOIL | CG | 4 | 4/VOA | MeOH | — | — | | 237260 |

PRESS DOWN FIRMLY - 3 COPIES

Sampler's Signature: MBranson Sampled By (Print Name): M BRANSON Affiliation: EARTH TECH

Upon relinquishing, this Chain of Custody is your authorization for Prism to proceed with the analyses as requested above. Any changes must be submitted in writing to the Prism Project Manager. There will be charges for any changes after analyses have been initialized.

| | | Date | Military/Hours |
|---|---|---|---|
| Relinquished By: (Signature) MBranson | Received By: (Signature) Alex Hassite | 2-6-9 | 1115 |
| Relinquished By: (Signature) Alex Hassite | Received By: (Signature) Dan Morris | 2-6-09 | 1320 |
| Relinquished By: (Signature) Dan Morris 2-6-09 1550 | Received For Prism Laboratories By: | 2/6/09 | 1550 |

Method of Shipment: NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.

☐ Fed Ex ☐ UPS ☐ Hand-delivered ☒ Prism Field Service ☐ Other _____

COC Group No. G0209229

Additional Comments: INVOICE NCDOT UNDER BLANKET PO

**PRISM USE ONLY**

Site Arrival Time:
Site Departure Time:
Field Tech Fee:
Mileage:

| NPDES: | UST: | GROUNDWATER: | DRINKING WATER: | SOLID WASTE: | RCRA: | CERCLA | LANDFILL | OTHER: |
|---|---|---|---|---|---|---|---|---|
| ☐ NC ☐ SC | ☒ NC ☐ SC | ☐ NC ☐ SC | ☐ NC ☐ SC | ☐ NC ☐ SC | ☐ NC ☐ SC | ☐ NC ☐ SC | ☐ NC ☐ SC | ☐ NC ☐ SC |
| ☐ _____ | ☐ _____ | ☐ _____ | ☐ _____ | ☐ _____ | ☐ _____ | ☐ _____ | ☐ _____ | ☐ _____ |

*CONTAINER TYPE CODES: A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL