

August 10, 2007

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

Reference: Preliminary Site Assessment

Neb King Properties, Inc. (Parcel #011)

1030 N. Main Street

Roxboro, Person County, North Carolina

NCDOT Project R-2241A WBS Element 34406.1.1

Earth Tech Project No. 100407

Dear Mr. Moore:

Earth Tech of North Carolina, Inc., (Earth Tech) 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 June 6, 2007, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated June 6, 2007. 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 Neb King Properties, Inc. (Parcel #011) is located at 1030 N. Main Street in Roxboro, North Carolina. The property is situated on the southeast quadrant of the intersection of N. Main Street (SR 1601) and Virgilina Road (NC 49) (Figure 1). Based on information supplied by the NCDOT and the site visit, Earth Tech understands that the site is an active gas station/convenience store (Neb King, Inc.) where five underground storage tanks (USTs) and four above ground storage tanks (ASTs) are located. The available information indicates that as many as 13 USTs have been removed from the site between 1968 and 1999. The existing USTs include two 10,000-gallon gasoline tanks, one 10,000-gallon and one 8,000-gallon diesel fuel tanks, and one 8,000-gallon kerosene tank. The USTs removed from the property included tanks ranging from 550- to 8,000-gallons in size and contained gasoline, diesel fuel, kerosene, and unknown substances, presumably petroleum products. Two structures are located on the property. The convenience store is a single-story block building with an asphalt parking lot. Three pump islands are on the property, two between the building and Main Street/Virgilina Road and one at the rear of the property that



dispenses from the ASTs. The existing USTs are located adjacent to the building on its south side. South of the convenience store is an office complex/auto repair shop. Personnel at the complex have indicated that no USTs have existed at the office building. Earth Tech was advised that the proposed right-of-way will affect only the two pump islands near the road. As a result, the NCDOT requested a Preliminary Site Assessment.

Earth Tech reviewed the North Carolina Department of Environment and Natural Resources (NCDENR) Incident Management database and incident number 10784 was assigned to the site. According to the Soil Vapor Survey prepared by ATEC Environmental Consultants dated January 24, 1989, 23 hand-augered soil borings were advanced at the site to evaluate the horizontal and vertical extent of potential petroleum-contaminated soil. The report findings concluded that soil vapor readings were sufficiently high in most of the borings to assume petroleum contaminated soils. No laboratory analyses were performed to verify this conclusion.

In a report dated August 21, 1989, ATEC Environmental Consultants documented environmental conditions at the site and included a summary of environmental activities at the property. The apparent event that instigated the soil vapor survey was free-phase gasoline in a telephone vault near the USTs at Main Street. Subsequent to the soil vapor survey, the four USTs near Main Street were removed and contaminated soil was excavated. To evaluate the groundwater conditions, two groundwater monitoring wells, one shallow and one deep, were installed at the site. The shallow well was located near the former UST pit and the deep well was located on the adjacent property to the east. The laboratory analyses suggest that the deep well sample contained no contamination. The groundwater sample from the shallow well indicated the presence of several gasoline constituents, but only benzene (125 $\mu g/l$) and MTBE (13,340 $\mu g/l$) were detected at concentrations above the groundwater quality standards. The report concluded that because of the relatively large difference in the benzene and MTBE concentrations, the well was located at the leading edge of the contaminant plume and that the source of contamination was likely from off-site. No additional investigations or remedial activity reports were in the NCDENR files. Copies of selected portions of the reports are presented in Attachment A.

Earth Tech also reviewed the UST registration database to obtain UST ownership/responsible party information. According to the database and on-site UST Permit, the USTs on the property are operated under Facility Number 0-003591. Thirteen of the USTs operated under this facility ID are noted as being permanently closed. The operator and owner of the tanks are listed as follows:

Owner
Neb King, Inc.
1026 N. main Street
Roxboro, North Carolina 27573
(336) 599-7031

Operator
Neb King, Inc.
1030 N. Main Street
Roxboro, North Carolina 27573
(336) 599-3418



Geophysical Survey

Prior to Earth Tech's mobilization to the site, Pyramid Environmental conducted a geophysical survey as part of this project to evaluate if additional USTs, other than the ones identified or removed, 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 Virgilina Road and the Y-axis oriented approximately parallel to Main Street. The grid was located to cover the accessible portions of the proposed right-of-way. The survey lines were spaced 1.5 meters (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.

Several anomalies were detected in the geophysical survey. However, these anomalies were generally attributed to buried utility lines, conduits, or steel reinforced concrete. The survey concluded that no metallic USTs were present on the proposed right-of-way or easement. A detailed report of findings and interpretations is presented in Attachment B.

Site Assessment Activities

On July 11, 2007, Earth Tech 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 1.2-meter (4-foot) long acetate sleeves inside the direct push sampler. Each of these sleeves was divided in half for soil sample screening. Each 0.6-meter (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, Inc., 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).

Nine direct-push holes (KI-1 through KI-9) were advanced within the proposed right-of-way to a depth of 3.0 to 4.8 meters (10 to 16 feet) as shown in Figure 2 and Attachment C. The borings were located to evaluate the area adjacent to the former UST pit and the proposed easement (Attachment D). Borings KI-1 through KI-4 were located to evaluate the soil conditions at each end of the pump islands; borings KI-2, KI-3, and KI-5 were placed to assess the area where drop inlets are proposed; boring KI-6 was placed to determine the former UST pit depth and soil conditions below the pit; and



borings KI-7, KI-8, and KI-9 were placed to assess the horizontal extent of potential contamination. With the exception of boring KI-6, the lithology encountered by the direct-push samples generally was consistent throughout the site. The ground surface was covered with about 10 to 15 centimeters (4 to 6 inches) of asphalt, concrete, or gravel. Below the surface treatment to a depth of about 1.8 meters (6 feet) was a medium brown clay that likely represents fill material or reworked earth. Below this fill was a mottled medium brown, reddish brown, and yellow silt/clay. In boring KI-6, the UST pit backfill material was encountered to a depth of about 4.2 meters (16 feet). At this depth the material was a mottled red brown and olive green/gray silty clay. Borings KI-1, KI-2, KI-3, and KI-7, were terminated at equipment refusal at a depth of 3.0 meters (10 feet), borings KI-4, KI-5, and KI-8 were terminated at equipment refusal at a depth of about 3.3 to 3.5 meters (11 to 11.5 feet), and boring KI-9 was terminated at a depth of 3.6 meters (12 feet). Boring KI-6 was advanced to about 4.8 meters (18 feet) where equipment refusal was encountered. Although previous assessments indicated groundwater at a depth of less than 1.5 meters (5 feet), no free-flowing groundwater was present in any of the borings. Based on field screening, soil samples were submitted for laboratory analysis, which are summarized in Table 1.

Analytical Results

Based on the laboratory reports, summarized in Table 1 and presented in Attachment E, petroleum hydrocarbon compounds identified as DRO and/or GRO were detected in seven of the nine soil samples collected from the site (Figure 3). 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. Soil samples collected from borings KI-3 (260 mg/kg), KI-4 (210 mg/kg), KI-5 (310 mg/kg), KI-6 (53 mg/kg), KI-8 (15 mg/kg), and KI-9 (25 mg/kg) contained a DRO concentration above the 10 mg/kg assumed action level. Soil samples collected from borings KI-3 (1,100 mg/kg) and KI-4 (2,500 mg/kg) contained a GRO concentration above the assumed action level.

Conclusions and Recommendations

A Preliminary Site Assessment was conducted to evaluate the Neb King Properties, Inc. (Parcel #011) located at 1030 N. Main Street in Roxboro, Person County, North Carolina. Nine soil borings were advanced to evaluate the soil conditions with respect to the areas adjacent to the existing pump islands, former UST locations, and within the proposed right-of-way. 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 six of the nine soil samples analyzed.



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 borings KI-3, KI-4, KI-5, KI-6, KI-8, and KM-9 contained TPH concentrations identified as DRO and/or GRO above the assumed action level. Field screening and observations suggest that contamination in boring KI-3 and KI-4 is at a thickness of about 3 meters (10 feet). The thickness of potentially contaminated soil at borings KI-5, KI-6, KI-8, and KI-9 is about 0.6 meters (2 feet). In order to assess the varying thicknesses with respect to volumetric calculations, a contaminant thickness map was constructed and a planimeter was used to obtain a total square meter (square foot) measurement for each thickness interval. This measurement was then multiplied by the potential contaminant thickness for a total volumetric calculation. These measurements are summarized in Table 2. Based on the planimetric measurements and contaminated soil thickness, Earth Tech estimates a total contaminated soil volume for the site to be approximately 916 cubic meters (1198 cubic yards). However, this volume includes the potentially contaminated soil on both the King property and the existing right-of-way. The volume of potentially contaminated soil on the King Property only is estimated to be approximately 703 cubic meters (919 cubic yards). The volume of potentially affected soil was estimated based on the 10 mg/kg isoconcentration contour shown on Figure 3 and the planimetric measurements within that boundary. 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 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 recommends that a copy of this report be submitted to the Division of Waste Management, UST Section, in the Raleigh Regional Office. If you have any questions, please contact me at (919)854-6238.

Sincerely,

Michael W. Branson, P.G.

Michael W. Brown

Project Manager

Attachments

c: Project File

TABLE 1

SOIL FIELD SCREENING AND ANALYTICAL RESULTS NEB KING PROPERTY (PARCEL #11) ROXBORO, PERSON COUNTY, NORTH CAROLINA NCDOT PROJECT NO. R-2241A **WBS ELEMENT 34406.1.1**

EARTH TECH PROJECT NO. 100407

LOCATION	DEPTH (m)	FID READING	SAMPLE ID	ANALYTICAL	ASSUMED
	,	(ppm)		RESULTS	ACTION LEVEL
		\rr/		(mg/kg)	(mg/kg)
(I-1	0 - 0.6	65		(8/8/	(8,8)
	0.6 - 1.2	124	KI-1	DRO (5.6 ^J)	10
	0.6 - 1.2	124	KI-1	GRO (5.6)	
	1.2 - 1.8	62		GRO (BQL)	10
	1.8 - 2.4	14.85			
77.0	2.4 - 3.0	3.13			
XI-2	0 - 0.6	58			
	0.6 - 1.2	432			
	1.2 - 1.8	63			
	1.8 - 2.4	63			
	2.4 - 3.0	1,710	KI-2	DRO (BQL)	10
				GRO (BQL)	10
XI-3	0 - 0.6	362			
	0.6 - 1.2	5,052	KI-3	DRO (260)	10
				GRO (1100)	10
	1.2 - 1.8	31,200			
	1.8 - 2.4	11,300			
	2.4 - 3.0	941			
II-4	0 - 0.6	228			
	0.6 - 1.2	3,170	KI-4	DRO (210)	10
		,		GRO (2500)	10
	1.2 - 1.8	370			
	1.8 - 2.4	1,981			
	2.4 - 3.0	443			
II-5	0 - 0.6	51			
CI -3	0.6 - 1.2	96	KI-5	DRO (31)	10
	0.0 - 1.2	90	KI*J	GRO (BQL)	10
	1.2 - 1.8	26		GRO (BQL)	10
	1.8 - 2.4	27			
		15.93			
	2.4 - 3.0				
77. 6	3.0 - 3.6	17.33	WI C	DBO (53)	10
KI-6	0 - 0.6	4.91	KI-6	DRO (53)	10
	0.6.10	2.50		GRO (BQL)	10
	0.6 - 1.2	3.59			
	1.2 - 1.8	3.75			
	1.8 - 2.4	1.15			
	2.4 - 3.0	2.7			
	3.0 - 3.6	1.43			
	3.6 - 4.2	1.77			
	4.2 - 4.8	1.14			
KI-7	0 - 0.6	54			
	0.6 - 1.2	81			
	1.2 - 1.8	59			
	1.8 - 2.4	53			
	2.4 - 3.0	294	KI-7	DRO (BQL)	10
				GRO (BQL)	10
XI-8	0 - 0.6	0.79			
	0.6 - 1.2	1.5	KI-8	DRO (15)	10
				GRO (BQL)	10
	1.2 - 1.8	0.81		` ` ` `	
	1.8 - 2.4	0.96			
	2.4 - 3.0	0.01			
(I-9	0 - 0.6	232	KI-9	DRO (25)	10
/	0.00	232	KI-7	GRO (BQL)	10
	0.6 - 1.2	86		OKO (BQL)	10
	1.2 - 1.8	14			
	1.8 - 2.4	3.12			
	2.4 - 3.0	10.81			+
	∠. 4 - 3.0	10.01			i

Soil samples were collected on July 11, 2007.

DRO - Diesel range organics. GRO - Gasoline range organics.

BQL - Below quantitation limit.

ppm - parts per million.

mg/kg - milligrams per kilogram.

J = Estimated value.

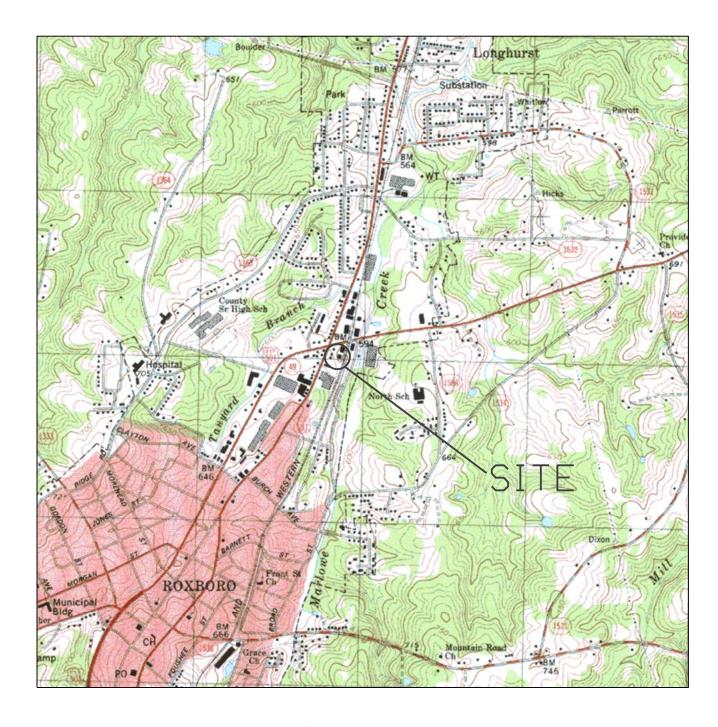
BOLD values are above the assumed action level.

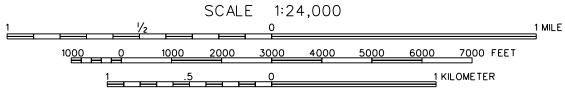
TABLE 2

CONTAMINATED SOIL VOLUME CALCULATION NEB KING PROPERTIES (PARCEL #011) ROXBORO, PERSON COUNTY, NORTH CAROLINA NCDOT PROJECT NO. R-2241A WBS ELEMENT 34406.1.1 EARTH TECH PROJECT NO. 100407

CONTAMINATED	TOTAL	TOTAL	KING	KING
SOIL THICKNESS	AREA	VOLUME	AREA	VOLUME
(meters)	meters ²	meters ³	meters ²	meters ³
3	215	645	169	507
0.6	451	270.6	326	195.6
TOTAL		915.6		702.6







SOURCE: U.S. GEOLOGICAL SURVEY 7.5 MIN QUADRANGLE: ROXBORO, NC (1982)



FIGURE 1

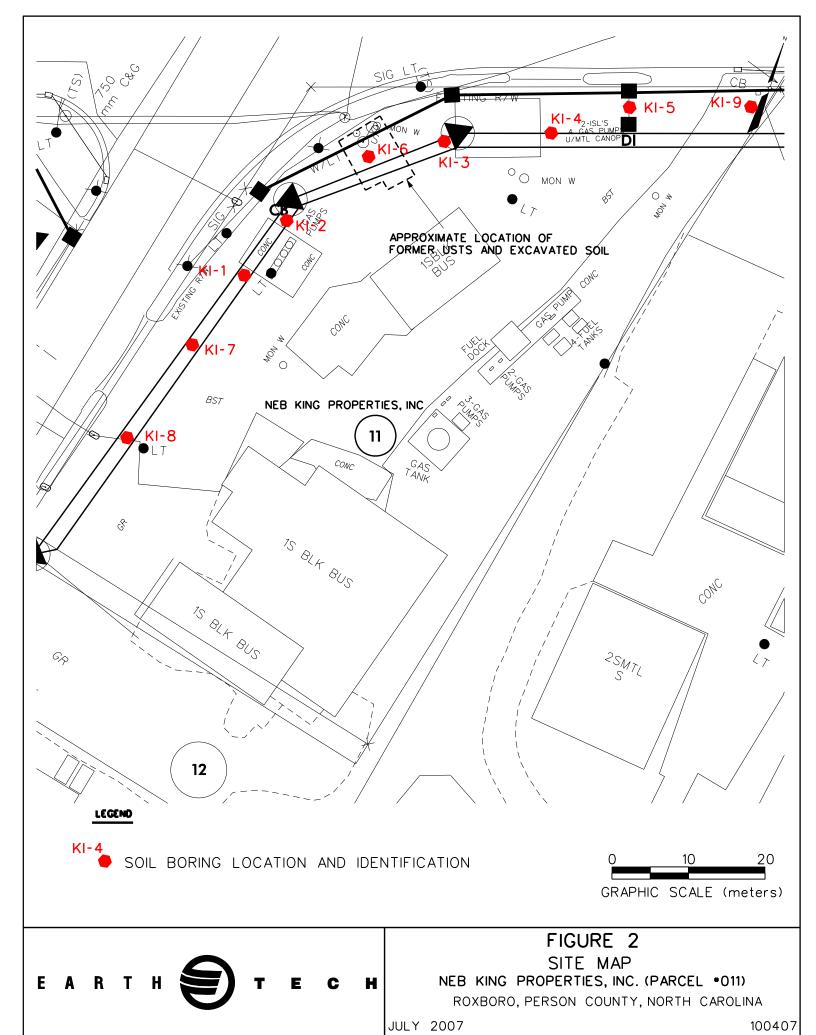
VICINITY MAP

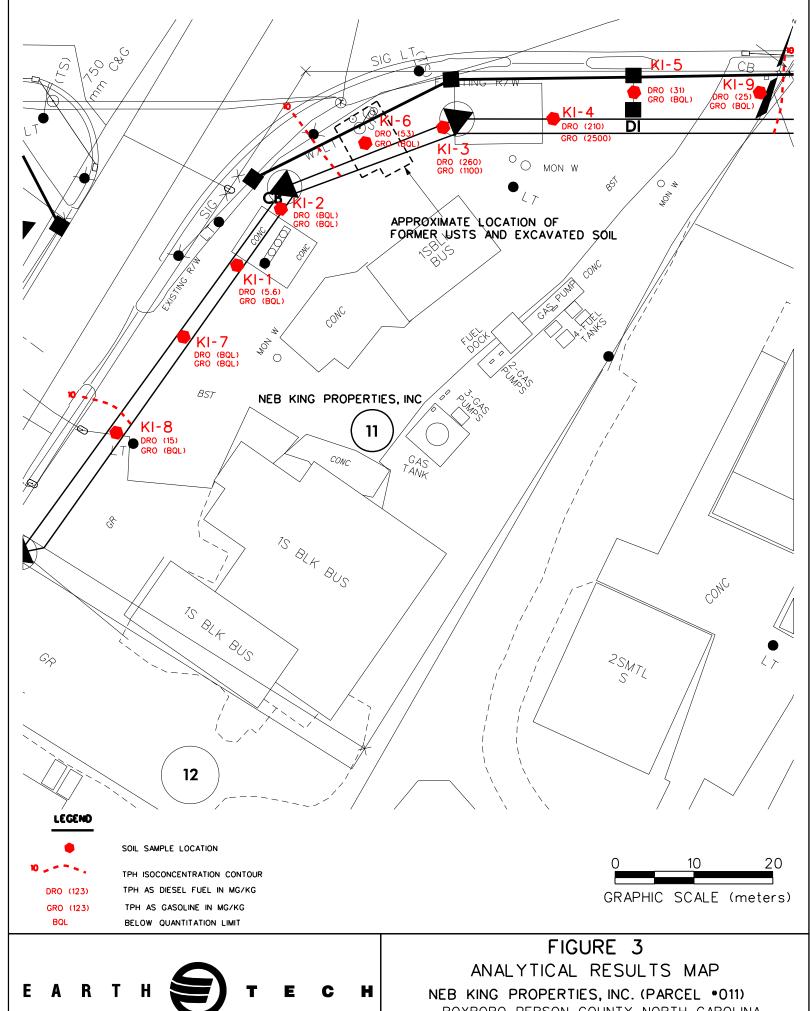
NEB KING PROPERTIES, INC. (PARCEL *011)

ROXBORO, PERSON COUNTY, NORTH CAROLINA

100407

JULY 2007





ROXBORO, PERSON COUNTY, NORTH CAROLINA

JULY 2007 100407



Soil Vapor Survey 1026 North Main Street Roxboro, North Carolina



Prepared For:

Mr. Neb King 1026 N. Main Street Roxboro, NC 27573



6814 Davis Circle
Raleigh, North Carolina 27612-2002
(919) 782-2832, FAX # (919) 781-7558

January 24, 1989

Solid & Hazardous Waste Site Assessments
Remedial Design & Construction
Underground Tank Management
Asbestos Surveys & Analysis
Hydrogeologic Investigations & Monitoring
Analytical Testing / Chemistry
Industrial Hygiene / Hazard Communication
Environmental Audits & Permitting
Exploratory Drilling & Monitoring Wells

Mr. Neb King 1026 N. Main Street Roxboro, NC 27573

RE: Soil Vapor Survey 1026 North Main Street Roxboro, North Carolina ATEC Job No. 35-88943

Dear Mr King,

This letter is to present a preliminary report on soil vapor survey performed at the above referenced project site.

The project site is located to the north of Roxboro, NC at the northeast intersection of North Main Street and Virgina Road (See Attachment I Site Location Map). The site is occupied by a Union 76 service station and serves as a fuel depot for Neb King Oil Co. Four underground storage tanks (UST's) are located in front of the station to serve the fuel pumps, four more are behind the building are used to load trucks for petroleum delivery to other locations. An unused UST is located near HA-ll. This tank had never been used according to Chip King, of Neb King Oil Co.

The project objectives included:

Delineating lateral & vertical extent of petroleum Hydrocarbon contamination in front of building.

Determine if a discharge has occurred in rear of building from UST's.

SCOPE OF THE WORK

The scope of the work included exploratory hand auger borings, taking soil samples around the underground storage tanks and following the contamination in decreasing concentration directions, using a Photoionization Detector (PTD) to measure total volatile organic compounds (VOC's) present in the vapor phase and finally defining the contamination both vertically and laterally.

Soil Vapor Survey January 24, 1989 Page Two

FIELD WORK

Hand-augers were penetrated through soils at strategic locations to obtain soil samples for PID measurements. A total of 23 exploratory hand auger borings were installed at the site. Soil samples were collected from each boring at an interval of 1-foot, stored in a glass jar, sealed air-tight and given sufficient length of time to reach steady state between the solid and vapor phases. A Photoionization detector (PID) was used to measure the concentrations of volatile organic compounds (VOC). Vapor measurements for each sample were recorded in parts per million (ppm). The soils obtained from the borings were placed on a plastic sheet and are presently being vented.

RESULTS AND CONCLUSIONS

A total of 23 hand-augered borings were studied to determine the lateral and vertical extent of the contamination to the soils on site (See Attachment II, Boring Locations). Data obtained from each soil sample is incorporated in this report as Attachment The underground storage tank (UST) at the back of the III. do not show any sign of having leaked petroleum hydrocarbon to the surrounding soils. Contrary to this, the N. Main St. show high levels of contamination to the surrounding soils. The highest contamination found near hand borings HAB and HABA (see ATTACHMENT II, III). The PID readings from each boring have been averaged over depth of collection, contoured to determine lateral extent of and plotted contamination (See ATTACHMENT IV).

Based on our field investigations and data interpretation, the site has been found to be contaminated by petroleum hydrocarbon.

The contamination plume has crossed property boundaries and should be remediated.

The contaminated soils at the project site need to be removed by excavation and spread over a plastic sheet for proper ventilation. With time this will reduce VOC levels. Once levels are below 100 ppm, the Solid and Hazardous Waste Branch may allow it to be moved to a County Landfill for proper disposal, upon presenting the proper analysis reflecting acceptable levels of VOC's. The DEM may require at least one monitoring well to be placed on site and a groundwater sample collected. To determine if groundwater contamination has occurred analytical methods 3550 & 5030 may be required.

Soil Vapor Survey January 24, 1989 Page Three

ATEC Environmental Consultants is pleased to serve you on this project and is fully capable of undertaking the next phase of the project. In the interim, should you have any questions or desire additional information, please contact us at your convenience.

Sincerely,

ATEC Environmental Consultants

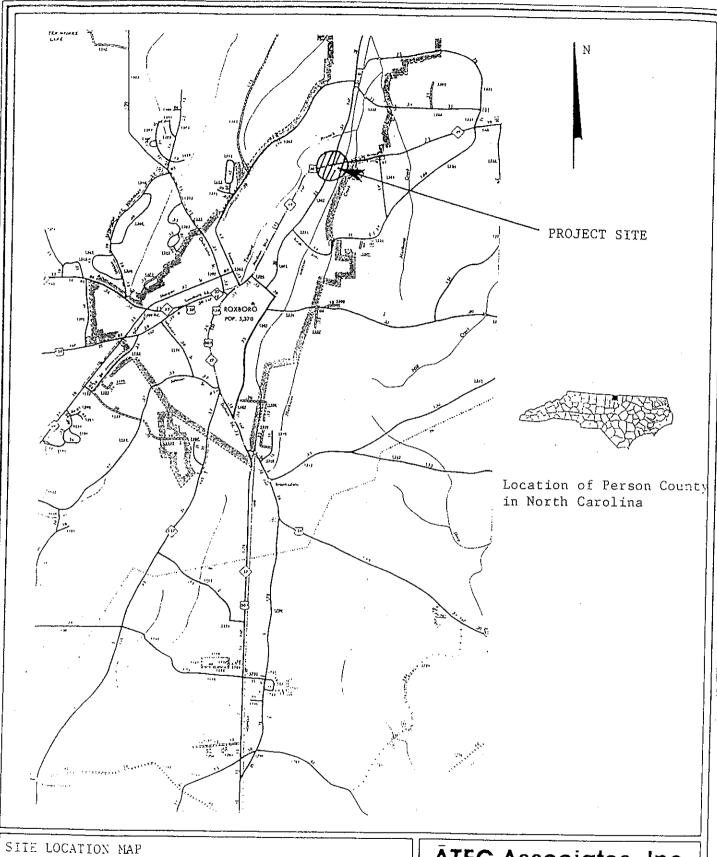
Waheed Haq P.G. Senior Hydrologist

Walter B. Shipper Walter B. Skipper

Geophysicsist

SEAL 1041 Environmental Division Manager

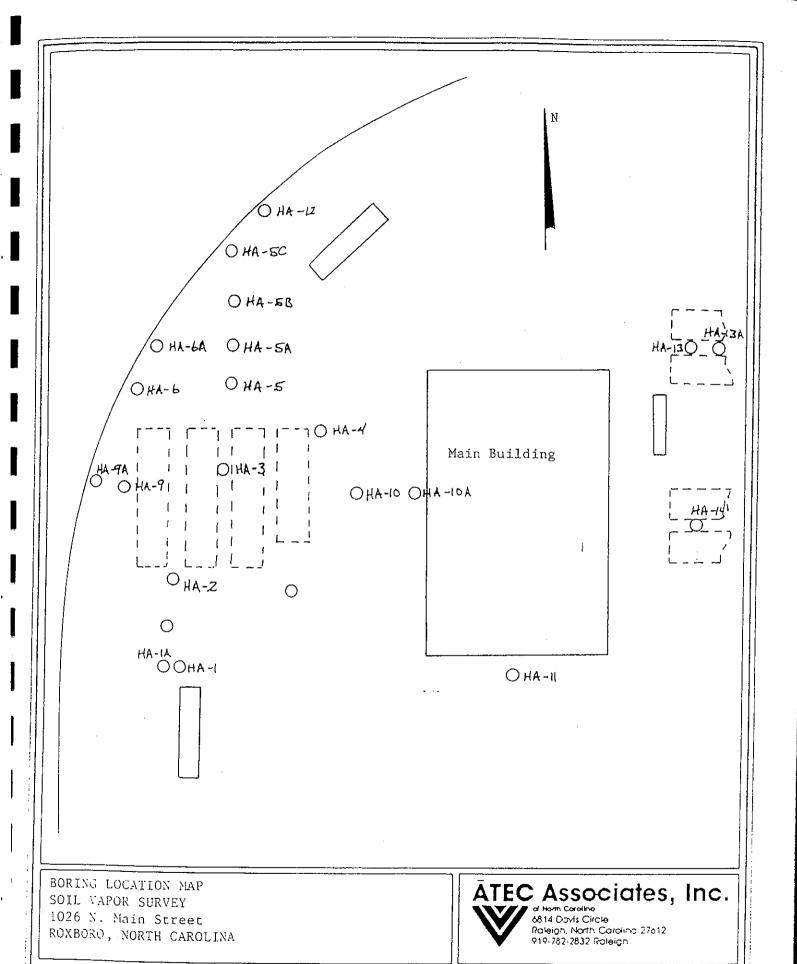
WH/WBS/slb



SOIL VAPOR SURVEY 1026 N. Main Street RONBORO, NORTH CAROLINA ATEC Associates, Inc.

of North Carolina
68 14 Davis Circle
Roleign, North Carolina 27612
919-782-2832 Raleigh

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Union 76, Roxboro, NC 1/18/89 <u>Vapor Study</u>

LOCATION	DEPTH (PL)	CONC. (PPM)
HA - 1	l 2.5 A.R. @ 2.5 FT	3 15
HA-lA	2 3 4 5 6	40.4 45.7 16.8 7.0 1.4
HA-2	1 2 3 4 5 6 7 8 8.5 ROCK 8.5	1127 1430 1827 1547 1213 715 1478 1519 1834 AR 121.7
HA-3	2 3 4	1425 1452 982 AR
HA-3A	2 3 4 5 6 7 8 9 10	1357 1151 1345 1107 1379 1457 1713 1357 1187 1237
HA-4	1 2 3 4 5 6 7 8 9 9.4 AR	518 1107 744 666 1133 885 139 264 122 284

88943 Page Three

Union 76, Roxboro, NC 1/18/89 <u>Vapor Study</u>

LOCATION	DEPTH (PL)	CONC. (PPM)
HA-9	1 2 3 4 5 6 7	269 806 491 1097 815 569 1564
HA-10	1 2 3 4	4.8 During Trench 23.8 excavation these 70 locations did not 56 show any contaminat
HA-10A	1 2 3 4	o 1.1 3.4 1.9
HA-11	1 2 3 4 5 6 7	0.4 1.0 4.5 4.4 4.7 1.1
HA-12	2 3 4	0 0 2.1
HA-13	1 2 3 4 5 6 7 8 9	25.1 7.2 2.6 8.6 1.8 1.6 9.4 4.8 21.5 A.R. @ 9.0 FT
HA-13A	1 2 3	4.5 3.1 3.2

4

3.3

88943 Page Four

Union 76, Roxboro, NC 1/18/89 Vapor Study

LOCATION	DEPTH (PL)	CONC. (PPM)
HA-14	1 2 3 4 5 6 7 8 9 10 A.R.	22.3 5.5 7.7 21.9 6.8 4.2 5.6 4.0 1.5 6.6
	TO WITH	0.0

Union 76 US 501-Madison Blvd. Roxboro, North Carolina



Prepared For:

NRCD-DEM (Groundwater Section) 3800 Barrett Drive Raleigh, NC 27609



Solid & Hazardous Waste Site Assessments Remedial Design & Construction Underground Tank Management Asbestos Surveys & Analysis Hydrogeologic Investigations & Monitoring Analytical Testing / Chemistry Industrial Hygiene / Hazard Communication Environmental Audits & Permitting Exploratory Drilling & Monitoring Wells

August 21, 1989

NRCD-DEM (Groundwater Section) 3800 Barrett Drive Raleigh, NC 27609

Attn: Mr. Ed Berry

Re:

Union 76

US 501-Madison Blvd. Roxboro, North Carolina

ATEC Job No. 35-88943

Dear Mr. Berry:

ATEC Environmental Consultants was retained by Neb King Oil Company to perform environmental studies at the above referenced project site. This report briefly presents our findings. All Conclusions are drawn based on field activities, water quality data, physical description of the site and adjacent properties. Our Recommendations are given at the end of this report.

PURPOSE OF STUDY

The purpose of this study was to investigate potential groundwater contamination and to explore the possible origin of the contaminant source.

NRCD-DEM (Groundwater Section) August 21, 1989 Page Two

SCOPE OF WORK

The scope of work included installing at least one monitor well at the project site, develop and sample monitor well(s), analyze water samples collected and to investigate adjacent properties (see ATTACHMENT I).

FIELD ACTIVITIES

ATEC Environmental Consultants investigated the project site in Initially a soil vapor survey was performed in several phases. January, 1989, (see ATTACHMENT VII-1). During the same month, tank removal operation was supervised by ATEC. Free product was observed in the excavation pit and was removed by Neb King Oil All contaminated soils were excavated. An ATEC Representative noted a circular stained area & foot below the land surface on the excavation walls of the pit, located adjacent to the telephone vault. This staining indicated that the contamination originated from the vault and has flowed from off site and onto our clients site. New underground storage tanks (USTs) were installed after the soils were tested and proved to be free of contamination.

The soils around the USTs located on the back of the buildings were also tested in the field and in the laboratory for total petroleum hydrocarbons (Gasoline, Diesel). The samples indicated minor contamination by petroleum hydrocarbons. The contamination levels found were less than 5.0 ppm which is below the prescribed limit of 10 ppm.

NRCD-DEM (Groundwater Section) August 21, 1989 Page Three

ATEC Environmental Consultants representatives were present at the project site to install two 2-inch diameter monitor wells on July 17 through 19, 1989. One shallow well (MW-2) was installed at the project site to determine if groundwater contamination is present in the upper aquifer. Another well (MW-1) was installed at a location (topographically down gradient) to investigate not the deeper whether or aquifer was contaminated ATTACHMENT II). This deep well was a double-cased 2-inch diameter monitor well which was placed in the bed rock to a 50.0 ft depth.

Two hand auger borings were advanced to water table depths in order to determine if subsurface soils contamination is present on a property located up gradient topgraphically (see ATTACHMENT I). The purpose of these two hand auger borings was to investigate if the telephone conduit found near the project site is acting as an easy pathway for contaminant migration. This conduit runs along the northern direction at a depth of 15.0 feet below grade. From surface appearance of the project site and the adjacent properties, the overland flow is as shown on ATTACHMENT I. The photoionization detector readings on the soil samples collected from these hand auger borings are relatively high (see ATTACHMENT V).

Well completion reports are enclosed for the Division of Environmental Management (DEM) records (see ATTACHMENT III).

NRCD-DEM (Groundwater Section) August 21, 1989 Page Four

SOILS CHARACTERISTICS

Soil samples were collected from both the monitor wells using a split spoon sampler by ASTM 1586 SPT method. These soils indicated that a surficial CLAY (CL) extends to depths of approximately 7.5 feet below the land surface. Underlain by this surficial clay layer is a SILT layer (see ATTACHMENT IV). This saprolite formation originated from a regional mudstone.

RESULTS

The soil samples collected from monitor wells MW-l and MW-2 indicated no contamination (see ATTACHMENT IV). This indicates that at the given locations the subsurface soils are clean and that the reported free product may have originated from a different location.

Two up gradient off site hand auger borings which were advanced to over 9.0 feet below land surface showed high contamination levels (see ATTACHMENT V). These hand auger borings were located on a property that encompasses an active gas station (Humphries Gas Station) and has several underground storage Furthermore, the proximity of these borings near an underground conduit which has a vault near the referenced project site indicates that if USTs at this site were leaking, then free product will migrate towards our project site.

NRCD-DEM (Groundwater Section) August 21, 1989 Page Five

This is supplemented by the fact that maximum readings are obtained at depths of 6-7 feet below land surface. Therefore, in case of a near-surface spill, the contaminants will quickly leach down to the conduit level in question and flush down-gradient.

This further implies that the adjacent site which is located upgradient topographically should be assessed since this is an active facility operating several underground storage tanks.

The water samples which were collected from monitor well MW-1 and MW-2 were analyzed by EPA method 602 with MTBE, EDB and total lead (see ATTACHMENT VI). The water quality data indicates that monitor well MW-1 which was set in the deeper aquifer is free of contamination whereas monitor well MW-2 has relatively higher contamination levels. A critical review of the constituents of gasoline found in this well, the nature and mechanism of migration of these contaminants entails that the monitor well is at the leading edge of the contaminant plume. If the contaminant source were to originate from the referenced project site the Benzene, Toluene and other constituents must also be high in concentration. However, the data shows the reverse.

Further the contaminated soils at a property topographically up gradient and the shallow telephone conduit are all indicative of contaminant source to be located at this adjacent property (Humphries Gas Station). A general survey of the adjacent properties shows that a number of possible potential sources of contamination exist near the project site. Therefore, ATEC Environmental Consultants feels that other potential sites should be investigated before Neb King Oil Company takes any further action.

NRCD-DEM (Groundwater Section) August 21, 1989 Page Six

CONCLUSIONS

Based on field activities, laboratory results and analyses of the field data, ATEC Environmental Consultants concludes the following:

- 1. The contaminated soils associated with the USTs have been delineated and removed. Therefore, the soils at the project site are either free of contamination or with minor contamination (which is below the limits prescribed by the STATE regulations).
- 2. Two monitor wells were installed at the Project site. One of these was installed in the deeper aquifer and the other in the shallow soft formations. The shallow monitor well indicates contamination whereas the deeper (double cased) monitor well is free of contamination.
- 3. Water quality data indicates that the monitor well MW-2 (installed in shallow soft sediments) is contaminated. However, the contaminant levels show that the source of contamination may originate from an off-site location. This is based on the fact that MTBE is over 13,340 ppb whereas Benzene, Toluene and Xylenes are only 125 ppb, 46 ppb, and 250 ppb respectively. This implies that MW-2 may be located at the leading edge of the contaminant plume, since MTBE migrates further and faster compared to other constituents of gasoline.
- 4. The free product observed in the telephone vault may be coming from other properties since a shallow underground conduit passes near another potential source of contamination.

NRCD-DEM (Groundwater Section) August 21, 1989 Page Seven

- 5. The location of the project site is such that other potential contamination sources may also be contributing to the contamination.
- Two hand auger borings placed at a property located up gradient (topographically) indicate contamination by petroleum hydrocarbons.
- 7. Neb King Oil Company has collected preliminary data which indicates that the source of contamination originates from an adjacent property.

RECOMMENDATIONS

ATEC Environmental Consultants recommends the following:

1. The groundwater contamination of shallow aquifer indicates that the source of contamination originates from adjacent potential site(s). Therefore adjacent site(s) should be investigated to locate the source of origin.

NRCD-DEM (Groundwater Section) August 21, 1989 Page Eight

Mr. Berry, ATEC Environmental Consultants feels that Neb King Oil Company should hold further investigations until adjacent properties are properly investigated and the source contamination located. Should you have any questions regarding this report or desire additional information, please contact this office at your convenience.

Sincerely,

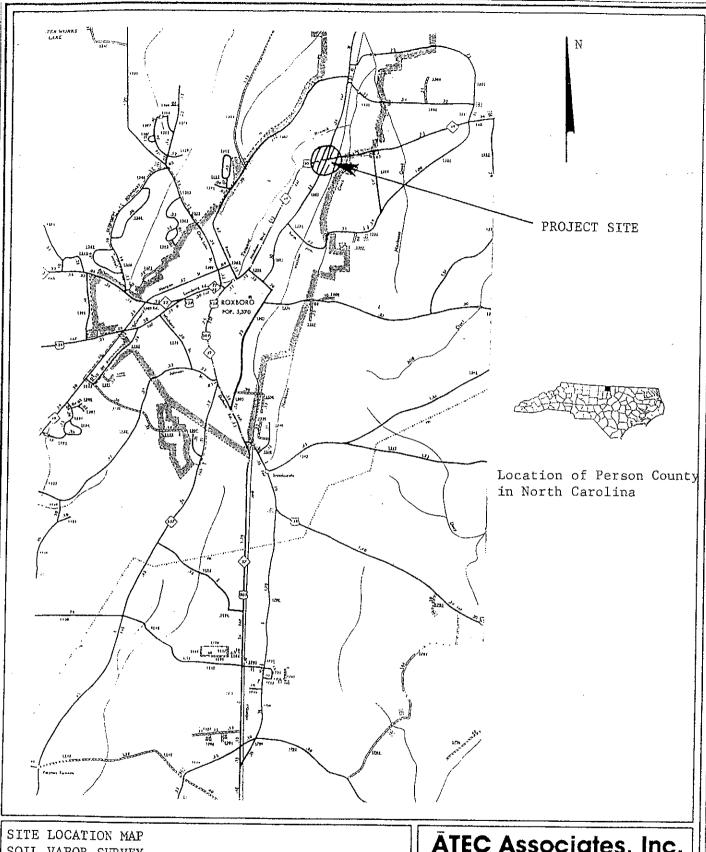
Waheed H. Rang, P.G.

Manager Hydro-Department

Bradley Skipper

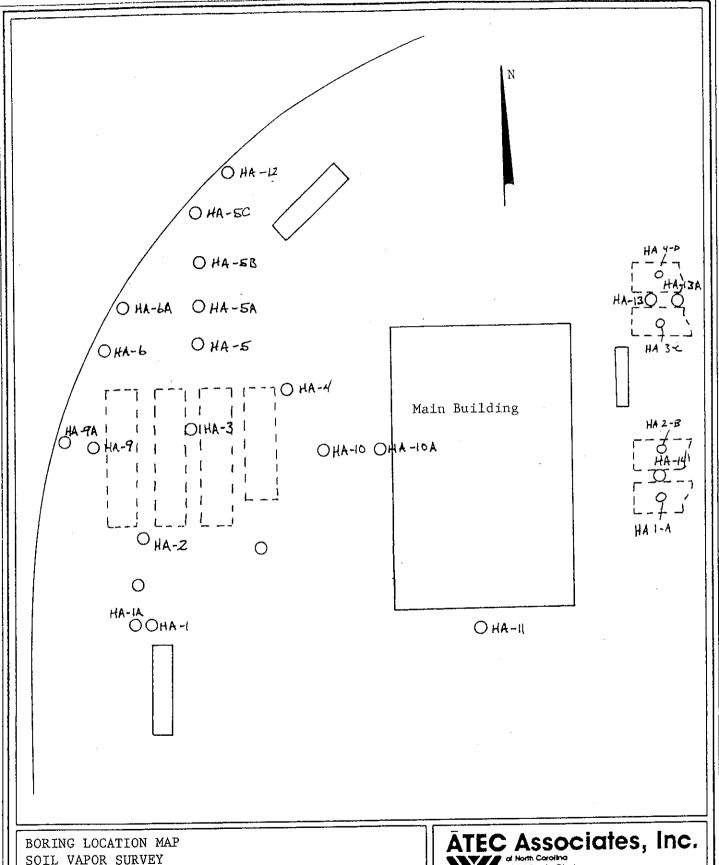
Environmental Division Manager

WHR/BS/slb



SOIL VAPOR SURVEY 1026 N. Main Street ROXBORO, NORTH CAROLINA ATEC Associates, Inc.
of North Carolina
6814 Davis Circle
Raleigh, North Carolina 27612
919-782-2832 Raleigh

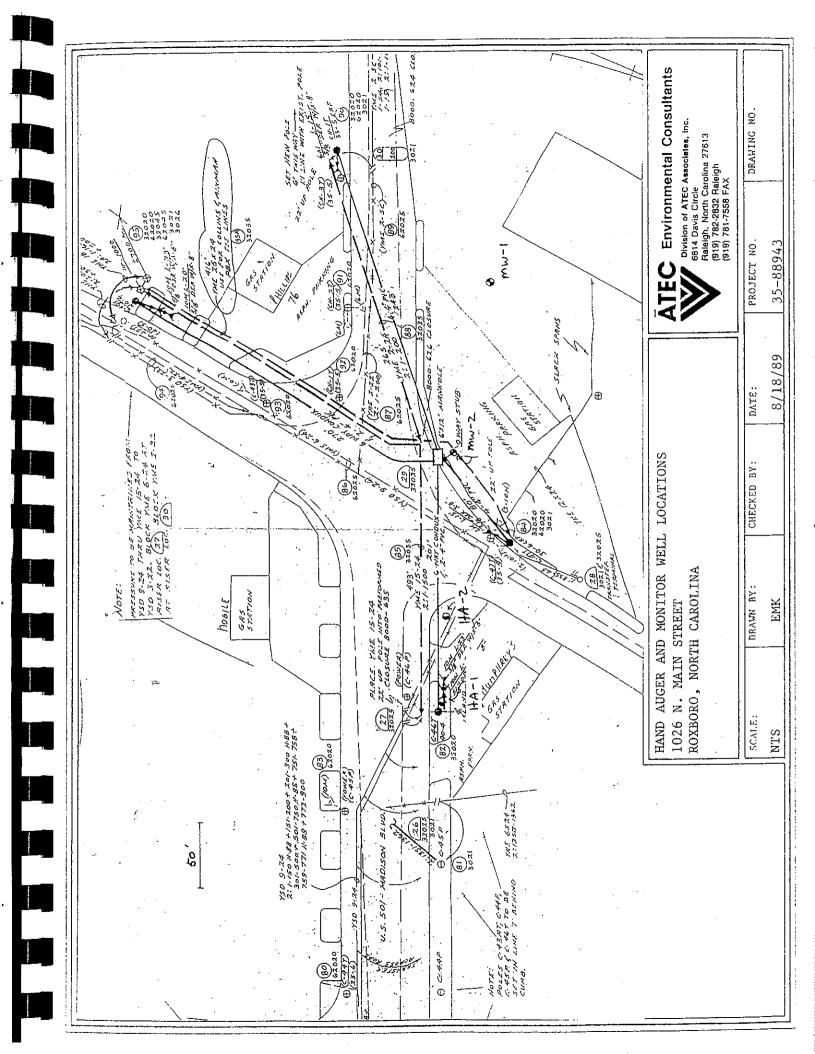
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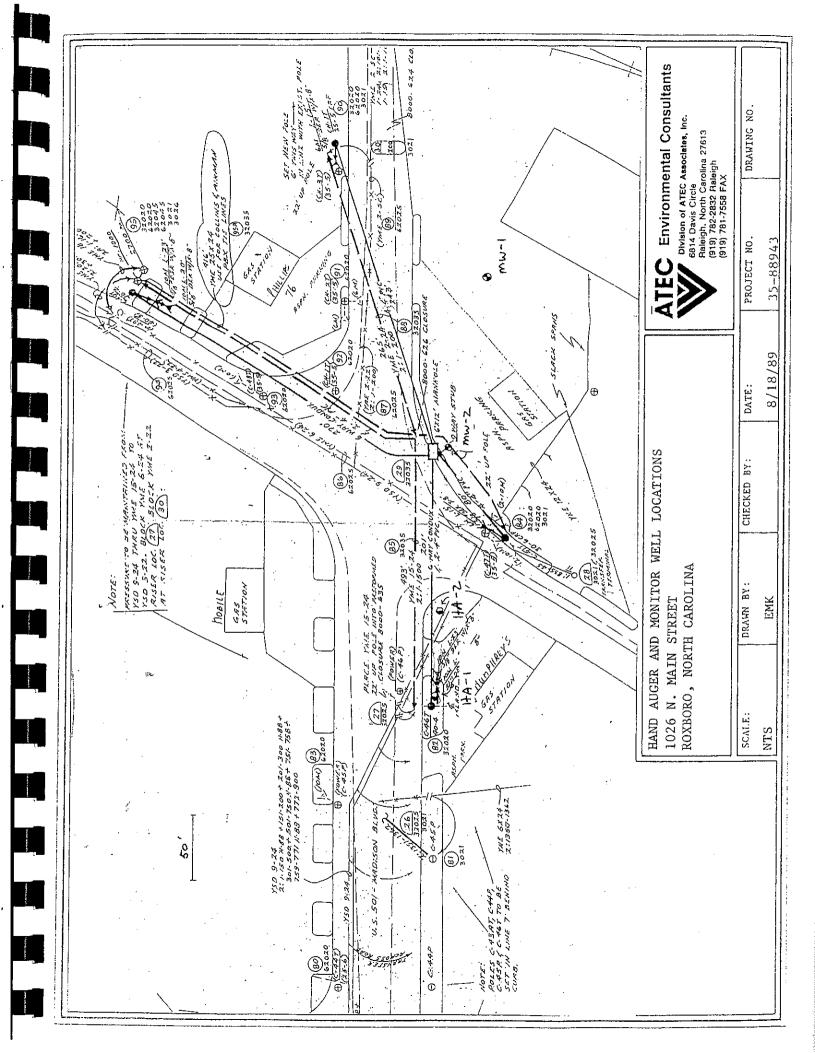


SOIL VAPOR SURVEY 1026 N. Main Street ROXBORO, NORTH CAROLINA



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6814 Davis Circle
Raleigh, North Carolina 27612-2002
(919) 782-2832, FAX # (919) 781-7558

August 16, 1989

Solid & Hazardous Waste Site Assessments
Remedial Design & Construction
Underground Tank Management
Asbestos Surveys & Analysis
Hydrogeologic Investigations & Monitoring
Analytical Testing / Chemistry
Industrial Hygiene / Hazard Communication
Environmental Audits & Permitting
Exploratory Drilling & Monitoring Wells

Neb King 1026 N. Main Roxboro, NC 27573

Attn: Chip King

RE: Union 76

Tank Excavation HA-32, HA-40

ATEC Job No. 35-88943

Dear Chip:

This letter is to present our findings, resulting from field activities performed at the project site referenced above.

ATEC Environmental an accordance with CFR 280.72(a), 40 samples from two collected soil Consultant representative underground storage tank present on the project site. samples were delivered to the laboratory for chemical analysis. The soil samples were analyzed for total Petroleum hydrocarbons (Diesel and Kerosene). Analytical results indicate readings ranging from 1.53 to 3.30 parts per million, both of which are below the detection limit of 10 ppm (see Attachment II).

It is our conclusion that the samples taken from the excavations indicated on Attachment I are free of contamination. Should you have any questions or desire additional information, please call us at your convenience.

Sincerely,

Blair Davis

Project Manager

BD/jb

Attachments

diesel HA 40 HA 32 kerosene LOADING DOCK UNION unleaded gasoline HA 2-B unleaded gasoline HA 1-A ATEC Environmental Consultants

UNION 76-NEB KING TANK EXCAVATION AUGER LOCATIONS 4--8000 gallon tanks



Division of ATEC Associates, Inc. 5814 Davis Circle Raleigh, North Carolina 27613 (919) 782-2832 Rulogh (919) 781-7558 FAX



Division of ATEC Associates, Inc. 6814 Davis Circle
Raleigh, North Carolina 27612-2002
(919) 782-2832, FAX # (919) 781-7558

August 8, 1989

Solid & Hazardous Waste Site Assessments Remedial Design & Construction Underground Tank Management Asbestos Surveys & Analysis Hydrogeologic Investigations & Monitoring Analytical Testing / Chemistry Industrial Hygiene / Hazard Communication Environmental Audits & Permitting Exploratory Drilling & Monitoring Wells

Neb King 1026 N. Main Roxboro, NC 27573

Attn: Chip King

RE: Tank Excavation Sample Results

Union 76 Roxboro, NC

ATEC Job No. 35-88943

Dear Chip:

This letter is to present our findings, resulting from field activities performed at the project site referenced above.

In accordance with 40 CFR 280.72(a), an ATEC Environmental Consultant representative collected soil samples from two underground storage tanks present on the project site (see Attachment I). Two soil samples were delivered to the laboratory for chemical analysis. The soil samples were analyzed for total petroleum hydrocarbons (gasoline). Analytical results indicate the absence of the above referenced parameters above the practical quantitation limit of 1 ppm (see Attachment II).

It is our conclusion that the samples taken from the excavations indicated on Attachment I are free of contamination. Should you have any questions or desire additional information, please call us at your convenience.

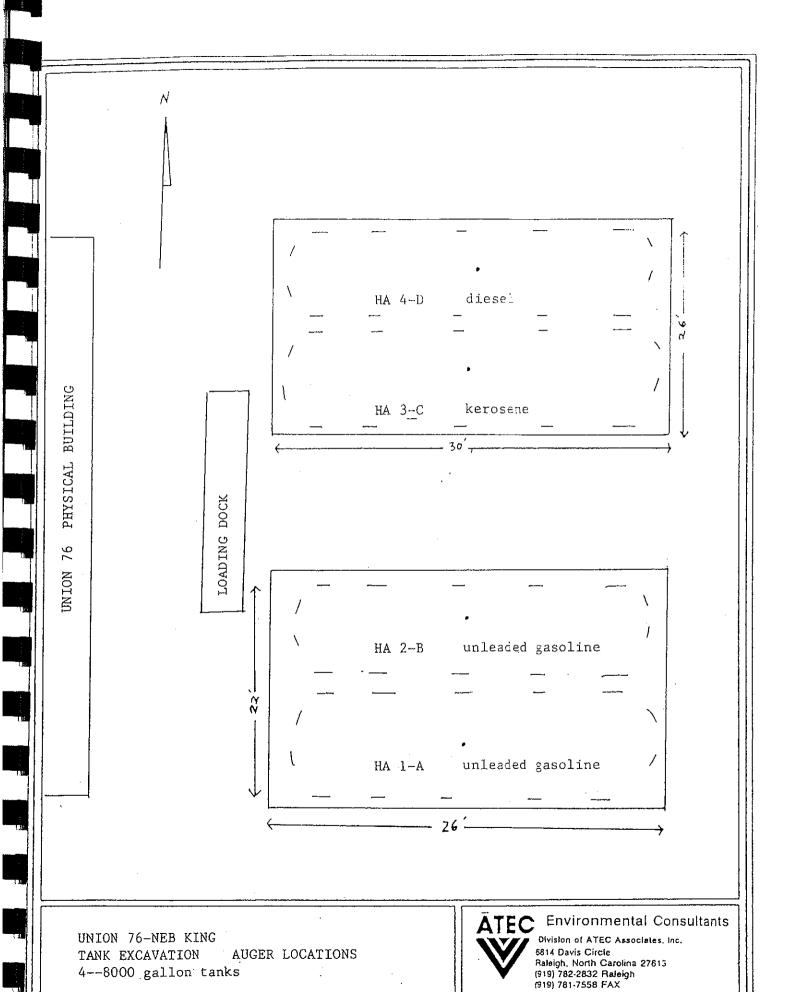
Sincerely,

Keith Edwards

Manager, UST Department

KE/jb

Attachments



הפשנוצור עה

מו דחדו חפק

DELINI BY.

CUECUEN DU.



July 6, 1989

Neb King Inc. Unocal Oil Products 1028 North Main Street Roxboro, NC 27573

Attn: Chip King

Re: Union 76 Station

1026 North Main Street Roxboro, North Carolina ATEC Job No. 35-88943

Dear Mr. King:

This report is to present our findings resulting from field activities performed at the project site referenced above.

WORK SUMMARY

On 1/18/89 a soil vapor study was performed at the above referenced project site. At that time ATEC Environmental Consultants concluded that the project site was found to be contaminated by petroleum hydrocarbons and that contamination had crossed property boundaries. As a result, remediation was recommended for the project site (See report, Soil Vapor Survey issue 1/24/89).

Note: A soil sample obtained from hand auger hole eleven (HA-11), indicated the presence of minor organic vapor. New underground storage tanks were to be installed in proximity to HA-11.

On 1/24/89 an ATEC Associates Inc. representative returned to the project site to monitor soils for petroleum hydrocarbon contamination during the removal of four underground storage tanks (UST). (Attachment I)

On 1/24/89 the UST's were removed. At that time it was noted that free petroleum product was present in the base of the excavated pit. The client then began removal of product and contaminated soils. On 1/25/89 ATEC representatives returned to

Neb King, Inc. July 6, 1989 Page Two

the project site to continue monitoring soil removal. The excavated pit was now approximately 12.0 ft to 18.0 ft below grade (40 ft long and 22 ft wide). Soils from the walls and base of the excavation were tested for petroleum contamination. The excavation was divided into four sections. Composite samples were obtained from the walls and the base of each section. PID values ranged from 20.0 ppm to 126 ppm. (For specific locations and results see Attachments II and III.)

Due to site contamination levels, further soil removal At approximately 18 ft to 19 ft below grade, a metamorphosed mudstone common to the Roxboro region encountered. With increasing difficulty, this weathered material was removed to a depth of 20.0 ft to 21.0 ft below ground The excavation was again divided into four sections. surface. Composite samples were again obtained from the walls and base of each section and tested for contaminants. PID values ranged from Because of these low values, ppm to 5.9 ppm. The client on his own initiative recommended excavation closure. however, continued to remove the upper 7.0 feet of soils north of the open excavation, for approximately 20 more feet (Horizontal).

Composite soil/rock samples from each of the four sections were retained and properly preserved for later chemical analysis. For specific locations and results see Attachment IV, V and VI.

It is our conclusion that the soils immediately adjacent to and beneath the location of the old underground storage tanks were petroleum hydrocarbon contamination during Additionally, soils in the vicinity of the new excavation. underground storage tanks were free of petroleum hydrocarbon However further studies will be necessary to contamination. petroleum delineate the vertical and horizontal extent of contamination both off site and on as noted in the soil vapor studies shall Further survey issued on 1/24/89. monitoring well installation, soil borings, soil vapor studies, and analytical testing.

Should you have any questions, please contact us at your convenience.

Sincerely,

Keith Edwards Manager - UST Department

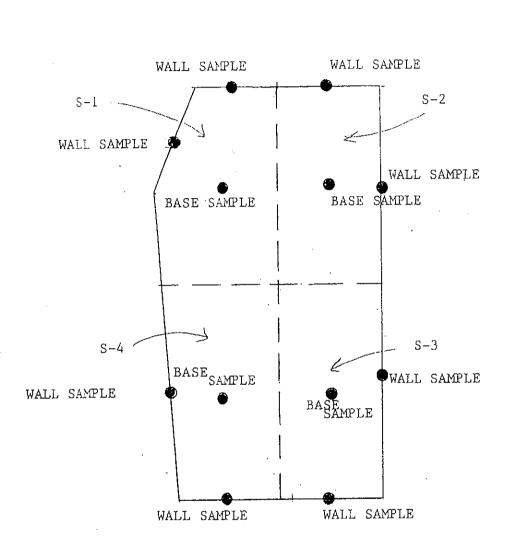
KE/am

Main Building UNDERGROUND STORAGE TANKS ATEC Associates, Inc.

w North Carolino
6814 Dards Circle
Rakeloh, North Corolino 27612
919-782-2832 Ralekoh
919-223-3519 Newport PROJECT SITE UNION 76 NEB KING ROXBORO, NORTH CAROLINA

SCALE: DRAWN BY: CHECKED BY: DATE: PROJECT NO. DRAWING NO. ATTACHMENT I

EXCAVATED AREA



LOCATION OF COMPOSITE SOIL SAMPLES NEB KING PROJECT
12 FT TO 18 FT BELOW GROUND SURFACE 1/24/89



6814 Davis Circle Ratellah, North Corolina 27612 919-782-2832 Rotelah 919-223-3519 Nowport

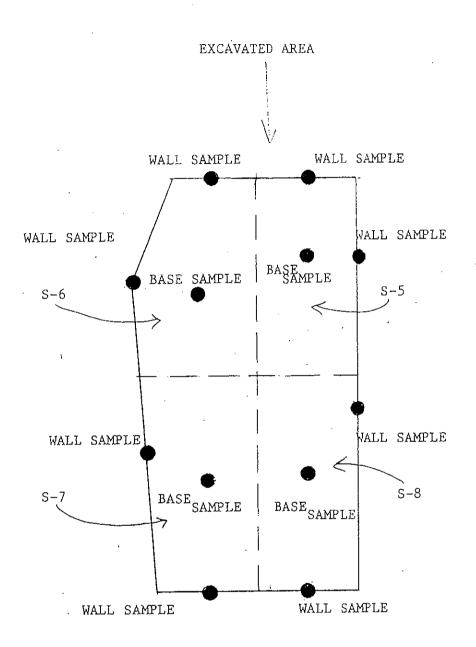
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				<u> </u>	·

ATTACHMENT III

SOIL/GAS SURVEY RESULTS 12 FT TO 18 FT BELOW GROUND SURFACE 1/24/89

SAMPLE NO.	RESULT
S-1	129.0
S-2	70.3
S-3	126.0
S-4	62.4

NOTE: Each sample is a composite of walls and base.



LOCATION OF COMPOSITE SOIL SAMPLES
NEB KING PROJECT
20 FT TO 21 FT BELOW GROUND SURFACE
1/25/89

ATEC Associates, Inc.

d Horth Carolina 6814 Davis Clircle Roleigh, North Carolina 27617 919-782-2832 Roleigh 919-223-3519 Newport

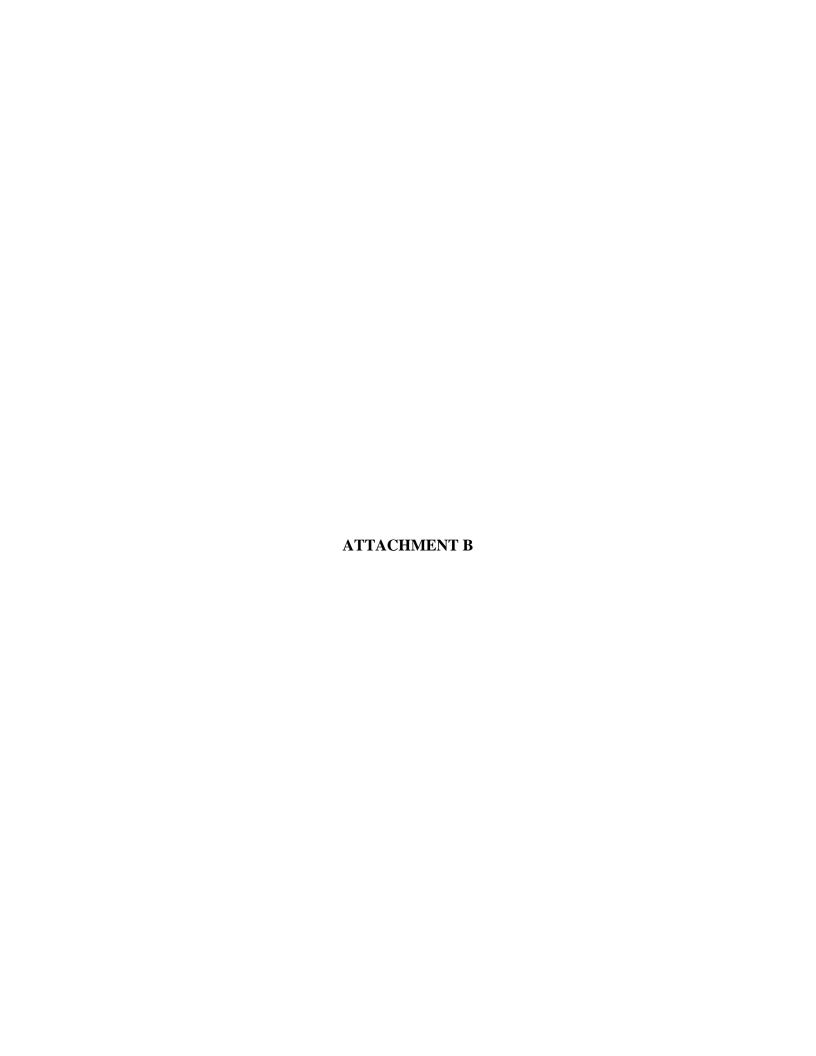
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ATTACHMENT V

SOIL/GAS SURVEY RESULTS 20 FT. TO 21 FT. BELOW GROUND SURFACE 1/24/89

SAMPLE NO.	RESULT
S-5	5.9
S-6	5.8
S-7	4.0
S-8	4.2

NOTE: Each sample is a composite of walls and base.



GEOPHYSICAL INVESTIGATION REPORT

EM61 & GPR SURVEYS

NEB KING PROPERTIES, INC. SITE (PARCEL 11) Roxboro, North Carolina

July 16, 2007

Report prepared for: Mike Branson

Earth Tech, Inc.

701 Corporate Center Drive, Suite 475

Raleigh, North Carolina 27607

Prepared by:		
	Mark J. Denil, PG	
Reviewed by:		
	Douglas Canavello, PG	

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C. 700 NORTH EUGENE ST. GREENSBORO, NC 27401 (336) 335-3174

Earth Tech of North Carolina, Inc. GEOPHYSICAL INVESTIGATION REPORT NEB KING PROPERTIES, INC. SITE (PARCEL 11) Roxboro, North Carolina

TABLE OF CONTENTS

1 A	INTRODUCTION
1.0	INTRODUCTION

- 2.0 FIELD METHODOLOGY
- 3.0 DISCUSSION OF RESULTS
- 4.0 SUMMARY & CONCLUSIONS
- 5.0 LIMITATIONS

FIGURES

Figure 1	Geophysical Equipment & Site Photographs
Figure 2	EM61 Bottom Coil Results
Figure 3	EM61 Differential Results

1.0 INTRODUCTION

Pyramid Environmental conducted geophysical investigations for Earth Tech of North Carolina, Inc. within the proposed Right-of-Way (ROW) area at the Neb King Properties, Inc. site (Parcel 11) located along the south side of NC 49 (Virginia Road) in Roxboro, North Carolina. The site consists of an active Exxon gas and service station surrounded by an asphalt-covered lot and three sets of pump islands. The geophysical investigation was conducted during the period of June 21-26, 2007 to determine if unknown, metallic, underground storage tanks (USTs) were present beneath the proposed ROW area of the property. The work was done as part of the North Carolina Department of Transportation (NCDOT) road-widening project.

Earth Tech's representative Mr. Michael Branson, PG, provided site maps that outlined the geophysical survey area (ROW area) of the site and visited the site with a Pyramid Environmental representative prior to conducting the investigation. Photographs of the Neb King Properties, Inc. site (Parcel 11) and the geophysical equipment used at this site 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 proposed ROW area of Parcel 11 using water-based marking paint and pin flags. These 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 investigations consisted of electromagnetic (EM) induction-metal detection surveys and ground penetrating radar (GPR) surveys. The EM surveys were performed on June 21, 2007, 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. The EM61 data were digitally collected along easterly-westerly parallel survey lines spaced five feet apart. 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.

Contour plots of the EM61 bottom coil results and the EM61 differential results for Parcel 11 are presented in **Figures 2 and 3**, 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.

GPR surveys were conducted on June 26, 2007, across selected EM61 differential anomalies using a GSSI SIR-2000 unit equipped with a 400 MHz antenna. GPR data were digitally collected in a continuous mode along X and/or Y survey lines, spaced two to five feet apart using a vertical scan of 512 samples, at a rate of 48 scans per second. An 80 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. The GPR data were downloaded to a field computer and later reviewed in the field and office using Radprint software. The locations of the GPR lines acquired at Parcel 11 are shown as solid purple lines in Figure 3.

Preliminary contour plots of the EM61 bottom coil and the differential results for the site were emailed to Mr. Branson during the week of July 2, 2007.

3.0 DISCUSSION OF RESULTS

GPR surveys suggest that the high amplitude EM61 anomalies centered near grid coordinates X=115 Y=115 and X=215 Y=170 are probably in response to the steel reinforced concrete and the surrounding pump island related equipment. The high amplitude EM61 anomalies centered near grid coordinates X=153 Y=166 and X=320 Y=165 are probably in response to known utility related

equipment and a metal fence line, respectively. GPR data also suggest that the bottom coil anomaly

centered near coordinates X=220 Y=145 is probably in response to buried lines or conduits.

The remaining EM61 anomalies are probably in response to known cultural features and/or to small,

miscellaneous metal objects. The geophysical investigation conducted at Parcel 11 suggests that the

proposed ROW area does not contain metallic USTs.

4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across the proposed ROW area at the Neb King

Properties, Inc. site (Parcel 11) located in Roxboro, 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 proposed ROW area of the site.

GPR surveys suggest that the high amplitude EM61 anomalies centered near grid

coordinates X=115 Y=115 and X=215 Y=170 are probably in response to the steel

reinforced concrete and the surrounding pump island related equipment.

• The remaining EM61 anomalies are probably in response to known cultural features and/or

to small, miscellaneous metal objects.

• The geophysical investigation conducted at Parcel 11 suggests that the proposed ROW area

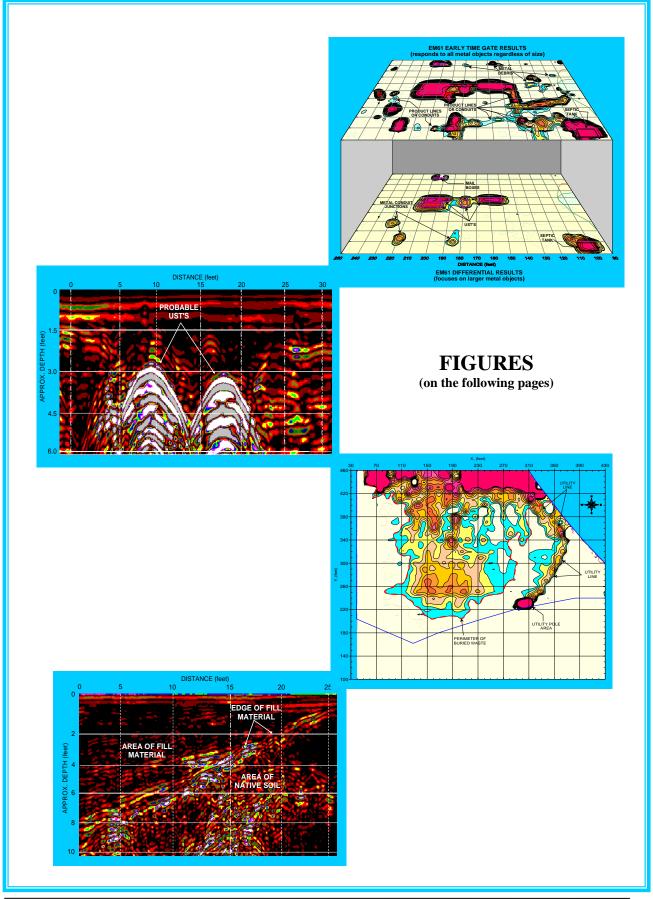
does not contain metallic USTs.

Neb King Properties, Inc. Site (Parcel 11) - Geophysical Report Pyramid Environmental & Engineering, P.C.

07/16/07

5.0 <u>LIMITATIONS</u>

EM61 and GPR surveys have been performed and this report prepared for Earth Tech of North Carolina, Inc. 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 proposed ROW area does not contain metallic USTs but that none were detected.





The photo shows the Geonics EM61 metal detector that was used to conduct the metal detection survey at Parcel 11 on June 21, 2007.



The photos show the SIR-2000 GPR system equipped with a 400 MHz antenna that were used to conduct the ground penetrating radar investigation at Parcel 11 on June 26, 2007.

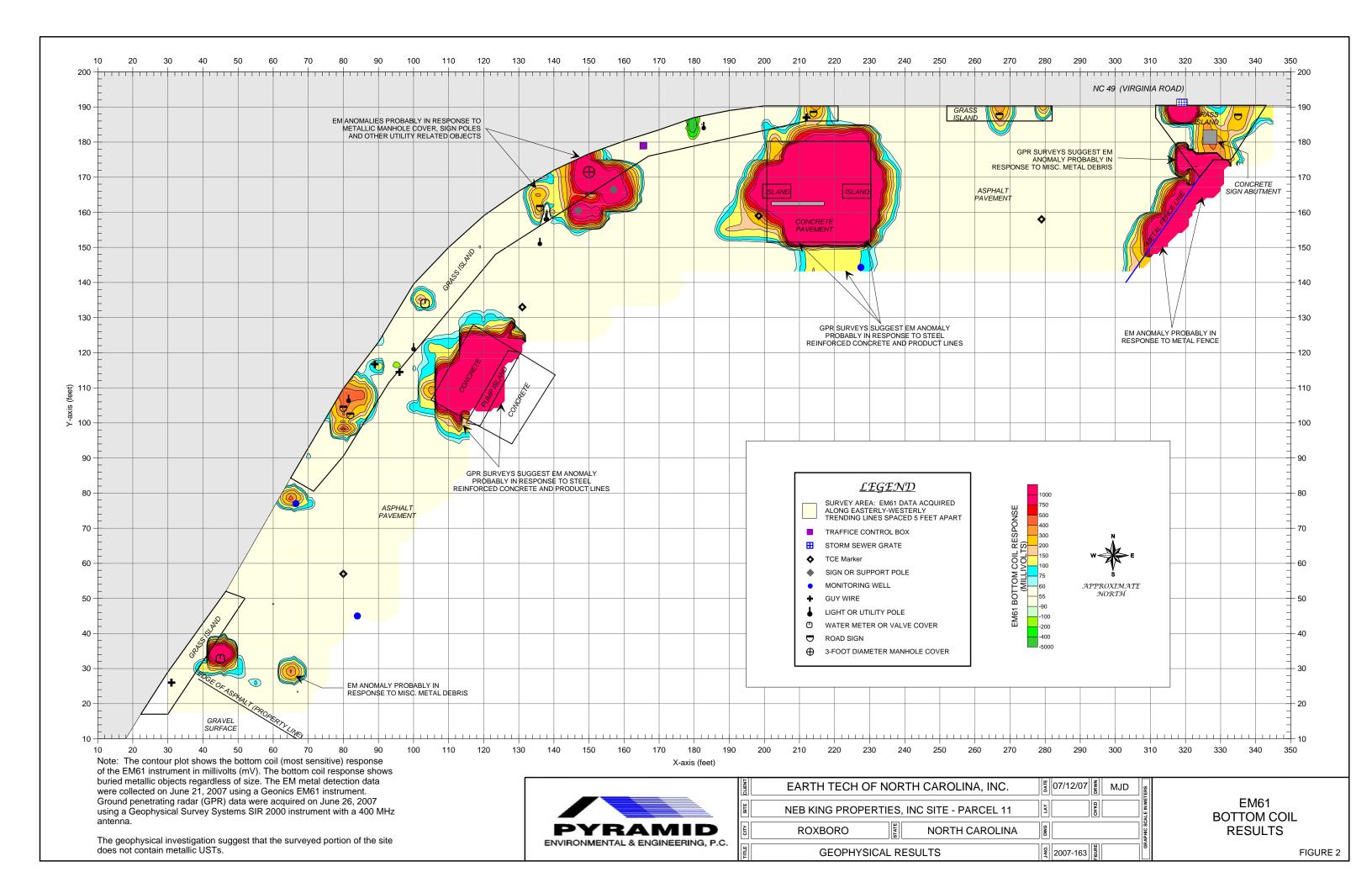


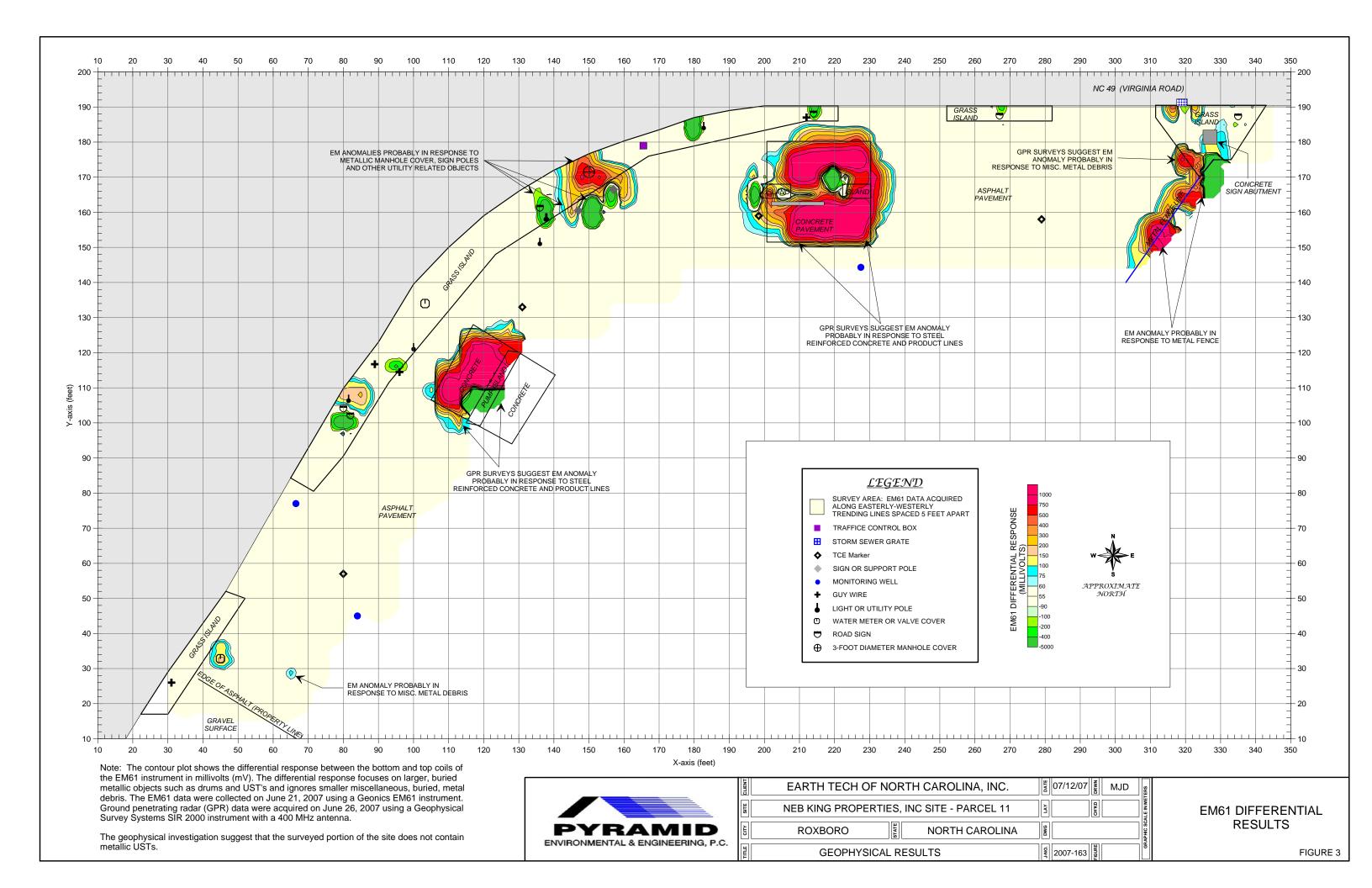
The photograph shows a portion of the geophysical survey area located at Parcel 11. The photo is viewed in a southwesterly direction.

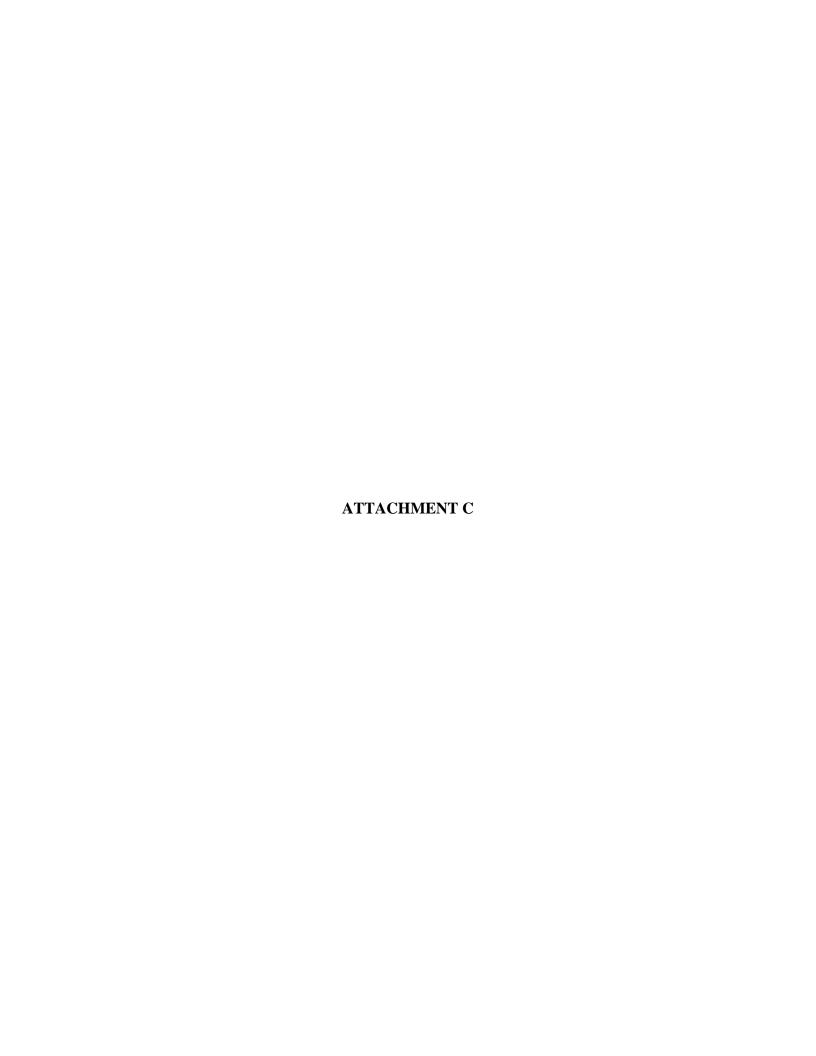


1	CLIENT	EARTH TECH OF NORTH CAROLINA, INC.						
ı	SITE	NEB KING PROPERTIES, INC SITE - PARCEL 11	CH'KD CH'KD	ALE IN FE				
ı	СШУ	ROXBORO	DWG	GRAPHIC SCALE IN FEET				
	ште	GEOPHYSICAL RESULTS	2007-163	GRA				

PHOTOGRAPHS OF GEOPHYSICAL EQUIPMENT & SURVEY AREA







PROJE	CT KING	PROPERT	Y (PARCI	EL 11)	BORING NUMBER KI-1
CLIENT NCDOT (R-2241A)					PAGE 1
PROJE	CT NUM	IBER 1004	107 (34406	.1.1)	ELEVATION
CONTI	RACTOR	REGIONA	AL PROBI	NG	DATE JULY 11, 2007
EQUIP	MENT C	EOPROBE	E		DRILLER OPPER
					PREPARED BY BRANSON
DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			65		4" ASPHALT/GRAVEL, MEDIUM TO REDDISH BROWN SILT/CLAY, DRY, NO ODOR.
			124		MEDIUM BROWN SILT, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
5.0			62		AS ABOVE, DRY, NO ODOR.
			14.85		OLIVE GREEN/GRAY SILT, BECOMING HARD, DRY, NO ODOR.
			3.13		AS ABOVE, BECOMING HARD, REFUSAL AT 10 FEET, DRY, NO ODOR.
10.0					REFUSAL AT 10 FEET. NO GROUNDWATER ENCOUNTERED.
15.0					

CLIEN'		THOI BILL	Y (PARCI	SL II)	BORING NUMBER KI-2
	T NCDO	Γ (R-2241A))		PAGE 1
		IBER 1004			ELEVATION
		REGIONA		NG	DATE JULY 11, 2007
EQUIP	MENT C	SEOPROBE	,		DRILLER OPPER
					PREPARED BY BRANSON
DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			58		4" ASPHALT/GRAVEL, MEDIUM TO REDDISH BROWN SILT/CLAY, DRY NO ODOR.
			432		AS ABOVE TO 3 FEET, BECOMES MEDIUM BROWN TO OLIVE GREEN/GRAY SILTY CLAY, DRY, SLIGHT ODOR.
5.0			63		MEDIUM BROWN SILTY CLAY, MOIST, SLIGHT ODOR.
			63		AS ABOVE, MOIST, SLIGHT ODOR.
			1710		AS ABOVE, BECOMING HARD, REFUSAL AT 10 FEET, DRY, SLIGHT ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
10.0					REFUSAL AT 10 FEET. NO GROUNDWATER ENCOUNTERED.

15.0

PROJECT KING PROPERTY (PARCEL 11)					BORING NUMBER KI-3
CLIEN	T NCDO	Γ (R-2241A	.)		PAGE 1
PROJE	CT NUM	IBER 1004	407 (34406	.1.1)	ELEVATION
CONTI	RACTOR	REGIONA	AL PROBI	NG	DATE JULY 11, 2007
EQUIP	MENT C	SEOPROBE	E		DRILLER OPPER
					PREPARED BY BRANSON
DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			362		4" ASPHALT/GRAVEL, MULTICOLORED, MULTILAYERED FILL MATERIAL, DRY, MODERATE ODOR.
			5052		MEDIUM BROWN SILT, DRY, SLIGHT ODOR.

PROJE	CT KING	PROPERT	Y (PARCE	EL 11)	BORING NUMBER KI-4
CLIENT NCDOT (R-2241A)					PAGE 1
PROJE	CT NUM	IBER 1004	107 (34406	.1.1)	ELEVATION
CONTI	RACTOR	REGIONA	AL PROBI	NG	DATE JULY 11, 2007
EQUIP	MENT C	GEOPROBE	t .		DRILLER OPPER
					PREPARED BY BRANSON
DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			228		4" ASPHALT/GRAVEL, MEDIUM TO REDDISH BROWN SILT/CLAY, DRY, MODERATE ODOR.
			3170		MEDIUM BROWN PLASTIC SILTY CLAY, DRY, MODERATE ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
5.0			370		AS ABOVE, MOIST, MODERATE ODOR.
			1981		AS ABOVE, MOIST, MODERATE ODOR.
			443		AS ABOVE, BECOMING HARD, REFUSAL AT 11 FEET, DRY, SLIGHT ODOR.
10.0					REFUSAL AT 11 FEET. GROUNDWATER PRESENT IN BORING AT COMPLETION, DEPTH UNKNOWN.
15.0					

BORING NUMBER KI-5
PAGE 1
ELEVATION
DATE JULY 11, 2007
DRILLER OPPER
PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			51		4" ASPHALT/GRAVEL, MEDIUM TO REDDISH BROWN SILT/CLAY, DRY, NO ODOR.
			96		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
5.0			26		MOTTLED MEDIUM BROWN, OLIVE GREEN, AND TAN SILTY CLAY, DRY, NO ODOR.
			27		AS ABOVE, DRY, NO ODOR.
			15.93		AS ABOVE, DRY, NO ODOR.
10.0			17.33		AS ABOVE, BECOMONG HARD, REFUSAL AT 11.5 FEET, DRY, NO ODOR
					REFUSAL AT 11.5 FEET. NO GROUNDWATER ENCOUNTERED.
15.0					
20.0					

PROJECT KING PROPERTY (PARCEL 11)	BORING NUMBER KI-6
CLIENT NCDOT (R-2241A)	PAGE 1
PROJECT NUMBER 100407 (34406.1.1)	ELEVATION
CONTRACTOR REGIONAL PROBING	DATE JULY 11, 2007
EQUIPMENT GEOPROBE	DRILLER OPPER
	PREPARED BY BRANSON

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			4.91		4" ASPHALT/GRAVEL, MULTICOLORED BACKFILL MATERIAL, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			3.59		AS ABOVE, DRY, NO ODOR.
5.0			3.75		AS ABOVE, DRY, NO ODOR.
			1.15		AS ABOVE, DRY, NO ODOR.
			2.70		AS ABOVE, DRY, NO ODOR.
10.0			1.43		AS ABOVE, MOIST, NO ODOR.
			1.77		AS ABOVEMOIST, SOFT, NO ODOR.
15.0					NO RECOVERY
			1.14		MOTTLED RED BROWN AND OLIVE GREEN/GRAY SILTY CLAY, DRY, SLIGHT ODOR.
					BORING TERMINATED AT 18 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

PROJE	CT KING	PROPERT	Y (PARCI	EL 11)	BORING NUMBER KI-7
CLIEN	T NCDO	Γ (R-2241A))		PAGE 1
PROJE	CT NUM	IBER 1004	107 (34406	.1.1)	
CONT	RACTOR	REGIONA	AL PROBI	NG	DATE JULY 11, 2007
EQUIP	MENT C	GEOPROBE	;		DRILLER OPPER
					PREPARED BY BRANSON
DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			54		4" ASPHALT/GRAVEL, REDDISH BROWN SILT/CLAY, DRY, NO ODOR.
			81		AS ABOVE, DRY, NO ODOR.
			59		MOTTLED MEDIUM BROWN AND GRAY SILTY CLAY, DRY, NO ODOR.
5.0					
			53		AS ABOVE, DRY, NO ODOR.
			20.4		
			294		AS ABOVE, BECOMING HARD, REFUSAL AT 10 FEET, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
10.0					REFUSAL AT 10 FEET. NO GROUNDWATER ENCOUNTERED.
					REFUSAL AT 10 FEET. NO GROUNDWATER ENCOUNTERED.
15.0					

PROJE	CT KING	PROPERT	Y (PARCE	EL 11)	BORING NUMBER KI-8
CLIEN	T NCDO	Γ (R-2241A))		PAGE 1
PROJE	CT NUM	IBER 1004	107 (34406	.1.1)	ELEVATION
CONTI	RACTOR	REGIONA	AL PROBI	NG	DATE JULY 11, 2007
EQUIP	MENT C	EOPROBE			DRILLER OPPER
					PREPARED BY BRANSON
DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0.79		4" ASPHALT/GRAVEL, REDDISH BROWN SILT/CLAY, DRY, NO ODOR.
			1.50		MOTTLED MEDIUM BROWN, RED BROWN, AND YELLOW SILT/CLAY,
					DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.81		AS ABOVE, DRY, NO ODOR.
5.0					
			0.96		AS ABOVE, DRY, NO ODOR.
			0.01		AS ABOVE, BECOMING HARD, REFUSAL AT 11 FEET, DRY, NO ODOR.
40.0					
10.0					REFUSAL AT 11 FEET. NO GROUNDWATER ENCOUNTERED.
15.0					

	"I KINC	PROPERT	Y (PARC	EL 11)	BORING NUMBER KI-9
CLIENT	NCDO	Γ (R-2241A))		PAGE 1
PROJE	CT NUM	IBER 1004	107 (34406	5.1.1)	ELEVATION
CONTR	ACTOR	REGIONA	AL PROBI	NG	DATE JULY 11, 2007
EQUIPN	MENT C	GEOPROBE			DRILLER OPPER
					PREPARED BY BRANSON
DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
-			232		4" ASPHALT/GRAVEL, MULTICOLORED, MULTILAYERED FILL MATERIAL, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			86		MEDIUM BROWN SOFT CLAY, DRY, NO ODOR.
_ 5.0			14		AS ABOVE, DRY, NO ODOR.
-			3.12		MOTTLED MEDIUM BROWN, RED BROWN, AND YELLOW SILT/CLAY STIFF, DRY, NO ODOR.
-			10.81		AS ABOVE, DRY, NO ODOR.
_ 10.0					AS ABOVE, DRY, NO ODOR.
					BORING TERMINATED AT 12 FEET. NO GROUNDWATER ENCOUNTERED.

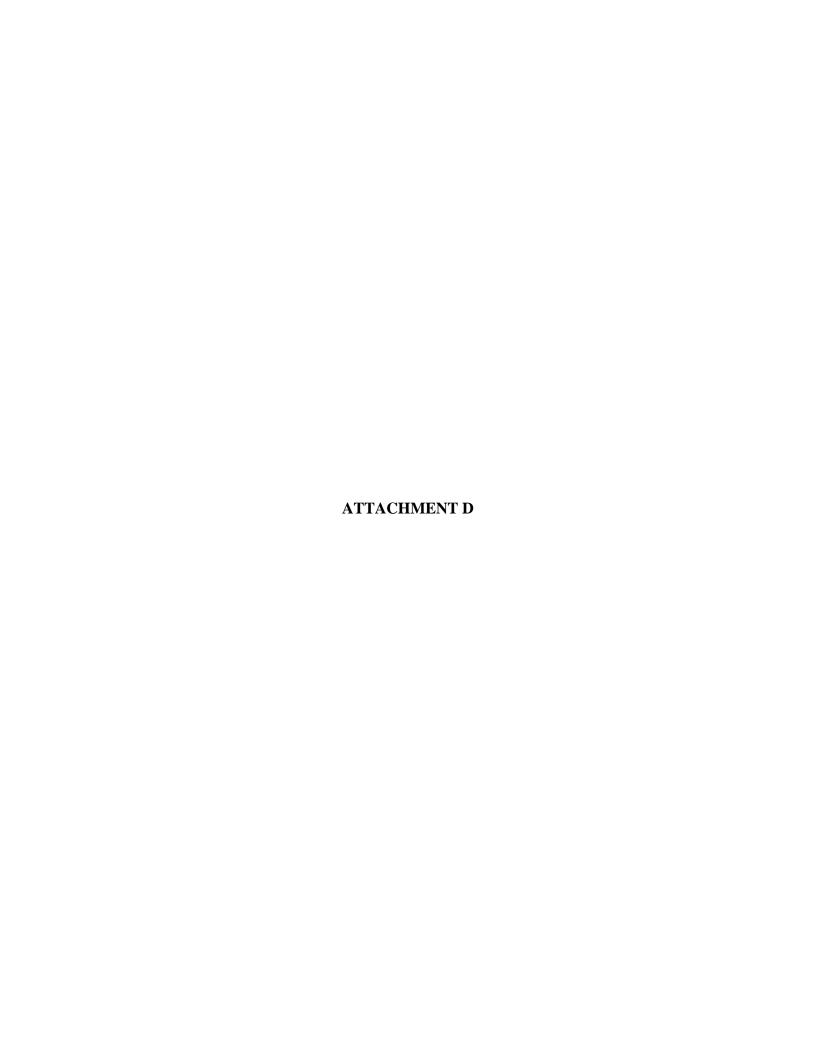




PHOTO 1 - BORINGS AT KING PROPERTY LOOKING NORTH AT PUMP ISLAND



PHOTO 2 - BORING AT KING PROPERTY LOOKING EAST FROM STREET



PHOTO 3 - BORINGS AT KING PROPERTY LOOKING SOUTH FROM STREET



PHOTO 4 - BORING AT KING PROPERTY LOOKING SOUTH FROM SIGN



PHOTO 5 - BORINGS AT KING PROPERTY LOOKING NORTHEAST FROM SIGN



PHOTO 6 - BORINGS ON KING PROPERTY LOOKING SOUTHWEST FROM STREET

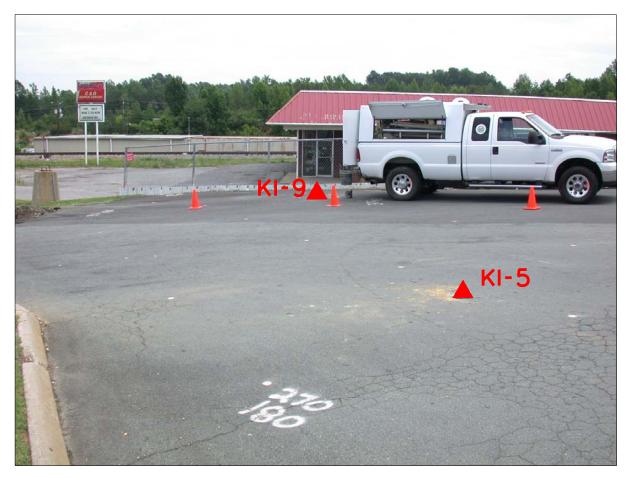


PHOTO 7 - BORINGS ON KING PROPRTY LOOKING WEST FROM THE STREET



Case Narrative



Date:

07/30/07

Company: N. C. Department of Transportation

Contact:

Mike Branson

Address: c/o Earth Tech Remediation

701 Corporate Center Dr. Ste 475

Raleigh, NC 27607

Client Project ID:

NCDOT - King

Prism COC Group No:

G0707332

Collection Date(s):

07/11/07

Lab Submittal Date(s):

07/12/07

Client Project Name Or No:

WBS# 34406.1.1

This data package contains the analytical results for the project identified above and includes a Case Narrative, Laboratory Report and Quality Control Data totaling 12 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:

Paula A. Gilleland

Project Manager:

Approval Date:

Signature:

Signature:

07/30/07

Review Date:

07/30/07

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.

Notes: This report should not be reproduced, except in its entirety, without the writtten consent of Prism Laboratories, Inc. The results in this report relate only to the samples submitted for analysis.



Laboratory Report

07/30/07

N. C. Department of Transportation

Attn: Mike Branson

c/o Earth Tech Remediation

701 Corporate Center Dr. Ste 475

Raleigh, NC 27607

Project ID:

NCDOT - King

Project No.:

WBS# 34406.1.1

Sample Matrix: Soil

Client Sample ID: KI-1

Prism Sample ID: 186946

COC Group: Time Collected: G0707332

07/11/07 10:30

Time Submitted: 07/12/07

17:00

87.7	%								
				1	SM2540 G	07/24/07	17:45	ddixon	
FID	a_	70	2.0	4	004ED	07/24/07	40.42	brogol	00505
5.6 J	mg/kg	7.9	2.0	1	80108	07/24/07	19:13	jvogei	Q2525
		2	5.3 g /	1 mL	3545	07/23/07	15:30	wcond	er P18972
				Surrogate		% Re	covery	, с	ontrol Limits
				o-Terphen	yl		111		49 - 124
8.10	g			1	GRO	07/17/07	0:00	Ibrown	
7.32	g			1	GRO	07/17/07	0:00	lbrown	
C-FID									
BRL	mg/kg	5.7	0.59	50	8015B	07/20/07	10:46	hwagner	Q2515
				Surrogate		% Re	COVER	, c	ontrol Limits
					'	70 IVE		, ,	55 - 129
	7.32 <u>iC-FID</u>	8.10 g 7.32 g 6C-FID	8.10 g 7.32 g	25.3 g / 25.3 g	25.3 g / 1 mL Surrogate o-Terphen 8.10 g 1 7.32 g 1 6C-FID BRL mg/kg 5.7 0.59 50	25.3 g / 1 mL 3545 Surrogate o-Terphenyl 8.10 g 1 GRO 7.32 g 1 GRO BRL mg/kg 5.7 0.59 50 8015B Surrogate	25.3 g / 1 mL 3545 07/23/07 Surrogate % Reco-Terphenyl 8.10 g 1 GRO 07/17/07 7.32 g 1 GRO 07/17/07 BC-FID BRL mg/kg 5.7 0.59 50 8015B 07/20/07 Surrogate % Reconstruction of the surrogate % Reconstruction of	25.3 g / 1 mL 3545 07/23/07 15:30 Surrogate	Surrogate

Sample Comment(s):

BRL = Below Reporting Limit

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

J- Estimated value between the Reporting Limit and the MDL



Laboratory Report

N. C. Department of Transportation

Attn: Mike Branson

c/o Earth Tech Remediation

701 Corporate Center Dr. Ste 475

Raleigh, NC 27607

Project ID:

NCDOT - King

Project No.:

WBS# 34406.1.1

Sample Matrix: Soil

Client Sample ID: KI-2

Prism Sample ID: 186947

COC Group:

G0707332

Time Collected:

07/11/07

Time Submitted: 07/12/07

17:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analys Date/Ti		Analys	st Batch ID
Percent Solids Determination Percent Solids	90.3	%			1	SM2540 G	07/24/07	17:45	ddixon	
Diesel Range Organics (DRO) by G			7.0	0.00		00455	A TI (A 1 1 A -			
Diesel Range Organics (DRO)	BRL	mg/kg	7.6	0.96	1	8015B	07/24/07	17:23	jvogel	Q2525
Sample Preparation:			25.	.48 g /	1 mL	3545	07/23/07	15:30	wconde	r P18972
•					Surrogate		% Re	covery	, Co	ontrol Limits
					o-Terphen	yi		105		49 - 124
Sample Weight Determination										
Weight 1	5.52	g			1	GRO	07/17/07	0:00	ibrown	
Weight 2	4.60	g			1	GRO	07/17/07	0:00	lbrown	
Gasoline Range Organics (GRO) by	GC-FID									4
Gasoline Range Organics (GRO)	BRL	mg/kg	5.5	0.58	50	8015B	07/20/07	11:17	hwagner	Q2515 ²
					Surrogate		% Pa	covery	, Co	ontrol Limits
					aaa-TFT		/U INC	69		55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

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

J- Estimated value between the Reporting Limit and the MDL



Laboratory Report

07/30/07

N. C. Department of Transportation

Attn: Mike Branson

c/o Earth Tech Remediation

701 Corporate Center Dr. Ste 475

Raleigh, NC 27607

Project ID:

NCDOT - King

Project No.:

WBS# 34406.1.1

Sample Matrix: Soil

Client Sample ID: KI-3

Prism Sample ID: 186948

COC Group:

G0707332

Time Collected: 07/11/07 11:10

DO #

2/07 17:00

Time Submitted: 07/12/07

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analys Date/Tir		Analyst	Batch ID
Percent Solids Determination		VV								
Percent Solids	69.7	%			1	SM2540 G	07/24/07	17:45	ddixon	
Diesel Range Organics (DRO) by GO	C-FID									
Diesel Range Organics (DRO)	260	mg/kg	250	6.3	5	8015B	07/25/07	11:58	jvogel	Q25259
Sample Preparation:			25.	.13 g	1 mL	3545	07/23/07	15:30	wconder	P18972
					Surrogate)	% Red	covery	Cor	trol Limits
					o-Terphen	yl		104		49 - 124
Sample Weight Determination					***************************************					
Weight 1	5.01	g			1	GRO	07/17/07	0:00	lbrown	
Weight 2	5.89	g			1	GRO	07/17/07	0:00	lbrown	
Gasoline Range Organics (GRO) by	GC-FID									
Gasoline Range Organics (GRO)	1100	mg/kg	72	7.5	500	8015B	07/20/07	12:20	hwagner	Q25151
					Surrogate		9/ Day	covery	Cau	trol Limits

aaa-TFT

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

55 - 129



Laboratory Report

07/30/07

N. C. Department of Transportation

Attn: Mike Branson

c/o Earth Tech Remediation

701 Corporate Center Dr. Ste 475

Raleigh, NC 27607

Project ID:

NCDOT - King

Project No.:

WBS# 34406.1.1

Sample Matrix: Soil

Client Sample ID: KI-4

Prism Sample ID: 186949

COC Group:

G0707332

Time Collected:

07/11/07

Time Submitted: 07/12/07

11:30 17:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analys Date/Ti		Analys	st Batch ID
Percent Solids Determination										
Percent Solids	86	%			1	SM2540 G	07/24/07	17:45	ddixon	
Diesel Range Organics (DRO) by G	C-FID									
Diesel Range Organics (DRO)	210	mg/kg	8.0	1.0	1	8015B	07/25/0 7	10:45	jvogel	Q25259
Sample Preparation	1:		2	5.3 g ,	1 mL	3545	07/23/07	15:30	wconde	r P18972
					Surrogate	ı	% Re	covery	, Co	ntrol Limits
					o-Terphen	ył		119		49 - 124
Sample Weight Determination										
Weight 1	7.13	g			1	GRO	07/17/07	0:00	lbrown	
Weight 2	7.00	g			1	GRO	07/17/07	0:00	lbrown	
Gasoline Range Organics (GRO) by	GC-FID									
Gasoline Range Organics (GRO)	2500	mg/kg	120	12	1000	8015B	07/20/07	12:51	hwagner	Q25151
					Surrogate		% Re	covery	. Co	ntrol Limits
					aaa-TFT		70.110	DO #		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



Laboratory Report

07/30/07

N. C. Department of Transportation

Attn: Mike Branson

c/o Earth Tech Remediation

701 Corporate Center Dr. Ste 475

Raleigh, NC 27607

Project ID:

NCDOT - King

Project No.:

WBS# 34406.1.1

Sample Matrix: Soil

Client Sample ID: KI-5

Prism Sample ID: 186950

COC Group:

G0707332

Time Collected:

07/11/07 Time Submitted: 07/12/07

11:50 17:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analys	st Batch ID
Percent Solids Determination Percent Solids	87.3	%	***		1	SM2540 G	07/24/07 17:45	ddixon	
Diesel Range Organics (DRO) by G	C-FID								
Diesel Range Organics (DRO)	31	mg/kg	7.9	0.99	1	8015B	07/24/07 20:28	} jvogel	Q25259
Sample Preparation:	;		25.	32 g /	1 mL	3545	07/23/07 15:30) wconde	r P18972
					Surrogate)	% Recover	y Co	ontrol Limits
					o-Terphen	yl	115		49 - 124
Sample Weight Determination Weight 1	7.58	_			1	GRO	07/30/07 0:00	lbrown	
Ť		g							
Weight 2	6.42	g			1	GRO	07/30/07 0:00	lbrown	
Gasoline Range Organics (GRO) by Gasoline Range Organics (GRO)	y GC-FID BRL	mg/kg	5.7	0.60	50	8015B	07/20/07 11:49) hwagner	Q25151
					Surrogate		% Recover	y Co	ontrol 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



Laboratory Report

07/30/07

N. C. Department of Transportation

Attn: Mike Branson

c/o Earth Tech Remediation

701 Corporate Center Dr. Ste 475

Raleigh, NC 27607

Project ID:

NCDOT - King

Project No.:

WBS# 34406.1.1

Sample Matrix: Soil

Client Sample ID: Ki-6

Prism Sample ID: 186951

COC Group:

G0707332

Time Collected:

07/11/07 12:15

17:00

Time Submitted: 07/12/07

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analys	Batch ID
Percent Solids Determination Percent Solids	83.7	%			1	SM2540 G	07/24/07 17:4	5 ddixon	
Diesel Range Organics (DRO) by G Diesel Range Organics (DRO)	<u>C-FID</u> 53	mg/kg	8.2	1.0	1	8015B	07/25/07 3:51	ivogel	Q25259
Sample Preparation:		шдид		.36 g	-	3545	07/23/07 15:3		
					Surrogate)	% Recove	ry Cor	ntrol Limits
					o-Terphen	yl	121		49 - 124
Sample Weight Determination									
Weight 1	6.27	g			1	GRO	07/17/07 0:00	lbrown	
Weight 2	7.05	g			1	GRO	07/17/07 0:00	lbrown	
Gasoline Range Organics (GRO) by	GC-FID								
Gasoline Range Organics (GRO)	BRL	mg/kg	6.0	0.62	50	8015B	07/20/07 1:57	hwagner	Q25151
					Surrogate	ı	% Recove	ry Cor	itrol Limits
					aaa-TFT		64		55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

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

J- Estimated value between the Reporting Limit and the MDL



Laboratory Report

07/30/07

N. C. Department of Transportation

Attn: Mike Branson

c/o Earth Tech Remediation

701 Corporate Center Dr. Ste 475

Raleigh, NC 27607

Project ID:

NCDOT - King

Project No.:

WBS# 34406.1.1

Sample Matrix: Soil

Client Sample ID: KI-7

Prism Sample ID: 186952

COC Group:

G0707332

Time Collected:

07/11/07 12:30

17:00

Time Submitted:

07/12/07

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analys	t Batch ID
Percent Solids Determination									
Percent Solids	74.6	%			1	SM2540 G	07/24/07 17:4	5 ddixon	
Diesel Range Organics (DRO) by GO	:-FID								
Diesel Range Organics (DRO)	BRL	mg/kg	9.3	1.2	1	8015B	07/25/07 0:09	jvogel	Q25259
Sample Preparation:			25.	.17 g /	1 mL	3545	07/23/07 15:3	0 wconder	P18972
					Surrogate	•	% Recove	y Co	ntrol Limits
					o-Terphen	yl	111		49 - 124
Sample Weight Determination									
Weight 1	6.45	g			1	GRO	07/17/07 0:00	lbrown	
Weight 2	6.23	g	•		1	GRO	07/17/07 0:00	lbrown	
Gasoline Range Organics (GRO) by	GC-FID								
Gasoline Range Organics (GRO)	BRL	mg/kg	6.7	0.70	50	8015B	07/20/07 19:4	7 hwagner	Q25198

Surrogate

aaa-TFT

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

Control Limits

55 - 129

% Recovery



Laboratory Report

07/30/07

N. C. Department of Transportation

Attn: Mike Branson

c/o Earth Tech Remediation

701 Corporate Center Dr. Ste 475

Raleigh, NC 27607

Project ID:

NCDOT - King

Project No.:

WBS# 34406.1.1

Sample Matrix: Soil

Client Sample ID: KI-8

Prism Sample ID: 186953

COC Group:

G0707332

Time Collected:

07/11/07 13:00

Time Submitted: 07/12/07

17:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analys Date/Ti		Analys	t Batch ID
Percent Solids Determination Percent Solids	81.8	%			1	SM2540 G	07/24/07	17:45	ddixon	
Diesel Range Organics (DRO) by G	C-FID									
Diesel Range Organics (DRO)	15	mg/kg	8.5	1.1	1	8015B	07/25/07	1:23	jvogel	Q25259
Sample Preparation	:		2	5.1 g /	1 mL	3545	07/23/07	15:30	. wconder	P18972
					Surrogate	1	% Re	covery	Co	ntrol Limits
					o-Terphen	yl		112		49 - 124
Sample Weight Determination										
Weight 1	7.03	g			1	GRO	07/17/07	0:00	Ibrown	
Weight 2	6.52	g			1	GRO	07/17/07	0:00	lbrown	
Gasoline Range Organics (GRO) by	GC-FID									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.1	0.64	50	8015B	07/20/07	20:18	hwagner	Q25198
					Surrogate		% Red	overv	Cor	ntrol Limits
•					aaa-TFT		,0 1tet	91		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



Laboratory Report

07/30/07

N. C. Department of Transportation

Attn: Mike Branson

c/o Earth Tech Remediation

701 Corporate Center Dr. Ste 475

Raleigh, NC 27607

Project ID:

NCDOT - King

Project No.:

WBS# 34406.1.1

Sample Matrix: Soil

Client Sample ID: KI-9

Prism Sample ID: 186954

COC Group: Time Collected: G0707332

07/11/07 13:30

Time Submitted: 07/12/07 17:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Ana	lyst Batch ID
Percent Solids Determination					***************************************				
Percent Solids	84.9	%			1	SM2540 G	07/24/07 17	7:45 ddixon	
Diesel Range Organics (DRO) by G	C-FID								
Diesel Range Organics (DRO)	25	mg/kg	8.2	1.0	1	8015B	07/25/07 11	:22 jvogel	Q25259
Sample Preparation:			25.	.24 g	1 mL	3545	07/23/07 15	5:30 wcor	nder P18972
•					Surrogate)	% Reco	very	Control Limits
					o-Terphen	yl	12	2	49 - 124
Sample Weight Determination									
Weight 1	7.08	g			1	GRO	07/17/07 0:	00 lbrown	
Weight 2	7.65	g			1	GRO	07/17/07 0:	00 lbrown	
Gasoline Range Organics (GRO) by	/ GC-FID								
Gasoline Range Organics (GRO)	BRL	mg/kg	5.9	0.61	50	8015 B	07/20/07 20):49 hwagne	r Q25198
					Surrogate	ı	% Reco	very	Control Limits
					aaa-TFT		7-	4	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



Level II QC Report

7/30/07

N. C. Department of Transportation

Attn: Mike Branson

Project ID: Project No.: NCDOT - King WBS# 34406.1.1 COC Group Number: G0707332

c/o Earth Tech Remediation

701 Corporate Center Dr. Ste 475

Raleigh, NC 27607

Date/Time Submitted: 7/12/07 17:00

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

Method Blank									QC Batch
	Result	RL	Control Limit	Units					ID
Gasoline Range Organics (GRO)	ND	5	<2.5	mg/kg					Q25151
Laboratory Control Sample	Result	Spike Amour	ıt	Units	Recovery %	Recovery Ranges %	, every label		QC Batch ID
Gasoline Range Organics (GRO)	50	50		mg/kg	100	67-116			Q25151
Matrix Spike Sample ID:	Result	Spike Amoun	t	Units	Recovery %	Recovery Ranges %			QC Batch ID
186801 Gasoline Range Organics (GRO)	43.4	50		mg/kg	87	57-113			Q25151
Matrix Spike Duplicate Sample ID:	Result	Spike Amoun	t	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
186801 Gasoline Range Organics (GRO)	44.05	50		mg/kg	88	57-113	1	0 - 23	Q25151

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

Method Blank									QC Batch
	Result	RL	Control Limit	Units					ID
Gasoline Range Organics (GRO)	ND	5	<2.5	mg/kg					Q25198
Laboratory Control Sample	Result	Spike Amoun	t	Units	Recovery %	Recovery Ranges %			QC Batch ID
Gasoline Range Organics (GRO)	48.75	50		mg/kg	98	67-116			Q25198
Matrix Spike	, , , , , , , , , , , , , , , , , , , ,				Recovery	Recovery			QC Batch
Sample ID:	Result	Spike Amoun	t	Units	%	Ranges %			ID
186952 Gasoline Range Organics (GRO)	36.15	50		mg/kg	72	57-113			Q25198
Matrix Spike Duplicate					Recovery	Recovery		RPD	QC Batch
Sample ID:	Result	Spike Amount	1	Units	%	Ranges %	RPD %	Range %	ID ID
186952 Gasoline Range Organics (GRO)	42.6	50		mg/kg	85	57-113	16	0 - 23	Q25198



Level II QC Report

7/30/07

N. C. Department of Transportation

Attn: Mike Branson

c/o Earth Tech Remediation

701 Corporate Center Dr. Ste 475

Raleigh, NC 27607

Project ID: Project No.: NCDOT - King

WBS# 34406.1.1

COC Group Number: G0707332

Date/Time Submitted: 7/12/07 17:00

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

Method Blank									QC Batch
	Result	RL	Control Limit	Units					ID
Diesel Range Organics (DRO)	ND	7	<3.5	mg/kg					Q25259
Laboratory Control Sample	Result	Spike Amoun	nt .	Units	Recovery %	Recovery Ranges %			QC Batch ID
Diesel Range Organics (DRO)	81.2	80		mg/kg	102	55-109			Q25259
Matrix Spike					Recovery	Recovery			QC Batch
Sample ID:	Result	Spike Amoun	nt	Units	%	Ranges %			ID
186950 Diesel Range Organics (DRO)	89.5	80		mg/kg	79	50-117			Q25259
Matrix Spike Duplicate				•	Recovery	Recovery	RPD	RPD	QC Batch
Sample ID:	Result	Spike Amoun	ıt	Units	%	Ranges %	%	Range %	iD
186950 Diesel Range Organics (DRO)	85.9	80		mg/kg	74	50-117	4	0 - 24	Q25259
#-See Case Narrative						-			

-See Case Narrative



Full Service Analytical & Environmental Solutions

Project Name: _

PAGE OF QUOTE # TO ENSURE PROPER BILLING:

NOOT - KING

CHAIN OF CUSTODY RECORD

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	で Mileage	1 1700	- Winder		R	/	7	3 _		Ilgan	This said	
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PRISM USE ONL	3	must be	. Any changes zed.	s requested above have been initialized	th the analyses a	y change	harges for ar	thorization for There will be c	ody is your auct Manager.	the Prism Proje	Upon relinquishing, this Chain of Custody is your authorization for Prismto 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.	
		EARTH TECH	tilliation Ex	Af Af	BRANSON	e) //h	Sampled By (Print Name)	Sampled E	7	Mariana	Sampler's Signature	
7 - 3.COP	DRESS DOWN FIRM Y - 3 COD				^	,				1.1.1		
	-		•		•							
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Received WITHIN HOLDING TIMES? PROPER PRESERVATIVES indicated? Received ONIWETHCE? Temp Samples INTACT upon arrival? Ö

REVERSE FOR 8 & CONDITIONS

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