

March 20, 2012

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

Reference: Preliminary Site Assessment
Jerry McKinney Property
2601 US 19E
Spruce Pine, Mitchell County, North Carolina
NCDOT Tip No. R-2519B
WBS Element 35609.1.1
AECOM Project No. 60241470

Dear Mr. Fox:

AECOM Technical Services of North Carolina, Inc., (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 12, 2012, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated January 18, 2012. 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 Jerry McKinney Property is located at 2601 US 19E in Spruce Pine, Mitchell County, North Carolina. The property is situated on the north side of US 19E (Figure 1). Based on information supplied by the NCDOT and the site visit, AECOM understands that the site is a former gas station/convenience store where seven underground storage tanks (USTs) were reportedly operated and removed. In 1996, three tanks were removed; one 2,000-gallon diesel fuel, one 6,000-gallon gasoline, and one 8,000-gallon gasoline. In 2004, four tanks were removed; three 8,000-gallon gasoline and one 4,000-gallon diesel fuel. According to the current owner, the tanks were located in front of the building on the west side. The owner also indicated that several monitoring wells and recovery wells were located on the property. AECOM was able to identify two recovery wells and two monitoring wells within the proposed right-of-way (Figure 2). The structure on the site consists of a single-story block/wood frame building with a gravel parking lot in front and on the sides. A used car and trailer sales office is located on the eastern portion

of the property. The NCDOT has advised that the proposed right-of-way will not affect the building, but will affect the parking lot just outside the former UST locations (Figure 2). The presence of potential USTs immediately adjacent to the right-of-way created an area of potential environmental concern and 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 existing right-of-way with respect to the presence of known and unknown USTs and assess where contamination may exist on the right-of-way. If present, an estimate of the quantity of impacted soil was to be provided.

AECOM reviewed the on-line NCDENR Incident Management database and no Incident Number has been assigned to the property. AECOM also examined the UST registration database to obtain UST ownership information. As noted previously, seven USTs were operated at various times on the site under Facility ID 0-023009. The database lists the operator and owner of the tanks as follows:

<u>Owner</u>	<u>Operator</u>
M.D. Ledbetter Oil Co. 1077 Forest Lake Heights Drive Nebo, NC 28761	Chalk Mountain (Hills Quick Stop) 2601 US 19E Spruce Pine, NC 28777

The landowner indicated that he believed M.D. Ledbetter Oil Co. to be out of business.

Geophysical Survey

Prior to AECOM's mobilization to the site, Pyramid Environmental conducted a geophysical survey as part of this project to evaluate if USTs were present on the right-of-way/easement. The geophysical survey consisted of an electromagnetic survey using a Geonics EM61 time-domain electromagnetic induction meter to locate buried metallic objects, specifically USTs. Pyramid laid out a survey grid at the property with the X-axis oriented approximately parallel to US 19E and the Y-axis oriented approximately perpendicular to US 19E. The grid was located to cover the accessible portions of the right-of-way. The survey lines were spaced 5 feet apart. A data logger collected magnetic data continuously along each survey line. 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 where needed to further evaluate any significant metallic anomalies.

Access was available to all areas of the proposed right-of-way and the geophysical survey detected several anomalies. Data interpretation attributed all of these anomalies to buried utility lines, conduits, or miscellaneous metallic debris. No metal USTs were detected within the proposed right-of-way. Attachment A presents a detailed report of findings and interpretations.

Site Assessment Activities

On February 20, 2012, AECOM mobilized to the site to conduct a Geoprobe[®] direct push investigation to evaluate soil conditions within the proposed right-of-way. 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 acetate sleeves inside the direct push sampler. Each of these sleeves was divided into 2-foot long sections 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 for analysis to Pace Analytical in Asheville, 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).

Seven direct-push holes (MK-1 through MK-7) were advanced within the proposed right-of-way to depths of 6 to 15 feet as shown in Figure 2 and Attachment B. Borings MK-1 through MK-4 were located to evaluate the conditions along the proposed right-of-way line and as close as possible to the former USTs; borings MK-5 and MK-6 were placed to assess the soil conditions within the cut section; and boring MK-7 was situated to observe soil conditions at a proposed drop inlet (Attachment C). The lithology encountered by the direct-push samples generally was consistent throughout the site. About 2 inches of topsoil or gravel covered the ground surface. Below the surface to a depth of about 12 to 15 feet was a medium brown, micaceous, silty sand. Underlying this soil was a medium brown silt/clay. Quartz veins were common throughout the site. Boring MK-2 encountered refusal (bedrock) at a depth of 7 feet and boring MK-7 encountered refusal at a depth of 6 feet.

The “Geologic Map of North Carolina” dated 1985 indicates that the Alligator Formation underlies the site. This formation consists of amphibolites and gneiss. The amphibolite is described as equigranular, massive to well foliated, metamorphosed intrusive and extrusive mafic rock. The gneiss is a finely laminated to thinly layered and locally contains massive gneiss and micaceous granule conglomerate. In addition to these rock types, quartz diorite intrusions are common in the area. The soil observed at the site is consistent with these parent rocks. The borings were terminated at depths of 6 to 15 feet. No groundwater was observed in any of the borings. Based on field screening, soil samples were submitted for laboratory analyses, which are summarized in Table 1. Following completion, each boring was backfilled in accordance with 15A NCAC 2C.

Analytical Results

The soil analytical reports, summarized in Table 1 and presented in Attachment D, indicated the presence of petroleum hydrocarbon compounds identified as DRO in one of the seven soil samples collected from the site on February 20, 2012. The detected DRO concentration was 8.6 milligrams per kilogram (mg/kg). No GRO concentrations were detected in any of the soil samples. According to the North Carolina Underground Storage Tank Section's "Guidelines for Site Checks, Tank Closure, and Initial Response and Abatement for UST Releases" effective December 1, 2008, 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 December 2008, does not allow for use of TPH analyses for confirmation of the petroleum contamination extent or its cleanup. As a result, while TPH concentrations are no longer applicable in confirming 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. The DRO concentration detected in sample MK-6 was not present above the 10 mg/kg assumed action level.

Conclusions and Recommendations

A Preliminary Site Assessment was conducted to evaluate the Jerry McKinney Property located at 2601 US 19E in Spruce Pine, Mitchell County, North Carolina. A geophysical investigation was conducted to evaluate the site for unknown USTs. The investigation found no evidence of metallic USTs within the proposed right-of-way. Seven soil borings were advanced to evaluate the soil conditions throughout the proposed right-of-way. The laboratory reports of the soil samples from these borings suggest that one DRO concentration of 8.6 mg/kg and no GRO concentrations were detected. Based on the analytical results, no soil concentrations are above applicable action levels.

AECOM appreciates the opportunity to work with the NCDOT on this project. Because laboratory analysis detected DRO in one soil sample above the method detection limit, but below applicable action, the NCDENR should be notified and a copy of the report submitted if requested. If you have any questions, please contact me at (919) 854-6238.

Sincerely,

Michael W. Branson, P.G.
Project Manager

Attachments

c: Project File

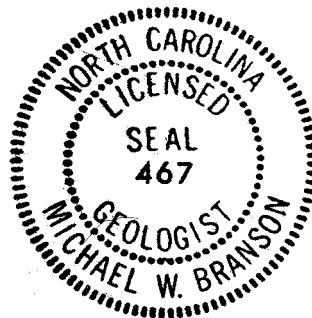


TABLE 1

SOIL FIELD SCREENING AND ANALYTICAL RESULTS
 JERRY MCKINNEY PROPERTY
 SPRUCE PINE, MITCHELL COUNTY, NORTH CAROLINA
 NCDOT PROJECT NO. R-2519B
 WBS ELEMENT 35609.1.1
 AECOM PROJECT NO. 60241470

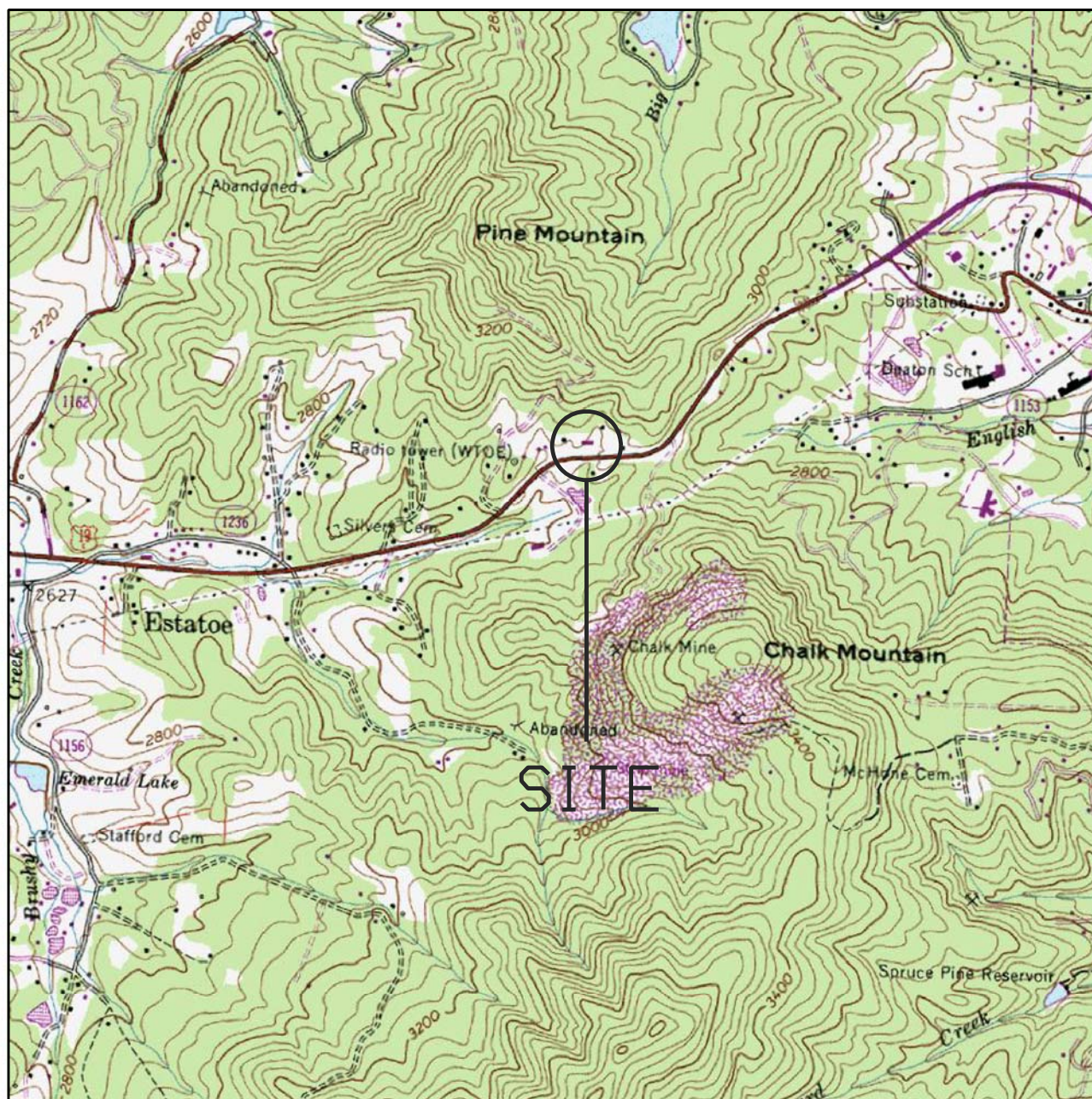
LOCATION	DEPTH (ft)	FID READING (ppm)	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)	ASSUMED ACTION LEVEL (mg/kg)
MK-1	0 - 2	0.42			
	2 - 4	0.48			
	4 - 6	1.22	MK-1	DRO (BQL) GRO (BQL)	10 10
	6 - 8	0.29			
	8 - 10	0.17			
	10 - 12	0.61			
	12 - 14	0.21			
MK-2	14 - 15	0.14			
	0 - 2	0.49			
	2 - 4	0.51	MK-2	DRO (BQL) GRO (BQL)	10 10
	4 - 6	0.01			
MK-3	6 - 8	0.01			
	0 - 2	0.03			
	2 - 4	0.19	MK-3	DRO (BQL) GRO (BQL)	10 10
	4 - 6	0.17			
	6 - 8	0.12			
	8 - 10	0.01			
	10 - 12	0.08			
MK-4	12 - 14	0.01			
	14 - 15	0.01			
	0 - 2	0.01			
	2 - 4	0.01			
	4 - 6	0.02			
	6 - 8	0.01			
	8 - 10	0.01			
MK-5	10 - 12	0.04	MK-4	DRO (BQL) GRO (BQL)	10 10
	12 - 14	0.01			
	14 - 15	0.01			
	0 - 2	0.18			
	2 - 4	0.35			
	4 - 6	1.32			
	6 - 8	0.33			
MK-6	8 - 10	0.54			
	10 - 12	0.83			
	12 - 14	1.64	MK-5	DRO (BQL) GRO (BQL)	10 10
	14 - 16	0.94			
	0 - 2	0.84			
	2 - 4	1.30			
	4 - 6	0.14			
MK-7	6 - 8	0.77			
	8 - 10	2.51	MK-6	DRO (8.6) GRO (BQL)	10 10
	10 - 12	0.79			
	12 - 14	0.40			
	14 - 16	0.66			
	0 - 2	0.18			
	2 - 4	0.37			
MK-7	4 - 6	0.56	MK-6	DRO (BQL) GRO (BQL)	10 10

Soil samples were collected on February 20, 2012.

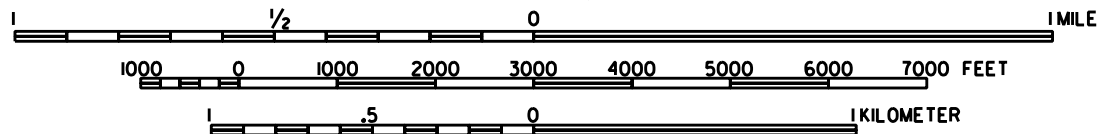
- DRO - Diesel range organics.
- GRO - Gasoline range organics.
- BQL - Below quantitation limit.
- ppm - parts per million.
- mg/kg - milligrams per kilogram.



FIGURES



SCALE 1:24,000



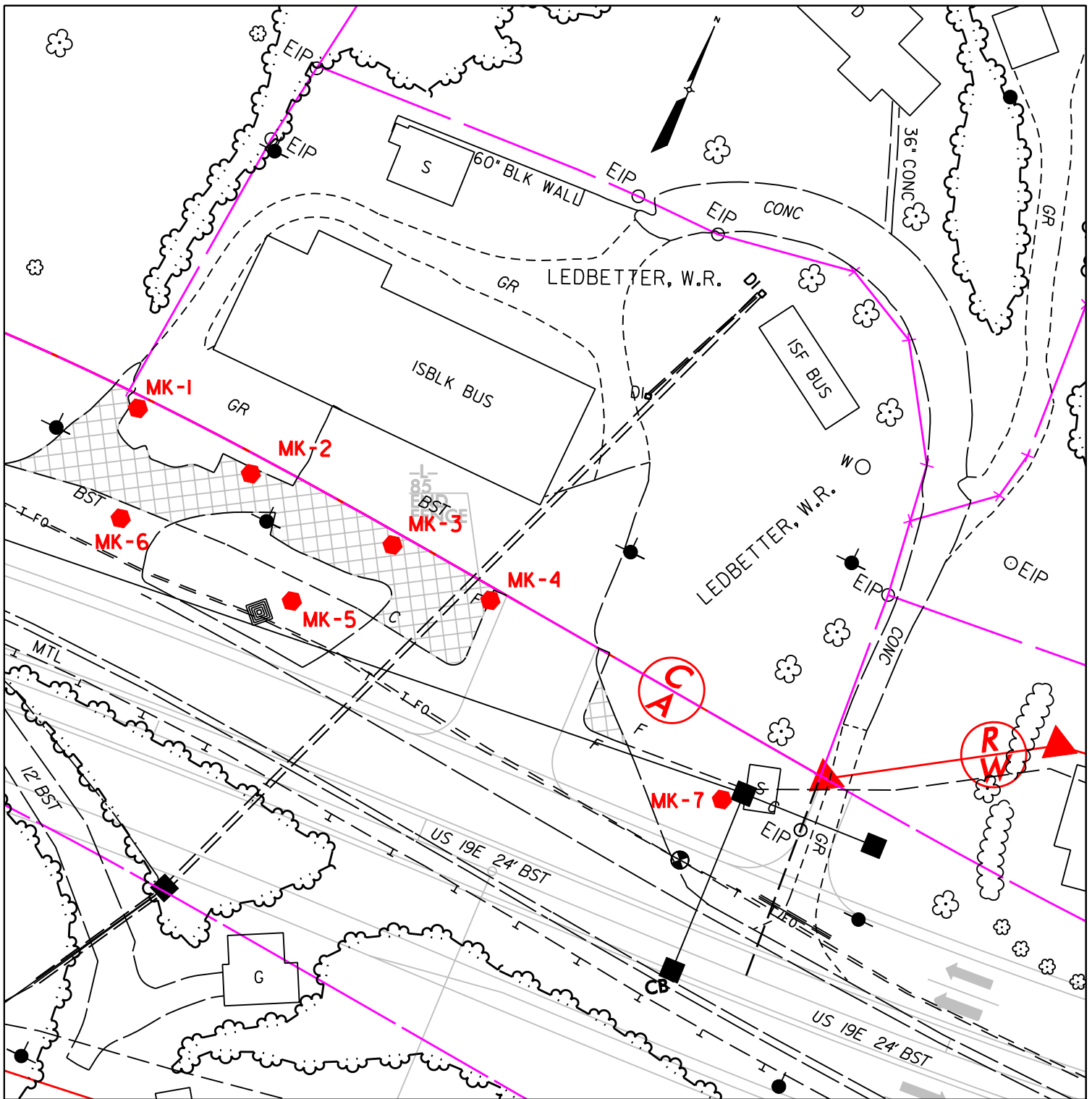
SOURCE: U.S. GEOLOGICAL SURVEY 7.5 MIN QUADRANGLE: MICAVILLE, NC



FIGURE I
VICINITY MAP
JERRY MCKINNEY PROPERTY
SPRUCE PINE, MITCHELL COUNTY NORTH CAROLINA

FEBRUARY 2012

60241470

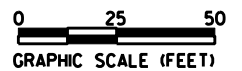


LEGEND

MK-1



SOIL SAMPLE LOCATION AND IDENTIFICATION



**FIGURE 2
SITE MAP**

JERRY MCKINNEY PROPERTY

SPRUCE PINE, MITCHELL COUNTY, NORTH CAROLINA

FEBRUARY 2012

60241470

ATTACHMENT A

GEOPHYSICAL INVESTIGATION REPORT

EM61 SURVEYS

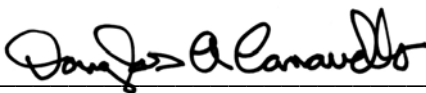
JERRY MCKINNEY PROPERTY

**2601 US Highway 19 East
Mitchell County, North Carolina**

February 28, 2012

**Report prepared for: Michael W. Branson, PG
AECOM Environment
701 Corporate Center Drive, Suite 475
Raleigh, North Carolina 27607**

Prepared by: 
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Reviewed by: 
Douglas Canavello, P.G.

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AECOM Environment
GEOPHYSICAL INVESTIGATION REPORT
JERRY MCKINNEY PROPERTY
2601 US Highway 19 East
Mitchell County, North Carolina

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3.0 DISCUSSION OF RESULTS		2
4.0 SUMMARY & CONCLUSIONS		3
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FIGURES

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

1.0 INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for AECOM Environmental across the southern portion of the Jerry McKinney property located at 2601 US Highway 19 East in Mitchell County, North Carolina. Conducted on February 7, 2012, the geophysical investigation was performed as part of the North Carolina Department of Transportation (NCDOT) preliminary site assessment project to determine if unknown, metallic underground storage tanks (USTs) were present beneath the proposed right-of way (ROW) portion of the property.

The geophysical survey area, consisting primarily of flay-lying, grass and asphalt-covered terrain, encompassed the parcel of property located between US Highway 19 East and the office building. The geophysical survey area had a maximum length and width of 337 feet and 70 feet, respectively. The Jerry McKinney property consists of an office building facility.

AECOM Environment representative Mr. Michael Branson, PG identified the geophysical survey area to Pyramid Environmental personnel and provided site maps showing the boundaries of the proposed survey area prior to conducting the investigation. Photographs of the geophysical equipment used in this investigation and the geophysical survey area are shown in **Figure 1**.

2.0 FIELD METHODOLOGY

Prior to conducting the geophysical investigation, a 10-foot by 20-foot survey grid was established across the geophysical survey area 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. The EM survey was performed on February 7, 2012 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. Smaller objects (1-foot or less in size) can be detected to a

maximum depth of 4 to 5 feet. All of the EM61 data were digitally collected at approximately 0.8 foot intervals along easterly-westerly, parallel survey lines spaced five feet apart. All of the data were downloaded to a computer and reviewed in the field and office using the Geonics DAT61W and Surfer for Windows Version 7.0 software programs.

Preliminary geophysical results obtained from the site were emailed to Mr. Branson during the week of February 20, 2012.

3.0 DISCUSSION OF RESULTS

Contour plots of the EM61 bottom coil and differential results 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 drum and UST-size objects and ignore the smaller insignificant metal objects.

The large, high amplitude EM61 anomalies centered near grid coordinates X=270 Y=70, X=296 Y=45 and X=314 Y=60 are probably in response to equipment, a vehicle and a storage shed, respectively. The high amplitude anomalies centered near grid coordinates X=20 Y=50 and X=45 Y=80 are probably in response to the metallic remediation well covers. The bottom coil anomalies centered near grid coordinates X=90 Y=60, X=159 Y=65 and X=215 Y=55 are probably in response to a storm sewer cover, monitoring well and mail boxes, respectively. The remaining EM61 anomalies are probably in response to known surface objects or buried miscellaneous objects/debris.

Due to the absence of unexplained EM61 differential anomalies, ground penetrating radar scans were not conducted at this site. The EM61 metal detection survey suggests the proposed ROW area at the Jerry McKinney property does not contain metallic USTs.

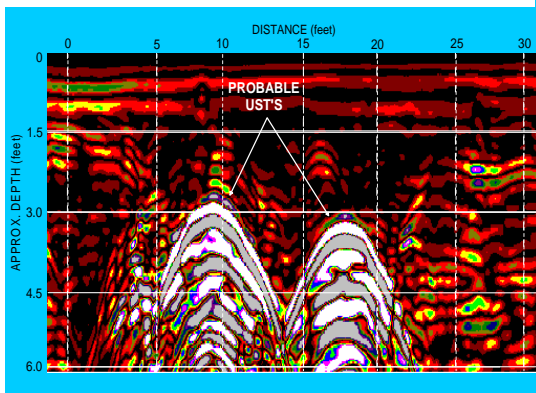
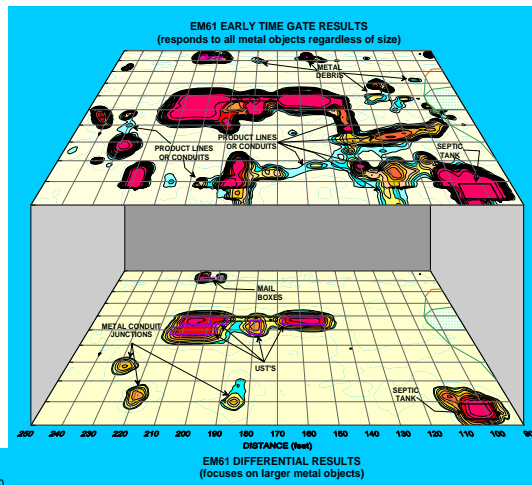
4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 data collected across the geophysical survey area at the Jerry McKinney property located at 2601 US Highway 19 East in Mitchell County, North Carolina provides the following summary and conclusions:

- The EM61 surveys provided reliable results for the detection of metallic USTs within the surveyed portion of the site.
- The large, high amplitude EM61 anomalies centered near grid coordinates X=270 Y=70, X=296 Y=45 and X=314 Y=60 are probably in response to equipment, a vehicle and a storage shed, respectively.
- The high amplitude anomalies centered near grid coordinates X=20 Y=50 and X=45 Y=80 are probably in response to the metallic remediation well covers.
- The EM61 metal detection survey suggests the proposed ROW area at the Jerry McKinney property does not contain metallic USTs.

5.0 LIMITATIONS

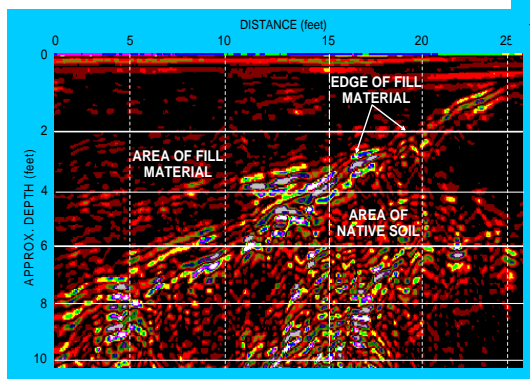
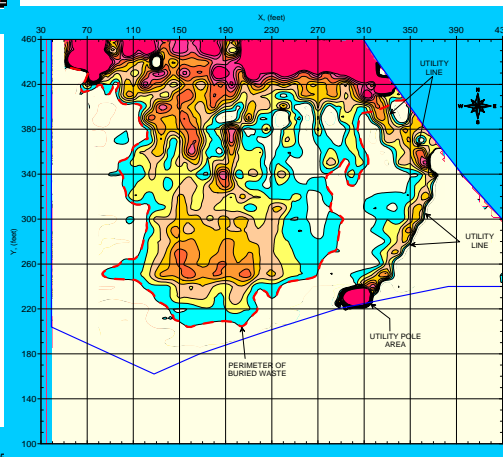
EM61 surveys have been performed and this report prepared for AECOM Environmental in accordance with generally accepted guidelines for EM61 surveys. It is generally recognized that the results of the EM61 survey are non-unique and may not represent actual subsurface conditions. The EM61 results obtained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



FIGURES

(on the following pages)

Figures shown on this page are for esthetic purposes only and are not related to the geophysical results discussed in this report.





The photograph shows the Geonics EM61 metal detector that was used to conduct the metal detection survey across the southern portion of the Jerry McKinney property on February 7, 2012. Due to an absence of unexplained EM61 differential anomalies, ground penetrating radar scans were not performed at this site.

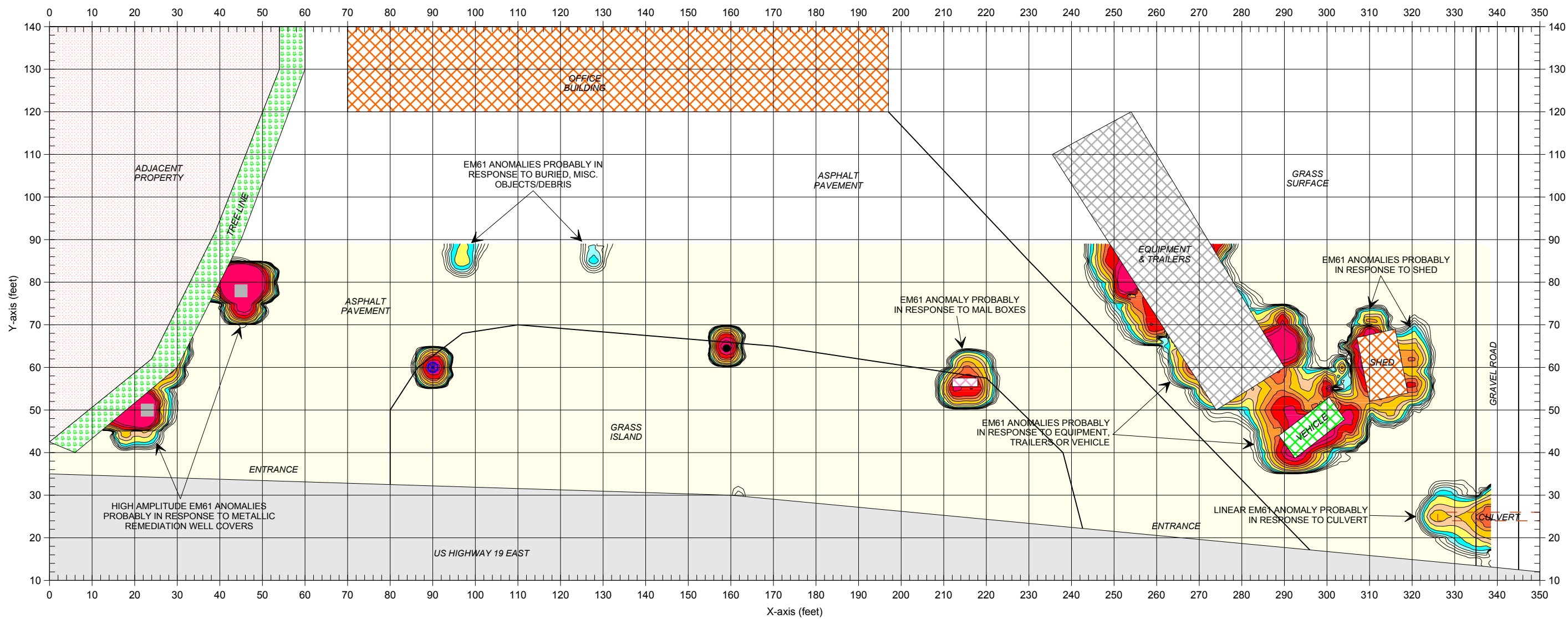


The photograph shows the proposed ROW area (geophysical survey area) of the Jerry McKinney property located at 2601 US Highway 19 East in Mitchell County, North Carolina. The photograph is viewed in a westerly direction.



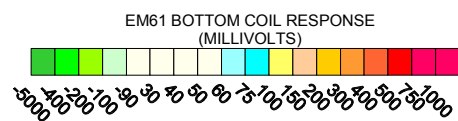
CLIENT	AECOM ENVIRONMENT		DATE	02/28/12	DRAWN	MJD
SITE	JERRY MCKINNEY PROPERTY		LAY		CHK'D	
CITY	MITCHELL COUNTY	STATE	NORTH CAROLINA	ENG		
TITLE	GEOPHYSICAL RESULTS		NO.	2012-035	PROJ	

GEOPHYSICAL EQUIPMENT
& SITE PHOTOGRAPHS



LEGEND

	SURVEY AREA: EM61 DATA ACQUIRED ALONG Y-AXIS TRENDING LINES SPACED 5 FEET APART
	BUILDING OR SHED
	EQUIPMENT & TRAILERS
	CULVERT
	METAL REMEDIATION WELL COVER
	MAIL BOXES
	VEHICLE
	MONITORING WELL
	STORM SEWER COVER



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 EM61 survey was conducted on February 7, 2012 using a Geonics EM61 instrument. Due to an absence of unexplained EM61 differential anomalies, ground penetrating radar (GPR) scans were not performed at this site.

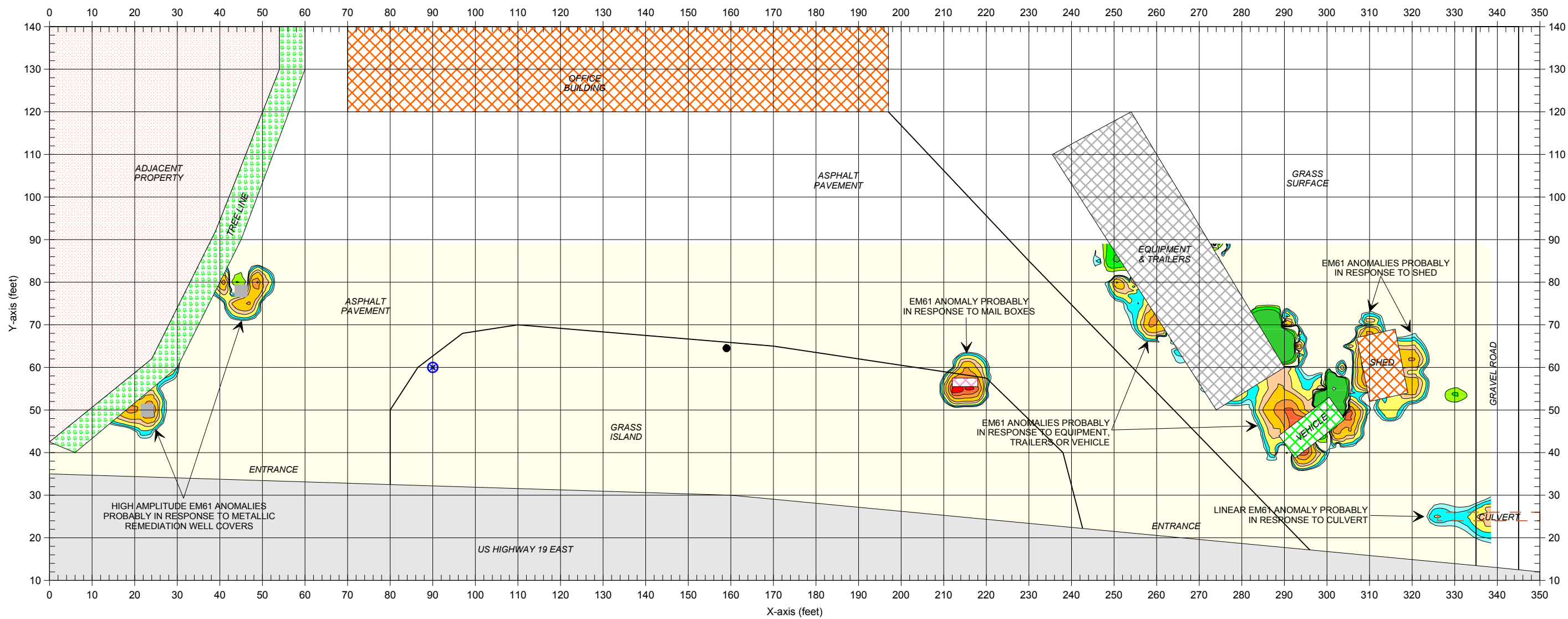
The EM61 metal detection survey did not detect possible metallic USTs within the surveyed portions of the site.

AECOM ENVIRONMENT		JERRY MCKINNEY PROPERTY		MITCHELL COUNTY		NORTH CAROLINA		GEOPHYSICAL RESULTS	
DATE	02/28/12	BY	MJD	FIGURE	2012-035	STATE			
CLIENT		SITE		CITY		TITLE			

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

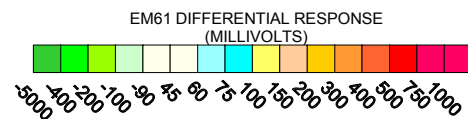
EM61 METAL DETECTION (BOTTOM COIL RESULTS)

FIGURE 2



LEGEND

	SURVEY AREA: EM61 DATA ACQUIRED ALONG Y-AXIS TRENDING LINES SPACED 5 FEET APART
	BUILDING OR SHED
	EQUIPMENT & TRAILERS
	CULVERT
	METAL REMEDIATION WELL COVER
	MAIL BOXES
	VEHICLE
	MONITORING WELL
	STORM SEWER COVER



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 USTs and ignores smaller miscellaneous, buried, metal debris. The EM61 survey was conducted on February 7, 2012 using a Geonics EM61 instrument. Due to an absence of unexplained EM61 differential anomalies, ground penetrating radar (GPR) scans were not performed at this site.

The EM61 metal detection survey did not detect possible metallic USTs within the surveyed portions of the site.

AECOM ENVIRONMENT		MJD		FIGURE	
JERRY MCKINNEY PROPERTY		02/28/12		2012-035	
MITCHELL COUNTY		DATE		L.N.O.	
NORTH CAROLINA		L.A.Y.		D.W.G.	
STATE		DATE		DATE	
GEOPHYSICAL RESULTS		DATE		DATE	

PYRAMID
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EM61 METAL DETECTION (DIFFERENTIAL RESULTS)

FIGURE 3

ATTACHMENT B

TEST BORING REPORT

PROJECT <u>JERRY McKINNEY PROPERTY</u> CLIENT <u>NCDOT R-2519B</u> PROJECT NUMBER <u>60241470</u> CONTRACTOR <u>REGIONAL PROBING</u> EQUIPMENT <u>GEOPROBE</u>	BORING NUMBER <u>MK-1</u> PAGE <u>1</u> ELEVATION _____ DATE <u>2/20/12</u> DRILLER <u>OPPER</u> PREPARED BY <u>BRANSON</u>
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DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0			0.42		2" GRAVEL, MEDIUM BROWN, MICACEOUS, SILTY SAND, QUARTZ VEIN FROM 7 TO 8 FEET. DRY, NO ODORS.
			0.48		AS ABOVE. DRY. NO ODORS.
			1.22		AS ABOVE. DRY. NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS.
10.0			0.29		AS ABOVE. DRY. NO ODORS.
			0.17		AS ABOVE. DRY. NO ODORS.
			0.61		MOTTLED WHITE, TAN, AND PINK PARTIALLY WEATHERED ROCK.
15.0			0.21		AS ABOVE. DRY. NO ODORS.
			0.14		AS ABOVE. DRY. NO ODORS.
					BORING TERMINATED AT 15 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					



TEST BORING REPORT

PROJECT <u>JERRY McKINNEY PROPERTY</u> CLIENT <u>NCDOT R-2519B</u> PROJECT NUMBER <u>60241470</u> CONTRACTOR <u>REGIONAL PROBING</u> EQUIPMENT <u>GEOPROBE</u>	BORING NUMBER <u>MK-2</u> PAGE <u>1</u> ELEVATION _____ DATE <u>2/20/12</u> DRILLER <u>OPPER</u> PREPARED BY <u>BRANSON</u>
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DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0			0.49		2" GRAVEL, MEDIUM BROWN, MICACEOUS, SILTY SAND. DRY, NO ODORS.
			0.51		AS ABOVE. DRY. NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.01		AS ABOVE. DRY. NO ODORS.
			0.01		QUARTZ VEIN FROM 6.5 TO 7 FEET.
					REFUSAL AT 7 FEET. NO GROUNDWATER ENCOUNTERED.
10.0					
15.0					
20.0					



TEST BORING REPORT

PROJECT <u>JERRY McKINNEY PROPERTY</u> CLIENT <u>NCDOT R-2519B</u> PROJECT NUMBER <u>60241470</u> CONTRACTOR <u>REGIONAL PROBING</u> EQUIPMENT <u>GEOPROBE</u>	BORING NUMBER <u>MK-3</u> PAGE <u>1</u> ELEVATION _____ DATE <u>2/20/12</u> DRILLER <u>OPPER</u> PREPARED BY <u>BRANSON</u>
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DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0			0.03		2" GRAVEL, MEDIUM BROWN, MICACEOUS, SILTY SAND. DRY, NO ODORS.
			0.19		AS ABOVE. DRY. NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS.
10.0			0.17		AS ABOVE. DRY. NO ODORS.
			0.12		AS ABOVE. DRY. NO ODORS.
15.0			0.01		AS ABOVE. DRY. NO ODORS.
			0.08		AS ABOVE. DRY. NO ODORS.
20.0			0.01		AS ABOVE. DRY. NO ODORS.
			0.01		AS ABOVE. DRY. NO ODORS.
					BORING TERMINATED AT 15 FEET. NO GROUNDWATER ENCOUNTERED.



TEST BORING REPORT

PROJECT <u>JERRY McKINNEY PROPERTY</u> CLIENT <u>NCDOT R-2519B</u> PROJECT NUMBER <u>60241470</u> CONTRACTOR <u>REGIONAL PROBING</u> EQUIPMENT <u>GEOPROBE</u>	BORING NUMBER <u>MK-4</u> PAGE <u>1</u> ELEVATION _____ DATE <u>2/20/12</u> DRILLER <u>OPPER</u> PREPARED BY <u>BRANSON</u>
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DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0			0.01		2" GRAVEL, MEDIUM BROWN, MICACEOUS, SILTY SAND. DRY, NO ODORS.
			0.01		AS ABOVE. DRY. NO ODORS.
10.0			0.02		AS ABOVE. DRY. NO ODORS.
			0.01		AS ABOVE. DRY. NO ODORS.
15.0			0.01		AS ABOVE. DRY. NO ODORS.
			0.04		AS ABOVE. DRY. NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS.
20.0			0.01		AS ABOVE. DRY. NO ODORS.
			0.01		AS ABOVE. DRY. NO ODORS.
					BORING TERMINATED AT 15 FEET. NO GROUNDWATER ENCOUNTERED.



TEST BORING REPORT

PROJECT <u>JERRY McKINNEY PROPERTY</u> CLIENT <u>NCDOT R-2519B</u> PROJECT NUMBER <u>60241470</u> CONTRACTOR <u>REGIONAL PROBING</u> EQUIPMENT <u>GEOPROBE</u>	BORING NUMBER <u>MK-5</u> PAGE <u>1</u> ELEVATION _____ DATE <u>2/20/12</u> DRILLER <u>OPPER</u> PREPARED BY <u>BRANSON</u>
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DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0			0.18		2" GRAVEL, MEDIUM BROWN, MICACEOUS, SILTY SAND, THIN QUARTZ VEIN AT 3 FEET. DRY, NO ODORS.
			0.35		AS ABOVE. DRY. NO ODORS.
			1.32		LIGHT BROWN SILT/SAND WITH ABUNDANT QUARTZ FRAGMENTS. DRY. NO ODORS.
10.0			0.33		AS ABOVE. DRY. NO ODORS.
			0.54		AS ABOVE. DRY. NO ODORS.
			0.83		AS ABOVE. DRY. NO ODORS.
15.0			1.64		AS ABOVE. DRY. NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.94		AS ABOVE. DRY. NO ODORS.
					BORING TERMINATED AT 15 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					



TEST BORING REPORT

PROJECT <u>JERRY McKINNEY PROPERTY</u> CLIENT <u>NCDOT R-2519B</u> PROJECT NUMBER <u>60241470</u> CONTRACTOR <u>REGIONAL PROBING</u> EQUIPMENT <u>GEOPROBE</u>	BORING NUMBER <u>MK-6</u> PAGE <u>1</u> ELEVATION _____ DATE <u>2/20/12</u> DRILLER <u>OPPER</u> PREPARED BY <u>BRANSON</u>
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DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0			0.84		4" ASPHALT/GRAVEL, MEDIUM BROWN, MICACEOUS, SILTY SAND, QUARTZ FRAGMENTS INCREASE DOWN. DRY, NO ODORS.
			1.30		AS ABOVE. DRY. NO ODORS.
			0.14		AS ABOVE. DRY. NO ODORS.
10.0			0.77		AS ABOVE. DRY. NO ODORS.
			2.51		AS ABOVE. DRY. NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.79		AS ABOVE. DRY. NO ODORS.
15.0			0.40		MEDIUM BROWN SILT/CLAY, SLIGHTLY STIFF. DRY. NO ODORS.
			0.66		AS ABOVE. DRY. NO ODORS.
					BORING TERMINATED AT 15 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					



TEST BORING REPORT

PROJECT <u>JERRY McKINNEY PROPERTY</u> CLIENT <u>NCDOT R-2519B</u> PROJECT NUMBER <u>60241470</u> CONTRACTOR <u>REGIONAL PROBING</u> EQUIPMENT <u>GEOPROBE</u>	BORING NUMBER <u>MK-7</u> PAGE <u>1</u> ELEVATION _____ DATE <u>2/20/12</u> DRILLER <u>OPPER</u> PREPARED BY <u>BRANSON</u>
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DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0			0.18		2" GRAVEL, MOTTLED MEDIUM BROWN AND DARK BROWN, MICACEOUS, SILTY SAND. DRY, NO ODORS.
			0.37		AS ABOVE. DRY. NO ODORS.
			0.56		AS ABOVE. DRY. NO ODORS. SUBMIT TO LABORATORY FOR ANALYSIS.
10.0					REFUSAL AT 6 FEET . NO GROUNDWATER ENCOUNTERED.
15.0					
20.0					



ATTACHMENT C



PHOTO 1 - BORING WITHIN RIGHT-OF-WAY LOOKING NORTH



PHOTO 2 - BORING WITHIN RIGHT-OF-WAY LOOKING NORTH



PHOTO 3 - BORING WITHIN RIGHT-OF-WAY LOOKING NORTH



PHOTO 4 - BORING WITHIN RIGHT-OF-WAY LOOKING NORTH



PHOTO 5 - BORING WITHIN RIGHT-OF-WAY LOOKING NORTHWEST



PHOTO 6 - BORING WITHIN RIGHT-OF-WAY LOOKING NORTH



PHOTO 7 - BORING WITHIN RIGHT-OF-WAY LOOKING EAST

ATTACHMENT D



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March 01, 2012

Chemical Testing Engineer
NCDOT
Materials & Tests Unit
1801 Blue Ridge Road
Raleigh, NC 27607

RE: Project: McKinney WBS#35609.1.1
Pace Project No.: 92112766

Dear Chemical Engineer:

Enclosed are the analytical results for sample(s) received by the laboratory on February 23, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lorri Patton

lorri.patton@pacelabs.com
Project Manager

Enclosures

cc: Mr. Mike Branson, AECOM



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: McKinney WBS#35609.1.1
Pace Project No.: 92112766

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
South Carolina Drinking Water Cert. #: 99006003
Virginia Drinking Water Certification #: 00213

Connecticut Certification #: PH-0104
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Louisiana DHH Drinking Water # LA 100031
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460144

REPORT OF LABORATORY ANALYSIS

Page 2 of 16

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SAMPLE ANALYTE COUNT

Project: McKinney WBS#35609.1.1

Pace Project No.: 92112766

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92112766001	MK-1	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92112766002	MK-2	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92112766003	MK-3	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92112766004	MK-4	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92112766005	MK-5	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92112766006	MK-6	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92112766007	MK-7	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: McKinney WBS#35609.1.1

Pace Project No.: 92112766

Sample: MK-1 **Lab ID: 92112766001** Collected: 02/20/12 12:40 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel								
Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	ND	mg/kg	5.8	1	02/24/12 09:03	02/25/12 19:23	68334-30-5	
Surrogates								
n-Pentacosane (S)	80	%	41-119	1	02/24/12 09:03	02/25/12 19:23	629-99-2	
Gasoline Range Organics								
Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	6.4	1	02/28/12 14:07	02/28/12 15:51	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	99	%	70-167	1	02/28/12 14:07	02/28/12 15:51	460-00-4	
Percent Moisture								
Analytical Method: ASTM D2974-87								
Percent Moisture	13.8	%	0.10	1		02/24/12 14:42		



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ANALYTICAL RESULTS

Project: McKinney WBS#35609.1.1
 Pace Project No.: 92112766

Sample: MK-2 **Lab ID: 92112766002** Collected: 02/20/12 13:00 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel		Analytical Method: EPA 8015 Modified		Preparation Method: EPA 3546				
Diesel Components	ND	mg/kg	5.3	1	02/24/12 09:03	02/25/12 19:23	68334-30-5	
Surrogates								
n-Pentacosane (S)	70	%	41-119	1	02/24/12 09:03	02/25/12 19:23	629-99-2	
Gasoline Range Organics		Analytical Method: EPA 8015 Modified		Preparation Method: EPA 5035A/5030B				
Gasoline Range Organics	ND	mg/kg	5.9	1	02/28/12 14:07	02/28/12 16:15	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	91	%	70-167	1	02/28/12 14:07	02/28/12 16:15	460-00-4	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	6.1	%	0.10	1		02/24/12 14:42		



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ANALYTICAL RESULTS

Project: McKinney WBS#35609.1.1
 Pace Project No.: 92112766

Sample: MK-3 **Lab ID: 92112766003** Collected: 02/20/12 13:20 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel		Analytical Method: EPA 8015 Modified		Preparation Method: EPA 3546				
Diesel Components	ND	mg/kg	5.7	1	02/24/12 09:03	02/25/12 19:53	68334-30-5	
Surrogates								
n-Pentacosane (S)	82	%	41-119	1	02/24/12 09:03	02/25/12 19:53	629-99-2	
Gasoline Range Organics		Analytical Method: EPA 8015 Modified		Preparation Method: EPA 5035A/5030B				
Gasoline Range Organics	ND	mg/kg	6.6	1	02/28/12 14:07	02/28/12 16:39	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	95	%	70-167	1	02/28/12 14:07	02/28/12 16:39	460-00-4	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	13.0	%	0.10	1		02/24/12 14:42		



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ANALYTICAL RESULTS

Project: McKinney WBS#35609.1.1

Pace Project No.: 92112766

Sample: MK-4 **Lab ID: 92112766004** Collected: 02/20/12 13:30 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel		Analytical Method: EPA 8015 Modified		Preparation Method: EPA 3546				
Diesel Components	ND	mg/kg	6.2	1	02/24/12 09:03	02/25/12 19:53	68334-30-5	
Surrogates								
n-Pentacosane (S)	72	%	41-119	1	02/24/12 09:03	02/25/12 19:53	629-99-2	
Gasoline Range Organics		Analytical Method: EPA 8015 Modified		Preparation Method: EPA 5035A/5030B				
Gasoline Range Organics	ND	mg/kg	6.4	1	02/28/12 14:07	02/28/12 17:04	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	99	%	70-167	1	02/28/12 14:07	02/28/12 17:04	460-00-4	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	19.6	%	0.10	1		02/24/12 14:42		



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ANALYTICAL RESULTS

Project: McKinney WBS#35609.1.1
 Pace Project No.: 92112766

Sample: MK-5 **Lab ID: 92112766005** Collected: 02/20/12 14:00 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel		Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546						
Diesel Components	ND	mg/kg	5.7	1	02/24/12 10:35	02/25/12 21:51	68334-30-5	
Surrogates								
n-Pentacosane (S)	76	%	41-119	1	02/24/12 10:35	02/25/12 21:51	629-99-2	
Gasoline Range Organics		Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B						
Gasoline Range Organics	ND	mg/kg	6.0	1	02/28/12 14:07	02/28/12 17:28	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	93	%	70-167	1	02/28/12 14:07	02/28/12 17:28	460-00-4	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	11.7	%	0.10	1		02/24/12 14:42		

ANALYTICAL RESULTS

Project: McKinney WBS#35609.1.1

Pace Project No.: 92112766

Sample: MK-6 **Lab ID: 92112766006** Collected: 02/20/12 14:30 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel		Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546						
Diesel Components	8.6	mg/kg	5.8	1	02/24/12 10:35	02/25/12 22:21	68334-30-5	
Surrogates								
n-Pentacosane (S)	79	%	41-119	1	02/24/12 10:35	02/25/12 22:21	629-99-2	
Gasoline Range Organics		Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B						
Gasoline Range Organics	ND	mg/kg	5.1	1	02/28/12 14:07	02/28/12 17:53	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	99	%	70-167	1	02/28/12 14:07	02/28/12 17:53	460-00-4	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	14.0	%	0.10	1		02/24/12 14:43		

ANALYTICAL RESULTS

Project: McKinney WBS#35609.1.1

Pace Project No.: 92112766

Sample: MK-7 **Lab ID: 92112766007** Collected: 02/20/12 14:45 Received: 02/23/12 11:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel		Analytical Method: EPA 8015 Modified		Preparation Method: EPA 3546				
Diesel Components	ND	mg/kg	5.2	1	02/24/12 10:35	02/25/12 22:50	68334-30-5	
Surrogates								
n-Pentacosane (S)	77	%	41-119	1	02/24/12 10:35	02/25/12 22:50	629-99-2	
Gasoline Range Organics		Analytical Method: EPA 8015 Modified		Preparation Method: EPA 5035A/5030B				
Gasoline Range Organics	ND	mg/kg	7.1	1	02/28/12 14:07	02/28/12 18:17	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	105	%	70-167	1	02/28/12 14:07	02/28/12 18:17	460-00-4	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	4.2	%	0.10	1		02/24/12 14:45		

QUALITY CONTROL DATA

Project: McKinney WBS#35609.1.1

Pace Project No.: 92112766

QC Batch: GCV/5775 Analysis Method: EPA 8015 Modified
 QC Batch Method: EPA 5035A/5030B Analysis Description: Gasoline Range Organics
 Associated Lab Samples: 92112766001, 92112766002, 92112766003, 92112766004, 92112766005, 92112766006, 92112766007

METHOD BLANK: 728172 Matrix: Solid
 Associated Lab Samples: 92112766001, 92112766002, 92112766003, 92112766004, 92112766005, 92112766006, 92112766007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	5.8	02/28/12 12:13	
4-Bromofluorobenzene (S)	%	94	70-167	02/28/12 12:13	

LABORATORY CONTROL SAMPLE: 728173

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	24.3	23.3	96	70-165	
4-Bromofluorobenzene (S)	%			96	70-167	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 728174 728175

Parameter	Units	92112765010		728174		728175		% Rec Limits	RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec			
Gasoline Range Organics	mg/kg	ND	22.2	22.2	26.7	26.3	117	115	47-187	1
4-Bromofluorobenzene (S)	%						99	97	70-167	



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QUALITY CONTROL DATA

Project: McKinney WBS#35609.1.1
 Pace Project No.: 92112766

QC Batch: OEXT/16537 Analysis Method: EPA 8015 Modified
 QC Batch Method: EPA 3546 Analysis Description: 8015 Solid GCSV
 Associated Lab Samples: 92112766001, 92112766002, 92112766003, 92112766004

METHOD BLANK: 726882 Matrix: Solid
 Associated Lab Samples: 92112766001, 92112766002, 92112766003, 92112766004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Components	mg/kg	ND	5.0	02/25/12 14:57	
n-Pentacosane (S)	%	74	41-119	02/25/12 14:57	

LABORATORY CONTROL SAMPLE: 726883

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Components	mg/kg	66.7	46.8	70	49-113	
n-Pentacosane (S)	%			73	41-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 726884 726885

Parameter	Units	92112766004		726885		MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result					
Diesel Components	mg/kg	ND	82.1	82.1	50.4	51.3	60	61	10-146	2
n-Pentacosane (S)	%						68	73	41-119	



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 (828)254-7176

Pace Analytical Services, Inc.
 9800 Kinsey Ave. Suite 100
 Huntersville, NC 28078
 (704)875-9092

QUALITY CONTROL DATA

Project: McKinney WBS#35609.1.1
 Pace Project No.: 92112766

QC Batch: OEXT/16538 Analysis Method: EPA 8015 Modified
 QC Batch Method: EPA 3546 Analysis Description: 8015 Solid GCSV
 Associated Lab Samples: 92112766005, 92112766006, 92112766007

METHOD BLANK: 726961 Matrix: Solid
 Associated Lab Samples: 92112766005, 92112766006, 92112766007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Components	mg/kg	ND	5.0	02/25/12 21:22	
n-Pentacosane (S)	%	88	41-119	02/25/12 21:22	

LABORATORY CONTROL SAMPLE: 726962

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Components	mg/kg	66.7	47.9	72	49-113	
n-Pentacosane (S)	%			77	41-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 726963 726964

Parameter	Units	92112766005		726964		MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result					
Diesel Components	mg/kg	ND	75.2	74.7	47.2	56.0	62	74	10-146	17
n-Pentacosane (S)	%						71	86	41-119	



Pace Analytical Services, Inc.
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(336)623-8921

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QUALIFIERS

Project: McKinney WBS#35609.1.1
Pace Project No.: 92112766

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte



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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: McKinney WBS#35609.1.1

Pace Project No.: 92112766

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92112766001	MK-1	EPA 3546	OEXT/16537	EPA 8015 Modified	GCSV/11446
92112766002	MK-2	EPA 3546	OEXT/16537	EPA 8015 Modified	GCSV/11446
92112766003	MK-3	EPA 3546	OEXT/16537	EPA 8015 Modified	GCSV/11446
92112766004	MK-4	EPA 3546	OEXT/16537	EPA 8015 Modified	GCSV/11446
92112766005	MK-5	EPA 3546	OEXT/16538	EPA 8015 Modified	GCSV/11447
92112766006	MK-6	EPA 3546	OEXT/16538	EPA 8015 Modified	GCSV/11447
92112766007	MK-7	EPA 3546	OEXT/16538	EPA 8015 Modified	GCSV/11447
92112766001	MK-1	EPA 5035A/5030B	GCV/5775	EPA 8015 Modified	GCV/5776
92112766002	MK-2	EPA 5035A/5030B	GCV/5775	EPA 8015 Modified	GCV/5776
92112766003	MK-3	EPA 5035A/5030B	GCV/5775	EPA 8015 Modified	GCV/5776
92112766004	MK-4	EPA 5035A/5030B	GCV/5775	EPA 8015 Modified	GCV/5776
92112766005	MK-5	EPA 5035A/5030B	GCV/5775	EPA 8015 Modified	GCV/5776
92112766006	MK-6	EPA 5035A/5030B	GCV/5775	EPA 8015 Modified	GCV/5776
92112766007	MK-7	EPA 5035A/5030B	GCV/5775	EPA 8015 Modified	GCV/5776
92112766001	MK-1	ASTM D2974-87	PMST/4517		
92112766002	MK-2	ASTM D2974-87	PMST/4517		
92112766003	MK-3	ASTM D2974-87	PMST/4517		
92112766004	MK-4	ASTM D2974-87	PMST/4517		
92112766005	MK-5	ASTM D2974-87	PMST/4517		
92112766006	MK-6	ASTM D2974-87	PMST/4517		
92112766007	MK-7	ASTM D2974-87	PMST/4517		

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1
1551764

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: <u>AECOM</u>	Report To: <u>Mike Benson</u>	Attention: <u>NCDOT</u>
Address: <u>701 Corporate Center Dr</u>	Copy To: <u>NCDOT</u>	Company Name: <u>NCDOT</u>
<u>Raleigh, NC 27607</u>	Purchase Order No.: <u>WBS 35609.1.1</u>	Address: <u>NCDOT</u>
Email To: <u>Mike.Benson@Aecom.com</u>	Project Name: <u>Melkinoway</u>	Pace Quote Reference: <u>Bracket PO</u>
Phone: <u>919 854 2338</u>	Project Number: <u>60241470</u>	Pace Project Manager: <u></u>
Requested Due Date/ATI: <u>Standard 2 weeks</u>		Pace Profile #: <u></u>
REGULATORY AGENCY		
<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input checked="" type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER <u> </u>		
Site Location STATE: <u>NC</u>		

ITEM #	Section D Required Client Information	Matrix Codes MATRIX CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
					COMPOSITE START	COMPOSITE END/GRAB						
1	MK-1	SL	2/20/12 12:40		4	2	2					
2	MK-2	SL	2/20/12 13:00		4	2	2					
3	MK-3	SL	2/20/12 13:20		4	2	2					
4	MK-4	SL	2/20/12 13:30		4	2	2					
5	MK-5	SL	2/20/12 14:00		4	2	2					
6	MK-6	SL	2/20/12 14:30		4	2	2					
7	MK-7	SL	2/20/12 14:45		4	2	2					
8												
9												
10												
11												
12												

ADDITIONAL COMMENTS	REINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<u>Mike Benson</u>	<u>2/23/12</u>	<u>11:00</u>	<u>Mike Benson</u>	<u>2-23-12</u>	<u>11:00</u>	
	<u>Mike Benson</u>	<u>2-23-12</u>	<u>11:55</u>	<u>Mike Benson</u>	<u>2/23/12</u>	<u>11:55</u>	

ORIGINAL

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER: <u>Mike Benson</u>	DATE Signed (MM/DD/YY): <u>2/20/12</u>
SIGNATURE of SAMPLER: <u>Mike Benson</u>	

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
<u>38</u>	<u>Y</u>	<u>N</u>	<u>Y</u>



Document Name: **Sample Condition Upon Receipt (SCUR)**
 Document No.: F-ASV-CS-003-rev.07

Document Revised: October 19, 2011
 Page 1 of 2
 Issuing Authorities:
 Pace Asheville Quality Office

Client Name: AECOM Project # 92112766

Where Received: Huntersville Asheville Eden
 Courier (Circle): Fed Ex UPS USPS Client Commercial Pace Other
 Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Optional
 Proj. Due Date:
 Proj. Name:

Packing Material: Bubble Wrap Bubble Bags None Other
 Circle Thermometer Used: IR Gun#2 -80344039 Type of Ice: Wet Blue None Samples on ice, cooling process has begun
 IR Gun Back Up- 111565135

Temp Correction Factor: Add Subtract 0.2 C
 Corrected Cooler Temp.: 3.8 C Biological Tissue is Frozen: Yes No N/A
 Temp should be above freezing to 6°C

Date and Initials of person examining contents: LP 2/23/12

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7. <u>2 week</u>
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>SL</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>LP</u>
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ Field Data Required? Y / N
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____

SCURF Review: LP Date: 2/24/12 SRF Review: LP Date: 2/24/12

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of non-correct preservation, out of temp, incorrect containers)