March 6, 2013

North Carolina Department of Transportation
Geotechnical Engineering Unit
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Attention: **Mr. Terry Fox, L.G.** **email: twfox@ncdot.gov**

Reference: **Preliminary Site Assessment Report**
NCDOT Project U-2525B. WBS Element 34821.1.1
Greensboro Eastern Loop from North of US 70 Relocation to US 29 North of Greensboro
Parcel No. 155, Barry G. Holyfield (A Step Above Denture Service)
5429 Griggs Road, Greensboro
Guilford County, North Carolina
S&ME Project No. 1054-13-008

Dear Mr. Fox,

S&ME, Inc. (S&ME) is submitting this Preliminary Site Assessment (PSA) Report to the North Carolina Department of Transportation (NCDOT). This report presents the background information, field activities, findings, conclusions, and recommendations. These services were performed in general accordance with S&ME Proposal No. P218-12V, Revision 1, dated January 10, 2013, and Contract Number 7000012210 dated June 2, 2011, between NCDOT and S&ME, authorized by NCDOT in its January 11,2013 Notice to Proceed Letter.

1.0 INTRODUCTION

1.1 Background Information

Based on the NCDOT's December 17, 2012, *Request for Technical and Cost Proposal*, and additional information from the NCDOT's file transfer site, the PSA was conducted within the NCDOT right-of-way (ROW) and/or up to the permanent utility easement at the following property:

Parcel #155 Barry G. Holyfield (A Step Above Denture Service)
5429 Griggs Road, Greensboro, Guilford County, North Carolina

Additional information provided from the NCDOT's file transfer site included:

- CADD and PDF files which were used as a base map for preparation of this PSA.

The PSA included a preliminary geophysical site assessment, and subsequent limited soil

sampling (8 borings up to 20 feet below ground surface (ft. bgs.)), within the designated ROW/Easement assessment area. **Figure 1** shows the vicinity and site location, and **Figure 2** shows the site and boring locations. Soil sampling results are shown on **Figure 3**.

Project Information

A site specific Health and Safety Plan was prepared prior to field activities. Underground utilities were located and marked by the North Carolina One-Call Service. A private utility locator, Superior Locate of Greensboro, North Carolina, was also used to mark on site buried utilities and the potential locations of underground storage tanks (USTs) and associated utilities.

S&ME was requested to investigate the existing NCDOT right-of-way (ROW) and/or up to the permanent utility easement in preparation for construction.

2.0 GEOPHYSICAL SITE ASSESSMENT

2.1 Methods and Field Testing

On January 18, 2013, S&ME personnel performed time domain electromagnetic (TDEM) and ground penetrating radar (GPR) surveys within the proposed right-of-way and/or easement of the accessible areas of Parcel #155. These technologies were used in conjunction with each other in order to detect the presence of potential USTs at the site. A brief description of each technology is presented in Section 2.2 and 2.3.

2.2 Time Domain Electromagnetic Methodology

TDEM methods measure the electrical conductivity of shallow subsurface materials. The conductivity is determined by transmitting a time-varying magnetic pulse into the ground and measuring the amplitude and phase shift of the secondary magnetic field. The secondary magnetic field is created when the conductive materials become an inductor as the primary magnetic field is passed through them.

The TDEM surveys were performed with a Geonics EM-61 MKII system, which has a 1.0-meter by 0.5-meter coil system. The EM-61 TDEM system allows discrimination between moderately conductive subsurface materials and very conductive metallic targets as the secondary electromagnetic response from metallic targets are of longer duration than those created by moderately conductive subsurface materials. Accordingly, only the later EM arrivals are recorded so that only the very conductive metallic features are targeted. The surveys were designed to locate metallic tanks within depths of about 5 feet; the assumed maximum depth at which we anticipated the top of a UST to be present. These data were acquired with GPS support and the results were used in Surfer Version 10.0 to geostatistically grid and plot the data. **Figure 4** shows the TDEM location plan.

TDEM data were collected along a grid spaced at approximate 5-foot intervals. **Figures 5 and 6** provide the TDEM dataset collected on Parcel 155.

2.3 Ground Penetrating Radar

GPR is an electromagnetic method that detects interfaces between subsurface materials with differing dielectric constants. The transmitter radiates electromagnetic waves into the earth from an antenna moving across the ground surface. Electromagnetic waves are reflected back to the receiver by interfaces between materials with differing dielectric constants. The intensity of the reflected signal is a function of the contrast in the dielectric constant at the interface, the conductivity of the material that the wave is traveling through, and the frequency of the signal.

The GPR surveys were performed with a GSSI SIRS-3000 unit equipped with a 400 MHz shielded antenna. The depth of GPR wave penetration at a site is a function of the conductivity of the subsurface materials and signal frequency. The average maximum depth of penetration for the GPR survey was approximately six feet below ground surface at the site. **Figure 7** shows the GPR test locations. **Figure 8** presents the GPR profiles of the anomalies.

3.0 SOIL ASSESSMENT

3.1 Soil Sampling

On January 28, 2013, S&ME advanced eight soil borings on the subject property within the specified NCDOT ROW/Easement. The soil boring locations were placed along the proposed ROW (**Figures 2 and 3**). S&ME utilized a track mounted Geoprobe® rig to perform the borings and to collect soil samples. S&ME's drill crew advanced the Geoprobe® borings to depths ranging from approximately 10 to 20 ft.-bgs. A photographic log is included in **Appendix I**. Soil samples were continuously collected in five foot long disposable acetate-plastic sleeves that line the hollow stainless-steel sample probes. Soil recovered from the sleeves was classified on-site by S&ME personnel and screened with a Photoionization Detector (PID) at approximately two foot intervals to measure relative headspace concentrations of volatile organic compounds (VOCs).

VOC headspace readings were obtained from an aliquot of each soil sample that was placed in a re-sealable bag. Another portion of the sample was placed in a separate re-sealable bag and stored in an insulated container with ice for possible laboratory analyses. After waiting approximately 15 minutes to allow the sample to reach ambient temperature and headspace equilibrium, the PID probe was inserted into the bag to obtain a headspace reading. A summary of the PID readings and logs of the soil borings are included in **Appendix II.**

Based upon the field screening results and visual observations, a total of eight soil aliquots were provided to QROS, LLC (QROS) for on-site analysis of gasoline range organics (TPH-GRO) and diesel range organics (TPH-DRO) by ultra-violet fluorescence spectroscopy. Samples exhibiting elevated results based upon the data provided by QROS were then placed directly into laboratory supplies containers and shipped to Pace Analytical Services (Pace) a North Carolina certified laboratory, under standard chain-of-custody procedure. Soil samples were analyzed for TPH-GRO EPA Method 8015B/5030B and TPH-DRO by EPA Method 8015B/3546.

Borings were backfilled with bentonite pellets and soil. Used gloves were bagged and disposed off-site.

3.2 Soil Sample Analytical Results

The approximate soil boring locations are shown in **Figure 2.** The soil sampling laboratory results are summarized in **Table 1** and shown on **Figure 3,** and a copy of the laboratory analytical report is included as an **Appendix III**.

Concentrations of TPH-GRO and TPH-DRO were detected in two of the eight soil samples provided to QROS. In the samples with detectable concentrations, one concentration of TPH-GRO was detected at 4.2 milligrams per kilogram (mg/kg) and concentrations of TPH-DRO ranged from 2.4 mg/kg to 30.6 mg/kg. Based upon the QROS results, two soil samples were submitted to Pace for further analysis.

The Pace laboratory analytical results indicated that TPH- DRO was detected in soil sample 155-4-10 (308 mg/kg) at a concentration exceeding the North Carolina Action Level of 10 mg/kg. No other concentrations of TPH-GRO or TPH-DRO were detected above the laboratory method reporting limits in the samples submitted.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Geophysical Assessment

Two TDEM anomalies (Anomalies 1 and 2) not corresponding to site surface features were identified in the TDEM dataset (**Figures 4 and 5)**; the anomalies were marked in the field. A total of six GPR profiles were also collected at the site (**Figure 7**). GPR reflections associated with TDEM Anomaly 1 is characterized by two linear high amplitude responses approximately 4 ft bgs. TDEM Anomaly 2 is characterized by an approximate 3ft by 3 ft high amplitude response approximately 3 ft bgs and is most likely a septic tank. Example GPR profiles are located in **Figure 8**. Anomaly 1 is associated with two probable USTs (each approximately 2,000 gallons) and Anomaly 2 does not exhibit TDEM response and/or GPR reflections indicative of a UST.

4.2 Soil Assessment

S&ME advanced 8 soil borings (155-1 through 155-8) to depths ranging from approximately 10 to 18 ft.-bgs, on the subject property at the designated locations illustrated on **Figure 2** on January 28, 2013. The laboratory analytical results of soil samples indicated that TPH-DRO was detected in a concentration exceeding the North Carolina Action Level of 10 mg/Kg in the soil sample 155-4-10 (308 mg/kg). Concentrations of TPH-DRO and TPH-GRO were below the laboratory's detection limits in the all of the other soil samples submitted.

4.3 Recommendations

Based on the geophysical assessment, Anomaly 1 exhibits TDEM response and GPR reflections indicative of two approximately 2,000 gallon UST's. The two probable 2,000-gallon USTs and associated product supply lines on-site will require removal prior to the

site construction. It is possible that during construction, NCDOT may encounter soil impacted with petroleum in the vicinity of sample location 155-4. Assuming that a section of impacted soil approximately three feet thick and 10 feet in diameter at a depth of two feet below ground surface may be impacted; up to 11 cubic yards of soil near location 155-4 may be impacted, S&ME recommends maintaining an awareness level for the possible presence of petroleum in the soil in the project area.

5.0 LIMITATIONS

The estimated volumes of petroleum impacted soil stated in Section 4.3 above are based on the limited data points and soil samples collected by S&ME for this preliminary investigation. The actual amount of petroleum impacted soil encountered during roadway expansion activities may vary depending on the actual grading plan for the project within the affected ROW/Easement.

The results of this preliminary investigation are limited to the boring locations presented herein. The results of this Preliminary Site Assessment are not all inclusive and may not represent existing conditions across the entire property. These results only reflect the current conditions at the locations sampled on the date this Preliminary Site Assessment was performed. This report has been prepared in accordance with generally accepted environmental engineering and geophysical practice for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, expressed or implied, is made.

The conclusions for the geophysical assessment submitted herein are based upon the data obtained from the non-invasive testing. As such, even within the surveyed area, the survey cannot be considered 100 percent accurate due to inherent method limitations, survey limitations, site features, and/or unforeseen site-specific conditions. Accordingly, the possibility exists that not all subsurface, man-made features have been located.

TDEM and GPR are commonly used to locate USTs, however certain limitations exist. Nearby, metallic objects such as vehicles, metal buildings/storage units, heating/air conditioning units, utilities, etc. will interfere with the TDEM survey. Properties of the subsurface materials (e.g., clay content, moisture, etc.) can have a significant impact on the effective depth of penetration of the GPR survey. Accordingly, non-metallic tanks, tanks at depths below about 5 feet, and tanks outside of the survey area may not have been detected using the geophysical techniques. In addition, due to interference, there may be areas within the proposed survey area where an interpretation of subsurface features was not feasible.

Regardless of the thoroughness of a geophysical study, there is always a possibility that actual conditions may not match the interpretations. The results should be considered accurate only to the degree implied by the methods used and the method's limitations and data coverage. Accordingly, the possibility exists that not all geologic features at a project

site will be located due to either subsurface soil conditions or the occurrence of features outside the lateral limits and below the depth of penetration of the methods used. The location and/or determination (or the lack thereof) of potential USTs is based on our review of provided information and of the geophysical survey. Under no circumstances does S&ME assume any responsibility for damages resulting from the presence of subsurface features that may exist but were not identified by our survey.

This Preliminary Site Assessment was performed solely for NCDOT regarding the above-referenced site and assessment area. This report is provided for the sole use of NCDOT. Use of this report by any other parties will be at such party's sole risk. S&ME disclaims liability for any such use or reliance by third parties. The observations presented in this report are indicative of conditions during the time of the assessment and of the specific areas referenced.

CLOSING

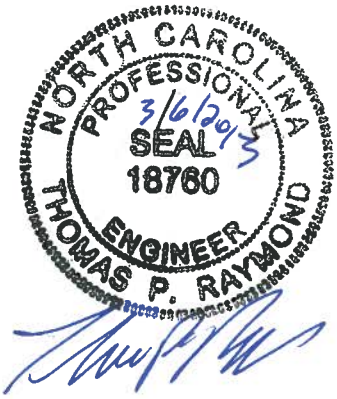
S&ME welcomes the opportunity to assist you with your environmental needs. Should you have any questions regarding this report, please call Tom Raymond at (919) 954-6229.

Sincerely,

S&ME, Inc.

Michael W. Pfeifer
Project Manager

Kevin D. Hon
Project Geophysicist



Thomas P. Raymond, P.E.
Senior Consultant

Attachments: Table 1 – Soil Laboratory Analytical Results
Figure 1 –Vicinity Map
Figure 2 – Site Map with Boring Locations
Figure 3 – Soil Sample Results Map
Figure 4 – TDEM Test Location Plan
Figure 5 – TDEM Data Plot
Figure 6 – TDEM Data Plot with CADD Overlay
Figure 7 – GPR Test Location Plan
Figure 8 – GPR Profile Lines 086, 088, and 090
Appendix I – Photographic Log
Appendix II – Boring Logs
Appendix III – Laboratory Analytical Report and Chain of Custody

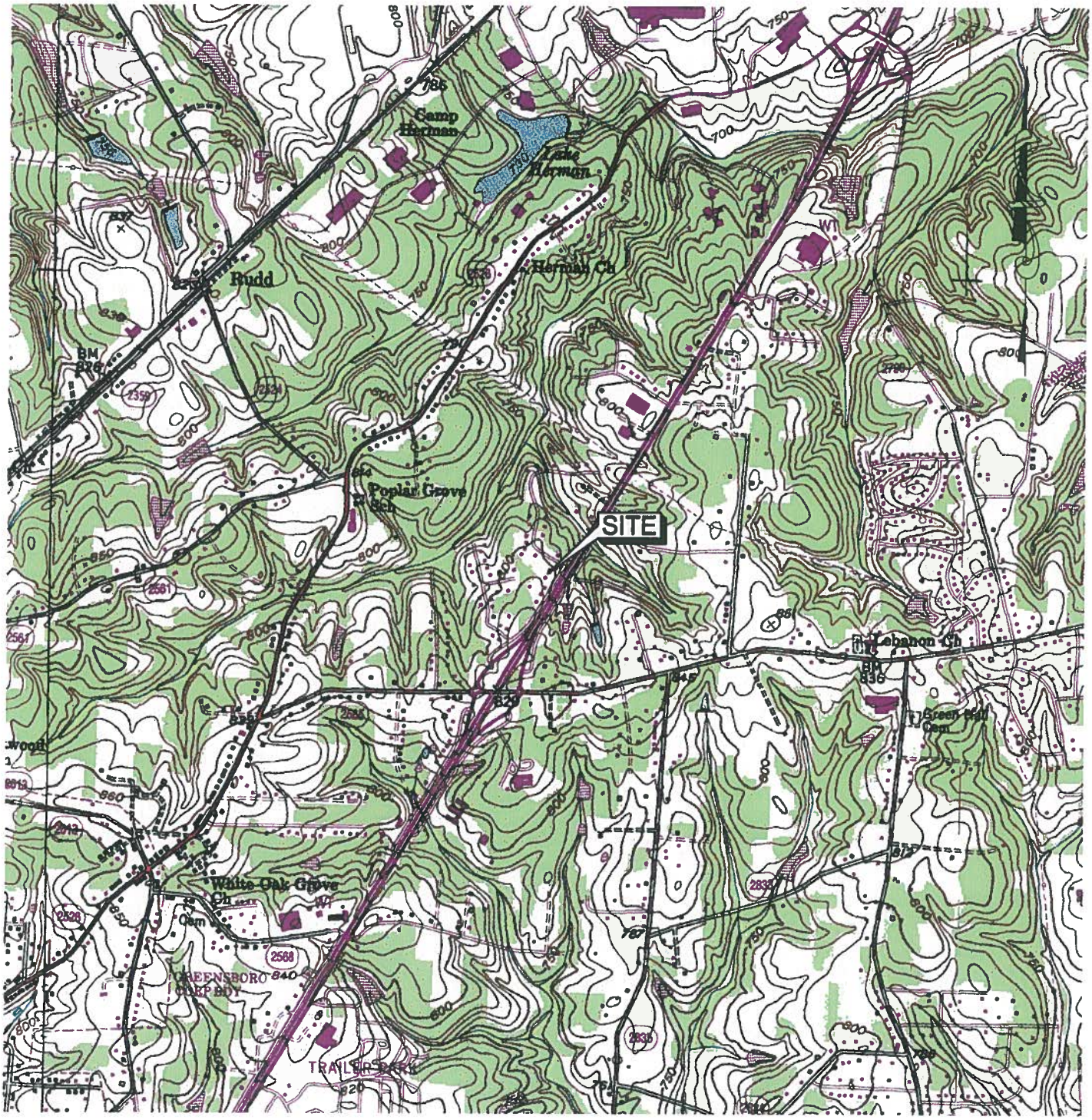
TABLES

TABLE 1
Summary of Soil Analytical Results
NCDOT Project U2525-B
Parcel 155 - A Step Above Denture Services
5429 Griggs Road
Greensboro, Guilford County, North Carolina
S&ME Project No. 1054-13-008

			Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO)			
Sample ID	**Sample Depth (Ft.-bgs)**	**Contaminant of Concern** **Date**	**GRO by Ultraviolet Fluorescence (UVF) Spectrometry Field Screening**	**DRO by Ultraviolet Fluorescence (UVF) Spectrometry Field Screening**	**GRO by EPA Method 8015/3550**	**DRO by EPA Method 8015/5030**
155-1-6	6.0	1/28/2013	<1.2	<1.2	Sample Not Submitted for Additional Analysis	
155-2	NA	1/28/2013	***No Sample Recovery***			
155-3-8	8.0	1/28/2013	<1.2	**2.4**	<6.4	<6.7
155-4-10	10.0	1/28/2013	**4.2**	**30.6**	<6.6	**308**
155-4-12	12.0	1/28/2013	<1.3	<1.3	Sample Not Submitted for Additional Analysis	
155-5-10	10.0	1/28/2013	<1.3	<1.3		
155-6-4	4.0	1/28/2013	<1.3	<1.3		
155-7-6	6.0	1/28/2013	<1.3	<1.3		
155-8-4	4.0	1/28/2013	<1.3	<1.3		
North Carolina UST Action Levels			**10**	**10**	**10**	**10**

Notes:
Ultraviolet Fluorescence Spectrometry (UVF) analysis performed with QED HC-1 Analyzer
1. Concentrations are reported in milligrams per kilogram (mg/Kg).
2. Ft.-bgs - feet below ground surface.
3. Sample concentrations that exceed the North Carolina Action Levels are shown in Shaded and **BOLD** fields.

FIGURES



GRAPHIC SCALE

1000 0 500 1000 2000

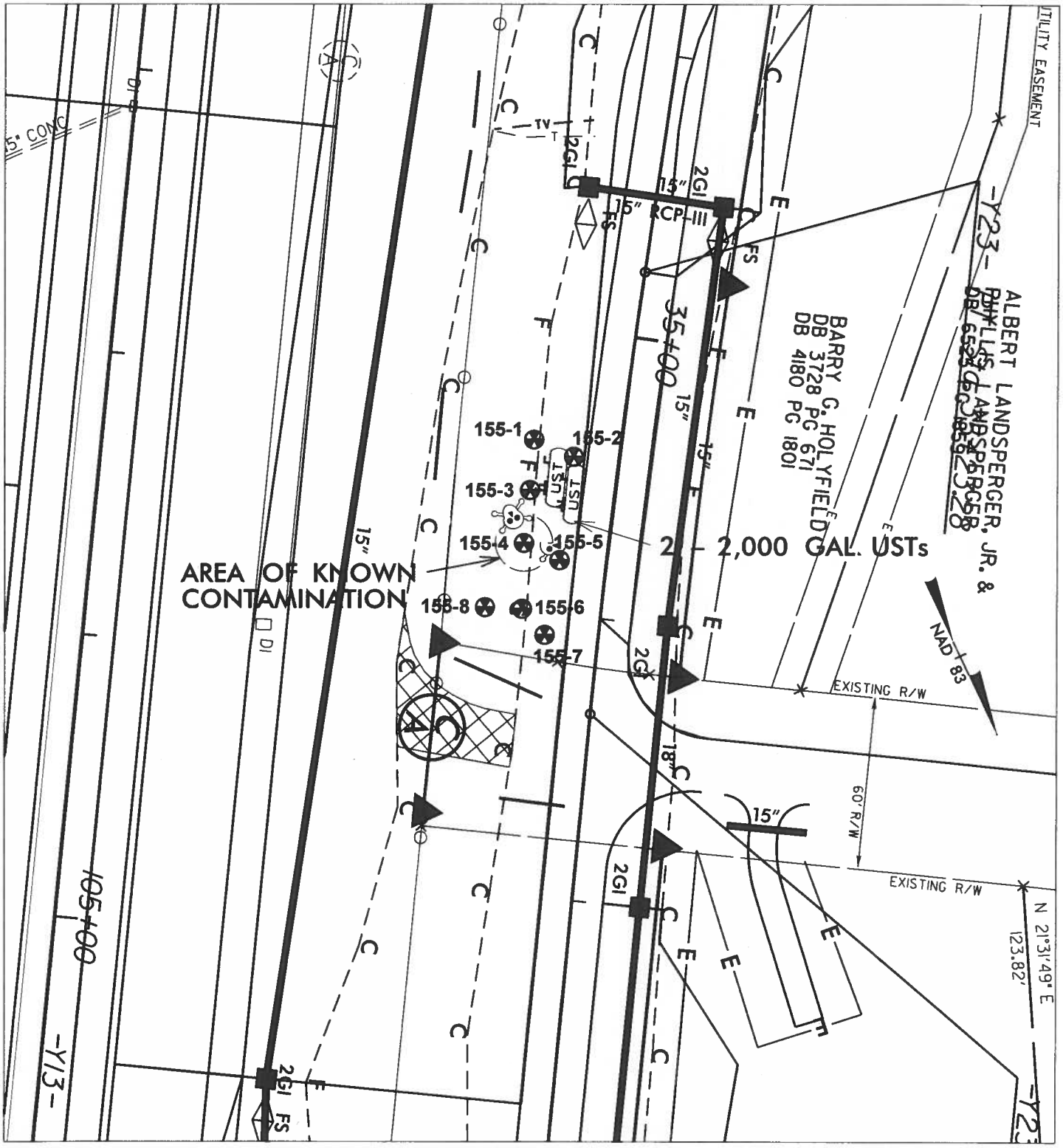
(IN FEET)

TOPO SOURCE: NCGS DRG
LAKE BRANDT, DATED 1951, REV 1994
BROWNS SUMMIT, DATED 1951, REV 1994
CONTOUR INTERVAL 10 FEET

A-3570

SCALE: 1" = 2000'	S&ME WWW.SMEINC.COM	VICINITY MAP	FIGURE NO.
DATE: FEB. 2013		PARCEL 155 - A STEP ABOVE DENTURE SERVICES	1
DRAWN BY: BTR		5429 GRIGGS RD	
PROJECT NO: 1054-13-008	NC ENGINEER LICENSE #F-0176 3201 SPRING FOREST RD, RALEIGH, NC 27616	GREENSBORO, NORTH CAROLINA	

S:\PROJECTS\2013\13-008 NCDOT 5 Env PSAs\CAD\A3570.dwg, FIG1, 3/5/2013 2:46:40 PM, 1:1



LEGEND

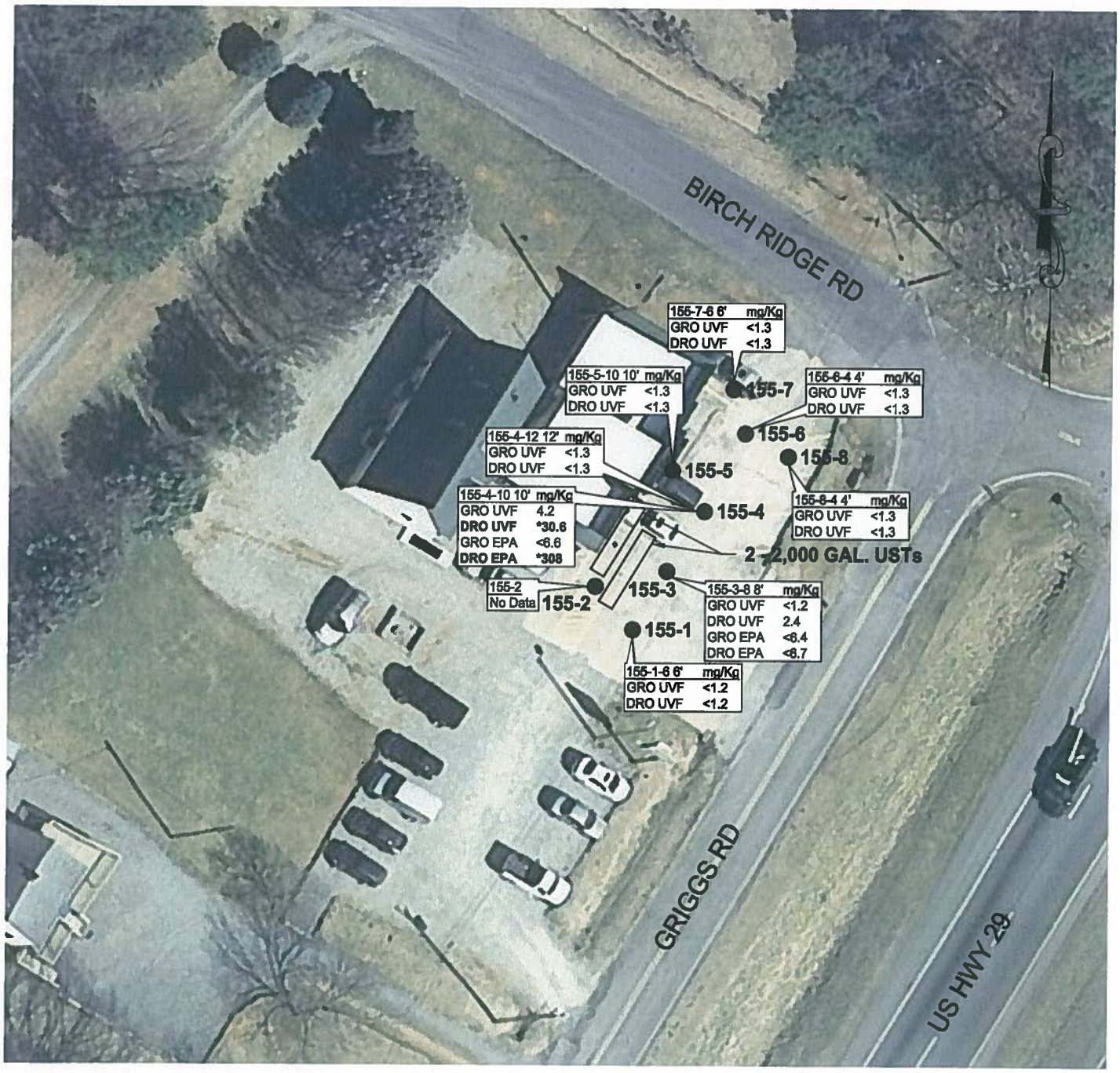
- Geoenvironmental Boring
- Known Soil Contamination: Area or Site
- Underground Storage Tank (UST)

0 50 100

FEET

A-3571

SCALE: 1" = 50'	S&ME WWW.SMEINC.COM	SHEET NO.
DATE: FEB. 2013		SITE MAP
DRAWN BY: BTR		PARCEL 155 - A STEP ABOVE DENTURE SERVICES
PROJECT NO: 1054-13-008	NC ENGINEER LICENSE #F-0176 3201 SPRING FOREST RD, RALEIGH, NC 27616	5429 GRIGGS RD GREENSBORO, NORTH CAROLINA
		2



LEGEND

- ● APPROXIMATE SAMPLE LOCATION

SOIL SAMPLES COLLECTED JANUARY 28, 2013
mg/Kg - MILLIGRAMS PER KILOGRAM
GRO - TOTEL PETROLEUM HYDROCARBONS GASOLINE RANGE ORGANICS
DRO - TOTEL PETROLEUM HYDROCARBONS DIESEL RANGE ORGANICS
UVF - ULTRAVIOLET FLUORESCENCE FIELD SCREENING
EPA - METHODS 8015/3550 & 8015/5030
* INDICATES EXCEEDENCE OF STATE ACTION LEVEL OF 10 mg/Kg

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

IMAGE SOURCE: NC ONEMAP, DATED 2010

A-3572

SCALE:	1" = 40'
DATE:	FEB. 2013
DRAWN BY:	BTR
PROJECT NO:	1054-13-008

S&ME
WWW.SMEINC.COM
NC ENGINEER LICENSE #F-0176
3201 SPRING FOREST RD, RALEIGH, NC 27616

SOIL CONSTITUENT MAP

PARCEL 155 - A STEP ABOVE DENTURE SERVICES
5429 GRIGGS RD
GREENSBORO, NORTH CAROLINA

FIGURE NO. 3

NORTH

REFERENCE:
- Google Earth Aerial Photograph
- Dated February 2, 2012

LEGEND

TDEM Path

SCALE: NTS	S&ME ENGINEERING • TESTING ENVIRONMENTAL SERVICES	**TDEM TEST LOCATION PLAN** **NCDOT No. U-2525B – Parcel 155 A Step Above Denture Service** 5429 Griggs Road Greensboro, Guilford County, North Carolina	FIGURE NO. 4
DRAWN BY: KDH			
CHECKED BY: DDB			
DATE: 1-23-13		PROJECT NO.: 1054-13-008	

NORTH

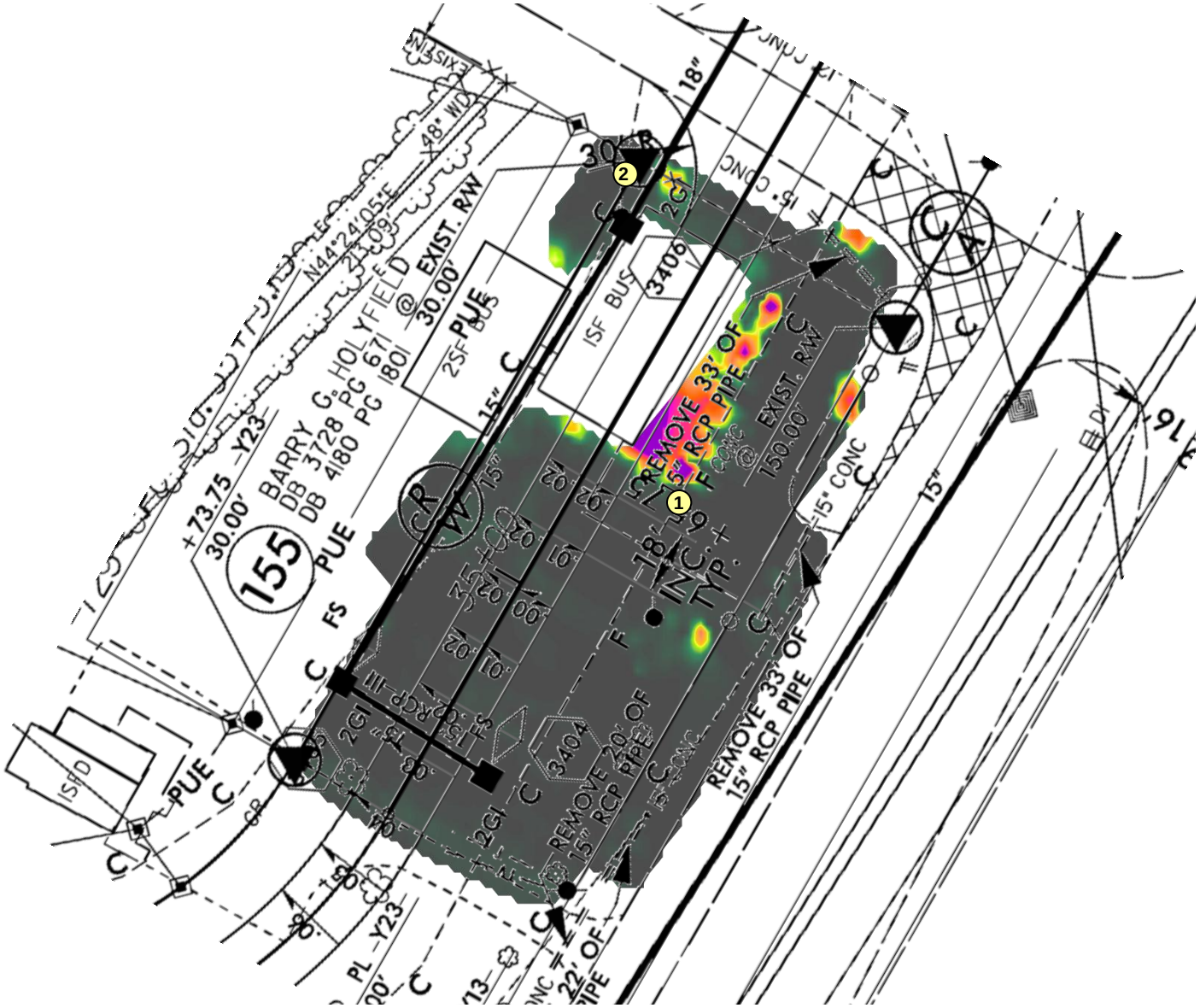
Conductivity (mV)

1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0

REFERENCE:

- Google Earth Aerial Photograph
- Dated February 2, 2012

SCALE: NTS	S&ME ENGINEERING • TESTING ENVIRONMENTAL SERVICES	**TDEM DATA PLOT** **NCDOT No. U-2525B – Parcel 155 A Step Above Denture Service** 5429 Griggs Road Greensboro, Guilford County, North Carolina	FIGURE NO. 5
DRAWN BY: KDH			
CHECKED BY: DDB			
DATE: 1-23-13		PROJECT NO.: 1054-13-008	



SCALE: NTS	S&ME ENGINEERING • TESTING ENVIRONMENTAL SERVICES	**TDEM DATA PLOT WITH CADD OVERLAY** **NCDOT No. U-2525B – Parcel 155 A Step Above Denture Service** 5429 Griggs Road Greensboro, Guilford County, North Carolina	FIGURE NO. 6
DRAWN BY: KDH			
CHECKED BY: DDB			
DATE: 1-23-13		PROJECT NO.: 1054-13-008	

NORTH

REFERENCE:
- Google Earth Aerial Photograph
- Dated February 2, 2012

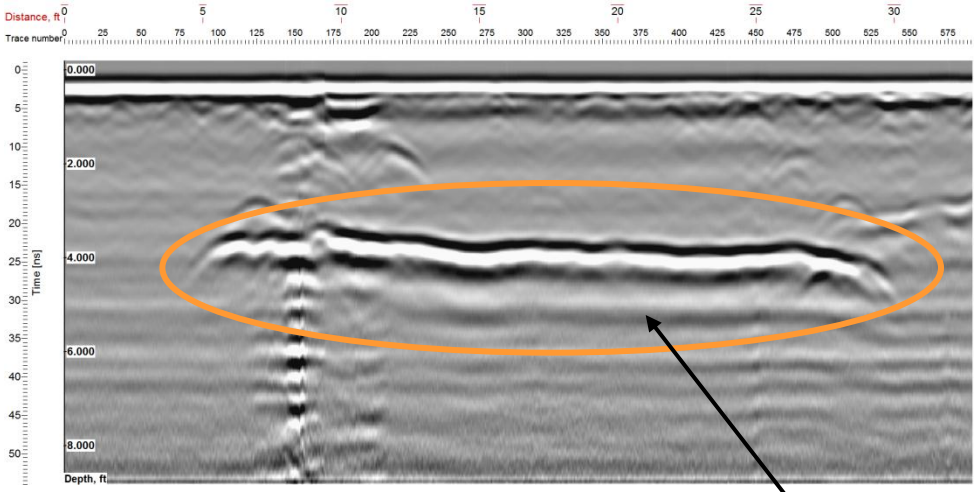
LEGEND

GPR Line TDEM Anomaly

SCALE: NTS	S&ME ENGINEERING • TESTING ENVIRONMENTAL SERVICES	**GPR TEST LOCATION PLAN** **NCDOT No. U-2525B – Parcel 155 A Step Above Denture Service** 5429 Griggs Road Greensboro, Guilford County, North Carolina
DRAWN BY: KDH		
CHECKED BY: DDB		
DATE: 1-23-13		PROJECT NO.: 1054-13-008

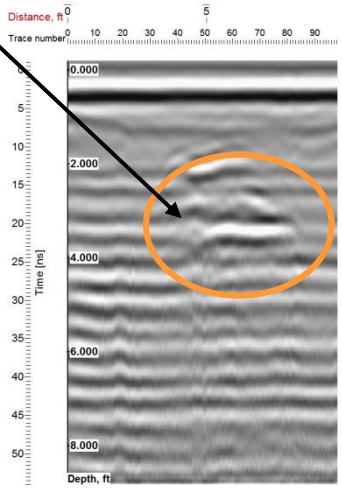
FIGURE NO. 7

Line 086



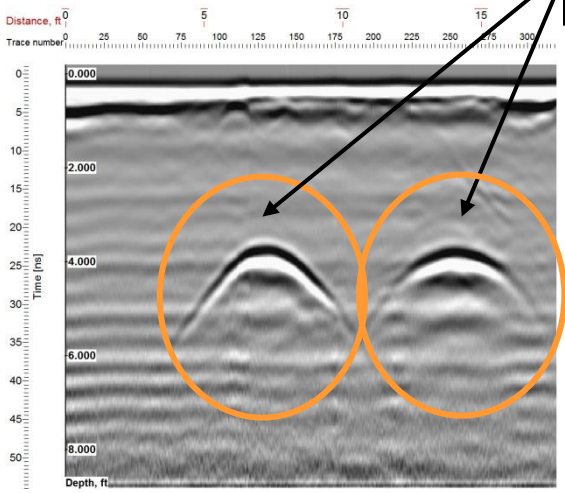
TDEM Anomaly 2

Line 090



TDEM Anomaly 1

Line 088



SCALE: AS SHOWN	S&ME ENGINEERING • TESTING ENVIRONMENTAL SERVICES	**GPR PROFILE EXAMPLES – LINES 086, 088 and 090** **NCDOT No. U-2525B – Parcel 155 A Step Above Denture Service** 5429 Griggs Road Greensboro, Guilford County, North Carolina	FIGURE NO. 8
DRAWN BY: KDH			
CHECKED BY: DDB			
DATE: 1-23-13		PROJECT NO.: 1054-13-008	

APPENDIX I

Photographic Log

1	View of front of A Step Above Denture Service (parking lot in front of building). View is to the north.

2	View of Anomaly 1 with probable UST's outlined with orange spray paint. View is to the northeast.

3	View of former dispenser island in parking lot of A Step Above Denture Services. View is to the northeast.

	View of Anomaly 1 with probable UST's outlined with orange spray paint. View is to the northwest.

S&ME	**NCDOT Project U2525B** **Parcel 155 A Step Above Denture Service** **5429 Griggs Road, Greensboro, Guilford County, North Carolina**	S&ME Project No. 1054-13-008	
		Taken by: ALB	Date Taken: 1/28/2013

APPENDIX II

Boring Logs

BORING LOG

Project Name: NCDOT Project U2525-B
Parcel 155
S&ME Project No. 1054-13-008

Boring Number: 155-1
Sampling Personnel: Lyndal Butler
Date Drilled: 1/28/2013
Depth to Groundwater: Not Encountered
Total Depth: 10 ft. bgs.
Drilling method: Geoprobe® Direct Push

STRATIFICATION

Depth (Feet)			PID Reading (ppm)	Sample No. and Depth	
From	To	Soil Description		Sample No.	Depth (Ft-BGS)
0	0.4	Concrete and base course			
0.4	2.0	ML: Clayey Silt, orange brown, damp	1.0		
2.0	3.0				
3.0	4.0		1.0		
4.0	5.0	ML: Slightly clayey Silt, orange brown, damp			
5.0	6.0		3.0	155-1-6	6.0
6.0	7.0	ML: Silt, orange brown, dry			
7.0	8.0		1.0		
8.0	9.0				
9.0	10.0		2.2		
		Boring terminated at 10.0 ft. bgs.			

Notes:

1. Ft-BGS: Feet Below Ground Surface
2. PID: Photo-Ionization Detector
3. PPM: parts per million (volume/volume)
4. * Indicates sample was sent to off-site laboratory for additional analysis.

Boring Number: 155-2
Sampling Personnel: Lyndal Butler
Date Drilled: 1/28/2013
Depth to Groundwater: Not Encountered
Total Depth: 10 ft. bgs.
Drilling method: Geoprobe® Direct Push

STRATIFICATION

Depth (Feet)			PID Reading (ppm)	Sample No. and Depth	
From	To	Soil Description		Sample No.	Depth (Ft-BGS)
0	0.4	Concrete and base course			
0.4	2.0	ML: Clayey Silt, yellow tan and orange brown, dry (soft, 50% Recovery)			
2.0	3.0				
3.0	4.0				
4.0	5.0		<1		
5.0	6.0	ML: Silt, yellow brown, damp, relict structure (soft, 50% Recovery)			
6.0	7.0				
7.0	8.0				
8.0	9.0				
9.0	10.0		<1		
		Boring terminated at 10 ft. bgs.			

Notes:

1. Ft-BGS: Feet Below Ground Surface
2. PID: Photo-Ionization Detector
3. PPM: parts per million (volume/volume)
4. * Indicates sample was sent to off-site laboratory for additional analysis.

BORING LOG

Project Name: NCDOT Project U2525-B
Parcel 155
S&ME Project No. 1054-13-008

Boring Number: 155-3
Sampling Personnel: Lyndal Butler
Date Drilled: 1/28/2013
Depth to Groundwater: Not Encountered
Total Depth: 10 ft. bgs.
Drilling method: Geoprobe® Direct Push

STRATIFICATION

Depth (Feet)			PID Reading (ppm)	Sample No. and Depth	
From	To	Soil Description		Sample No.	Depth (Ft-BGS)
0	0.4	Concrete and base course			
0.4	2.0	ML: Clayey Silt, orange brown, damp			
2.0	3.0		1.2		
3.0	4.0				
4.0	5.0		1.4		
5.0	6.0	ML: Silt, orange brown, dry			
6.0	7.0		1.2		
7.0	8.0				
8.0	9.0		2.0	155-3-8*	8
9.0	10.0				
			1.0		
		Boring terminated at 10 ft. bgs.			

Notes:

1. Ft-BGS: Feet Below Ground Surface
2. PID: Photo-Ionization Detector
3. PPM: parts per million (volume/volume)
4. * Indicates sample was sent to off-site laboratory for additional analysis.

Boring Number: 155-4
Sampling Personnel: Lyndal Butler
Date Drilled: 1/28/2013
Depth to Groundwater: Not Encountered
Total Depth: 10 ft. bgs.
Drilling method: Geoprobe® Direct Push

STRATIFICATION

Depth (Feet)			PID Reading (ppm)	Sample No. and Depth	
From	To	Soil Description		Sample No.	Depth (Ft-BGS)
0	0.4	Concrete and base course			
0.4	2.0	Soft, No Recovery			
2.0	5.0				
5.0	6.0	ML: Silt, tan brown, dry, relict structure (soft, 75% Recovery)			
6.0	9.0		3.0		
9.0	10.0	ML: Silt, gold brown, moist, oxidation staining, apparent fuel odor from 10 feet to 12 feet	123		
10.0	12.0		7	155-4-10*	10.0
12.0	14.0		3	155-4-12	12.0
14.0	16.0		2		
16.0	19.0		<1		
19.0	20.0	ML: Fine slightly sandy Silt; saturated			
		Boring terminated at 20 ft. bgs.			

Notes:

1. Ft-BGS: Feet Below Ground Surface
2. PID: Photo-Ionization Detector
3. PPM: parts per million (volume/volume)
4. * Indicates sample was sent to off-site laboratory for additional analysis.

BORING LOG

Project Name: NCDOT Project U2525-B
Parcel 155
S&ME Project No. 1054-13-008

Boring Number: 115-5
Sampling Personnel: Lyndal Butler
Date Drilled: 1/28/2013
Depth to Groundwater: Not Encountered
Total Depth: 10 ft. bgs.
Drilling method: Geoprobe® Direct Push

STRATIFICATION

Depth (Feet)			PID Reading (ppm)	Sample No. and Depth	
From	To	Soil Description		Sample No.	Depth (Ft-BGS)
0	0.4	Concrete and base course			
0.4	2.0	ML: Slightly clayey Silt, orange brown, damp	<1		
2.0	3.0				
3.0	4.0		2.4		
4.0	5.0	ML: Silt, orange brown, dry			
5.0	6.0		1.7		
6.0	7.0				
7.0	8.0		1.9		
8.0	9.0				
9.0	10.0	ML: Fine slightly sandy Silt; saturated	2.2	155-5-10	10.0
		Boring terminated at 10 ft. bgs.			

Notes:

1. Ft-BGS: Feet Below Ground Surface
2. PID: Photo-Ionization Detector
3. PPM: parts per million (volume/volume)
4. * Indicates sample was sent to off-site laboratory for additional analysis.

Boring Number: 115-6
Sampling Personnel: Lyndal Butler
Date Drilled: 1/28/2013
Depth to Groundwater: Not Encountered
Total Depth: 10 ft. bgs.
Drilling method: Geoprobe® Direct Push

STRATIFICATION

Depth (Feet)			PID Reading (ppm)	Sample No. and Depth	
From	To	Soil Description		Sample No.	Depth (Ft-BGS)
0	0.4	Concrete and base course			
0.4	2.0	ML: Clayey Silt, orange brown, damp	<1		
2.0	2.5				
2.5	4.0	ML: Slightly clayey Silt, orange brown, damp	1.0		
4.0	5.0			155-6-4	4.0
5.0	6.0	ML: Silt, orange brown, dry	1.0		
6.0	7.0				
7.0	8.0		<1		
8.0	9.0				
9.0	10.0		1.0		
		Boring terminated at 10 ft. bgs.			

Notes:

1. Ft-BGS: Feet Below Ground Surface
2. PID: Photo-Ionization Detector
3. PPM: parts per million (volume/volume)
4. * Indicates sample was sent to off-site laboratory for additional analysis.

BORING LOG

Project Name: NCDOT Project U2525-B
Parcel 155
S&ME Project No. 1054-13-008

Boring Number: 115-7
Sampling Personnel: Lyndal Butler
Date Drilled: 1/28/2013
Depth to Groundwater: Not Encountered
Total Depth: 10 ft. bgs.
Drilling method: Geoprobe® Direct Push

STRATIFICATION

Depth (Feet)			PID Reading (ppm)	Sample No. and Depth	
From	To	Soil Description		Sample No.	Depth (Ft-BGS)
0	0.4	Concrete and base course			
0.4	2.0	ML: Clayey Silt, orange brown, damp	1.5		
2.0	3.0				
3.0	4.0		1.0		
4.0	5.5	ML: Slightly clayey Silt, orange brown, damp			
5.5	6.0	ML: Silt, orange brown, dry	1.7		
6.0	7.0			155-7-6	6.0
7.0	8.5		1.3		
8.5	9.0	ML: Fine slightly sandy Silt; saturated			
9.0	10.0		<1		
		Boring terminated at 10 ft. bgs.			

Notes:

1. Ft-BGS: Feet Below Ground Surface
2. PID: Photo-Ionization Detector
3. PPM: parts per million (volume/volume)
4. * Indicates sample was sent to off-site laboratory for additional analysis.

Boring Number: 115-8
Sampling Personnel: Lyndal Butler
Date Drilled: 1/28/2013
Depth to Groundwater: Not Encountered
Total Depth: 10 ft. bgs.
Drilling method: Geoprobe® Direct Push

STRATIFICATION

Depth (Feet)			PID Reading (ppm)	Sample No. and Depth	
From	To	Soil Description		Sample No.	Depth (Ft-BGS)
0	0.4	Concrete and base course			
1.0	2.0	ML: Clayey Silt, orange brown, damp	1.0		
2.0	3.5				
3.5	4.0	ML: Slightly clayey Silt, orange brown, damp	2.5		
4.0	5.5			155-8-4	4.0
5.5	6.0	ML: Silt, orange brown, dry	1.4		
6.0	7.0				
7.0	8.0		1.8		
8.0	9.0	ML: Fine slightly sandy Silt; saturated			
9.0	10.0		<1		
		Boring terminated at 10 ft. bgs.			

Notes:

1. Ft-BGS: Feet Below Ground Surface
2. PID: Photo-Ionization Detector
3. PPM: parts per million (volume/volume)
4. * Indicates sample was sent to off-site laboratory for additional analysis.

APPENDIX III

Laboratory Analytical Report and Chain of Custody Form

KB LABS, INC.
6821 SW Archer Road
Gainesville, Florida 32608
***Telephone* (352) 367-0073**
***Fax* (352) 378-6491**
Email: info@kbmobilelabs.com

February 14, 2013

Michael Pfeifer
S&ME
3201 Spring Forest Road
Raleigh, NC 27616

RE: NCDOT
KB Labs Project # 13-7

Dear Mr. Pfeifer:

Enclosed is the final report of the on-site analysis performed by KB Labs, Inc. at the above referenced site. Samples were collected and analyzed onsite during January 29-Feb 1. Included are a brief project narrative, data report narrative, final analytical results, and sample chain-of-custody form.

If you have any questions, please do not hesitate to call me or Kelly Bergdoll, President of KB Labs, at (352) 367-0073.

Sincerely,

KB Labs, Inc.

Todd Romero
Director of Operations

PROJECT NARRATIVE

Project Scope

Between January 29 and February 1, 2013, a total of 89 soil samples were analyzed for S&ME in Greensboro. The samples were analyzed for field TPH.

Analytical Procedure

All samples were analyzed using Ultra -violet Fluorescence Spectrometry. For soils, ten grams of soil was extracted in 20 mL of methanol. Extracts were then analyzed on a UV fluorometer. Fluorescence was compared against a series of prepared calibration standards to produce the results. For this project a QED analyzer was used that provides a fluorescence fingerprint image for each sample and uses a spectral library to help identify the dominant hydrocarbon type where possible.

Analytical Results

Laboratory results were provided to the client on an as-completed basis. Final results of the on-site analyses are provided in this report. The data produced and reported in the field has been reviewed and approved for this final report by the Director of Operations for KB Labs and was reviewed by QROS.

Method Blanks: Daily analysis of methanol reagent samples was performed in order to monitor the cleanliness of the analytical system before and during each analytical run. Continuing Calibration: Following initial standardization with a five point PAH curve, standards were analyzed periodically to determine the stability of the calibration before, during, and after each analytical run.

Data were reported on an as received (wet weight) basis.

QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: US-29 Greensboro, NC

Samples taken 1/28/13, 1/29/13
Samples extracted 1/29/13
Samples analysed 1/29/13

Contact: Lyndal Butler

Operator Chris Horrell

Project: NCDOT U2525B

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	110-1-2	31.4	<1.6	<1.6	<1.6	<1.6	< 1.57	< 0.16	< 0.078	9.9	24.7	65.4	PAH
s	110-1-4	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	11.2	24.7	64.2	PAH
s	110-1-6	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	11.9	22.8	65.3	PAH
s	110-1-8	24.8	<1.2	<1.2	<1.2	<1.2	< 1.24	< 0.12	< 0.062	11.6	26.4	62	V.Deg Fuel (est) 18.5%
s	110-1-10	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	0	0	100	ID not possible
s	110-2-2	25.5	<1.3	<1.3	<1.3	<1.3	< 1.27	< 0.13	< 0.064	0	5.2	94.8	ID not possible
s	110-2-4	25.5	<1.3	<1.3	<1.3	<1.3	< 1.27	< 0.13	< 0.064	0	10.3	89.7	ID not possible
s	110-2-6	25.5	<1.3	<1.3	<1.3	<1.3	< 1.27	< 0.13	< 0.064	11.6	19.1	69.3	V.Deg Fuel (est) 12.3%
s	110-2-8	24.5	<1.2	<1.2	<1.2	<1.2	< 1.23	< 0.12	< 0.061	12	21.3	66.6	ID not possible
s	116-14-10	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	6.1	55	38.9	V.Deg.PHC 33.2%

Initial Calibrator QC check

Low Range Calibrator Final check
High Range Calibrator Final check

Results generated by a QED HC-1 analyser
Concentration values in mg/kg for soil samples and mg/L for water samples.
Soil values are not corrected for moisture or stone content

Fingerprints are tentative identifications based on operator selected library matches
Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match
(SBS)= site specific background subracted (LBS)= Library background subtracted %=Overall Fingerprint match confidence

QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: US-29 Greensboro, NC

Samples taken 1/28/13, 1/29/13
Samples extracted 1/29/13
Samples analysed 1/29/13

Contact: Lyndal Butler

Operator Chris Horrell

Project: NCDOT U2525B

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	110-2-10	24.5	<1.2	<1.2	<1.2	<1.2	< 1.23	< 0.12	< 0.061	0	0	100	ID not possible
s	116-16-10	24.5	<1.2	25.4	21.5	46.9	9.79	< 0.12	< 0.061	98.9	1	0.1	Deg Kerosene (est) + Deg.Petrol (est) 47.4%
s	116-16-10 dup	24.5	10.8	30	28.3	58.3	11.83	0.19	< 0.061	99	0.7	0.3	Deg Kerosene (est) + Deg.Petrol 67.7%
s	110-3-10	26.0	<1.3	<1.3	12.9	12.9	8.02	< 0.13	< 0.065	57.9	34.5	7.5	Degraded Fuel (est) 87.3%
s	116-17-10	25.5	<1.3	<1.3	<1.3	<1.3	< 1.27	< 0.13	< 0.064	0	0	100	ID not possible
s	110-4-10	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	0	100	ID not possible
s	110-5-10	25.2	<1.3	<1.3	<1.3	<1.3	< 1.26	< 0.13	< 0.063	0	0	100	ID not possible
s	116-18-4	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	0	100	ID not possible
s	155-1-6	24.5	<1.2	<1.2	<1.2	<1.2	< 1.23	< 0.12	< 0.061	0	0	100	ID not possible
s	155-3-8	24.5	<1.2	<1.2	2.4	2.4	< 1.23	< 0.12	< 0.061	5.8	72.4	21.8	V.Deg Diesel + Deg.Fuel (est) 48.8%

Initial Calibrator QC check

Low Range Calibrator Final check
High Range Calibrator Final check

Results generated by a QED HC-1 analyser

Concentration values in mg/kg for soil samples and mg/L for water samples.

Soil values are not corrected for moisture or stone content

Fingerprints are tentative identifications based on operator selected library matches

Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match

(SBS)= site specific background subracted (LBS)= Library background subtracted %=Overall Fingerprint match confidence

QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: Greensboro, NC

Samples taken 1/28, 1/29, 1/30 2013
Samples extracted 1/30/13
Samples analysed 1/30/13

Contact: Lyndal Butler

Operator CAH

Project: NCDOT U2525B

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	116-16-8	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	0	0	100	ID not possible
s	116-16-12	25.5	<1.3	8.8	13.7	22.5	5.99	< 0.13	< 0.064	96.6	2.3	1.1	Deg Kerosene (est) + Deg.Petrol (est) 52%
s	116-16-14	25.0	<1.3	<1.3	<1.3	<1.3	< 1.25	< 0.13	< 0.063	0	3.8	96.2	Background Organics
s	116-18-14	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	76.8	4.4	18.8	Deg Petrol (est) 1.3%
s	155-4-10	25.7	<1.3	4.2	30.6	34.8	14.29	0.23	< 0.064	91.5	7.3	1.2	Deg Kerosene (est) 58.6%
s	155-4-12	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	86.9	2.3	10.8	Deg Kerosene (est) 21.4%
s	155-5-10	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	0	100	Background Organics
s	155-6-4	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	9.9	2.4	87.6	Deg Diesel 44.6%
s	155-7-6	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	0	100	Background Organics
s	155-8-4	25.0	<1.3	<1.3	<1.3	<1.3	< 1.25	< 0.13	< 0.063	83.8	0	16.2	Background Organics

Initial Calibrator QC check

Low Range Calibrator Final check
High Range Calibrator Final check

Results generated by a QED HC-1 analyser
Concentration values in mg/kg for soil samples and mg/L for water samples.
Soil values are not corrected for moisture or stone content

Fingerprints are tentative identifications based on operator selected library matches
Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match
(SBS)= site specific background subracted (LBS)= Library background subtracted %=Overall Fingerprint match confidence

QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: Greensboro, NC

Samples taken 1/28, 1/29, 1/30 2013
Samples extracted 1/30/13
Samples analysed 1/30/13

Contact: Lyndal Butler

Operator CAH

Project: NCDOT U2525B

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	116-2-2	25.5	<1.3	<1.3	<1.3	<1.3	< 1.27	< 0.13	< 0.064	0	0	100	ID not possible
s	116-1-6	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	0	100	ID not possible
s	116-3-2	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	0	0	100	ID not possible
s	116-4-2	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	0	100	ID not possible
s	116-5-2	24.8	<1.2	<1.2	<1.2	<1.2	< 1.24	< 0.12	< 0.062	0	0	100	ID not possible
s	116-6-2	25.5	<1.3	<1.3	<1.3	<1.3	< 1.27	< 0.13	< 0.064	0	0	100	ID not possible
s	116-7-2	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	0	100	ID not possible
s	116-8-9	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	41.2	5.7	53.1	Deg Petrol (est) 1.3%
s	116-9-10	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	80.9	17.3	1.8	Deg Diesel 34.3%
s	116-10-8	25.7	<1.3	<1.3	12.4	12.4	8.22	0.21	< 0.064	55.3	40.8	3.9	+ Deg.Fuel 19.1%

Initial Calibrator QC check

Low Range Calibrator Final check
High Range Calibrator Final check

Results generated by a QED HC-1 analyser
Concentration values in mg/kg for soil samples and mg/L for water samples.
Soil values are not corrected for moisture or stone content

Fingerprints are tentative identifications based on operator selected library matches
Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match
(SBS)= site specific background subracted (LBS)= Library background subtracted %=Overall Fingerprint match confidence

QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: Greensboro, NC

Samples taken 1/28, 1/29, 1/30 2013
Samples extracted 1/30/13
Samples analysed 1/30/13

Contact: Lyndal Butler

Operator CAH

Project: NCDOT U2525B

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	116-11-4	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	0	0	100	ID not possible
s	116-12-4	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	0	0	100	ID not possible
s	66-2-15	25.7	<1.3	<1.3	17	17	9.76	0.19	< 0.064	82.1	12.8	5.1	Deg Diesel 64.9%
s	66-2-20	26.0	<1.3	<1.3	10.6	10.6	6.57	< 0.13	< 0.065	90.3	7.9	1.9	Deg Diesel 47.3%
s	116-13-4	25.2	<1.3	<1.3	<1.3	<1.3	< 1.26	< 0.13	< 0.063	0	0	100	ID not possible
s	137-1-10	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	0	0	100	ID not possible
s	137-2-10	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	0	100	ID not possible
s	137-3-10	25.2	<1.3	<1.3	<1.3	<1.3	< 1.26	< 0.13	< 0.063	0	0	100	ID not possible
s	137-4-10	25.5	<1.3	<1.3	<1.3	<1.3	< 1.27	< 0.13	< 0.064	0	0	100	Background Organics
s	137-5-6	25.5	<1.3	<1.3	<1.3	<1.3	< 1.27	< 0.13	< 0.064	0	0	100	ID not possible

Initial Calibrator QC check

Low Range Calibrator Final check
High Range Calibrator Final check

Results generated by a QED HC-1 analyser
Concentration values in mg/kg for soil samples and mg/L for water samples.
Soil values are not corrected for moisture or stone content

Fingerprints are tentative identifications based on operator selected library matches
Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match
(SBS)= site specific background subracted (LBS)= Library background subtracted %=Overall Fingerprint match confidence

QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: Greensboro NC

Samples taken 1.30, 1.31
Samples extracted 1.31.13
Samples analysed 1/31/13

Contact: Lyndal Butler

Operator Chris Horrell

Project: NCDOT U2525B

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	137-9-15	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	95.5	0	4.5	Deg.Fuel 69.1%
s	137-10-15	25.5	<1.3	<1.3	<1.3	<1.3	< 1.27	< 0.13	< 0.064	94.5	1.6	3.9	Deg.Fuel 62.6%
s	137-8-15	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	81.8	4.9	13.3	Background Organics
s	137-6-10	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	0	100	Deg.Fuel Residue 18.9%
s	137-7-2	25.5	<1.3	<1.3	2.1	2.1	< 1.27	< 0.13	< 0.064	84.4	14.3	1.3	Deg Petrol (est) 48.2%
s	137-11-15	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	0	100	Deg.Fuel Residue 19.7%
s	66-6-10	1570.3	<39	2432	31283	33715	16658	198	<2	87.8	10.5	1.7	Deg.Fuel
s	66-6-20	1586.0	<40	<40	<40	<40	< 79	<8	<2	0	0	100	Deg.Fuel Residue 9.7%

Initial Calibrator QC check OK

Low Range Calibrator Final check
High Range Calibrator Final check

Results generated by a QED HC-1 analyser
Concentration values in mg/kg for soil samples and mg/L for water samples.
Soil values are not corrected for moisture or stone content

Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches
Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match
(SBS)= site specific background subracted (LBS)= Library background subtracted % = match confidence

Hydrocarbon Analysis Results

Client: S&ME
Address: Greensboro, NC

Samples taken
Samples extracted
Samples analysed

Contact: Lyndal Butler

Operator CAH

Project: NCDOT U2525B

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	137-12-15	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	0	0	100	Match not possible
s	137-13-2	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	97.4	1.1	1.6	Deg Diesel

Initial Calibrator QC check OK

Low Range Calibrator Final check OK 0.07

High Range Calibrator Final check OK 1.61

Results generated by a QED HC-1 analyser

Concentration values in mg/kg for soil samples and mg/L for water samples.

Soil values are not corrected for moisture or stone content

Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches

Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match

(SBS)= site specific background subracted (LBS)= Library background subtracted % = match confidence

QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: Greensboro, NC

Samples taken Thursday, January 31, 2013
Samples extracted Thursday, January 31, 2013
Samples analysed Thursday, January 31, 2013

Contact: Lyndal Butler

Operator CAH

Project: NCDOT U2525B

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	66-5-14	25.7	<1.3	<1.3	2.5	2.5	< 1.29	< 0.13	< 0.064	57.6	41.6	0.8	Deg.Fuel Residue 9.9%
s	66-7-19	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	91.7	6.1	2.2	Match not possible
s	137-14-2	25.7	<1.3	<1.3	2.1	2.1	1.89	< 0.13	< 0.064	47.5	36	16.5	V.Deg.PHC (LBS) 74%
s	137-15-2	25.0	<1.3	<1.3	<1.3	<1.3	< 1.25	< 0.13	< 0.063	0	0	100	Match not possible
s	66-1-15	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	96.6	3.4	Deg.Fuel Residue 57.5%
s	66-3-15	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	0	0	100	Match not possible
s	66-4-15	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	0	74.5	25.5	Match not possible
s	66-7-17	26.0	<1.3	<1.3	2.9	2.9	1.84	< 0.13	< 0.065	45.6	38	16.3	Degraded Fuel (est) 77.6%
s	66-8-15	25.0	<1.3	<1.3	<1.3	<1.3	< 1.25	< 0.13	< 0.063	0	0	100	Match not possible
s	66-9-15	25.7	<1.3	<1.3	4.2	4.2	1.69	< 0.13	< 0.064	42.4	33	24.6	Degraded Fuel (est) 62.8%

Initial Calibrator QC check OK

Low Range Calibrator Final check OK 0.08

High Range Calibrator Final check OK 1.57

Results generated by a QED HC-1 analyser

Concentration values in mg/kg for soil samples and mg/L for water samples.

Soil values are not corrected for moisture or stone content

Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches

Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match

(SBS)= site specific background subracted (LBS)= Library background subtracted % = match confidence

QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: Greensboro, NC

Samples taken 1.31.13
Samples extracted 1.31.13
Samples analysed 1.31.13

Contact: Lyndal Butler

Operator CAH

Project: NCDOT U2525B

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	66-10-9	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	0	100	Match not possible
s	66-11-15	25.7	<1.3	<1.3	<1.3	<1.3	< 1.29	< 0.13	< 0.064	0	0	100	Match not possible

Initial Calibrator QC check OK

Low Range Calibrator Final check Low 0.06

High Range Calibrator Final check OK 1.53

Results generated by a QED HC-1 analyser

Concentration values in mg/kg for soil samples and mg/L for water samples.

Soil values are not corrected for moisture or stone content

Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches

Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match

(SBS)= site specific background subracted (LBS)= Library background subtracted % = match confidence

QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: US-29 Greensboro, NC

Samples taken 2.1.13
Samples extracted 2.1.13
Samples analysed 2.1.13

Contact: Lyndal Butler

Operator Chris Horrell

Project: NCDOT U2525B

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	66-19-9	119.6	<6	83.1	915.3	998.4	788.4	9.6	<0.3	96.8	2.6	0.6	Deg Diesel 68.9%
s	66-19-11	119.6	<6	<6	47.1	47.1	25.7	<0.6	<0.3	92.9	6.1	1	V.Deg Diesel 69.9%
s	66-19-13	25.5	<1.3	2.6	43.3	45.9	29.25	0.43	< 0.064	93.2	4.6	2.2	V.Deg Diesel 57.9%
s	66-19-15	60.8	<3	5.8	299.3	305.1	257.31	3.39	< 0.152	90.7	7.6	1.7	V.Deg Diesel 55.4%
s	66-19-11 Duplicate	60.8	<3	<3	49.4	49.4	29.47	0.51	< 0.152	90.6	6.8	2.6	V.Deg Diesel 62.2%
s	66-23-5	25.2	<1.3	2.2	23.7	25.9	13.93	0.23	< 0.063	85.6	10.9	3.5	Deg Diesel + Deg.Fuel (est) 68.8%
s	66-23-15	25.2	<1.3	<1.3	2.8	2.8	2.1	< 0.13	< 0.063	71.5	19.1	9.4	Degraded Fuel (est) 71%
s	66-13-15	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	0	100	Match not possible
s	66-14-8	35.7	<1.8	7.6	190	197.5	145	1.92	< 0.090	90.9	7.8	1.3	Deg.Fuel 56.6%
s	66-14-15	24.8	<1.2	22.9	81.1	104	29.38	0.58	0.07	94.2	3.3	2.5	V.Deg Kerosene (est) (LBS) 60.7%

Initial Calibrator QC check OK

Low Range Calibrator Final check OK 0.08
High Range Calibrator Final check OK 1.59

Results generated by a QED HC-1 analyser
Concentration values in mg/kg for soil samples and mg/L for water samples.
Soil values are not corrected for moisture or stone content

Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches
Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match
(SBS)= site specific background subracted (LBS)= Library background subtracted % = match confidence

QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: Greensboro NC

Samples taken 2.1.13
Samples extracted 2.1.13
Samples analysed 2.1.13

Contact: Lyndal Butler

Operator Chris Horrell

Project: NCDOT U2525B

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	66-17-15	24.8	<1.2	<1.2	2	2	< 1.24	< 0.12	< 0.062	78.9	17.4	3.7	Match not possible
s	66-20-11	40.8	<2	<2	67.2	67.2	51.31	0.77	< 0.102	44.6	50.8	4.6	Degraded Fuel (est) 75.9%
s	66-21-15	25.0	<1.3	<1.3	<1.3	<1.3	< 1.25	< 0.13	< 0.063	0	57.9	42.1	Match not possible
s	66-22-7	24.8	<1.2	<1.2	<1.2	<1.2	< 1.24	< 0.12	< 0.062	0	0	100	Match not possible
s	66-24-13	25.2	<1.3	<1.3	<1.3	<1.3	<1.26	<0.13	<0.063	0	0	100	Match not possible
s	66-25-12.5	806.0	<40.3	176.2	4515.8	4692	3242.7	41.5	<2.02	95.7	3.6	0.7	Deg Diesel 49.8%
s	66-26-11	1554.9	<39	54	7184	7238	4779	64	<2	94.7	4.5	0.8	Deg Diesel 54.2%
s	66-6-10 Duplicate	3114.9	<78	976	27695	28671	16407	207	<3	95.6	4.1	0.3	Deg Diesel 55.2%
s	66-27-15	25.7	<1.3	<1.3	7.2	7.2	4.26	< 0.13	< 0.064	72.5	21.9	5.6	Degraded Fuel (est) 90.3%
s	66-28-15	26.0	<1.3	<1.3	<1.3	<1.3	< 1.3	< 0.13	< 0.065	0	28.3	71.7	Match not possible

Initial Calibrator QC check OK

Low Range Calibrator Final check Low 0.06

High Range Calibrator Final check Low 1.43

Results generated by a QED HC-1 analyser

Concentration values in mg/kg for soil samples and mg/L for water samples.

Soil values are not corrected for moisture or stone content

Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches

Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match

(SBS)= site specific background subracted (LBS)= Library background subtracted % = match confidence

QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: Greensboro NC

Samples taken 2.1.13
Samples extracted 2.1.13
Samples analysed 2.1.13

Contact: Lyndal Butler

Operator Chris Horrell

Project: NCDOT U2525B

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	66-29-15	25.5	<1.3	<1.3	<1.3	<1.3	< 1.27	< 0.13	< 0.064	0	0	100	Match not possible

Initial Calibrator QC check OK

Low Range Calibrator Final check OK 0.08

High Range Calibrator Final check Low 1.40

Results generated by a QED HC-1 analyser

Concentration values in mg/kg for soil samples and mg/L for water samples.

Soil values are not corrected for moisture or stone content

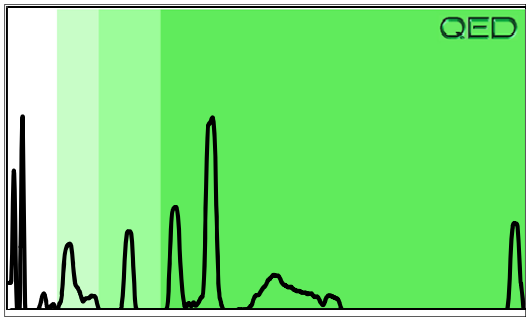
Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches

Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match

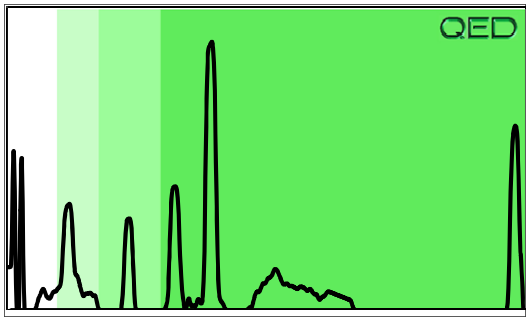
(SBS)= site specific background subracted (LBS)= Library background subtracted % = match confidence

Project 0 **Date** 1/29/2013

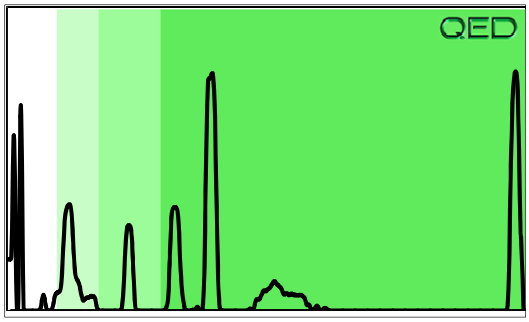
PAH 110-1-2



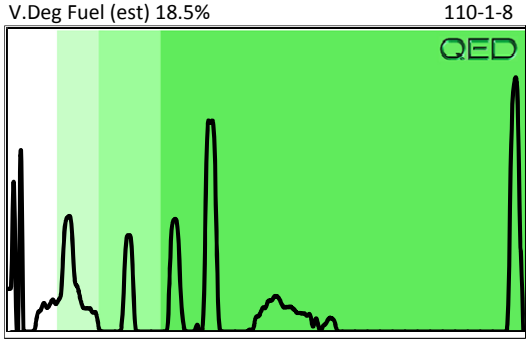
PAH 110-1-4



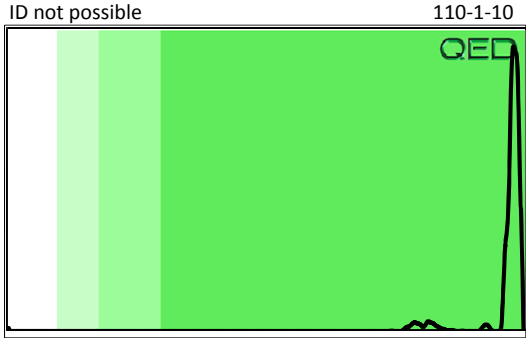
PAH 110-1-6



V.Deg Fuel (est) 18.5% 110-1-8



ID not possible 110-1-10



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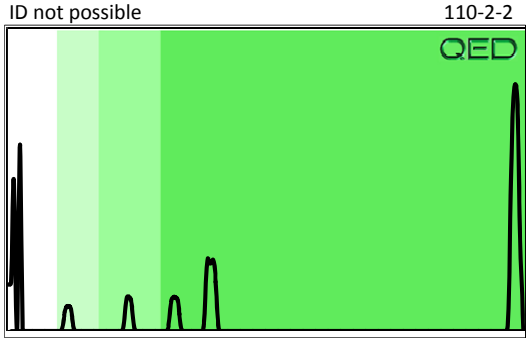
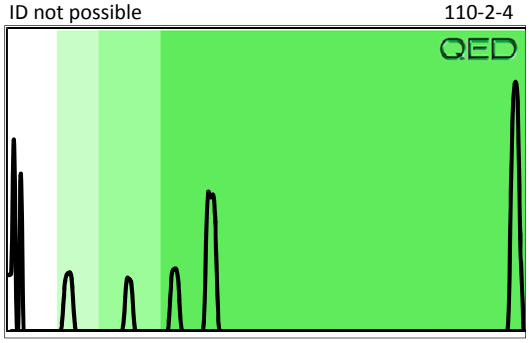
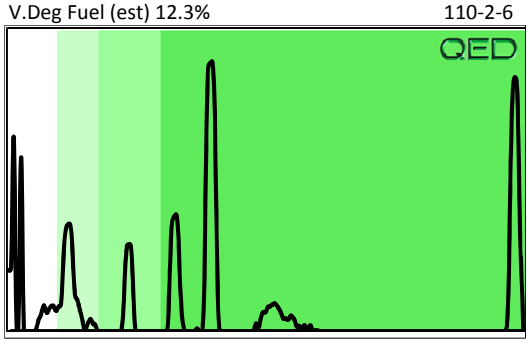


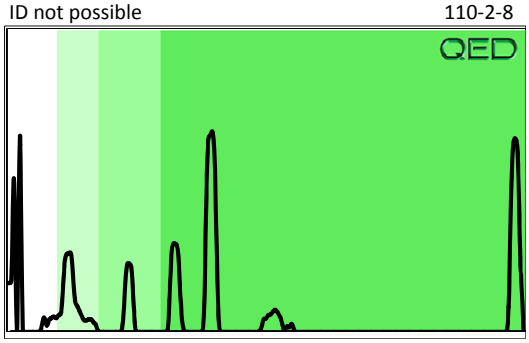
ID not possible 110-2-4



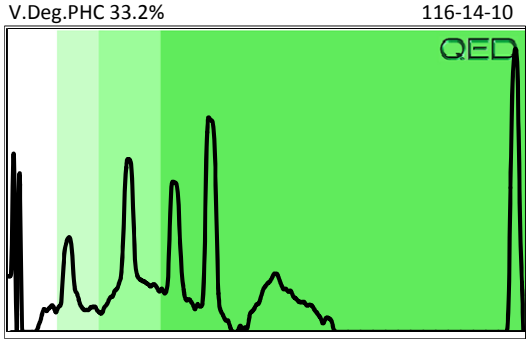
V.Deg Fuel (est) 12.3% 110-2-6



ID not possible 110-2-8

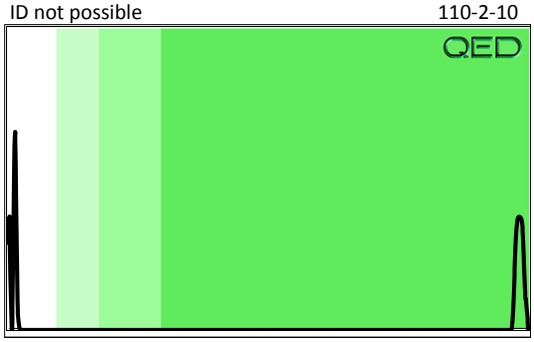


V.Deg.PHC 33.2% 116-14-10

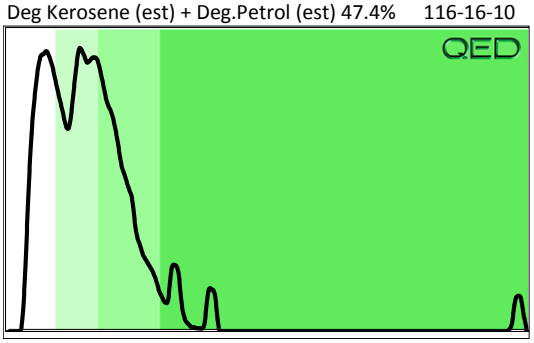


Project 0 **Date** 1/29/2013

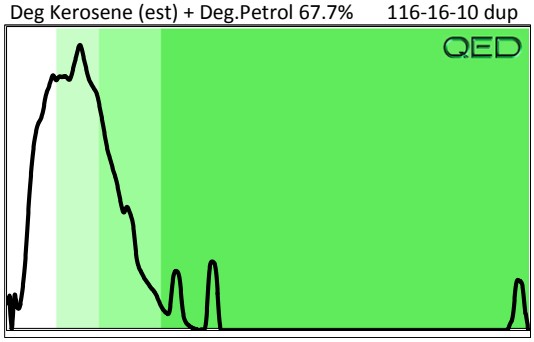
ID not possible 110-2-10



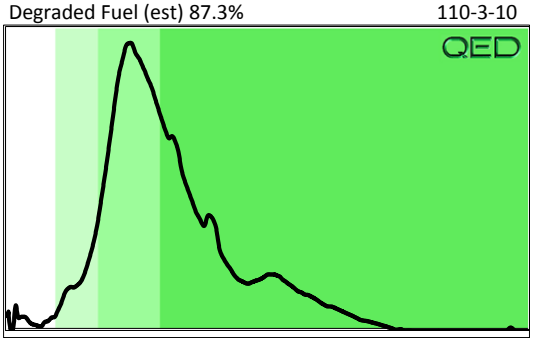
Deg Kerosene (est) + Deg.Petrol (est) 47.4% 116-16-10



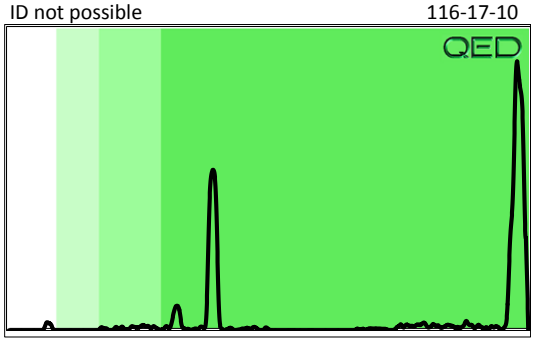
Deg Kerosene (est) + Deg.Petrol 67.7% 116-16-10 dup



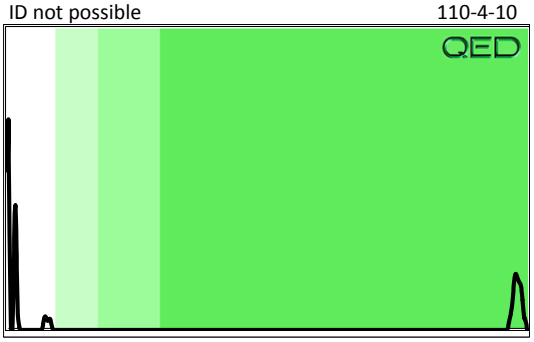
Degraded Fuel (est) 87.3% 110-3-10



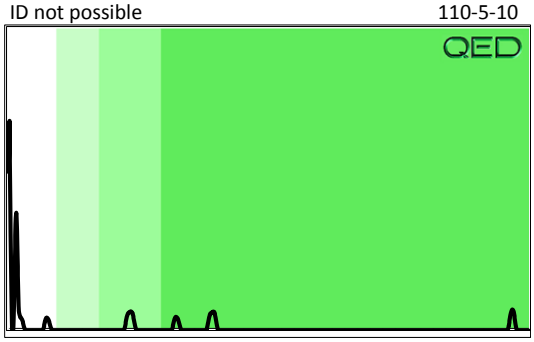
ID not possible 116-17-10



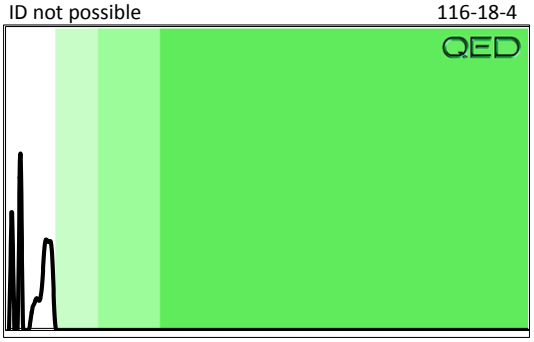
ID not possible 110-4-10



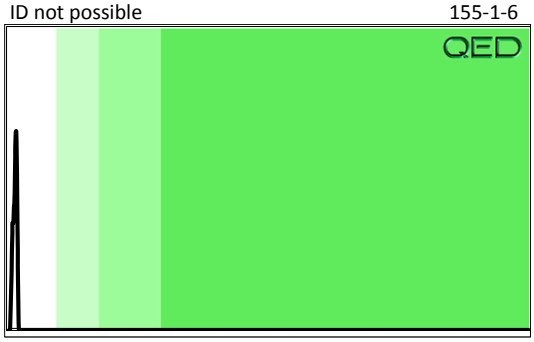
ID not possible 110-5-10



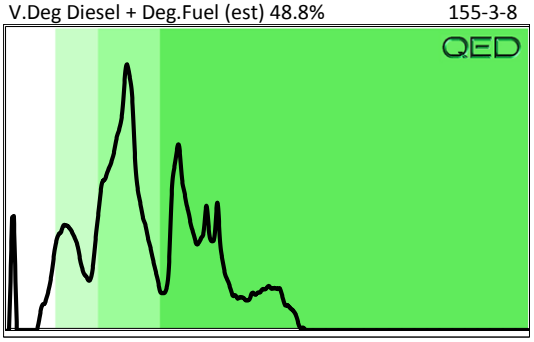
ID not possible 116-18-4



ID not possible 155-1-6

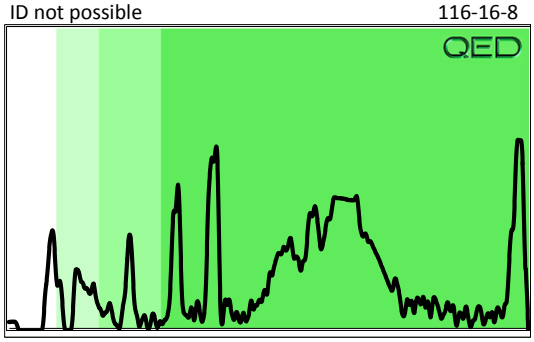


V.Deg Diesel + Deg.Fuel (est) 48.8% 155-3-8

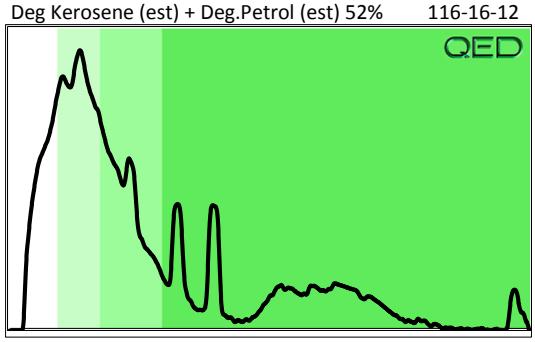


Project NCDOT U2525B **Date** 1/30/13

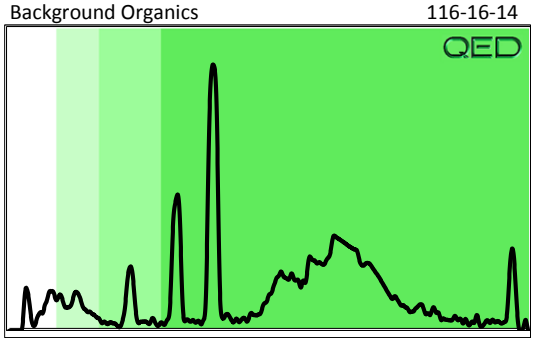
ID not possible 116-16-8



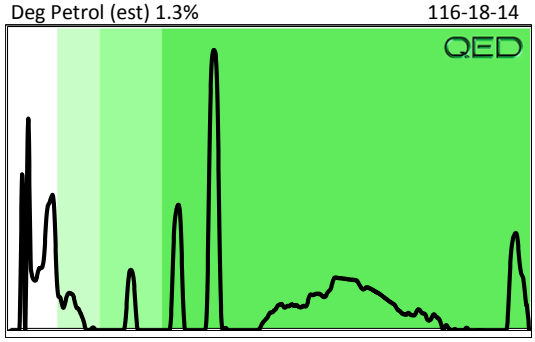
Deg Kerosene (est) + Deg.Petrol (est) 52% 116-16-12



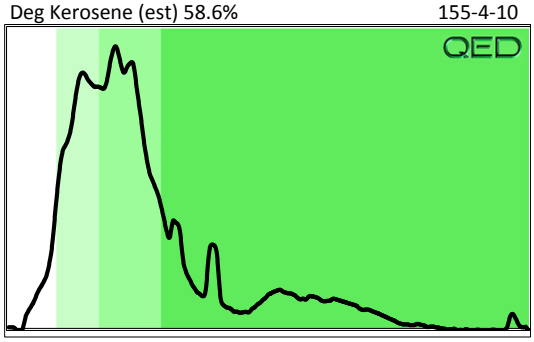
Background Organics 116-16-14



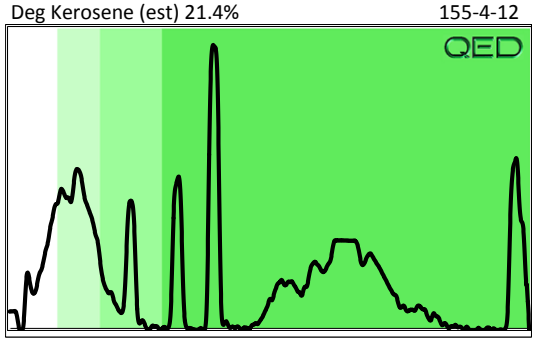
Deg Petrol (est) 1.3% 116-18-14



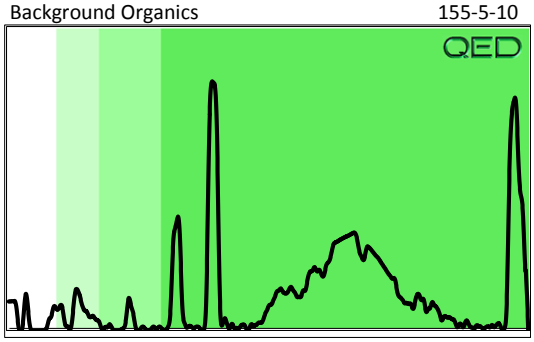
Deg Kerosene (est) 58.6% 155-4-10



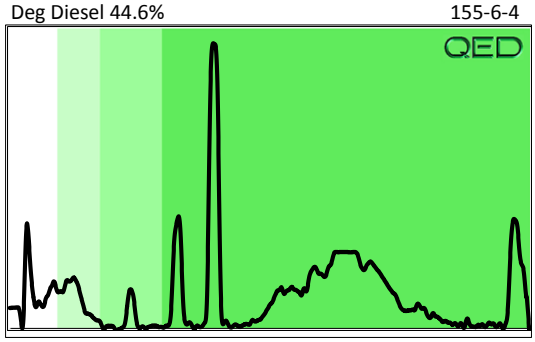
Deg Kerosene (est) 21.4% 155-4-12



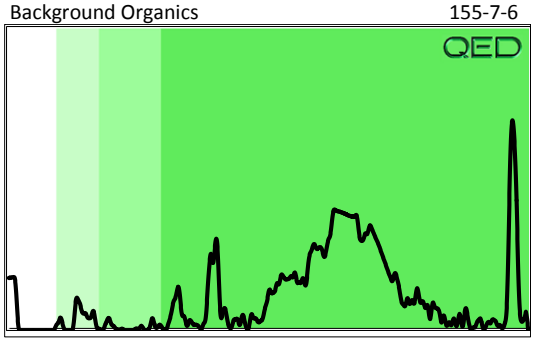
Background Organics 155-5-10



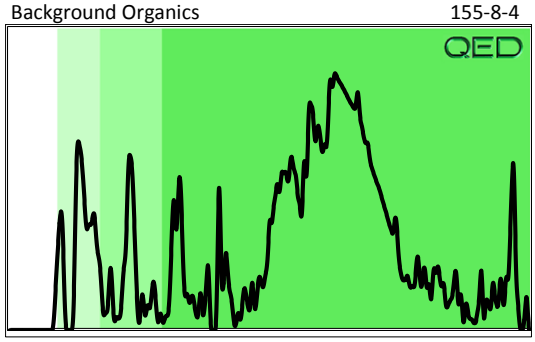
Deg Diesel 44.6% 155-6-4



Background Organics 155-7-6

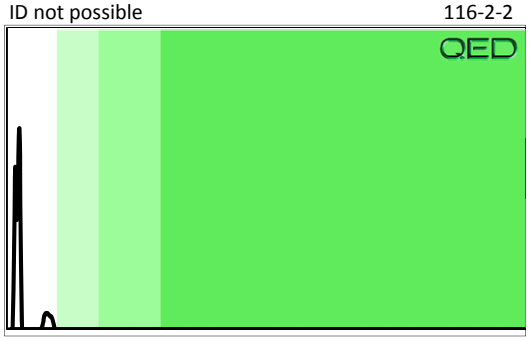


Background Organics 155-8-4



Project NCDOT U2525B **Date** 1/30/13

ID not possible 116-2-2



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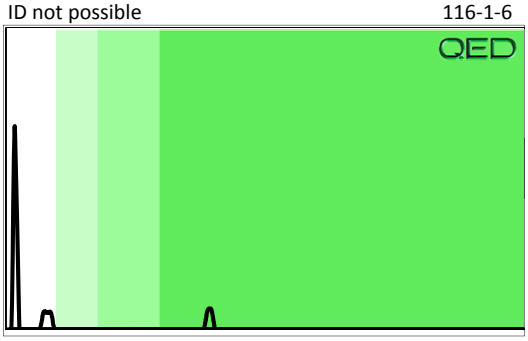

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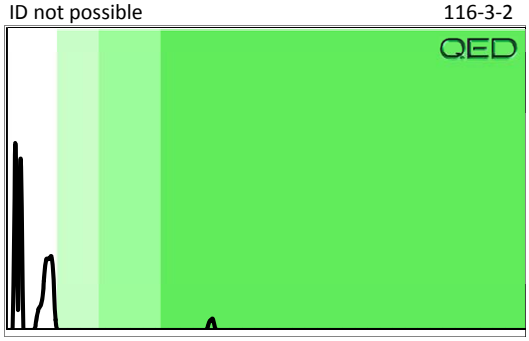

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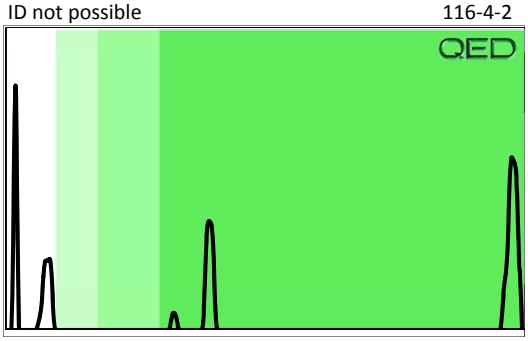

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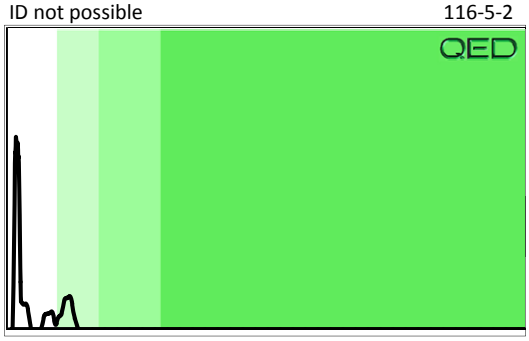
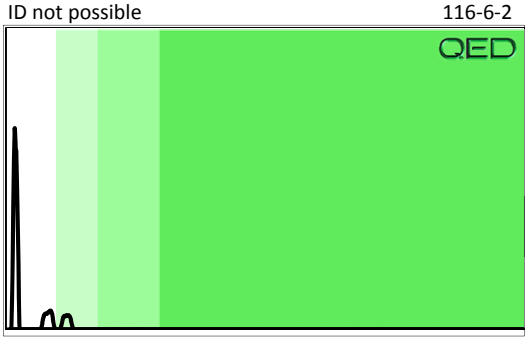
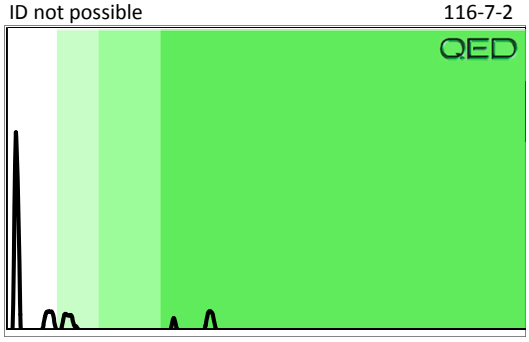


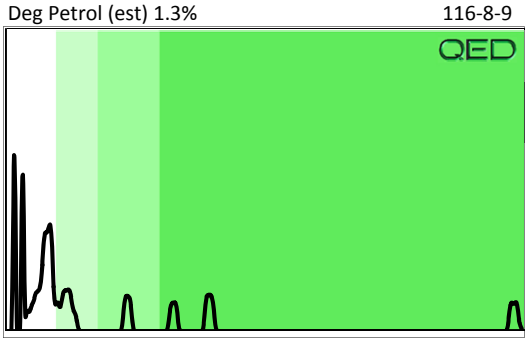
ID not possible 116-6-2



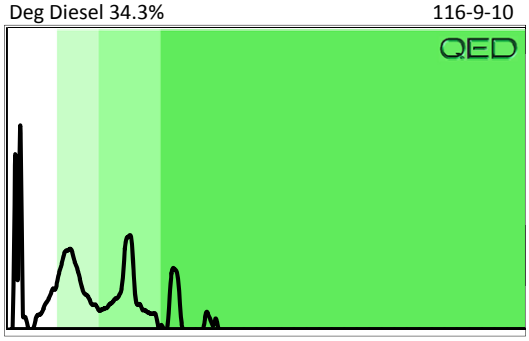
ID not possible 116-7-2



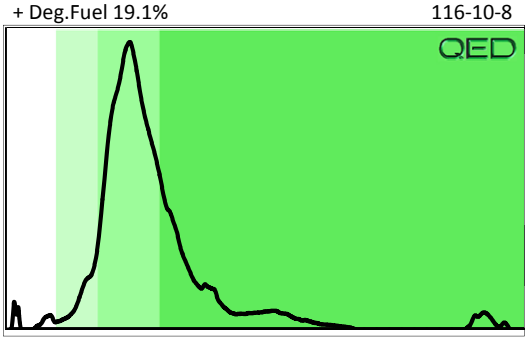
Deg Petrol (est) 1.3% 116-8-9



Deg Diesel 34.3% 116-9-10



+ Deg.Fuel 19.1% 116-10-8



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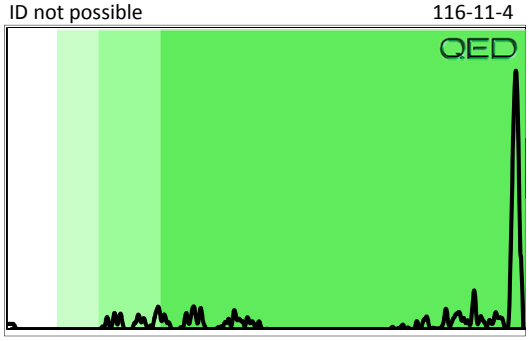
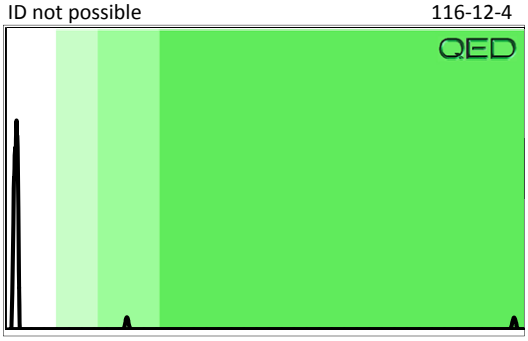
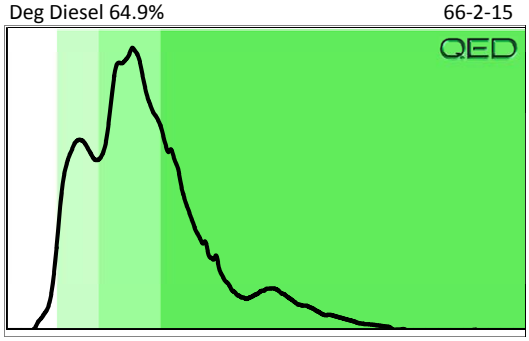
ID not possible 116-11-4



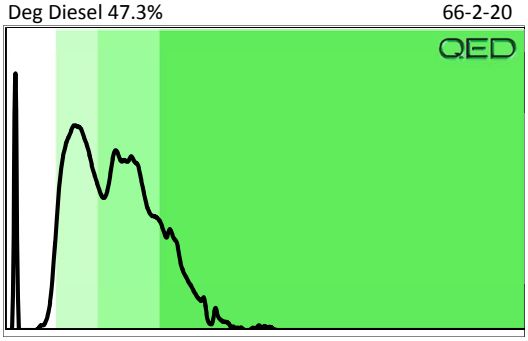
ID not possible 116-12-4



Deg Diesel 64.9% 66-2-15

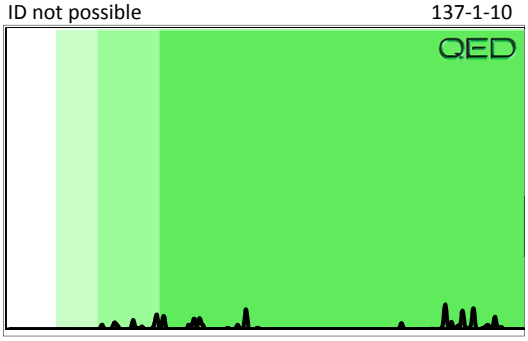


Deg Diesel 47.3% 66-2-20



ID not possible 116-13-4

ID not possible 137-1-10



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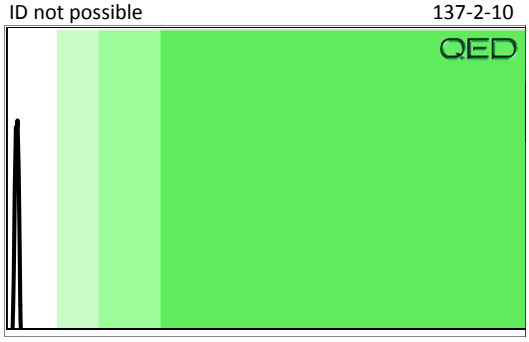
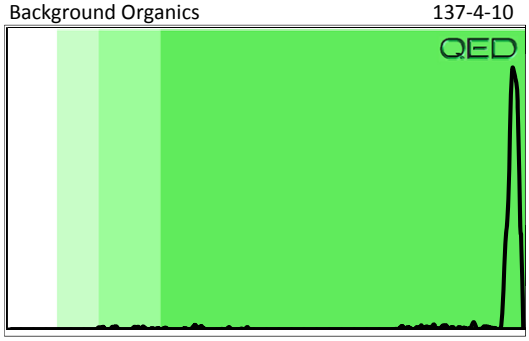
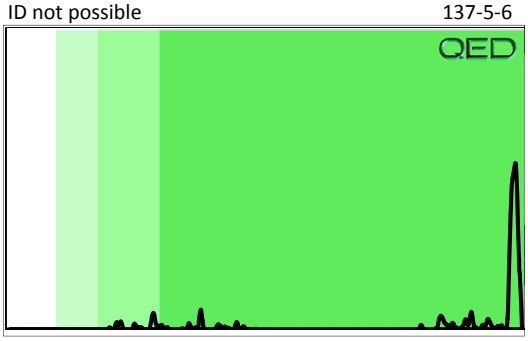


ID not possible 137-3-10

Background Organics 137-4-10



ID not possible 137-5-6



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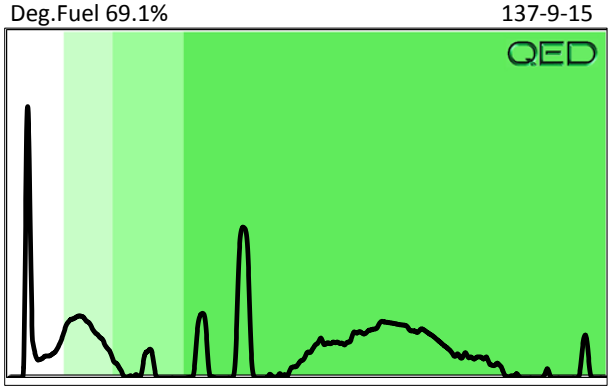
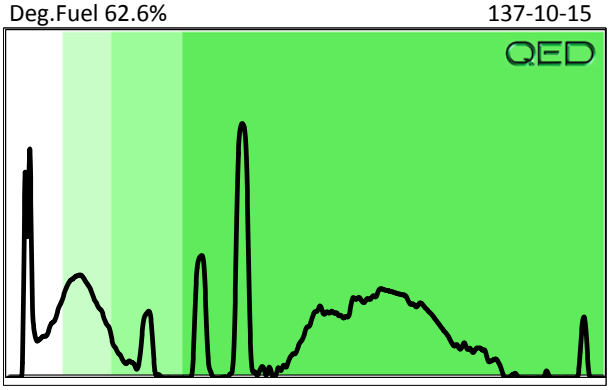
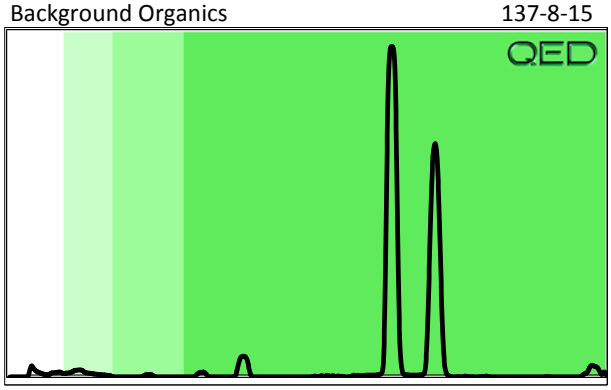
Deg.Fuel 69.1% 137-9-15



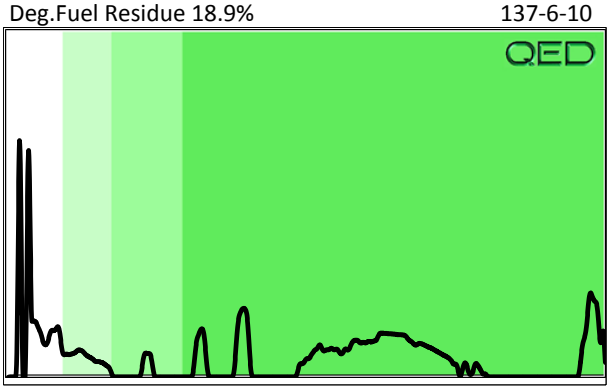
Deg.Fuel 62.6% 137-10-15



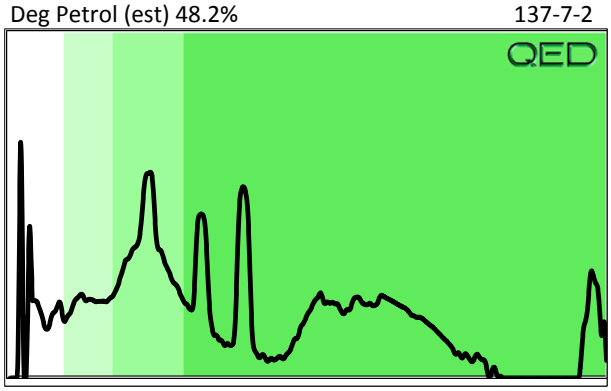
Background Organics 137-8-15



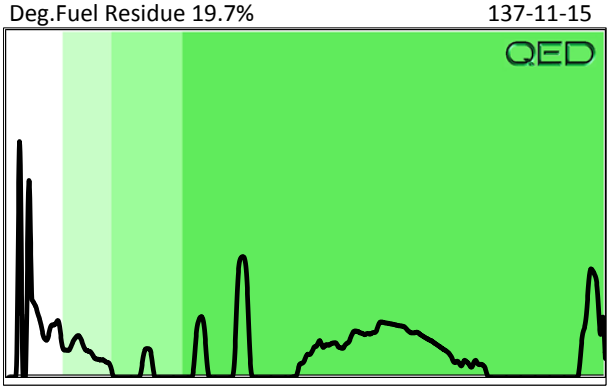
Deg.Fuel Residue 18.9% 137-6-10



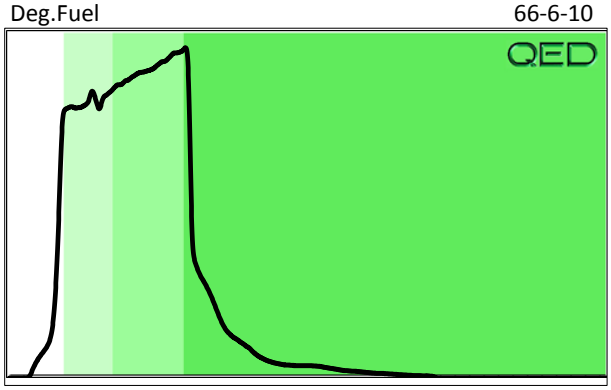
Deg Petrol (est) 48.2% 137-7-2



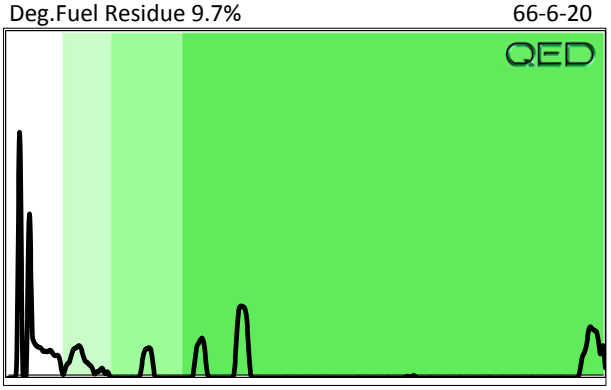
Deg.Fuel Residue 19.7% 137-11-15



Deg.Fuel 66-6-10



Deg.Fuel Residue 9.7% 66-6-20



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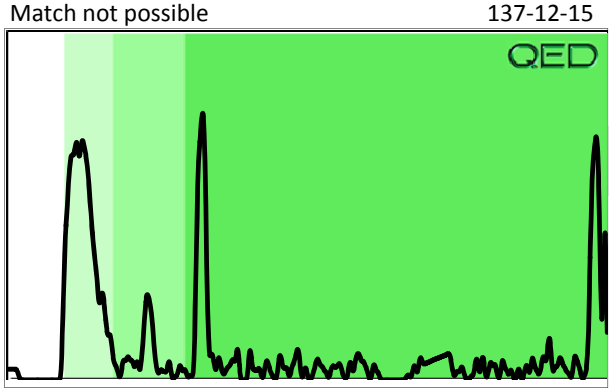
Project NCDOT U2525B **Date** 1/31/2013

Match not possible 137-12-15



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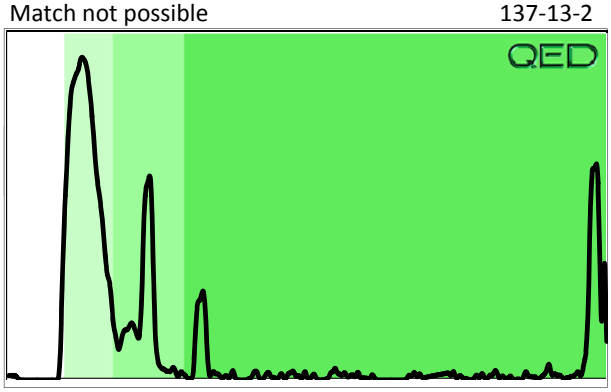
Match not possible 137-13-2



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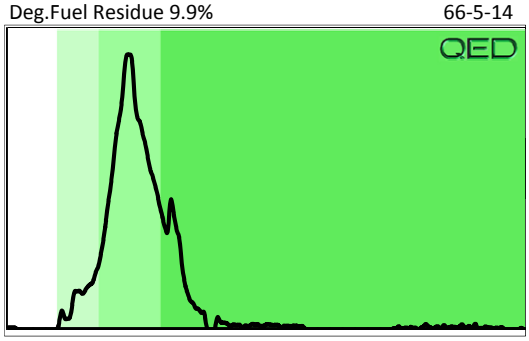
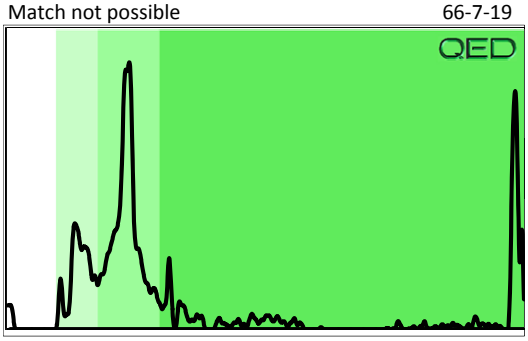
Project 0 **Date** 1/31/2013

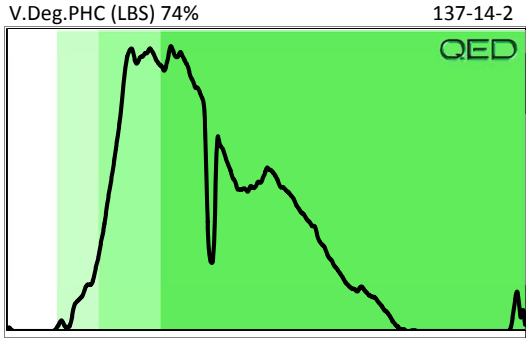
Deg.Fuel Residue 9.9% 66-5-14



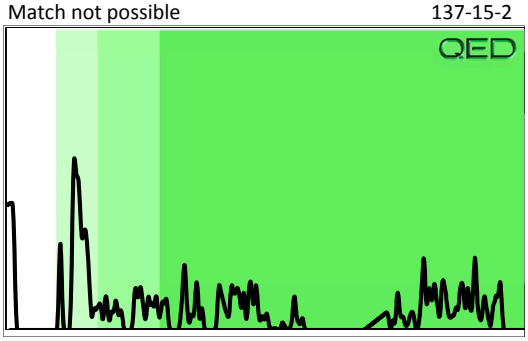
Match not possible 66-7-19



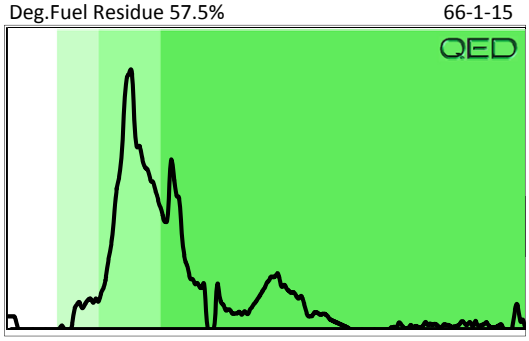
V.Deg.PHC (LBS) 74% 137-14-2



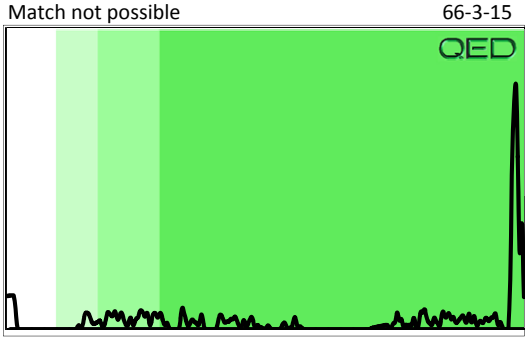
Match not possible 137-15-2



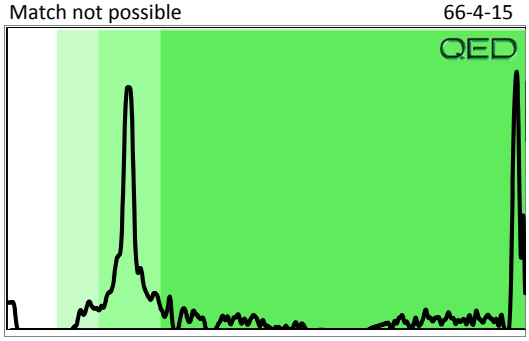
Deg.Fuel Residue 57.5% 66-1-15



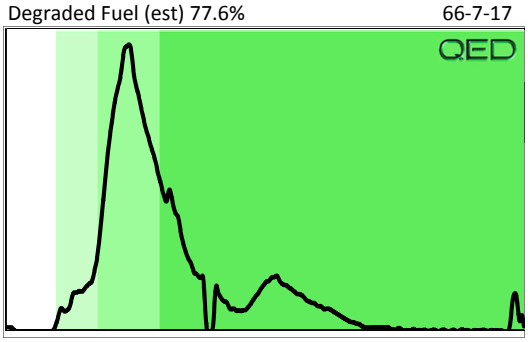
Match not possible 66-3-15



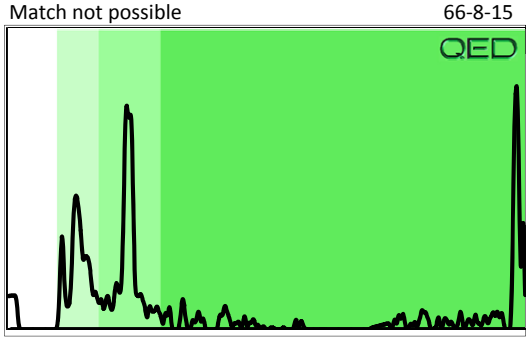
Match not possible 66-4-15



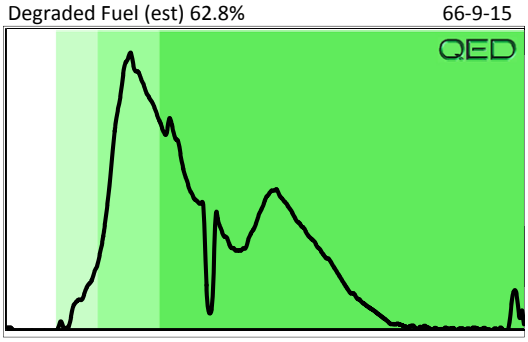
Degraded Fuel (est) 77.6% 66-7-17



Match not possible 66-8-15



Degraded Fuel (est) 62.8% 66-9-15



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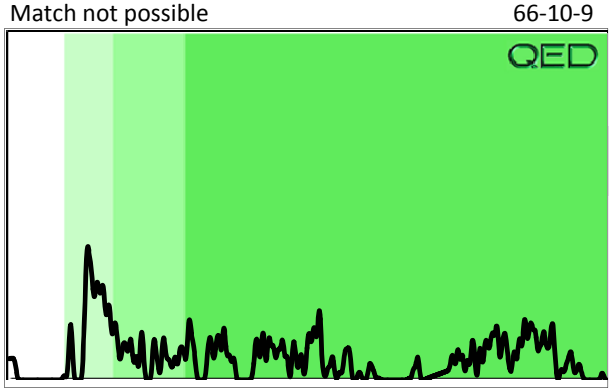
Match not possible 66-10-9



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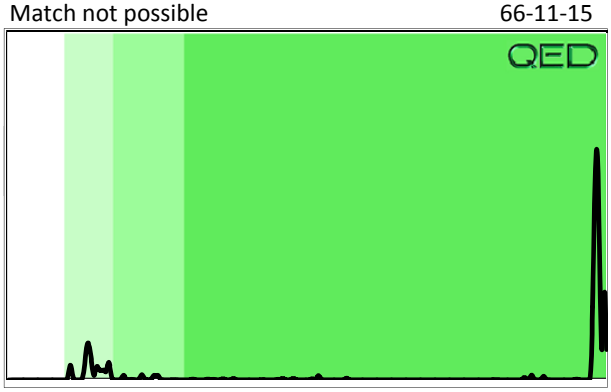
Match not possible 66-11-15



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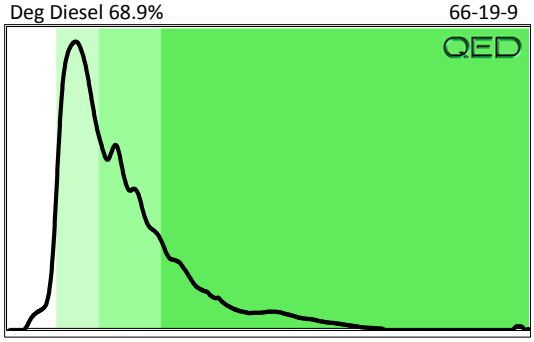
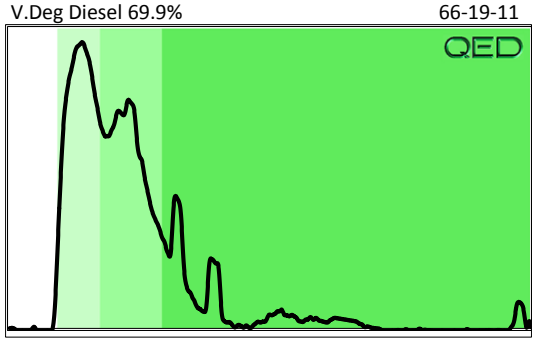
Project NCDOT U2525B **Date** Friday, February 01, 2013

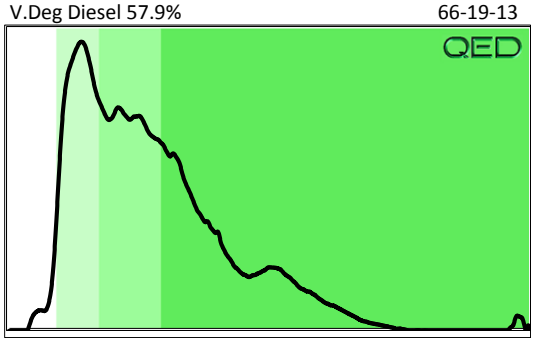
Deg Diesel 68.9% 66-19-9



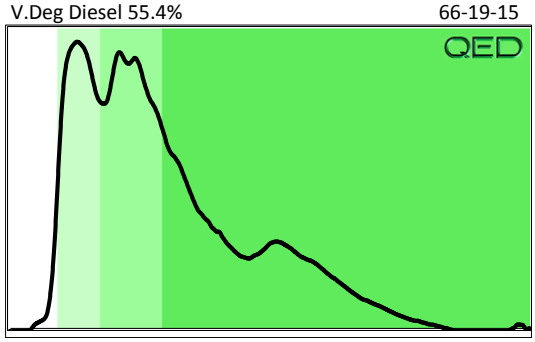
V.Deg Diesel 69.9% 66-19-11



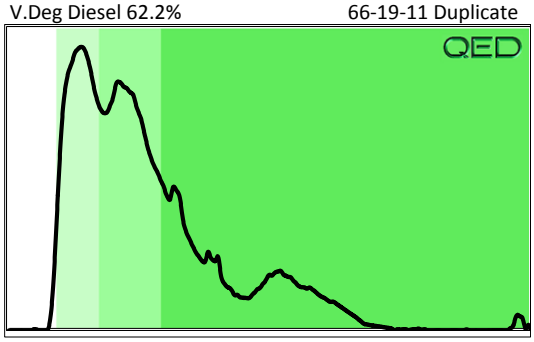
V.Deg Diesel 57.9% 66-19-13



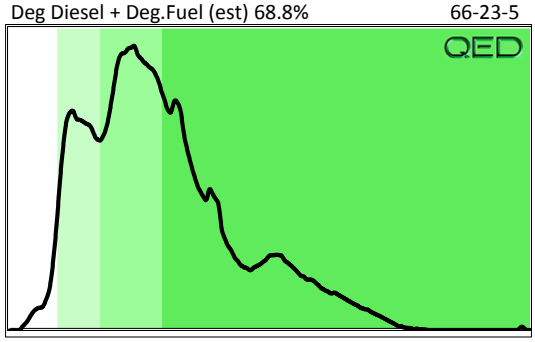
V.Deg Diesel 55.4% 66-19-15



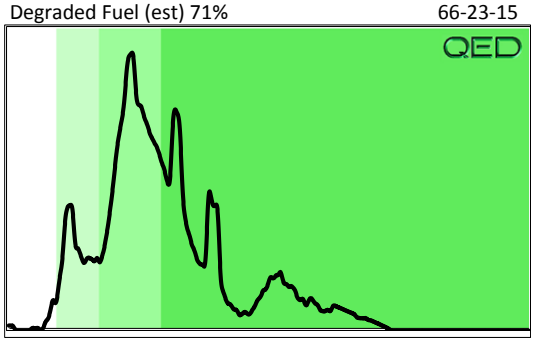
V.Deg Diesel 62.2% 66-19-11 Duplicate



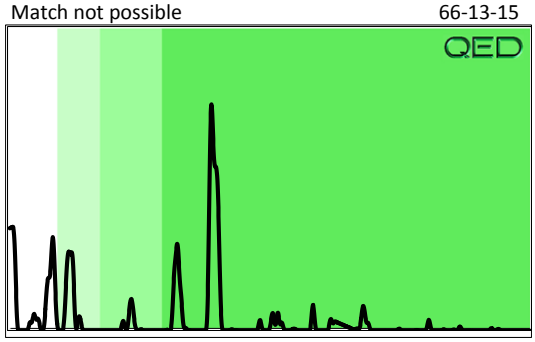
Deg Diesel + Deg.Fuel (est) 68.8% 66-23-5



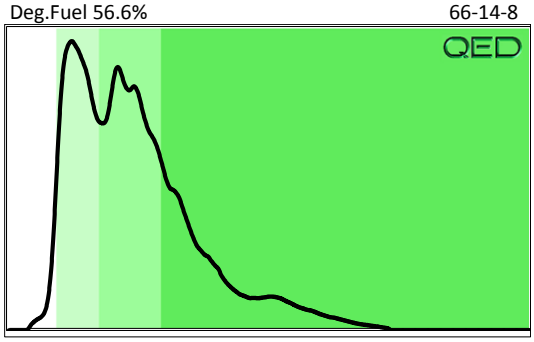
Degraded Fuel (est) 71% 66-23-15



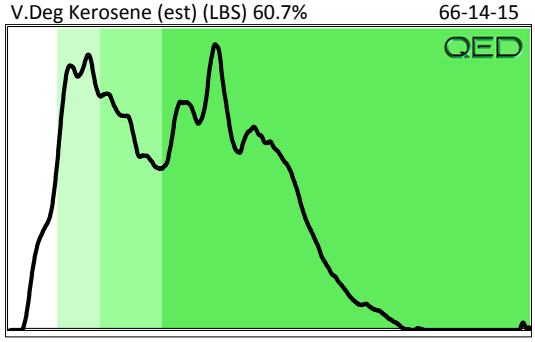
Match not possible 66-13-15



Deg.Fuel 56.6% 66-14-8



V.Deg Kerosene (est) (LBS) 60.7% 66-14-15



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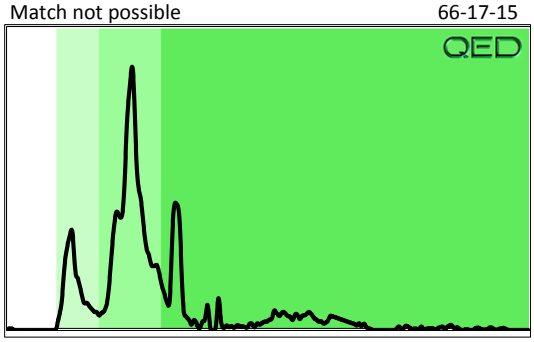
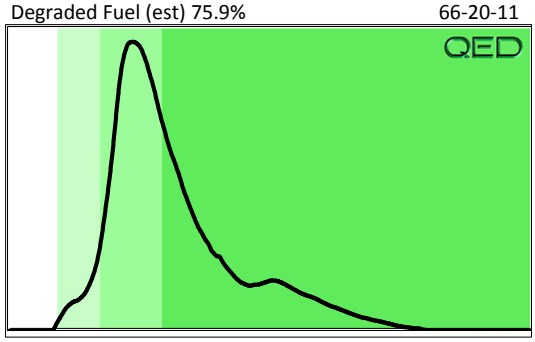
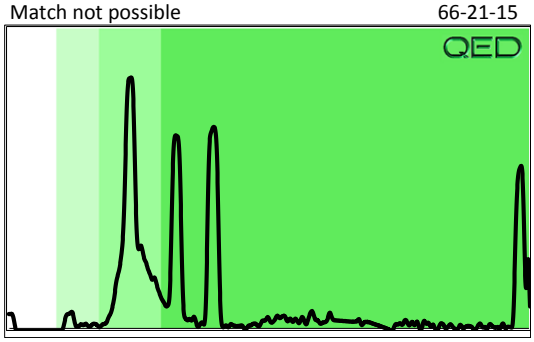
Match not possible 66-17-15



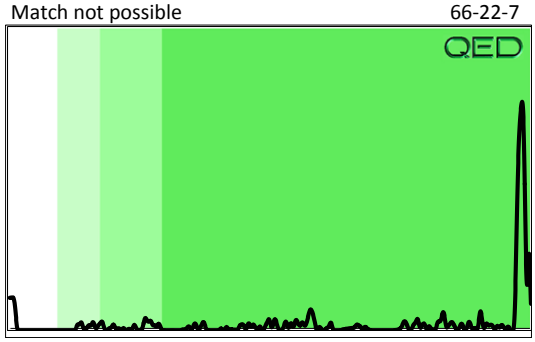
Degraded Fuel (est) 75.9% 66-20-11



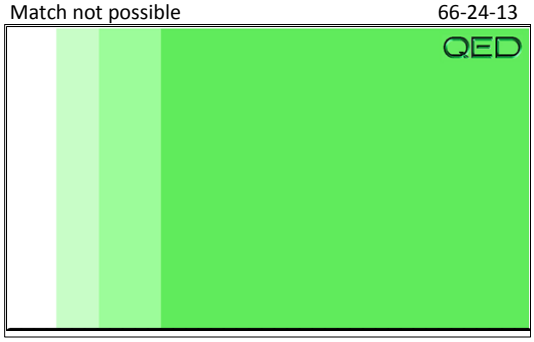
Match not possible 66-21-15



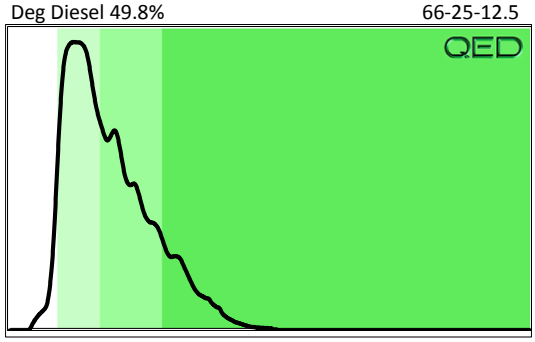
Match not possible 66-22-7



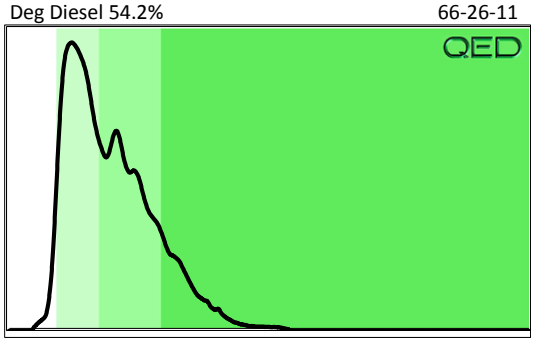
Match not possible 66-24-13



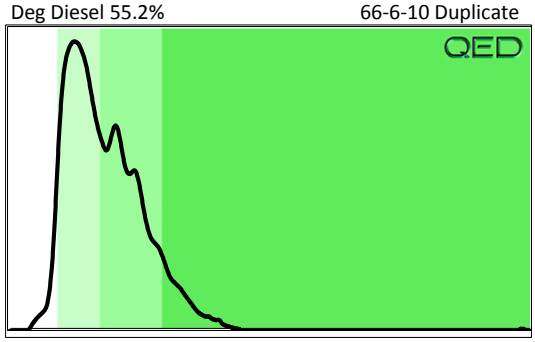
Deg Diesel 49.8% 66-25-12.5



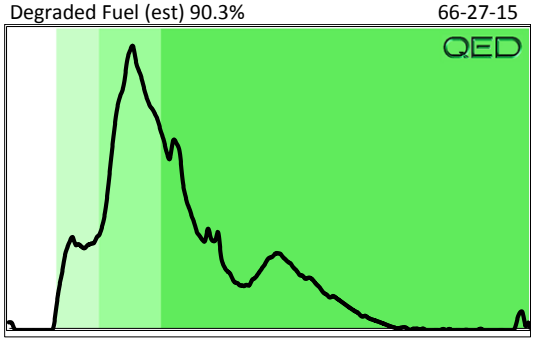
Deg Diesel 54.2% 66-26-11



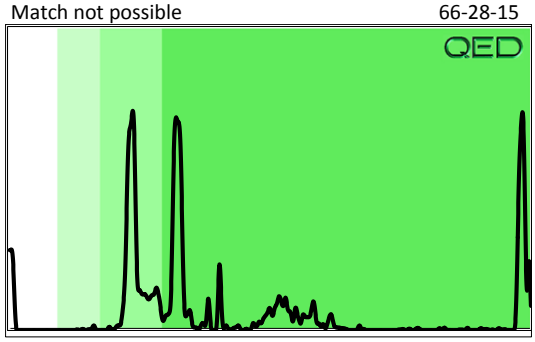
Deg Diesel 55.2% 66-6-10 Duplicate



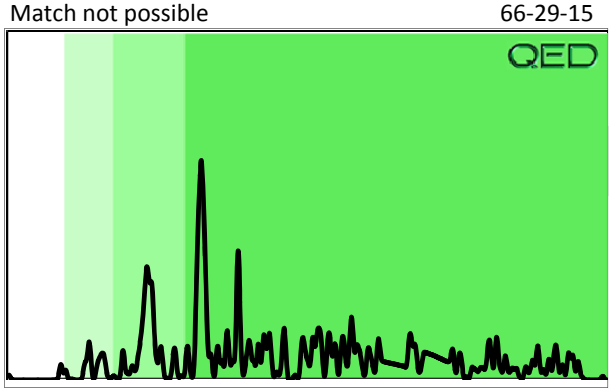
Degraded Fuel (est) 90.3% 66-27-15



Match not possible 66-28-15



Match not possible	66-29-15	0%	0



0%	0	0%	0
0%	0	0%	0
0%	0	0%	0
0%	0	0%	0

CHAIN-OF-CUSTODY RECORD

Mobile Laboratory Services

X 25132 SW 1st Avenue
Newberry, FL 32669
TEL (352) 472-5830
FAX (352) 472-5832

200 Quade Drive
Cary, NC 27513
TEL (919) 678-0030

MOBILE UNIT #

CLIENT NAME: S+ME

PROJECT NAME & ADDRESS:

SAMPLERS: Quantex

CONTACT PERSON: Lyndah Butler

BATCH # (Lab Use Only):

SAMPLE FIELD ID.\ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	VOLATILES	COMMENT / SAMPLE PRE FIX
110-1-2	1/28/13				1/29/13	12:00		S	1		10.2
4											10.0
6											10.0
8											10.5
10											10.1
110-2-2											10.2
4											10.2
6											10.2
8											10.6
10											10.6
110-3-2											10.4
4											Not analyzed
6											
8											
10											10.0

IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS

PRESERVATION
C Chilled
H HCL
Ot Other (see Remarks)

Precleaned Containers / Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
		CL Hart	1/29/13

Remarks and Observations
baggies

(1)

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

CHAIN-OF-CUSTODY RECORD

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MOBILE UNIT #

CLIENT NAME: S+ME

PROJECT NAME & ADDRESS:

SAMPLERS: Quantex

CONTACT PERSON: Lyndal Butler

BATCH # (Lab Use Only):

PRESERVATION: C Chilled; H HCL; Ot Other (see Remarks)

SAMPLE FIELD ID.\ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	VOLATILES (IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS)	COMMENT / SAMPLE PRE FIX
110 - 4 - 2	1/28/13				1/29/13	12:00		S	1		
4	↓				↓	↓					not analyzed as per client
6											
8											
10											10.0g
110 - 5 - 2											
4											not analyzed as per client
6											
8											
10	↓				↓	↓					~~10.6g~~ 10.3g
155 - 1 - 6	1/28/13										10.6g
3 - 8											10.6

Precleaned Containers Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
			1/29/13

Remarks and Observations

baggies

(2)

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

CHAIN-OF-CUSTODY RECORD

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TEL (919) 678-0030

MOBILE UNIT #

CLIENT NAME	PROJECT NAME & ADDRESS
SaME	NCDOT U2525B Greensboro NC
SAMPLERS: Quantex	CONTACT PERSON: Lyndal Butler
	BATCH # (Lab Use Only)

PRESERVATION
C Chilled
H HCL
Ot Other (see Remarks)

SAMPLE FIELD ID:\ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	VOLATILES	COMMENT / SAMPLE PRE FIX
116-9-10	1/29/13				1/30/13			S	1		10.1
116-10-8	↓										10.1
116-11-4											10.1
116-12-4											10.1
116-13-4											10.3
137-1-10	1/30/13										10.1
66-2-15 cont					1/30/13	15:50					10.1
66-2-~~TB~~ 20						↓					10.0
137-2-10											10.0
137-3-10											10.3
137-4-10											10.2
137-5-6											10.2

Precleaned Containers / Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time: 1/30/13

Remarks and Observations

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

CHAIN-OF-CUSTODY RECORD

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MOBILE UNIT #

CLIENT NAME: S+ME

PROJECT NAME & ADDRESS: NC DOT U252513 Greensboro

SAMPLERS: Quantex

CONTACT PERSON: Lyndal Butler

BATCH # (Lab Use Only)

SAMPLE FIELD ID.\ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	VOLATILES	COMMENT / SAMPLE PRE FIX
116-18-14					1/29/13			S	1		10.0
155-4-12											10.1
155-5-10											10.0
155-4-10											10.0
155-6-4											10.1
155-7-6											10.0
155-8-4											10.4
116-2-2					1/30/13						10.2
116-1-6					↓						10.0
116-3-2											10.1
116-4-2											10.0
116-5-2											10.5
116-6-2					↓						10.2
116-7-2					1/30/13						10.0
116-8-9					↓						10.1

IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS

PRESERVATION
C Chilled
H HCL
Ot Other (see Remarks)

	Date / Time		Date / Time	
Precleaned Containers Relinquished by: *(Signature)*		Received by: *(Signature)*		**Remarks and Observations**
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time 1/30/13	

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

CHAIN-OF-CUSTODY RECORD

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MOBILE UNIT #

CLIENT NAME	PROJECT NAME & ADDRESS							SAMPLE MATRIX	NUMBER OF CONTAINERS	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS	PRESERVATION C Chilled H HCL Ot Other (see Remarks)					
Sd MEE										VOLATILES						
SAMPLERS	CONTACT PERSON						BATCH # (Lab Use Only)									
Quantep																
SAMPLE FIELD ID.\ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.									COMMENT / SAMPLE PRE FIX
116-14-10	1/29/13				1/29/13	14:00		S	1							10.0
116-16-10	↓				↓			↓								10.6
116-17-10																10.2
116-18-14																10.0
116-16-8																10.1
↓ ↓ 12																10.2
↓ ↓ 14																10.4

Precleaned Containers / Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time	**Remarks and Observations**
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time	
			1/29/13	3

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

CHAIN-OF-CUSTODY RECORD

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TEL (919) 678-0030

MOBILE UNIT #

CLIENT NAME	PROJECT NAME & ADDRESS	SAMPLE MATRIX	NUMBER OF CONTAINERS	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS
S & ME	NCDOT U2525B US-29 Greensboro			
SAMPLERS: Quantex	CONTACT PERSON: Lyndal Butler			
	BATCH # (Lab Use Only)			

PRESERVATION: C Chilled; H HCL; Ot Other (see Remarks)

SAMPLE FIELD ID.\ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	VOLATILES	COMMENT / SAMPLE PRE FIX
137-6-10	1/30/13				1/30/13			5 1	10.0g
7-2	↓				↓				10.2
8-15									10.1
9-15									10.3
10-15									10.3
11-15	↓				↓				10.0
66-6-10	1/31/13				1/31/13				10.1
66-6-20	↓				↓				10.0
137-12-15	1/30/13				1/30/13				10.1
↓ 13-2	↓				↓				10.0
66-5-14	1/31/13				1/31/13				10.1
66-7-19	↓				↓				10.0
137-14-2	1/30/13				1/30/13				10.1
137-15-2	1/30/13				1/30/13				10.4
66 1-15	1/31/13				1/31/13				10.0

Precleaned Containers / Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time: 1/31/13

Remarks and Observations

samples in baggies

p. 1

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

CHAIN-OF-CUSTODY RECORD

Mobile Laboratory Services

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Cary, NC 27513
TEL (919) 678-0030

MOBILE UNIT #

CLIENT NAME	PROJECT NAME & ADDRESS
S+ME	NCDOT U2525B US-29 Greensboro
SAMPLERS	**CONTACT PERSON** / **BATCH # (Lab Use Only)**
Quantex	Lyndal Bottle

PRESERVATION
C Chilled
H HCL
Ot Other (see Remarks)

SAMPLE FIELD ID.\ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS: VOLATILES	COMMENT / SAMPLE PRE FIX
66-3-15	1/31/13				1/31/13			S	1		10.1
66-4-15	↓				↓						10.1
66-7-17											10.0
66-8-15											10.4
66-9-15											10.1
66-10-9											10.0
66-11-15											10.1

Precleaned Containers Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
			1/31/13

Remarks and Observations

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

CHAIN-OF-CUSTODY RECORD

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FAX (352) 472-5832

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TEL (919) 678-0030

MOBILE UNIT #

CLIENT NAME: S+ME

PROJECT NAME & ADDRESS: NC DOT U2525B US-29 Greensboro

SAMPLERS: Quantex

CONTACT PERSON: Lyndal Butler

BATCH # (Lab Use Only)

PRESERVATION: C Chilled; H HCL; Ot Other (see Remarks)

SAMPLE FIELD ID.\ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	VOLATILES	COMMENT / SAMPLE PRE FIX
66-13-15	2/1/13				2/1/13			S	1		10.0 g
14-8	↓				↓						10.2
14-15											10.5
17-15											10.5
19-9 *											10.2
~~19-11~~ 19-11 *											10.2
19-13 *											10.2
19-15 *											10.2
20-11											10.3
21-15											10.4
22-7											10.5
23-5 *											10.3
23-15 *											10.3
24-13											10.3
25-12.5	↓				↓						10.0 PID: 300

Precleaned Containers Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time	**Remarks and Observations**
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)* 	Date / Time 2/1/13	p1

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

CHAIN-OF-CUSTODY RECORD

KB LABS Mobile Laboratory Services

☐ 25132 SW 1st Avenue
Newberry, FL 32669
TEL (352) 472-5830
FAX (352) 472-5832

☐ 200 Quade Drive
Cary, NC 27513
TEL (919) 678-0030

MOBILE UNIT #

CLIENT NAME	PROJECT NAME & ADDRESS	SAMPLE MATRIX	NUMBER OF CONTAINERS	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS
SAME	NCDOT U2525B US-29 Greensboro			
SAMPLERS: Quantex	CONTACT PERSON: Lynda l Butler			
	BATCH # (Lab Use Only)			

PRESERVATION
C Chilled
H HCL
Ot Other (see Remarks)

SAMPLE FIELD ID.\ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	VOLATILES	COMMENT / SAMPLE PRE FIX
66-26-11	2/1/13				2/1/13	15:00		S	1		10.2g Hot! Smells!
66-27-15	"				"	16:05					10.1
28-15	"				"	"					10.0
29-15	"				"	16:25					10.2

Precleaned Containers / Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time	**Remarks and Observations**
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time	
		[signature]	2/1/13	

p2

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

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

February 11, 2013

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

RE: Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Dear Chemical Engineer:
Enclosed are the analytical results for sample(s) received by the laboratory on February 01, 2013. 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,

Jon D Bradley for
Kevin Herring
kevin.herring@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
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Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

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
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

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(704)875-9092

SAMPLE ANALYTE COUNT

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92146643001	**155-3-8**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92146643002	**155-4-10**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92146643003	**116-14-10**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92146643004	**116-16-10**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92146643005	**116-16-12**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92146643006	**116-18-14**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92146643007	**137-9-15**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92146643008	**137-14-2**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92146643009	**66-6-10**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92146643010	**66-6-20**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C
92146643011	**66-8-15**	EPA 8015 Modified	MEJ	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C

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HITS ONLY

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92146643001	**155-3-8**					
ASTM D2974-87	Percent Moisture	25.4	%	0.10	02/02/13 11:42	
92146643002	**155-4-10**					
EPA 8015 Modified	Diesel Components	308	mg/kg	6.5	02/04/13 18:11	
ASTM D2974-87	Percent Moisture	22.6	%	0.10	02/02/13 11:42	
92146643003	**116-14-10**					
ASTM D2974-87	Percent Moisture	9.7	%	0.10	02/02/13 11:42	
92146643004	**116-16-10**					
EPA 8015 Modified	Diesel Components	148	mg/kg	6.4	02/04/13 18:34	
EPA 8015 Modified	Gasoline Range Organics	63.8	mg/kg	6.6	02/05/13 13:02	
ASTM D2974-87	Percent Moisture	22.0	%	0.10	02/02/13 11:42	
92146643005	**116-16-12**					
EPA 8015 Modified	Diesel Components	17.0	mg/kg	6.3	02/04/13 18:34	
EPA 8015 Modified	Gasoline Range Organics	120	mg/kg	6.6	02/05/13 13:26	
ASTM D2974-87	Percent Moisture	20.0	%	0.10	02/02/13 11:42	
92146643006	**116-18-14**					
ASTM D2974-87	Percent Moisture	18.9	%	0.10	02/02/13 11:43	
92146643007	**137-9-15**					
ASTM D2974-87	Percent Moisture	15.8	%	0.10	02/02/13 11:43	
92146643008	**137-14-2**					
ASTM D2974-87	Percent Moisture	21.9	%	0.10	02/02/13 11:43	
92146643009	**66-6-10**					
EPA 8015 Modified	Diesel Components	26600	mg/kg	765	02/05/13 13:41	
EPA 8015 Modified	Gasoline Range Organics	696	mg/kg	27.5	02/07/13 23:18	
ASTM D2974-87	Percent Moisture	18.3	%	0.10	02/02/13 11:43	
92146643010	**66-6-20**					
EPA 8015 Modified	Diesel Components	7.1	mg/kg	5.4	02/04/13 19:44	
ASTM D2974-87	Percent Moisture	8.1	%	0.10	02/02/13 11:43	
92146643011	**66-8-15**					
ASTM D2974-87	Percent Moisture	10.0	%	0.10	02/02/13 11:43	

See Pages 7 and 8 for Analytical Results for Parcel 155

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PROJECT NARRATIVE

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Method: **EPA 8015 Modified**
Description: 8015 GCS THC-Diesel
Client: NCDOT East Central
Date: February 11, 2013

General Information:
11 samples were analyzed for EPA 8015 Modified. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/20631

S4: Surrogate recovery not evaluated against control limits due to sample dilution.

- 66-6-10 (Lab ID: 92146643009)
  - n-Pentacosane (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Method: **EPA 8015 Modified**
Description: Gasoline Range Organics
Client: NCDOT East Central
Date: February 11, 2013

General Information:
11 samples were analyzed for EPA 8015 Modified. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 5035A/5030B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Sample: 155-3-8 **Lab ID: 92146643001** Collected: 01/28/13 14:33 Received: 02/01/13 13:07 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	6.7	1	02/02/13 13:00	02/04/13 17:24	68334-30-5	
Surrogates								
n-Pentacosane (S)	67	%	41-119	1	02/02/13 13:00	02/04/13 17:24	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	02/05/13 07:20	02/05/13 11:54	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-167	1	02/05/13 07:20	02/05/13 11:54	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**25.4**	%	0.10	1		02/02/13 11:42		

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ANALYTICAL RESULTS

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Sample: 155-4-10 **Lab ID: 92146643002** Collected: 01/28/13 14:58 Received: 02/01/13 13:07 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	**308**	mg/kg	6.5	1	02/02/13 13:00	02/04/13 18:11	68334-30-5	
Surrogates								
n-Pentacosane (S)	57	%	41-119	1	02/02/13 13:00	02/04/13 18:11	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	02/05/13 07:20	02/05/13 12:17	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	95	%	70-167	1	02/05/13 07:20	02/05/13 12:17	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**22.6**	%	0.10	1		02/02/13 11:42		

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ANALYTICAL RESULTS

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Sample: 116-14-10 **Lab ID: 92146643003** Collected: 01/28/13 13:45 Received: 02/01/13 13:07 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	5.5	1	02/02/13 13:00	02/04/13 18:11	68334-30-5	
Surrogates								
n-Pentacosane (S)	67	%	41-119	1	02/02/13 13:00	02/04/13 18:11	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	5.4	1	02/05/13 07:20	02/05/13 12:40	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	92	%	70-167	1	02/05/13 07:20	02/05/13 12:40	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**9.7**	%	0.10	1		02/02/13 11:42		

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ANALYTICAL RESULTS

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Sample: 116-16-10 **Lab ID: 92146643004** Collected: 01/29/13 14:20 Received: 02/01/13 13:07 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	**148**	mg/kg	6.4	1	02/02/13 13:00	02/04/13 18:34	68334-30-5	
Surrogates								
n-Pentacosane (S)	65	%	41-119	1	02/02/13 13:00	02/04/13 18:34	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	**63.8**	mg/kg	6.6	1	02/05/13 07:20	02/05/13 13:02	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	120	%	70-167	1	02/05/13 07:20	02/05/13 13:02	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**22.0**	%	0.10	1		02/02/13 11:42		

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ANALYTICAL RESULTS

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Sample: 116-16-12 **Lab ID: 92146643005** Collected: 01/29/13 14:24 Received: 02/01/13 13:07 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	**17.0**	mg/kg	6.3	1	02/02/13 13:00	02/04/13 18:34	68334-30-5	
Surrogates								
n-Pentacosane (S)	65	%	41-119	1	02/02/13 13:00	02/04/13 18:34	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	**120**	mg/kg	6.6	1	02/05/13 07:20	02/05/13 13:26	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	135	%	70-167	1	02/05/13 07:20	02/05/13 13:26	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**20.0**	%	0.10	1		02/02/13 11:42		

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ANALYTICAL RESULTS

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Sample: 116-18-14 **Lab ID: 92146643006** Collected: 01/29/13 14:57 Received: 02/01/13 13:07 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	02/02/13 13:00	02/04/13 18:57	68334-30-5	
Surrogates								
n-Pentacosane (S)	65	%	41-119	1	02/02/13 13:00	02/04/13 18:57	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	5.2	1	02/05/13 07:20	02/07/13 22:32	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	90	%	70-167	1	02/05/13 07:20	02/07/13 22:32	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**18.9**	%	0.10	1		02/02/13 11:43		

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ANALYTICAL RESULTS

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Sample: 137-9-15 **Lab ID: 92146643007** Collected: 01/30/13 10:16 Received: 02/01/13 13:07 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	5.9	1	02/02/13 13:00	02/04/13 18:57	68334-30-5	
Surrogates								
n-Pentacosane (S)	66	%	41-119	1	02/02/13 13:00	02/04/13 18:57	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	7.4	1	02/05/13 07:20	02/05/13 14:12	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	109	%	70-167	1	02/05/13 07:20	02/05/13 14:12	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**15.8**	%	0.10	1		02/02/13 11:43		

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ANALYTICAL RESULTS

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Sample: 137-14-2 **Lab ID: 92146643008** Collected: 01/30/13 13:15 Received: 02/01/13 13:07 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	6.4	1	02/02/13 13:00	02/04/13 19:20	68334-30-5	
Surrogates								
n-Pentacosane (S)	70	%	41-119	1	02/02/13 13:00	02/04/13 19:20	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	6.7	1	02/05/13 07:20	02/05/13 14:35	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	94	%	70-167	1	02/05/13 07:20	02/05/13 14:35	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**21.9**	%	0.10	1		02/02/13 11:43		

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ANALYTICAL RESULTS

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Sample: 66-6-10 **Lab ID: 92146643009** Collected: 01/31/13 10:55 Received: 02/01/13 13:07 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	**26600**	mg/kg	765	25	02/02/13 13:00	02/05/13 13:41	68334-30-5	
Surrogates								
n-Pentacosane (S)	0	%	41-119	25	02/02/13 13:00	02/05/13 13:41	629-99-2	S4
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	**696**	mg/kg	27.5	4	02/05/13 07:20	02/07/13 23:18	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	160	%	70-167	4	02/05/13 07:20	02/07/13 23:18	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**18.3**	%	0.10	1		02/02/13 11:43		

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ANALYTICAL RESULTS

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Sample: 66-6-20 **Lab ID: 92146643010** Collected: 01/31/13 11:08 Received: 02/01/13 13:07 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	**7.1**	mg/kg	5.4	1	02/02/13 13:00	02/04/13 19:44	68334-30-5	
Surrogates								
n-Pentacosane (S)	52	%	41-119	1	02/02/13 13:00	02/04/13 19:44	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	02/05/13 07:20	02/07/13 22:55	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	100	%	70-167	1	02/05/13 07:20	02/07/13 22:55	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**8.1**	%	0.10	1		02/02/13 11:43		

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ANALYTICAL RESULTS

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Sample: 66-8-15 **Lab ID: 92146643011** Collected: 01/31/13 13:55 Received: 02/01/13 13:07 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	5.6	1	02/02/13 13:00	02/04/13 19:44	68334-30-5	
Surrogates								
n-Pentacosane (S)	59	%	41-119	1	02/02/13 13:00	02/04/13 19:44	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	6.8	1	02/05/13 07:20	02/08/13 08:49	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	96	%	70-167	1	02/05/13 07:20	02/08/13 08:49	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**10.0**	%	0.10	1		02/02/13 11:43		

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QUALITY CONTROL DATA

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

QC Batch: GCV/6612 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 5035A/5030B Analysis Description: Gasoline Range Organics
Associated Lab Samples: 92146643001, 92146643002, 92146643003, 92146643004, 92146643005, 92146643006, 92146643007, 92146643008, 92146643009, 92146643010, 92146643011

METHOD BLANK: 915953 Matrix: Solid
Associated Lab Samples: 92146643001, 92146643002, 92146643003, 92146643004, 92146643005, 92146643006, 92146643007, 92146643008, 92146643009, 92146643010, 92146643011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	6.0	02/05/13 08:50	
4-Bromofluorobenzene (S)	%	91	70-167	02/05/13 08:50	

LABORATORY CONTROL SAMPLE: 915954

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	25	23.8	95	70-165	
4-Bromofluorobenzene (S)	%			91	70-167	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 915955 915956

Parameter	Units	92146451019 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Gasoline Range Organics	mg/kg	ND	24.3	24.3	31.1	29.5	128	121	47-187	5	
4-Bromofluorobenzene (S)	%						97	99	70-167		

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QUALITY CONTROL DATA

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

QC Batch: OEXT/20631 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 3546 Analysis Description: 8015 Solid GCSV
Associated Lab Samples: 92146643001, 92146643002, 92146643003, 92146643004, 92146643005, 92146643006, 92146643007, 92146643008, 92146643009, 92146643010, 92146643011

METHOD BLANK: 915352 Matrix: Solid
Associated Lab Samples: 92146643001, 92146643002, 92146643003, 92146643004, 92146643005, 92146643006, 92146643007, 92146643008, 92146643009, 92146643010, 92146643011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Components	mg/kg	ND	5.0	02/04/13 15:51	
n-Pentacosane (S)	%	76	41-119	02/04/13 15:51	

LABORATORY CONTROL SAMPLE: 915353

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Components	mg/kg	66.7	49.8	75	49-113	
n-Pentacosane (S)	%			78	41-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 915354 915355

Parameter	Units	92146643001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Components	mg/kg	ND	89.4	89.4	66.8	63.1	69	65	10-146	6	
n-Pentacosane (S)	%						69	67	41-119		

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QUALITY CONTROL DATA

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

QC Batch: PMST/5285
Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92146643001, 92146643002, 92146643003, 92146643004, 92146643005, 92146643006, 92146643007, 92146643008, 92146643009, 92146643010, 92146643011

SAMPLE DUPLICATE: 915085

Parameter	Units	92146638007 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	16.4	16.3	1	

SAMPLE DUPLICATE: 915086

Parameter	Units	92146649001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	19.5	19.8	2	

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QUALIFIERS

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

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.

PRL - Pace Reporting Limit.

RL - Reporting 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.

TNI - The NELAC Institute.

LABORATORIES

PASI-C	Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

S4	Surrogate recovery not evaluated against control limits due to sample dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NCDOT U-2525B 34821.1.1
Pace Project No.: 92146643

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92146643001	**155-3-8**	EPA 3546	OEXT/20631	EPA 8015 Modified	GCSV/13867
92146643002	**155-4-10**	EPA 3546	OEXT/20631	EPA 8015 Modified	GCSV/13867
92146643003	**116-14-10**	EPA 3546	OEXT/20631	EPA 8015 Modified	GCSV/13867
92146643004	**116-16-10**	EPA 3546	OEXT/20631	EPA 8015 Modified	GCSV/13867
92146643005	**116-16-12**	EPA 3546	OEXT/20631	EPA 8015 Modified	GCSV/13867
92146643006	**116-18-14**	EPA 3546	OEXT/20631	EPA 8015 Modified	GCSV/13867
92146643007	**137-9-15**	EPA 3546	OEXT/20631	EPA 8015 Modified	GCSV/13867
92146643008	**137-14-2**	EPA 3546	OEXT/20631	EPA 8015 Modified	GCSV/13867
92146643009	**66-6-10**	EPA 3546	OEXT/20631	EPA 8015 Modified	GCSV/13867
92146643010	**66-6-20**	EPA 3546	OEXT/20631	EPA 8015 Modified	GCSV/13867
92146643011	**66-8-15**	EPA 3546	OEXT/20631	EPA 8015 Modified	GCSV/13867
92146643001	**155-3-8**	EPA 5035A/5030B	GCV/6612	EPA 8015 Modified	GCV/6616
92146643002	**155-4-10**	EPA 5035A/5030B	GCV/6612	EPA 8015 Modified	GCV/6616
92146643003	**116-14-10**	EPA 5035A/5030B	GCV/6612	EPA 8015 Modified	GCV/6616
92146643004	**116-16-10**	EPA 5035A/5030B	GCV/6612	EPA 8015 Modified	GCV/6616
92146643005	**116-16-12**	EPA 5035A/5030B	GCV/6612	EPA 8015 Modified	GCV/6616
92146643006	**116-18-14**	EPA 5035A/5030B	GCV/6612	EPA 8015 Modified	GCV/6619
92146643007	**137-9-15**	EPA 5035A/5030B	GCV/6612	EPA 8015 Modified	GCV/6616
92146643008	**137-14-2**	EPA 5035A/5030B	GCV/6612	EPA 8015 Modified	GCV/6616
92146643009	**66-6-10**	EPA 5035A/5030B	GCV/6612	EPA 8015 Modified	GCV/6619
92146643010	**66-6-20**	EPA 5035A/5030B	GCV/6612	EPA 8015 Modified	GCV/6619
92146643011	**66-8-15**	EPA 5035A/5030B	GCV/6612	EPA 8015 Modified	GCV/6621
92146643001	**155-3-8**	ASTM D2974-87	PMST/5285		
92146643002	**155-4-10**	ASTM D2974-87	PMST/5285		
92146643003	**116-14-10**	ASTM D2974-87	PMST/5285		
92146643004	**116-16-10**	ASTM D2974-87	PMST/5285		
92146643005	**116-16-12**	ASTM D2974-87	PMST/5285		
92146643006	**116-18-14**	ASTM D2974-87	PMST/5285		
92146643007	**137-9-15**	ASTM D2974-87	PMST/5285		
92146643008	**137-14-2**	ASTM D2974-87	PMST/5285		
92146643009	**66-6-10**	ASTM D2974-87	PMST/5285		
92146643010	**66-6-20**	ASTM D2974-87	PMST/5285		
92146643011	**66-8-15**	ASTM D2974-87	PMST/5285		