

**REPORT OF PRELIMINARY  
ENVIRONMENTAL SITE ASSESSMENT**

**SOUTHERN STATES CO-OP PROPERTY, PARCEL #3  
STATE PROJECT U-2211B, WBS 34783.1.1  
1532 NORWOOD STREET  
LENOIR, NORTH CAROLINA**

Prepared for:

**North Carolina Department of Transportation  
Geotechnical Engineering Unit  
1589 Mail Service Center  
Raleigh, North Carolina 27699**

Prepared by:

**MACTEC Engineering and Consulting, Inc.  
3301 Atlantic Avenue  
Raleigh, North Carolina 27604**

**MACTEC Project No. 6470-08-2286**

**January 30, 2009**





engineering and constructing a better tomorrow

January 30, 2009

Mr. Ethan Caldwell, L.G.  
Geoenvironmental Project Manager  
NCDOT Geotechnical Engineering Unit  
1589 Mail Service Center  
Raleigh, North Carolina 27699

Subject: **Report of Preliminary Environmental Site Assessment  
Southern States Co-Op Property, Parcel #3  
State Project U-2211B, WBS 34783.1.1  
1532 Norwood Street  
Lenoir, North Carolina  
MACTEC Project No. 6470-08-2286**

Dear Mr. Caldwell:

As authorized by your acceptance of MACTEC Proposal No. PROP 08-RAL-457 dated November 25, 2008, MACTEC Engineering and Consulting, Inc. (MACTEC) is pleased to submit the attached Report of Preliminary Environmental Site Assessment for the above-referenced site.

This report is intended for the use of NCDOT subject to contractual terms between NCDOT and MACTEC. Reliance on this document by any other party is not allowed without the expressed, written consent of MACTEC. Use of this report for purposes beyond those reasonably intended by NDOT and MACTEC will be at the sole risk of the user.

This report presents project information and assessment activities conducted, along with our findings, conclusions and recommendations. We appreciate your selection of MACTEC for this project and look forward to assisting you further on this and other projects. If you have any questions, please do not hesitate to contact us.

Sincerely,

**MACTEC ENGINEERING AND CONSULTING, INC.**

Matthew J. Gillis  
Staff Scientist

Richard A. Kolb, L.G.  
Principal Geologist

Robert M. Miller, P.E.  
Senior Principal Engineer

2-2-09

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## 1.0 INTRODUCTION

MACTEC Engineering and Consulting, Inc. (MACTEC) was contracted by North Carolina Department of Transportation (NCDOT) to perform a Preliminary Environmental Site Assessment of the Southern States Co-Op property located at 1532 Norwood Street in Lenoir, Caldwell County, North Carolina (Figure 1). This property was one in a series of 11 sites that were investigated by MACTEC in conjunction with State Project U-2211B. MACTEC understands that NCDOT is planning road improvements to the area. Expanded right-of-way is being acquired by the NCDOT for this project. NCDOT requested that MACTEC assess the subject site to evaluate the extent (if any) of soil and/or groundwater contamination related to the operation of the current Southern States facility located on site and the impact (if any) of this operation on the proposed road improvements. This report presents a description of MACTEC's assessment activities, findings, conclusions and recommendations.

### 1.1 Site Location

The Southern States property is located at 1532 Norwood Street in Lenoir, Caldwell County, North Carolina. The site consists of approximately 0.95 acres of land and is developed with an agricultural and farm supply store. The Caldwell County Geographic Information Services (GIS) identifies the site as parcel identification number (PIN) 2758277324. The site is bound to the north by Hibriten Drive, across which is the Central Baptist Church and a retail building; to the east by Norwood Street, across which is Fairway Shopping Center; to the south by single-family residences; and to the west by single-family residences (Figure 2).

### 1.2 Background Information

MACTEC was provided a Preliminary Site Assessment Report, dated August 25, 1995, prepared by Aquaterra, Inc. Aquaterra collected four soil samples, nos. SS-1 through SS-4. The laboratory did not detect total petroleum hydrocarbons (TPH) diesel range organics (DRO) or TPH gasoline range organics (GRO) at concentrations above the laboratory method detection limit. Aquaterra stated that, "No petroleum hydrocarbons were detected in any of the soil samples collected at the Southern States Facility. Aquaterra is of the opinion that further assessment activities are not warranted at this time."

The building on the subject site is 7,200 square feet in area and is constructed with a slab-on-grade concrete foundation and a vinyl and/or brick exterior. The asphalt and gravel parking lot provides access to Norwood Street. MACTEC observed propane, fuel oil and two total nitrogen aboveground storage tanks (ASTs) on the subject site.

## 2.0 ASSESSMENT ACTIVITIES

Prior to field activities, MACTEC prepared a site health and safety plan in accordance with OSHA 1910.120 requirements. NCDOT contracted with GEL Geophysics (GEL) to perform a geophysical investigation to identify suspected USTs on the property and to identify buried utilities at the site. GEL provided paint mark outs of buried utilities and suspected USTs locations to MACTEC prior to our assessment activities. They did not identify anomalies that may be USTs.

### 2.1 Soil Assessment

On December 8, 2008, Regional Probing Services Inc. (Regional Probing), under contract to MACTEC, advanced six soil borings (Nos. SB-1 through SB-6) at the subject site using a Geoprobe™ direct-push technology. Soil boring locations were selected based on the proposed NCDOT right of way, results of the geophysical investigation and field observations. Figure 2 shows a site layout and the locations of the soil borings. Coordinates of the soil boring locations were recorded using a hand-held GPS.

MACTEC collected soil samples from each boring using the procedures outlined in Appendix A. Copies of soil boring records are included in Appendix B.

MACTEC instructed Regional Probing to advance each soil boring to 12 feet below ground surface (bgs). MACTEC screened soil samples from each boring at one-foot intervals for volatile organic vapors using a photoionization detector (PID) and selected one soil sample from each boring for laboratory testing. MACTEC selected the soil sample that exhibited the highest PID measurement or the deepest, unsaturated soil sample if the PID did not detect organic vapors. Soil borings SB-1 through SB-6 were backfilled with the excess soil cuttings and bentonite chips.

### 2.2 Soil Analysis

MACTEC submitted the soil samples to Prism Laboratories (Prism) of Charlotte, North Carolina for analysis for TPH DRO according to EPA Preparation/Test Methods 3550/8015, TPH GRO according to EPA Preparation/Testing Methods 5035/8015, chlorinated pesticides according to EPA Method 8081A and for total ammonia as nitrogen according to EPA Method 350.3.

## 3.0 LABORATORY RESULTS

The laboratory test results are summarized on Table 1. The laboratory test reports and chain-of-custody records are included in Appendix C. The laboratory detected TPH DRO and GRO in the soil sample collected from soil boring SB-6 at concentrations that exceed the North Carolina Department of Environment and Natural Resources (NCDENR) Action Levels. The laboratory detected ammonia in each of the soil samples at concentrations that exceed the laboratory reporting limit.

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

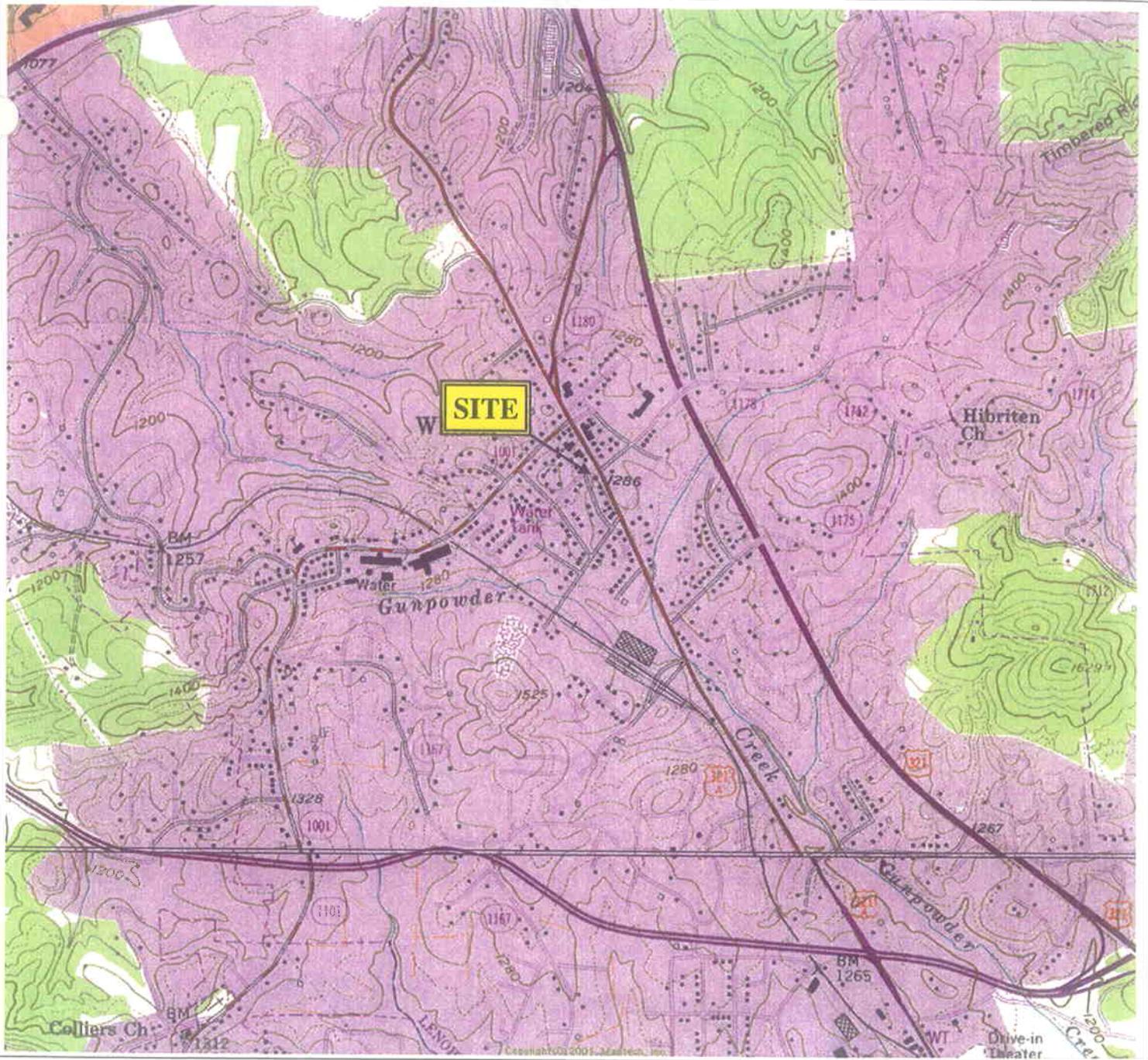
Based on the Preliminary Environmental Site Assessment, MACTEC offers the following conclusions and recommendations:

- The laboratory detected TPH DRO and GRO in the soil sample from SB-6 at concentrations of 1,200 mg/Kg and 17 mg/Kg, respectively, which exceed the NCDENR's Action Levels of 10 mg/Kg.
- If we assume that impacted soil at the location of SB-6 extends up to five feet horizontally in all directions from the borings and 12 feet vertically from the boring location, an estimated total of 35 cubic yards of impacted soil would be present at this location.
- The laboratory detected ammonia in the soil samples at concentrations which exceed the laboratory reporting limit. The concentrations do not exceed the NCDENR Inactive Hazardous Sites Branch Soil Remediation Goal of 28,000,000 mg/Kg.
- The presence of TPH is evidence of a release of petroleum. MACTEC recommends notifying the property owner of this finding, who should then report this evidence to the Asheville Regional Office of NCDENR.

#### 5.0 QUALIFICATIONS

This assessment was performed under a limited scope for those purposes described above. The conclusions and recommendations presented in this report are based upon the data that were reviewed and documented in this report along with our experience on similar projects. The discovery of any additional information concerning environmental conditions at the site should be reported to MACTEC for additional review so that potential environmental impacts can be reassessed and the conclusions and recommendations modified, if appropriate.

**FIGURES**



NORTH

**LENOIR, NC**  
35081-H5-TF-024

1993

DMA 4655 I NE-SERIES V842

**DREXEL, NC**  
35081-G5-TF-024

1993

DMA 4655 I SE-SERIES V842

CONTOUR INTERVAL 40 FEET  
DOTTED LINES REPRESENT 20-FOOT CONTOURS  
NATIONAL GEODETIC VERTICAL DATUM OF 1929



QUADRANGLE LOCATION

NOTE: SITE LOCATION IS APPROXIMATE

**MACTEC**

MACTEC ENGINEERING AND CONSULTING, INC.  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA

**TOPOGRAPHIC SITE MAP**  
**SOUTHERN STATES CO-OP PROPERTY**  
**PARCEL #3**  
**LENOIR, NORTH CAROLINA**

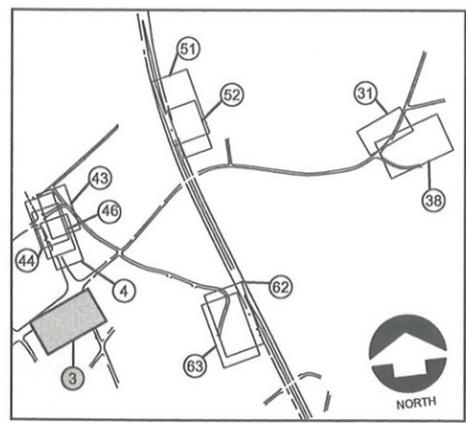
DRAWN: MJG	DATE: JANUARY 2009	FIGURE
ENG CHECK: <i>WV</i>	SCALE: 1 : 24000	<b>1</b>
APPROVAL: <i>MA</i>	JOB: 6470-08-2286	

P:\6470\08\NCDOT 2008-2009 Seatech Contract\6470-08-2286 U-2211B PSAs at 11 sites in Caldwell County\CAD Files\Drawings\Site Location Map Parcel 3.dwg Fri, 06 Mar 2009 - 10:00am rrrhic

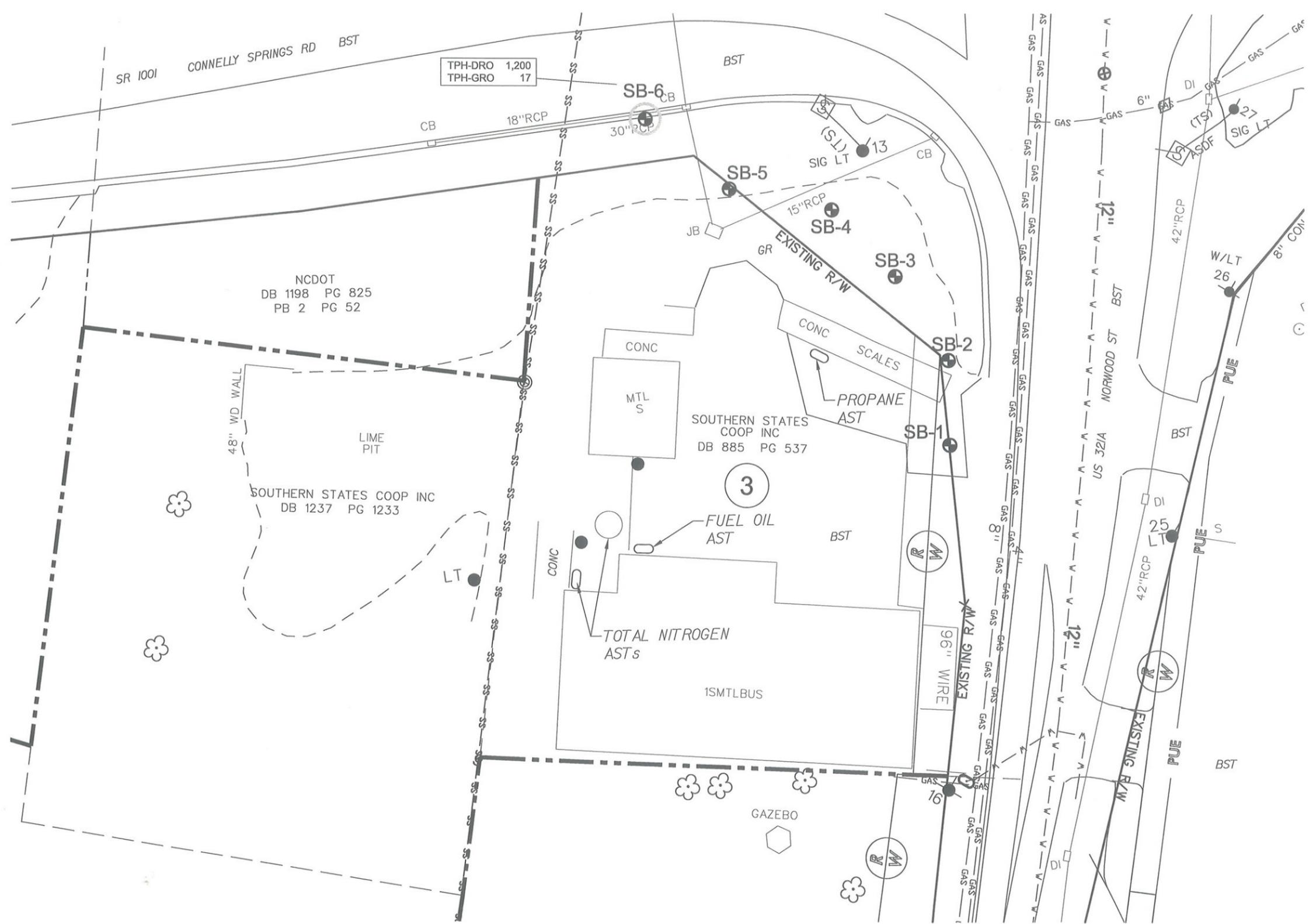
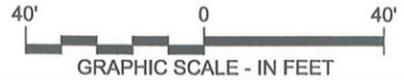


**LEGEND:**

- EXISTING PROPERTY LINE
- EXISTING RIGHT OF WAY LINE
- - - EXISTING ROAD SOILS
- GAS — EXISTING UTILITY UG GAS LINE
- SS - SS - EXISTING UTILITY UG SANITARY SEWER LINE
- W - W - EXISTING UTILITY UG WATER LINE
- EXISTING STRUCTURE
- (R/W) PROPOSED RIGHT OF WAY LINE
- PUE PROPOSED EASEMENT PERMANENT UTILITY
- # DOT PARCEL NUMBER
- ☼ EXISTING VEGETATION TREE
- EXISTING VEGETATION WOOD LINE
- EXISTING UTILITY POLE
- SB- SOIL BORING LOCATION
- SOIL BORING SHOWING ESTIMATED EXTENT OF CONTAMINATION ABOVE NCDENR ACTION LEVELS (Concentrations are in mg/kg)



**SITE KEY MAP**



**SITE LAYOUT SHOWING SOIL BORING LOCATIONS  
SOUTHERN STATE CO-OP PROPERTY, PARCEL #3  
NCDOT PROJECT NO. U-2211B  
LENOIR, NORTH CAROLINA**

DRAWN: R.R.	DATE: JANUARY 2009
ENG CHECK: <i>MJB</i>	SCALE: 1" = 40'
APPROVAL: <i>[Signature]</i>	JOB No.: 6470-08-2286

FIGURE  
**2**

REFERENCE: BASE DRAWING PROVIDED BY NCDOT; MACTEC FIELD NOTES.

**TABLE**

Table 1

Summary of Laboratory Test Results  
 State Project U-2211B, WBS 34783.1.1  
 Southern States Co-Op Property, Parcel #3  
 Lenoir, North Carolina  
 MACTEC Job No. 6470-08-2286

Analytical Method →		EPA 8015	EPA 8015	EPA SM 4500
Contaminant of Concern →		TPH-DRO	TPH-GRO	Ammonia
Sample ID	Date Collected	Sample Depth	mg/Kg	
SB-1	12/8/2008	2'-3'	<8.5	<6.1
SB-2	12/8/2008	11'-12'	<8.7	<6.2
SB-3	12/8/2008	11'-12'	<8.1	<5.8
SB-4	12/8/2008	11'-12'	<8.7	<6.2
SB-5	12/8/2008	11'-12'	<9.6	<6.9
SB-6	12/8/2008	7'-8'	<b>1,200</b>	<b>17</b>
<i>IHSB Soil Remediation Goal</i>			NA	NA
<i>NCDENR Action Level</i>			10	10
				28,000,000
				NA

Notes:

- NCDENR North Carolina Department of Environment and Natural Resources
- IHSB Inactive Hazardous Sites Branch, Superfund Section, NCDENR
- NA Not applicable
- Bold** Concentration exceeds Reporting Limit (RL)
- Bold** Concentration exceeds the NCDENR Action Level
- <# Analyte not detected above the RL shown

Prepared by: WJB Date: 1-29-09

Checked by: WJB Date: 1-29-09

**APPENDIX A**

**PROCEDURES FOR COLLECTING SOIL SAMPLES**

### **Procedures for Collecting Soil Samples for Laboratory Testing Using the Geoprobe**

- MACTEC will collect the soil samples using the Geoprobe hammer impact system. Downforce or percussion will be utilized to advance the sampler to the desired depth to obtain the soil sample.
- Soil cores will be retrieved from the sampler and classified by an on-site geologist or engineer. The one-inch diameter cores are approximately four feet in length and are contained within a pre-cleaned, disposable plastic sleeve.
- Soil samples from the boring soil cores will be placed in pre-labeled, airtight, plastic "twin" bags.
- After several minutes, the gas contained in the "headspace" or void area within one of the twin bags will be tested with a photoionization detector (PID).
- The duplicate of the sample that exhibits the highest headspace reading will be submitted to the laboratory for testing. The remaining portion of the soil core will be utilized for classification purposes.
- The soils will be classified in accordance with the Unified Soils Classification System.
- The soil sample will be placed into laboratory-supplied bottles.
- Sample bottles will be labeled prior to sample collection.
- Caps will be secured on bottles.
- All sample containers will be placed in plastic bags and the bags sealed.
- Documentation, including chain-of-custody record and laboratory analytical request form, will be completed for all samples.
- Samples will be packed in coolers with "bubble wrap" and ice packs for shipment to the laboratory.
- The chain-of-custody record and analytical request form will be placed inside the cooler, which will be sealed with security tape.
- Samples will be shipped under Chain-of-Custody via overnight express to the analytical laboratory within 24 hours following collection.

**APPENDIX B**  
**SOIL BORING RECORDS**



MACTEC Engineering and Consulting, Inc.  
 3301 Atlantic Avenue  
 Raleigh, North Carolina

Soil Boring Sample Record

MACTEC Project ID: Southern States Property, Parcel #3  
 MACTEC Project #: 6470-08-2286

MACTEC Field Representative  
 Gillis

Date: 12-8-08

Boring ID: SB-1

Depth Interval	Soil Description	Time	Headspace Screening Results (in ppm)		Comments
			PID		
0-1	Top 3" gravel; Brown fine to medium sand with gravel		0.1		
1-2	Reddish brown silty, micaceous, fine to medium sand		0.2		
2-3	Reddish brown silty, micaceous, fine to medium sand	1130	0.4		Sample
3-4	Reddish brown silty, micaceous, fine to medium sand		0.3		
4-5	Reddish brown silty, micaceous, fine to medium sand		0.1		
5-6	Reddish brown silty, micaceous, fine to medium sand		0.0		
6-7	Reddish brown silty, micaceous, fine to medium sand		0.0		
7-8	Reddish brown to dark brown silty, micaceous, fine to medium sand		0.0		
8-9	Reddish brown to dark brown silty, micaceous, fine to medium sand		0.0		
9-10	Reddish brown silty, micaceous, fine to medium sand		0.0		
10-11	Reddish brown silty, micaceous, fine to medium sand		0.0		
11-12	Reddish brown silty, micaceous, fine to medium sand		0.0		

Prepared By: MJB Date: 1-30-09

Checked By: [Signature] Date: 1-30-09



MACTEC Engineering and Consulting, Inc.  
3301 Atlantic Avenue  
Raleigh, North Carolina

Soil Boring Sample Record

MACTEC Project ID: Southern States Property, Parcel #3  
MACTEC Project #: 6470-08-2286  
Date: 12-8-08  
Boring ID: SB-2

MACTEC Field Representative  
Gillis

Depth Interval	Soil Description	Time	Headspace Screening Results (in ppm)		Comments
			PID		
0-1	Reddish brown silty, fine to medium sand with gravel		0.0		
1-2	Reddish brown silty, clayey, fine to medium sand		0.0		
2-3	Reddish brown silty, clayey, fine to medium sand		0.0		
3-4	Reddish brown silty, clayey, fine to medium sand		0.0		
4-5	Reddish brown silty, clayey, fine to medium sand		0.0		
5-6	Reddish brown silty, micaceous, fine to medium sand		0.0		
6-7	Reddish brown silty, micaceous, fine to medium sand		0.0		
7-8	Reddish brown silty, micaceous, fine to medium sand		0.0		
8-9	Reddish brown silty, micaceous, fine to medium sand		0.0		
9-10	Light brown silty, micaceous, fine to medium sand		0.0		
10-11	Light brown silty, micaceous, fine to medium sand		0.0		
11-12	Light brown silty, micaceous, fine to medium sand	1140	0.0		Sample

Prepared By: MJB Date: 1-30-09

Checked By: [Signature] Date: 1-30-09



MACTEC Engineering and Consulting, Inc.  
3301 Atlantic Avenue  
Raleigh, North Carolina

Soil Boring Sample Record

MACTEC Project ID: Southern States Property, Parcel #3  
MACTEC Project #: 6470-08-2286

MACTEC Field Representative  
Gillis

Date: 12-8-08

Boring ID: SB-3

Depth Interval	Soil Description	Time	Headspace Screening Results (in ppm)		Comments
			PID		
0-1	Top 3" gravel; Reddish brown clayey, fine to medium sand		0.0		
1-2	Reddish brown clayey, fine to medium sand		0.0		
2-3	Dark reddish brown silty, micaceous, fine to medium sand		0.0		
3-4	Reddish brown silty, micaceous, fine to medium sand		0.0		
4-5	Reddish brown silty, micaceous, fine to medium sand		0.0		
5-6	Reddish brown silty, micaceous, fine to medium sand		0.0		
6-7	Reddish brown silty, micaceous, fine to medium sand		0.0		
7-8	Reddish brown silty, micaceous, fine to medium sand		0.0		
8-9	Reddish brown clayey, micaceous, fine to medium sand		0.0		
9-10	Reddish brown clayey, micaceous, fine to medium sand		0.0		
10-11	Reddish brown clayey, micaceous, fine to medium sand		0.0		
11-12	Orangish brown silty, fine to medium sand	1155	0.0		Sample

Prepared By: MJB Date: 1-30-09

Checked By: [Signature] Date: 1/30/09



MACTEC Engineering and Consulting, Inc.  
3301 Atlantic Avenue  
Raleigh, North Carolina

Soil Boring Sample Record

MACTEC Project ID: Southern States Property, Parcel #3  
MACTEC Project #: 6470-08-2286  
Date: 12-8-08  
Boring ID: SB-4

MACTEC Field Representative  
Gillis

Depth Interval	Soil Description	Time	Headspace Screening Results (in ppm)		Comments
			PID		
0-1	Top 3" gravel; Reddish brown silty, micaceous, fine to medium sand		0.0		
1-2	Reddish brown silty, micaceous, fine to medium sand		0.0		
2-3	Reddish brown clayey, micaceous, fine to medium sand		0.0		
3-4	Reddish brown clayey, micaceous, fine to medium sand		0.0		
4-5	Reddish brown clayey, micaceous, fine to medium sand		0.0		
5-6	Reddish brown clayey, micaceous, fine to medium sand		0.0		
6-7	Reddish brown clayey, micaceous, fine to medium sand		0.0		
7-8	Reddish brown clayey, micaceous, fine to medium sand		0.0		
8-9	Reddish brown clayey, fine to medium sand		0.0		
9-10	Reddish brown clayey, fine to medium sand		0.0		
10-11	Reddish brown clayey, fine to medium sand		0.0		
11-12	Reddish brown clayey, fine to medium sand	1205	0.0		Sample

Prepared By: MJB Date: 1-30-09

Checked By: [Signature] Date: 1/30/09



MACTEC Engineering and Consulting, Inc.  
3301 Atlantic Avenue  
Raleigh, North Carolina

Soil Boring Sample Record

MACTEC Project ID: Southern States Property, Parcel #3  
MACTEC Project #: 6470-08-2286

MACTEC Field Representative  
Gillis

Date: 12-8-08

Boring ID: SB-5

Depth Interval	Soil Description	Time	Headspace Screening Results (in ppm)		Comments
			PID		
0-1	Brown silty, micaceous, fine to medium sand		0.0		
1-2	Reddish brown silty, micaceous, fine to medium sand		0.0		
2-3	Reddish brown silty, micaceous, fine to medium sand		0.0		
3-4	Reddish brown silty, micaceous, fine to medium sand		0.0		
4-5	Reddish brown clayey, micaceous, fine to medium sand		0.0		
5-6	Reddish brown clayey, micaceous, fine to medium sand		0.0		
6-7	Reddish brown clayey, micaceous, fine to medium sand		0.0		
7-8	Reddish brown clayey, micaceous, fine to medium sand		0.0		
8-9	Reddish brown clayey, micaceous, fine to medium sand		0.0		
9-10	Brown clayey, fine to medium sand		0.1		
10-11	Brown clayey, fine to medium sand		0.5		
11-12	Brown clayey, fine to medium sand	1215	0.8		Sample

Prepared By: MJG Date: 1-30-09

Checked By: [Signature] Date: 1/30/09



MACTEC Engineering and Consulting, Inc.  
3301 Atlantic Avenue  
Raleigh, North Carolina

Soil Boring Sample Record

MACTEC Project ID: Southern States Property, Parcel #3  
MACTEC Project #: 6470-08-2286

MACTEC Field Representative  
Gillis

Date: 12-8-08

Boring ID: SB-6

Depth Interval	Soil Description	Time	Headspace Screening Results (in ppm)		Comments
			PID		
0-1	Reddish brown silty, micaceous, fine to medium sand		0.0		
1-2	Reddish brown silty, micaceous, fine to medium sand		0.0		
2-3	Reddish brown silty, micaceous, fine to medium sand		0.0		
3-4	Reddish brown silty, micaceous, fine to medium sand		0.0		
4-5	Reddish brown clayey, micaceous, fine to medium sand		0.0		
5-6	Reddish brown clayey, micaceous, fine to medium sand		0.0		
6-7	Reddish brown clayey, micaceous, fine to medium sand		0.1		
7-8	Dark reddish brown micaceous, fine to medium sand with some clay	1225	25.9		Sample
8-9	Reddish brown clayey, micaceous, fine to medium sand		3.3		
9-10	Reddish brown clayey, micaceous, fine to medium sand		15.4		
10-11	Reddish brown clayey, micaceous, fine to medium sand		10.7		
11-12	Reddish brown clayey, micaceous, fine to medium sand		1.3		

Prepared By: WJG Date: 1-30-09

Checked By: [Signature] Date: 1/30/09

**APPENDIX C**

**LABORATORY ANALYTICAL REPORTS  
AND CHAIN-OF-CUSTODY RECORDS**



## Case Narrative (Revised)

**Date:** 01/23/09  
**Company:** N.C. Department of Transportation  
**Contact:** Matt Gillis  
**Address:** c/o MACTEC Eng. & Consulting, Inc  
3301 Atlantic Ave.  
Raleigh, NC 27604

**Client Project ID:** NCDOT Lenoir  
**Prism COC Group No:** G1208362  
**Collection Date(s):** 12/08/08 thru 12/10/08  
**Lab Submittal Date(s):** 12/10/08  
**Client Project Name Or No:** WBS# 34783.1.1

This is a revised report and supersedes our original laboratory report dated 12/24/08. Report modified to include Southern State Co-Op Property data only.

This data package contains the analytical results for the project identified above and includes a Case Narrative, Laboratory Report and Quality Control Data totaling 23 pages. A chain-of-custody is also attached for the samples submitted to Prism for this project.

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

### Semi Volatile Analysis

No Anomalies Reported

### Volatile Analysis

No Anomalies Reported

### Metals Analysis

N/A

### Wet Lab and Micro Analysis

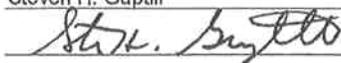
Analysis Note for Q37813 Method Blank Ammonia: MB result is > 1/2 of the RL.

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

**Date Reviewed by:** Steven H. Guptill

**Project Manager:** Steven H. Guptill

**Signature:** 

**Signature:** 

**Review Date:** 01/23/09

**Approval Date:** 01/23/09

### **Data Qualifiers Key Reference:**

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

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



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

# Laboratory Report

01/23/09

N.C. Department of Transportation  
Attn: Matt Gillis  
c/o MACTEC Eng. & Consulting, Inc  
3301 Atlantic Ave.  
Raleigh, NC 27604

Project ID: NCDOT Lenoir  
Project No.: WBS# 34783.1.1  
Sample Matrix: Soil

Client Sample ID: SB-1  
Prism Sample ID: 232974  
COC Group: G1208362  
Time Collected: 12/08/08 11:30  
Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b><u>Percent Solids Determination</u></b>									
Percent Solids	81.9	%			1	SM2540 G	12/12/08 14:00	dsullivan	
<b><u>Organochlorine Pesticides by Gas Chromatography</u></b>									
4,4'-DDD	BRL	µg/kg	2.4	0.69	1	8081A	12/16/08 12:06	jbvogel	Q37871
4,4'-DDE	BRL	µg/kg	2.4	0.82	1	8081A	12/16/08 12:06	jbvogel	Q37871
4,4'-DDT	BRL	µg/kg	3.7	0.60	1	8081A	12/16/08 12:06	jbvogel	Q37871
4,4'-Methoxychlor	BRL	µg/kg	2.4	0.73	1	8081A	12/16/08 12:06	jbvogel	Q37871
a-BHC	BRL	µg/kg	2.4	0.54	1	8081A	12/16/08 12:06	jbvogel	Q37871
a-Chlordane	BRL	µg/kg	2.4	0.73	1	8081A	12/16/08 12:06	jbvogel	Q37871
Aldrin	BRL	µg/kg	2.4	0.54	1	8081A	12/16/08 12:06	jbvogel	Q37871
b-BHC	BRL	µg/kg	2.4	0.68	1	8081A	12/16/08 12:06	jbvogel	Q37871
Chlordane	BRL	µg/kg	61	5.7	1	8081A	12/16/08 12:06	jbvogel	Q37871
d-BHC	BRL	µg/kg	2.4	0.54	1	8081A	12/16/08 12:06	jbvogel	Q37871
Dieldrin	BRL	µg/kg	2.4	0.77	1	8081A	12/16/08 12:06	jbvogel	Q37871
Endosulfan I	BRL	µg/kg	2.4	0.73	1	8081A	12/16/08 12:06	jbvogel	Q37871
Endosulfan II	BRL	µg/kg	2.4	0.54	1	8081A	12/16/08 12:06	jbvogel	Q37871
Endosulfan Sulfate	BRL	µg/kg	2.4	0.79	1	8081A	12/16/08 12:06	jbvogel	Q37871
Endrin	BRL	µg/kg	2.4	0.76	1	8081A	12/16/08 12:06	jbvogel	Q37871
Endrin Aldehyde	BRL	µg/kg	2.4	0.75	1	8081A	12/16/08 12:06	jbvogel	Q37871
Endrin Ketone	BRL	µg/kg	2.4	0.69	1	8081A	12/16/08 12:06	jbvogel	Q37871
g-BHC	BRL	µg/kg	2.4	0.49	1	8081A	12/16/08 12:06	jbvogel	Q37871
g-Chlordane	BRL	µg/kg	2.4	0.62	1	8081A	12/16/08 12:06	jbvogel	Q37871
Heptachlor	BRL	µg/kg	2.4	0.49	1	8081A	12/16/08 12:06	jbvogel	Q37871
Heptachlor Epoxide	BRL	µg/kg	2.4	0.56	1	8081A	12/16/08 12:06	jbvogel	Q37871
Toxaphene	BRL	µg/kg	61	6.2	1	8081A	12/16/08 12:06	jbvogel	Q37871

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

# Laboratory Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-1  
 Prism Sample ID: 232974  
 COC Group: G1208362  
 Time Collected: 12/08/08 11:30  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Sample Preparation:			30.06 g	/	10 mL	3550B	12/12/08 10:30	cdaly	P23299
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						Tetrachloro-m-xylene (TCMX)	107	40 - 162	
						Decachlorobiphenyl (DCB)	117	26 - 204	
<b><u>Ammonia Nitrogen by Automated Phenate Method</u></b>									
Ammonia	8.3	mg/kg	3.1	0.89	1	SM4500-NH3 H	12/18/08 10:21	heasler	Q37813
<b><u>Diesel Range Organics (DRO) by GC-FID</u></b>									
Diesel Range Organics (DRO)	BRL	mg/kg	8.5	1.4	1	8015B	12/18/08 15:10	lvogel	Q37780
Sample Preparation:			25.14 g	/	1 mL	3545	12/15/08 9:00	pbarr	P23313
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						o-Terphenyl	63	49 - 124	
<b><u>Sample Weight Determination</u></b>									
Weight 1	6.30	g			1	GRO	12/12/08 0:00	lbrown	
Weight 2	6.20	g			1	GRO	12/12/08 0:00	lbrown	
<b><u>Gasoline Range Organics (GRO) by GC-FID</u></b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.1	0.74	50	8015B	12/15/08 9:39	dliamm	Q37663
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>	
						aaa-TFT	65	55 - 129	

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 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-1  
 Prism Sample ID: 232974  
 COC Group: G1208362  
 Time Collected: 12/08/08 11:30  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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Sample Comment(s):

*BRL = Below Reporting Limit*

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

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

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

Angela D. Overcash, V.P. Laboratory Services



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 NC Drinking Water Cert. No. 37735

# Laboratory Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-2  
 Prism Sample ID: 232975  
 COC Group: G1208362  
 Time Collected: 12/08/08 11:40  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	80.2	%			1	SM2540 G	12/12/08 14:00	dsullivan	
<b>Organochlorine Pesticides by Gas Chromatography</b>									
4,4'-DDD	BRL	µg/kg	2.5	0.70	1	8081A	12/16/08 8:40	javogel	Q37871
4,4'-DDE	BRL	µg/kg	2.5	0.84	1	8081A	12/16/08 8:40	javogel	Q37871
4,4'-DDT	BRL	µg/kg	3.7	0.62	1	8081A	12/16/08 8:40	javogel	Q37871
4,4'-Methoxychlor	BRL	µg/kg	2.5	0.74	1	8081A	12/16/08 8:40	javogel	Q37871
a-BHC	BRL	µg/kg	2.5	0.55	1	8081A	12/16/08 8:40	javogel	Q37871
a-Chlordane	BRL	µg/kg	2.5	0.75	1	8081A	12/16/08 8:40	javogel	Q37871
Aldrin	BRL	µg/kg	2.5	0.55	1	8081A	12/16/08 8:40	javogel	Q37871
b-BHC	BRL	µg/kg	2.5	0.69	1	8081A	12/16/08 8:40	javogel	Q37871
Chlordane	BRL	µg/kg	62	5.9	1	8081A	12/16/08 8:40	javogel	Q37871
d-BHC	BRL	µg/kg	2.5	0.55	1	8081A	12/16/08 8:40	javogel	Q37871
Dieldrin	BRL	µg/kg	2.5	0.78	1	8081A	12/16/08 8:40	javogel	Q37871
Endosulfan I	BRL	µg/kg	2.5	0.74	1	8081A	12/16/08 8:40	javogel	Q37871
Endosulfan II	BRL	µg/kg	2.5	0.55	1	8081A	12/16/08 8:40	javogel	Q37871
Endosulfan Sulfate	BRL	µg/kg	2.5	0.81	1	8081A	12/16/08 8:40	javogel	Q37871
Endrin	BRL	µg/kg	2.5	0.77	1	8081A	12/16/08 8:40	javogel	Q37871
Endrin Aldehyde	BRL	µg/kg	2.5	0.76	1	8081A	12/16/08 8:40	javogel	Q37871
Endrin Ketone	BRL	µg/kg	2.5	0.70	1	8081A	12/16/08 8:40	javogel	Q37871
g-BHC	BRL	µg/kg	2.5	0.50	1	8081A	12/16/08 8:40	javogel	Q37871
g-Chlordane	BRL	µg/kg	2.5	0.63	1	8081A	12/16/08 8:40	javogel	Q37871
Heptachlor	BRL	µg/kg	2.5	0.50	1	8081A	12/16/08 8:40	javogel	Q37871
Heptachlor Epoxide	BRL	µg/kg	2.5	0.57	1	8081A	12/16/08 8:40	javogel	Q37871
Toxaphene	BRL	µg/kg	62	6.4	1	8081A	12/16/08 8:40	javogel	Q37871

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

# Laboratory Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-2  
 Prism Sample ID: 232975  
 COC Group: G1208362  
 Time Collected: 12/08/08 11:40  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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Sample Preparation: 30.05 g / 10 mL 3550B 12/12/08 10:30 cdaly P23299

Surrogate	% Recovery	Control Limits
Tetrachloro-m-xylene (TCMX)	93	40 - 162
Decachlorobiphenyl (DCB)	105	26 - 204

**Ammonia Nitrogen by Automated Phenate Method**

Ammonia 4.2 mg/kg 3.1 0.90 1 SM4500-NH3 H 12/18/08 10:21 heasler Q37813

**Diesel Range Organics (DRO) by GC-FID**

Diesel Range Organics (DRO) BRL mg/kg 8.7 1.4 1 8015B 12/18/08 15:49 jvogel Q37780

Sample Preparation: 25.07 g / 1 mL 3545 12/15/08 9:00 pbarr P23313

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

**Sample Weight Determination**

Weight 1 5.25 g 1 GRO 12/12/08 0:00 lbrown  
 Weight 2 5.59 g 1 GRO 12/12/08 0:00 lbrown

**Gasoline Range Organics (GRO) by GC-FID**

Gasoline Range Organics (GRO) BRL mg/kg 6.2 0.76 50 8015B 12/14/08 1:18 dlamm Q37663

Surrogate	% Recovery	Control Limits
aaa-TFT	61	55 - 129

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3301 Atlantic Ave.  
Raleigh, NC 27604

Project ID: NCDOT Lenoir  
Project No.: WBS# 34783.1.1  
Sample Matrix: Soil

Client Sample ID: SB-2  
Prism Sample ID: 232975  
COC Group: G1208362  
Time Collected: 12/08/08 11:40  
Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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Sample Comment(s):

*BRL = Below Reporting Limit*

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

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

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

Angela D. Overcash, V.P. Laboratory Services

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# Laboratory Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-3  
 Prism Sample ID: 232976  
 COC Group: G1208362  
 Time Collected: 12/08/08 11:55  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b><u>Percent Solids Determination</u></b>									
Percent Solids	86.1	%			1	SM2540 G	12/12/08 14:00	dsullivan	
<b><u>Organochlorine Pesticides by Gas Chromatography</u></b>									
4,4'-DDD	BRL	µg/kg	2.3	0.66	1	8081A	12/16/08 9:21	lvogel	Q37871
4,4'-DDE	BRL	µg/kg	2.3	0.78	1	8081A	12/16/08 9:21	lvogel	Q37871
4,4'-DDT	BRL	µg/kg	3.5	0.57	1	8081A	12/16/08 9:21	lvogel	Q37871
4,4'-Methoxychlor	BRL	µg/kg	2.3	0.69	1	8081A	12/16/08 9:21	lvogel	Q37871
a-BHC	BRL	µg/kg	2.3	0.51	1	8081A	12/16/08 9:21	lvogel	Q37871
a-Chlordane	BRL	µg/kg	2.3	0.69	1	8081A	12/16/08 9:21	lvogel	Q37871
Aldrin	BRL	µg/kg	2.3	0.51	1	8081A	12/16/08 9:21	lvogel	Q37871
b-BHC	BRL	µg/kg	2.3	0.65	1	8081A	12/16/08 9:21	lvogel	Q37871
Chlordane	BRL	µg/kg	58	5.5	1	8081A	12/16/08 9:21	lvogel	Q37871
d-BHC	BRL	µg/kg	2.3	0.51	1	8081A	12/16/08 9:21	lvogel	Q37871
Dieldrin	BRL	µg/kg	2.3	0.73	1	8081A	12/16/08 9:21	lvogel	Q37871
Endosulfan I	BRL	µg/kg	2.3	0.69	1	8081A	12/16/08 9:21	lvogel	Q37871
Endosulfan II	BRL	µg/kg	2.3	0.51	1	8081A	12/16/08 9:21	lvogel	Q37871
Endosulfan Sulfate	BRL	µg/kg	2.3	0.75	1	8081A	12/16/08 9:21	lvogel	Q37871
Endrin	BRL	µg/kg	2.3	0.72	1	8081A	12/16/08 9:21	lvogel	Q37871
Endrin Aldehyde	BRL	µg/kg	2.3	0.71	1	8081A	12/16/08 9:21	lvogel	Q37871
Endrin Ketone	BRL	µg/kg	2.3	0.66	1	8081A	12/16/08 9:21	lvogel	Q37871
g-BHC	BRL	µg/kg	2.3	0.46	1	8081A	12/16/08 9:21	lvogel	Q37871
g-Chlordane	BRL	µg/kg	2.3	0.59	1	8081A	12/16/08 9:21	lvogel	Q37871
Heptachlor	BRL	µg/kg	2.3	0.46	1	8081A	12/16/08 9:21	lvogel	Q37871
Heptachlor Epoxide	BRL	µg/kg	2.3	0.53	1	8081A	12/16/08 9:21	lvogel	Q37871
Toxaphene	BRL	µg/kg	58	5.9	1	8081A	12/16/08 9:21	lvogel	Q37871

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# Laboratory Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-3  
 Prism Sample ID: 232976  
 COC Group: G1208362  
 Time Collected: 12/08/08 11:55  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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Sample Preparation: 30.04 g / 10 mL 3550B 12/12/08 10:30 cdaly P23299

Surrogate	% Recovery	Control Limits
Tetrachloro-m-xylene (TCMX)	82	40 - 162
Decachlorobiphenyl (DCB)	108	26 - 204

**Ammonia Nitrogen by Automated Phenate Method**

Ammonia 9.3 mg/kg 2.9 0.84 1 SM4500-NH3 H 12/18/08 10:21 heasler Q37813

**Diesel Range Organics (DRO) by GC-FID**

Diesel Range Organics (DRO) BRL mg/kg 8.1 1.3 1 8015B 12/18/08 16:28 jvogel Q37780

Sample Preparation: 25 g / 1 mL 3545 12/15/08 9:00 pbarr P23313

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

**Sample Weight Determination**

Weight 1 5.33 g 1 GRO 12/12/08 0:00 lbrown  
 Weight 2 6.25 g 1 GRO 12/12/08 0:00 lbrown

**Gasoline Range Organics (GRO) by GC-FID**

Gasoline Range Organics (GRO) BRL mg/kg 5.8 0.71 50 8015B 12/14/08 1:50 dliamm Q37663

Surrogate	% Recovery	Control Limits
aaa-TFT	72	55 - 129

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 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-3  
 Prism Sample ID: 232976  
 COC Group: G1208362  
 Time Collected: 12/08/08 11:55  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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Sample Comment(s):

*BRL = Below Reporting Limit*

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

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

Angela D. Overcash, V.P. Laboratory Services



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

# Laboratory Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-4  
 Prism Sample ID: 232977  
 COC Group: G1208362  
 Time Collected: 12/08/08 12:05  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	80.5	%			1	SM2540 G	12/12/08 14:00	dsullivan	
<b>Organochlorine Pesticides by Gas Chromatography</b>									
4,4'-DDD	BRL	µg/kg	2.5	0.70	1	8081A	12/16/08 14:10	javogel	Q37871
4,4'-DDE	BRL	µg/kg	2.5	0.83	1	8081A	12/16/08 14:10	javogel	Q37871
4,4'-DDT	BRL	µg/kg	3.7	0.61	1	8081A	12/16/08 14:10	javogel	Q37871
4,4'-Methoxychlor	BRL	µg/kg	2.5	0.74	1	8081A	12/16/08 14:10	javogel	Q37871
a-BHC	BRL	µg/kg	2.5	0.55	1	8081A	12/16/08 14:10	javogel	Q37871
a-Chlordane	BRL	µg/kg	2.5	0.74	1	8081A	12/16/08 14:10	javogel	Q37871
Aldrin	BRL	µg/kg	2.5	0.55	1	8081A	12/16/08 14:10	javogel	Q37871
b-BHC	BRL	µg/kg	2.5	0.69	1	8081A	12/16/08 14:10	javogel	Q37871
Chlordane	BRL	µg/kg	62	5.8	1	8081A	12/16/08 14:10	javogel	Q37871
d-BHC	BRL	µg/kg	2.5	0.55	1	8081A	12/16/08 14:10	javogel	Q37871
Dieldrin	BRL	µg/kg	2.5	0.78	1	8081A	12/16/08 14:10	javogel	Q37871
Endosulfan I	BRL	µg/kg	2.5	0.74	1	8081A	12/16/08 14:10	javogel	Q37871
Endosulfan II	BRL	µg/kg	2.5	0.55	1	8081A	12/16/08 14:10	javogel	Q37871
Endosulfan Sulfate	BRL	µg/kg	2.5	0.81	1	8081A	12/16/08 14:10	javogel	Q37871
Endrin	BRL	µg/kg	2.5	0.77	1	8081A	12/16/08 14:10	javogel	Q37871
Endrin Aldehyde	BRL	µg/kg	2.5	0.76	1	8081A	12/16/08 14:10	javogel	Q37871
Endrin Ketone	BRL	µg/kg	2.5	0.70	1	8081A	12/16/08 14:10	javogel	Q37871
g-BHC	BRL	µg/kg	2.5	0.50	1	8081A	12/16/08 14:10	javogel	Q37871
g-Chlordane	BRL	µg/kg	2.5	0.63	1	8081A	12/16/08 14:10	javogel	Q37871
Heptachlor	BRL	µg/kg	2.5	0.50	1	8081A	12/16/08 14:10	javogel	Q37871
Heptachlor Epoxide	BRL	µg/kg	2.5	0.57	1	8081A	12/16/08 14:10	javogel	Q37871
Toxaphene	BRL	µg/kg	62	6.3	1	8081A	12/16/08 14:10	javogel	Q37871

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

# Laboratory Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-4  
 Prism Sample ID: 232977  
 COC Group: G1208362  
 Time Collected: 12/08/08 12:05  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Sample Preparation:			30.18 g /		10 mL	3550B	12/12/08 10:30	cdaly	P23299
			<b>Surrogate</b>			<b>% Recovery</b>		<b>Control Limits</b>	
			Tetrachloro-m-xylene (TCMX)			97		40 - 162	
			Decachlorobiphenyl (DCB)			110		26 - 204	
<b><u>Ammonia Nitrogen by Automated Phenate Method</u></b>									
Ammonia	6.9	mg/kg	3.1	0.90	1	SM4500-NH3 H	12/18/08 10:21	heasler	Q37813
<b><u>Diesel Range Organics (DRO) by GC-FID</u></b>									
Diesel Range Organics (DRO)	BRL	mg/kg	8.7	1.4	1	8015B	12/18/08 17:07	lvogel	Q37780
Sample Preparation:			25.02 g /		1 mL	3545	12/15/08 9:00	pbarr	P23313
			<b>Surrogate</b>			<b>% Recovery</b>		<b>Control Limits</b>	
			o-Terphenyl			68		49 - 124	
<b><u>Sample Weight Determination</u></b>									
Weight 1	6.18	g			1	GRO	12/12/08 0:00	lbrown	
Weight 2	6.09	g			1	GRO	12/12/08 0:00	lbrown	
<b><u>Gasoline Range Organics (GRO) by GC-FID</u></b>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.2	0.76	50	8015B	12/15/08 10:34	dlamm	Q37663
			<b>Surrogate</b>			<b>% Recovery</b>		<b>Control Limits</b>	
			aaa-TFT			58		55 - 129	

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 3301 Atlantic Ave.  
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Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-4  
 Prism Sample ID: 232977  
 COC Group: G1208362  
 Time Collected: 12/08/08 12:05  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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Sample Comment(s):

*BRL = Below Reporting Limit*

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

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

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

Angela D. Overcash, V.P. Laboratory Services



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

# Laboratory Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-5  
 Prism Sample ID: 232978  
 COC Group: G1208362  
 Time Collected: 12/08/08 12:15  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	72.7	%			1	SM2540 G	12/12/08 14:00	dsullivan	
<b>Organochlorine Pesticides by Gas Chromatography</b>									
4,4'-DDD	BRL	µg/kg	2.8	0.78	1	8081A	12/16/08 10:02	lvogel	Q37871
4,4'-DDE	BRL	µg/kg	2.8	0.92	1	8081A	12/16/08 10:02	lvogel	Q37871
4,4'-DDT	BRL	µg/kg	4.1	0.68	1	8081A	12/16/08 10:02	lvogel	Q37871
4,4'-Methoxychlor	BRL	µg/kg	2.8	0.82	1	8081A	12/16/08 10:02	lvogel	Q37871
a-BHC	BRL	µg/kg	2.8	0.60	1	8081A	12/16/08 10:02	lvogel	Q37871
a-Chlordane	BRL	µg/kg	2.8	0.82	1	8081A	12/16/08 10:02	lvogel	Q37871
Aldrin	BRL	µg/kg	2.8	0.60	1	8081A	12/16/08 10:02	lvogel	Q37871
b-BHC	BRL	µg/kg	2.8	0.77	1	8081A	12/16/08 10:02	lvogel	Q37871
Chlordane	BRL	µg/kg	69	6.5	1	8081A	12/16/08 10:02	lvogel	Q37871
d-BHC	BRL	µg/kg	2.8	0.60	1	8081A	12/16/08 10:02	lvogel	Q37871
Dieldrin	BRL	µg/kg	2.8	0.86	1	8081A	12/16/08 10:02	lvogel	Q37871
Endosulfan I	BRL	µg/kg	2.8	0.82	1	8081A	12/16/08 10:02	lvogel	Q37871
Endosulfan II	BRL	µg/kg	2.8	0.60	1	8081A	12/16/08 10:02	lvogel	Q37871
Endosulfan Sulfate	BRL	µg/kg	2.8	0.89	1	8081A	12/16/08 10:02	lvogel	Q37871
Endrin	BRL	µg/kg	2.8	0.85	1	8081A	12/16/08 10:02	lvogel	Q37871
Endrin Aldehyde	BRL	µg/kg	2.8	0.84	1	8081A	12/16/08 10:02	lvogel	Q37871
Endrin Ketone	BRL	µg/kg	2.8	0.78	1	8081A	12/16/08 10:02	lvogel	Q37871
g-BHC	BRL	µg/kg	2.8	0.55	1	8081A	12/16/08 10:02	lvogel	Q37871
g-Chlordane	BRL	µg/kg	2.8	0.70	1	8081A	12/16/08 10:02	lvogel	Q37871
Heptachlor	BRL	µg/kg	2.8	0.55	1	8081A	12/16/08 10:02	lvogel	Q37871
Heptachlor Epoxide	BRL	µg/kg	2.8	0.63	1	8081A	12/16/08 10:02	lvogel	Q37871
Toxaphene	BRL	µg/kg	69	7.0	1	8081A	12/16/08 10:02	lvogel	Q37871

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 NC Drinking Water Cert. No. 37735

# Laboratory Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-5  
 Prism Sample ID: 232978  
 COC Group: G1208362  
 Time Collected: 12/08/08 12:15  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID	
Sample Preparation:				30.12 g	/	10 mL	3550B	12/12/08 10:30	cdaly	P23299
						<b>Surrogate</b>	<b>% Recovery</b>	<b>Control Limits</b>		
						Tetrachloro-m-xylene (TCMX)	75	40 - 162		
						Decachlorobiphenyl (DCB)	88	26 - 204		

**Ammonia Nitrogen by Automated Phenate Method**

Ammonia	32	mg/kg	3.4	0.99	1	SM4500-NH3 H	12/18/08 10:21	heasler	Q37813
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**Diesel Range Organics (DRO) by GC-FID**

Diesel Range Organics (DRO)	BRL	mg/kg	9.6	1.6	1	8015B	12/18/08 17:47	lvogel	Q37780
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Sample Preparation:				25.02 g	/	1 mL	3545	12/15/08 9:00	pbarr	P23313
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Surrogate	% Recovery	Control Limits
o-Terphenyl	58	49 - 124

**Sample Weight Determination**

Weight 1	5.98	g			1	GRO	12/12/08 0:00	lbrown
Weight 2	6.13	g			1	GRO	12/12/08 0:00	lbrown

**Gasoline Range Organics (GRO) by GC-FID**

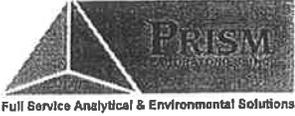
Gasoline Range Organics (GRO)	BRL	mg/kg	6.9	0.84	50	8015B	12/15/08 15:48	dliamm	Q37664
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Surrogate	% Recovery	Control Limits
aaa-TFT	62	55 - 129

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# Laboratory Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-5  
 Prism Sample ID: 232978  
 COC Group: G1208362  
 Time Collected: 12/08/08 12:15  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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Sample Comment(s):

*BRL = Below Reporting Limit*

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

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

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

Angela D. Overcash, V.P. Laboratory Services



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# Laboratory Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-6  
 Prism Sample ID: 232979  
 COC Group: G1208362  
 Time Collected: 12/08/08 12:25  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Percent Solids Determination</b>									
Percent Solids	78.1	%			1	SM2540 G	12/12/08 14:00	dsullivan	
<b>Organochlorine Pesticides by Gas Chromatography</b>									
4,4'-DDD	BRL	µg/kg	2.6	0.72	1	8081A	12/16/08 10:43	javogel	Q37871
4,4'-DDE	BRL	µg/kg	2.6	0.86	1	8081A	12/16/08 10:43	javogel	Q37871
4,4'-DDT	BRL	µg/kg	3.8	0.63	1	8081A	12/16/08 10:43	javogel	Q37871
4,4'-Methoxychlor	BRL	µg/kg	2.6	0.76	1	8081A	12/16/08 10:43	javogel	Q37871
a-BHC	BRL	µg/kg	2.6	0.56	1	8081A	12/16/08 10:43	javogel	Q37871
a-Chlordane	BRL	µg/kg	2.6	0.77	1	8081A	12/16/08 10:43	javogel	Q37871
Aldrin	BRL	µg/kg	2.6	0.56	1	8081A	12/16/08 10:43	javogel	Q37871
b-BHC	BRL	µg/kg	2.6	0.71	1	8081A	12/16/08 10:43	javogel	Q37871
Chlordane	BRL	µg/kg	64	6.0	1	8081A	12/16/08 10:43	javogel	Q37871
d-BHC	BRL	µg/kg	2.6	0.56	1	8081A	12/16/08 10:43	javogel	Q37871
Dieldrin	BRL	µg/kg	2.6	0.80	1	8081A	12/16/08 10:43	javogel	Q37871
Endosulfan I	BRL	µg/kg	2.6	0.76	1	8081A	12/16/08 10:43	javogel	Q37871
Endosulfan II	BRL	µg/kg	2.6	0.56	1	8081A	12/16/08 10:43	javogel	Q37871
Endosulfan Sulfate	BRL	µg/kg	2.6	0.83	1	8081A	12/16/08 10:43	javogel	Q37871
Endrin	BRL	µg/kg	2.6	0.80	1	8081A	12/16/08 10:43	javogel	Q37871
Endrin Aldehyde	BRL	µg/kg	2.6	0.78	1	8081A	12/16/08 10:43	javogel	Q37871
Endrin Ketone	BRL	µg/kg	2.6	0.72	1	8081A	12/16/08 10:43	javogel	Q37871
g-BHC	BRL	µg/kg	2.6	0.51	1	8081A	12/16/08 10:43	javogel	Q37871
g-Chlordane	BRL	µg/kg	2.6	0.65	1	8081A	12/16/08 10:43	javogel	Q37871
Heptachlor	BRL	µg/kg	2.6	0.51	1	8081A	12/16/08 10:43	javogel	Q37871
Heptachlor Epoxide	BRL	µg/kg	2.6	0.59	1	8081A	12/16/08 10:43	javogel	Q37871
Toxaphene	BRL	µg/kg	64	6.5	1	8081A	12/16/08 10:43	javogel	Q37871

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

# Laboratory Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-6  
 Prism Sample ID: 232979  
 COC Group: G1208362  
 Time Collected: 12/08/08 12:25  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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Sample Preparation: 30.16 g / 10 mL 3550B 12/12/08 10:30 cdaly P23299

Surrogate	% Recovery	Control Limits
Tetrachloro-m-xylene (TCMX)	98	40 - 162
Decachlorobiphenyl (DCB)	115	26 - 204

**Ammonia Nitrogen by Automated Phenate Method**

Ammonia 28 mg/kg 3.2 0.93 1 SM4500-NH3 H 12/18/08 10:21 heasler Q37813

**Diesel Range Organics (DRO) by GC-FID**

Diesel Range Organics (DRO) 1200 mg/kg 180 29 20 8015B 12/19/08 10:17 jvogel Q37780

Sample Preparation: 25 g / 1 mL 3545 12/15/08 9:00 pbarr P23313

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

**Sample Weight Determination**

Weight 1 6.66 g 1 GRO 12/12/08 0:00 lbrown  
 Weight 2 6.68 g 1 GRO 12/12/08 0:00 lbrown

**Gasoline Range Organics (GRO) by GC-FID**

Gasoline Range Organics (GRO) 17 mg/kg 6.4 0.78 50 8015B 12/16/08 1:49 diamm Q37664

Surrogate	% Recovery	Control Limits
aaa-TFT	65	55 - 129

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Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1  
 Sample Matrix: Soil

Client Sample ID: SB-6  
 Prism Sample ID: 232979  
 COC Group: G1208362  
 Time Collected: 12/08/08 12:25  
 Time Submitted: 12/10/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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**Sample Comment(s):**

*BRL = Below Reporting Limit*

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

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

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

Angela D. Overcash, V.P. Laboratory Services



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

# Level II QC Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1

COC Group Number: G1208362  
 Date/Time Submitted: 12/10/08 16:45

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

Method Blank							QC Batch ID		
	Result	RL	Control Limit	Units					
Gasoline Range Organics (GRO)	ND	5	<2.5	mg/kg			Q37663		
Laboratory Control Sample							QC Batch ID		
	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
Gasoline Range Organics (GRO)	36.2	50		mg/kg	72	67-116	Q37663		
Matrix Spike							QC Batch ID		
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
233051 Gasoline Range Organics (GRO)	47.6	50		mg/kg	95	57-113	Q37663		
Matrix Spike Duplicate							QC Batch ID		
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
233051 Gasoline Range Organics (GRO)	55.9	50		mg/kg	112	57-113	16	0 - 23	Q37663

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

Method Blank							QC Batch ID		
	Result	RL	Control Limit	Units					
Gasoline Range Organics (GRO)	ND	5	<2.5	mg/kg			Q37664		
Laboratory Control Sample							QC Batch ID		
	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
Gasoline Range Organics (GRO)	38.1	50		mg/kg	76	67-116	Q37664		
Matrix Spike							QC Batch ID		
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %			
232978 Gasoline Range Organics (GRO)	29.3	50		mg/kg	59	57-113	Q37664		
Matrix Spike Duplicate							QC Batch ID		
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
232978 Gasoline Range Organics (GRO)	32.9	50		mg/kg	66	57-113	12	0 - 23	Q37664



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

# Level II QC Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1

COC Group Number: G1208362  
 Date/Time Submitted: 12/10/08 16:45

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

<b>Method Blank</b>							QC Batch ID	
	Result	RL	Control Limit	Units				
Diesel Range Organics (DRO)	ND	7	<3.5	mg/kg			Q37780	
<b>Laboratory Control Sample</b>							QC Batch ID	
	Result	Spike Amount	Units	Recovery %	Recovery Ranges %			
Diesel Range Organics (DRO)	80.1	80	mg/kg	100	55-109		Q37780	
<b>Matrix Spike</b>							QC Batch ID	
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %			
233042 Diesel Range Organics (DRO)	84.3	80	mg/kg	105	50-117		Q37780	
<b>Matrix Spike Duplicate</b>							QC Batch ID	
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
233042 Diesel Range Organics (DRO)	66.5	80	mg/kg	83	50-117	24	0 - 24	Q37780

## Ammonia Nitrogen by Automated Phenate Method, method SM4500-NH3 H

<b>Method Blank</b>							QC Batch ID	
	Result	RL	Control Limit	Units				
Ammonia	1.5	# 2.5	<1.25	mg/kg			Q37813	
<b>Laboratory Control Sample</b>							QC Batch ID	
	Result	Spike Amount	Units	Recovery %	Recovery Ranges %			
Ammonia	123.15	125	mg/kg	99	80-120		Q37813	
<b>Matrix Spike</b>							QC Batch ID	
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %			
232974 Ammonia	124.56	125	mg/kg	94	80-120		Q37813	
<b>Matrix Spike Duplicate</b>							QC Batch ID	
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
232974 Ammonia	136.07	125	mg/kg	103	80-120	9	0 - 20	Q37813



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

# Level II QC Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
 c/o MACTEC Eng. & Consulting, Inc  
 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1

COC Group Number: G1208362  
 Date/Time Submitted: 12/10/08 16:45

## Organochlorine Pesticides by Gas Chromatography, method 8081A

Method Blank	Result	RL	Control Limit	Units	QC Batch ID
4,4'-DDD	ND	2	<1	µg/kg	Q37871
4,4'-DDE	ND	2	<1	µg/kg	Q37871
4,4'-DDT	ND	3	<1.5	µg/kg	Q37871
4,4'-Methoxychlor	ND	2	<1	µg/kg	Q37871
a-BHC	ND	2	<1	µg/kg	Q37871
a-Chlordane	ND	2	<1	µg/kg	Q37871
Aldrin	ND	2	<1	µg/kg	Q37871
b-BHC	ND	2	<1	µg/kg	Q37871
Chlordane	ND	50	<25	µg/kg	Q37871
d-BHC	ND	2	<1	µg/kg	Q37871
Dieldrin	ND	2	<1	µg/kg	Q37871
Endosulfan I	ND	2	<1	µg/kg	Q37871
Endosulfan II	ND	2	<1	µg/kg	Q37871
Endosulfan Sulfate	ND	2	<1	µg/kg	Q37871
Endrin	ND	2	<1	µg/kg	Q37871
Endrin Aldehyde	ND	2	<1	µg/kg	Q37871
Endrin Ketone	ND	2	<1	µg/kg	Q37871
g-BHC	ND	2	<1	µg/kg	Q37871
g-Chlordane	ND	2	<1	µg/kg	Q37871
Heptachlor	ND	2	<1	µg/kg	Q37871
Heptachlor Epoxide	ND	2	<1	µg/kg	Q37871
Toxaphene	ND	50	<25	µg/kg	Q37871

Laboratory Control Sample	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
4,4'-DDT	31.65	33	µg/kg	96	75-141	Q37871
Aldrin	25.39	33	µg/kg	77	66-132	Q37871
Dieldrin	30.02	33	µg/kg	91	72-136	Q37871
Endrin	35.63	33	µg/kg	108	74-147	Q37871
Heptachlor	28.04	33	µg/kg	85	72-134	Q37871

Matrix Spike	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
Sample ID: 233077 4,4'-DDT	44.6	33	µg/kg	135	56-163	Q37871
Aldrin	28.9	33	µg/kg	88	57-137	Q37871
Dieldrin	28.5	33	µg/kg	86	60-141	Q37871

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

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



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

# Level II QC Report

01/23/09

N.C. Department of Transportation  
 Attn: Matt Gillis  
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 3301 Atlantic Ave.  
 Raleigh, NC 27604

Project ID: NCDOT Lenoir  
 Project No.: WBS# 34783.1.1

COC Group Number: G1208362  
 Date/Time Submitted: 12/10/08 16:45

Matrix Spike		Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
Sample ID:							
233077	Endrin	32.6	33	µg/kg	99	65-164	Q37871
	Heptachlor	29.9	33	µg/kg	91	63-142	Q37871

Matrix Spike Duplicate		Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
Sample ID:									
233077	4,4'-DDT	44.5	33	µg/kg	135	56-163	0	0 - 38	Q37871
	Aldrin	28.2	33	µg/kg	85	57-137	2	0 - 29	Q37871
	Dieldrin	30.0	33	µg/kg	91	60-141	5	0 - 30	Q37871
	Endrin	32.6	33	µg/kg	99	65-164	0	0 - 21	Q37871
	Heptachlor	31.4	33	µg/kg	95	63-142	5	0 - 27	Q37871

#-See Case Narrative



Full Service Analytical & Environmental Solutions

449 Springbrook Road • P.O. Box 240543 • Charlotte, NC 28224-0543  
 Phone: 704/529-6964 • Fax: 704/525-0409

Client Company Name: MATTE  
 Report To/Contact Name: Matt Gilie's  
 Reporting Address: 3301 Atlantic Ave  
Raleigh, NC 27604

Phone: 919 831 8056 Fax (Yes) (No):  
 Email (Yes) (No) Email Address: Matt Gilie's@matte.com  
 EDD Type: PDF ✓ Excel Other  
 Site Location Name: NC DOT Lenoir  
 Site Location Physical Address: 6470-08-2286

# CHAIN OF CUSTODY RECORD

PAGE 1 OF 6 QUOTE # TO ENSURE PROPER BILLING: \_\_\_\_\_

Project Name: \_\_\_\_\_  
 Short Hold Analysis: (Yes) (No)  (Yes)  (No)   
 \*Please ATTACH any project specific reporting (QC LEVEL I III IV)  
 provisions and/or QC Requirements NC DOT  
 Invoice To: MATTE  
 Address: 3301 Atlantic Ave

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

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL  
 Certification: NELAC \_\_\_\_\_ USACE \_\_\_\_\_ FL \_\_\_\_\_ NC \_\_\_\_\_  
 Water Chlorinated: YES \_\_\_\_\_ NO \_\_\_\_\_ N/A \_\_\_\_\_  
 Sample Iced Upon Collection: YES \_\_\_\_\_ NO \_\_\_\_\_

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER			PRESERVATIVES	ANALYSES REQUESTED			REMARKS	PRISM LAB ID NO.	
				*TYPE SEE BELOW	NO.	SIZE		DRO	GRO	8081A			350.3
SB-1	12-8-08	1130	Soil	C	5			X	X	X		8081A = chlorinated	0326944
SB-2		1140			5			X	X	X		pesticides	0326975
SB-3		1155			5			X	X	X		350.3 = total	0326976
SB-4		1205			5			X	X	X		currania as	0326977
SB-5		1215			5			X	X	X		n. triphenyl	0326978
SB-6		1225			5			X	X	X			0326979
SB-7		1415			4			X	X	X			0326980
SB-8		1425			4			X	X	X			0326981
SB-9		1435			4			X	X	X			0326982
SB-10		1450			4			X	X	X			0326983

Sampler's Signature: Matthew Gilie Sampled By (Print Name): Matthew Gilie's Affiliation: MATTE

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

Relinquished By: (Signature) Matthew Gilie Received By: (Signature) Matthew Gilie Date: 12/14/08 Military Hours: 1545

Relinquished By: (Signature) Matthew Gilie Received For Prism Laboratories By: Matthew Gilie Date: 12/14/08 Military Hours: 1545

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

Shipping Method:  Fed Ex  UPS  Hand-delivered  Prism Field Service  Other  
 NPDES:  NC  SC  NC  SC  NC  SC  NC  SC  NC  SC  
 DRINKING WATER:  NC  SC  NC  SC  
 SOLID WASTE:  NC  SC  NC  SC  
 RCRA:  NC  SC  NC  SC  
 CERCLA:  NC  SC  NC  SC  
 LANDFILL:  NC  SC  NC  SC  
 OTHER:  NC  SC  
 \*CONTAIN TYPE CODES: A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

**LAB USE ONLY**

Samples intact upon arrival?  YES  NO  N/A

Received on wet ice?  YES  NO  N/A

Proper preservation times indicated?  YES  NO  N/A

Received within holding times?  YES  NO  N/A

Custody seals intact?  YES  NO  N/A

Volatiles received/out-headspace?  YES  NO  N/A

Proper containers used?  YES  NO  N/A

PRESS DOWN FIRMLY - 3 COPIES

PRISM USE ONLY

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

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL

## **ATTACHMENT A**

### **RESULTS OF GEOPHYSICAL INVESTIGATION**

**Southern States Property, Parcel #3**

**U-2211B, WBS No. 34783.1.1**

**Caldwell County, North Carolina**

A geophysical investigation was conducted on the Southern States Property (Parcel No. 3) to identify the presence or absence of underground storage tanks (USTs) and associated appurtenances at the subject site. The geophysical investigation utilized ground penetrating radar and time domain electromagnetics. These instruments were used in concert with one another in order to identify subsurface metallic anomalies and, in particular, to identify the presence of USTs on site. A brief description of each instrument is presented in the following paragraphs followed by a discussion of the results of the geophysical evaluation.

#### **1.0 Ground Penetrating Radar Methodology**

A RAMAC digital radar control system configured with a 250 Megahertz (MHz) antenna array was used in this investigation. Ground Penetrating Radar (GPR) is an electromagnetic geophysical method that detects interfaces between subsurface materials with differing dielectric constants. The GPR system consists of an antenna that houses the transmitter and receiver, a digital control unit that both generates and digitally records the GPR data, and a color video monitor to view data as they are collected in the field.

The transmitter radiates repetitive short-duration electromagnetic waves (at radar frequencies) into the earth from an antenna moving across the ground surface. These radar waves are reflected back to the receiver from the interface of materials with different dielectric constants. The intensity of the reflected signal is a function of the contrast in the dielectric constant between the materials, the conductivity of the material through which the wave is traveling, and the frequency of the signal. Subsurface features that commonly cause such reflections are: 1) natural geologic conditions, such as changes in sediment composition, bedding, and cementation horizons and voids; or 2) unnatural changes to the subsurface, such as disturbed soils, soil backfill, buried debris, tanks, pipelines, and utilities. The digital control unit processes the signal from the receiver and produces a continuous cross-section of the subsurface interface reflection events.

**GEL Engineering of NC, Inc.**  
*an Affiliate of The GEL Group, Inc.*

**fc: ncdt01008**

GPR data profiles are collected along transects, which are measured paths along which the GPR antenna is moved. During a survey, marks are placed in the data by the operator at designated points along the GPR transects or with a survey wheel odometer. These marks allow for a correlation between the GPR data and the position of the GPR antenna on the ground.

Depth of investigation of the GPR signal is highly site-specific and is limited by signal attenuation (absorption) in the subsurface materials. Signal attenuation is dependent on the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities, such as clays, brackish groundwater, or groundwater with a high dissolved solid content from natural or man-made sources. Signal attenuation is lowest in relatively low-conductivity materials, such as dry sand or rock. Depth of investigation is also dependent on the antenna's transmitting frequency. Depth of investigation generally increases as transmitting frequency decreases; however, the ability to resolve smaller subsurface features is diminished as frequency is decreased.

The GPR antenna used at this site is internally shielded from aboveground interference sources. Accordingly, the GPR response is not affected by overhead power lines, metallic buildings, or nearby objects.

## **2.0 Time Domain Electromagnetic Methodology**

The Time Domain Electromagnetic (TDEM) methods measure the electrical conductivity of subsurface materials. The conductivity is determined by inducing (from a transmitter) a time or frequency-varying magnetic field and measuring (with a receiver) the amplitude and phase shift of an induced secondary magnetic field. The secondary magnetic field is created by subsurface conductive materials behaving as an inductor as the primary magnetic field is passed through them.

The Geonics EM-61 system used in this investigation operates within these principles. However, the EM-61 TDEM system can discriminate between moderately conductive earth materials and very conductive metallic targets. The EM-61 consists of a portable coincident loop time domain transmitter and receiver with a 0.5-meter by 1.0-meter coil system. The EM-61 generates 150 pulses per second and measures the response from the ground after transmission or between pulses. The secondary EM responses from metallic targets are of longer duration than those created by conductive

earth materials. By recording the later time EM arrivals, only the response from metallic targets is measured, rather than the field generated by the earth material.

### **3.0 Field Procedures**

The geophysical field investigation was performed on December 1-2 & 8, 2008. Interpretation of the GPR data was conducted in the field and any potential anomalies were marked in the field. GPR data processing typically included band pass filtering, background removal, horizontal smoothing, and gain adjustments. TDEM was also used to scan the project site. Any electromagnetic anomalies indicative of buried metallic objects were marked in the field. No subsurface anomalies were identified on the subject site during the survey.