

December 5, 2016

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

Reference: **Preliminary Site Assessment
Bill and Maria Pappas Property (Parcel #124)
6261 Raeford Road
Fayetteville, Cumberland County, North Carolina
State Project: U-4405
WBS Element 39049.1.1
SIES Project No. 2016.0054.NDOT**

Dear Mr. Fox:

Solutions-IES, Inc., (SIES) has completed the Preliminary Site Assessment conducted at the above-referenced property. The work was performed in accordance with the Technical and Cost proposal dated September 26, 2016, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated September 26, 2016. Activities associated with the assessment consisted of conducting a geophysical investigation, collecting soil samples for analysis, and reviewing applicable North Carolina Department of Environmental Quality (NCDEQ) records. The purpose of this report is to document the field activities, present the laboratory analytical results, and provide recommendations regarding the property.

Location and Description

The Bill and Maria Pappas Property (Parcel #124) is located at 6261 Raeford Road in Fayetteville, Cumberland County, North Carolina. The property is situated on the south side of Raeford Road in the southeast quadrant of the intersection of Raeford Road and Bingham Drive (**Figure 1**). The site was a gas station and convenience store (Scotchman 38), and as of the date of the field work, Baldino's restaurant and sandwich shop occupied the building. Based on a review of on-line UST registry information, one underground storage tank (UST) was reportedly removed in 1984 and four USTs in 2002.

An asphalt parking area occupies the area in front of and to the west of the building and extends almost to the property boundaries. A concrete former dispenser island is located in the north-central area of the property and an asphalt patch immediately south of the former island suggests the area in which the

former USTs were located (**Figure 2**). The proposed easement has not been marked at the site, but NCDOT plan sheets show that the easement will not affect these areas or the building.

The NCDOT requested a Preliminary Site Assessment for the right-of-way and proposed easement because the site had been a gas station. The scope of work as defined in the Request for Technical and Cost Proposal was to evaluate the site with respect to the presence of known and unknown USTs and assess where contamination exists on the right-of-way/proposed easement. An estimate of the quantity of impacted soil was to be provided, should impacted soils be encountered.

SIES reviewed the on-line NCDENR Incident Management database and Incident Number 29017 was assigned to the site. A further review of files regarding the incident from the NCDEQ Fayetteville Regional Office indicated that in October 2002, four USTs were closed at the site. A UST Closure Report, dated November 18, 2002, described the closure of three 6,000-gallon gasoline USTs and one 4,000-gallon kerosene UST. The report also stated that a 550-gallon waste oil tank was removed in 1984, but no other information about that tank removal was given. The UST tank pit locations shown in the closure report are consistent with the site asphalt patching and confirm the USTs were south of the concrete pad. Confirmation soil samples were collected from below the dispensers, product lines, excavation sidewalls, and excavation bottom and analyzed for total petroleum hydrocarbons diesel and gasoline range organics (TPH DRO/GRO). Samples from below the dispensers, a product line, two sidewall samples, and five bottom samples contained DRO and GRO concentrations above the 2002 action level of 10 milligrams per kilogram (mg/kg). None of the soil samples collected were at locations within the proposed right-of-way or easement.

A Limited Site Assessment (LSA) was conducted at the site because the closure samples exceeded the action level. According to the March 18, 2003 LSA report, benzene was detected above the soil-to-groundwater Maximum Soil Contaminant Concentration (MSCC) in one soil sample. No other compounds were detected above applicable MSCCs in the other soil samples. Two groundwater monitoring wells were installed for the LSA; groundwater was encountered at 44 feet below ground surface (ft bgs). Analysis of the groundwater samples indicated that no volatile organic compounds were detected in either groundwater sample, but lead was detected slightly above the 15A NCA 2L Standards (NC 2L Standards). As a result of the LSA findings, the site was assigned a low risk classification with a residential land use. A No Further Action letter was not included in the file documents. As a convenience to the reader, relevant excerpts from the file documents are presented in **Attachment A** and the file reports are added to the end of this report.

SIES also examined the UST registration database to obtain UST ownership information. According to the database, the USTs on the property were operated under Facility Number 00-0-0000011379. The owner and operator of record for the tanks are listed as follows:

Owner
Worsley Companies, Inc.
PO Box 3227/10 S. Cardinal Dr.
Wilmington, NC 28406

Operator
Scotchman 38
6261 Raeford Road
Fayetteville, NC 28304

Geophysical Survey

Prior to SIES' mobilization to the site, Pyramid Environmental & Engineering of Greensboro, NC (Pyramid) conducted a geophysical survey to confirm the absence of known USTs in the right-of-way/proposed easement and determine if unknown USTs were present in that area. The geophysical survey consisted of an electromagnetic survey using a Geonics EM61 time-domain electromagnetic induction meter to locate buried metallic objects, and specifically looking for USTs.

A survey grid was laid out along the right-of-way/proposed easement with the X-axis oriented approximately parallel to Raeford Road and the Y-axis oriented approximately perpendicular to Raeford Road. The grid was positioned to cover the entire right-of-way/proposed easement.

The survey lines were spaced five feet apart and magnetic data were collected continuously along each survey line with a data logger. After collection, the data were reviewed in the field with graphical computer software.

Access was available to all areas of the property and several anomalies were detected with the geophysical survey. The anomalies were attributed to visible cultural features, metallic debris, underground utilities, or signage. No metallic USTs were detected within the geophysical survey area. Pyramid's detailed report of findings and interpretations is presented in **Attachment B**.

Site Assessment Activities

On October 25, 2016, SIES mobilized to the site to conduct a Geoprobe® direct-push investigation to evaluate subsurface soil conditions on the property. Five direct-push holes (124-SB-1 through 124-SB-5) were advanced throughout the right-of-way/proposed easement to a depth of 10 ft bgs. Boring locations are shown on the site map on **Figure 2**. The soil boring logs are included as **Attachment C**. Borings 124-SB-1 and 124-SB-2 were located to evaluate the subsurface conditions at drop inlet locations on the west side of the right-of-way/proposed easement. Borings 124-SB-3 through 124-SB-5 were located to assess the soil conditions on the northern right-of-way/easement (see photos in **Attachment D**).

Continuous sampling using a Geoprobe® resulted in generally good recovery of soil samples from the direct-push borings. Soil samples were collected and contained in four-foot long acetate sleeves inside the direct-push Macro-Core® sampler. Each of these sleeves was divided into two-foot long sections for soil sample screening. Soil from each two-foot interval was placed in a resealable plastic bag and the bag was set aside for volatilization of organic compounds from the soil to the bag headspace. A photoionization detector (PID) probe was inserted into the bag and the reading was recorded (**Table 1**).

If the PID concentrations in a boring were consistently low, one sample from the bottom interval was selected for analysis. If the PID concentrations were elevated, samples at the elevated and bottom intervals were selected for analyses. The PID results are summarized in Table 1.

The selected soil samples were submitted to an on-site mobile laboratory for analysis of total petroleum hydrocarbons (TPH) in the diesel range organics (DRO) and gasoline range organics (GRO) using ultraviolet fluorescence (UVF) methodology. Each boring was backfilled with bentonite and drill cuttings to the ground surface after completion.

The lithology encountered by the direct-push samples was generally consistent throughout the site. The ground surface was covered with about 0.5 feet of asphalt or topsoil. Below this surface cover was an light brown silty, fine-grained sand to a depth of about three ft bgs. Below this sand was a dark brown silty, fine-grained sand to a depth of about seven ft bgs. A dark brown clayey sand was observed at the bottom of most of the borings. No bedrock or groundwater was encountered in any of the borings.

According to the 1985 Geologic Map of North Carolina, the site is within of Coastal Plain Physiographic Province in North Carolina near the contact between the Cretaceous Black Creek and Middendorf Formations. The strata of the Black Creek Formation consist of gray to black clay, thin lenses of fine-grained sand and thick lenses of cross-bedded sand. The lithology may also include glauconite and fossils. In comparison, the Middendorf Formation consists of sand, sandstone, and mudstone that are laterally discontinuous. The soils observed at the site are consistent with the Middendorf Formation as the parent material.

Analytical Results

The laboratory data are summarized in **Table 1** and the complete report is presented in **Attachment E**. Five soil samples were submitted for analysis. Two of these samples contained detectable GRO compounds at 0.7 and 1 mg/kg. Four of the samples contained detectable DRO compounds ranging from

0.15 to 12.7 mg/kg. The action levels are 50 mg/kg for GRO and 100 mg/kg for DRO¹. None of the soil samples analyzed for this site contained DRO or GRO concentrations above their respective action levels.

Conclusions and Recommendations

A Preliminary Site Assessment was conducted to evaluate the Bill and Maria Pappas Property (Parcel #124) located at 6261 Raeford Road in Fayetteville, Cumberland County, North Carolina. Documents within the NCDEQ UST Section files indicated that a release had occurred at the site. Soil contamination was detected as part of a UST closure, but subsequent assessments determined only benzene was at a concentration above the soil-to-groundwater MSCC but below the residential MSCC, and one constituent, lead, was reported in groundwater samples at concentrations above the NC 2L Standard. Based upon the analytical results and the lack of receptors, the site was assigned a low risk classification and a residential land use. A No Further Action letter apparently has not been issued.

A geophysical survey conducted at the site indicated that no metallic USTs were present within the geophysical survey area of the site. Five soil borings were advanced to evaluate the subsurface soil conditions along the right-of-way/proposed easement. Two of the five soil samples analyzed had a GRO concentration above the detection limit, and DRO concentrations were present above the detection limit in four of the five soil samples. However, none of the DRO or GRO concentrations were above their respective action limit.

The UVF analytical results (**Table 1**) of the soil samples collected on October 25, 2016 indicate that none of the soil samples contained DRO or GRO concentrations above the action level. Therefore, no estimate of the volume of soil requiring possible remediation was made.

¹ NCDEQ, *Guidelines for North Carolina Action Limits for Total Petroleum Hydrocarbons (TPH)*, July 26, 2016,

SIES appreciates the opportunity to work with the NCDOT on this project. Because compounds were detected above the method detection limit in the soil samples, SIES recommends that a copy of this report be submitted to the Division of Waste Management, UST Section, in the Fayetteville Regional Office. If you have any questions, please contact us at (919) 873-1060.

Sincerely,



Michael W. Branson, P.G.
Project Manager

Attachments



John Palmer, P.G.
Senior Hydrogeologist

TABLE 1
SOIL FIELD SCREENING AND ANALYTICAL RESULTS
PAPPAS PROPERTY (PARCEL #124)
FAYETTEVILLE, CUMBERLAND COUNTY, NORTH CAROLINA
STATE PROJECT: U-4405
WBS ELEMENT 39049.1.1
SIES PROJECT NO. 2016.0054.NDOT

SAMPLE ID	DEPTH (ft)	PID READING (ppm)	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)	
				UVF GRO	UVF DRO
Action Level (mg/kg)				50	100
124-SB-1	0 - 2	0			
	2 - 4	0			
	4 - 6	0			
	6 - 8	1.2			
	8 - 10	1.6	124-SB-1-8-10	<0.63	12.7
124-SB-2	0 - 2	0			
	2 - 4	0			
	4 - 6	0			
	6 - 8	0.3			
	8 - 10	0.3	124-SB-2-8-10	<0.15	<0.15
124-SB-3	0 - 2	0			
	2 - 4	0.1			
	4 - 6	0			
	6 - 8	0.3			
	8 - 10	0.1	124-SB-3-8-10	<0.63	1.4
124-SB-4	0 - 2	0.2			
	2 - 4	1.0			
	4 - 6	0.3			
	6 - 8	0.6			
	8 - 10	0.6	124-SB-4-8-10	1	0.15
124-SB-5	0 - 2	0			
	2 - 4	0			
	4 - 6	0.1			
	6 - 8	0			
	8 - 10	0.2	124-SB-5-8-10	0.7	1.8

1) ft - feet

2) ppm - parts per million.

3) PID - photoionization ionization detector

4) mg/kg - milligrams per kilogram.

5) UVF DRO - Diesel range organics by UVF.

6) UVF GRO - Gasoline range organics by UVF.

7) Action level based upon NCDEQ memo *Guidelines for North Carolina Action Limits for Total Petroleum Hydrocarbons* - July 29, 2016.

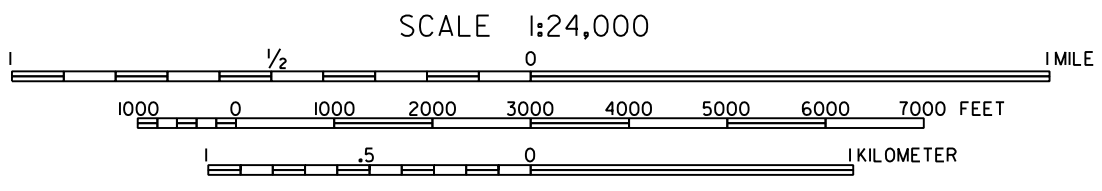
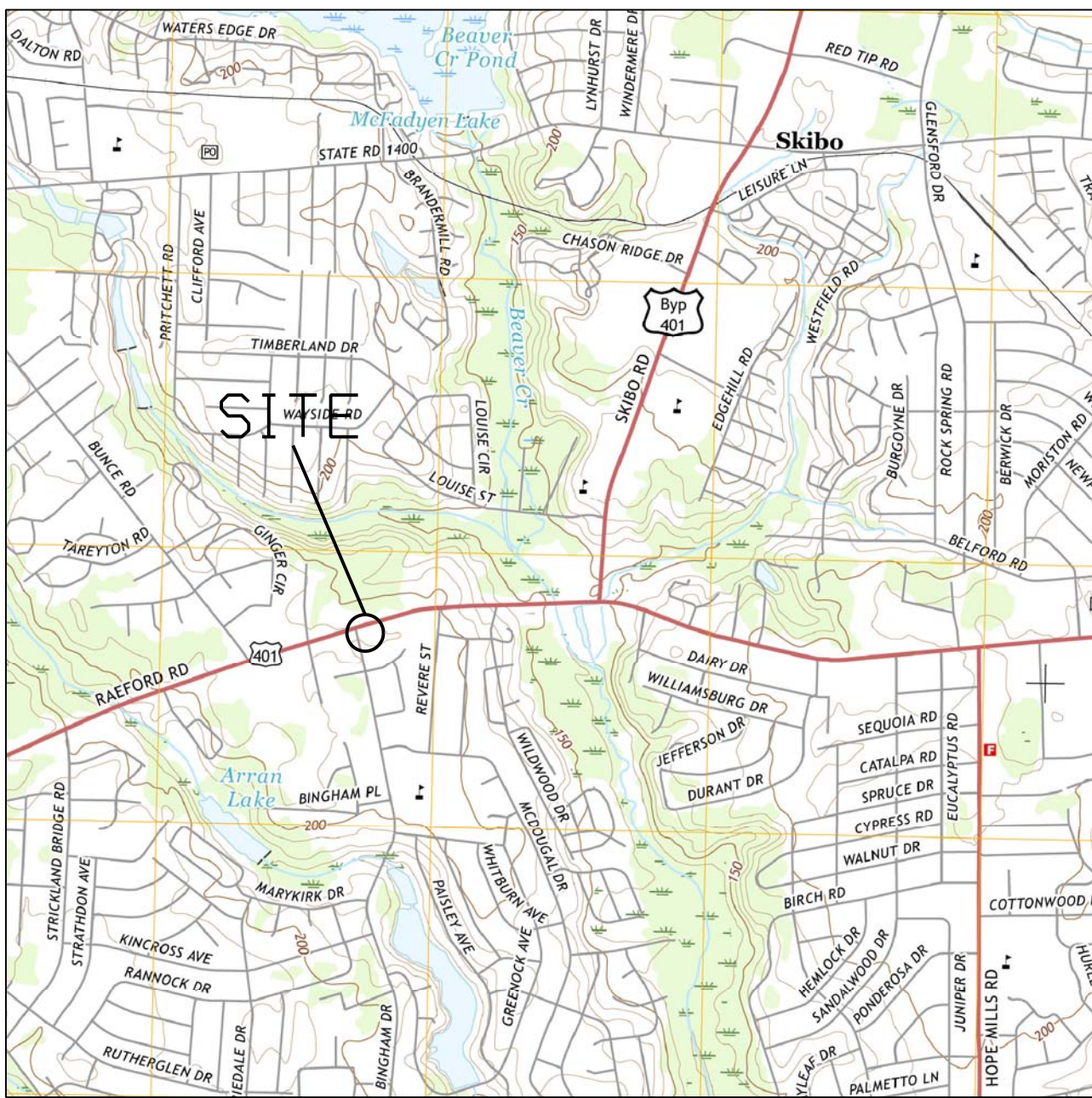
8) Soil samples were collected on October 25, 2016.

9) **Bold** values are above the detection level.

FIGURES



PROJECT NUMBER 2016.0054.NDOT
 CHECKED BY JEP
 PROJECT MANAGER MWB
 DATE NOVEMBER 2016
 FILE FAYETTEVILLE PSAS



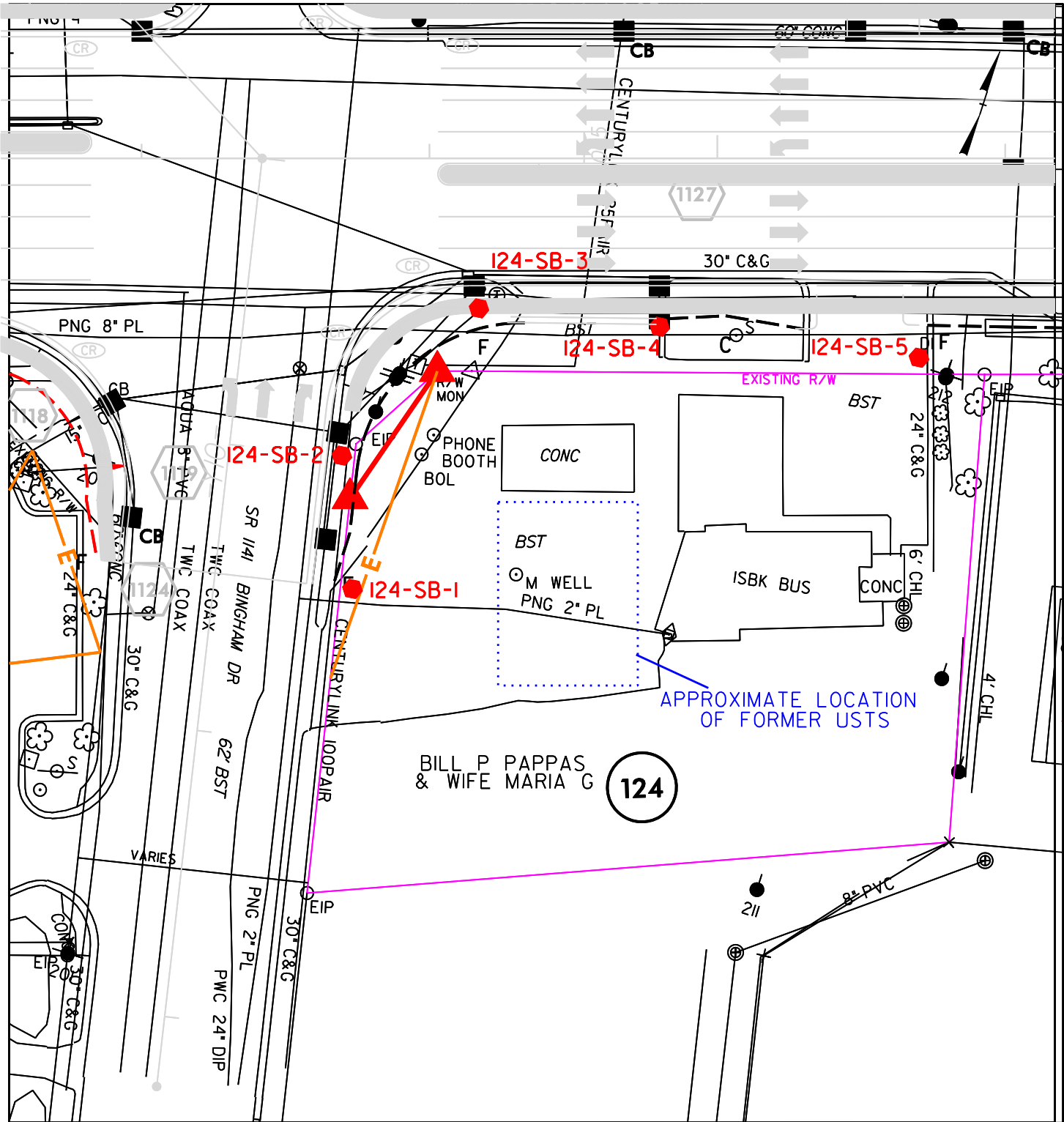
SOURCE: U.S. GEOLOGICAL SURVEY 7.5 MIN QUADRANGLE: FAYETTEVILLE, NC (2016)

Solutions-IES
 Industrial & Environmental Services
 1101 NOWELL ROAD
 RALEIGH, NORTH CAROLINA 27607
 TEL: (919) 873-1060 FAX: (919) 873-1074

VICINITY MAP
 PAPPAS PROPERTY (PARCEL #124)
 FAYETTEVILLE, CUMBERLAND COUNTY NORTH CAROLINA

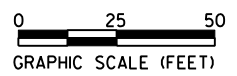
FIGURE
 1

PROJECT NUMBER 2016.0054.NDOT
 MWB
 DRAFTER
 JEP
 CHECKED BY MWB
 PROJECT MANAGER MWB
 DATE NOVEMBER 2016
 PSAS
 FILE



LEGEND

I24-SB-1
 ● SOIL SAMPLE LOCATION AND IDENTIFICATION



Solutions-IES
 Industrial & Environmental Services
 1101 NOWELL ROAD
 RALEIGH, NORTH CAROLINA 27607
 TEL: (919) 873-1060 FAX: (919) 873-1074

SITE MAP
 PAPPAS PROPERTY (PARCEL #124)
 FAYETTEVILLE, CUMBERLAND COUNTY, NORTH CAROLINA

FIGURE
 2

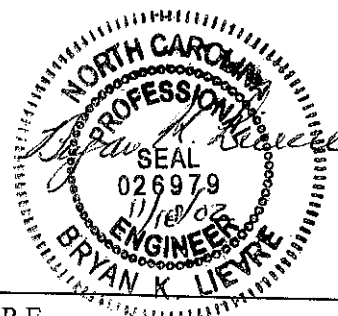
ATTACHMENT A

UNDERGROUND STORAGE TANK CLOSURE REPORT
SCOTCHMAN #38
6261 RAEFORD ROAD
FAYETTEVILLE, NORTH CAROLINA
NOVEMBER 18, 2002

Facility ID:	0-011379
Property Owner:	Worsley Companies, Inc P.O. Box 3227 Wilmington, NC 28406 (910) 395-5300
UST Owner:	Worsley Companies, Inc P.O. Box 3227 Wilmington, NC 28406 (910) 395-5300
Release Information:	Discovery date: October 24, 2002 Cause of release: UST System Source: UST System consisting of 1-4,000 gallon kerosene and 3-6,000 gallon gasoline USTs.
Latitude:	35° 04' 27" N
Longitude:	79° 28' 53" W

Prepared for:
Worsley Companies, Inc.
P.O. Box 3227
Wilmington, NC 28406
(910) 395-5300

Prepared By:
Delta Environmental Consultants, Inc.
3205 Randall Parkway, Suite 104
Wilmington, NC 28406
(910) 772-6492



Bryan K. Lievre, P.E.
North Carolina Professional Engineer
No. 026979

TABLE 1
SOIL ANALYTICAL RESULTS
UST CLOSURE
SCOTCHMAN #38
FAYETTEVILLE, NORTH CAROLINA
DELTA PROJECT NO. X0NC-057

Sample ID	Sample Date	Sample Depth (ft. bgs)	TPH-GRO (EPA 5030) (mg/kg)	TPH-DRO (EPA 3550) (mg/kg)
D-1	10/23/2002	1.5	1,800	3,010
D-2	10/23/2002	1.5	4,000	4,220
PL-1	10/23/2002	2	<6.7	26
SW-1	10/23/2002	4	<6.6	<6.8
SW-2	10/23/2002	4	<6.9	<7.2
SW-3	10/23/2002	4	<7.1	<7.4
SW-4	10/23/2002	4	<6.6	<6.5
SW-5	10/23/2002	4	<6.3	<6.2
SW-6	10/24/2002	4	<6.9	<7.2
SW-7	10/24/2002	4	<6.5	<6.3
SW-8	10/24/2002	3.5	<6.4	7.0
SW-9	10/24/2002	3.5	<6.6	<6.9
SW-10	10/24/2002	3.5	<6.5	<6.7
SW-11	10/24/2002	4	51	567
SW-12	10/24/2002	4	10	51
SW-13	10/24/2002	3.5	<6.7	<6.9
SW-14	10/24/2002	3.5	<6.7	<7.0
SW-15	10/24/2002	4	<6.7	<7.0
B-1	10/23/2002	9	<6.6	<6.6
B-2	10/23/2002	9	<6.7	<7.3
B-3	10/23/2002	9	<6.7	<6.8
B-4	10/24/2002	7	<7.0	<7.6
B-5	10/24/2002	7	<7.0	<6.5
B-6	10/24/2002	7	<7.0	<7.1
B-7	10/24/2002	7	<6.9	<7.0
B-8	10/24/2002	7	700	2,380
B-9	10/24/2002	7	1,900	1,620
B-10	10/24/2002	7	210	840
B-11	10/24/2002	7	850	1,000
B-12	10/24/2002	7	1,200	1,990
NC Action Levels			10	10

Notes:

- 1) ft. bgs. denotes feet below ground surface
- 2) mg/kg denotes milligrams per kilogram
- 3) All results in **BOLD** exceed Action Levels
- 4) TPH-GRO denotes Total Petroleum Hydrocarbons-Gasoline Range Organic
- 5) TPH-DRO denotes Total Petroleum Hydrocarbons-Diesel Range Organics



FAYETTEVILLE QUADRANGLE
 NORTH CAROLINA
 7.5 MINUTE TOPOGRAPHIC SERIES



Delta
 Environmental
 Consultants, Inc.

Delta Environmental Consultants, Inc.
 3205 Randall Parkway Suite 104
 Wilmington, North Carolina 28403

PROJECT NO. X0NC-057	CLIENT/LOCATION WORSLEY COMPANIES, INC. SCOTCHMAN #38 FAYETTEVILLE, NORTH CAROLINA
PROJECT MANAGER B. Lievre	FIGURE NO. 1
DATE 11/21/02	DRAWING DESCRIPTION SITE VICINITY MAP

RAEFORD ROAD

Grass

Grass

Canopy

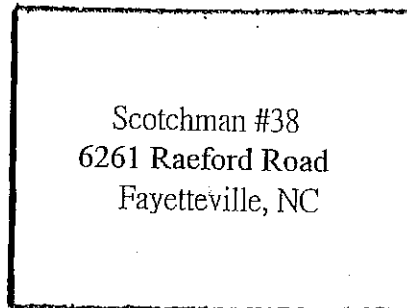
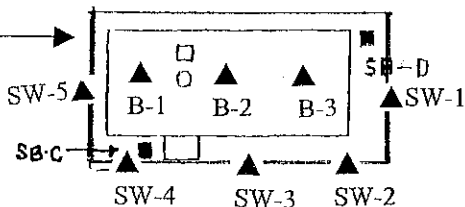
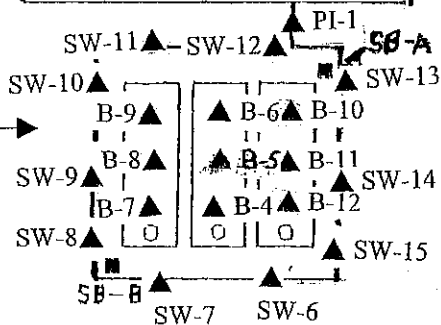
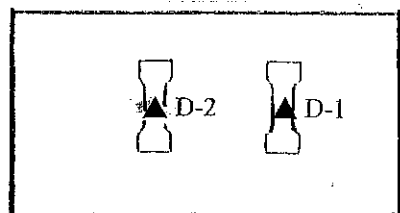
LEGEND

- ▲ UST Closure Sample Location
- Soil Sample Location
- UST Fill Port

BINGHAM
DRIVE

Tank Basin #2
(UST 1-3)

Tank Basin #1
(UST-4)



**** VENTS

NOT TO SCALE



Delta
Environmental
Consultants, Inc.

Delta Environmental Consultants, Inc.
3205 Randall Parkway Suite 104
Wilmington, North Carolina 28403

PROJECT NO.
X0NC-057

CLIENT/LOCATION
WORSLEY COMPANIES, INC.
SCOTCHMAN #38
FAYETTEVILLE, NORTH CAROLINA

PROJECT
MANAGER
B.LIEVRE

FIGURE NO.

DRAWING DESCRIPTION

DATE
11/21/02

2

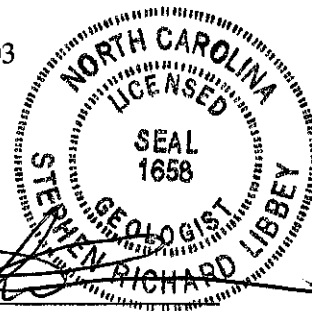
SITE MAP

PHASE II LIMITED SITE ASSESSMENT
SCOTCHMAN #38
6261 RAEFORD ROAD
FAYETTEVILLE, NORTH CAROLINA
MARCH 2003

Facility ID:	0-011379
Property Owner:	Worsley Companies, Inc. P.O. Box 3227 10 S. Cardinal Drive Wilmington, NC 2840
UST Owner (at time of release):	Worsley Companies, Inc. P.O. Box 3227 10 S. Cardinal Drive Wilmington, NC 28406 (910) 395-5300
Release Information:	Discovery Date: October 24, 2002, estimated quantity unknown. Cause of Release: UST system consisting of 1-4,000 gallon kerosene and 3-6,000 gallon gasoline USTs.
Latitude:	35° 04' 27" N
Longitude:	79° 28' 53" W

Prepared for:
Worsley Companies, Inc.
P.O. Box 3227
Wilmington, NC 28406

Prepared by:
Delta Environmental Consultants, Inc.
3205 Randall Parkway
Suite 104
Wilmington, NC 28403



Stephen R. Libbey, L.G.
North Carolina Professional Geologist No. 1658

TABLE 1
SOIL ANALYTICAL RESULTS
UST CLOSURE
SCOTCHMAN #38
FAYETTEVILLE, NORTH CAROLINA
DELTA PROJECT NO. X0NC-057

Sample ID	Sample Date	Sample Depth (ft. bgs)	TPH-GRO (EPA 5030) (mg/kg)	TPH-DRO (EPA 3550) (mg/kg)
D-1	10/23/2002	1.5	1,800	3,010
D-2	10/23/2002	1.5	4,000	4,220
PL-1	10/23/2002	2	<6.7	26
SW-1	10/23/2002	4	<6.6	<6.8
SW-2	10/23/2002	4	<6.9	<7.2
SW-3	10/23/2002	4	<7.1	<7.4
SW-4	10/23/2002	4	<6.6	<6.5
SW-5	10/23/2002	4	<6.3	<6.2
SW-6	10/24/2002	4	<6.9	<7.2
SW-7	10/24/2002	4	<6.5	<6.3
SW-8	10/24/2002	3.5	<6.4	7.0
SW-9	10/24/2002	3.5	<6.6	<6.9
SW-10	10/24/2002	3.5	<6.5	<6.7
SW-11	10/24/2002	4	51	567
SW-12	10/24/2002	4	10	51
SW-13	10/24/2002	3.5	<6.7	<6.9
SW-14	10/24/2002	3.5	<6.7	<7.0
SW-15	10/24/2002	4	<6.7	<7.0
B-1	10/23/2002	9	<6.6	<6.6
B-2	10/23/2002	9	<6.7	<7.3
B-3	10/23/2002	9	<6.7	<6.8
B-4	10/24/2002	7	<7.0	<7.6
B-5	10/24/2002	7	<7.0	<6.5
B-6	10/24/2002	7	<7.0	<7.1
B-7	10/24/2002	7	<6.9	<7.0
B-8	10/24/2002	7	700	2,380
B-9	10/24/2002	7	1,900	1,620
B-10	10/24/2002	7	210	840
B-11	10/24/2002	7	850	1,000
B-12	10/24/2002	7	1,200	1,990
NC Action Levels			10	10

Notes:

- 1) ft. bgs. denotes feet below ground surface
- 2) mg/kg denotes milligrams per kilogram
- 3) All results in **BOLD** exceed Action Levels
- 4) TPH-GRO denotes Total Petroleum Hydrocarbons-Gasoline Range Organics
- 5) TPH-DRO denotes Total Petroleum Hydrocarbons-Diesel Range Organics

TABLE 2
SOIL ANALYTICAL RESULTS

Scotchman #3
Fayetteville, North Carolina
Delta Project No. X0NC-057

Sample ID	MW-1 (2.5-3.0')	MW-1 (8.0-8.5')	MW-1 (13.0-13.5')	MW-1 (17.0-17.5')	MW-1 (25.0-25.5')	MW-1 (35.0-35.5')	
Sample Date	1/9/2003	1/9/2003	1/9/2003	1/9/2003	1/9/2003	1/9/2003	
Sample Depth (feet)	2.5-3.0	8.0-8.5	13.0-13.5	17.0-17.5	25.0-25.5	35.0-35.5	
PID (ppm)	NA	NA	NA	NA	NA	NA	
Analyses	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	Soil-to-Water MSCC ug/Kg
Target Compounds	Compound Concentrations ug/Kg	Compound Concentrations ug/Kg	Compound Concentrations ug/Kg	Compound Concentrations ug/Kg	Compound Concentrations ug/Kg	Compound Concentrations ug/Kg	
BENZENE	20	<5.8	<5.5	<5.2	<5.6	<5.6	5.6
TOLUENE	12	<5.8	<5.5	<5.2	<5.6	<5.6	7,000
ETHYLBENZENE	16	<5.8	<5.5	<5.2	<5.6	<5.6	240
XYLENES	52.5	<17.8	<17.5	<15.2	<16.6	<16.6	5,000
1,2,3-TRICHLOROPROPANE	24	<5.8	<5.5	<5.2	<5.6	<5.6	NG
1,3,5-TRIMETHYLBENZENE	<5.7	<5.8	<5.5	<5.2	<5.6	<5.6	7,000
1,2,4-TRIMETHYLBENZENE	15	<5.8	<5.5	<5.2	<5.6	<5.6	8,000
DIISOPROPYL ETHER (DIPB)	<5.7	<5.8	<5.5	<5.2	<5.6	<5.6	370
1,2-DIBROMETHANE (EDB)	<5.7	<5.8	<5.5	<5.2	<5.6	<5.6	0.00197
METHYL-TERT-BUTYL ETHER (MTBE)	16	<5.8	<5.5	<5.2	<5.6	<5.6	920
NAPHTHALENE	<5.7	<5.8	<5.5	<5.2	<5.6	<5.6	580
C5-C8 ALIPHATICS	<10	<10	<10	<10	<10	<10	72,000
C9-C12 ALIPHATICS	<10	<10	<10	<10	<10	<10	3,255,000
C9-C10 AROMATICS	<10	<10	<10	<10	<10	<10	34,000

Notes:

PID - Photo-Ionization Detector

PPM - Parts Per Million

ug/Kg - Micrograms per Kilogram (or approximately parts per billion)

Bold Numbers indicate values exceeding the soil-to-groundwater maximum contaminant concentrations

NG - No value given

No other compounds were detected above quantification limits.

TABLE 2
SOIL ANALYTICAL RESULTS

Scotchman #3
Fayetteville, North Carolina
Delta Project No. X0NC-057

Sample ID	MW-1 (43.5-44.0')	MW-2 (11.5-12.0')	MW-2 (14.5-15.0')	MW-2 (21.0-21.5')	MW-2 (27.0-27.5')	MW-2 (38.0-38.5')	
Sample Date	1/9/2003	1/9/2003	1/9/2003	1/9/2003	1/9/2003	1/9/2003	
Sample Depth (feet)	43.5-44.0	11.5-12.0	14.5-15.0	21.0-21.5	27.0-27.5	38.0-38.5	
PID (ppm)	NA	NA	NA	NA	NA	NA	
Analyses	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	Soil-to-Water MSCC
Target Compounds	Compound Concentrations ug/Kg	Compound Concentrations ug/Kg	Compound Concentrations ug/Kg	Compound Concentrations ug/Kg	Compound Concentrations ug/Kg	Compound Concentrations ug/Kg	ug/Kg
BENZENE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5	5.6
TOLUENE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5	7,000
ETHYLBENZENE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5	240
XYLENES	<16.5	<16.7	<16.3	<16.6	<16.7	<16.5	5,000
1,2,3-TRICHLOROPROPANE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5	NG
1,3,5-TRIMETHYLBENZENE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5	7,000
1,2,4-TRIMETHYLBENZENE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5	8,000
DIISOPROPYL ETHER (DIPE)	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5	370
1,2-DIBROMETHANE (EDB)	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5	0.00197
METHYL-TERT-BUTYL ETHER (MTBE)	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5	920
NAPHTHALENE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5	580
C5-C8 ALIPHATICS	<10	<10	<10	<10	<10	<10	72,000
C9-C12 ALIPHATICS	<10	<10	<10	<10	<10	<10	3,255,000
C9-C10 AROMATICS	<10	<10	<10	<10	<10	<10	34,000

Notes:

PID -Photo-Ionization Detector

PPM - Parts Per Million

ug/Kg - Micrograms per Kilogram (or approximately parts per billion)

Bold Numbers indicate values exceeding the soil-to-groundwater maximum contaminant concentrations

NG - No value given

No other compounds were detected above quantification limits.

TABLE 3
WATER LEVEL DATA
Scotchman #38
Fayetteville, North Carolina
Delta Project No. X0NC-057

WELL ID	SCREENED INTERVAL (ft bgs)	TOC ELEVATION (ft)	DATE MEASURED	DEPTH TO WATER (ft)
MW-1	35-55	NA	2/10/2003	44.71
MW-2	35-55	NA	2/10/2003	44.48

Notes:

ft bgs- feet below ground surface.

Depth to water is measured from top of well casing TOC.

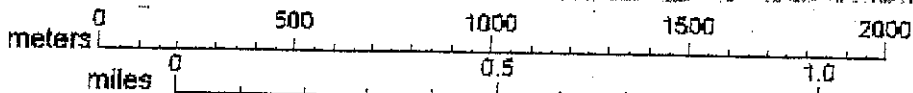
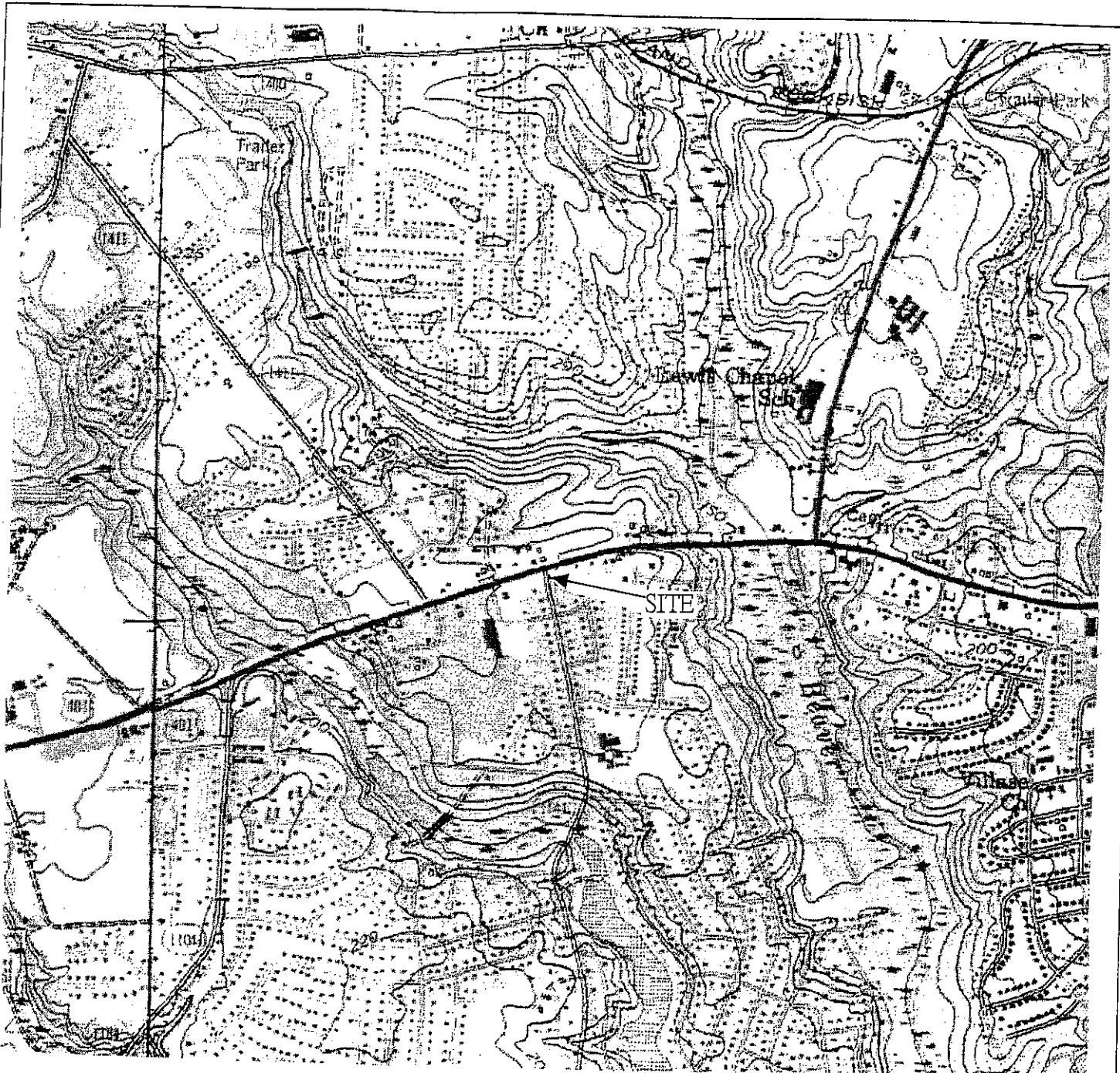
NA - Not Applicable

TABLE 4
GROUNDWATER ANALYTICAL RESULTS
 SCOTCHMAN #38
 FAYETTEVILLE, NORTH CAROLINA
 DELTA PROJECT NO. X0NC-057

Sample ID	MW-1	MW-2	<i>2L Groundwater Quality Standards</i>
Sample Date	2/10/2003	2/10/2003	
Analyses	EPA Methods 601/602, 504.1, 3030C, & MADEP-VPH.	EPA Methods 601/602, 504.1, 3030C, & MADEP-VPH.	
Target Compounds	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	
Benzene	<1	<1	1
Toluene	<1	<1	1,000
Ethylbenzene	<1	<1	29
Xylenes	<4	<4	530
Methyl-tert-butyl-ether	3.6	3.7	200
Diisopropyl ether	<1	<1	70
Ethylene Dibromide	<0.02	<0.02	0.0004
Lead	44.0	24.1	15
C5-C8 Aliphatics	<100	<100	420
C9-C12 Aliphatics	<100	<100	4,200
C9-C10 Aromatics	<100	<100	210

Notes:

- 1) **Bold Numbers indicate values exceeding 2L groundwater standards.**
- 2) *ug/L denotes micrograms per liter (or approximately parts per billion).*



FAYETTEVILLE QUADRANGLE
 NORTH CAROLINA
 7.5 MINUTE TOPOGRAPHIC SERIES



Delta
 Environmental
 Consultants, Inc.

Delta Environmental Consultants, Inc.
 3205 Randall Parkway Suite 104
 Wilmington, North Carolina 28403

PROJECT NO. X0NC-957	CLIENT/LOCATION WORSLEY COMPANIES, INC. SCOTCHMAN #38 FAYETTEVILLE, NORTH CAROLINA
PROJECT MANAGER B. Lievre	FIGURE NO. 1
DATE 11/21/02	DRAWING DESCRIPTION SITE VICINITY MAP

RAEFORD ROAD

Grass

LEGEND

- ▲ UST Closure Sample Location
- Soil Sample Location
- UST Fill Port
- Shallow Monitoring Well Location (approximate)

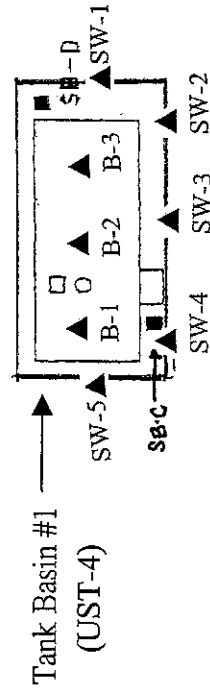
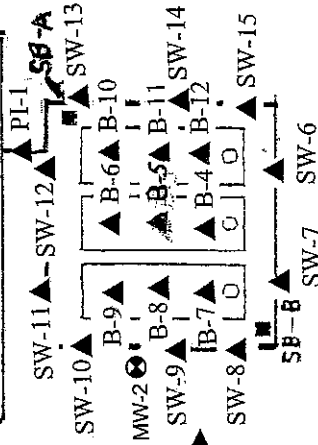
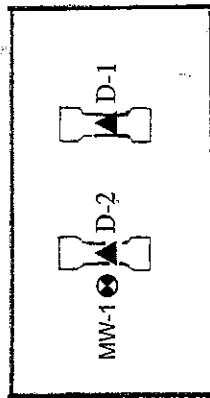


Scotchman #38
6261 Raeform Road
Fayetteville, NC

**** VENTS

Canopy

Grass



Delta Environmental Consultants, Inc.
3205 Randall Parkway Suite 104
Wilmington, North Carolina 28403

PROJECT NO. X0NC-057	CLIENT/LOCATION SCOTCHMAN #38	WORSLEY COMPANIES, INC.	
PROJECT MANAGER B. LIEVRE	FAYETTEVILLE, NORTH CAROLINA		
DATE 11/21/02	FIGURE NO. 2	DRAWING DESCRIPTION SITE MAP	

NOT TO SCALE

North Carolina
Department of Environment and Natural Resources
Division of Waste Management
Underground Storage Tank Section
Fayetteville Regional Office



57

Michael F. Easley, Governor
William G. Ross Jr, Secretary
Dexter R. Matthews, Director

May 28, 2003

Mr. Don Quinn
Worsley Companies, Inc.
P.O. Box 3227
Wilmington, NC 28406

Re: Notice of Regulatory Requirements
5A NCAC 2L .0115(d)
Risk-based Assessment and Corrective Action for Petroleum Underground Storage Tanks
Scotchman #38
6261 Raeford Road
Fayetteville, Cumberland County
Incident # 29017
Low Risk Classification / Residential Land Use

Dear Mr. Quinn:

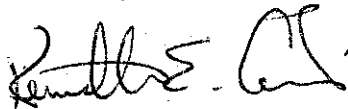
Information received by this office on March 24, 2003 confirmed a release or discharge from a petroleum underground storage tank (UST) system at the above-referenced site. Records indicate that Worsley Companies, Inc., is the responsible party for this release or discharge. This letter is a standard notice explaining the actions you must take as a result of the release or discharge in accordance with North Carolina statutes and rules. The UST Section of the Division of Waste Management administers the state's rules for USTs and the required response for petroleum releases. Those rules are located in Title 15A, Subchapter 2L and Title 15A, Subchapter 2N of the North Carolina Administrative Code (NCAC).

The risk-based rule for petroleum USTs, 15A NCAC 2L .0115(d), states that the Department shall classify the risk of each known discharge or release from the UST system. A review of the Limited Site Assessment prepared for the referenced incident and received on March 24, 2003, indicates that:

- (1) The risk posed does not fall within the high or intermediate risk categories; and
- (2) After review of site-specific information, limited assessment, or interim corrective action, the discharge or release poses no significant risk to human health or the environment.

If you have any questions regarding the actions that must be taken or the rules mentioned in this letter, please contact me at the letterhead address or at (910) 486-1541. If you have any questions regarding trust fund eligibility or reimbursement, please contact the UST Section Trust Fund Branch at (919) 733-8486.

Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth E. Currie". The signature is stylized and written in cursive.

Kenneth E. Currie
UST Section

c: FRO Incident Management Files

ATTACHMENT B



PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2016-265)


GEOPHYSICAL SURVEY


METALLIC UST INVESTIGATION: PARCEL 124 – BILL AND MARIA PAPPAS NCDOT PROJECT U-4405

6261 RAEFORD RD., FAYETTEVILLE, CUMBERLAND COUNTY, NC

NOVEMBER 4, 2016

Report prepared for: Mike Branson
Solutions, IES
1101 Nowell Road
Raleigh, North Carolina 27607

Prepared by: 
Eric C. Cross, P.G.
NC License #2181

Reviewed by: 
Douglas A. Canavello, P.G.
NC License #1066

503 INDUSTRIAL AVENUE, GREENSBORO, NC 27406

P: 336.335.3174 F: 336.691.0648

C257: GEOLOGY C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
Parcel 124 – 6261 Raeford Road
Fayetteville, Cumberland County, North Carolina

Table of Contents

Executive Summary1
Introduction.....2
Field Methodology.....2
Discussion of Results.....3
Summary and Conclusions4
Limitations5

Figures

- Figure 1 – Parcel 124 Geophysical Survey Boundaries and Site Photographs
Figure 2 – Parcel 124 EM61 Results Contour Map

LIST OF ACRONYMS

CADD	Computer Assisted Drafting and Design
DF	Dual Frequency
EM.....	Electromagnetic
GPR.....	Ground Penetrating Radar
GPS	Global Positioning System
NCDOT.....	North Carolina Department of Transportation
ROW	Right-of-Way
SVE.....	Soil Vapor Extraction
UST	Underground Storage Tank

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for Solutions, IES (Solutions) at Parcel 124, located at 6261 Raeford Road, Fayetteville, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-4405). Solutions directed Pyramid as to the geophysical survey boundaries at the project site, which were designed to extend from the existing edge of pavement to the proposed ROW lines and/or easement lines within the property, whichever distance was greater. Conducted from October 12-17, 2016, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: All EM anomalies were directly attributed to visible cultural features and known utilities. A GPR survey was not required. Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 124.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Solutions, IES (Solutions) at Parcel 124, located at 6261 Raeford Road, Fayetteville, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-4405). Solutions directed Pyramid as to the geophysical survey boundaries at the project site, which were designed to extend from the existing edge of pavement to the proposed ROW lines and/or easement lines within the property, whichever distance was greater. Conducted from October 12-17, 2016, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included an active restaurant building surrounded by asphalt parking areas and grass medians. Aerial photographs showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

The geophysical investigation consisted of an electromagnetic (EM) induction-metal detection survey. Pyramid collected the EM data using a Geonics EM61 metal detector integrated with a Trimble AG-114 GPS antenna. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at approximately 0.8 foot intervals along north-south trending or east-west trending, generally

parallel survey lines spaced five feet apart. The data were downloaded to a computer and reviewed in the field and office using the Geonics NAV61 and Surfer for Windows Version 11.0 software programs.

GPR data were not required at this property due to all EM anomalies being directly attributed to visible cultural features at the ground surface or known utilities (see Discussion of Results below).

Pyramid’s classifications of USTs for the purposes of this report are based directly on the geophysical UST ratings provided by the NCDOT. These ratings are as follows:

Geophysical Surveys for Underground Storage Tanks on NCDOT Projects			
High Confidence	Intermediate Confidence	Low Confidence	No Confidence
Known UST Active tank - spatial location, orientation, and approximate depth determined by geophysics.	Probable UST Sufficient geophysical data from both magnetic and radar surveys that is characteristic of a tank. Interpretation may be supported by physical evidence such as fill/vent pipe, metal cover plate, asphalt/concrete patch, etc.	Possible UST Sufficient geophysical data from either magnetic or radar surveys that is characteristic of a tank. Additional data is not sufficient enough to confirm or deny the presence of a UST.	Anomaly noted but not characteristic of a UST. Should be noted in the text and may be called out in the figures at the geophysicist’s discretion.

DISCUSSION OF RESULTS

Discussion of EM Results

A contour plot of the EM61 results obtained across the survey area at the property is presented in **Figure 2**. Each EM anomaly is numbered for reference in the figure. The following table presents the list of EM anomalies and the cause of the metallic response, if known:

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Suspected Water Line	
2	Sign/Gas Cover	
3	Phone Booth	
4	Signs/Posts	
5	Storm Drains	

All of the EM anomalies recorded by the survey are directly attributed to visible cultural features such as signs, posts, a phone booth, and storm drains. One east/west oriented anomaly on the north portion of the survey area was associated with a buried water line. For this reason, a GPR survey was not required to verify any unknown anomalies.

Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 124.

SUMMARY & CONCLUSIONS

Pyramid’s evaluation of the EM61 data collected at Parcel 124 in Fayetteville, Cumberland County, North Carolina, provides the following summary and conclusions:

- The EM61 survey provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- All EM anomalies were directly attributed to visible cultural features and known utilities. A GPR survey was not required.
- Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 124.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Solutions, IES in accordance with generally accepted guidelines for EM61 surveys. It is generally recognized that the results of the EM61 surveys are non-unique and may not represent actual subsurface conditions. The EM61 results obtained for this project have not conclusively determined the definitive presence or absence of metallic USTs, but the evidence collected is sufficient to result in the conclusions made in this report. Additionally, it should be understood that areas containing extensive vegetation, reinforced concrete, or other restrictions to the accessibility of the geophysical instruments could not be fully investigated.

N ↑


APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA



View of Survey Area
(Facing Approximately East)



View of Survey Area
(Facing Approximately North)

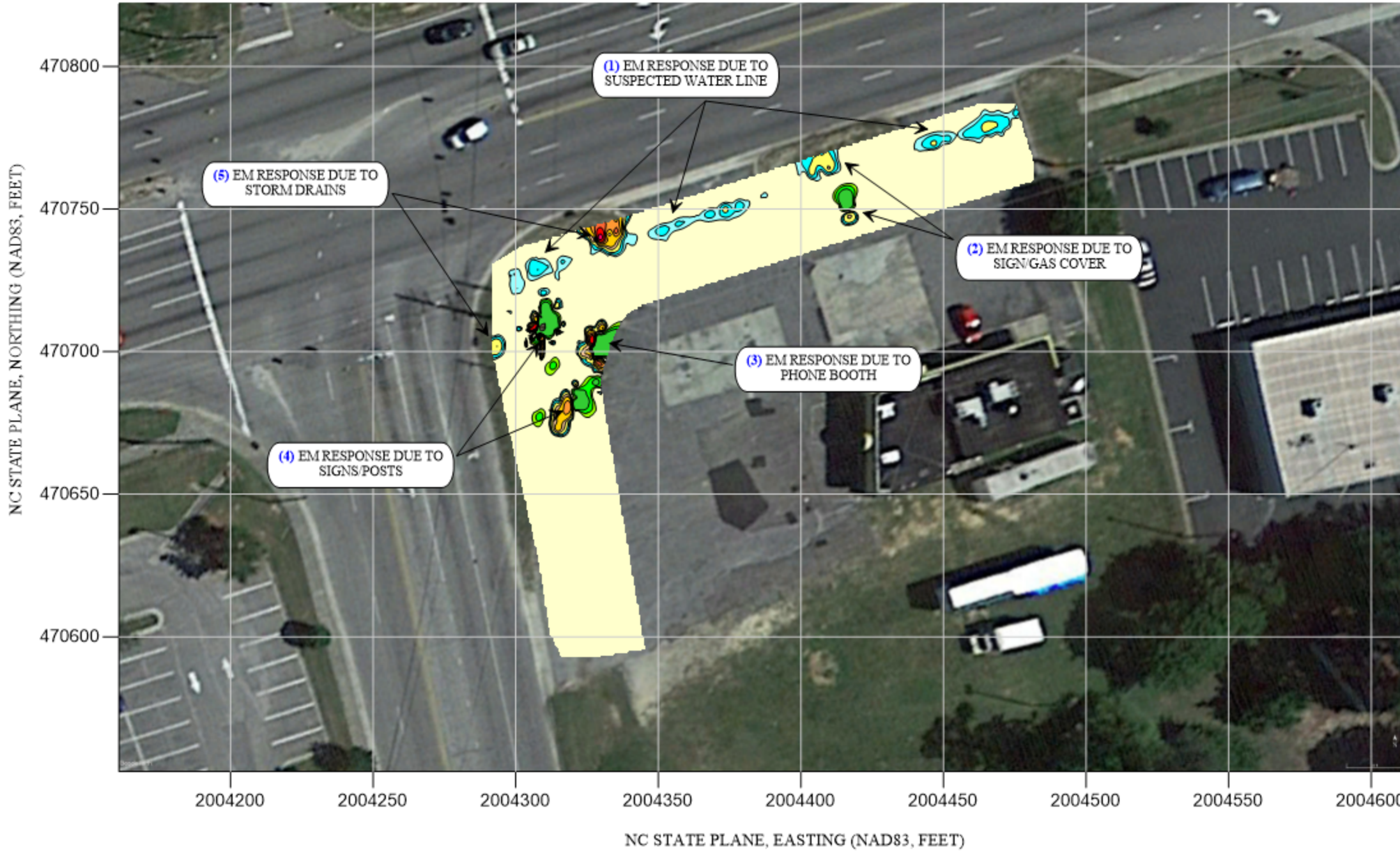
TITLE		PARCEL 124 - GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS	
PROJECT		6261 RAEFORD ROAD FAYETTEVILLE, NORTH CAROLINA NCDOT PROJECT U-4405	
		503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	
DATE	10/31/16	CLIENT	SOLUTIONS, IES
PYRAMID PROJECT #:	2016-265	FIGURE 1	



EM61 METAL DETECTION RESULTS

NO EVIDENCE OF UNKNOWN METALLIC USTs OBSERVED


The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM61 data were collected on October 12, 2016, using a Geonics EM61 instrument. GPR verification data were not required due to all EM anomalies being directly attributed to visible cultural features.



EM61 Metal Detection Response (millivolts)



NUMBERS IN BLUE (x) CORRESPOND TO ANOMALY TABLE INCLUDED IN THE REPORT

TITLE	PARCEL 124 - EM61 RESULTS CONTOUR MAP	
PROJECT	6261 RAEFORD ROAD FAYETTEVILLE, NORTH CAROLINA NCDOT PROJECT U-4405	
	 503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	
DATE	10/26/2016	CLIENT SOLUTIONS, IES
PYRAMID PROJECT #:	2016-265	FIGURE 2

ATTACHMENT C

BORING LOCATION: Parcel #124, Fayetteville, NC	PROJECT NUMBER: 2016.0054.NDOT
DRILLING CONTRACTOR: Regional Probing Services	DATE STARTED: 10/25/2016 DATE FINISHED: 10/25/2016
DRILLING METHOD: Direct Push BOREHOLE DIAMETER: 2.25"	TOTAL DEPTH (ft bgs): 10 ft bgs SCREEN INTERVAL (ft bgs): NA
DRILLING EQUIPMENT: Geoprobe 5410	NORTHING: NA EASTING: NA
SAMPLING METHOD: Macro Core	INITIAL DTW: NA FINAL DTW: NA
LOGGED BY: Samuel McIntyre	CHECKED BY:

DEPTH (ft bgs)	SAMPLES			PID (ppm)	DESCRIPTION OF MATERIALS	DEPTH (ft bgs)
	Sample ID and Interval	Recovery				
0					Asphalt.	0
1		100%	0.0		Light brown silty fine sand. Dry.	1
2						2
3		100%	0.0		Dark brown silty fine sand. Dry.	3
4						4
5						5
6		100%	0.0		Dark brown clayey sand.	6
7			1.2			7
8					Dark brown clayey sand.	8
9	124-SB-1-8-10	100%	1.6			9
10						10

End of Boring

BORING LOCATION: Parcel #124, Fayetteville, NC	PROJECT NUMBER: 2016.0054.NDOT
DRILLING CONTRACTOR: Regional Probing Services	DATE STARTED: 10/25/2016 DATE FINISHED: 10/25/2016
DRILLING METHOD: Direct Push BOREHOLE DIAMETER: 2.25"	TOTAL DEPTH (ft bgs): 10 ft bgs SCREEN INTERVAL (ft bgs): NA
DRILLING EQUIPMENT: Geoprobe 5410	NORTHING: NA EASTING: NA
SAMPLING METHOD: Macro Core	INITIAL DTW: NA FINAL DTW: NA
LOGGED BY: Samuel McIntyre	CHECKED BY:

DEPTH (ft bgs)	SAMPLES			PID (ppm)	DESCRIPTION OF MATERIALS	DEPTH (ft bgs)
	Sample ID and Interval	Recovery				
0						0
1		100%	0.0		Light brown silty fine sand. Dry.	1
2						2
3			0.0			3
4					Dark brown silty fine sand. Dry.	4
5		100%	0.0			5
6						6
7			0.3		Dark brown clayey sand. Dry.	7
8	124-SB-2-8-10					8
9		100%	0.3			9
10						10

End of Boring

BORING LOCATION: Parcel #124, Fayetteville, NC	PROJECT NUMBER: 2016.0054.NDOT
DRILLING CONTRACTOR: Regional Probing Services	DATE STARTED: 10/25/2016 DATE FINISHED: 10/25/2016
DRILLING METHOD: Direct Push BOREHOLE DIAMETER: 2.25"	TOTAL DEPTH (ft bgs): 10 ft bgs SCREEN INTERVAL (ft bgs): NA
DRILLING EQUIPMENT: Geoprobe 5410	NORTHING: NA EASTING: NA
SAMPLING METHOD: Macro Core	INITIAL DTW: NA FINAL DTW: NA
LOGGED BY: Samuel McIntyre	CHECKED BY:

DEPTH (ft bgs)	SAMPLES			PID (ppm)	DESCRIPTION OF MATERIALS	DEPTH (ft bgs)
	Sample ID and Interval	Recovery				
0						0
1		100%	0.0		Light brown silty fine sand. Dry.	1
2						2
3			0.1			3
4						4
5		80%	0.0		Dark brown silty fine sand. Dry.	5
6						6
7			0.3			7
8	124-SB-3-8-10					8
9		100%	0.1		Dark brown clayey sand. Dry.	9
10						10

End of Boring

BORING LOCATION: Parcel #124, Fayetteville, NC	PROJECT NUMBER: 2016.0054.NDOT
DRILLING CONTRACTOR: Regional Probing Services	DATE STARTED: 10/25/2016 DATE FINISHED: 10/25/2016
DRILLING METHOD: Direct Push BOREHOLE DIAMETER: 2.25"	TOTAL DEPTH (ft bgs): 10 ft bgs SCREEN INTERVAL (ft bgs): NA
DRILLING EQUIPMENT: Geoprobe 5410	NORTHING: NA EASTING: NA
SAMPLING METHOD: Macro Core	INITIAL DTW: NA FINAL DTW: NA
LOGGED BY: Samuel McIntyre	CHECKED BY:

DEPTH (ft bgs)	SAMPLES			PID (ppm)	DESCRIPTION OF MATERIALS	DEPTH (ft bgs)
	Sample ID and Interval	Recovery				
0						0
1		100%	0.2		Light brown silty fine sand. Dry.	1
2		100%				2
3			1.0			3
4					Dark brown silty fine sand. Dry.	4
5		100%	0.3			5
6						6
7			0.6			7
8	124-SB-4-8-10	100%	0.6		Dark brown clayey sand. Dry.	8
9						9
10						10

End of Boring

BORING LOCATION: Parcel #124, Fayetteville, NC	PROJECT NUMBER: 2016.0054.NDOT
DRILLING CONTRACTOR: Regional Probing Services	DATE STARTED: 10/25/2016 DATE FINISHED: 10/25/2016
DRILLING METHOD: Direct Push BOREHOLE DIAMETER: 2.25"	TOTAL DEPTH (ft bgs): 10 ft bgs SCREEN INTERVAL (ft bgs): NA
DRILLING EQUIPMENT: Geoprobe 5410	NORTHING: NA EASTING: NA
SAMPLING METHOD: Macro Core	INITIAL DTW: NA FINAL DTW: NA
LOGGED BY: Samuel McIntyre	CHECKED BY:

DEPTH (ft bgs)	SAMPLES			PID (ppm)	DESCRIPTION OF MATERIALS	DEPTH (ft bgs)
	Sample ID and Interval	Recovery				
0					Asphalt.	0
1		100%	0.0		Light brown silty fine sand. Dry.	1
2						2
3		100%	0.0		Dark brown silty fine sand. Dry.	3
4						4
5		100%	0.1			5
6					6	
7		100%	0.0		7	
8					8	
9	124-SB-5-8-10	100%	0.2		9	
10					10	

End of Boring

ATTACHMENT D



PHOTO 1 - VIEW OF SOIL BORING LOOKING SOUTH



PHOTO 2 - VIEW OF SOIL BORING LOOKING WEST



PHOTO 3 - VIEW OF SOIL BORING LOOKING NORTH



PHOTO 4- VIEW OF SOIL BORING LOOKING NORTH



PHOTO 5- VIEW OF SOIL BORING LOOKING EAST

ATTACHMENT E



Hydrocarbon Analysis Results

Client: NCDOT
Address: Parcel 124: 6261 Raeford Road
 Fayetteville, NC

Samples taken 10/25/2016
Samples extracted 10/25/2016
Samples analysed 10/25/2016

Contact:

Operator

Candy Elliott

Project: 2016.0054.NDOT

U04049

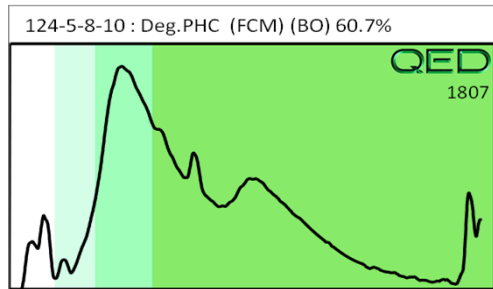
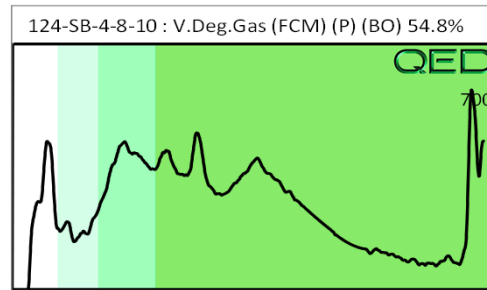
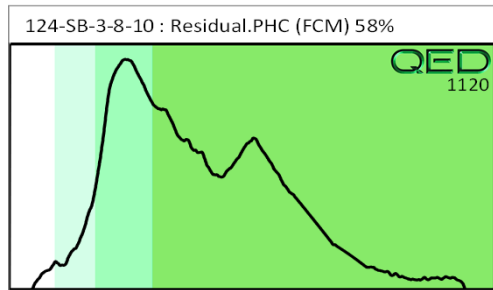
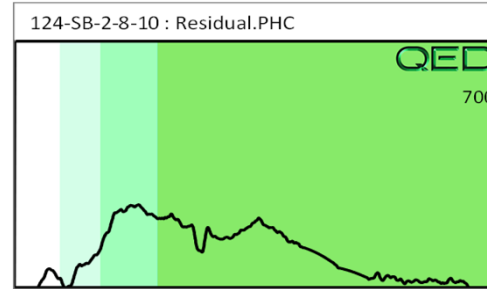
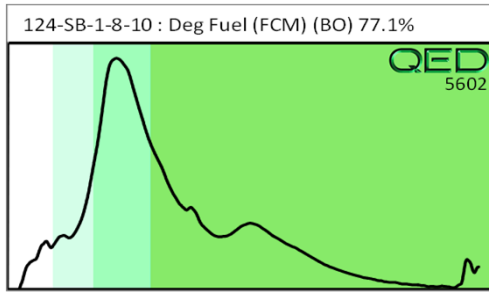
Matrix	Sample ID	Dilution used	BTEX (C6-C9)	GRO (C5-C10)	DRO (C10-C35)	TPH (C5-C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	124-SB-1-8-10	25.4	<0.63	<0.63	12.7	12.7	4.9	0.24	0.004	0	88.2	11.8	Deg Fuel (FCM) (BO) 77.1%
s	124-SB-2-8-10	5.9	<0.15	<0.15	<0.15	<0.15	<0.03	<0.005	<0.001	0	54.8	45.2	Residual.PHC
s	124-SB-3-8-10	25.4	<0.63	<0.63	1.4	1.4	0.82	0.05	<0.003	0	74.9	25.1	Residual.PHC (FCM) 58%
s	124-SB-4-8-10	5.9	<0.15	1	0.15	1.15	<0.05	<0.005	<0.001	96	2	2	V.Deg.Gas (FCM) (P) (BO) 54.8%
s	124-5-8-10	28.1	<0.7	0.7	1.8	2.5	1.3	0.07	<0.003	37.5	46.2	16.3	Deg.PHC (FCM) (BO) 60.7%

Initial Calibrator QC check **OK**

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. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library

(SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present



File Review Reports
Bill and Maria Pappas Property (Parcel #124)
6261 Raeford Road
Fayetteville, Cumberland County, North Carolina
State Project: U-4405
WBS Element 39049.1.1

54

UNDERGROUND STORAGE TANK CLOSURE REPORT

SCOTCHMAN #38

FAYETTEVILLE, NORTH CAROLINA

WORSLEY COMPANIES, INC.

DELTA PROJECT NO. X0NC-057

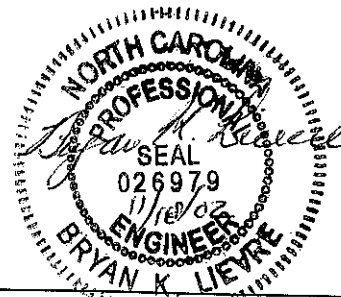
RECEIVED
DENR - FAYETTEVILLE REGIONAL OFFICE

UNDERGROUND STORAGE TANK CLOSURE REPORT
SCOTCHMAN #38
6261 RAEFORD ROAD
FAYETTEVILLE, NORTH CAROLINA
NOVEMBER 18, 2002

Facility ID:	0-011379
Property Owner:	Worsley Companies, Inc P.O. Box 3227 Wilmington, NC 28406 (910) 395-5300
UST Owner:	Worsley Companies, Inc P.O. Box 3227 Wilmington, NC 28406 (910) 395-5300
Release Information:	Discovery date: October 24, 2002 Cause of release: UST System Source: UST System consisting of 1-4,000 gallon kerosene and 3-6,000 gallon gasoline USTs.
Latitude:	35° 04' 27" N
Longitude:	79° 28' 53" W

Prepared for:
Worsley Companies, Inc.
P.O. Box 3227
Wilmington, NC 28406
(910) 395-5300

Prepared By:
Delta Environmental Consultants, Inc.
3205 Randall Parkway, Suite 104
Wilmington, NC 28406
(910) 772-6492



Bryan K. Lievre, P.E.
North Carolina Professional Engineer
No. 026979

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Appendix B: UST-2 and 24-Hour Release Forms

Appendix C: UST Disposal Manifest

Appendix D: Soil Analytical Results and Chain-of-Custody Forms

UNDERGROUND STORAGE TANK CLOSURE REPORT
SCOTCHMAN # 38
6261 RAEFORD ROAD
FAYETTEVILLE, NORTH CAROLINA

On behalf of Worsley Companies, Inc. (WCI), Delta Environmental Consultants, Inc. (Delta) has prepared the following Underground Storage Tank Closure Report on closure activities performed at the Scotchman #38 facility in Fayetteville, Cumberland County, North Carolina. This report has been prepared pursuant to applicable sections of Title 15A of the North Carolina Administrative Code (NCAC), Chapter 2, Subchapter 2L and in accordance with the *Guidelines for Tank Closure (the Guidelines)*, provided by the North Carolina Department of Environment and Natural Resources (NCDENR), Division of Waste Management (DWM), Underground Storage Tank (UST) Section, dated December 2000.

1.0 GENERAL INFORMATION

1.1 UST OWNER

Worsley Companies, Inc.
10 Cardinal Drive
Wilmington, NC 28406
(910) 395-5300

1.2 UST OPERATOR

Worsley Companies, Inc.
10 Cardinal Drive
Wilmington, NC 28406
(910) 395-5300

1.3 FACILITY INFORMATION

Scotchman #38
Facility ID # 0-011379
6261 Raeford Road
Fayetteville, NC

1.4 CONTACTS

1.4.1 Primary Contact

Don Quim
Worsley Companies, Inc.
10 Cardinal Drive
Wilmington, NC 28406
(910) 395-5300

1.4.2 Closure Contractor

Worsley Companies, Inc.
10 Cardinal Drive
Wilmington, NC 28406
(910) 395-5300

1.4.3 Primary Consultant

Delta Environmental Consultants, Inc.
3205 Randall Parkway
Suite 104
Wilmington, NC 28403
(910) 772-6492

1.4.4 Laboratory

Paradigm Analytical Laboratories, Inc.
2627 Northchase Parkway SE
Wilmington, NC 28405
(910) 350-1903
State Certification No. 481

1.5 UST INFORMATION

Tank # **	Installation Date*	Size in Gallons	Tank Dimensions (Diameter x Length)	Last Contents	Date Closed
UST-1	04/01/1961	6,000	6' x 30'	Gasoline	10/24/2002
UST-2	04/01/1961	6,000	6' x 30'	Gasoline	10/23/2002
UST-3	04/01/1961	6,000	6' x 30'	Gasoline	10/23/2002
UST-4	03/26/1985	4,000	6' x 24'	Kerosene	10/23/2002
UST-5	04/01/1961	550	Unknown	Waste Oil	03/01/1984

*- Based on data obtained from the NCDENR registered tanks database.

** See Figure 2 for UST locations (The location of UST-5 is unknown and not shown on Figure 2).

1.6 SITE CHARACTERISTICS

1.6.1 Past Releases

There are no known releases at this site.

1.6.2 Site Status

The site is an inactive retail fuel outlet and convenience store.

1.6.3 Surrounding Property Use

The site is situated in a commercial area. The site is located at 6261 Raeford Road in Fayetteville, Cumberland County, North Carolina. **Figure 1** provides a map showing the location of the site and the general topography of the surrounding area. **Figure 2** provides a general layout of the site including street names, building location, the location of the subject USTs, and the location of soil samples collected during the UST closure.

1.6.4 Site Geology/Hydrogeology

Soils encountered during this assessment consisted primarily of tan to reddish-brown silty fine to medium sand. Groundwater was not encountered in the UST excavations.

1.6.5 Receptor Survey

A complete receptor survey was not performed in the area during UST closure activities, however a windshield survey of the surrounding area was performed. The surrounding area is primarily commercial and the presence of fire hydrants in the area indicates probable municipal water supplies.

2.0. CLOSURE PROCEDURES

2.1 NOTIFICATIONS

A UST-3 form was filed with the Fayetteville Regional Office of the NCDENR, by WCI. A copy of the completed UST-3 form is presented in **Appendix A**. A Copy of the 24-Hour release form was completed and faxed to the Fayetteville Regional office on October 24, 2002 and a copy of the UST-2 Form was completed and is included with this report. Copies of these forms are presented in **Appendix B**.

2.2 RESIDUAL MATERIAL

The contents of all the USTs were pumped out prior to initiation of closure activities. The USTs were transported to Scott Beards Tank Disposal in Elizabethtown, North Carolina for disposal. The disposal manifest for the UST are included in **Appendix C**.

2.3 EXCAVATION

2.3.1 Excavation Procedures

In order to remove the UST, the overburden (concrete, asphalt, and soil) was first excavated from above the UST. The thickness of the overburden was approximately one to three feet.

UST-4 was buried in Tank Basin #1 and was excavated on October 23, 2002. Following the excavation of soils in the lateral direction, the UST was removed from the excavation pit. Soils around UST-1 did not exhibit physical signs or olfactory evidence of petroleum staining. A small amount (approximately 0.5 gallon) of kerosene fuel was released from the UST onto the surrounding pavement during removal. The final approximate dimensions of Tank Basin #1 were 28 feet in length, nine feet in width, and nine feet in depth.

UST-1 through UST-3 were buried in Tank Basin #2 and were excavated on October 23 and 24, 2002. Following the excavation of soils in the lateral direction, the USTs were removed from the excavation pit. Soils around UST-2 through UST-4 did exhibit some physical signs (staining around the top of the USTs) and olfactory evidence of petroleum staining. A small amount (approximately one to two gallons) of gasoline fuel was released while disconnecting the product lines from the USTs. The final approximate dimensions of Tank Basin #2 were 25 feet in length, 36 feet in width, and seven feet in depth.

All soils removed from the excavations were taken offsite for disposal. The dispenser for UST-4 existed above the UST and therefore was removed along with the product line during excavation activities. The gasoline dispensers were not removed and the gasoline product lines were drained and reportedly crimped but also not removed. **Figure 2** depicts the approximate lateral limits of the excavation and the location of the tanks within the excavation.

2.3.2 Depth to UST

The USTs were buried approximately one to three feet below ground surface.

2.3.3 Volume of Excavated Soil

An unknown quantity of excavated soil was removed and transported offsite for disposal. Copies of the soil disposal manifests will be forwarded under separate cover upon receipt to Delta.

2.3.4 Soil Description

Please refer to section 1.6.4 for the soil description.

2.3.5 Backfill

Clean fill material was brought in from off site to back fill Tank Basin #1 and #2.

2.3.6 Condition of UST System

All the USTs appeared to be in fair condition with no pitting, holes or indentations evident. The tanks were taken to Scott Beards Tank Disposal in Elizabethtown for disposal. A copy of the UST disposal manifest is included in **Appendix C**.

2.3.7 Vertical Extent of Excavation

The vertical extent of the excavations, to remove the USTs, was approximately nine feet in depth in Tank Pit #1 and seven feet in Tank Pit #2.

2.4 IMPACTED SOIL

2.4.1 Determination of the Limits of Excavation

The length and width of the UST being removed and the size of excavation equipment determined the lateral limits of the excavation.

2.4.2 Method of Storage, Sampling and Disposal

Excavated soils from the UST basins were temporarily stockpiled on site. All soils removed from the excavations were removed and transported offsite for disposal. The soil disposal manifest will be forwarded under separate cover upon receipt to Delta.

3.0 SITE ASSESSMENT

3.1 FIELD SCREENING

Field screening was not performed on the excavated soils.

3.2 SOIL SAMPLING

3.2.1 Location of Samples

Based on the length of the USTs and product lines and location of dispensers, two soil samples were collected from the dispenser islands, one soil sample was collected from the product piping trenches, and 27 soil samples were collected sides and bottom of the UST basins. The soil samples were collected approximately one and one-half to nine feet below ground surface (See **Table 1**).

3.2.2 Type Of Samples

All soil samples were discreet grab samples collected from the UST basins, product lines or dispenser locations.

3.2.3 Sample Collection Method

Soil samples were grab samples collected from the UST pits using the backhoe bucket. The individual samples were sent to a North Carolina certified laboratory for analysis.

3.2.4 Sample Identification/Depth of Samples/ Sample Analyses

Soil samples were identified as follows: Dispenser Island (D), Product Lines (PL), UST Basin Side Walls (SW) and UST Basin Bottom (B). Samples depths and analysis is given in the following table:

Sample ID	Depth of Sample below ground surface (feet)	Sample Analysis
D-1	1.5	TPH 3550/5030
D-2	1.5	TPH 3550/5030
PL-1	2	TPH 3550/5030
SW-1	4	TPH 3550/5030
SW-2	4	TPH 3550/5030
SW-3	4	TPH 3550/5030
SW-4	4	TPH 3550/5030
SW-5	4	TPH 3550/5030
SW-6	4	TPH 3550/5030
SW-7	4	TPH 3550/5030
SW-8	4	TPH 3550/5030
SW-9	3.5	TPH 3550/5030
SW-10	3.5	TPH 3550/5030
SW-11	3.5	TPH 3550/5030
SW-12	4	TPH 3550/5030
SW-13	4	TPH 3550/5030
SW-14	3.5	TPH 3550/5030
SW-15	3.5	TPH 3550/5030
B-1	4	TPH 3550/5030
B-2	9	TPH 3550/5030
B-3	9	TPH 3550/5030
B-4	9	TPH 3550/5030
B-5	7	TPH 3550/5030
B-6	7	TPH 3550/5030
B-7	7	TPH 3550/5030
B-8	7	TPH 3550/5030
B-9	7	TPH 3550/5030
B-10	7	TPH 3550/5030
B-11	7	TPH 3550/5030
B-12	7	TPH 3550/5030

3.3 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

All necessary measures were taken in order to ensure the integrity of the soil samples.

3.3.1 Sample Handling Procedures

To prevent the cross contamination of soil samples through their handling in the field, Delta personnel wore a new pair of disposable latex gloves at each sampling location. Soil samples were collected in laboratory provided containers. Once the samples were collected and labeled for identification, they were placed on ice in a cooler and delivered to Paradigm Analytical Laboratories, Inc. for analysis.

3.3.2 Decontamination Procedures

Soil samples, from beneath the USTs were collected using a soil excavator (track hoe). Delta personnel wore a new pair of disposable latex gloves at each sampling location.

3.3.3 Sample Times and Dates

For sample times and dates, please refer to the chain-of-custody available in **Appendix D**.

3.3.4 Quality Control Samples

The analytical laboratory provided a temperature blank to ensure the samples were maintained at the required temperature. The temperature of the samples is recorded on the chain-of-custody.

3.3.5 Interpretation of QA/QC Results

Based on the QA/QC measures taken, Delta believes the analytical results of the soil samples are representative of site conditions at the time the samples were collected.

3.4 ANALYTICAL RESULTS

3.4.1 Methods of Analysis

For the soil analytical methods used, please refer to section 3.2.4.

3.4.2 Analytical Results

Laboratory analyses of soil samples collected at the site during closure activities indicated petroleum hydrocarbon constituent concentrations were detected at or above the state action limit of 10 milligrams per kilogram (mg/kg) for gasoline and/or diesel range total petroleum hydrocarbons by EPA Methods 5030 and 3550, respectively in samples D-1, D-2, PL-1, SW-11, SW-12 and B-8 through B-12. **Table 1** provides a summary of the soil analytical results. A copy of the laboratory report and chain-of-custody is included in **Appendix D**.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

Based on the information obtained during this UST Closure, the following conclusions are made:

- One 4,000-gallon kerosene product UST and three 6,000-gallon gasoline product USTs were removed from the site on October 23 and 24, 2002 and taken to Scott Beards Tank Disposal in Elizabethtown, North Carolina for disposal.
- An unknown quantity of petroleum-contaminated soil was removed and taken offsite for disposal from the site during closure activities.
- Analytical results of the soil samples associated with the UST closure detected the presence of petroleum hydrocarbon compounds above state action limits.

4.2 RECOMMENDATIONS

Based on the information obtained during this assessment, the following recommendation is made:

- A Limited Site Assessment should be performed.

5.0 REMARKS

The recommendations contained in this report represent our professional opinions. These opinions were arrived at in accordance with currently accepted hydrogeologic and relevant regulatory guidelines at this time and location. Other than this, no warranty is implied or intended.

This report was prepared by:

DELTA ENVIRONMENTAL CONSULTANTS, INC.

Monika H. Satterwhite
Staff Scientist

This report was reviewed by:


Bryan K. Lievre
Project Manager

TABLE 1
SOIL ANALYTICAL RESULTS
UST CLOSURE
SCOTCHMAN #38
FAYETTEVILLE, NORTH CAROLINA
DELTA PROJECT NO. X0NC-057

Sample ID	Sample Date	Sample Depth (ft. bgs)	TPH-GRO (EPA 5030) (mg/kg)	TPH-DRO (EPA 3550) (mg/kg)
D-1	10/23/2002	1.5	1,800	3,010
D-2	10/23/2002	1.5	4,000	4,220
PL-1	10/23/2002	2	<6.7	26
SW-1	10/23/2002	4	<6.6	<6.8
SW-2	10/23/2002	4	<6.9	<7.2
SW-3	10/23/2002	4	<7.1	<7.4
SW-4	10/23/2002	4	<6.6	<6.5
SW-5	10/23/2002	4	<6.3	<6.2
SW-6	10/24/2002	4	<6.9	<7.2
SW-7	10/24/2002	4	<6.5	<6.3
SW-8	10/24/2002	3.5	<6.4	7.0
SW-9	10/24/2002	3.5	<6.6	<6.9
SW-10	10/24/2002	3.5	<6.5	<6.7
SW-11	10/24/2002	4	51	567
SW-12	10/24/2002	4	10	51
SW-13	10/24/2002	3.5	<6.7	<6.9
SW-14	10/24/2002	3.5	<6.7	<7.0
SW-15	10/24/2002	4	<6.7	<7.0
B-1	10/23/2002	9	<6.6	<6.6
B-2	10/23/2002	9	<6.7	<7.3
B-3	10/23/2002	9	<6.7	<6.8
B-4	10/24/2002	7	<7.0	<7.6
B-5	10/24/2002	7	<7.0	<6.5
B-6	10/24/2002	7	<7.0	<7.1
B-7	10/24/2002	7	<6.9	<7.0
B-8	10/24/2002	7	700	2,380
B-9	10/24/2002	7	1,900	1,620
B-10	10/24/2002	7	210	840
B-11	10/24/2002	7	850	1,000
B-12	10/24/2002	7	1,200	1,990
NC Action Levels			10	10

Notes:

- 1) ft. bgs. denotes feet below ground surface
- 2) mg/kg denotes milligrams per kilogram
- 3) All results in **BOLD** exceed Action Levels
- 4) TPH-GRO denotes Total Petroleum Hydrocarbons-Gasoline Range Organic
- 5) TPH-DRO denotes Total Petroleum Hydrocarbons-Diesel Range Organics



FAYETTEVILLE QUADRANGLE
 NORTH CAROLINA
 7.5 MINUTE TOPOGRAPHIC SERIES



Delta
 Environmental
 Consultants, Inc.

Delta Environmental Consultants, Inc.
 3205 Randall Parkway Suite 104
 Wilmington, North Carolina 28403

PROJECT NO. X0NC-057	CLIENT/LOCATION WORSLEY COMPANIES, INC. SCOTCHMAN #38 FAYETTEVILLE, NORTH CAROLINA
PROJECT MANAGER B. Lievre	FIGURE NO. 1
DATE 11/21/02	DRAWING DESCRIPTION SITE VICINITY MAP

RAEFORD ROAD

Grass

Canopy

Grass

BINGHAM DRIVE

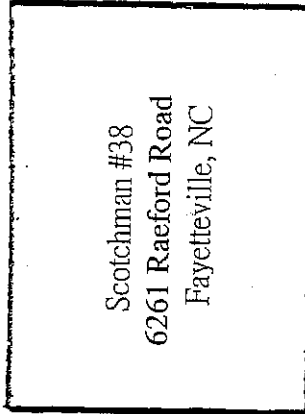
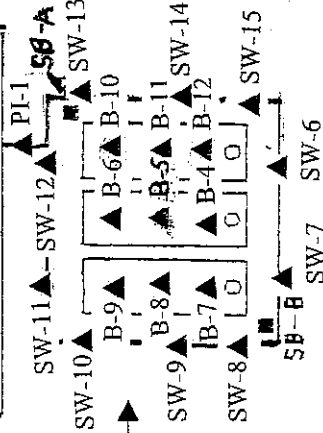
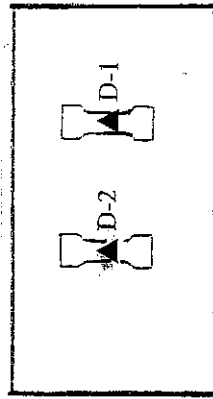
DRIVE

Tank Basin #2
(UST 1-3)

Tank Basin #1
(UST-4)

LEGEND

- ▲ UST Closure Sample Location
- Soil Sample Location
- UST Fill Port



**** VENTS

NOT TO SCALE



Delta Environmental Consultants, Inc.
 3205 Randall Parkway Suite 104
 Wilmington, North Carolina 28403

PROJECT NO. X0NC-057	CLIENT/LOCATION SCOTCHMAN #38	DRAWING DESCRIPTION FAYETTEVILLE, NORTH CAROLINA
PROJECT MANAGER B.LIEVRE	FIGURE NO. 2	
DATE 11/21/02	SITE MAP	

WORSLEY COMPANIES, INC.

UST-3 Notice of Intent: UST Permanent Closure or Change-in-Service

**FOR TANKS IN
NC**

Return completed form to:
The DWM Regional Office located in the area where the facility is located. SEE MAP ON THE BACK OF THIS FORM FOR REGIONAL OFFICE ADDRESSES.

STATE USE ONLY
I.O. # _____
Date Received _____

INSTRUCTIONS

Complete and return at least five (5) working days prior to closure or change-in-service if a Professional Engineer (P.E.) or a Licensed Geologist (L.G.) provides supervision for closure or change-in-service site assessment activities and signs and seals all closure reports. Otherwise, a thirty (30) day notice is required.

I. OWNERSHIP OF TANKS

Owner Name (Corporation, Individual, Public Agency, or Other Entity)
Worsley Companies Inc.
Street Address
10 S. Cardinal Drive
City
Wilmington State
NC County
New Hanover Zip Code
28406
Area Code
910 Phone Number
395-5300

II. LOCATION

Facility Name or Company
Scotchman #038
Facility ID # (if known)
0-011379
Street Address
6261 Kaptown Rd
City
Waynesville State
NC County
Cumberland Zip Code
28704
Area Code
910 Phone Number
867-1942

III. CONTACT PERSONNEL

Name Don Quinn Job Title VP. Environmental Mgmt Phone Number 910 395-5300

IV. TANK REMOVAL, CLOSURE IN PLACE, CHANGE IN SERVICE

- Contact local fire marshal.
- Plan entire closure event.
- Conduct Site Soil Assessment.
- If removing tanks or closing in place, refer to API Publication 2015 *Cleaning Petroleum Storage Tanks* and 1604 *Removal and Disposal of Used Underground Petroleum Storage Tanks*.
- Provide a sketch locating piping, tanks and soil sampling locations.
- Submit a closure report in the format of UST-12 (including the form UST-2) within thirty (30) days following the site investigation.
- If a release from the tanks has occurred, the site assessment portion of the tank closure must be conducted under the supervision of a P.E. or L.G., with all closure site assessment reports bearing the signature and seal of the P.E. or L.G. If a release has not occurred, the supervision, signature or seal of a P.E. or L.G. is not required.
- Keep closure records for three (3) years.

V. WORK TO BE PERFORMED BY

Contractor Name Worsley Companies Construction
Address 10 S. Cardinal Drive State NC Zip Code 28406
Contact Person Arthur Moore Phone No. 910 395-5300
Primary Consultant Delta Environmental Phone No. 910 772-2291

VI. TANKS SCHEDULED FOR CLOSURE OR CHANGE-IN-SERVICE

Tank ID #	Tank Capacity	Last Contents	Proposed Activity		
			Remove:	Closure Abandonment in Place	Change-in-Service New Contents Stored
<u>1</u>	<u>6000</u>	<u>Gasoline</u>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>2</u>	<u>6000</u>	<u>Gasoline</u>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>3</u>	<u>6000</u>	<u>Gasoline</u>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>4</u>	<u>4000</u>	<u>Kerosene</u>	<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	

VII. OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE

I understand that I can be held responsible for environmental damage resulting from the improper disposal of my USTs. Read note on the back of this form before signing.
Print name and official title

Signature
Don Quinn

Date Signed
10-17-02

SCHEDULED REMOVAL DATE
10/22/02

Notify your DWM Regional Office 48 hours before this date if scheduled removal date changes

UST-2

Site Investigation Report for Permanent Closure or Change-in-Service of UST

FOR TANKS
IN
NC

Return completed form to:

The DWM Regional office in the area the facility is located. SEE MAP ON THE BACK OF THIS FORM FOR REGIONAL OFFICE ADDRESSES. Return the yellow copy to the Central Office in Raleigh so that the status of this tank may be changed to "PERMANENTLY CLOSED".

STATE USE ONLY:

I.D. # _____

Date Received _____

I. OWNERSHIP OF TANKS

II. LOCATION OF TANKS

WORSLEY COMPANIES

Owner Name (Corporation, Individual, Public Agency, or Other Entity)

105. CARDINAL DR

Street Address

WILMINGTON

City

NC

NEW HANOVER

County

28406

Zip Code

State

910-395-5300

Area Code

Phone Number

SCOTCHMAN #38

Facility Name or Company

0-011379

Facility ID # (if known)

62101 RAETORD RD

Street Address

FAVETTEVILLE CUMBERLAND

City

N/A

County

Zip Code

Area Code

Phone Number

III. CONTACT PERSONNEL

Name DON QUINN, WORSLEY COMP.

Job Title ENV. MANAGER

Tel. No. 910-395-5300

Closure Contractor WORSLEY COMP.

Address 105. CARDINAL DR. WILM.

Tel. No. 910-395-5300

Primary Consultant DELTA ENV.

Address 3205 RANDAL PKWY WILM.

Tel. No. 910-772-4492

Lab PARADIGM LAB

Address 2627 NORTHCHASE WILM.

Tel. No. 910-350-1903

IV. UST INFORMATION

V. EXCAVATION CONDITION

VI. ADDITIONAL INFORMATION

Tank No.	Size in Gallons	Tank Dimensions	Last Contents	Water in excavation		Free product		Notable odor or visible soil contamination	
				Yes	No	Yes	No	Yes	No
1	6000	6' x 30'	GASOLINE		X		X	X	
2	6000	6' x 30'	GAS		X		X	X	
3	6000	6' x 30'	GAS		X		X	X	
4	4000	6' x 24'	KEROSENE		X		X		X

See reverse side of pink copy (owner's copy) for additional information required by NC DWM in the written report and sketch.

NOTE: If a release from the tank(s) has occurred, the site assessment portion of the tank closure must be conducted under the supervision of a P.E. or L.G., with all closure site assessment reports bearing the signature and seal of the P.E. or L.G.

VII. CHECKLIST (CHECK THE ACTIVITIES COMPLETED)

PERMANENT CLOSURE

(For Removal or Abandonment-in-Place)

- Contact local fire marshal
- Notify DWM Regional Office before abandonment
- Drain and flush piping into tank
- Remove all product and residuals from tank
- Excavate down to tank
- Clean and inspect tank
- Remove drop tube, fill pipe, gauge pipe, vapor recovery tank connections, submersible pumps, and all other tank fixtures
- Cap or plug all lines except the vent and fill lines
- Purge the tank of all product and flammable vapors
- Cut one or more large holes in the tank
- Backfill the area

Date tank(s) Permanently Closed: 10/23-24/02

Date of Change-in-service: _____

ABANDONMENT IN PLACE

- Fill tank until material overflows tank opening
- Plug or cap all openings
- Disconnect and cap or remove vent line
- Solid inert material used --specify _____

REMOVAL

- Create vent hole
- Label tank
- Dispose of tank in approved manner. Final tank destination:

SCOTT BEARDS TANK DISPOSAL

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true accurate and complete

Print name and official title of owner or owner's authorized representative

MDNIKA SATTERWHITE / STAFF SCIENTIST

Signature

Mdnika Satterwhite

Date Signed

10/15/02

Received November 19, 2002

24-Hour Release and UST Leak Reporting Form

This form should be completed and submitted to the UST Section's regional office following a known or suspected release from an underground storage tank (UST) system. This form is required to be submitted within 24 hours of discovery of a known or suspected release.

(DWM USE ONLY) Incident # _____ Risk (H, I, E, U) _____ Received On _____ Received By _____ Reported by (circle one): Phone, Fax or Report _____ Region _____		Suspected Contamination? (Y/N) <u>Y</u> Confirmed GW Contamination? (Y/N) <u>N</u> Confirmed Soil Contamination? (Y/N) <u>Y</u> Free Product? (Y/N) <u>N</u> If Yes, State Greatest Thickness _____	Facility ID Number <u>D-011379</u> Date Leak Discovered <u>10/24/02</u> Comm/Non-Commercial? <u>Comm</u> Reg/Non-regulated? <u>REG</u>
---	--	---	---

INCIDENT DESCRIPTION

Incident Name: SCOTCHMAN #38

Address: 6261 RAEFORD ROAD County: CLIMBERLAND

City/Town: FAYETTEVILLE Regional Office (circle one): Asheville, Mooresville, Fayetteville, Raleigh, Washington, Wilmington, Winston-Salem

Latitude (dd.mm.ssss): _____ Longitude (ddd.mm.ssss): _____ Confirmed by GPS? (Y/N) _____

Briefly describe suspected or confirmed release: (including but not limited to: Nature and extent of release, date of release, amount of release, amount of free product present and recovery efforts, initial responses conducted, impacts to receptors)

Approx. 1-2 gallons of gasoline released while disconnecting product lines. Odor was present in soil in ust basin and in soil samples collected. Some staining was present in soil located directly above ust's prior to removal.

HOW RELEASE WAS DISCOVERED

(Check one)

- | | | |
|---|--|--|
| <input type="checkbox"/> Release Detection Equipment or Methods | <input checked="" type="checkbox"/> Visual/Odor | <input type="checkbox"/> Groundwater Contamination |
| <input type="checkbox"/> During UST Closure/Removal | <input type="checkbox"/> Water in Tank | <input type="checkbox"/> Surface Water Contamination |
| <input type="checkbox"/> Property Transfer | <input type="checkbox"/> Water Supply Well Contamination | <input type="checkbox"/> Other (specify) _____ |

SOURCE OF CONTAMINATION

Primary Source of Contamination (Check one)	Primary Contaminant Type (Check one)	Location (Check one)	Setting (Check one)
<input type="checkbox"/> Suspected UST Release <input checked="" type="checkbox"/> Confirmed UST Release (Also check one below): <input type="checkbox"/> A. Dispenser <input checked="" type="checkbox"/> B. Line Release <input type="checkbox"/> C. Tank Release <input type="checkbox"/> D. Spill/Overfill <input type="checkbox"/> E. Exact Failure Location Unknown or Multiple Failures <input type="checkbox"/> Unknown Source (Believed to be UST Source, explain in "Incident Description" above)	<input checked="" type="checkbox"/> Gasoline/Diesel/Kerosene <input type="checkbox"/> Heating Oil <input type="checkbox"/> Other Petroleum Products <input type="checkbox"/> Metals <input type="checkbox"/> Other Inorganics <input type="checkbox"/> Other Organics	<input checked="" type="checkbox"/> Facility <input type="checkbox"/> Residence <input type="checkbox"/> Other	<input type="checkbox"/> Residential <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Urban <input type="checkbox"/> Rural

Ownership
 1. Municipal 2. Military 3. Unknown 4. Private 5. Federal 6. County 7. State

Operation Type
 1. Public Service 2. Agricultural 3. Residential 4. Education/Relig. 5. Industrial 6. Commercial 7. Mining

IMPACT ON DRINKING WATER SUPPLIES

Water Supply Wells Affected? 1. Yes 2. No 3. Unknown

Number of Water Supply Wells Affected Unknown

Water Supply Wells Contaminated: (Include Users Names, Addresses and Phone Numbers. Attach additional sheet if necessary)

1. Unknown. Did not discover any water supply wells in area surrounding site.
- 2.
- 3.

UST SYSTEM OWNER

UST Owner/Company

WORSLEY COMPANIES, INC

Point of Contact

MR. DON QUINN

Address

10 S. CARDINAL DR.

City

WILMINGTON

State

NC

Zip Code

28406

Telephone Number

910-395-5300

UST SYSTEM OPERATOR

UST Operator/Company

SAME AS ABOVE

Address

City

State

Zip Code

Telephone Number

LANDOWNER AT LOCATION OF UST INCIDENT

Landowner

UNKNOWN AT THIS TIME

Address

City

State

Zip Code

Telephone Number

Draw Sketch of Area (showing two major road intersections) or Attach Map

MAP ATTACHED

Person Reporting Incident

Scott Conley

Company

Delta Environmental Consultants

Telephone Number

910-772-2282

Title

Staff Technician

Address

3205 Randall Pkwy, St. 104

Date

10-24-02

WORSLEY COMPANIES, INC.

10 S. CARDINAL DR. • P.O. BOX 3227 • WILMINGTON, N.C. 28406
(910) 395-5300 • FAX (910) 395-6691

W. C. Worsley
1892-1960

W. Cecil Worsley, Jr.
Chairman of the Board

W. Cecil Worsley, III
President and CEO

William Ambrose
Executive Vice President

TANK DISPOSAL MANIFEST

Site Name: Scotchman #38

Site Location: Fayetteville, North Carolina

Generator: Worsley Companies, Inc.
10 Cardinal Drive
Wilmington, NC

Contact: Don Quinn, Vice President, Environmental Affairs
901-395-5300

Removal Contractor: Worsley Companies, Inc.
10 Cardinal Drive
Wilmington, NC

Transporter: Worsley Transport
22 Poole Rd.
Wilmington, NC

Disposal Contractor: Scott Beard's Tank Disposal
Hwy. 87 East
Elizabethtown, NC

Tanks: 1-4,000 gal. Kerosene
3-6,000 gal. Gasoline
Removed 10/23-24/02

Note: Tanks to be disposed of as scrap



PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Total Petroleum
Hydrocarbons
by GC 8015B**

Client Sample ID: DI-1
Client Project ID: Scotchman #38
Lab Sample ID: 55389
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/23/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 96.3

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	1800	1200	5030/8015B	200.0	10/31/02
Diesel Range Organics	3010	128	3550/8015B	20.0	10/31/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Total Petroleum
Hydrocarbons
by GC 8015B**

Client Sample ID: DI-2
Client Project ID: Scotchman #38
Lab Sample ID: 55390
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/23/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 86.3

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	4000	1700	5030/8015B	250.0	10/31/02
Diesel Range Organics	4220	341	3550/8015B	50.0	10/31/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID:	PL-1	Date Collected:	10/23/02
Client Project ID:	Scotchman #38	Date Received:	10/25/02
Lab Sample ID:	55388	Analyzed By:	BMS
Lab Project ID:	G129-620	%Solids:	88.9
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.7	5030/8015B	1.0	10/28/02
Diesel Range Organics	26	7.0	3550/8015B	1.0	10/29/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Total Petroleum
Hydrocarbons
by GC 8015B**

Client Sample ID: SW-1
Client Project ID: Scotchman #38
Lab Sample ID: 55380
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/23/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 91.3

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.6	5030/8015B	1.0	10/28/02
Diesel Range Organics	BQL	6.8	3550/8015B	1.0	10/29/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID:	SW-2	Date Collected:	10/23/02
Client Project ID:	Scotchman #38	Date Received:	10/25/02
Lab Sample ID:	55381	Analyzed By:	BMS
Lab Project ID:	G129-620	%Solids:	86.5
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.9	5030/8015B	1.0	10/28/02
Diesel Range Organics	BQL	7.2	3550/8015B	1.0	10/29/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID: SW-3
Client Project ID: Scotchman #38
Lab Sample ID: 55382
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/23/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 84.6

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.1	5030/8015B	1.0	10/28/02
Diesel Range Organics	BQL	7.4	3550/8015B	1.0	10/29/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID:	SW-4	Date Collected:	10/23/02
Client Project ID:	Scotchman #38	Date Received:	10/25/02
Lab Sample ID:	55383	Analyzed By:	BMS
Lab Project ID:	G129-620	%Solids:	91.0
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.6	5030/8015B	1.0	10/28/02
Diesel Range Organics	BQL	6.5	3550/8015B	1.0	10/29/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID:	SW-5	Date Collected:	10/23/02
Client Project ID:	Scotchman #38	Date Received:	10/25/02
Lab Sample ID:	55384	Analyzed By:	BMS
Lab Project ID:	G129-620	%Solids:	95.0
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.3	5030/8015B	1.0	10/28/02
Diesel Range Organics	BQL	6.2	3550/8015B	1.0	10/29/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Total Petroleum
Hydrocarbons
by GC 8015B**

Client Sample ID: SW-6
Client Project ID: Scotchman #38
Lab Sample ID: 55391
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/24/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 86.4

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.9	5030/8015B	1.0	10/30/02
Diesel Range Organics	BQL	7.2	3550/8015B	1.0	10/29/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Total Petroleum
Hydrocarbons
by GC 8015B**

Client Sample ID: SW-7
Client Project ID: Scotchman #38
Lab Sample ID: 55392
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/24/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 92.3

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.5	5030/8015B	1.0	10/30/02
Diesel Range Organics	BQL	6.3	3550/8015B	1.0	10/29/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Total Petroleum
Hydrocarbons
by GC 8015B**

Client Sample ID: SW-8
Client Project ID: Scotchman #38
Lab Sample ID: 55393
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/24/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 93.2

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.4	5030/8015B	1.0	10/29/02
Diesel Range Organics	7	6.6	3550/8015B	1.0	10/29/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Total Petroleum
Hydrocarbons
by GC 8015B**

Client Sample ID: SW-10
Client Project ID: Scotchman #38
Lab Sample ID: 55395
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/24/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 92.2

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.5	5030/8015B	1.0	10/29/02
Diesel Range Organics	BQL	6.7	3550/8015B	1.0	10/30/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Total Petroleum
Hydrocarbons
by GC 8015B**

Client Sample ID:	SW-11	Date Collected:	10/24/02
Client Project ID:	Scotchman #38	Date Received:	10/25/02
Lab Sample ID:	55396	Analyzed By:	BMS
Lab Project ID:	G129-620	%Solids:	82.6
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	51	7.3	5030/8015B	1.0	10/29/02
Diesel Range Organics	567	39	3550/8015B	5.0	10/31/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID: SW-12
Client Project ID: Scotchman #38
Lab Sample ID: 55397
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/24/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 85.5

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	10	7.0	5030/8015B	1.0	10/29/02
Diesel Range Organics	51	7.0	3550/8015B	1.0	10/30/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID: SW-13
Client Project ID: Scotchman #38
Lab Sample ID: 55398
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/24/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 89.0

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.7	5030/8015B	1.0	10/29/02
Diesel Range Organics	BQL	6.9	3550/8015B	1.0	10/30/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Total Petroleum
Hydrocarbons
by GC 8015B**

Client Sample ID: SW-14
Client Project ID: Scotchman #38
Lab Sample ID: 55399
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/24/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 89.0

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.7	5030/8015B	1.0	10/29/02
Diesel Range Organics	BQL	7.0	3550/8015B	1.0	10/30/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID: SW-15
Client Project ID: Scotchman #38
Lab Sample ID: 55400
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/24/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 89.2

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.7	5030/8015B	1.0	10/29/02
Diesel Range Organics	BQL	7.0	3550/8015B	1.0	10/30/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

N.C. Certification #481 S.C. Certification #99029

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID:	b-1	Date Collected:	10/23/02
Client Project ID:	Scotchman #38	Date Received:	10/25/02
Lab Sample ID:	55385	Analyzed By:	BMS
Lab Project ID:	G129-620	%Solids:	90.5
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.6	5030/8015B	1.0	10/28/02
Diesel Range Organics	BQL	6.6	3550/8015B	1.0	10/29/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID: b-2	Date Collected: 10/23/02
Client Project ID: Scotchman #38	Date Received: 10/25/02
Lab Sample ID: 55386	Analyzed By: BMS
Lab Project ID: G129-620	%Solids: 89.7
Matrix: Soil	

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.7	5030/8015B	1.0	10/28/02
Diesel Range Organics	BQL	7.3	3550/8015B	1.0	10/29/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID: b-3
Client Project ID: Scotchman #38
Lab Sample ID: 55387
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/23/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 89.6

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.7	5030/8015B	1.0	10/28/02
Diesel Range Organics	BQL	6.8	3550/8015B	1.0	10/29/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID:	b-4	Date Collected:	10/24/02
Client Project ID:	Scotchman #38	Date Received:	10/25/02
Lab Sample ID:	55401	Analyzed By:	BMS
Lab Project ID:	G129-620	%Solids:	85.2
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.0	5030/8015B	1.0	10/29/02
Diesel Range Organics	BQL	7.6	3550/8015B	1.0	10/30/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID:	b-5	Date Collected:	10/24/02
Client Project ID:	Scotchman #38	Date Received:	10/25/02
Lab Sample ID:	55402	Analyzed By:	BMS
Lab Project ID:	G129-620	%Solids:	85.4
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.0	5030/8015B	1.0	10/29/02
Diesel Range Organics	BQL	6.5	3550/8015B	1.0	10/30/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID: b-6	Date Collected: 10/24/02
Client Project ID: Scotchman #38	Date Received: 10/25/02
Lab Sample ID: 55403	Analyzed By: BMS
Lab Project ID: G129-620	%Solids: 85.3
Matrix: Soil	

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.0	5030/8015B	1.0	10/29/02
Diesel Range Organics	BQL	7.1	3550/8015B	1.0	10/30/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID: b-7
Client Project ID: Scotchman #38
Lab Sample ID: 55404
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/24/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 86.8

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.9	5030/8015B	1.0	10/29/02
Diesel Range Organics	BQL	7.0	3550/8015B	1.0	10/30/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID: b-8
Client Project ID: Scotchman #38
Lab Sample ID: 55405
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/24/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 82.8

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	700	360	5030/8015B	50.0	10/31/02
Diesel Range Organics	2380	140	3550/8015B	20.0	10/31/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID: b-9
Client Project ID: Scotchman #38
Lab Sample ID: 55406
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/24/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 84.5

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	1900	710	5030/8015B	100.0	10/31/02
Diesel Range Organics	1620	71	3550/8015B	10.0	10/31/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID:	b-10	Date Collected:	10/24/02
Client Project ID:	Scotchman #38	Date Received:	10/25/02
Lab Sample ID:	55407	Analyzed By:	BMS
Lab Project ID:	G129-620	%Solids:	84.6
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	210	140	5030/8015B	20.0	10/31/02
Diesel Range Organics	840	35	3550/8015B	5.0	10/31/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID: b-11
Client Project ID: Scotchman #38
Lab Sample ID: 55408
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/24/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 82.6

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	850	360	5030/8015B	50.0	10/31/02
Diesel Range Organics	1000	74	3550/8015B	10.0	10/31/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC 8015B

Client Sample ID: b-12
Client Project ID: Scotchman #38
Lab Sample ID: 55409
Lab Project ID: G129-620
Matrix: Soil

Date Collected: 10/24/02
Date Received: 10/25/02
Analyzed By: BMS
%Solids: 82.0

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	1200	360	5030/8015B	50.0	10/31/02
Diesel Range Organics	1990	148	3550/8015B	20.0	10/31/02

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

2627 Northchase Parkway SE, Wilmington, NC 28405

Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC#

Page 1 of 14

Client: Delta Environmental Control Project ID: Sketchment 38
 Address: 3205 Randall Parkway Contact: Bryan Lievre
 Address: Wilmington, NC 28403 Phone: 910-772-2291
 Quote #: _____ Fax: 910-254-0246

Date: 10-24-02
 Turnaround: Standard
 Job Number: _____
 P.O. Number: _____

Report To: Bryan Lievre
910-772-2291

Invoice To: Bryan Lievre

Sample ID	Date	Time	Matrix	Preservatives		Analyses					Date	Time	Temperature	State Certification Requested	
				Received By	Received By										
SW-1	10-23-02	1145	S			5030/3550									Comments: Please specify any special reporting requirements <u>G729-620</u>
SW-2		1147													
SW-3		1149													
SW-4		1151													
SW-5		1153													
b-1		1155													
b-2		1157													
b-3		1159													
Relinquished By		Date	Time	Received By		Date	Time	Received By		Date	Time	Temperature	State Certification Requested		
<u>Edgar</u>		<u>10-24-02</u>	<u>16:30</u>	<u>Judith</u>		<u>10-23-02</u>	<u>11:10</u>	<u>Judith</u>		<u>10-25-02</u>	<u>11:10</u>	<u>019 0 20</u>	NC _____ SC _____ Other _____		

SEE REVERSE FOR TERMS AND CONDITIONS

PARADIGM ANALYTICAL LABORATORIES, INC.
 2627 Northchase Parkway SE, Wilmington, NC 28405
 Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 200114

Page 2 of 4

Client: *Delta Environmental Consultants* Project ID: *Scatebran #38*
 Address: *3205 Randall Hwy, St. 104* Contact: *Bryan Lievre*
 Address: *Wilmington, NC 28403* Phone: *910-772-2291*
 Quote #: *I* Fax: *910-254-0246*

Date: *10-24-02*
 Turnaround: *Standard*
 Job Number: *---*
 P.O. Number: *---*

Report To: *Bryan Lievre*
 Invoice To: *Bryan Lievre*

Sample ID	Date	Time	Matrix	Preservatives		Analyses			Temperature	State Certification Requested
				Received By	Time	Date	Time	Date		
PL-1	10-23-02	1300	S							
DI-1		1325								
DI-2		1330								
SW-6	10-24-02	945								
SW-7		947								
SW-8		949								
SW-9		951								
SW-10		953								
SW-11		955								
SW-12		957								
Relinquished By				Time	Received By	Date	Time	Temperature	State Certification Requested	
<i>Edwards</i>				10-24-02	1630				NC	
<i>Phil</i>				10-25-02	11:10	10/25/02	11:10	on ice 0.2	NC	

Comments:
 Please specify any special reporting requirements
G129-620

SEE REVERSE FOR TERMS AND CONDITIONS

PARADIGM ANALYTICAL LABORATORIES, INC.
 2627 Northchase Parkway SE, Wilmington, NC 28405
 Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 19982

Page 3 of 11

Client: Delta Environmental Consultants Project ID: Scottnex #38
 Address: 305 Fawcett Pl Phcy St 104 Contact: Bryan Lievre
 Address: Wilmington, NC 28403 Phone: 910-772-2291
 Quote #: Fax: 910-254-0246

Date: 10-24-02
 Turnaround: Standard
 Job Number:
 P.O. Number:

Report To: Bryan Lievre
910-772-2291

Invoice To: Bryan Lievre

Sample ID	Date	Time	Matrix	Preservatives		Analyses		Temperature	State Certification Requested
				Received By	Time	Date	Time		
SW-13	10-24-02	959	S						Comments: Please specify any special reporting requirements 6129-620
SW-14		1002							
SW-15		1005							
b-4		1010							
b-5		1015							
b-6		1020							
b-7		1022							
b-8		1024							
b-9		1026							
b-10		1028							
Relinquished By		Date	Time	Received By	Date	Time	Temperature	State Certification Requested	
<u>Edward Scott Carley</u>		10-24-02	1630						
<u>Phil Long</u>		10-25-02	11:10	<u>John Johnson</u>	10/25/02	11:10	CM 10-0.20	NC <u> </u> SC <u> </u> Other <u> </u>	

SEE REVERSE FOR TERMS AND CONDITIONS

ORIGINAL

SV

**PHASE I
LIMITED SITE ASSESSMENT**

SCOTCHMAN #38

FAYETTEVILLE, NORTH CAROLINA

WORSLEY COMPANIES, INC.

DELTA PROJECT NO. X0NC-057

29017

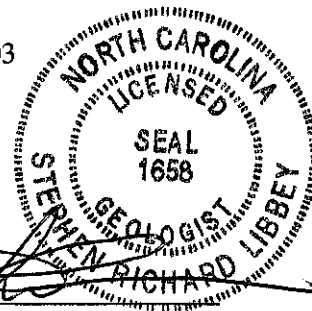
RECEIVED
MAR 24 2008
DENR - FAYETTEVILLE REGIONAL OFFICE

PHASE II LIMITED SITE ASSESSMENT
SCOTCHMAN #38
6261 RAEFORD ROAD
FAYETTEVILLE, NORTH CAROLINA
MARCH 2003

Facility ID:	0-011379
Property Owner:	Worsley Companies, Inc. P.O. Box 3227 10 S. Cardinal Drive Wilmington, NC 2840
UST Owner (at time of release):	Worsley Companies, Inc. P.O. Box 3227 10 S. Cardinal Drive Wilmington, NC 28406 (910) 395-5300
Release Information:	Discovery Date: October 24, 2002, estimated quantity unknown. Cause of Release: UST system consisting of 1-4,000 gallon kerosene and 3-6,000 gallon gasoline USTs.
Latitude:	35° 04' 27" N
Longitude:	79° 28' 53" W

Prepared for:
Worsley Companies, Inc.
P.O. Box 3227
Wilmington, NC 28406

Prepared by:
Delta Environmental Consultants, Inc.
3205 Randall Parkway
Suite 104
Wilmington, NC 28403



Stephen R. Libbey, L.G.
North Carolina Professional Geologist No. 1658

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- Appendix A: Monitoring Well Construction Records
- Appendix B: Boring Logs
- Appendix C: Soil Sampling Laboratory Report
- Appendix D: Groundwater Sampling Laboratory Report

**PHASE I LIMITED SITE ASSESSMENT
SCOTCHMAN #38
6261 RAEFORD ROAD
FAYETTEVILLE, NORTH CAROLINA**

On behalf of Worsley Companies, Inc. (WCI), Delta Environmental Consultants, Inc. (Delta) has prepared the following Limited Site Assessment (LSA) Report on assessment activities performed at the Scotchman Store #38 in Fayetteville, North Carolina. This report has been prepared pursuant to Title 15A of the North Carolina Administrative Code (NCAC), Chapter 2, Subchapter 2L, Section .0115 and in accordance with the *Guidelines for the Assessment and Corrective Action*, dated April 2001.

1.0 SITE HISTORY, SOURCE CHARACTERIZATION, AND TANK OWNERSHIP

1.1 Site History

The subject facility, Scotchman #38, is located at 6261 Raeford Road, Fayetteville, Cumberland County, North Carolina (**Figures 1 and 2**). The property, facility, and former underground storage tanks (USTs) relating to this LSA Report were previously owned and operated by WCI. The site was recently sold to Bill and Maria Pappas who are planning to operate a restaurant on the property.

On October 23 and 24, 2002, one-4,000 gallon kerosene and three-6,000 gallon gasoline USTs were removed from the subject facility. Soil samples were collected by Delta during tank removal activities. The soil samples were analyzed by EPA Methods 5030 and 3550 for gasoline and diesel range total petroleum hydrocarbons (TPH), respectively. Analyses of the soil samples confirmed the presence of petroleum hydrocarbon contamination in excess of North Carolina action levels. Historical analytical data for soil samples collected during the UST closure is presented in **Table 1**.

A UST Closure Report was submitted by Delta to the North Carolina Department of Environment and Natural Resources (DENR), Division of Waste Management on November 18, 2002. Based on the findings of the report, a Notice of Regulatory Requirements (NORR) was issued to WCI (responsible party) on November 22, 2002. The notice advised WCI of compliance requirements regarding a suspected release from the petroleum UST system. Pursuant to the NORR, a Limited Site Assessment was performed by Delta during the months of December 2002 and January and February 2003.

1.2 Source Characterization

Soil samples collected during UST removal activities confirmed a release from the UST system at the subject facility. The following table summarizes specific data on the former USTs:

**UNDERGROUND STORAGE TANK DATA
SCOTCHMAN #38
6261 RAEFORD ROAD
FAYETTEVILLE, N.C.**

Tank # **	Installation Date*	Size in Gallons	Tank Dimensions (Diameter x Length)	Last Contents	Date Closed
UST-1	04/01/1961	6,000	6' x 30'	Gasoline	10/24/2002
UST-2	04/01/1961	6,000	6' x 30'	Gasoline	10/23/2002
UST-3	04/01/1961	6,000	6' x 30'	Gasoline	10/23/2002
UST-4	03/26/1985	4,000	6' x 24'	Kerosene	10/23/2002
UST-5	04/01/1961	550	Unknown	Waste Oil	03/01/1984

*- Based on data obtained from the NCDENR registered tanks database.

** See Figure 2 for UST locations (The location of UST-5 is unknown and not shown on Figure 2).

1.3 Underground Storage Tank Ownership

Worsley Companies, Inc.
Post Office Box 3227
10 S. Cardinal Drive
Wilmington, North Carolina 28406
(910) 395-5300

2.0 METHODS OF LIMITED SITE ASSESSMENT ACTIVITIES

The activities performed to collect data for this LSA Report included researching site-specific, local and regional data, installing monitoring wells, performing soil sampling, performing groundwater sampling, and submitting soil and groundwater samples for analytical testing. The following sections discuss specific methodologies used in conducting these limited site assessment activities.

2.1 Review of Site-Specific, Local, and Regional Data

A review of available site-specific, local and regional data was performed to include:

- A well survey within a 1,500-foot radius of the subject facility, including a records inquiry, a letter survey, and a visual survey for water meters and pump houses.
- Identification of wellhead protection areas.

- Researching geology and hydrogeology of the region, including topography, soil types, and surface water drainage patterns.
- Identification of surface waters within a 1,500-foot radius of the subject facility.
- Land use observations (site reconnaissance) and zoning classifications.
- A visual survey for subsurface structures and potential impacts from the source area.
- Gathering information on adjacent property owners and occupants.

2.2 Monitoring Well Installations

On January 9, 2003, Delta personnel attempted to install two shallow Type II monitoring wells in the areas of highest known soil contamination adjacent to the easternmost gasoline dispenser (near UST closure soil sample D-2) and along the northeastern edge of Tank Basin #2. However, during the well installations, it was found that depth to water onsite was deeper than anticipated, and due to lack of well construction materials, the wells could not be completed on January 9, 2003. On February 5, 2003, Delta personnel returned to the site and installed two Type II monitoring wells MW-1 and MW-2 in the same locations as previously described. The monitoring well locations are presented in **Figure 2**. The well construction records are presented in **Appendix A**.

2.3 Soil Sampling

Borehole logging was performed during the February 5, 2003 drilling for installation of the monitoring wells. The boring logs are presented in **Appendix B**. Soil sampling was performed during the January 9, 2003 initial drilling activities for monitoring wells MW-1 and MW-2. A total of seven soil samples were collected according to NCDENR guidelines from the monitoring well borehole associated with MW-1 at 2.5-3.0 feet, 8.0-8.5 feet, 13.0-13.5 feet, 17.0-17.5 feet, 25.0-25.5 feet, 35.0-35.5 feet and 43.5-44.0 feet intervals, until the water table was encountered at approximately 46.0 feet below ground surface (bgs). A total of five soil samples were collected according to NCDENR guidelines from the monitoring well borehole associated with MW-2 at 11.5-12.0 feet, 14.5-15.0 feet, 21.0-21.5 feet, 27.0-27.5 feet, and 38.0-38.5 feet intervals, until the water table was encountered at 40.0 feet. The soil samples collected from MW-1 and MW-2 were submitted for laboratory analyses by EPA Method 8260 (volatile organic compounds) and Massachusetts Department of Environmental Protection (MADEP) Methods for volatile petroleum hydrocarbons (VPH).

It is important to note that soil samples were not collected at the MW-2 borehole at less than 11.0 feet due to its close proximity to the backfilled UST Tank Pit #2; any soils collected at less than 11.0 feet would contain clean backfill soil and thus not be representative of onsite soils.

For the sample times and dates, please refer to the chain-of-custody presented in **Appendix C**. The soil sample analytical results are discussed in section 6.1 and are summarized in **Table 2**.

2.4 Groundwater Sampling

On February 10, 2003, Delta collected groundwater samples from monitoring wells MW-1 and MW-2. Before sample collection, depth to water measurements were recorded. Using the depth to groundwater measurements, purge volumes were calculated for monitoring wells MW-1 and MW-2, and a minimum of three well volumes was purged from each monitoring well.

Depth to groundwater measurements are summarized in **Table 3**. Sampling date, time and analytical methods are included on the chain-of-custody in **Appendix D**. Analytical results for the groundwater samples are presented in section 6.2 and are summarized in **Table 4**.

3.0 LIMITED SITE ASSESSMENT RISK CLASSIFICATION AND LAND USE

Part 1 – Groundwater/Surface water/Vapor Impacts

High Risk:

1. *Has the discharge or release contaminated any water supply well including any used for non-drinking purposes?* **NO**

Based on data gathered to date, the discharge or release is not known to have contaminated water supply wells, including those used for non-drinking purposes.

2. *Is a water supply well used for drinking water located within 1,000 feet of the source area of the discharge or release?* **NO**

Private water supply wells were not identified within 1,000 feet of the source area.

3. *Is a water supply well used for any purpose (e.g. irrigation, washing cars, industrial cooling water, filling swimming pools) located within 250 feet of the source area of the release or discharge?* **NO**

No water supply wells were identified within 250 feet of the source area.

4. *Does groundwater within 500 feet of the source area of the discharge or release have the potential for future use in that there is no other source of water supply other than the groundwater?* **YES**

Although water supply is provided by both local private and municipal systems, the source of the private system is groundwater. Currently the supply wells for this system are located outside of the 1,500-foot radius from the site; however, future wells could potentially be installed closer to the site.

5. *Do vapors from the discharge or release pose a threat of explosion because of accumulation of the vapors in a confined space or pose any other serious threat to public health, public safety, or the environment?* **NO**

At the time of this assessment, there was no readily apparent evidence of impacts from the source area relating to the accumulation of vapors in confined spaces.

6. *Are there any other factors that would cause the discharge or release to pose an imminent danger to public health, public safety, or the environment?* **NO**

No factors have been identified that appear to pose an imminent danger to public health, public safety, or the environment.

Intermediate Risk:

7. *Is a surface water body located within 500 feet of the source area of the discharge or release? NO*

If yes, does the maximum groundwater contaminant concentration exceed the surface water quality standards and criteria found in 15A NCAC 2B .0200 by a factor of 10? NO

8. *Is the source area of the discharge or release located within a designated wellhead protection area as defined in 42 USC 300h-7(e)? NO*

The source area is not located within a designated wellhead protection area as defined by 42 USC 300h-7(e).

9. *Is the discharge or release located in the Coastal Plain Physiographic Region as designated on a map entitled "Geology of North Carolina" published by the Department in 1985? YES*

If yes, is the source area of the discharge or release located in an area in which there is recharge to an unconfined or semi-confined aquifer that is being used or may be used as a source of drinking water?

Within 1,500 feet of the site, the surficial aquifer lies within 50 feet of ground surface, yielding sufficient water supply for domestic use. Groundwater is also drawn from lower aquifers in certain areas. Although the suspected source area is located where recharge to the surficial aquifer has the potential to occur, water from the surficial aquifer in this area is not likely to be used for potable water supplies.

10. *Do the levels of groundwater contamination for any contaminant exceed the gross contamination levels established by the Department? NO*

Part II – Land Use

Property Containing Source Area of Discharge or Release:

The questions below pertain to the property containing the source area of the release.

1. *Does the property contain one or more primary or secondary (permanent or temporary) residences? NO*

The property does not contain primary or secondary residences.

2. *Does the property contain a school, daycare center, hospital, playground, park, recreation area, church, nursing home, or other place of public assembly? NO*

The property does not contain places of public assembly. At this time the property contains an inactive convenience market and retail fuel outlet.

3. *Does the property contain a commercial (e.g. retail, warehouse, office/business space, etc.) or industrial (e.g., manufacturing, utilities, industrial research and development, chemical/petroleum bulk storage, etc.) enterprise, and inactive commercial or industrial enterprise, or is the land undeveloped? YES*

The property contains an inactive convenience market and retail fuel outlet.

4. *Do children visit the property? NO*
5. *Is access to the property reliably restricted consistent with its use (e.g., by fences, security personnel or both)? NO*

The property is not restricted with fence or security personnel.

6. *Do pavement, building, or other structures cap the contaminated soil? NO*

The facility is partially covered with asphalt, concrete, gravel and a building. In the immediate vicinity of the former kerosene and gasoline USTs and dispensers, the surface is predominantly clean backfilled soil.

If yes, what mechanisms are in place or can be put into place to ensure that the contaminated soil will remain capped in the foreseeable future? NA

7. *What is the zoning status of the property?*

According to the City of Fayetteville Planning Office, the facility is zoned local business.

8. *Is the use of the property likely to change in the next 20 years? YES*

At this time, the facility is an inactive convenience store and retail fuel outlet. The site was recently sold to Bill and Maria Pappas who are planning to operate a restaurant on the property in the near future.

Property Surrounding Source Area of Discharge or Release:

The questions below pertain to the area within 1,500 feet of the source area of the discharge or release (excludes property containing source area of the release):

9. *What is the distance from the source area of the release to the nearest primary or secondary residence (permanent or temporary)?*

The nearest primary residence is located approximately 150 feet from the source area.

10. *What is the distance from the source area of the release to the nearest school, daycare center, hospital, playground, park, recreation area, church, nursing home, or other place of public assembly?*

Places of public assembly are outlined under Section 4.7, Land Use.

11. *What is the zoning status of properties in the surrounding area?*

Based on information obtained from the City of Fayetteville Planning Department, the most of the commercial properties located in the vicinity of the site are zoned local business (C1), professional (P2), or shopping center district (C1P) and office/institutional (O and I), and the residential properties are zoned residential, primarily single family (R-10).

12. *Briefly characterize the use and activities of the land in the surrounding area.*

Land use in the immediate surrounding area predominantly consists commercial and residential properties.

4.0 RECEPTOR PATHWAY INFORMATION

As defined by NCDENR, a receptor is "any human, plant or animal that is or has the potential to be adversely affected by the release or migration of contaminants." With respect to the subject facility, the following sections present information regarding potential receptor pathways for the migration of contaminants and pathway relationships to the facility.

4.1 Water Supply Wells

In an effort to gather as complete and accurate data as possible, Delta mailed water supply well surveys to the property owners within a 500-foot radius of the subject facility. Property ownership was based on information obtained from the Cumberland County Tax and Mapping Offices. In addition, a windshield survey was performed within a 1,500-foot radius to identify water supply wells and public water usage.

The mail survey resulted in a 59 percent return on responses from the property owners. Based on the responses received, a water supply well location map has been prepared and is presented as **Figure 3**. Information collected during the mail-survey and windshield survey process revealed no private or municipal water supply wells were identified within a 1,500-foot radius of the site. The names and addresses of property owners, having properties located within 500 feet of the source area, along with the responses to the well supply survey have been tabulated and are presented in **Table 5**.

4.2 Public Water Supplies

Brookwood Water Corporation, Inc. (BWCI) and the City of Fayetteville provide public water to the property owners within a 1,500-foot radius of the site, however most of the property owners utilize BWCI. BWCI obtains its water supply from groundwater sources while the City of Fayetteville use surficial sources, specifically Glenville Lake and the Cape Fear River. According to Ms. Lynne Johnson, Area Manager for the BWCI, there are no BWCI operated water supply wells located within a 1,500-foot radius of the site. The water collected from BWCI's supply wells is tested, chlorinated and then redistributed to the area businesses and residences.

According to Ms. Amy Ratliff, Engineer II for the City of Fayetteville Public Works Commission (PWC), public water from the PWC is offered on a limited basis in the subject area at this time.

The surficial water collected from Glenville Lake is treated at the Glenville Lake Water Treatment Plant and the surficial water collected from the Cape Fear River is treated at the Hoffer Water Treatment Plant. After treatment, the water is redistributed to customers.

4.3 Surface Water Bodies

No surface water bodies were identified within a 1,500-foot radius of the site

4.4 Wellhead Protection Areas

At the time of this assessment, a designated wellhead protection area, as defined in 42 USC 300h-7(e), is not reported to exist within 1,500 feet of the source area.

4.5 Deep Aquifers in the Coastal Plain Province

The subject site is located within the Sand Hills subdivision of the Atlantic Coastal Plain Physiographic Province. The surficial aquifer is composed of grayish-brown coarse sand and gravel containing silt and kaolinitic material. Underlying the surficial aquifer is the Black Creek confining unit that is composed of clay, silty clay, and sand clay. The Black Creek confining unit is approximately 6 feet thick in this area of Cumberland County. Underlying the Black Creek confining unit is the Black Creek aquifer. The Black Creek aquifer is composed of thinly laminated gray to black clay interlayered with gray to tan sands. The upper Cape Fear confining unit underlies the Black Creek aquifer and is approximately 36 feet thick. The Upper Cape Fear confining unit in Cumberland County overlies the Upper Cape Fear aquifer. The Upper Cape Fear aquifer is composed of alternating beds of sand and clay that are approximately 88 feet thick.

4.6 Subsurface Structures

There is an onsite underground storm drain system, and underground water and telephone lines that run parallel to Raeford Road. Notwithstanding, there was no readily apparent evidence of potential impacts from the source area relating to the accumulation of vapors in confined spaces.

4.7 Land Use

Within a 1,500-foot radius of the subject facility, most of the land area is commercial and residential. Within the 1,500-foot radius, the distance to the places of public assembly include (with nearest distance in parentheses) are:

- A primary residence (150 feet)
- Brentwood Elementary School (1,450 feet South)
- Arran Lake Baptist Church (1,475 feet South)

4.8 Adjacent Property Owners and Occupants

The names and addresses of property owners, having properties located within 1,500 feet of the source area, have been tabulated and are presented in **Table 6**. Additionally, a cross-reference map depicting the locations of adjacent properties is presented in **Figure 3**.

5.0 SITE GEOLOGY AND HYDROGEOLOGY

5.1 Description of Shallow Subsurface Geology

The following table describes the soils encountered during the installation of monitor well MW-1:

Depth Below Ground Surface (ft)	Soil Description & Classification (USCS)
0.0-2.0	Concrete/Orange Clay Sand Fill (SC)
2.0-10.0	Brown Clayey Sand. (SC)
10.0-18.0	Orange Clayey Sand. Moist (SC).
18.0-35.0	Orange Sand, Medium Grain, Well Sorted. Dry (SW).
35.0-45.0	Orange Clayey Sand. Moist (SC).
45.0-55.0	Orange Sand, Medium Grain, Well Sorted. Moist (SC).

The boring logs are presented in **Appendix B**.

5.2 Groundwater Occurrence

On February 10, 2003, the water table was encountered at approximately 44.0 feet bgs during well sampling activities.

5.3 Groundwater Flow Direction

The Fayetteville Quadrangle (7.5 minute series topographic maps, U.S. Geological Survey-USGS, 1979) indicates a regional topography sloping eastward. Typically, the surficial groundwater flow direction is a subdued reflection of the topography; therefore, the regional groundwater flow would be expected to move generally eastward. Specific site information on groundwater flow could not be determined since only two monitoring wells were installed onsite.

5.4 Vertical Movement

Due to the fact that a vertical delineation well was not installed onsite, the potential for downward flow or vertical movement was not determined.

6.0 ANALYTICAL RESULTS

All soil and groundwater samples were submitted to Paradigm Analytical Laboratories, Inc. (Paradigm) of Wilmington, North Carolina. The following sections discuss the analytical data provided in the laboratory reports.

6.1 Soil Analytical Results

A total of twelve soil samples were collected (MW-1 (2.5-3.0'), MW-1 (8.0-8.5'), MW-1 (13.0-13.5'), MW-1 (17.0-17.5'), MW-1 (25.0-25.5'), MW-1 (35.0-35.5'), MW-1 (43.5-44.0'), MW-2 (11.5-12.0'), MW-2 (14.5-15.0'), MW-2 (21.0-21.5'), MW-2 (27.0-27.5'), and MW-2 (38.0-38.5')) and submitted for laboratory analyses during the Limited Site Assessment activities on January 9, 2003. The samples were obtained from the monitoring well boreholes for monitoring wells MW-1 and MW-2 during the initial drilling attempt. Laboratory results for soil samples MW-1 (2.5-3.0')

and MW-1 (8.0-8.5') reveal the presence of benzene at levels in excess of its respective soil-to-groundwater Maximum Soil Contaminant Concentration (MSCC). Analytical results indicate that the concentrations for the remaining target compounds are either below MSCCs or below the laboratory method detection limits.

Information on the sample collection protocol is presented in Section 2.2. Soil analytical results are presented in **Table 2**. The soil sample locations correspond to the monitoring well location number, as presented in **Figure 2**. The laboratory analytical report and chain-of-custody are presented in **Appendix C**.

6.2 Groundwater Analytical Results

Two groundwater samples (MW-1 and MW-2) were collected during the Phase I Limited Site Assessment activities. Information regarding the monitoring well installations and groundwater sampling protocol are provided in Sections 2.3 and 2.4, respectively.

During the Phase I LSA, the groundwater samples from MW-1 and MW-2 were submitted to the project laboratory for analyses by EPA Method 601/602 with xylenes, EPA Method 504.1 for ethylene dibromide, EPA Method 3030C for lead and MADEP Method for VPH.

The groundwater analytical results indicate that lead is the only target compound detected above its respective 2L groundwater standard in monitoring wells MW-1 and MW-2. However, the lead concentrations do not exceed ten times its respective 2L groundwater standard. Concentrations for the remaining target compounds are either below their respective 2L groundwater standards or below the laboratory method detection limits.

The analytical summary for groundwater samples is included in **Table 4** while the laboratory analytical report and chain-of-custody are presented in **Appendix D**.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

Based on data collected during the LSA activities, characterization of the source can be described as follows:

- The nearest primary residence exists approximately 150 feet from the source area. Land use observations indicate predominantly commercial and residential properties in proximity to the subject facility. According to the City of Fayetteville Planning Office, the land is zoned local business, professional, shopping center district, office/institutional, and single family residential.
- Businesses and residences are supplied by private or municipal water provided by the Brookwood Water Corporation Inc. or the City of Fayetteville. No private or municipal water supply wells were identified within 1,500 feet of the subject facility.
- No surface water bodies were identified within 1,500 feet of the site.

- There are no other known receptors which are or could be impacted by the release.
- Benzene was detected in excess of its respective soil-to-groundwater MSCC in the soil samples collected from monitoring well MW-1.
- Lead was detected in excess of its respective 2L groundwater standard, but less than 10 times the groundwater standard, in groundwater samples collected from monitoring wells MW-1 and MW-2.

7.2 Recommendations

Based on information obtained during this LSA, it appears the site should be assigned a land use classification of Residential and a priority risk classification of "Low Risk". Accordingly, and in order to expedite a case closure for the site, Delta herein recommends further soil assessment in order to prepare and submit a Soil Assessment Report (SAR) to the NCDENR.

8.0 LIMITATIONS

The recommendations contained in this report represent our professional opinions. These opinions were arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

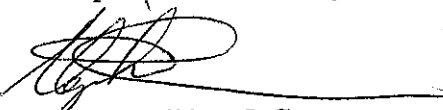
This report was prepared by:

DELTA ENVIRONMENTAL CONSULTANTS, INC.



Monika Satterwhite
Staff Scientist

This report was reviewed by:



Stephen R. Libbey, L.G.
Project Manager

TABLE 1
SOIL ANALYTICAL RESULTS
UST CLOSURE
SCOTCHMAN #38
FAYETTEVILLE, NORTH CAROLINA
DELTA PROJECT NO. X0NC-057

Sample ID	Sample Date	Sample Depth (ft. bgs)	TPH-GRO (EPA 5030) (mg/kg)	TPH-DRO (EPA 3550) (mg/kg)
D-1	10/23/2002	1.5	1,800	3,010
D-2	10/23/2002	1.5	4,000	4,220
PL-1	10/23/2002	2	<6.7	26
SW-1	10/23/2002	4	<6.6	<6.8
SW-2	10/23/2002	4	<6.9	<7.2
SW-3	10/23/2002	4	<7.1	<7.4
SW-4	10/23/2002	4	<6.6	<6.5
SW-5	10/23/2002	4	<6.3	<6.2
SW-6	10/24/2002	4	<6.9	<7.2
SW-7	10/24/2002	4	<6.5	<6.3
SW-8	10/24/2002	3.5	<6.4	7.0
SW-9	10/24/2002	3.5	<6.6	<6.9
SW-10	10/24/2002	3.5	<6.5	<6.7
SW-11	10/24/2002	4	51	567
SW-12	10/24/2002	4	10	51
SW-13	10/24/2002	3.5	<6.7	<6.9
SW-14	10/24/2002	3.5	<6.7	<7.0
SW-15	10/24/2002	4	<6.7	<7.0
B-1	10/23/2002	9	<6.6	<6.6
B-2	10/23/2002	9	<6.7	<7.3
B-3	10/23/2002	9	<6.7	<6.8
B-4	10/24/2002	7	<7.0	<7.6
B-5	10/24/2002	7	<7.0	<6.5
B-6	10/24/2002	7	<7.0	<7.1
B-7	10/24/2002	7	<6.9	<7.0
B-8	10/24/2002	7	700	2,380
B-9	10/24/2002	7	1,900	1,620
B-10	10/24/2002	7	210	840
B-11	10/24/2002	7	850	1,000
B-12	10/24/2002	7	1,200	1,990
NC Action Levels			10	10

Notes:

- 1) ft. bgs. denotes feet below ground surface
- 2) mg/kg denotes milligrams per kilogram
- 3) All results in **BOLD** exceed Action Levels
- 4) TPH-GRO denotes Total Petroleum Hydrocarbons-Gasoline Range Organics
- 5) TPH-DRO denotes Total Petroleum Hydrocarbons-Diesel Range Organics

TABLE 2
SOIL ANALYTICAL RESULTS
 Scotchman #3
 Fayetteville, North Carolina
 Delta Project No. X0NC-057

Sample ID	MW-1 (2.5-3.0')	MW-1 (8.0-8.5')	MW-1 (13.0-13.5')	MW-1 (17.0-17.5')	MW-1 (25.0-25.5')	MW-1 (35.0-35.5')
Sample Date	1/9/2003	1/9/2003	1/9/2003	1/9/2003	1/9/2003	1/9/2003
Sample Depth (feet)	2.5-3.0	8.0-8.5	13.0-13.5	17.0-17.5	25.0-25.5	35.0-35.5
PID (ppm)	NA	NA	NA	NA	NA	NA
Analysis	EPA Methods 8260 and MADEP-VPH Compound Concentrations ug/kg					
Target Constituents	EPA Methods 8260 and MADEP-VPH Compound Concentrations ug/kg					
BENZENE	20	<5.8	<5.5	<5.2	<5.6	<5.6
TOLUENE	12	<5.8	<5.5	<5.2	<5.6	<5.6
ETHYLBENZENE	16	<5.8	<5.5	<5.2	<5.6	<5.6
XYLENES	52.5	<17.8	<17.5	<15.2	<16.6	<16.6
1,2,3-TRICHLOROPANE	24	<5.8	<5.5	<5.2	<5.6	<5.6
1,3,5-TRIMETHYLBENZENE	<5.7	<5.8	<5.5	<5.2	<5.6	<5.6
1,2,4-TRIMETHYLBENZENE	15	<5.8	<5.5	<5.2	<5.6	<5.6
DIISOPROPYL ETHER (DIPB)	<5.7	<5.8	<5.5	<5.2	<5.6	<5.6
1,2-DIBROMETHANE (HDB)	<5.7	<5.8	<5.5	<5.2	<5.6	<5.6
METHYL-TERI-BUTYL ETHER (MTBE)	16	<5.8	<5.5	<5.2	<5.6	<5.6
NAPHTHALENE	<5.7	<5.8	<5.5	<5.2	<5.6	<5.6
C5-C8 ALIPHATICS	<10	<10	<10	<10	<10	<10
C9-C12 ALIPHATICS	<10	<10	<10	<10	<10	<10
C9-C10 AROMATICS	<10	<10	<10	<10	<10	<10

Notes:
 PID - Photo-Ionization Detector
 PPM - Parts Per Million
 ug/kg - Micrograms per Kilogram (or approximately parts per billion)
 Bold Numbers indicate values exceeding the soil-to-groundwater maximum contaminant concentrations
 NG - No value given
 No other compounds were detected above quantification limits.

TABLE 2 SOIL ANALYTICAL RESULTS

Scotchman #3
Fayetteville, North Carolina
Delta Project No. X0NC-057

Sample ID	MW-1 (43.5-44.0')	MW-2 (11.5-12.0')	MW-2 (14.5-15.0')	MW-2 (21.0-21.5')	MW-2 (27.0-27.5')	MW-2 (38.0-38.5')
Sample Date	1/9/2003	1/9/2003	1/9/2003	1/9/2003	1/9/2003	1/9/2003
Sample Depth (feet)	43.5-44.0	11.5-12.0	14.5-15.0	21.0-21.5	27.0-27.5	38.0-38.5
PIB (ppm)	NA	NA	NA	NA	NA	NA
Analytes	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH	EPA Methods 8260 and MADEP-VPH
Target Compounds	Concentrations $\mu\text{g}/\text{kg}$	Concentrations $\mu\text{g}/\text{kg}$	Concentrations $\mu\text{g}/\text{kg}$	Concentrations $\mu\text{g}/\text{kg}$	Concentrations $\mu\text{g}/\text{kg}$	Concentrations $\mu\text{g}/\text{kg}$
BENZENE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5
TOLUENE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5
ETHYL BENZENE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5
XYLENES	<16.5	<16.7	<16.3	<16.6	<16.7	<16.5
1,2,3-TRICHLOROPROPANE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5
1,3,5-TRIMETHYLBENZENE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5
1,2,4-TRIMETHYLBENZENE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5
DIISOPROPYL ETHER (DIPE)	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5
1,2-DIBROMETHANE (EDB)	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5
METHYL-TERT-BUTYL ETHER (MTBE)	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5
NAPHTHALENE	<5.5	<5.7	<5.3	<5.6	<5.7	<5.5
C5-C8 ALIPHATICS	<10	<10	<10	<10	<10	<10
C9-C12 ALIPHATICS	<10	<10	<10	<10	<10	<10
C9-C10 AROMATICS	<10	<10	<10	<10	<10	<10
						5.6
						7,000
						240
						5,000
						NG
						7,000
						8,000
						370
						0.00197
						920
						580
						72,000
						3,255,000
						34,000

Notes:
 PID - Photo-Ionization Detector
 PPM - Parts Per Million
 $\mu\text{g}/\text{kg}$ - Micrograms per Kilogram (or approximately parts per billion)
 Bold Numbers indicate values exceeding the soil-to-groundwater maximum contaminant concentrations
 NG - No value given
 No other compounds were detected above quantification limits.

TABLE 3
WATER LEVEL DATA
 Scotchman #38
 Fayetteville, North Carolina
 Delta Project No. X0NC-057

WELL ID	SCREENED INTERVAL (ft bgs)	TOC ELEVATION (ft)	DATE MEASURED	DEPTH TO WATER (ft)
MW-1	35-55	NA	2/10/2003	44.71
MW-2	35-55	NA	2/10/2003	44.48

Notes:
ft bgs- feet below ground surface.
Depth to water is measured from top of well casing TOC.
NA - Not Applicable

TABLE 4
GROUNDWATER ANALYTICAL RESULTS
 SCOTCHMAN #38
 FAYETTEVILLE, NORTH CAROLINA
 DELTA PROJECT NO. X0NC-057

Sample ID	MW-1	MW-2	2L Groundwater Quality Standards
Sample Date	2/10/2003	2/10/2003	
Analyses	EPA Methods 601/602, 504.1, 3030C, & MADEP-VPH.	EPA Methods 601/602, 504.1, 3030C, & MADEP-VPH.	
Target Compounds	Compound Concentrations (ug/L)	Compound Concentrations (ug/L)	
Benzene	<1	<1	1
Toluene	<1	<1	1,000
Ethylbenzene	<1	<1	29
Xylenes	<4	<4	530
Methyl-tert-butyl-ether	3.6	3.7	200
Diisopropyl ether	<1	<1	70
Ethylene Dibromide	<0.02	<0.02	0.0004
Lead	44.0	24.1	15
C5-C8 Aliphatics	<100	<100	420
C9-C12 Aliphatics	<100	<100	4,200
C9-C10 Aromatics	<100	<100	210

Notes:

- 1) **Numbers indicate values exceeding 2L groundwater standards.**
- 2) **ug/L denotes micrograms per liter (or approximately parts per billion).**

TABLE 5
ADJACENT PROPERTY OWNERS AND WELL SURVEY INFORMATION (500-FOOT RADIUS)
(LIMITED SITE ASSESSMENT)

Scotchman #38
 Fayetteville, North Carolina
 Delta Project # X0NC-057

PIN	OWNER NAME	OWNER ADDRESS	CITY	ZIP	PUBLIC WATER Y/N	SUPPLY WELL Y/N	Well Usage
0407-40-0340	Peeples, Johnie Brooks	PO Box 41903	Fayetteville, NC	28309	Y	N	NA
0407-40-0572	ZP #15 LLC	PO Box 2628	Wilmington, NC	28402	Y	N	NA
0407-40-0739	Time Warner Entertainment	PO Box 6659	Englewood, CO	80155	NR	NR	NA
0407-40-1480	Sampson, Craig	910 Bingham Dr	Fayetteville, NC	28304	Y	N	NA
0407-40-2143	Chabot, Louise W	1002 Bingham Dr	Fayetteville, NC	28304	Y	N	NA
0407-40-2209	Dallas, Fred Pauldee and Wife	916 Bingham Dr	Fayetteville, NC	28304	Y	N	NA
0407-40-2953	Clodfelter, Dwane D	2320 Willoughby Dr	Fayetteville, NC	28301	NR	NR	NA
0407-40-4188	Stewart, John and Edna L.	1003 Bingham Dr	Fayetteville, NC	28304	Y	N	NA
0407-40-4432	Pappas, Maria G	304 Owen Dr	Fayetteville, NC	28304	Y	N	NA
0407-40-4614	Worsley Companies, Inc.	PO Box 3227	Wilmington, NC	27712	NR	NR	NA
0407-40-5462	Anderson, Roger M and Wife	1005 Arberdale Dr	Fayetteville, NC	28304	Y	N	NA
0407-40-6232	McKee, John Kenneth and Wife	1002 Arberdale Dr	Fayetteville, NC	28304	Y	N	NA
0407-40-6510	Johnson, Mary A	6206 E Darrow Dr	Fayetteville, NC	28304	NR	NR	NA
0407-40-6596	Holthe, Ingelore	6204 Darrow Dr	Fayetteville, NC	28304	Y	N	NA
0407-40-6732	Downing, Tildon W and Robert E	PO Box 53387	Fayetteville, NC	28303	Y	N	NA
0407-40-7796	Girdwood, Richard	3301 Jura Dr	Fayetteville, NC	28303	Y	N	NA
0407-40-8312	Floyd, Steve	5416 Raeford Rd	Fayetteville, NC	28304	Y	N	NA
0407-40-8651	Downing, Henry L and Wife	6202 E. Darrow Dr	Fayetteville, NC	28304	NR	NR	NA
0407-40-9328	Bascombe, David D	6203 E Darrow Dr	Fayetteville, NC	28304	NR	NR	NA
0407-40-9544	McDaniel, WM E and Wife	6201 Darrow Dr	Fayetteville, NC	28304	NR	NR	NA
0407-41-0490	Gillis, M D	49444 River Run Road	Albermarle, NC	28001	NR	NR	NA
0407-41-5748	Tollison, Sarah Williams	3018 Lake Forest Dr	Greensboro, NC	27408	NA (Vacant Lot)	N	NA

Notes:
 NR = No Response to Well Survey
 NA = Not Applicable

TABLE 6
ADJACENT PROPERTY OWNERS (1,500-FOOT RADIUS)
(LIMITED SITE ASSESSMENT)

Scotchman #38
 Fayetteville, North Carolina
 Delta Project # X0NC-057

PIN	OWNER NAME	OWNER ADDRESS	CITY	ZIP
0406-39-2665	STEWART, PETER B & WIFE	539 BRAGG BLVD	FAYETTEVILLE, NC	28301
0406-39-6149	THOMAS, RAYMOND CARROL	PO BOX 43036	FAYETTEVILLE, NC	28309
0406-39-9381	CLARK, JOHNNY DALE	PO BOX 918	UNADILLA, GA	31091
0406-39-9602	CARROLL RENTALS LLC	PO BOX 43036	FAYETTEVILLE, NC	28309
0406-49-0175	BELL, HAROLD STEPHEN & WIFE	5800 VALHALLA CT	FAYETTEVILLE, NC	28304
0406-49-0234	MARKET HOUSE HOLDINGS	PO BOX 53329	FAYETTEVILLE, NC	28305
0406-49-1435	MELANSON, LINDA W'	1101 THORNWOOD PL	FAYETTEVILLE, NC	28304
0406-49-1725	THOMAS, ALEXANDER H	PO BOX 43036	FAYETTEVILLE, NC	28309
0406-49-1913	THOMAS, ALEXANDER H	PO BOX 43036	FAYETTEVILLE, NC	28309
0406-49-2176	JEFFERSON, LORETTA	1117 THORNWOOD PL	FAYETTEVILLE, NC	28304
0406-49-2254	BUNBURY, NAADIRA A & HUSBAND	1113 THORNWOOD PL	FAYETTEVILLE, NC	28304
0406-49-2332	STAPLES, JOHN & WIFE DONNA	1109 THORNWOOD PL	FAYETTEVILLE, NC	28304
0406-49-2433	PRUITT, FREDERICK D. JR & WIFE	1105 THORNWOOD PL	FAYETTEVILLE, NC	28304
0406-49-2984	DUCK, FORNEY R	1428 PAISLEY AVE	FAYETTEVILLE, NC	28304
0406-49-3484	WIGGINS, PAMELA J & CEDERIC	1030 BINGHAM	FAYETTEVILLE, NC	28304
0406-49-3644	SIMMONS, SHELYA J	1022 BINGHAM DR	FAYETTEVILLE, NC	28304
0406-49-3804	WEBBER, DORIS J	1014 BINGHAM DR	FAYETTEVILLE, NC	28304
0406-49-4145	EDWARDS, JOSEPH R. JR	1104 BINGHAM DR	FAYETTEVILLE, NC	28304
0406-49-4225	LOPER, JOHN M & JEWELL h.	5604 THORNWALL CT	FAYETTEVILLE, NC	28304
0406-49-4305	PITTMAN, BRUCE H & WIFE KAREN	1034 BINGHAM DR	FAYETTEVILLE, NC	28304
0406-49-5683	ATHERTON, JOE F & LILIAN M	1029 BINGHAM DR	FAYETTEVILLE, NC	28304
0406-49-5759	GIBSON, LILO R	1017 BINGHAM DR	FAYETTEVILLE, NC	28304
0406-49-5839	DONOVAN, JOHN PATRICK	7513 MCFRENCH DR	FAYETTEVILLE, NC	28311
0406-49-5918	WRIGHT, BOBBY R. & MARTHA	1011 BINGHAM DR	FAYETTEVILLE, NC	28304
0406-49-6263	DAVIS, HUGH SMITH	1101 BINGHAM DR	FAYETTEVILLE, NC	28304
0406-49-6431	MEADOWS, CLAUDE M & WIFE	1033 BINGHAM DR	FAYETTEVILLE, NC	28304
0406-49-6992	SPAIN, ELTA GIBSON	1008 ARBERDALE DR	FAYETTEVILLE, NC	28304
0406-49-7275	ARROYO, DAVID & NORMA M.	6217 MCDUGAL DR	FAYETTEVILLE, NC	28304
0406-49-7457	CASTEN, DEBORAH A & HUSBAND	6216 MCDUGAL DR	FAYETTEVILLE, NC	28304
0406-49-7633	JUMALON, JAMES & WIFE	1015 ARBERDALE DR	FAYETTEVILLE, NC	28304
0406-49-7812	SOMERVILLE, CHRISTOPHER D.	1010 ARBERDALE DR	FAYETTEVILLE, NC	28304
0406-49-8241	BRYANT, EDWARD LEE & WIFE	6211 MCDUGAL DR	FAYETTEVILLE, NC	28304
0406-49-8458	PATTERSON, DEBRA M	6214 MCDUGAL DR	FAYETTEVILLE, NC	28304
0406-49-8666	HARRIS, CLEVESTER JR & WIFE	1013 ARBERDALE DR	FAYETTEVILLE, NC	28304
0406-49-8995	ROCKWELL, DAVID G	1009 ARBERDALE DR	FAYETTEVILLE, NC	28304
0406-49-9139	SWAN, MORRIS R	6317 KINCROSS AVE	FAYETTEVILLE, NC	28304

TABLE 6
ADJACENT PROPERTY OWNERS (1,500-FOOT RADIUS)
(LIMITED SITE ASSESSMENT)

Scotchman #38
 Fayetteville, North Carolina
 Delta Project # X0NC-057

PIN	OWNER NAME	OWNER ADDRESS	CITY	ZIP
0406-49-9376	WILLIAMS, KAREN LYNN	6208 MCDOUGAL DR	FAYETTEVILLE, NC	28304
0406-49-9401	BOKKEAN, PETER B & WIFE	6212 MCDOUGAL DR	FAYETTEVILLE, NC	28304
0406-49-9801	JACKSON, JOHNNIE RAY & WIFE	1011 ARVERDALE DR	FAYETTEVILLE, NC	28304
0406-59-0356	MCKOY, ALVIS & WIFE	6204 MCDOUGAL DR	FAYETTEVILLE, NC	28304
0406-59-0421	DOSSER, EARL L	1102 THORNWOOD PL	FAYETTEVILLE, NC	28304
0406-59-0425	MILLER, KENNETH MELVIN JR	1088 REVERE ST	FAYETTEVILLE, NC	28304
0406-59-0522	DAVIS, DANIEL H	1084 REVERE ST	FAYETTEVILLE, NC	28304
0406-59-0528	DUNNING, KATHLEEN G.	1080 REVERE ST	FAYETTEVILLE, NC	28303
0406-59-0731	GARDNER, HELEN P LIFE ESTATE	1072 REVERE ST	FAYETTEVILLE, NC	28304
0406-59-0758	GARDNER, HELEN P LIFE ESTATE	1072 REVERE ST	FAYETTEVILLE, NC	28304
0406-59-0844	SCHANTZ, EDWARD C. JR. & WIFE	1670 GREENOCK AVE	FAYETTEVILLE, NC	28304
0406-59-0951	JONES, WANDA VICTORIA	1060 REVERE ST	FAYETTEVILLE, NC	28304
0406-59-0957	JONES, BRYAN JEFFREY & WIFE	00105 REVERE ST	FAYETTEVILLE, NC	28304
0406-59-1395	BAIN, TRACY L & WIFE	6114 MCDOUGAL DR	FAYETTEVILLE, NC	28303
0406-59-2364	SHERRILL, ROBERT S. * & WIFE EDNA	6110 MCDOUGAL DR	FAYETTEVILLE, NC	28304
0406-59-2434	ROYAL, SANDRA R	1087 REVERE ST	FAYETTEVILLE, NC	28304
0406-59-2541	HOLLYFIELD, ELIZABETH WILSON	1083 REVERE ST	FAYETTEVILLE, NC	28304
0406-59-2547	SCHANTZ, EDWARD C. JR & WIFE	1670 GREENOCK AVE	FAYETTEVILLE, NC	28304
0406-59-2654	FRANCIS, BILLY L	1075 REVERE ST	FAYETTEVILLE, NC	28304
0406-59-2750	HOFFMAN, TERENCE M. & PAUL	22 S PENDLETON	FREDERICK, MD	21702
0406-59-2757	TYNDALL, ROBERT K	1067 REVERE ST	FAYETTEVILLE, NC	28304
0406-59-2863	FISHER, DENLEY S	1063 REVERE ST	FAYETTEVILLE, NC	28304
0406-59-2960	DUNNING, KATHLEEN G.	1080 REVERE ST	FAYETTEVILLE, NC	28304
0406-59-2976	MORTON, DANIEL T & WIFE EVA L	1055 REVERE ST	FAYETTEVILLE, NC	28304
0406-59-3493	HAIRE, HUGH R. JR & LULA H	4427 WELLINGTON DR	FAYETTEVILLE, NC	28314
0406-59-3590	BOWER, GREGORY ALAN SR	1084 RULNICK ST	FAYETTEVILLE, NC	28304
0406-59-3596	ENTRUST ADMINISTRATION IRA	101 SIESTA TR	ROSCOMMON, MI	48653
0406-59-3724	FORD, LILLIE WALKER	1018 BINGHAM DR.	FAYETTEVILLE, NC	28304
0406-59-4602	HOFF, PAMELA S	1076 RULNICK ST	FAYETTEVILLE, NC	28303
0406-59-4608	GRANT, JOSHUA R & WIFE	1072 RULNICK ST	FAYETTEVILLE, NC	28304
0406-59-4811	SMITH, DELORES A	1066 RULNICK ST	FAYETTEVILLE, NC	28304
0406-59-4828	VEGA, JAIME ARROYO & WIFE	1062 RULNICK ST	FAYETTEVILLE, NC	28304
0406-59-4915	COUNCIL, LEE THOMAS & JEANETTE	3310 LAKE BEND DR	FAYETTEVILLE, NC	28304
0406-59-4924	SMITH, JOEL K	1058 RULNICK ST	FAYETTEVILLE, NC	28311
0406-59-6502	ATHERTON, JOE F & LILIAN M	1029 BINGHAM DR	FAYETTEVILLE, NC	28304
0406-59-6724	MANNING INVESTMENT GROUP, LLC	PO BOX 9746	FAYETTEVILLE, NC	28302

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ADJACENT PROPERTY OWNERS (1,500-FOOT RADIUS)
(LIMITED SITE ASSESSMENT)
 Scotchman #38
 Fayetteville, North Carolina
 Delta Project # X0NC-057

PIN	OWNER NAME	OWNER ADDRESS	CITY	ZIP
0406-59-6834	CASTEN, DEBORAH A & HUSBAND	1059 RULNICK AVE	FAYETTEVILLE, NC	28304
0407-10-9126	MCMILLAN SHULER OIL CO	PO BOX 590	FAYETTEVILLE, NC	28302
0407-21-9170	BREWER, ELAINE	PO BOX 40141	FAYETTEVILLE, NC	28309
0407-30-0505	ROGERS & BREECE, INC.	PO BOX 135	FAYETTEVILLE, NC	28302
0407-30-0724	POWELL, JOEL T. LIFE ESTATE	1813 SEABROOK RD	FAYETTEVILLE, NC	28301
0407-30-0911	HAWKINS, RUBY MCGREGORY	7304 HYANNIS DR	FAYETTEVILLE, NC	28304
0407-30-1290	STEWART, PETER B & WIFE	539 BRAGG BLVD	FAYETTEVILLE, NC	28301
0407-30-1954	OWENS, RAY	6322 BEAUCHAMP DR	HOPE MILLS, NC	28348
0407-30-2120	ROGERS & BREECE, INC.	500 RAMSEY ST	FAYETTEVILLE, NC	28301
0407-30-3904	OWENS, GERALD RAY	6322 BEAUCHAMP DR	HOPE MILLS, NC	28348
0407-30-4217	SPEARS DEVELOPMENT CORPORATION	6325 RAEFORD DR	FAYETTEVILLE, NC	28314
0407-30-5363	SPEARS DEVELOPMENT CORPORATION	PO BOX 349	FAYETTEVILLE, NC	28302
0407-30-5808	HENDRIX, DAVID A. & WIFE	130 BARCROFT CT	SOUTHERN PINES	28387
0407-30-7064	AGAPION, BILL & SOPHIA	625 ELM ST	GREENSBORO, NC	27401
0407-30-7776	PAGE, ARNOLD & WIFE	2117 CRYSTAL SPRINGS RD	FAYETTEVILLE, NC	28306
0407-30-7952	MENDELSON, GARYL LEE	102 LAMB ST	FAYETTEVILLE, NC	28305
0407-30-8432	AGAPION, BILL & SOPHIA	625 ELM ST	GREENSBORO, NC	27401
0407-31-1131	SNYDER, EDWARD, SCOTT & WIFE	6793 SEAFORD DR	FAYETTEVILLE, NC	28314
0407-31-1207	FRAZIER, JEANETTE D.	6337 GINGER CIRCLE	FAYETTEVILLE, NC	28314
0407-31-1444	MILES, JAMES	6405 FREDRICK ST	FAYETTEVILLE, NC	28314
0407-31-3027	TALLY, D.F. III & WIFE	4711 CRISS DR	FAYETTEVILLE, NC	28303
0407-31-3237	INGRAM, RONALD & WIFE PAMELA R.	1184 CENTRE PKY	LEXINGTON, KY	40517
0407-31-3345	ARES, MARIO & WIFE LOIS E.	5349 AMBERHILL CT	FAYETTEVILLE, NC	28311
0407-31-3442	WILLIAMS, LINWOOD M. & WIFE LOL	6340 GINGER CIR	FAYETTEVILLE, NC	28314
0407-31-3540	MCCORMICK, GEORGE R.	3600 STURBRIDGE DR	HOPE MILLS, NC	28348
0407-31-3558	MCCORMICK, GEORGE R.	3600 STURBRIDGE DR	HOPE MILLS, NC	28348
0407-31-3655	BOBBITT, MIKE E.	342 DEVANE ST	FAYETTEVILLE, NC	28305
0407-31-5207	YATES, JAMES L.	PO BOX 53336	FAYETTEVILLE, NC	28305
0407-31-6881	RUDD, JESSE B & WIFE	2804 LITTLE DR	FAYETTEVILLE, NC	28314
0407-31-7066	BASS, GLENN W & WIFE	509 CAPE FEAR AVE	FAYETTEVILLE, NC	28303
0407-31-7166	FILPKOWSKI, REGINA M.	PO BOX 2021	FAYETTEVILLE, NC	28302
0407-31-7166	WEBB, MICHELLE L. & HUSBAND	2835 LITTLE DR	FAYETTEVILLE, NC	28301
0407-31-7371	BESS, ALTON J.	2815 LITTLE DR	FAYETTEVILLE, NC	28304
0407-31-7486	GORDON GROUP, LLC.	2805 LITTLE DR	FAYETTEVILLE, NC	28314
0407-40-0078	BURWICK, KYLE L	206 MCPHERSON CHURCH RD	FAYETTEVILLE, NC	28303
0407-40-2064	RODRIGUEZ, ERIKA E	1006 BINGHAM DR	FAYETTEVILLE, NC	28304

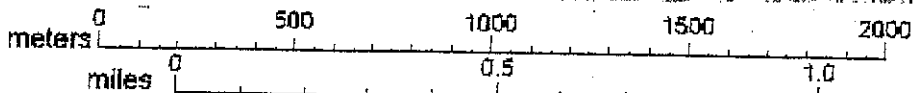
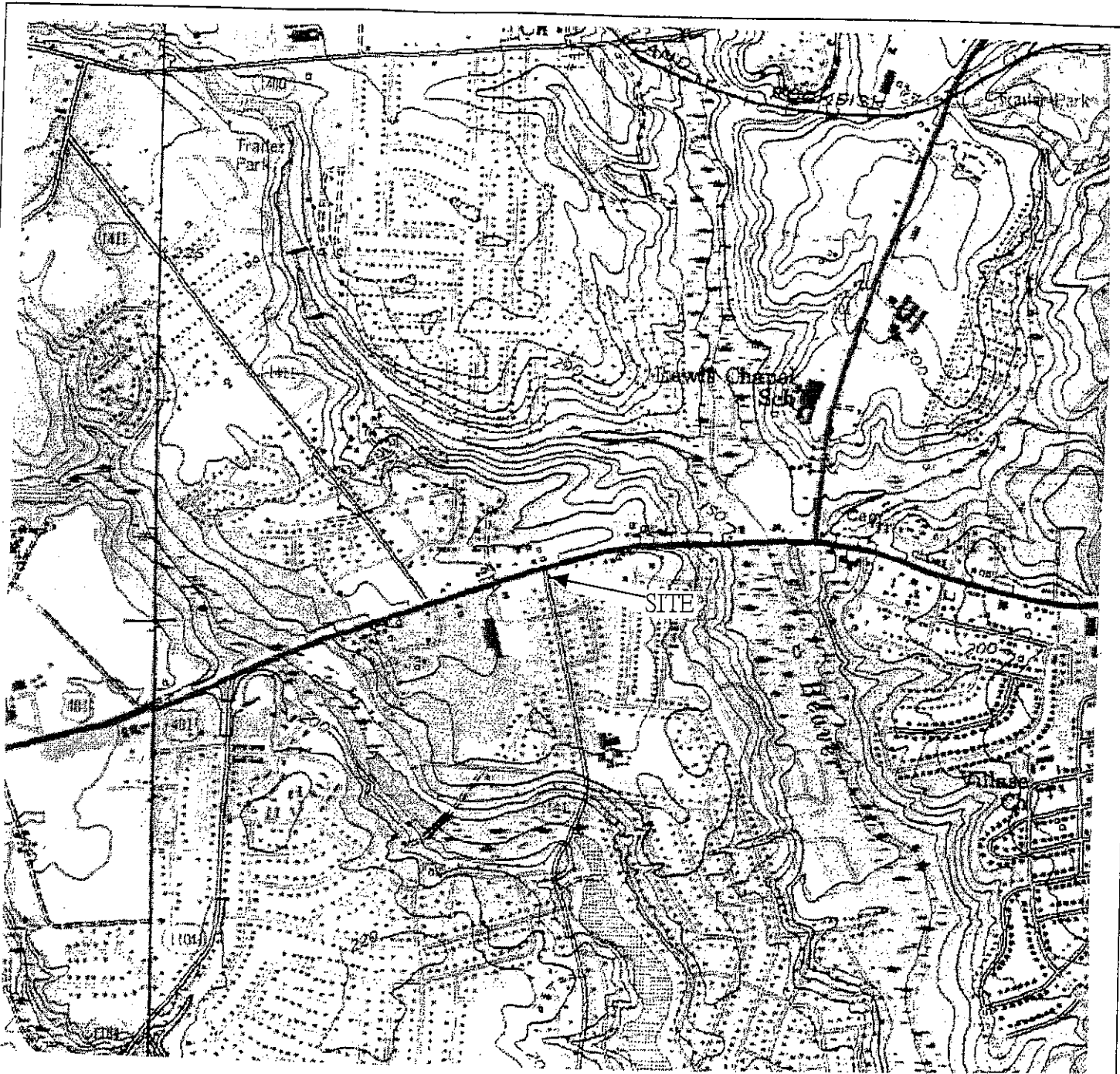
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ADJACENT PROPERTY OWNERS (1,500-FOOT RADIUS)
(LIMITED SITE ASSESSMENT)
 Scotchman #38
 Fayetteville, North Carolina
 Delta Project # X0NC-057

PIN	OWNER NAME	OWNER ADDRESS	CITY	ZIP
0407-40-4098	SHIMKO, EDWARD T. SR	1007 BINGHAM DR	FAYETTEVILLE, NC	28304
0407-40-6072	JACKSON, CURTIS W. & WIFE	1006 ARBERDALE RD	FAYETTEVILLE, NC	28304
0407-40-6151	SEVIER, MERLE F	1004 ARBERDALE DR	FAYETTEVILLE, NC	28304
0407-40-8085	PARRISH, JERRY & WIFE LINDA	179 DUCK LANE	SANFORD, NC	27330
0407-40-8184	ANDERSON, ROGER MARTIN	1005 ARBERDALE DR	FAYETTEVILLE, NC	28304
0407-40-8272	MAGWOOD, CARLOS J & WIFE	1003 ABERDALE	FAYETTEVILLE, NC	28304
0407-50-0053	ALBERT, CAROL M	1052 REVERE ST	FAYETTEVILLE, NC	28304
0407-50-0069	HUFF, TRACY N	1048 REVERE ST	FAYETTEVILLE, NC	28302
0407-50-0165	PRICE, IRMGARD R	1042 REVERE ST	FAYETTEVILLE, NC	28304
0407-50-0272	WEICHT, HARRY E	1040 REVERE ST	FAYETTEVILLE, NC	28304
0407-50-0278	COLLIER, MICHAEL W & WIFE	1280 GREENBRIAR DR	VASS, NC	28394
0407-50-0385	WARNER, JAN S	2702 GREENBAY RD	FAYETTEVILLE, NC	28303
0407-50-0481	ALTMAN, FRANK	8202 WELLINGTON PL	JESSUP, MD	20794
0407-50-0497	MIDDLETON, RICHARD L. JR & WIFE	1024 REVERE ST	FAYETTEVILLE, NC	28304
0407-50-0594	MCDONOUGH, BERNARD T.	919 NORWOOD ST	FAYETTEVILLE, NC	28305
0407-50-1601	GREAT SOUTHEASTERN PROPERTIES	PO BOX 58375	FAYETTEVILLE, NC	28305
0407-50-2072	SHERRIN, MATTHEW JAMES	1051 REVERE ST	FAYETTEVILLE, NC	28304
0407-50-2079	BILIOURIS, CHRISILIOS & WIFE	7189 EVANSTON ST	FAYETTEVILLE, NC	28314
0407-50-2185	BROWN, GLORIA J	1043 REVERE ST	FAYETTEVILLE, NC	28304
0407-50-2282	TURNER, GLENN & WIFE	1039 REVERE ST	FAYETTEVILLE, NC	28304
0407-50-2298	CZOLE, RONALD R	1035 REVERE ST	FAYETTEVILLE, NC	28304
0407-50-2395	DANCAROL REAL ESTATE LIMITED	PO BOX 53309	FAYETTEVILLE, NC	28305
0407-50-3403	SCHANTZ, EDWARD JR	1670 GRENNOCK AVE	FAYETTEVILLE, NC	28304
0407-50-3502	HYATT, VICTOR LEE	1019 REVERE	FAYETTEVILLE, NC	28304
0407-50-3610	YODER, ROBERTA R. & HUSBAND	3206 ROUSE DR	FAYETTEVILLE, NC	28306
0407-50-3852	AMERICAN CABLEVISION OF CAROLINA	PO BOX 6659	ENGLEWOOD, CO	80155
0407-50-4020	ADAMS, SUDIE	4311 DELMAR AVE	TEMPLE HILLS, MD	20748
0407-50-4036	HARDY, WILLIAM HENRY	5402 BROOKFIELD RD	FAYETTEVILLE, NC	28303
0407-50-4132	DICKERMAN, THOMAS EATON	1046 RULNICK ST	FAYETTEVILLE, NC	28304
0407-50-4149	WARNER, JAN & PHYLLIS A	2702 GREENBAY RD	FAYETTEVILLE, NC	28303
0407-50-4245	PULLEN, CAROLYN W	1038 RULNICK	FAYETTEVILLE, NC	28304
0407-50-4341	HARTNESS, SKIPPER A & WIFE	415 CANADY RD	PARKTON, NC	28371
0407-50-4358	NELSON, BRYCE C. & WIFE	2814 CEDAR TRAIL	WINGATE, NC	28174
0407-50-4454	WASHINGTON, BENJIMEN	3915 DAYTONA	FAYETTEVILLE, NC	28311
0407-50-4561	TEW, PEGGY J.	1022 RULNICK ST	FAYETTEVILLE, NC	28304
0407-50-4567	PITTMAN, MARGARET M.	5333 DAIRY DR	FAYETTEVILLE, NC	28304

TABLE 6
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(LIMITED SITE ASSESSMENT)

Scotchman #38
 Fayetteville, North Carolina
 Delta Project # X0NC-057

PIN	OWNER NAME	OWNER ADDRESS	CITY	ZIP
0407-50-5810	TIME WARNER ENTERTAINMENT	PO BOX 6659	ENGLEWOOD, CO	80155
0407-50-6153	MANNING INVESTMENT GROUP, LLC	PO BOX 9746	FAYETTEVILLE, NC	28302
0407-50-6574	LILES, CLAUDE E	1021 RULNICK ST	FAYETTEVILLE, NC	28304
0407-50-7591	LILES, TIMOTHY	3311 SYMPHONY CT	FAYETTEVILLE, NC	28301
0407-50-7811	ALLEN, BRUCE K	1137 THORNWOOD PL	FAYETTEVILLE, NC	28304
0407-51-2255	TIME WARNER ENTERTAINMENT	PO BOX 6659	ENGLEWOOD, CO	80155
0406-49-3564	SCHANTZ, EDWARD C. JR & WIFE	1670 GREENOCK AVE	FAYETTEVILLE, NC	28403
0406-59-0635	FAYETTEVILLE METROPOLITAN	PO BOX 2349	FAYETTEVILLE, NC	28302
0406-59-6614	MANNING INVESTMENT GROUP, LLC	PO BOX 9746	FAYETTEVILLE, NC	28302
0407-40-0340	PEEPLER, JOHNNIE BROOKS	PO BOX 41903	FAYETTEVILLE, NC	28309
0407-40-0572	ZP #15 LLC	PO BOX 2628	WILMINGTON, NC	28402
0407-40-0739	TIME WARNER ENTERTAINMENT	PO BOX 6659	ENGLEWOOD, CO	80155
0407-40-1480	SAMPSON, CRAIG	910 BINGHAM DR	FAYETTEVILLE, NC	28304
0407-40-2143	CHABOT, LOUISE W	1002 BINGHAM DR	FAYETTEVILLE, NC	28304
0407-40-2209	DALLAS, FRED PAULDEE AND WIFE	916 BINGHAM DR	FAYETTEVILLE, NC	28304
0407-40-2953	CLODFELTER, SWANE D	2320 WILLOUGHBY DR	FAYETTEVILLE, NC	28301
0407-40-4188	STEWART, JOHN AND EDNA	1003 BINGHAM DR	FAYETTEVILLE, NC	28304
0407-40-4432	PAPPAS, MARIA G	304 OWEN DR	FAYETTEVILLE, NC	28304
0407-40-4614	WORSLEY COMPANIES, INC	PO BOX 3227	WILMINGTON, NC	27712
0407-40-5462	ANDERSON, ROGER M. AND WIFT	1005 ARBERDALE DR	FAYETTEVILLE, NC	28304
0407-40-6232	McKEE, JOHN KENNETH AND WIFT	1002 ARBERDALE DR	FAYETTEVILLE, NC	28304
0407-40-6510	JOHNSON, MARY A	6206 E DARROW DR	FAYETTEVILLE, NC	28304
0407-40-6596	HOLTHE, INGELORE	6204 DARROW DR	FAYETTEVILLE, NC	28304
0407-40-6732	DOWNING, TILDONW AND ROBERT E	PO BOX 53387	FAYETTEVILLE, NC	28303
0407-40-7796	GIRDWOOD, RICHARD	3301 JURA DR	FAYETTEVILLE, NC	28303
0407-40-8312	FLOYD, STEVE	5416 RAEFORD ROAD	FAYETTEVILLE, NC	28304
0407-40-8651	DOWNING, HENRY L AND WIFT	6202 E. DARROW DR	FAYETTEVILLE, NC	28304
0407-40-9328	BASCOMBE, DAVID D	6203 E. DARROW DR	FAYETTEVILLE, NC	28304
0407-40-9544	McDANIEL, WM E AND WIFT	6201 DARROW DR	FAYETTEVILLE, NC	28304
0407-41-0490	GILLIS, M D	49444 RIVER RUN ROAD	ALBEMARLE, NC	28001
0407-41-5748	TOLLISON, SARA WILLIAMS	3018 LAKE FOREST DRIVE	GREENSBORO, NC	27408
0407-41-5748	TOLLISON, SARA WILLIAMS	3018 LAKE FOREST DRIVE	GREENSBORO	27408
0407-42-0121	WORTHY, CURTIS & WIFE JANICE	6320 LYNETTE CIR	FAYETTEVILLE, NC	28314
0407-42-1184	VEREEN, DIXIE L.	6104 KIMBROOK DR	FAYETTEVILLE, NC	28314
0407-51-3660	TIME WARNER ENTERTAINMENT	PO BOX 6659	ENGLEWOOD, CO	80155



FAYETTEVILLE QUADRANGLE
 NORTH CAROLINA
 7.5 MINUTE TOPOGRAPHIC SERIES



Delta
 Environmental
 Consultants, Inc.

Delta Environmental Consultants, Inc.
 3205 Randall Parkway Suite 104
 Wilmington, North Carolina 28403

PROJECT NO. X0NC-957	CLIENT/LOCATION WORSLEY COMPANIES, INC. SCOTCHMAN #38 FAYETTEVILLE, NORTH CAROLINA
PROJECT MANAGER B. Lievre	FIGURE NO. 1
DATE 11/21/02	DRAWING DESCRIPTION SITE VICINITY MAP

RAEFORD ROAD

Grass

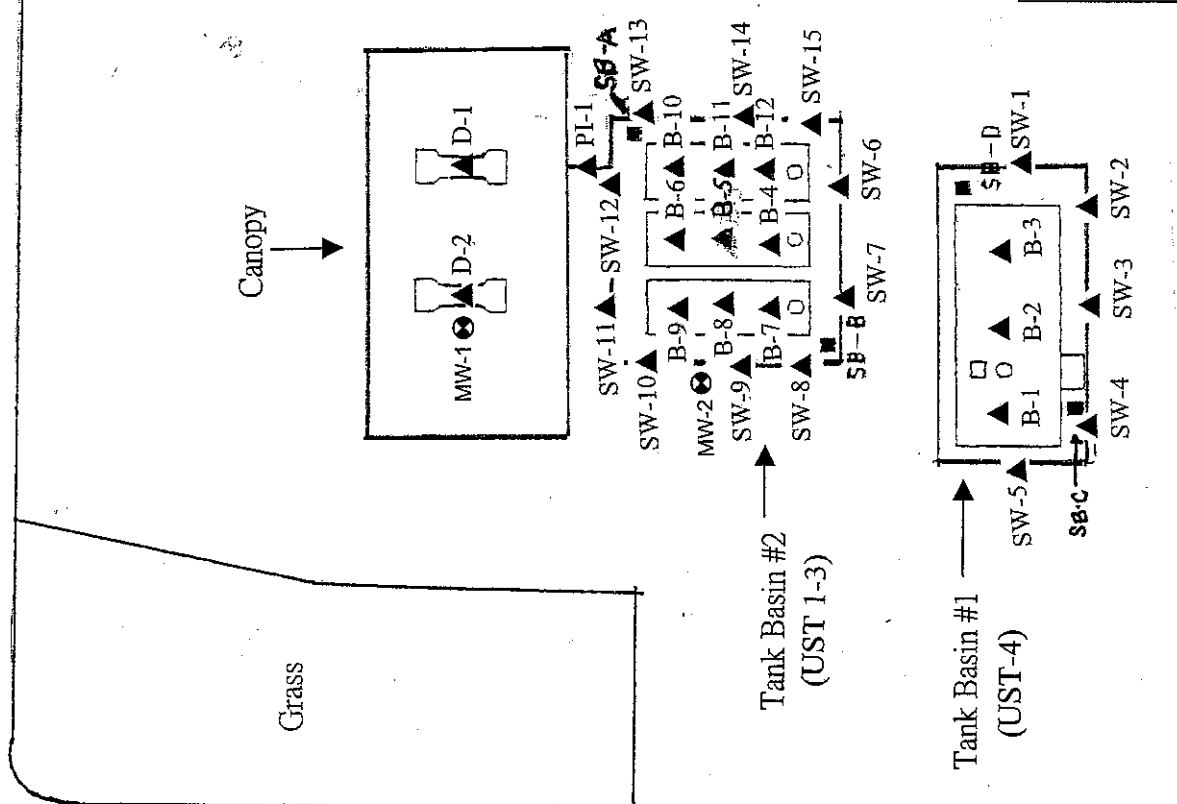
LEGEND

- ▲ UST Closure Sample Location
- Soil Sample Location
- UST Fill Port
- Shallow Monitoring Well Location (approximate)



Scotchman #38
6261 Raeford Road
Fayetteville, NC

**** VENTS



Delta Environmental Consultants, Inc.
3205 Randall Parkway Suite 104
Wilmington, North Carolina 28403

PROJECT NO. X0NC-057	CLIENT/LOCATION SCOTCHMAN #38	DRAWING DESCRIPTION SITE MAP
PROJECT MANAGER B. LIEVRE	FAYETTEVILLE, NORTH CAROLINA	
DATE 11/21/02	FIGURE NO. 2	

WORSLEY COMPANIES, INC.

NOT TO SCALE

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) MARK GETTYS CERTIFICATION # 2345

WELL CONTRACTOR COMPANY NAME GEOLOGIC EXPLORATION, INC. PHONE # (704) 872-7686

STATE WELL CONSTRUCTION PERMIT# _____ ASSOCIATED WQ PERMIT# _____
(if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential Municipal/Public Industrial Agricultural
Monitoring Recovery Heat Pump Water Injection Other If Other, list Use _____

2. WELL LOCATION:
Nearest Town: FAYETTEVILLE County CUMBERLAND
6261 RAEFORD RD. (SM #38)
(Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
 Ridge Slope Valley Flat
(check appropriate box)
Latitude/longitude of well location

3. OWNER: WORSLEY OIL CO.
Address P.O. BOX 3227 (Street or Route No.)
WILMINGTON NC 28406
City or Town State Zip Code
()
Area Code - Phone Number

(degrees/minutes/seconds)
Latitude/longitude source: GPS Topographic map
(check box)

DEPTH		DRILLING LOG
From	To	Formation Description
0.0	5.0	BROWN SAND
5.0	35.0	ORANGE/BROWN CLAYEY SAND
35.0	55.0	ORANGE/TAN SAND

4. DATE DRILLED 2-5-03
5. TOTAL DEPTH: 55.0 FEET
6. DOES WELL REPLACE EXISTING WELL? YES NO
7. STATIC WATER LEVEL Below Top of Casing: 46.0 FT.
(Use "+" if Above Top of Casing)

8. TOP OF CASING IS 0.0 FT. Above Land Surface*
*Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C .0118.

9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): N/A

11. DISINFECTION: Type N/A Amount _____

12. CASING:

From	To	Depth	Wall Thickness		Material
			Diameter	or Weight/Ft.	
0.0	35.0	Ft.	2 INCH	SCH 40	PVC

13. GROUT:

From	To	Depth	Material	Method
0.0	31.0	Ft.	Portland Bementite	Shurry

14. SCREEN:

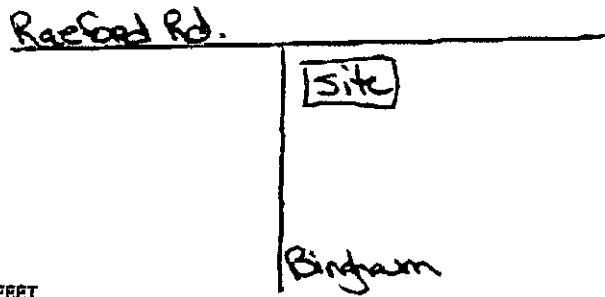
From	To	Depth	Diameter	Slot Size	Material
35.0	55.0	Ft.	2.0 in.	.010 in.	PVC

15. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
33.0	55.0	Ft.	20-40	FINE SILICA SAND

16. REMARKS: MW-1 BENTONITE SEAL FROM 31.0 TO 33.0 FEET

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads, include the road numbers and common road names.



I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C. WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Mark K. Gettys
SIGNATURE OF PERSON CONSTRUCTING THE WELL

2-11-03
DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days.

GW-1 REV. 07/2001

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) MARK GETTYS CERTIFICATION # 2345

WELL CONTRACTOR COMPANY NAME GEOLOGIC EXPLORATION, INC. PHONE # (704) 872-7686

STATE WELL CONSTRUCTION PERMIT# _____ ASSOCIATED WQ PERMIT# _____
(if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential Municipal/Public Industrial Agricultural
Monitoring Recovery Heat Pump Water Injection Other If Other, list Use _____

2. WELL LOCATION:
Nearest Town: FAYETTEVILLE County CUMBERLAND
6261 RAEFORD RD. (SM #38)
(Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
 Ridge Slope Valley Flat
(check appropriate box)
Latitude/longitude of well location _____

3. OWNER: WORSLEY OIL CO.
Address P.O. BOX 3227
(Street or Route No.)
WILMINGTON NC 28406
City or Town State Zip Code
()
Area Code - Phone Number _____

(degrees/minutes/seconds)
Latitude/longitude source: GPS Topographic map
(check box)

DEPTH		DRILLING LOG
From	To	Formation Description
0.0	10.0	RED CLAY
10.0	35.0	RED/ORANGE SANDY CLAY
35.0	55.0	RED/BROWN/ORANGE CLAYEY SAND

4. DATE DRILLED 2-5-03

5. TOTAL DEPTH: 55.0 FEET

6. DOES WELL REPLACE EXISTING WELL? YES NO

7. STATIC WATER LEVEL Below Top of Casing: 46.0 FT.
(Use "+" if Above Top of Casing)

8. TOP OF CASING IS 0.0 FT. Above Land Surface*
*Top of casing terminated at or below land surface requires a variance in accordance with 15A NCAC 2C .0118.

9. YIELD (gpm): N/A METHOD OF TEST N/A

10. WATER ZONES (depth): N/A

11. DISINFECTION: Type N/A Amount _____

12. CASING:

Depth		Diameter		Wall Thickness	Material
From	To	Ft.	or Weight/FT.		
0.0	35.0	Ft.	2 INCH	SCH 40	PVC

13. Grout:

Depth		Material	Method
From	To	Ft.	
0.0	31.0	Ft.	Portland Bentonite Slurry

14. SCREEN:

Depth		Diameter	Slot Size	Material	
From	To	Ft.	in.	in.	
35.0	55.0	Ft.	2.0	.010	PVC

15. SAND/GRAVEL PACK:

Depth		Size	Material
From	To	Ft.	
33.0	55.0	Ft.	20-40 FINE SILICA SAND

16. REMARKS: MW-2 BENTONITE SEAL FROM 31.0 TO 33.0 FEET

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Mark K. Gettys
SIGNATURE OF PERSON CONSTRUCTING THE WELL

2-11-03
DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days.

GW-1 REV. 07/2001

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads, including the road numbers and common road names.

Raeford

Site

Bingham

Boring Log

Site Name: Scotchman #38
 Location: 6261 RaeFord Road
Fayetteville, Cumberland County
North Carolina
 Project No.: XDNC-057
 Client: Worsley Companies, Inc.
10 Cardinal Drive
Wilmington, North Carolina

Soil Boring ID: MW-1
 Construction Date: 02/05/03
 Drilling Contractor: Geologic Exploration
 Drill Rig Type: Diedrich D-120
 Drilling Method: Hollow-stem auger (0.0' - 12.0')
 Logged By: NH
 Top-of-Casing Elev.: NA

Comments	Depth bgs (ft.)	Groundwater Level @	Time-of-Boring	Screened Interval (ft.)	Organic Vapor Reading (ppm)	Blow Count n value	Sample Interval/Type	Soil Description & Classification (USCS)
	0.0						0.0-2.0'	0.0-2.0': Concrete/Orange Clay Sand Fill (SC)
Sample collected @ 2.5-3.0 feet bgs on 1/9/03	2.0						2.0-3.0'	
	4.0						4.0-6.0'	
	6.0						6.0-8.0'	2.0'-10.0': Brown Clayey Sand. (SC)
Sample collected @ 8.0-8.5 feet bgs on 1/9/03	8.0						8.0-8.5'	
	10.0						10.0-12.0'	
Sample collected @ 13.0-13.5 feet bgs on 1/9/03	12.0						12.0-13.0'	
	14.0						14.0-16.0'	10.0'-18.0': Orange Clayey Sand. Moist (SC).
	16.0						16.0-18.0'	
Sample collected @ 17.0-17.5 feet bgs on 1/9/03	18.0						18.0-20.0'	
	20.0						20.0-22.0'	
	22.0						22.0-24.0'	
	24.0						24.0-26.0'	
Sample collected @ 25.0-25.5 feet bgs on 1/9/03	26.0						26.0-28.0'	18.0'-35.0': Orange Sand, Medium Grain, Well Sorted. Dry (SW).
	28.0						28.0-30.0'	
	30.0						30.0-32.0'	
	32.0						32.0-34.0'	
	34.0						34.0-36.0'	
Sample collected @ 35.0-35.5 feet bgs on 1/9/03	36.0						36.0-38.0'	35.0'-45.0': Orange Clayey Sand. Moist (SC).

Boring Log

Site Name: Scotchman #38
 Location: 6261 Raeferd Road
Fayetteville, Cumberland County
North Carolina
 Project No.: X0NC-057
 Client: Worsley Companies, Inc.
10 Cardinal Drive
Wilmington, North Carolina

Soil Boring ID: MW-1
 Construction Date: 02/05/03
 Drilling Contractor: Geologic Exploration
 Drill Rig Type: Diedrich D-120
 Drilling Method: Hollow-stem auger (0.0' - 12.0')
 Logged By: NH
 Top-of-Casing Elev.: NA

Comments	Depth bgs (ft.)	Groundwater Level @ Time-of-Boring	Screened Interval (ft.)	Organic Vapor Reading (ppm)	Blow Count n value	Sample Interval/Type	Soil Description & Classification (USCS)
Sample collected @ 43.5 44.0 feet bgs on 1/9/03	38.0						35.0'-45.0': Orange Clayey Sand. Moist (SC).
	40.0						
	42.0						
	44.0						
	46.0	▼					
EOB @ 55.0 feet bgs.	48.0						45.0'-55.0': Orange Sand, Medium Grain, Well Sorted. Moist (SC).
	50.0						
	52.0						
	54.0						
	56.0						

- Symbols**
- ▼ - Groundwater Level @ Time-of-Boring
 - ▨ - Hand Auger
 - ▤ - Direct Push
 - ▩ - Screened Interval
 - - Std. Penetration Test (SPT)
 - ▩ - Cuttings
 - ▨ - Submitted for laboratory analysis

Notes:
 Organic Vapor Readings by a PID - photoionization detector
 bgs - below ground surface
 ppm - parts per million
 EOB - end of boring

Delta Environmental Consultants, Inc.
 3205 Randall Parkway Suite 104
 Wilmington, North Carolina 28403

Boring Log

Site Name: Scotchman #38
 Location: 6261 Raeford Road
Fayetteville, Cumberland County
North Carolina
 Project No.: XONC-057
 Client: Worsley Companies, Inc.
10 Cardinal Drive
Wilmington, North Carolina

Soil Boring ID: MW-2
 Construction Date: 02/05/03
 Drilling Contractor: Geologic Exploration
 Drill Rig Type: Diedrich D-120
 Drilling Method: Hollow-stem auger (0.0' - 12.0')
 Logged By: NH
 Top-of-Casing Elev.: NA

Comments	Depth bgs (ft.)	Groundwater Level @	Time-of-Boring	Screened Interval (ft.)	Organic Vapor Reading (ppm)	Blow Count n value	Sample interval/Type	Soil Description & Classification (USCS)
								0.0'-1.0': Asphalt/Fill
	2.0							
	4.0							
	6.0							
	8.0							
	10.0							1.0'-18.0': Red Clayey Sand, Tight. Slight Hydrocarbon Odor (SC)
Sample collected @ 11.5-12.0 feet bgs on 1/9/03	12.0							
	14.0							
Sample collected @ 14.5-15.0 feet bgs on 1/9/03	16.0							
	18.0							
	20.0							
Sample collected @ 21.0-21.5 feet bgs on 1/9/03	22.0							
	24.0							
	26.0							
Sample collected @ 27.0-27.5 feet bgs on 1/9/03	28.0							18.0'-40.0': Tan/Orange Sand, Medium Grain, Well Sorted. Dry (SW).
	30.0							
	32.0							
	34.0							

Boring Log

Site Name: Scotchman #38
 Location: 6281 Raeford Road
Fayetteville, Cumberland County
North Carolina
 Project No.: X0NC-057
 Client: Worsley Companies, Inc.
10 Cardinal Drive
Wilmington, North Carolina

Soil Boring ID: MW-2
 Construction Date: 02/05/03
 Drilling Contractor: Geologic Exploration
 Drill Rig Type: Diedrich D-120
 Drilling Method: Hollow-stem auger (0.0' - 12.0')
 Logged By: NH
 Top-of-Casing Elev.: NA

Comments	Depth bgs (ft.)	Groundwater Level @ Time-of-Boring	Screened Interval (ft.)	Organic Vapor Reading (ppm)	Flow Count n value	Sample Interval/Type	Soil Description & Classification (USCS)
	36.0						
Sample collected @ 38.0-38.5 feet bgs on 1/9/03	38.0	▼					18.0'-40.0': Tan/Orange Sand, Medium Grain, Well Sorted. Dry (SW).
	40.0						40.0'-50.0': Orange Clayey Sand, Moist (SC).
	42.0						
	44.0						
	46.0						
	48.0						
	50.0						50.0'-55.0': Orange Sand (SP).
	52.0						
	54.0						
EOB @ 55.0 feet bgs.	56.0						

Symbols

- ▼ - Groundwater Level @ Time-of-Boring
- ▨ - Hand Auger
- ▤ - Direct Push
- ▤ (with horizontal lines) - Screened Interval
- - Std. Penetration Test (SPT)
- ▨ (with dots) - Submitted for laboratory analysis
- ▨ (with vertical lines) - Cuttings

Notes:
 Organic Vapor Readings by a PID - photoionization detector
 bgs - below ground surface
 ppm - parts per million
 EOB - end of boring

Delta Environmental Consultants, Inc.
 3205 Fandall Parkway Suite 104
 Wilmington, North Carolina 28403

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: MW-1 (2.5-3.0)
Client Project ID: Scotchman #38 (SM #38)
Lab Sample ID: 60504
Lab Project ID: G129-672
Matrix: Soil %Solids: 88.0

Date Analyzed: 1/21/03
Analyzed By: RNP
Date Collected: 1/9/03
Date Received: 1/10/03
Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acetone	57	BQL
Acrolein	110	BQL
Acrylonitrile	110	BQL
Benzene	5.7	20
Bromobenzene	5.7	BQL
Bromochloromethane	5.7	BQL
Bromodichloromethane	5.7	BQL
Bromoform	5.7	BQL
Bromomethane	5.7	BQL
2-Butanone	28	BQL
n-Butylbenzene	5.7	BQL
sec-Butylbenzene	5.7	BQL
tert-Butylbenzene	5.7	BQL
Carbon disulfide	5.7	BQL
Carbon tetrachloride	5.7	BQL
Chlorobenzene	5.7	BQL
Chloroethane	5.7	BQL
Chloroform	5.7	BQL
Chloromethane	5.7	BQL
2-Chlorotoluene	5.7	BQL
4-Chlorotoluene	5.7	BQL
Dibromochloromethane	5.7	BQL
1,2-Dibromo-3-chloropropane	5.7	BQL
Dibromomethane	5.7	BQL
1,2-Dibromoethane (EDB)	5.7	BQL
1,2-Dichlorobenzene	5.7	BQL
1,3-Dichlorobenzene	5.7	BQL
1,4-Dichlorobenzene	5.7	BQL
trans-1,4-Dichloro-2-butene	5.7	BQL
1,1-Dichloroethane	5.7	BQL
1,1-Dichloroethene	5.7	BQL
1,2-Dichloroethane	5.7	BQL
cis-1,2-Dichloroethene	5.7	BQL
trans-1,2-dichloroethene	5.7	BQL
1,2-Dichloropropane	5.7	BQL
1,3-Dichloropropane	5.7	BQL
2,2-Dichloropropane	5.7	BQL
1,1-Dichloropropene	5.7	BQL
cis-1,3-Dichloropropene	5.7	BQL
trans-1,3-Dichloropropene	5.7	BQL
Dichlorodifluoromethane	5.7	BQL
Diisopropyl ether (DIPE)	5.7	BQL
Ethylbenzene	5.7	16
Hexachlorobutadiene	5.7	BQL
2-Hexanone	5.7	BQL

Flags: BQL = Below Quantitation Limit

Reviewed by: *JML*

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8200B/5035

Client Sample ID: MW-1 (2.5-3.0)

Date Analyzed: 1/21/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60504

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil

%Solids: 88.0

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Iodomethane	5.7	BQL
Isopropylbenzene	5.7	BQL
4-Isopropyltoluene	5.7	BQL
Methylene chloride	23	BQL
4-Methyl-2-pentanone	5.7	BQL
Methyl-tert-butyl ether (MTBE)	5.7	16
Naphthalene	5.7	BQL
n-Propyl benzene	5.7	BQL
Styrene	5.7	BQL
1,1,1,2-Tetrachloroethane	5.7	BQL
1,1,2,2-Tetrachloroethane	5.7	BQL
Tetrachloroethene	5.7	BQL
Toluene	5.7	12
1,2,3-Trichlorobenzene	5.7	BQL
1,2,4-Trichlorobenzene	5.7	BQL
Trichloroethene	5.7	BQL
1,1,1-Trichloroethane	5.7	BQL
1,1,2-Trichloroethane	5.7	BQL
Trichlorofluoromethane	5.7	BQL
1,2,3-Trichloropropane	5.7	BQL
1,2,4-Trimethylbenzene	5.7	24
1,3,5-Trimethylbenzene	5.7	15
Vinyl chloride	5.7	BQL
m-,p-Xylene	11	44
o-Xylene	5.7	8.5

Surrogate Spike Recoveries

Compound	Spike Added (ug/KG)	Surrogate Result (ug/KG)	%Rec
Bromofluorobenzene	50	49.9	100
1,2-Dichloroethane-d4	50	49.4	99
Toluene-d8	50	49.9	100

Comments:

All results are corrected for dilution.

Flags: BQL = Below Quantitation Limit

Reviewed by: MAC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8260B/5035

Client Sample ID: MW-1 (8.0-8.5)

Client Project ID: Scotchman #38 (SM #38)

Lab Sample ID: 60505

Lab Project ID: G129-672

Matrix: Soil

%Solids: 85.5

Date Analyzed: 1/21/03

Analyzed By: RNP

Date Collected: 1/9/03

Date Received: 1/10/03

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acetone	58	BQL
Acrolein	120	BQL
Acrylonitrile	120	BQL
Benzene	5.8	BQL
Bromobenzene	5.8	BQL
Bromochloromethane	5.8	BQL
Bromodichloromethane	5.8	BQL
Bromoform	5.8	BQL
Bromomethane	5.8	BQL
2-Butanone	29	BQL
n-Butylbenzene	5.8	BQL
sec-Butylbenzene	5.8	BQL
tert-Butylbenzene	5.8	BQL
Carbon disulfide	5.8	BQL
Carbon tetrachloride	5.8	BQL
Chlorobenzene	5.8	BQL
Chloroethane	5.8	BQL
Chloroform	5.8	BQL
Chloromethane	5.8	BQL
2-Chlorotoluene	5.8	BQL
4-Chlorotoluene	5.8	BQL
Dibromochloromethane	5.8	BQL
1,2-Dibromo-3-chloropropane	5.8	BQL
Dibromomethane	5.8	BQL
1,2-Dibromoethane (EDB)	5.8	BQL
1,2-Dichlorobenzene	5.8	BQL
1,3-Dichlorobenzene	5.8	BQL
1,4-Dichlorobenzene	5.8	BQL
trans-1,4-Dichloro-2-butene	5.8	BQL
1,1-Dichloroethane	5.8	BQL
1,1-Dichloroethene	5.8	BQL
1,2-Dichloroethane	5.8	BQL
cis-1,2-Dichloroethene	5.8	BQL
trans-1,2-dichloroethene	5.8	BQL
1,2-Dichloropropane	5.8	BQL
1,3-Dichloropropane	5.8	BQL
2,2-Dichloropropane	5.8	BQL
1,1-Dichloropropene	5.8	BQL
cis-1,3-Dichloropropene	5.8	BQL
trans-1,3-Dichloropropene	5.8	BQL
Dichlorodifluoromethane	5.8	BQL
Diisopropyl ether (DIPE)	5.8	BQL
Ethylbenzene	5.8	BQL
Hexachlorobutadiene	5.8	BQL
2-Hexanone	5.8	BQL

Flags: BQL = Below Quantitation Limit

Reviewed by: MLL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: MW-1 (8.0-8.5)
Client Project ID: Scotchman #38 (SM #38)
Lab Sample ID: 60505
Lab Project ID: G129-672

Date Analyzed: 1/21/03
Analyzed By: RNP
Date Collected: 1/9/03
Date Received: 1/10/03
Dilution: 1

Matrix: Soil %Solids: 85.5

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Iodomethane	5.8	BQL
Isopropylbenzene	5.8	BQL
4-Isopropyltoluene	5.8	BQL
Methylene chloride	23	BQL
4-Methyl-2-pentanone	5.8	BQL
Methyl-tert-butyl ether (MTBE)	5.8	BQL
Naphthalene	5.8	BQL
n-Propyl benzene	5.8	BQL
Styrene	5.8	BQL
1,1,1,2-Tetrachloroethane	5.8	BQL
1,1,2,2-Tetrachloroethane	5.8	BQL
Tetrachloroethene	5.8	BQL
Toluene	5.8	BQL
1,2,3-Trichlorobenzene	5.8	BQL
1,2,4-Trichlorobenzene	5.8	BQL
Trichloroethene	5.8	BQL
1,1,1-Trichloroethane	5.8	BQL
1,1,2-Trichloroethane	5.8	BQL
Trichlorofluoromethane	5.8	BQL
1,2,3-Trichloropropane	5.8	BQL
1,2,4-Trimethylbenzene	5.8	BQL
1,3,5-Trimethylbenzene	5.8	BQL
Vinyl chloride	5.8	BQL
m-,p-Xylene	12	BQL
o-Xylene	5.8	BQL

Surrogate Spike Recoveries	Spike Added (ug/KG)	Surrogate Result (ug/KG)	%Rec
Compound			
Bromofluorobenzene	50	48.7	97
1,2-Dichloroethane-d4	50	50.1	100
Toluene-d8	50	50.2	100

Comments:

All results are corrected for dilution.

Flags: BQL = Below Quantitation Limit

Reviewed by: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8260B/5035

Client Sample ID: MW-1 (13-13.5)

Date Analyzed: 1/21/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60506

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil

%Solids: 90.7

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acetone	55	BQL
Acrolein	110	BQL
Acrylonitrile	110	BQL
Benzene	5.5	BQL
Bromobenzene	5.5	BQL
Bromochloromethane	5.5	BQL
Bromodichloromethane	5.5	BQL
Bromoform	5.5	BQL
Bromomethane	5.5	BQL
2-Butanone	28	BQL
n-Butylbenzene	5.5	BQL
sec-Butylbenzene	5.5	BQL
tert-Butylbenzene	5.5	BQL
Carbon disulfide	5.5	BQL
Carbon tetrachloride	5.5	BQL
Chlorobenzene	5.5	BQL
Chloroethane	5.5	BQL
Chloroform	5.5	BQL
Chloromethane	5.5	BQL
2-Chlorotoluene	5.5	BQL
4-Chlorotoluene	5.5	BQL
Dibromochloromethane	5.5	BQL
1,2-Dibromo-3-chloropropane	5.5	BQL
Dibromomethane	5.5	BQL
1,2-Dibromoethane (EDB)	5.5	BQL
1,2-Dichlorobenzene	5.5	BQL
1,3-Dichlorobenzene	5.5	BQL
1,4-Dichlorobenzene	5.5	BQL
trans-1,4-Dichloro-2-butene	5.5	BQL
1,1-Dichloroethane	5.5	BQL
1,1-Dichloroethene	5.5	BQL
1,2-Dichloroethane	5.5	BQL
cis-1,2-Dichloroethene	5.5	BQL
trans-1,2-dichloroethene	5.5	BQL
1,2-Dichloropropane	5.5	BQL
1,3-Dichloropropane	5.5	BQL
2,2-Dichloropropane	5.5	BQL
1,1-Dichloropropene	5.5	BQL
cis-1,3-Dichloropropene	5.5	BQL
trans-1,3-Dichloropropene	5.5	BQL
Dichlorodifluoromethane	5.5	BQL
Diisopropyl ether (DIPE)	5.5	BQL
Ethylbenzene	5.5	BQL
Hexachlorobutadiene	5.5	BQL
2-Hexanone	5.5	BQL

Flags: BQL = Below Quantitation Limit

Reviewed by: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8260B/5035

Client Sample ID: MW-1 (13-13.5)

Date Analyzed: 1/21/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60506

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil

%Solids: 90.7

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Iodomethane	5.5	BQL
Isopropylbenzene	5.5	BQL
4-Isopropyltoluene	5.5	BQL
Methylene chloride	22	BQL
4-Methyl-2-pentanone	5.5	BQL
Methyl-tert-butyl ether (MTBE)	5.5	BQL
Naphthalene	5.5	BQL
n-Propyl benzene	5.5	BQL
Styrene	5.5	BQL
1,1,1,2-Tetrachloroethane	5.5	BQL
1,1,2,2-Tetrachloroethane	5.5	BQL
Tetrachloroethene	5.5	BQL
Toluene	5.5	BQL
1,2,3-Trichlorobenzene	5.5	BQL
1,2,4-Trichlorobenzene	5.5	BQL
Trichloroethene	5.5	BQL
1,1,1-Trichloroethane	5.5	BQL
1,1,2-Trichloroethane	5.5	BQL
Trichlorofluoromethane	5.5	BQL
1,2,3-Trichloropropane	5.5	BQL
1,2,4-Trimethylbenzene	5.5	BQL
1,3,5-Trimethylbenzene	5.5	BQL
Vinyl chloride	5.5	BQL
m,p-Xylene	11	BQL
o-Xylene	5.5	BQL

Surrogate Spike Recoveries	Spike Added (ug/KG)	Surrogate Result (ug/KG)	%Rec
Compound			
Bromofluorobenzene	50	48.9	98
1,2-Dichloroethane-d4	50	51.2	102
Toluene-d8	50	49.7	99

Comments:

All results are corrected for dilution.

Flags: BQL = Below Quantitation Limit

Reviewed by: ARC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8260B/5035

Client Sample ID: MW-1 (17-17.5)

Date Analyzed: 1/21/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60507

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil

%Solids: 95.5

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acetone	52	BQL
Acrolein	100	BQL
Acrylonitrile	100	BQL
Benzene	5.2	BQL
Bromobenzene	5.2	BQL
Bromochloromethane	5.2	BQL
Bromodichloromethane	5.2	BQL
Bromoform	5.2	BQL
Bromomethane	5.2	BQL
2-Butanone	26	BQL
n-Butylbenzene	5.2	BQL
sec-Butylbenzene	5.2	BQL
tert-Butylbenzene	5.2	BQL
Carbon disulfide	5.2	BQL
Carbon tetrachloride	5.2	BQL
Chlorobenzene	5.2	BQL
Chloroethane	5.2	BQL
Chloroform	5.2	BQL
Chloromethane	5.2	BQL
2-Chlorotoluene	5.2	BQL
4-Chlorotoluene	5.2	BQL
Dibromochloromethane	5.2	BQL
1,2-Dibromo-3-chloropropane	5.2	BQL
Dibromomethane	5.2	BQL
1,2-Dibromoethane (EDB)	5.2	BQL
1,2-Dichlorobenzene	5.2	BQL
1,3-Dichlorobenzene	5.2	BQL
1,4-Dichlorobenzene	5.2	BQL
trans-1,4-Dichloro-2-butene	5.2	BQL
1,1-Dichloroethane	5.2	BQL
1,1-Dichloroethene	5.2	BQL
1,2-Dichloroethane	5.2	BQL
cis-1,2-Dichloroethene	5.2	BQL
trans-1,2-dichloroethene	5.2	BQL
1,2-Dichloropropane	5.2	BQL
1,3-Dichloropropane	5.2	BQL
2,2-Dichloropropane	5.2	BQL
1,1-Dichloropropene	5.2	BQL
cis-1,3-Dichloropropene	5.2	BQL
trans-1,3-Dichloropropene	5.2	BQL
Dichlorodifluoromethane	5.2	BQL
Diisopropyl ether (DIPE)	5.2	BQL
Ethylbenzene	5.2	BQL
Hexachlorobutadiene	5.2	BQL
2-Hexanone	5.2	BQL

Flags: BQL = Below Quantitation Limit

Reviewed by: mle

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8260B/5035

Client Sample ID: MW-1 (17-17.5)
 Client Project ID: Scotchman #38 (SM #38)
 Lab Sample ID: 60507
 Lab Project ID: G129-672

Date Analyzed: 1/21/03
 Analyzed By: RNP
 Date Collected: 1/9/03
 Date Received: 1/10/03
 Dilution: 1

Matrix: Soil %Solids: 95.5

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Iodomethane	5.2	BQL
Isopropylbenzene	5.2	BQL
4-Isopropyltoluene	5.2	BQL
Methylene chloride	21	BQL
4-Methyl-2-pentanone	5.2	BQL
Methyl-tert-butyl ether (MTBE)	5.2	BQL
Naphthalene	5.2	BQL
n-Propyl benzene	5.2	BQL
Styrene	5.2	BQL
1,1,1,2-Tetrachloroethane	5.2	BQL
1,1,2,2-Tetrachloroethane	5.2	BQL
Tetrachloroethene	5.2	BQL
Toluene	5.2	BQL
1,2,3-Trichlorobenzene	5.2	BQL
1,2,4-Trichlorobenzene	5.2	BQL
Trichloroethene	5.2	BQL
1,1,1-Trichloroethane	5.2	BQL
1,1,2-Trichloroethane	5.2	BQL
Trichlorofluoromethane	5.2	BQL
1,2,3-Trichloropropane	5.2	BQL
1,2,4-Trimethylbenzene	5.2	BQL
1,3,5-Trimethylbenzene	5.2	BQL
Vinyl chloride	5.2	BQL
m-,p-Xylene	10	BQL
o-Xylene	5.2	BQL

Surrogate Spike Recoveries	Spike Added (ug/KG)	Surrogate Result (ug/KG)	%Rec
Compound			
Bromofluorobenzene	50	49.1	98
1,2-Dichloroethane-d4	50	49.8	100
Toluene-d8	50	49.5	99

Comments:

All results are corrected for dilution.

Flags: BQL = Below Quantitation Limit

Reviewed by: MLC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8260B/5035

Client Sample ID: MW-1 (25-25.5)

Date Analyzed: 1/21/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60508

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil

%Solids: 88.8

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acetone	56	BQL
Acrolein	110	BQL
Acrylonitrile	110	BQL
Benzene	5.6	BQL
Bromobenzene	5.6	BQL
Bromochloromethane	5.6	BQL
Bromodichloromethane	5.6	BQL
Bromoform	5.6	BQL
Bromomethane	5.6	BQL
2-Butanone	28	BQL
n-Butylbenzene	5.6	BQL
sec-Butylbenzene	5.6	BQL
tert-Butylbenzene	5.6	BQL
Carbon disulfide	5.6	BQL
Carbon tetrachloride	5.6	BQL
Chlorobenzene	5.6	BQL
Chloroethane	5.6	BQL
Chloroform	5.6	BQL
Chloromethane	5.6	BQL
2-Chlorotoluene	5.6	BQL
4-Chlorotoluene	5.6	BQL
Dibromochloromethane	5.6	BQL
1,2-Dibromo-3-chloropropane	5.6	BQL
Dibromomethane	5.6	BQL
1,2-Dibromoethane (EDB)	5.6	BQL
1,2-Dichlorobenzene	5.6	BQL
1,3-Dichlorobenzene	5.6	BQL
1,4-Dichlorobenzene	5.6	BQL
trans-1,4-Dichloro-2-butene	5.6	BQL
1,1-Dichloroethane	5.6	BQL
1,1-Dichloroethene	5.6	BQL
1,2-Dichloroethane	5.6	BQL
cis-1,2-Dichloroethene	5.6	BQL
trans-1,2-dichloroethene	5.6	BQL
1,2-Dichloropropane	5.6	BQL
1,3-Dichloropropane	5.6	BQL
2,2-Dichloropropane	5.6	BQL
1,1-Dichloropropene	5.6	BQL
cis-1,3-Dichloropropene	5.6	BQL
trans-1,3-Dichloropropene	5.6	BQL
Dichlorodifluoromethane	5.6	BQL
Diisopropyl ether (DIPE)	5.6	BQL
Ethylbenzene	5.6	BQL
Hexachlorobutadiene	5.6	BQL
2-Hexanone	5.6	BQL

Flags: BQL = Below Quantitation Limit

Reviewed by: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8280B/5035

Client Sample ID: MW-1 (25-25.5)

Date Analyzed: 1/21/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60508

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil

%Solids: 88.8

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Iodomethane	5.6	BQL
Isopropylbenzene	5.6	BQL
4-Isopropyltoluene	5.6	BQL
Methylene chloride	23	BQL
4-Methyl-2-pentanone	5.6	BQL
Methyl-tert-butyl ether (MTBE)	5.6	BQL
Naphthalene	5.6	BQL
n-Propyl benzene	5.6	BQL
Styrene	5.6	BQL
1,1,1,2-Tetrachloroethane	5.6	BQL
1,1,2,2-Tetrachloroethane	5.6	BQL
Tetrachloroethene	5.6	BQL
Toluene	5.6	BQL
1,2,3-Trichlorobenzene	5.6	BQL
1,2,4-Trichlorobenzene	5.6	BQL
Trichloroethene	5.6	BQL
1,1,1-Trichloroethane	5.6	BQL
1,1,2-Trichloroethane	5.6	BQL
Trichlorofluoromethane	5.6	BQL
1,2,3-Trichloropropane	5.6	BQL
1,2,4-Trimethylbenzene	5.6	BQL
1,3,5-Trimethylbenzene	5.6	BQL
Vinyl chloride	5.6	BQL
m-,p-Xylene	11	BQL
o-Xylene	5.6	BQL

Surrogate Spike Recoveries	Spike Added (ug/KG)	Surrogate Result (ug/KG)	%Rec
Compound			
Bromofluorobenzene	50	49.7	99
1,2-Dichloroethane-d4	50	49.2	98
Toluene-d8	50	49.6	99

Comments:

All results are corrected for dilution.

Flags: BQL = Below Quantitation Limit

Reviewed by: marc

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: MW-1 (35-35.5)
Client Project ID: Scotchman #38 (SM #38)
Lab Sample ID: 60509
Lab Project ID: G129-672

Date Analyzed: 1/21/03
Analyzed By: RNP
Date Collected: 1/9/03
Date Received: 1/10/03
Dilution: 1

Matrix: Soil %Solids: 89.4

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acetone	56	BQL
Acrolein	110	BQL
Acrylonitrile	110	BQL
Benzene	5.6	BQL
Bromobenzene	5.6	BQL
Bromochloromethane	5.6	BQL
Bromodichloromethane	5.6	BQL
Bromoform	5.6	BQL
Bromomethane	5.6	BQL
2-Butanone	28	BQL
n-Butylbenzene	5.6	BQL
sec-Butylbenzene	5.6	BQL
tert-Butylbenzene	5.6	BQL
Carbon disulfide	5.6	BQL
Carbon tetrachloride	5.6	BQL
Chlorobenzene	5.6	BQL
Chloroethane	5.6	BQL
Chloroform	5.6	BQL
Chloromethane	5.6	BQL
2-Chlorotoluene	5.6	BQL
4-Chlorotoluene	5.6	BQL
Dibromochloromethane	5.6	BQL
1,2-Dibromo-3-chloropropane	5.6	BQL
Dibromomethane	5.6	BQL
1,2-Dibromoethane (EDB)	5.6	BQL
1,2-Dichlorobenzene	5.6	BQL
1,3-Dichlorobenzene	5.6	BQL
1,4-Dichlorobenzene	5.6	BQL
trans-1,4-Dichloro-2-butene	5.6	BQL
1,1-Dichloroethane	5.6	BQL
1,1-Dichloroethene	5.6	BQL
1,2-Dichloroethane	5.6	BQL
cis-1,2-Dichloroethene	5.6	BQL
trans-1,2-dichloroethene	5.6	BQL
1,2-Dichloropropane	5.6	BQL
1,3-Dichloropropane	5.6	BQL
2,2-Dichloropropane	5.6	BQL
1,1-Dichloropropene	5.6	BQL
cis-1,3-Dichloropropene	5.6	BQL
trans-1,3-Dichloropropene	5.6	BQL
Dichlorodifluoromethane	5.6	BQL
Diisopropyl ether (DIPE)	5.6	BQL
Ethylbenzene	5.6	BQL
Hexachlorobutadiene	5.6	BQL
2-Hexanone	5.6	BQL

Flags: BQL = Below Quantitation Limit

Reviewed by: MLC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8260B/5035

Client Sample ID: MW-1 (35-35.5)

Date Analyzed: 1/21/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60509

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil %Solids: 89.4

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Iodomethane	5.6	BQL
Isopropylbenzene	5.6	BQL
4-Isopropyltoluene	5.6	BQL
Methylene chloride	22	BQL
4-Methyl-2-pentanone	5.6	BQL
Methyl-tert-butyl ether (MTBE)	5.6	BQL
Naphthalene	5.6	BQL
n-Propyl benzene	5.6	BQL
Styrene	5.6	BQL
1,1,1,2-Tetrachloroethane	5.6	BQL
1,1,2,2-Tetrachloroethane	5.6	BQL
Tetrachloroethene	5.6	BQL
Toluene	5.6	BQL
1,2,3-Trichlorobenzene	5.6	BQL
1,2,4-Trichlorobenzene	5.6	BQL
Trichloroethene	5.6	BQL
1,1,1-Trichloroethane	5.6	BQL
1,1,2-Trichloroethane	5.6	BQL
Trichlorofluoromethane	5.6	BQL
1,2,3-Trichloropropane	5.6	BQL
1,2,4-Trimethylbenzene	5.6	BQL
1,3,5-Trimethylbenzene	5.6	BQL
Vinyl chloride	5.6	BQL
m,p-Xylene	11	BQL
o-Xylene	5.6	BQL

Surrogate Spike Recoveries	Spike Added (ug/KG)	Surrogate Result (ug/KG)	%Rec
Compound			
Bromofluorobenzene	50	49.4	99
1,2-Dichloroethane-d4	50	50.4	101
Toluene-d8	50	50.4	101

Comments:

All results are corrected for dilution.

Flags: BQL = Below Quantitation Limit

Reviewed by: MAC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8260B/5035

Client Sample ID: MW-1 (43.5-44)

Date Analyzed: 1/21/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60510

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil

%Solids: 91.4

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acetone	55	BQL
Acrolein	110	BQL
Acrylonitrile	110	BQL
Benzene	5.5	BQL
Bromobenzene	5.5	BQL
Bromochloromethane	5.5	BQL
Bromodichloromethane	5.5	BQL
Bromoform	5.5	BQL
Bromomethane	5.5	BQL
2-Butanone	27	BQL
n-Butylbenzene	5.5	BQL
sec-Butylbenzene	5.5	BQL
tert-Butylbenzene	5.5	BQL
Carbon disulfide	5.5	BQL
Carbon tetrachloride	5.5	BQL
Chlorobenzene	5.5	BQL
Chloroethane	5.5	BQL
Chloroform	5.5	BQL
Chloromethane	5.5	BQL
2-Chlorotoluene	5.5	BQL
4-Chlorotoluene	5.5	BQL
Dibromochloromethane	5.5	BQL
1,2-Dibromo-3-chloropropane	5.5	BQL
Dibromomethane	5.5	BQL
1,2-Dibromoethane (EDB)	5.5	BQL
1,2-Dichlorobenzene	5.5	BQL
1,3-Dichlorobenzene	5.5	BQL
1,4-Dichlorobenzene	5.5	BQL
trans-1,4-Dichloro-2-butene	5.5	BQL
1,1-Dichloroethane	5.5	BQL
1,1-Dichloroethene	5.5	BQL
1,2-Dichloroethane	5.5	BQL
cis-1,2-Dichloroethene	5.5	BQL
trans-1,2-dichloroethene	5.5	BQL
1,2-Dichloropropane	5.5	BQL
1,3-Dichloropropane	5.5	BQL
2,2-Dichloropropane	5.5	BQL
1,1-Dichloropropene	5.5	BQL
cis-1,3-Dichloropropene	5.5	BQL
trans-1,3-Dichloropropene	5.5	BQL
Dichlorodifluoromethane	5.5	BQL
Diisopropyl ether (DIPE)	5.5	BQL
Ethylbenzene	5.5	BQL
Hexachlorobutadiene	5.5	BQL
2-Hexanone	5.5	BQL

Flags: BQL = Below Quantitation Limit

Reviewed by: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8260B/5035

Client Sample ID: MW-1 (43.5-44)

Date Analyzed: 1/21/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60510

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil

%Solids: 91.4

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Iodomethane	5.5	BQL
Isopropylbenzene	5.5	BQL
4-Isopropyltoluene	5.5	BQL
Methylene chloride	22	BQL
4-Methyl-2-pentanone	5.5	BQL
Methyl-tert-butyl ether (MTBE)	5.5	BQL
Naphthalene	5.5	BQL
n-Propyl benzene	5.5	BQL
Styrene	5.5	BQL
1,1,1,2-Tetrachloroethane	5.5	BQL
1,1,2,2-Tetrachloroethane	5.5	BQL
Tetrachloroethene	5.5	BQL
Toluene	5.5	BQL
1,2,3-Trichlorobenzene	5.5	BQL
1,2,4-Trichlorobenzene	5.5	BQL
Trichloroethene	5.5	BQL
1,1,1-Trichloroethane	5.5	BQL
1,1,2-Trichloroethane	5.5	BQL
Trichlorofluoromethane	5.5	BQL
1,2,3-Trichloropropane	5.5	BQL
1,2,4-Trimethylbenzene	5.5	BQL
1,3,5-Trimethylbenzene	5.5	BQL
Vinyl chloride	5.5	BQL
m,p-Xylene	11	BQL
o-Xylene	5.5	BQL

Surrogate Spike Recoveries	Spike Added (ug/KG)	Surrogate Result (ug/KG)	%Rec
Compound			
Bromofluorobenzene	50	47.8	96
1,2-Dichloroethane-d4	50	51.5	103
Toluene-d8	50	50.4	101

Comments:

All results are corrected for dilution.

Flags: BQL = Below Quantitation Limit

Reviewed by: MLC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: MW-2 (11.5-12.0)
Client Project ID: Scotchman #38 (SM #38)
Lab Sample ID: 60511
Lab Project ID: G129-672

Date Analyzed: 1/21/03
Analyzed By: RNP
Date Collected: 1/9/03
Date Received: 1/10/03
Dilution: 1

Matrix: Soil %Solids: 88.5

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acetone	57	BQL
Acrolein	110	BQL
Acrylonitrile	110	BQL
Benzene	5.7	BQL
Bromobenzene	5.7	BQL
Bromochloromethane	5.7	BQL
Bromodichloromethane	5.7	BQL
Bromoform	5.7	BQL
Bromomethane	5.7	BQL
2-Butanone	28	BQL
n-Butylbenzene	5.7	BQL
sec-Butylbenzene	5.7	BQL
tert-Butylbenzene	5.7	BQL
Carbon disulfide	5.7	BQL
Carbon tetrachloride	5.7	BQL
Chlorobenzene	5.7	BQL
Chloroethane	5.7	BQL
Chloroform	5.7	BQL
Chloromethane	5.7	BQL
2-Chlorotoluene	5.7	BQL
4-Chlorotoluene	5.7	BQL
Dibromochloromethane	5.7	BQL
1,2-Dibromo-3-chloropropane	5.7	BQL
Dibromomethane	5.7	BQL
1,2-Dibromoethane (EDB)	5.7	BQL
1,2-Dichlorobenzene	5.7	BQL
1,3-Dichlorobenzene	5.7	BQL
1,4-Dichlorobenzene	5.7	BQL
trans-1,4-Dichloro-2-butene	5.7	BQL
1,1-Dichloroethane	5.7	BQL
1,1-Dichloroethene	5.7	BQL
1,2-Dichloroethane	5.7	BQL
cis-1,2-Dichloroethene	5.7	BQL
trans-1,2-dichloroethene	5.7	BQL
1,2-Dichloropropane	5.7	BQL
1,3-Dichloropropane	5.7	BQL
2,2-Dichloropropane	5.7	BQL
1,1-Dichloropropene	5.7	BQL
cis-1,3-Dichloropropene	5.7	BQL
trans-1,3-Dichloropropene	5.7	BQL
Dichlorodifluoromethane	5.7	BQL
Diisopropyl ether (DIPE)	5.7	BQL
Ethylbenzene	5.7	BQL
Hexachlorobutadiene	5.7	BQL
2-Hexanone	5.7	BQL

Flags: BQL = Below Quantitation Limit

Reviewed by: ANC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: MW-2 (11.5-12.0)
Client Project ID: Scotchman #38 (SM #38)
Lab Sample ID: 60511
Lab Project ID: G129-672
Matrix: Soil %Solids: 88.5

Date Analyzed: 1/21/03
Analyzed By: RNP
Date Collected: 1/9/03
Date Received: 1/10/03
Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Iodomethane	5.7	BQL
Isopropylbenzene	5.7	BQL
4-Isopropyltoluene	5.7	BQL
Methylene chloride	23	BQL
4-Methyl-2-pentanone	5.7	BQL
Methyl-tert-butyl ether (MTBE)	5.7	BQL
Naphthalene	5.7	BQL
n-Propyl benzene	5.7	BQL
Styrene	5.7	BQL
1,1,1,2-Tetrachloroethane	5.7	BQL
1,1,2,2-Tetrachloroethane	5.7	BQL
Tetrachloroethene	5.7	BQL
Toluene	5.7	BQL
1,2,3-Trichlorobenzene	5.7	BQL
1,2,4-Trichlorobenzene	5.7	BQL
Trichloroethene	5.7	BQL
1,1,1-Trichloroethane	5.7	BQL
1,1,2-Trichloroethane	5.7	BQL
Trichlorofluoromethane	5.7	BQL
1,2,3-Trichloropropane	5.7	BQL
1,2,4-Trimethylbenzene	5.7	BQL
1,3,5-Trimethylbenzene	5.7	BQL
Vinyl chloride	5.7	BQL
m-,p-Xylene	11	BQL
o-Xylene	5.7	BQL

Surrogate Spike Recoveries			
Compound	Spike Added (ug/KG)	Surrogate Result (ug/KG)	%Rec
Bromofluorobenzene	50	49.1	98
1,2-Dichloroethane-d4	50	49.3	99
Toluene-d8	50	49.6	99

Comments:

All results are corrected for dilution.

Flags: BQL = Below Quantitation Limit

Reviewed by: mtc

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS B260B/5035

Client Sample ID: MW-2 (14.5-15.0)

Date Analyzed: 1/22/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60512

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil

%Solids: 94.4

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acetone	53	BQL
Acrolein	110	BQL
Acrylonitrile	110	BQL
Benzene	5.3	BQL
Bromobenzene	5.3	BQL
Bromochloromethane	5.3	BQL
Bromodichloromethane	5.3	BQL
Bromoform	5.3	BQL
Bromomethane	5.3	BQL
2-Butanone	26	BQL
n-Butylbenzene	5.3	BQL
sec-Butylbenzene	5.3	BQL
tert-Butylbenzene	5.3	BQL
Carbon disulfide	5.3	BQL
Carbon tetrachloride	5.3	BQL
Chlorobenzene	5.3	BQL
Chloroethane	5.3	BQL
Chloroform	5.3	BQL
Chloromethane	5.3	BQL
2-Chlorotoluene	5.3	BQL
4-Chlorotoluene	5.3	BQL
Dibromochloromethane	5.3	BQL
1,2-Dibromo-3-chloropropane	5.3	BQL
Dibromomethane	5.3	BQL
1,2-Dibromoethane (EDB)	5.3	BQL
1,2-Dichlorobenzene	5.3	BQL
1,3-Dichlorobenzene	5.3	BQL
1,4-Dichlorobenzene	5.3	BQL
trans-1,4-Dichloro-2-butene	5.3	BQL
1,1-Dichloroethane	5.3	BQL
1,1-Dichloroethene	5.3	BQL
1,2-Dichloroethane	5.3	BQL
cis-1,2-Dichloroethene	5.3	BQL
trans-1,2-dichloroethene	5.3	BQL
1,2-Dichloropropane	5.3	BQL
1,3-Dichloropropane	5.3	BQL
2,2-Dichloropropane	5.3	BQL
1,1-Dichloropropene	5.3	BQL
cis-1,3-Dichloropropene	5.3	BQL
trans-1,3-Dichloropropene	5.3	BQL
Dichlorodifluoromethane	5.3	BQL
Diisopropyl ether (DIPE)	5.3	BQL
Ethylbenzene	5.3	BQL
Hexachlorobutadiene	5.3	BQL
2-Hexanone	5.3	BQL

Flags: BQL = Below Quantitation Limit

Reviewed by: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8280B/5035

Client Sample ID: MW-2 (14.5-15.0)

Date Analyzed: 1/22/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60512

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil

%Solids: 94.4

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Iodomethane	5.3	BQL
Isopropylbenzene	5.3	BQL
4-Isopropyltoluene	5.3	BQL
Methylene chloride	21	BQL
4-Methyl-2-pentanone	5.3	BQL
Methyl-tert-butyl ether (MTBE)	5.3	BQL
Naphthalene	5.3	BQL
n-Propyl benzene	5.3	BQL
Styrene	5.3	BQL
1,1,1,2-Tetrachloroethane	5.3	BQL
1,1,2,2-Tetrachloroethane	5.3	BQL
Tetrachloroethene	5.3	BQL
Toluene	5.3	BQL
1,2,3-Trichlorobenzene	5.3	BQL
1,2,4-Trichlorobenzene	5.3	BQL
Trichloroethene	5.3	BQL
1,1,1-Trichloroethane	5.3	BQL
1,1,2-Trichloroethane	5.3	BQL
Trichlorofluoromethane	5.3	BQL
1,2,3-Trichloropropane	5.3	BQL
1,2,4-Trimethylbenzene	5.3	BQL
1,3,5-Trimethylbenzene	5.3	BQL
Vinyl chloride	5.3	BQL
m-,p-Xylene	11	BQL
o-Xylene	5.3	BQL

Surrogate Spike Recoveries	Spike Added (ug/KG)	Surrogate Result (ug/KG)	%Rec
Compound			
Bromofluorobenzene	50	50.4	101
1,2-Dichloroethane-d4	50	51.4	103
Toluene-d8	50	50.2	100

Comments:

All results are corrected for dilution.

Flags: BQL = Below Quantitation Limit

Reviewed by: mrc

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8260B/5035

Client Sample ID: MW-2 (21.0-21.5)

Date Analyzed: 1/21/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60513

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil

%Solids: 88.8

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acetone	56	BQL
Acrolein	110	BQL
Acrylonitrile	110	BQL
Benzene	5.6	BQL
Bromobenzene	5.6	BQL
Bromochloromethane	5.6	BQL
Bromodichloromethane	5.6	BQL
Bromoform	5.6	BQL
Bromomethane	5.6	BQL
2-Butanone	28	BQL
n-Butylbenzene	5.6	BQL
sec-Butylbenzene	5.6	BQL
tert-Butylbenzene	5.6	BQL
Carbon disulfide	5.6	BQL
Carbon tetrachloride	5.6	BQL
Chlorobenzene	5.6	BQL
Chloroethane	5.6	BQL
Chloroform	5.6	BQL
Chloromethane	5.6	BQL
2-Chlorotoluene	5.6	BQL
4-Chlorotoluene	5.6	BQL
Dibromochloromethane	5.6	BQL
1,2-Dibromo-3-chloropropane	5.6	BQL
Dibromomethane	5.6	BQL
1,2-Dibromoethane (EDB)	5.6	BQL
1,2-Dichlorobenzene	5.6	BQL
1,3-Dichlorobenzene	5.6	BQL
1,4-Dichlorobenzene	5.6	BQL
trans-1,4-Dichloro-2-butene	5.6	BQL
1,1-Dichloroethane	5.6	BQL
1,1-Dichloroethene	5.6	BQL
1,2-Dichloroethane	5.6	BQL
cis-1,2-Dichloroethene	5.6	BQL
trans-1,2-dichloroethene	5.6	BQL
1,2-Dichloropropane	5.6	BQL
1,3-Dichloropropane	5.6	BQL
2,2-Dichloropropane	5.6	BQL
1,1-Dichloropropene	5.6	BQL
cis-1,3-Dichloropropene	5.6	BQL
trans-1,3-Dichloropropene	5.6	BQL
Dichlorodifluoromethane	5.6	BQL
Diisopropyl ether (DIPE)	5.6	BQL
Ethylbenzene	5.6	BQL
Hexachlorobutadiene	5.6	BQL
2-Hexanone	5.6	BQL

Flags: BQL = Below Quantitation Limit

Reviewed by: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8260B/5035

Client Sample ID: MW-2 (21.0-21.5)
 Client Project ID: Scotchman #38 (SM #38)
 Lab Sample ID: 60513
 Lab Project ID: G129-672
 Matrix: Soil %Solids: 88.8

Date Analyzed: 1/21/03
 Analyzed By: RNP
 Date Collected: 1/9/03
 Date Received: 1/10/03
 Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Iodomethane	5.6	BQL
Isopropylbenzene	5.6	BQL
4-Isopropyltoluene	5.6	BQL
Methylene chloride	23	BQL
4-Methyl-2-pentanone	5.6	BQL
Methyl-tert-butyl ether (MTBE)	5.6	BQL
Naphthalene	5.6	BQL
n-Propyl benzene	5.6	BQL
Styrene	5.6	BQL
1,1,1,2-Tetrachloroethane	5.6	BQL
1,1,2,2-Tetrachloroethane	5.6	BQL
Tetrachloroethene	5.6	BQL
Toluene	5.6	BQL
1,2,3-Trichlorobenzene	5.6	BQL
1,2,4-Trichlorobenzene	5.6	BQL
Trichloroethene	5.6	BQL
1,1,1-Trichloroethane	5.6	BQL
1,1,2-Trichloroethane	5.6	BQL
Trichlorofluoromethane	5.6	BQL
1,2,3-Trichloropropane	5.6	BQL
1,2,4-Trimethylbenzene	5.6	BQL
1,3,5-Trimethylbenzene	5.6	BQL
Vinyl chloride	5.6	BQL
m-,p-Xylene	11	BQL
o-Xylene	5.6	BQL

Surrogate Spike Recoveries	Spike Added (ug/KG)	Surrogate Result (ug/KG)	%Rec
Compound			
Bromofluorobenzene	50	49.7	99
1,2-Dichloroethane-d4	50	50.9	102
Toluene-d8	50	49.9	100

Comments:

All results are corrected for dilution.

Flags: BQL = Below Quantitation Limit

Reviewed by: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8260B/5035

Client Sample ID: MW-2 (27-27.5)

Date Analyzed: 1/21/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60514

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil

%Solids: 88.4

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acetone	57	BQL
Acrolein	110	BQL
Acrylonitrile	110	BQL
Benzene	5.7	BQL
Bromobenzene	5.7	BQL
Bromochloromethane	5.7	BQL
Bromodichloromethane	5.7	BQL
Bromoform	5.7	BQL
Bromomethane	5.7	BQL
2-Butanone	28	BQL
n-Butylbenzene	5.7	BQL
sec-Butylbenzene	5.7	BQL
tert-Butylbenzene	5.7	BQL
Carbon disulfide	5.7	BQL
Carbon tetrachloride	5.7	BQL
Chlorobenzene	5.7	BQL
Chloroethane	5.7	BQL
Chloroform	5.7	BQL
Chloromethane	5.7	BQL
2-Chlorotoluene	5.7	BQL
4-Chlorotoluene	5.7	BQL
Dibromochloromethane	5.7	BQL
1,2-Dibromo-3-chloropropane	5.7	BQL
Dibromomethane	5.7	BQL
1,2-Dibromoethane (EDB)	5.7	BQL
1,2-Dichlorobenzene	5.7	BQL
1,3-Dichlorobenzene	5.7	BQL
1,4-Dichlorobenzene	5.7	BQL
trans-1,4-Dichloro-2-butene	5.7	BQL
1,1-Dichloroethane	5.7	BQL
1,1-Dichloroethene	5.7	BQL
1,2-Dichloroethane	5.7	BQL
cis-1,2-Dichloroethene	5.7	BQL
trans-1,2-dichloroethene	5.7	BQL
1,2-Dichloropropane	5.7	BQL
1,3-Dichloropropane	5.7	BQL
2,2-Dichloropropane	5.7	BQL
1,1-Dichloropropene	5.7	BQL
cis-1,3-Dichloropropene	5.7	BQL
trans-1,3-Dichloropropene	5.7	BQL
Dichlorodifluoromethane	5.7	BQL
Diisopropyl ether (DIPE)	5.7	BQL
Ethylbenzene	5.7	BQL
Hexachlorobutadiene	5.7	BQL
2-Hexanone	5.7	BQL

Flags: BQL = Below Quantitation Limit

Reviewed by: MAE

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: MW-2 (27-27.5)
Client Project ID: Scotchman #38 (SM #38)
Lab Sample ID: 60514
Lab Project ID: G129-672
Matrix: Soil %Solids: 88.4

Date Analyzed: 1/21/03
Analyzed By: RNP
Date Collected: 1/9/03
Date Received: 1/10/03
Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Iodomethane	5.7	BQL
Isopropylbenzene	5.7	BQL
4-Isopropyltoluene	5.7	BQL
Methylene chloride	23	BQL
4-Methyl-2-pentanone	5.7	BQL
Methyl-tert-butyl ether (MTBE)	5.7	BQL
Naphthalene	5.7	BQL
n-Propyl benzene	5.7	BQL
Styrene	5.7	BQL
1,1,1,2-Tetrachloroethane	5.7	BQL
1,1,2,2-Tetrachloroethane	5.7	BQL
Tetrachloroethene	5.7	BQL
Toluene	5.7	BQL
1,2,3-Trichlorobenzene	5.7	BQL
1,2,4-Trichlorobenzene	5.7	BQL
Trichloroethene	5.7	BQL
1,1,1-Trichloroethane	5.7	BQL
1,1,2-Trichloroethane	5.7	BQL
Trichlorofluoromethane	5.7	BQL
1,2,3-Trichloropropane	5.7	BQL
1,2,4-Trimethylbenzene	5.7	BQL
1,3,5-Trimethylbenzene	5.7	BQL
Vinyl chloride	5.7	BQL
m-,p-Xylene	11	BQL
o-Xylene	5.7	BQL

Surrogate Spike Recoveries	Spike Added (ug/KG)	Surrogate Result (ug/KG)	%Rec
Compound			
Bromofluorobenzene	50	49.9	100
1,2-Dichloroethane-d4	50	50.0	100
Toluene-d8	50	49.9	100

Comments:

All results are corrected for dilution.

Flags: BQL = Below Quantitation Limit

Reviewed by: *mml*

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: MW-2 (38-38.5)
Client Project ID: Scotchman #38 (SM #38)
Lab Sample ID: 60515
Lab Project ID: G129-672
Matrix: Soil %Solids: 90.6

Date Analyzed: 1/22/03
Analyzed By: RNP
Date Collected: 1/9/03
Date Received: 1/10/03
Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acetone	55	BQL
Acrolein	110	BQL
Acrylonitrile	110	BQL
Benzene	5.5	BQL
Bromobenzene	5.5	BQL
Bromochloromethane	5.5	BQL
Bromodichloromethane	5.5	BQL
Bromoform	5.5	BQL
Bromomethane	5.5	BQL
2-Butanone	28	BQL
n-Butylbenzene	5.5	BQL
sec-Butylbenzene	5.5	BQL
tert-Butylbenzene	5.5	BQL
Carbon disulfide	5.5	BQL
Carbon tetrachloride	5.5	BQL
Chlorobenzene	5.5	BQL
Chloroethane	5.5	BQL
Chloroform	5.5	BQL
Chloromethane	5.5	BQL
2-Chlorotoluene	5.5	BQL
4-Chlorotoluene	5.5	BQL
Dibromochloromethane	5.5	BQL
1,2-Dibromo-3-chloropropane	5.5	BQL
Dibromomethane	5.5	BQL
1,2-Dibromoethane (EDB)	5.5	BQL
1,2-Dichlorobenzene	5.5	BQL
1,3-Dichlorobenzene	5.5	BQL
1,4-Dichlorobenzene	5.5	BQL
trans-1,4-Dichloro-2-butene	5.5	BQL
1,1-Dichloroethane	5.5	BQL
1,1-Dichloroethene	5.5	BQL
1,2-Dichloroethane	5.5	BQL
cis-1,2-Dichloroethene	5.5	BQL
trans-1,2-dichloroethene	5.5	BQL
1,2-Dichloropropane	5.5	BQL
1,3-Dichloropropane	5.5	BQL
2,2-Dichloropropane	5.5	BQL
1,1-Dichloropropene	5.5	BQL
cis-1,3-Dichloropropene	5.5	BQL
trans-1,3-Dichloropropene	5.5	BQL
Dichlorodifluoromethane	5.5	BQL
Diisopropyl ether (DIPE)	5.5	BQL
Ethylbenzene	5.5	BQL
Hexachlorobutadiene	5.5	BQL
2-Hexanone	5.5	BQL

Flags: BQL = Below Quantitation Limit

Reviewed by: MAC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GCMS 8260B/5035

Client Sample ID: MW-2 (38-38.5)

Date Analyzed: 1/22/03

Client Project ID: Scotchman #38 (SM #38)

Analyzed By: RNP

Lab Sample ID: 60515

Date Collected: 1/9/03

Lab Project ID: G129-672

Date Received: 1/10/03

Matrix: Soil

%Solids: 90.6

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Iodomethane	5.5	BQL
Isopropylbenzene	5.5	BQL
4-Isopropyltoluene	5.5	BQL
Methylene chloride	22	BQL
4-Methyl-2-pentanone	5.5	BQL
Methyl-tert-butyl ether (MTBE)	5.5	BQL
Naphthalene	5.5	BQL
n-Propyl benzene	5.5	BQL
Styrene	5.5	BQL
1,1,1,2-Tetrachloroethane	5.5	BQL
1,1,2,2-Tetrachloroethane	5.5	BQL
Tetrachloroethene	5.5	BQL
Toluene	5.5	BQL
1,2,3-Trichlorobenzene	5.5	BQL
1,2,4-Trichlorobenzene	5.5	BQL
Trichloroethene	5.5	BQL
1,1,1-Trichloroethane	5.5	BQL
1,1,2-Trichloroethane	5.5	BQL
Trichlorofluoromethane	5.5	BQL
1,2,3-Trichloropropane	5.5	BQL
1,2,4-Trimethylbenzene	5.5	BQL
1,3,5-Trimethylbenzene	5.5	BQL
Vinyl chloride	5.5	BQL
m-,p-Xylene	11	BQL
o-Xylene	5.5	BQL

Surrogate Spike Recoveries	Spike Added (ug/KG)	Surrogate Result (ug/KG)	%Rec
Compound			
Bromofluorobenzene	50	48.9	98
1,2-Dichloroethane-d4	50	49.2	98
Toluene-d8	50	49.8	100

Comments:

All results are corrected for dilution.

Flags: BQL = Below Quantitation Limit

Reviewed by: MAC

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

Project Name: Scotchman #38 (SM #38)

Sample Information and Analytical Results	
Sample Identification	MW-1 (2.5-3.0)
Sample Matrix	Soil
Collection Option (for Soil)*	3
Date Collected	01/09/03
Date Received	01/10/03
Date Extracted	01/09/03
Date Analyzed	01/15/03
Dry Weight	88
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	79
Surrogate % Recovery - FID	98

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: G129-672-60504

Reviewed By: MRE

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

Project Name: Scotchman #38 (SM #38)

Sample Information and Analytical Results	
Sample Identification	MW-1 (8.0-8.5)
Sample Matrix	Soil
Collection Option (for Soil)*	3
Date Collected	01/09/03
Date Received	01/10/03
Date Extracted	01/09/03
Date Analyzed	01/15/03
Dry Weight	86
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	80
Surrogate % Recovery - FID	88

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: G129-672-60505

Reviewed By: mrl

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

Project Name: Scotchman #38 (SM #38)

Sample Information and Analytical Results	
Sample Identification	MW-1 (13-13.5)
Sample Matrix	Soil
Collection Option (for Soil)*	3
Date Collected	01/09/03
Date Received	01/10/03
Date Extracted	01/09/03
Date Analyzed	01/15/03
Dry Weight	91
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	87
Surrogate % Recovery - FID	96

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: G129-672-60506

Reviewed By: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

Project Name: Scotchman #38 (SM #38)

Sample Information and Analytical Results	
Sample Identification	MW-1 (17-17.5)
Sample Matrix	Soil
Collection Option (for Soil)*	3
Date Collected	01/09/03
Date Received	01/10/03
Date Extracted	01/09/03
Date Analyzed	01/15/03
Dry Weight	96
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	85
Surrogate % Recovery - FID	96

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: G129-672-60507

Reviewed By: MAC

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

Project Name: Scotchman #38 (SM #38)

Sample Information and Analytical Results	
Sample Identification	MW-1 (25-25.5)
Sample Matrix	Soil
Collection Option (for Soil)*	3
Date Collected	01/09/03
Date Received	01/10/03
Date Extracted	01/09/03
Date Analyzed	01/15/03
Dry Weight	89
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	87
Surrogate % Recovery - FID	94

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: G129-672-60508

Reviewed By: m/c

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

Project Name: Scotchman #38 (SM #38)

Sample Information and Analytical Results	
Sample Identification	MW-1 (35-35.5)
Sample Matrix	Soil
Collection Option (for Soil)*	3
Date Collected	01/09/03
Date Received	01/10/03
Date Extracted	01/09/03
Date Analyzed	01/15/03
Dry Weight	89
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	87
Surrogate % Recovery - FID	94

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: G129-672-60509

Reviewed By: MLC

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

Project Name: Scotchman #38 (SM #38)

Sample Information and Analytical Results	
Sample Identification	MW-1 (43.5-44)
Sample Matrix	Soil
Collection Option (for Soil)*	3
Date Collected	01/09/03
Date Received	01/10/03
Date Extracted	01/09/03
Date Analyzed	01/15/03
Dry Weight	91
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	85
Surrogate % Recovery - FID	93

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: G129-672-60510

Reviewed By: mac

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

Project Name: Scotchman #38 (SM #38)

Sample Information and Analytical Results	
Sample Identification	MW-2 (11.5-12.0)
Sample Matrix	Soil
Collection Option (for Soil)*	3
Date Collected	01/09/03
Date Received	01/10/03
Date Extracted	01/09/03
Date Analyzed	01/15/03
Dry Weight	88
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	85
Surrogate % Recovery - FID	92

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: G129-672-60511

Reviewed By: milc

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

Project Name: Scotchman #38 (SM #38)

Sample Information and Analytical Results	
Sample Identification	MW-2 (14.5-15.0)
Sample Matrix	Soil
Collection Option (for Soil)*	3
Date Collected	01/09/03
Date Received	01/10/03
Date Extracted	01/09/03
Date Analyzed	01/15/03
Dry Weight	94
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	84
Surrogate % Recovery - FID	91

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: G129-672-60512

Reviewed By: MAC

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

Project Name: Scotchman #38 (SM #38)

Sample Information and Analytical Results	
Sample Identification	MW-2 (21.0-21.5)
Sample Matrix	Soil
Collection Option (for Soil)*	3
Date Collected	01/09/03
Date Received	01/10/03
Date Extracted	01/09/03
Date Analyzed	01/15/03
Dry Weight	89
Dilution Factor	1
C ₅ -C ₉ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	84
Surrogate % Recovery - FID	90

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: G129-672-60513

Reviewed By: MLC

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

Project Name: Scotchman #38 (SM #38)

Sample Information and Analytical Results	
Sample Identification	MW-2 (27-27.5)
Sample Matrix	Soil
Collection Option (for Soil)*	3
Date Collected	01/09/03
Date Received	01/10/03
Date Extracted	01/09/03
Date Analyzed	01/15/03
Dry Weight	88
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	87
Surrogate % Recovery - FID	93

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: G129-672-60514

Reviewed By: mtc

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

Project Name: Scotchman #38 (SM #38)

Sample Information and Analytical Results	
Sample Identification	MW-2 (38-38.5)
Sample Matrix	Soil
Collection Option (for Soil)*	3
Date Collected	01/09/03
Date Received	01/10/03
Date Extracted	01/09/03
Date Analyzed	01/15/03
Dry Weight	91
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	87
Surrogate % Recovery - FID	93

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: G129-672-60515

Reviewed By: MLC

PARADIGM ANALYTICAL LABORATORIES, INC.

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 12/26/02 PID Initial Calibration Date: 12/26/02

Calibration Ranges and Limits

Range	MDL		ML		RL	
	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)
C ₅ -C ₈ Aliphatics	9.3	0.41	29.4	1.3	100	10
C ₉ -C ₁₂ Aliphatics	7.9	0.3	25.2	0.97	100	10
C ₉ -C ₁₀ Aromatics	0.5	0.04	1.5	0.14	100	10

Calibration Concentration Levels

Range	Levels		%RSD or CCC	Method of Quantitation
	(µg/L)	(mg/Kg)		
C ₅ -C ₈ Aliphatics	20	2	4.0	Calibration Factor
	80	8		
	200	20		
	800	80		
	2000	200		
C ₉ -C ₁₂ Aliphatics	15	1.5	12.3	Calibration Factor
	60	6		
	150	15		
	600	60		
	1500	150		
C ₉ -C ₁₀ Aromatics	32.5	3.25	11.3	Calibration Factor
	130	13		
	325	32.5		
	1300	130		
	3250	325		

Calibration Check Date: 01/14/03

Calibration Check

Range	Levels		RPD
	(µg/L)	(mg/Kg)	
C ₅ -C ₈ Aliphatics	200	20	23.5
C ₉ -C ₁₂ Aliphatics	150	15	16.1
C ₉ -C ₁₀ Aromatics	325	32.5	8.9

MDL = Method Detection Limit

ML = Minimum Limit

RL = Reportable Limit

RPD = Relative Percent Difference

%RSD = Percent Relative Standard Deviation

CCC = Correlation Coefficient of Curve

Reviewed By: meC

N.C. Certification #481 S.C. Certification #99029

PARADIGM ANALYTICAL LABORATORIES, INC.

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 12/26/02 PID Initial Calibration Date: 12/26/02

Calibration Ranges and Limits

Range	MDL		ML		RL	
	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)
C ₅ -C ₈ Aliphatics	9.3	0.41	29.4	1.3	100	10
C ₉ -C ₁₂ Aliphatics	7.9	0.3	25.2	0.97	100	10
C ₉ -C ₁₀ Aromatics	0.5	0.04	1.5	0.14	100	10

Calibration Concentration Levels

Range	Levels		%RSD or CCC	Method of Quantitation
	(µg/L)	(mg/Kg)		
C ₅ -C ₈ Aliphatics	20	2	4.0	Calibration Factor
	80	8		
	200	20		
	800	80		
	2000	200		
C ₉ -C ₁₂ Aliphatics	15	1.5	12.3	Calibration Factor
	60	6		
	150	15		
	600	60		
	1500	150		
C ₉ -C ₁₀ Aromatics	32.5	3.25	11.3	Calibration Factor
	130	13		
	325	32.5		
	1300	130		
	3250	325		

Calibration Check Date: 01/15/03

Calibration Check

Range	Levels		RPD
	(µg/L)	(mg/Kg)	
C ₅ -C ₈ Aliphatics	200	20	9.3
C ₉ -C ₁₂ Aliphatics	150	15	16.1
C ₉ -C ₁₀ Aromatics	325	32.5	2.3

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit

RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

Reviewed By: WCC

PARADIGM ANALYTICAL LABORATORIES, INC.

2627 Northchase Parkway SE, Wilmington, NC 28405

Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of-Custody Record & Analytical Request

COC# 503216

Page 1 of 2

Client: Delta Project ID: Scotchman #38 (SM #38) Date: 1-9-03 Report To: Delta
 Address: _____ Contact: B. Lewis Turnaround: Standard
 Address: _____ Job Number: XDAE-057
 Quote #: _____ P.O. Number: _____ Invoice To: _____

Sample ID	Date	Time Matrix	Preservatives		Analyses				Date	Time	Temperature	State Certification Requested
MW-1 (2.5-3.0)	1-9-03	0916	501L									
MW-1 (8.0-8.5)		0923										
MW-1 (13-13.5)		0930										
MW-1 (17-17.5)		0940										
MW-1 (25-25.5)		0950										
MW-1 (35-35.5)		1033										
MW-1 (43.5-44)		1107										
MW-2 (11.5-12)		1200										
MW-2 (14.5-15.0)		1210										
MW-2 (21.0-21.5)		1220										
Relinquished By: <u>Peter M Farley</u>	Date: <u>1-10-03</u>	Time: <u>0817</u>	Received By: <u>Peter M Farley</u>	Date: <u>1/10/03</u>	Time: <u>8:20</u>	Temperature: <u>9.6, 5.6</u>	State Certification Requested: <u>NC</u>	Other: <u>SC</u>				

Comments:
Please specify any special reporting requirements
G129-672

SEE REVERSE FOR TERMS AND CONDITIONS

ORIGINAL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: MW-1

Analyzed By: JTF

Client Project ID: Scotchman #38

Date Collected: 2/10/03

Lab Sample ID: 63066

Date Received: 2/11/03

Lab Project ID: G129-688

Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Bromodichloromethane	BQL	1.0	1	2/13/03
Bromoform	BQL	2.0	1	2/13/03
Bromomethane	BQL	1.0	1	2/13/03
Carbon tetrachloride	BQL	1.0	1	2/13/03
Chlorobenzene	BQL	1.0	1	2/13/03
Chloroethane	BQL	1.0	1	2/13/03
Chloroform	BQL	1.0	1	2/13/03
Chloromethane	BQL	1.0	1	2/13/03
Dibromochloromethane	BQL	1.0	1	2/13/03
1,2-Dibromoethane (EDB)	BQL	1.0	1	2/13/03
1,2-Dichlorobenzene	BQL	1.0	1	2/13/03
1,3-Dichlorobenzene	BQL	1.0	1	2/13/03
1,4-Dichlorobenzene	BQL	1.0	1	2/13/03
1,1-Dichloroethane	BQL	1.0	1	2/13/03
1,2-Dichloroethane	BQL	1.0	1	2/13/03
1,1-Dichloroethene	BQL	1.0	1	2/13/03
cis-1,2-Dichloroethene	BQL	1.0	1	2/13/03
trans-1,2-Dichloroethene	BQL	1.0	1	2/13/03
1,2-Dichloropropane	BQL	1.0	1	2/13/03
cis-1,3-Dichloropropene	BQL	1.0	1	2/13/03
trans-1,3-Dichloropropene	BQL	1.0	1	2/13/03
Methylene Chloride	BQL	5.0	1	2/13/03
1,1,2,2-Tetrachloroethane	BQL	1.0	1	2/13/03
Tetrachloroethene	BQL	1.0	1	2/13/03
1,1,1-Trichloroethane	BQL	1.0	1	2/13/03
1,1,2-Trichloroethane	BQL	1.0	1	2/13/03
Trichloroethene	BQL	1.0	1	2/13/03
Trichlorofluoromethane	BQL	1.0	1	2/13/03
Vinyl Chloride	BQL	1.0	1	2/13/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
1,4-Dichlorobutane	40	40.2	100

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 601

Client Sample ID: MW-2

Analyzed By: JTF

Client Project ID: Scotchman #38

Date Collected: 2/10/03

Lab Sample ID: 63067

Date Received: 2/11/03

Lab Project ID: G129-688

Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Bromodichloromethane	BQL	1.0	1	2/12/03
Bromoform	BQL	2.0	1	2/12/03
Bromomethane	BQL	1.0	1	2/12/03
Carbon tetrachloride	BQL	1.0	1	2/12/03
Chlorobenzene	BQL	1.0	1	2/12/03
Chloroethane	BQL	1.0	1	2/12/03
Chloroform	BQL	1.0	1	2/12/03
Chloromethane	BQL	1.0	1	2/12/03
Dibromochloromethane	BQL	1.0	1	2/12/03
1,2-Dibromoethane (EDB)	BQL	1.0	1	2/12/03
1,2-Dichlorobenzene	BQL	1.0	1	2/12/03
1,3-Dichlorobenzene	BQL	1.0	1	2/12/03
1,4-Dichlorobenzene	BQL	1.0	1	2/12/03
1,1-Dichloroethane	BQL	1.0	1	2/12/03
1,2-Dichloroethane	BQL	1.0	1	2/12/03
1,1-Dichloroethene	BQL	1.0	1	2/12/03
cis-1,2-Dichloroethene	BQL	1.0	1	2/12/03
trans-1,2-Dichloroethene	BQL	1.0	1	2/12/03
1,2-Dichloropropane	BQL	1.0	1	2/12/03
cis-1,3-Dichloropropene	BQL	1.0	1	2/12/03
trans-1,3-Dichloropropene	BQL	1.0	1	2/12/03
Methylene Chloride	BQL	5.0	1	2/12/03
1,1,2,2-Tetrachloroethane	BQL	1.0	1	2/12/03
Tetrachloroethene	BQL	1.0	1	2/12/03
1,1,1-Trichloroethane	BQL	1.0	1	2/12/03
1,1,2-Trichloroethane	BQL	1.0	1	2/12/03
Trichloroethene	BQL	1.0	1	2/12/03
Trichlorofluoromethane	BQL	1.0	1	2/12/03
Vinyl Chloride	BQL	1.0	1	2/12/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
1,4-Dichlorobutane	40	40.4	101

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-1

Analyzed By: JTF

Client Project ID: Scotchman #38

Date Collected: 2/10/03

Lab Sample ID: 63066

Date Received: 2/11/03

Lab Project ID: G129-688

Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	2/13/03
Diisopropyl ether (DIPE)	BQL	1.0	1	2/13/03
Ethylbenzene	BQL	1.0	1	2/13/03
Methyl-tert butyl ether (MTBE)	3.6	2.0	1	2/13/03
Toluene	BQL	1.0	1	2/13/03
m/p-Xylene	BQL	2.0	1	2/13/03
o-Xylene	BQL	2.0	1	2/13/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.1	100

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: MW-2

Analyzed By: JTF

Client Project ID: Scotchman #38

Date Collected: 2/10/03

Lab Sample ID: 63067

Date Received: 2/11/03

Lab Project ID: G129-688

Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	2/12/03
Diisopropyl ether (DIPE)	BQL	1.0	1	2/12/03
Ethylbenzene	BQL	1.0	1	2/12/03
Methyl-tert butyl ether (MTBE)	3.7	2.0	1	2/12/03
Toluene	BQL	1.0	1	2/12/03
m/p-Xylene	BQL	2.0	1	2/12/03
o-Xylene	BQL	2.0	1	2/12/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.1	100

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Ethylene Dibromide
by GC 504.1**

Client Sample ID: MW-1
Client Project ID: Scotchman #38
Lab Sample ID: 63066
Lab Project ID: G129-688

Date Collected: 2/10/03
Date Received: 2/11/03
Date Analyzed: 2/18/03
Analyzed By: CLP

Compound	Result (ug/L)	Quantitation Limit	Method	Dilution Factor
Ethylene Dibromide	BQL	0.02	504.1	1.0

Comments:

BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Ethylene Dibromide
by GC 504.1**

Client Sample ID: MW-2
Client Project ID: Scotchman #38
Lab Sample ID: 63067
Lab Project ID: G129-688

Date Collected: 2/10/03
Date Received: 2/11/03
Date Analyzed: 2/18/03
Analyzed By: CLP

Compound	Result (ug/L)	Quantitation Limit	Method	Dilution Factor
Ethylene Dibromide	BQL	0.02	504.1	1.0

Comments:

BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Metals

Client Sample ID: MW-1
Client Project ID: Scotchman #38
Lab Sample ID: 63066
Lab Project ID: G129-688
Batch ID: 2590

Analyzed By: RML
Date Collected: 2/10/03
Date Received: 2/11/03
Matrix: Water

Metals	Result	Quantitation Limit	DF	Units	Method	Date Analyzed
Lead,Extractable	44.0	5.00	25	UG/L	6020	2/20/03

Comments

BQL = Below Quantitation Limits
DF = Dilution Factor
J = Between MDL and RL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Metals

Client Sample ID:	MW-2	Analyzed By:	RML
Client Project ID:	Scotchman #38	Date Collected:	2/10/03
Lab Sample ID:	63067	Date Received:	2/11/03
Lab Project ID:	G129-688	Matrix:	Water
Batch ID:	2590		

Metals	Result	Quantitation Limit	DF	Units	Method	Date Analyzed
Lead,Extractable	24.1	5.00	25	UG/L	6020	2/20/03

Comments

BQL = Below Quantitation Limits

DF = Dilution Factor

J = Between MDL and RL

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

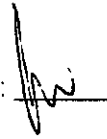
Project Name: Scotchman #38

Sample Information and Analytical Results	
Sample Identification	MW-1
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	02/10/03
Date Received	02/11/03
Date Extracted	02/11/03
Date Analyzed	02/11/03
Dry Weight	
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₂ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₀ Aromatics**	< 100 (µg/L)
Surrogate % Recovery - PID	91
Surrogate % Recovery - FID	100

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil

** = Excludes any surrogates or internal standards.

Lab Info: G129-688-63066

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Delta Environmental Consultants

Project Name: Scotchman #38

Sample Information and Analytical Results	
Sample Identification	MW-2
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	02/10/03
Date Received	02/11/03
Date Extracted	02/11/03
Date Analyzed	02/11/03
Dry Weight	
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₂ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₀ Aromatics**	< 100 (µg/L)
Surrogate % Recovery - PID	91
Surrogate % Recovery - FID	100

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil

** = Excludes any surrogates or internal standards

Lab Info: G129-688-63067

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 12/26/02 PID Initial Calibration Date: 12/26/02

Calibration Ranges and Limits

Range	MDL		ML		RL	
	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)
C ₅ -C ₈ Aliphatics	9.3	0.41	29.4	1.3	100	10
C ₉ -C ₁₂ Aliphatics	7.9	0.3	25.2	0.97	100	10
C ₉ -C ₁₀ Aromatics	0.5	0.04	1.5	0.14	100	10

Calibration Concentration Levels

Range	Levels		%RSD or CCC	Method of Quantitation
	(µg/L)	(mg/Kg)		
C ₅ -C ₈ Aliphatics	20	2	4.0	Calibration Factor
	80	8		
	200	20		
	800	80		
	2000	200		
C ₉ -C ₁₂ Aliphatics	15	1.5	12.3	Calibration Factor
	60	6		
	150	15		
	600	60		
	1500	150		
C ₉ -C ₁₀ Aromatics	32.5	3.25	11.3	Calibration Factor
	130	13		
	325	32.5		
	1300	130		
	3250	325		

Calibration Check Date: 02/11/03

Calibration Check

Range	Levels		RPD
	(µg/L)	(mg/Kg)	
C ₅ -C ₈ Aliphatics	200	20	-11.4
C ₉ -C ₁₂ Aliphatics	150	15	3.1
C ₉ -C ₁₀ Aromatics	325	32.5	3.0

MDL = Method Detection Limit


ML = Minimum Limit

RL = Reportable Limit

RPD = Relative Percent Difference

%RSD = Percent Relative Standard Deviation

CCC = Correlation Coefficient of Curve

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

2627 Northchase Parkway SE, Wilmington, NC 28405

Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC#

Page 1 of 1

Client: *Petta Environmental Consultants* Project ID: *Sietkhmen #38*

Address: *3205 Randall Plwy Ste 104* Contact: *Bryan Lieve*

Address: *Wilmington, NC 28403* Phone: *910-772-2291*

Quote #: Fax: *910-254-0246*

Date: *2/11/03*

Turnaround: *Standard*

Job Number: *XONC-057-C(4090)*

P.O. Number:

Report To: *Bryan Lieve*

910-772-2271

Invoice To: *Bryan Lieve*

Sample ID	Date	Time	Matrix		Preservatives			Analyses				Comments: Please specify any special reporting requirements															
			Date	Time	HCl	HNO3	Received By	Date	Time	Temperature	State Certification Requested																
mw-1	2/10/03	1100	W		7	1	3	2	2	1						6129-688											
mw-2	2/10/03	1200	W		7	1	3	2	2	1							Turbid										
Relinquished By	<i>Edward Kott</i>	Date	<i>2/10/03</i>	Time	<i>815</i>	Received By	<i>Jean Lim</i>	Date	<i>2/11/03</i>	Time	<i>0815</i>	Temperature	<i>cu kei 29°C</i>	State Certification Requested													
															NC	SC	Other										

SEE REVERSE FOR TERMS AND CONDITIONS

North Carolina
Department of Environment and Natural Resources
Division of Waste Management
Underground Storage Tank Section
Fayetteville Regional Office



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Michael F. Easley, Governor
William G. Ross Jr, Secretary
Dexter R. Matthews, Director

May 28, 2003

Mr. Don Quinn
Worsley Companies, Inc.
P.O. Box 3227
Wilmington, NC 28406

Re: Notice of Regulatory Requirements
5A NCAC 2L .0115(d)
Risk-based Assessment and Corrective Action for Petroleum Underground Storage Tanks
Scotchman #38
6261 Raeford Road
Fayetteville, Cumberland County
Incident # 29017
Low Risk Classification / Residential Land Use

Dear Mr. Quinn:

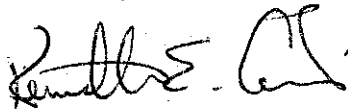
Information received by this office on March 24, 2003 confirmed a release or discharge from a petroleum underground storage tank (UST) system at the above-referenced site. Records indicate that Worsley Companies, Inc., is the responsible party for this release or discharge. This letter is a standard notice explaining the actions you must take as a result of the release or discharge in accordance with North Carolina statutes and rules. The UST Section of the Division of Waste Management administers the state's rules for USTs and the required response for petroleum releases. Those rules are located in Title 15A, Subchapter 2L and Title 15A, Subchapter 2N of the North Carolina Administrative Code (NCAC).

The risk-based rule for petroleum USTs, 15A NCAC 2L .0115(d), states that the Department shall classify the risk of each known discharge or release from the UST system. A review of the Limited Site Assessment prepared for the referenced incident and received on March 24, 2003, indicates that:

- (1) The risk posed does not fall within the high or intermediate risk categories; and
- (2) After review of site-specific information, limited assessment, or interim corrective action, the discharge or release poses no significant risk to human health or the environment.

If you have any questions regarding the actions that must be taken or the rules mentioned in this letter, please contact me at the letterhead address or at (910) 486-1541. If you have any questions regarding trust fund eligibility or reimbursement, please contact the UST Section Trust Fund Branch at (919) 733-8486.

Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth E. Currie". The signature is stylized and written in cursive.

Kenneth E. Currie
UST Section

c: FRO Incident Management Files