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November 16, 2006

Mr. Scott Ryals
Division of Waste Management
UST Section
1637 Mail Service Center
Raleigh, North Carolina 27699-1637

Attn: Mr. Scott Ryals

RE: Phase I Limited Site Assessment
Former Esso/Exxon (Register Property)
1709 U.S. Highway 17N
Bridgeton, Craven County, North Carolina
Incident # 31413
W&R Project No. 02060548.0

Dear Mr. Ryals:

Please find enclosed the Phase I Limited Site Assessment (LSA) report prepared by Withers & Ravenel (W&R) for the above referenced site. The enclosed report has been prepared following the format as outlined in the North Carolina Department of Environment and Natural Resources (NCDENR) UST Guidelines for Assessment and Corrective Action, dated April 2001.

Please call if you have any questions or comments.

Sincerely,

WITHERS & RAVENEL, INC.

David P. Kwiatkowski, P.G.
Project Manager

Jayson A. Kilcoyne
Environmental Scientist

111 MacKenan Drive | Cary, North Carolina 27511 | tel: 919.469.3340 | fax: 919.467.6008 | www.withersravenel.com
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PHASE I LIMITED SITE ASSESSMENT

FORMER ESSO/EXXON (REGISTER PROPERTY)
1709 U.S. Highway 17 North
Bridgeton, North Carolina
W&R Project #02060548.0

Groundwater Incident #31413

Former UST Owner and Operator
Pearl and Ettie May Fowler

Prepared for:
Mr. Scott Ryals
North Carolina Department of Environment and Natural Resources
Division of Waste Management
UST Section – Trust Fund
1637 Mail Service Center
Raleigh, North Carolina 27699

Prepared by:
Withers & Ravenel, Inc.
111 MacKenan Drive
Cary, North Carolina 27511
(919) 460-6006

Discovery Date:	December 28, 2004
Release Quantity:	Unknown
Cause of Release:	Leak in USTs/Dispenser Piping
Source of Release:	USTs/Dispenser Piping
Latitude:	N 35° 08' 45.16"
Longitude:	W 77° 01' 56.33"

UST Size and Content
(4) – Unknown size and content

David P. Kwiatkowski, P.G.
Project Manager

Jayson A. Kilcoyne
Environmental Scientist

November 16, 2006

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1.0 SITE HISTORY/BACKGROUND

The former Esso/Exxon is located at 1709 Highway 17 North in Bridgeton, NC and served as a convenience store with fuel retail services (Figure 1). The USTs were last owned and operated by Pearl and Ettie Fowler who are now deceased. Four inactive underground storage tanks (USTs) remain at the property. Reportedly, the USTs were active until 1977. The size and content of each tank is not known at this time. The USTs are located within the DOT right of way in the vicinity of the foundation (concrete pad) of the former onsite store. One UST is believed to be on the south side of the foundation and two are located adjacent to each other on the north side. A fourth UST is believed to be beneath the concrete pad adjacent to the former dispenser island. The approximate locations of the former USTs are detailed on Figure 2.

Weston Solutions, Inc. (Weston) conducted assessment activities at the referenced site in December 2004 on behalf of the NCDOT. These assessment activities were conducted in advance of proposed roadway widening activities of Highway 17 by the NCDOT. The results of these activities were presented in the "Preliminary Site Assessment" report prepared by Weston. Included in these assessment activities were: a geophysical survey to locate potential USTs at the site; soil sampling activities; and groundwater sampling activities. Based upon the results of these activities: Four to five potential USTs were identified; soil sample analytical results indicated impacts by TPH-DRO at concentrations above "Action Levels"; and groundwater analytical results indicated impacts by targeted compounds above 2L Standards (standards). Summary tables and figures from the Weston Report are included in Appendix A.

The following is a summary of the site history after the completion of the initial assessment report:

- On January 25, 2005, NCDOT submit report to the North Carolina Department of Environment and Natural Resources – Division of Waste Management – UST Section (NCDENR-DWM-UST).
- February 4, 2005, a Notice of Regulatory Requirements (NORR) is issued to the current property owner, Ms. Juanita Register, requesting UST closure and the completion of an LSA. Ms. Register responds indicating she is the property owner but is not the responsible party.
- February 28, 2005, a NORR is issued to Exxon/Mobile, requesting UST closure and the completion of an LSA.
- May 17, 2005, UST Section inspects the site.
- April 19, 2006, a Notice of Violation (NOV) is issued to Exxon/Mobile requesting an LSA be completed.
- May 16, 2006, Exxon/Mobile responds indicating they are not the responsible party.
- June 1, 2006, the site is referred to the State Lead program because the responsible party is deceased.

UST ID NO	PRODUCT	CAPACITY (GALLONS)	DATE INSTALLED	DATE CLOSED	RELEASE DISCOVERED
1	Unknown	Unknown	1950s	1977	No
2	Unknown	Unknown	1950s	1977	No
3	Unknown	Unknown	1950s	1977	Yes
4	Unknown	Unknown	1950s	1977	Yes

2.0 RISK CHARACTERIZATION/RECEPTOR INFORMATION

On August 30, 2006, W&R personnel completed a reconnaissance of the community surrounding the subject site to document the adjacent land use and location of potential receptors of soil and groundwater impacts by petroleum hydrocarbons. The following paragraphs describe the findings of the previously described work. The "Limited Site Assessment Risk Classification and Land Use Form" is included in Appendix B.

2.1 Water Supply Wells

A water supply well survey for the area within 1,500 feet of the source area was completed on August 30, 2006. In the course of completing the survey, W&R viewed the surrounding properties, interviewed available surrounding property owners, managers, and tenants.

No private water supply wells (WSWs) were confirmed within 1,500 feet of the source area at the site. Mr. Edward Riggs, an employee for the First Craven Sanitary District informed W&R personnel that all properties in the surrounding area utilize Craven County municipal water. Copies of the completed receptor survey forms detailing surrounding property water supply information are included in Appendix B.

2.2 Public Water Supplies

Based upon information provided by Mr. Riggs, municipal water is available to the site and all properties in the vicinity. Water is supplied by the First Craven Sanitary District and the county water supply consists of a three well system located approximately 1.6 miles southeast of the site.

2.3 Surface Water

Based on field observations and review of the New Bern (7.5-minute series) topographic map (Figure 1) produced by the United States Geological Survey (USGS), the nearest surface water feature is a tributary (stream) of the Mills Branch located approximately 415 feet south of the site.

2.4 Wellhead Protection Areas

According to the NCDENR "Approved Wellhead Plans" database, the site is not located in the First Craven Sanitary District Wellhead Protection Area. The well head protection area boundary is approximately 3,000 feet south of the site.

2.5 Deep Aquifers in the Coastal Plain

According to the 1985 map entitled "Geology of North Carolina", this site is located within the River Bend Formation of the Coastal Plain Physiographic Province. The River Bend formation is typically characterized as a limestone with calcarenite overlain by and intercalated with indurated, sandy, molluscan-mold limestone.

Based on the Hydrogeologic Framework information provided by the NCDENR Division of Water Resources (DWR), the City of Bridgeton well (S20K) is the closest data point located approximately 2.26 miles southeast of the site. The Hydrogeologic Framework Detail indicates: the surficial aquifer is 30 feet thick, underlain by the Castle Hayne confining unit, which is 7 feet thick; the Castle Hayne aquifer is 94 feet thick, underlain by the Beaufort confining unit that is 10 feet thick; the Beaufort aquifer is 201 feet thick, underlain by the Peedee confining unit that is 24 feet thick. The Peedee aquifer is located below the Peedee confining unit. The total thickness of the Peedee aquifer has not been determined at the S20K data point. As presented in the DWR web page education and technical assistance section, the Castle Hayne, Beaufort, and Peedee aquifers are principal aquifers acting as significant sources of groundwater for potable water supply and other agricultural or industrial interests in large portions of North Carolina. The Hydrogeologic Framework Detail log and a copy of the DWQ discussion are included in Appendix C.

As presented in the USGS Professional Paper 1401-1, entitled "Hydrogeologic Framework of the North Carolina Coastal Plain", (USGS Paper 1401-1) The Castle Hayne aquifer is composed predominantly of limestone and sand, with minor amounts of clay of Oligocene age, and was deposited under marine conditions. The most distinguishing features of the Castle Hayne Aquifer are its carbonate content and its great thickness of freshwater-bearing permeable material combined with the absence of extensive or continuous clay layers. This is the most productive aquifer in North Carolina. Because the Castle Hayne aquifer is composed of limestone and sand, the estimated hydraulic conductivity ranges from 15 ft/day to 200 ft/day. Typically, the head decreases downward into the Castle Hayne aquifer from overlying beds, indicating recharge. Natural discharge from the Castle Hayne aquifer occurs in stream channels

where the streams have cut into the aquifer or as upward leakage through overlying sediments beneath streams and estuaries where the aquifer is covered. The potential for upward leakage is present in downdip areas, even where other overlying confining units are more than 80 to 100 feet thick. The Castle Hayne confining unit that overlies the Castle Hayne aquifer is composed of beds of clay, sandy clay, and clay with sandy streaks. The average thickness of the Castle Hayne confining unit is 14 feet. Throughout much of its area, the Castle Hayne confining unit is thin and contains enough sand to allow significant leakage between the Castle Hayne and the overlying aquifers. However, the effectiveness of the confining unit is sufficient to support a 10-foot head difference across it in places.

The Beaufort aquifer is composed primarily of rocks of the Beaufort formation described as dark green and grey sand and clay of Paleocene age, and also described as green or greenish-grey shale and fine to medium shaly, glauconitic sand of Midwayan age. Generally, the Beaufort aquifer is composed of fine to medium glauconitic sand, clayey sand, and clay beds of marine origin, with occasional shell and limestone beds up to five or six feet thick. Except along the western margin of the unit and along the Virginia border, limestone and shell beds are distinctive in geophysical logs of wells and test holes in the central two-thirds of the area from Onslow County to Pasquotank County. The Beaufort aquifer has an eastward or northeastward trend of decreasing percentage of permeable material ranging from 70 to 50 percent. The average hydraulic conductivity is for this aquifer is about 35 ft/day. The Beaufort aquifer is recharged from both the Yorktown and Castle Hayne aquifers in upland areas along a 15 to 20 mile wide band paralleling the western margin of the aquifer. It discharges beneath stream valleys and throughout the area east of the recharge area. The Beaufort confining unit that overlies the Beaufort aquifer is composed of the uppermost sediments of the Beaufort Formation and possibly some younger clay, silt and sandy clay. The thickness of this unit ranges from 0 to 80 feet with an average thickness of 24 feet.

The Peedee aquifer is composed largely of the Peedee Sand of Late Cretaceous. This formation is composed of fine to medium grained sand interbedded with gray to black marine clay and silt. Sand beds are commonly gray or greenish-gray and contain varying amounts of glauconite. The Peedee Aquifer consists of nearly 70 percent sand and its typical fine to medium grain size suggests a hydraulic conductivity of 25 ft/day with an average estimated hydraulic conductivity of 34 ft/day. The Peedee confining unit that overlies the Peedee aquifer, is composed of clay, silty clay and sandy clay. The average thickness of the Peedee confining unit is 25 feet and these clays have very low permeability throughout most of its areal extent. In general, the Peedee aquifer is recharged by all overlying aquifers west of the line from central Onslow County to central Pitt County and discharge occurs along stream in the general recharge area. The nearest discharge point is Island Creek located approximately 1,100 feet to the northeast of the site. The Black Creek aquifer underlies the Peedee throughout its extent. Head differences between the two aquifers allow for vertical exchange of groundwater in both directions.

2.6 *Subsurface Structures*

No subsurface utilities or conduits were noted in the immediate vicinity of the site subject area. A concrete drainage culvert intersects Highway 17 approximately 300 feet south of the source area. The municipal water and sewer lines are located along the eastern side of Highway 17 North and are not believed to be potential contaminant pathways. Overhead power lines were noted intersecting the site property alongside Highway 17. No basements were observed on adjacent properties.

2.7 *Land Use*

The majority of properties in the surrounding area appear to be residential. The Register residence (property owner) is located approximately 180 feet south of the source area. The concrete foundation of the former convenience store and the remnant structure of the former dispenser island remain in the source area. A trailer park is located on the adjacent property to the north of the site. Property to the west appeared to be wooded and undeveloped. Single family homes and a trailer park are located across Highway 17 N to the east of the site property. A railway system is located alongside Highway 17 N approximately 190 feet to the east. Land use and zoning classifications have not been established for the site or surrounding area. Please see the "Risk Classification" form in Appendix B for additional information.

2.8 *Property Owners and Occupants*

A list of the property owners contiguous to the site can be found in Table 1. Figure 3 presents the properties contiguous to the site.

3.0 SITE GEOLOGY AND HYDROGEOLOGY

According to the geologic map of North Carolina (1985) the site lies within the River Bend Formation of the Coastal Plain Physiographic Province. The River Bend formation is typically characterized as a limestone with calcarenite overlain by and intercalated with indurated, sandy, molluscan-mold limestone. Field classification of soils encountered indicated silty sands from the ground surface to 4 feet below land surface (BLS) and clayey sands from 4 to 7 feet BLS. Groundwater depths ranged from 3.95 feet to 4.22 feet below the top of the wells across the area of intrusive assessment activities.

W&R also examined the U.S. Geological Survey 7.5-minute series topographic map of New Bern, North Carolina Quadrangle, which indicates the site is located approximately between 5 and 10 feet above mean sea level in a relatively flat area (Figure 1). Groundwater appears to flow to the west based upon site topography.

4.0 SAMPLING METHODOLOGY AND RESULTS

UST Verification

Prior to groundwater assessment activities, a utility locator was onsite with W&R personnel in an attempt to verify the locations of the steel USTs on the site property. A Metrotech 880-B® metal detection unit was utilized to detect buried metal at the site and pinpoint areas to focus on during UST locating procedures. Once suspect areas were determined on the site property, field personnel advanced metal probe rods into the ground and attempted to make contact with the top of the buried USTs. The area surrounding the onsite concrete foundation was inspected by these procedures. W&R was able to identify three of the USTs (UST-1, UST-3, and UST-4). The fourth (UST-2) was not verified but is believed to be beneath the concrete foundation. UST-1 was found 1.5 feet south of the concrete foundation of the former onsite structure approximately 52 feet from Highway 17 N. UST-3 was located approximately 17.5 feet north of the foundation and UST-4 was located adjacent to UST-3 approximately 15.5 feet from the foundation and 53 feet from the highway. The locations of the USTs are presented on Figure 2.

Groundwater Assessment

On October 17, 2006, W&R personnel were onsite to install and sample two groundwater monitoring wells (MW-1 and MW-2). Monitoring well MW-1 was installed adjacent to UST-1 on the south side of the concrete foundation. MW-2 was placed in the vicinity of the UST-3 and UST-4 located on the north side of the foundation.

Monitoring wells MW-1 and MW-2 were installed to determine aquifer conditions relative to the former USTs at the referenced site. MW-1 was advanced to a depth of 7 feet BLS and MW-2 was installed at a depth of 6.5 feet BLS utilizing a stainless steel handauger. To prevent cross-contamination, the handauger was decontaminated between well installations. The wells were constructed with 5 feet of 2-inch ID Schedule 40 PVC 0.010" slotted screen at the base of the boreholes, and 2" ID Schedule 40 PVC riser to land surface. The annular spaces were backfilled with sand to a level above the screen, followed by a hydrated bentonite seal and then neat cement grout to land surface. The wellheads were secured with 2-inch locked expansion plugs and bolt down flush mount manholes stabilized in place by concrete pads. The soil boring logs and Well Construction Records are included in Appendix D. The location of the wells is presented in Figure 2.

Prior to sampling, depth to water measurements were collected from the wells using a decontaminated electronic water level meter. The depth to water measurements were collected to determine the volume of water in the wells. The depth to water was measured to be between 3.95 feet and 4.22 feet below the top of the wells (Table 2). The monitoring wells were then developed to remove any fine sediment that may have been present after installation. Groundwater and sediment was removed using a new dedicated disposable bailer for each well. The wells were then allowed to recharge

prior to collecting the groundwater samples. The samples were collected using the same disposable bailers that were used for each monitoring well, transferred to laboratory prepared containers, immediately placed on ice in a cooler and transported under chain of custody to a North Carolina Certified laboratory for analysis. The samples collected from both MW-1 and MW-2 were analyzed for VOCs by EPA Method 6210D, for semi-volatiles by EPA Method 625, and for aliphatics and aromatics by MADEP Method EPH/VPH.

Based on the analytical report, several semi-volatile organics were detected above 2L Standards and Gross Contaminant Levels (GCLs) in the samples collected from monitoring well MW-2. It should be noted that those compounds detected at concentrations above GCLs were reported as estimated values (J-flagged), as they were detected at concentrations below reportable limits. No targeted compounds were detected in the samples collected from MW-1. A summary of the analytical results is included in Table 3. A copy of the analytical report is included in Appendix E.

5.0 CONCLUSIONS

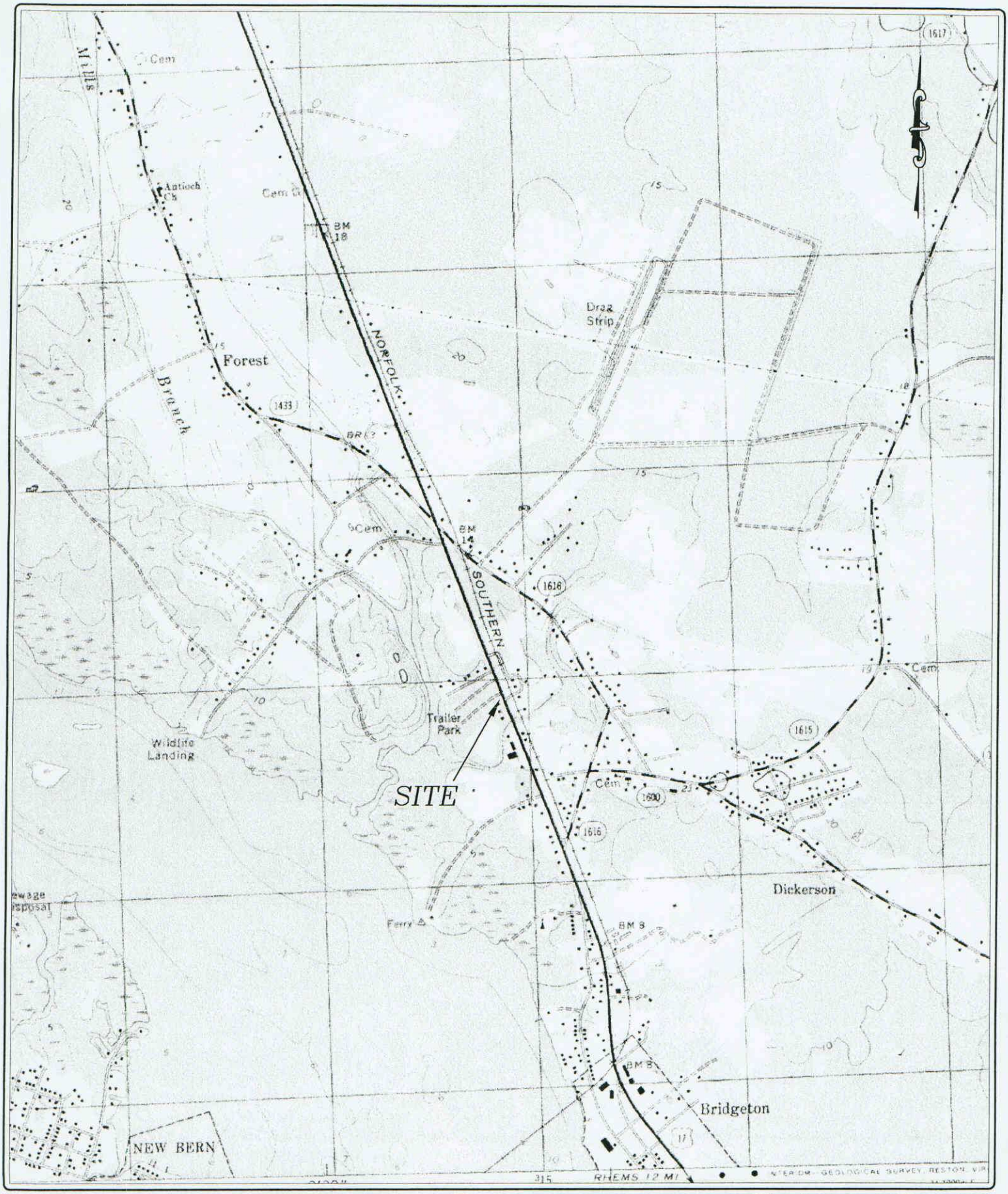
Based on the results of this Phase I Limited Site Assessment, W&R concludes the following:

- Four underground storage tanks (UST-1 through UST-4) are believed to remain at the site property.
- Municipal water is available to the site and the surrounding properties and is provided by First Craven Sanitary District.
- No water supply wells were identified within 1,500 feet of the site.
- The area in the vicinity of the site is characterized as rural residential. The land use for the site is not established but would probably be residential. The surrounding area is residential or undeveloped.
- Groundwater at the site was measured to be approximately 4 to 5 feet below land surface.
- Soil screened above the groundwater table during the installation of both MW-1 and MW-2 did not appear to be impacted by petroleum hydrocarbons.
- LSA groundwater sample analytical results indicated targeted compounds above 2L Standards and GCLs in MW-2. It should be noted that the compounds detected above GCLs were estimated values detected at concentrations below laboratory reportable limits. No targeted compounds were detected in samples collected from MW-1.
- The nearest surface water feature is a tributary of the Mills Branch located approximately 415 feet south of the site. Several detected targeted compounds in the groundwater collected from MW-2 were at levels exceeding the 15A NCAC 2B .0200 Standards (2B Standards) by more than a factor of 10. Please note that these compounds exceeding 2B Standards were estimated values detected at concentrations below laboratory reportable limits.

Based upon these conclusions, W&R recommends the following:

- Additional onsite groundwater assessment to delineate the contaminant plume and determine groundwater flow direction. One additional monitoring well should be installed in the direction of the stream located approximately 415 feet south of the source to determine groundwater conditions in that direction.
- Remove the onsite UST system.

FIGURES



WITHERS & RAVENEL

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GENERAL LOCATION MAP

FORMER ESSO/EXXON(REGISTER PROPERTY)

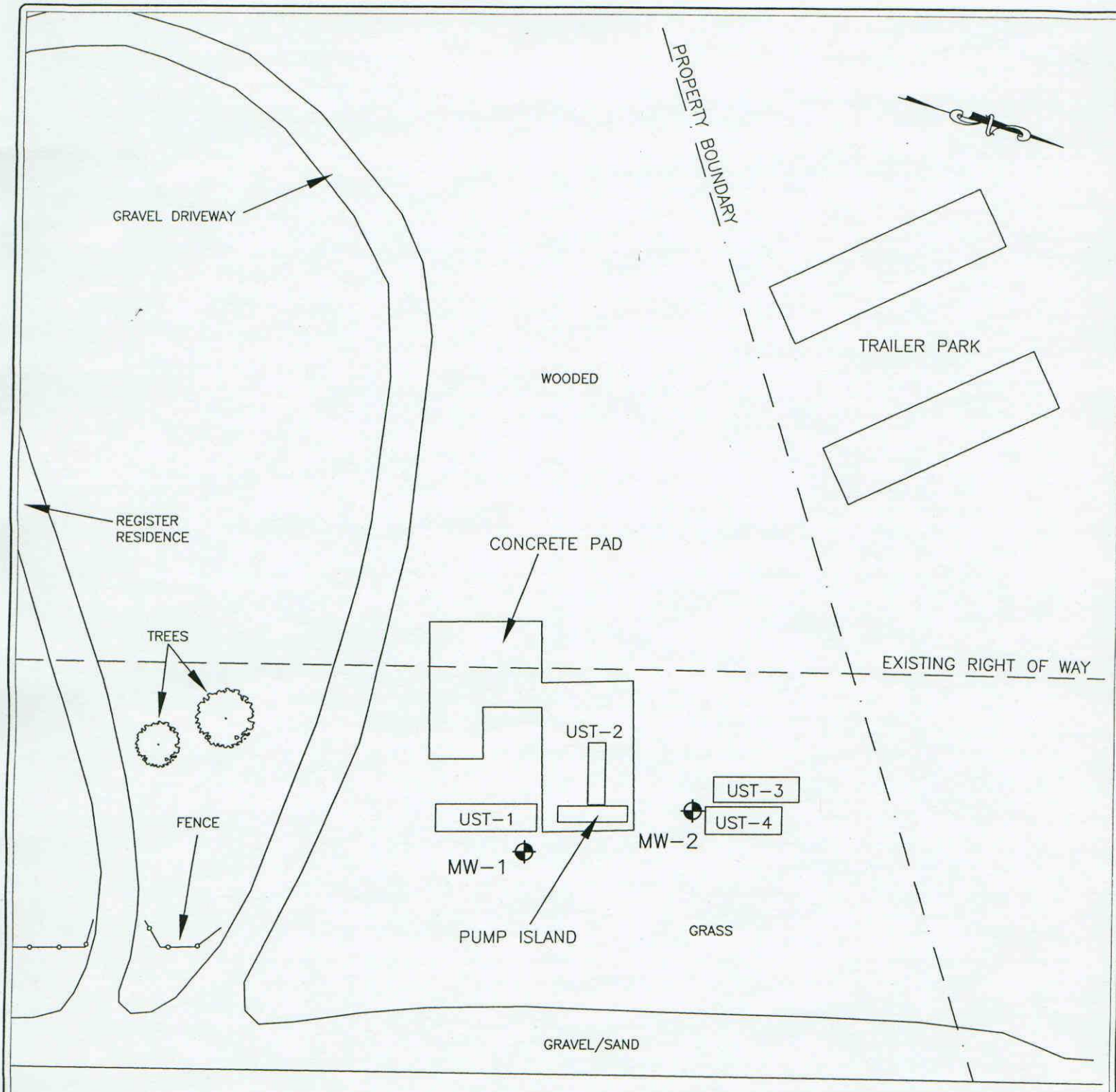
BRIDGETON, BEAUFORT COUNTY, NC

USGS ASKIN, NC

7.5 min. Quadrangle

DRAWN BY:	SCALE:	FIGURE NO.
JAK	1"=2000'	1
APPROVED BY:	DATE:	JOB NO:
DK	10/4/06	02060548.0

K:\06\06-0540\060548-FORMER ESSO EXXON STATION\CAD\FIGS.DWG 11/14/2006 4:23 PM JAYSON KILCOYNE



LEGEND

⊕ MONITORING WELL LOCATION

MAP SOURCE: WESTON SOLUTIONS

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)

1 inch = 30 ft.

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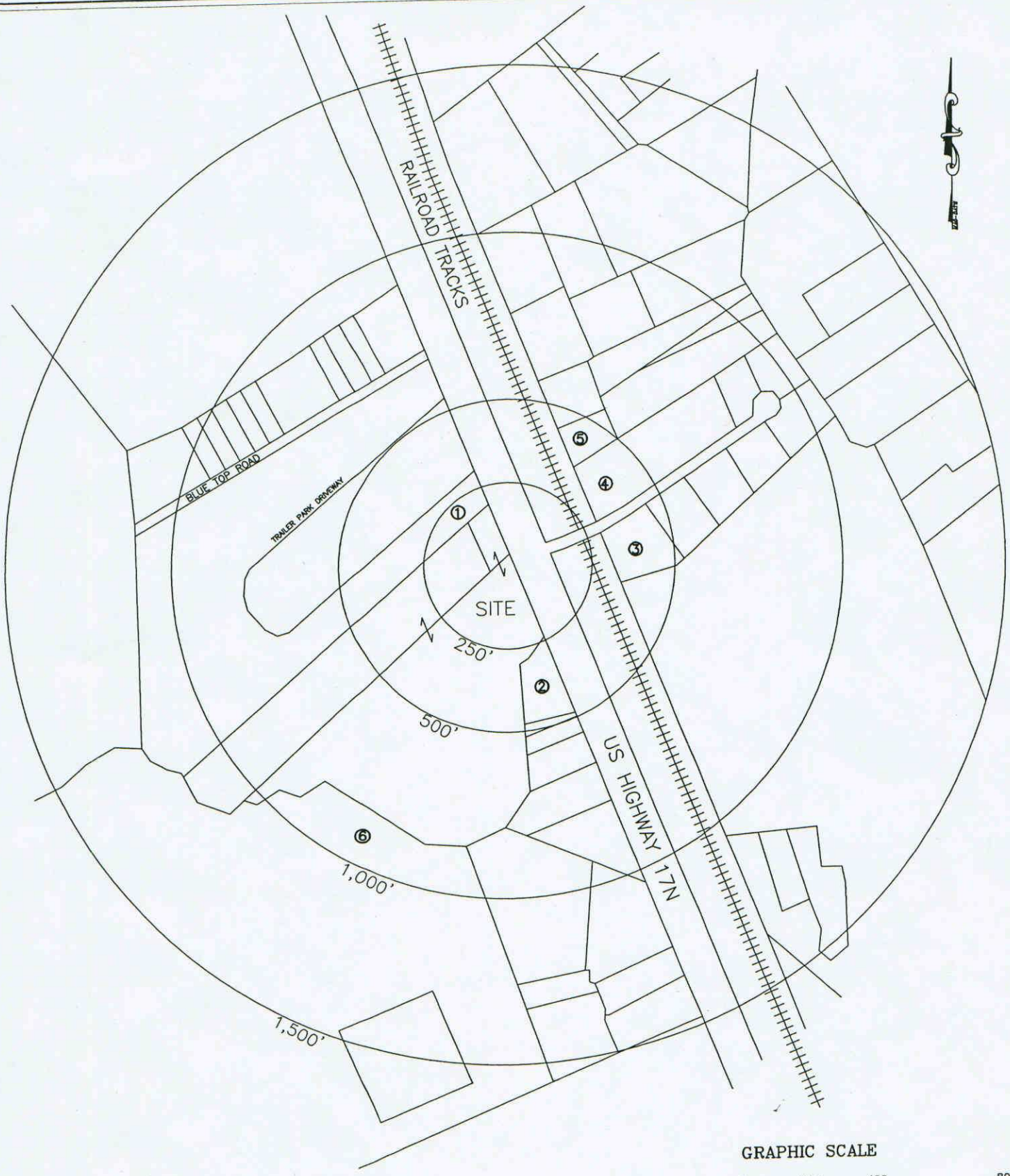
FORMER ESSO/EXXON(REGISTER PROPERTY)

BRIDGETON, CRAVEN COUNTY, NC

SITE MAP

Drawn By	Scale	Job No.
JAK	1"=30'	02060548.0
Checked By	Date	Figure No.
DPK	10/4/06	2

K:\06\06-0540\060548-FORMER ESSO EXXON STATION\CAD\FIGS.DWG 11/14/2006 4:45 PM JAYSON KILCOYNE



GRAPHIC SCALE

400 0 200 400 800

(IN FEET)

1 inch = 400 ft.

LEGEND

① CONTIGUOUS PROPERTY ID (SEE TABLE 1)

MAP SOURCE: CRAVEN COUNTY GIS

WITHERS & RAVENEL

ENGINEERS I PLANNERS I SURVEYORS

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tel: 919-460-6006 fax: 919-535-4545

FORMER ESSO/EXXON (REGISTER PROPERTY)

BRIDGETON, CRAVEN COUNTY, NC

CONTIGUOUS PROPERTY LOCATIONS MAP

DRAWN BY:	SCALE:	FIGURE NO.
JAK	1"=400'	3
APPROVED BY:	DATE:	JOB NO:
DK	10/4/06	02060548.0

K:\06\06-0540\060548-FORMER ESSO EXXON STATION\CAD\FIGS.DWG 11/14/2006 4:25 PM JAYSON KILCOYNE

TABLES

TABLE 1
PROPERTIES CONTIGUOUS TO THE SITE
Former Esso/Exxon (Register Property)
Bridgeton, Craven County, NC

Number	Current Owner	Property Address	Owner Address	Location in Relation to Source
Site	William & Juanita Register	1707 US Highway 17N New Bern, NC 28560	1707 US Highway 17 N New Bern, NC 28560	Site
1	Herbert & Susan Evans	1715 US Highway 17N New Bern, NC	664 Askin Brick Road Ernul, NC 28527	N
2	Leon G. & Sandra C. Millette	1703 US Highway 17N New Bern, NC 28560	1703 US Highway 17N New Bern, NC 28560	S
3	Jonathan W. Chevery	1708 US Highway 17N New Bern, NC 28560	2808 Old Joppa Road Joppa, MD 21085	E
4	Dallas Holton, Jr. & Rita Tyndall	1710 US Highway 17N New Bern, NC 28560	1605 US Highway 17N New Bern, NC 28560	E
5	Charles & Jean Elson	1712 US Highway 17N New Bern, NC 28560	1712 US Highway 17N New Bern, NC 28560	NE
6	Phillips Plating Company, Inc.	No known address	P.O. Box 336 Bridgeton, NC 28519	W

NOTE : See Contiguous Property Location Map for "Number" Locations

TABLE 1
PROPERTIES CONTIGUOUS TO THE SITE
Former Esso/Exxon (Register Property)
Bridgeton, Craven County, NC

Number	Current Owner	Property Address	Owner Address	Location in Relation to Source
Site	William & Juanita Register	1707 US Highway 17N New Bern, NC 28560	1707 US Highway 17 N New Bern, NC 28560	Site
1	Herbert & Susan Evans	1715 US Highway 17N New Bern, NC	664 Askin Brick Road Ernul, NC 28527	N
2	Leon G. & Sandra C. Millette	1703 US Highway 17N New Bern, NC 28560	1703 US Highway 17N New Bern, NC 28560	S
3	Jonathan W. Chevery	1708 US Highway 17N New Bern, NC 28560	2808 Old Joppa Road Joppa, MD 21085	E
4	Dallas Holton, Jr. & Rita Tyndall	1710 US Highway 17N New Bern, NC 28560	1605 US Highway 17N New Bern, NC 28560	E
5	Charles & Jean Elson	1712 US Highway 17N New Bern, NC 28560	1712 US Highway 17N New Bern, NC 28560	NE
6	Phillips Plating Company, Inc.	No known address	P.O. Box 336 Bridgeton, NC 28519	W

NOTE : See Contiguous Property Location Map for "Number" Locations

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION DATA
Former Esso/Exxon - Register Property
Bridgeton, Craven County, NC

Well ID	Depth of Well	Screened Interval	Top of Casing Elevation	Depth to Water	Free Product Thickness	Ground Water Elevation
MW-1	7.0'	2.0' - 7.0'	NA	3.95'	- - -	NA
MW-2	6.5'	1.5' - 6.5'	NA	4.22'	- - -	NA

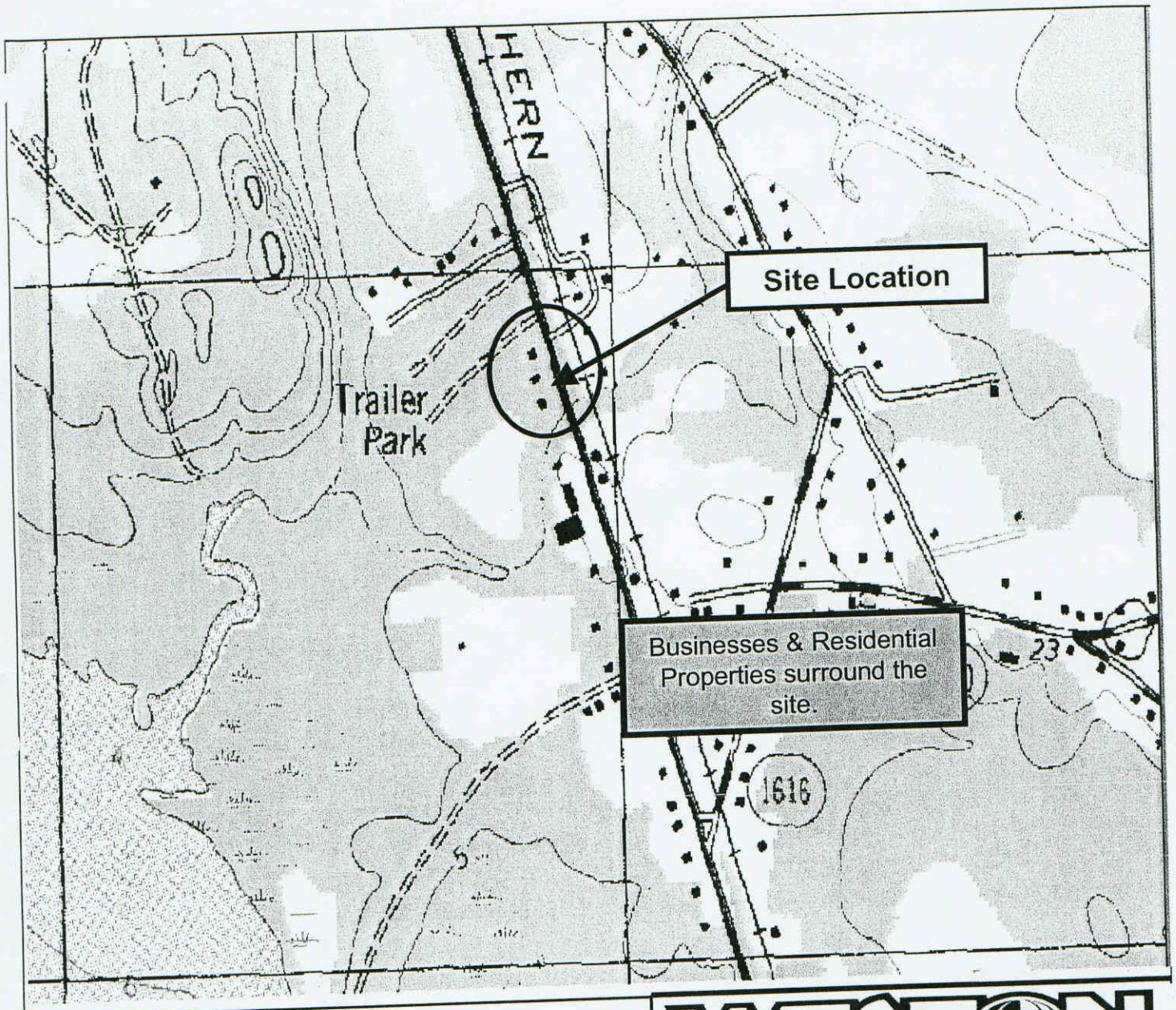
NA - Not available, well elevations were not surveyed.
Depth to water measurements collected on October 17, 2006.

TABLE 3
SUMMARY OF GROUNDWATER SAMPLING RESULTS
Former Esso/Exxon
Bridgeton, Craven County, NC

ANALYTE	METHOD	2L STANDARDS (µg / L)	Gross Contamination Levels (µg / L)	2B STANDARDS (µg / L)	WELL ID / SAMPLE DATE / CONCENTRATION (µg / L)	
					MW1	MW-2
					10/17/2006	10/17/2006
VOLATILE ORGANICS						
Benzene	6210D	1	5000	71.4	ND	ND
Toluene	6210D	1000	257500	11	ND	ND
Ethylbenzene	6210D	550	29000	520	ND	48
Xylenes (Total)	6210D	530	87500	780	ND	140
Isopropylbenzene	6210D	70	25000	310	ND	21
Methyl tert-butyl ether	6210D	200	200000	NL	ND	ND
Naphthalene	6210D	21	15500	78	ND	20
1,2,4-Trimethylbenzene	6210D	350	28500	380	ND	330
1,3,5-Trimethylbenzene	6210D	350	25000	620	ND	130
n-Butylbenzene	6210D	70	6900	3	ND	18
n-Propylbenzene	6210D	70	30000	77	ND	54
4-Isopropyltoluene	6210D	NL	NL	NL	ND	13
TOTAL VOC'S					0	774
SEMI-VOLATILE ORGANICS						
Naphthalene	625	21	15500	78	ND	**26**
1-Methylnaphthalene	625	NL	NL	450	ND	8.9J
2-Methylnaphthalene	625	14	12500	87	ND	**20**
Anthracene	625	2100	2100	110000	ND	1.2J
Benzo(a)anthracene	625	0.0479	22	0.0311	ND	**2.2J**
Benzo(a)pyrene (PAH)	625	0.00479	1.5	0.0311	ND	**2.1J**
Benzo(b)fluoranthene (PAH)	625	0.0479	0.6	0.0311	ND	**2.1J**
Benzo(g,h,i)perylene	625	210	210	0.0311	ND	2.6J
Benzo(k)fluoranthene (PAH)	625	0.479	0.4	0.0311	ND	**2.4J**
Bis(2-ethylhexyl)phthalate	625	2.5	2500	5.9	ND	**3.6J**
Butylbenzylphthalate	625	NL	NL	97	ND	1.8J
Chrysene (PAH)	625	0.8	4.79	0.0311	ND	**2.6J**
Dibenzo(a,h)anthracene (PAH)	625	0.0047	0.25	0.0311	ND	**2.6J**
Diethylphthalate	625	NL	NL	1043	ND	1.0J
Di-n-butylphthalate	625	NL	NL	NL	ND	2.5J
Di-n-octylphthalate	625	NL	NL	NL	ND	2.6J
Fluoranthene	625	280	280	370	ND	1.8J
Indeno(1,2,3-cd)pyrene (PAH)	625	0.047	31	0.0311	ND	**2.7J**
Phenanthrene	625	210	410	210	ND	1.1J
Pyrene	625	210	210	NL	ND	1.7J
TOTAL SEMI-VOC'S					0	47.7
ALIPHATICS & AROMATICS						
C5 - C8 Aliphatics	VPH	420	NL	125	ND	**633**
C9 - C18 Aliphatics	VPH/EPH	4200	NL	NL	ND	**1700**
C19 - C36 Aliphatics	EPH	42000	NL	NL	ND	ND
C9 - C22 Aromatics	VPH/EPH	210	NL	NL	ND	**1041**
TOTAL VOC'S					0	3374

Notes:
Bold represents a 2L violation.
Shading represents a GCL violation.
ND - Not Detected
NL - Not listed
NA - Not analyzed
J - Detected but below reporting limit; therefore, result is an estimated concentration (CLP J-Flag).

APPENDIX A
WESTON PRELIMINARY SITE ASSESSMENT REPORT-SUMMARY TABLES/FIGURES



MAP LOCATION

SCALE 1:20,000

SOURCE: topozone.com

N

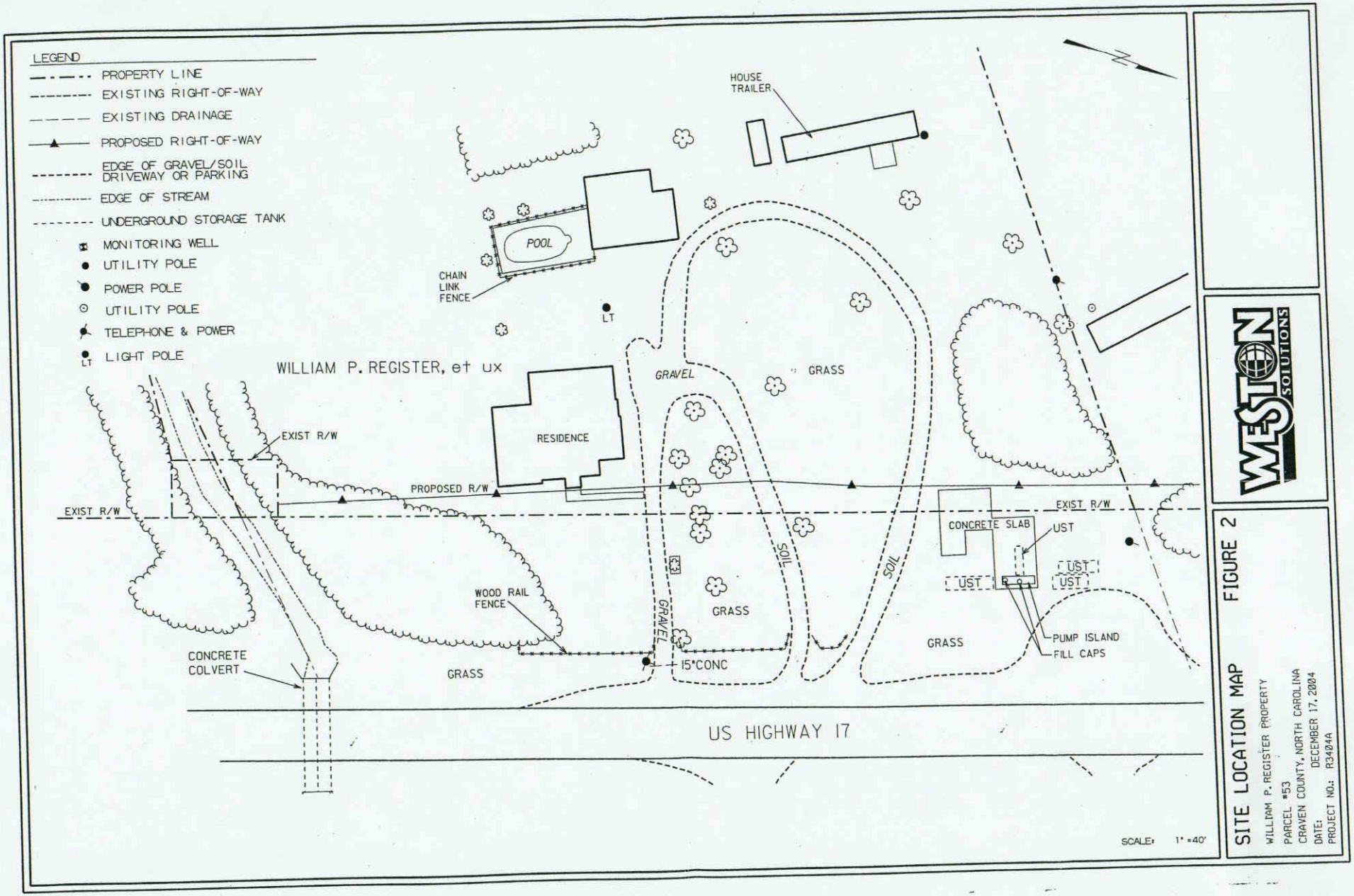
WESTON SOLUTIONS

REV.	DRAWING DATE: 12/22/04	ACAD FILE:

Site Vicinity Map

CLIENT: North Carolina Department of Transportation	PM: SLB
LOCATION: 1707 US 17 Bridgeton, NORTH CAROLINA	PE/RG:

DESIGNED:	DETAILED:	PROJECT NO:	FIGURE:
	TR		1


LEGEND
PROPERTY LINE
EXISTING RIGHT-OF-WAY
EXISTING DRAINAGE
PROPOSED RIGHT-OF-WAY
EDGE OF GRAVEL/SOIL DRIVEWAY OR PARKING
EDGE OF STREAM
UNDERGROUND STORAGE TANK
MONITORING WELL
UTILITY POLE
POWER POLE
UTILITY POLE
TELEPHONE & POWER
LIGHT POLE
LT
HOUSE TRAILER
POOL
CHAIN LINK FENCE
LT
WILLIAM P. REGISTER, et ux
GRAVEL
GRASS
RESIDENCE
EXIST R/W
PROPOSED R/W
EXIST R/W
EXIST R/W
CONCRETE SLAB
UST
UST
UST
UST
SOIL
SOIL
WOOD RAIL FENCE
GRAVEL
GRASS
GRASS
PUMP ISLAND
FILL CAPS
CONCRETE COLVERT
GRASS
15"CONC
US HIGHWAY 17
SCALE: 1" =40'
WESTON SOLUTIONS
FIGURE 2
SITE LOCATION MAP
WILLIAM P. REGISTER PROPERTY
PARCEL #53
CRAVEN COUNTY, NORTH CAROLINA
DATE: DECEMBER 17, 2004
PROJECT NO.: R3404A

LEGEND

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING DRAINAGE
- PROPOSED RIGHT-OF-WAY
- EDGE OF GRAVEL/SOIL DRIVEWAY OR PARKING
- EDGE OF STREAM
- UNDERGROUND STORAGE TANK
- MONITORING WELL
- UTILITY POLE
- POWER POLE
- UTILITY POLE
- TELEPHONE & POWER
- LIGHT POLE

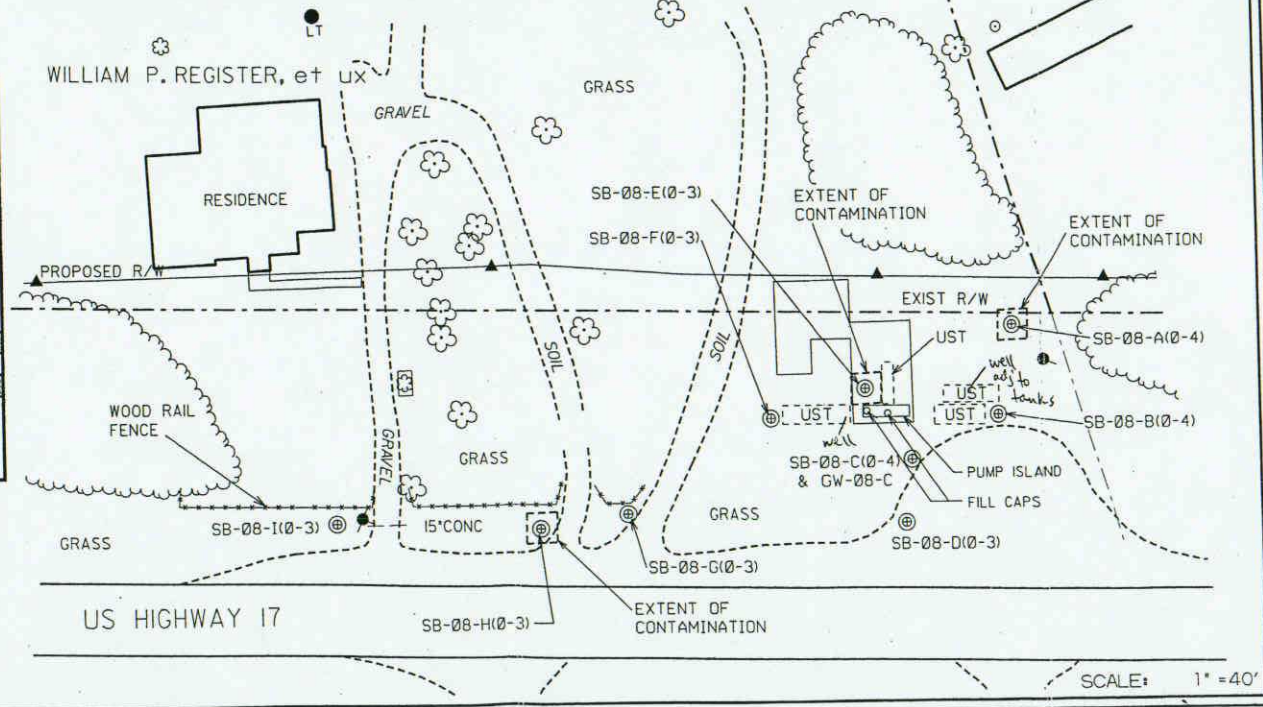
Summary of Soil Sampling Laboratory Analytical
Parcel #53, William Register Property

Sample ID	Depth (ft)	OVM Readings (ppm)	DRO (mg/kg)	GRO (mg/kg)
Applicable Action Levels			*10*	*10*
SB-08-A(0-4)	(0 - 4)	*0.0*	**24**	ND
SB-08-B(0-4)	(0 - 4)	*4.5*	9.8	ND
SB-08-C(0-4)	(0 - 4)	*4.5*	ND	ND
SB-08-D(0-3)	(0 - 3)	*1.2*	ND	ND
SB-08-E(0-3)	(0 - 3)	*0.0*	**10**	ND
SB-08-F(0-3)	(0 - 3)	*0.0*	ND	ND
SB-08-G(0-3)	(0 - 3)	*0.2*	ND	ND
SB-08-H(0-3)	(0 - 3)	*0.0*	**48**	ND
SB-08-I(0-3)	(0 - 3)	*0.0*	8.6	ND

Summary of Groundwater Sampling Laboratory Analytical
Parcel #53, William Register Property

	SAMPLE ID
	GW-08-C
Lead (ug/l)	**41**
Volatiles (ug/l)	
Ethylbenzene	**41**
Xylene (Total)	88
m&p-Xylene	87
o-Xylene	1.6
Semi-Volatiles (ug/l)	
Naphthalene	15
EPH by FH (mg/l)	
Aliphatic (C05-C08)	310
Aliphatic (C09-C18)	960
Aliphatic (C19-C36)	190
Aromatic (C09-C22)	**620**

- Considered immobile
ug/l - micrograms per liter
mg/l - milligrams per liter
Bold Indicates Exceedance of Standards
'--' indicates there was no value available for that particular constituent



WESTON SOLUTIONS

BORING LOCATIONS & ANALYSIS FIGURE 3

WILLIAM P. REGISTER PROPERTY
PARCEL #53
CRAVEN COUNTY, NORTH CAROLINA
DATE: DECEMBER 17, 2004
PROJECT NO.: R3404A

New-Bern

* Division 2 District Engineer
Erin Everette 252-514-4711

TABLE 1

Summary of Soil Sampling Laboratory Analytical
Parcel #53, William Register Property
December 9, 2004

Sample ID	Depth (ft)	OVM Readings (ppm)	DRO (mg/kg)	GRO (mg/kg)
Applicable Action Levels			***10***	***10***
SB-08-A(0-4)	(0 - 4)	*0.0*	**24**	ND
SB-08-B(0-4)	(0 - 4)	*4.5*	9.8	ND
SB-08-C(0-4)	(0 - 4)	*4.5*	ND	ND
SB-08-D(0-3)	(0 - 3)	*1.2*	ND	ND
SB-08-E(0-3)	(0 - 3)	*0.0*	**10**	ND
SB-08-F(0-3)	(0 - 3)	*0.0*	ND	ND
SB-08-G(0-3)	(0 - 3)	*0.2*	ND	ND
SB-08-H(0-3)	(0 - 3)	*0.0*	**48**	ND
SB-08-I(0-3)	(0 - 3)	*0.0*	8.6	ND

ppm = parts per million

mg/kg = milligrams per kilograms

ND = Not Detected

Bold Indicates Exceedance of Standards

TABLE 2

Summary of Groundwater Sampling Laboratory Analytical
Parcel #53, William Register Property
December 9, 2004

	North Carolina Groundwater Quality Standard (GWQS)	Gross Contamination Levels for Groundwater (GCL)	SAMPLE ID
			GW-08-C
Lead (ug/l)	15	15,000	**41**
Volatiles (ug/l)			
Ethylbenzene	29	29,000	**41**
Xylene (Total)	530	87,500	88
m&p-Xylene	530	87,500	87
o-Xylene	530	87,500	1.6
Semi-Volatiles (ug/l)			
Naphthalene	21	15,500	15
EPH/VPH (ug/l)			
Aliphatic (C05-C08)	420	--	310
Aliphatic (C09-C18)	4,200	--	960
Aliphatic (C19-C36)	42,000	--	190
Aromatic (C09-C22)	210	--	**620**

- Considered immobile
ug/l - micrograms per liter
mg/l - milligrams per liter
Bold Indicates Exceedance of Standards
--' indicates there was no value available for that particular constiuent

APPENDIX B
LAND USE/RISK CLASSIFICATION FORM & RECEPTOR SURVEY FORMS

Limited Site Assessment Risk Classification and Land Use Form

Part I - 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? **YES/NO**
   If yes, explain. Not to our knowledge

2. Is a water supply well used for drinking water located within 1000 feet of the source area, the discharge or release? **YES/NO**

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? **YES/NO**

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/NO**
   Explain. Municipal water is available-groundwater is the source of water for this system. The site is located in a wellhead protection area for the municipal water system.

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 to public health, public safety or the environment? **YES/NO**
   If yes, explain.

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? **YES/NO**
   If yes, explain.

Intermediate Risk

7. Is a surface water body located within 500 feet of the source area of the discharge or release? **YES/NO**
   A stream is located approximately 415 feet south of the site.

   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? **YES/NO**
   Several groundwater contaminant concentrations are at levels exceeding surface water standards by more than a factor of 10 but are estimated levels detected at concentrations below detectable laboratory limits.

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

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/NO**

   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 deeper aquifer that is being used or may be used as a source of drinking water? **YES/NO**
   If yes, explain The site is located in an area underlain by the Castle Hayne, Beaufort, and Peedee Aquifers that serve as the principle sources of water for the area.

10. Do the levels of groundwater contamination for any contaminant exceed the gross contamination levels established (see Table 7) by the Department? **YES/NO**
    Multiple PAH's such as benzo(a)pyrene were detected at levels exceeding GCLs. Please note they are estimated levels detected at concentrations below detectable laboratory limits.

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 residences (permanent or temporary)? **YES/NO**
   Explain: A residence is located on the site property, but the portion surrounding the subject area is vacant.

2. Does the property contain a school, daycare center, hospital, playground, park, recreation area, church, nursing home, or other place of public assembly: **YES/NO**
   Explain: The property is residential

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, an inactive commercial or industrial enterprise, or is the land undeveloped? **YES/NO**
   Explain: The source area is currently vacant with no remaining structure.

4. Do children visit the property? **YES/NO**
   Explain: There is always the possibility for children to visit the site.

5. Is access to the property reliably restricted consistent with its use (e.g., by fences, security personnel or both)? **YES/NO**
   Explain: The site is easily accessible.

6. Do pavement, buildings, or other structures cap the contaminated soil? **YES/NO**
   Explain. A portion of the contamination at the site property is capped by a concrete pad. The majority of the site property is a grass surface. Not all onsite contamination is capped.

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?
The concrete pad will need to remain in place to cap the soil beneath.

7. What is the zoning status of the property? The site was commercial property at one time, but is in a rural residential setting. No zoning is established.

8. Is the use of the property likely to change in the next 20 years? **YES/NO**
Explain: The subject area is a vacant lot and may be utilized within 20 years.

Property Surrounding Source Area of Discharge or Release

The questions below pertain to the area within 1500 feet of the source area of the discharge of 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)?
Approximately 180 feet

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? Beyond 1,500 feet

What is the zoning status of properties in the surrounding area? Rural residential (no true zoning established)

11. Briefly characterize the use and activities of the land in the surrounding area.
Most of the properties in the surrounding area are private residences. Several trailer parks are located in the vicinity of the site.

Incident Number: **Incident Name:** ***Former Esso/Exxon (Register property)***

Please Provide the Following Information (to the best of your knowledge)

Name and telephone number of person completing the survey:

Address of property receiving survey: 1703 HWY. 17N

City Bridgeton County Craven

What is the source of your drinking water? **Public Water/Water Supply Well/Stream Intake/Other (please explain below)** First Craven Sanitary District

Is there a water supply well on this property? **Yes** (**No**) If "No" disregard remaining questions and return survey

Name and address of owner(s) of property with water supply well

How many water supply wells are on your property?

What is the well(s) used for? (check all that apply) **Drinking**_____, **Irrigation** _____, **Swimming Pool**_____, **Water Livestock**_____, **Other (specify)** _____, **You do not use the Well** _____.

How many residences are connected to the well (list addresses below)?

How deep is the well(s)? Date well was installed?

What is the casing depth of the well(s)?

What is the screen interval of the well(s)?

Additional water supply information: FYI

There is an (oily) looking discharge at times on our property - at 1703 Hwy 17 N.

Phone - 252-670-8358 Lee Millette

Please return completed survey to Withers & Ravenel Engineering & Surveying, Inc. by **9/13/06** using one of the following methods:

1. Fax to: (919) 535-4545
2. Mail to: 111 MacKenan Drive, Cary, North Carolina 27511
3. Telephone: (919) 460-6006, Ask for **Jayson Kilcoyne**
4. E-mail to: jkilcoyne@withersravenel.com

If you have any questions, please contact the consultant indicated above or the UST Section _____ Office at (___)_____-_____

Incident Number: **Incident Name:**

Please Provide the Following Information (to the best of your knowledge)

Name and telephone number of person completing the survey: Juanita Register
Address of property receiving survey: 1707 US. HWY, 17N
City Bridgeton County Craven

What is the source of your drinking water? **Public Water/Water Supply Well/Stream Intake/Other (please explain below)**

Is there a water supply well on this property? **Yes/No** If "No" disregard remaining questions and return survey

Name and address of owner(s) of property with water supply well

How many water supply wells are on your property?

What is the well(s) used for? (check all that apply) **Drinking_____, Irrigation _____, Swimming Pool_____, Water Livestock_____, Other (specify) _____, You do not use the Well _____.**

How many residences are connected to the well (list addresses below)?

How deep is the well(s)? Date well was installed?

What is the casing depth of the well(s)?

What is the screen interval of the well(s)?

Additional water supply information:

Please return completed survey to Withers & Ravenel Engineering & Surveying, Inc. by using one of the following methods:

1. Fax to: (919) 535-4545
2. Mail to: 111 MacKenan Drive, Cary, North Carolina 27511
3. Telephone: (919) 460-6006, Ask for **Jayson Kilcoyne**
4. E-mail to: jkilcoyne@withersravenel.com

If you have any questions, please contact the consultant indicated above or the UST Section _____
Office at (___)_____-_____

Incident Number: **Incident Name:**

Please Provide the Following Information (to the best of your knowledge)

Name and telephone number of person completing the survey: MS. Evans

Address of property receiving survey: 1715 U.S. HWY. 17N

City Bridgeton County Craven

What is the source of your drinking water? **Public Water/Water Supply Well/Stream Intake/Other (please explain below)**

Is there a water supply well on this property? **Yes/No** If "No" disregard remaining questions and return survey

Name and address of owner(s) of property with water supply well

How many water supply wells are on your property?

What is the well(s) used for? (check all that apply) **Drinking_____, Irrigation _____, Swimming Pool_____, Water Livestock_____, Other (specify) _____, You do not use the Well _____.**

How many residences are connected to the well (list addresses below)?

How deep is the well(s)? Date well was installed?

What is the casing depth of the well(s)?

What is the screen interval of the well(s)?

Additional water supply information: - Trailer Park property

Please return completed survey to Withers & Ravenel Engineering & Surveying, Inc. by using one of the following methods:

1. Fax to: (919) 535-4545
2. Mail to: 111 MacKenan Drive, Cary, North Carolina 27511
3. Telephone: (919) 460-6006, Ask for **Jayson Kilcoyne**
4. E-mail to: jkilcoyne@withersravenel.com

If you have any questions, please contact the consultant indicated above or the UST Section _____ Office at (___)_____-_____

Incident Number: **Incident Name:**

Please Provide the Following Information (to the best of your knowledge)

Name and telephone number of person completing the survey: The Chevercy's

Address of property receiving survey: 1708 ~~Main~~ Hwy. 17N

City Bridgeton County Craven

What is the source of your drinking water? **Public Water/Water Supply Well/Stream Intake/Other (please explain below)**

Is there a water supply well on this property? **Yes/(No)** If "No" disregard remaining questions and return survey

Name and address of owner(s) of property with water supply well

How many water supply wells are on your property?

What is the well(s) used for? (check all that apply) **Drinking_____, Irrigation _____, Swimming Pool_____, Water Livestock_____, Other (specify) _____, You do not use the Well _____.**

How many residences are connected to the well (list addresses below)?

How deep is the well(s)? Date well was installed?

What is the casing depth of the well(s)?

What is the screen interval of the well(s)?

Additional water supply information: - On County water

Please return completed survey to Withers & Ravenel Engineering & Surveying, Inc. by using one of the following methods:

1. Fax to: (919) 535-4545
2. Mail to: 111 MacKenan Drive, Cary, North Carolina 27511
3. Telephone: (919) 460-6006, Ask for **Jayson Kilcoyne**
4. E-mail to: jkilcoyne@withersravenel.com

If you have any questions, please contact the consultant indicated above or the UST Section _____ Office at (___)_____-_____

Incident Number: **Incident Name:**

Please Provide the Following Information (to the best of your knowledge)

Name and telephone number of person completing the survey: Ms. Tyndall

Address of property receiving survey: 1710 US. Hwy. 17N

City Bridgeton County Craven

What is the source of your drinking water? **Public Water/Water Supply Well/Stream Intake/Other (please explain below)**

- County water

Is there a water supply well on this property? **Yes/No** If "No" disregard remaining questions and return survey

Name and address of owner(s) of property with water supply well

How many water supply wells are on your property?

What is the well(s) used for? (check all that apply) **Drinking_____, Irrigation _____, Swimming Pool_____, Water Livestock_____, Other (specify) _____, You do not use the Well _____.**

How many residences are connected to the well (list addresses below)?

How deep is the well(s)? Date well was installed?

What is the casing depth of the well(s)?

What is the screen interval of the well(s)?

Additional water supply information:

Please return completed survey to Withers & Ravenel Engineering & Surveying, Inc. by using one of the following methods:

1. Fax to: (919) 535-4545
2. Mail to: 111 MacKenan Drive, Cary, North Carolina 27511
3. Telephone: (919) 460-6006, Ask for **Jayson Kilcoyne**
4. E-mail to: jkilcoyne@withersravenel.com

If you have any questions, please contact the consultant indicated above or the UST Section _____ Office at (___)_____-_____

Incident Number: **Incident Name:**

Please Provide the Following Information (to the best of your knowledge)

Name and telephone number of person completing the survey: Jean Elson

Address of property receiving survey: 1712 U.S. HWY. 17

City Bridgeton County Craven

What is the source of your drinking water? **Public Water/Water Supply Well/Stream Intake/Other (please explain below)**

Is there a water supply well on this property? **Yes/No** If "No" disregard remaining questions and return survey

Name and address of owner(s) of property with water supply well

How many water supply wells are on your property?

What is the well(s) used for? (check all that apply) **Drinking_____, Irrigation _____, Swimming Pool_____, Water Livestock_____, Other (specify) _____, You do not use the Well _____.**

How many residences are connected to the well (list addresses below)?

How deep is the well(s)? Date well was installed?

What is the casing depth of the well(s)?

What is the screen interval of the well(s)?

Additional water supply information:

Please return completed survey to Withers & Ravenel Engineering & Surveying, Inc. by using one of the following methods:

1. Fax to: (919) 535-4545
2. Mail to: 111 MacKenan Drive, Cary, North Carolina 27511
3. Telephone: (919) 460-6006, Ask for **Jayson Kilcoyne**
4. E-mail to: jkilcoyne@withersravenel.com

If you have any questions, please contact the consultant indicated above or the UST Section _____ Office at (___)_____-_____

Incident Number: **Incident Name:**

Please Provide the Following Information (to the best of your knowledge)

Name and telephone number of person completing the survey: James Skinner
Address of property receiving survey: 1714 U.S. HWY. 17 N
City Bridgeton County Craven

What is the source of your drinking water? **Public Water/Water Supply Well/Stream Intake/Other (please explain below)**

Is there a water supply well on this property? **Yes/No** If "No" disregard remaining questions and return survey

Name and address of owner(s) of property with water supply well

How many water supply wells are on your property?

What is the well(s) used for? (check all that apply) **Drinking_____, Irrigation _____, Swimming Pool_____, Water Livestock_____, Other (specify) _____, You do not use the Well _____.**

How many residences are connected to the well (list addresses below)?

How deep is the well(s)? Date well was installed?

What is the casing depth of the well(s)?

What is the screen interval of the well(s)?

Additional water supply information:

Please return completed survey to Withers & Ravenel Engineering & Surveying, Inc. by using one of the following methods:

1. Fax to: (919) 535-4545
2. Mail to: 111 MacKenan Drive, Cary, North Carolina 27511
3. Telephone: (919) 460-6006, Ask for **Jayson Kilcoyne**
4. E-mail to: jkilcoyne@withersravenel.com

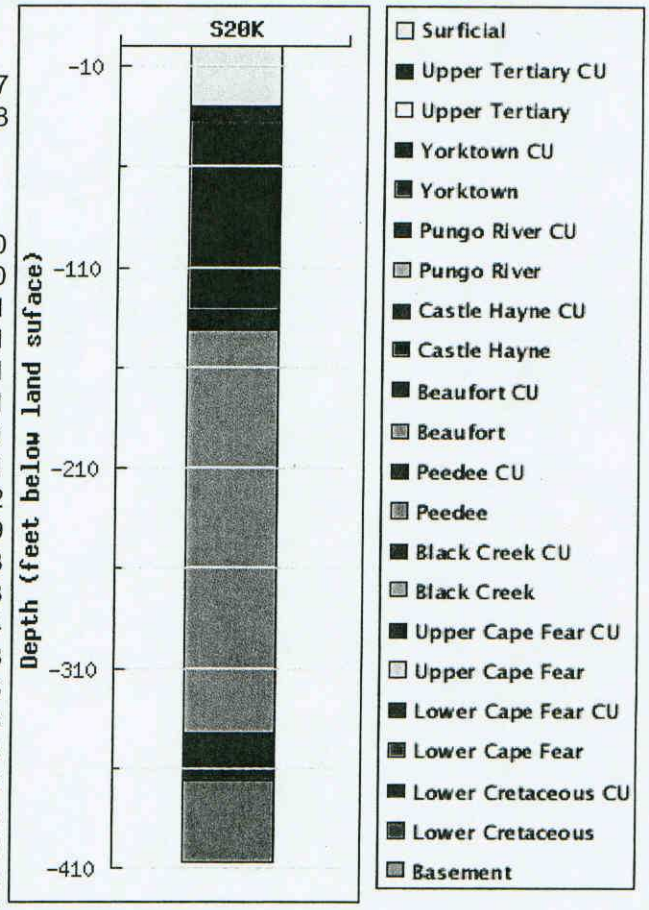
If you have any questions, please contact the consultant indicated above or the UST Section _____ Office at (___)_____-_____

APPENDIX C
HYDROGEOLIGIC FRAMEWORK DETAIL LOG: DWR NC AQUIFERS DISCUSSION

DWR Hydrogeologic Framework Detail for City of Bridgeton

Field	Data
County	Craven
Latitude	35.121667
Longitude	-77.005278
Location Accuracy	Map Show Map
Quad	S 20K
Name link to logs	City of Bridgeton
Depth	407.00
Land Surface	8.00
Upper Tertiary CU	10001
Upper Tertiary	10001
Yorktown CU	10001
Yorktown	10001
Pungo River CU	10001
Pungo River	10001
Castle Hayne CU	-22
Castle Hayne	-29
Beaufort CU	-123
Beaufort	-133
Peedee CU	-334
Peedee	-358
Black Creek CU	10003
Black Creek	10003
Upper Cape Fear CU	10003
Upper Cape Fear	10003
Lower Cape Fear CU	10003
Lower Cape Fear	10003
Lower Cretaceous CU	10000
Lower Cretaceous	10000
Basement	10003

Unit top elevations are shown in table, depths are shown in plot



- 10002 - unit likely exists, but there is no data to pick elevation;
- 10001 - unit does not exist;
- 10000 - unit is not penetrated;
- 10003 - unit likely exists, but it is not penetrated.

NC Division of Water Resources, DENR - 1611 Mail Service Center - Raleigh, NC 27699-1611
Phone: (919)733-4064 - Fax: (919)733-3558

Last Modified: 03.17.2006

North Carolina Aquifers

The aquifers in North Carolina are highly varied in their character and water producing capabilities. Several of these aquifers can be traced over large geographic areas and hence form principal aquifers; significant sources of ground water for potable water supplies and other agricultural or industrial interests in large portions of North Carolina. Other aquifers in the State provide less significant amounts of water and cover smaller areas of the State. The following material describes briefly some attributes of the principal aquifers, which include the lower Cape Fear, upper Cape Fear, Black Creek, Peedee, Castle Hayne, Yorktown, Surficial, and Bedrock aquifers. Minor aquifers in the State include the lower Cretaceous, Beaufort, and Pungo River.

Aquifers, or more accurately, aquifer systems, are hydraulically connected materials (sands, limestone, and fractured rock) that provide water through a properly constructed well open to those materials. In the coastal plain, an aquifer is typically composed of one to several layers of eastward thickening, permeable sands or limestone split by discontinuous, clay-rich materials. Confining units, consisting of clay-rich sediments, exist above and below an aquifer. These confining units are more continuous clay layers and separate the aquifers. The surficial or unconfined aquifer overlies all the confined aquifers in the coastal plain.

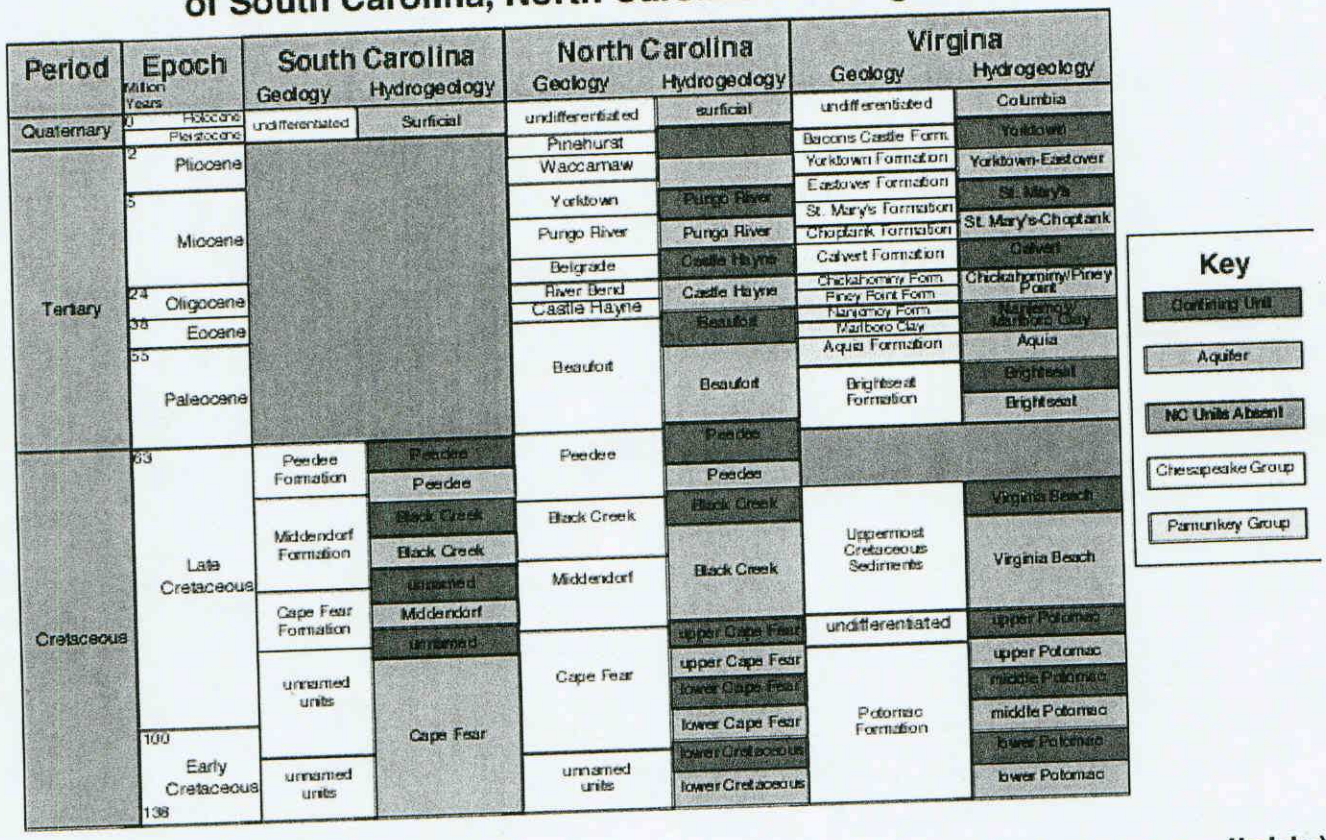
In the Piedmont and Blue Ridge Provinces of North Carolina, two major aquifer systems exist, and usually interact with one another. The surficial materials or regolith of these provinces forms the unconfined aquifer and the fractured rock beneath, is the unconfined to semi-confined bedrock aquifer. Usually the surficial aquifer feeds the fractures in the bedrock aquifer.

Several of the principal aquifers deserve further classification. The upper and lower Cape Fear, Black Creek, Peedee, and Castle Hayne aquifers form regional aquifers. In large portions of these aquifers, sands and limestone materials are so well connected that withdrawals cause pressure reductions many miles from the pumping center. This is good news in that wells are very high yielding. The negative outcome is that pumping at one well affects water levels in wells for miles around. This can be seen in water level data from the central coastal plain in the upper Cape Fear, Black Creek, and Peedee aquifers; Robeson, Bladen and Columbus counties in the upper Cape Fear aquifer; northeastern North Carolina in the lower Cape Fear aquifer; and Beaufort and surrounding counties in the Castle Hayne aquifer.

The following **correlation chart** illustrates the relation between North Carolina coastal plain aquifers, geologic time, geologic formations, and similar information from South Carolina and Virginia.

Division of Water Resources
Ground Water Management Section
2005

Geology and Hydrology of South Carolina, North Carolina and Virginia



Principal Aquifers (links to the latest potentiometric surface maps available)

Historical potentiometric surface maps for the regional aquifers can be seen here.

- **Lower Cape Fear aquifer:** This aquifer is present in the northwestern portion of the coastal plain at elevations of -9 to -2325 feet, averaging -500 feet (referenced to mean sea level). The lower Cape Fear aquifer ranges from 20 to 1487 feet thick and averages about 300 feet thick. The aquifer is composed of fine to coarse sands. Wells typically yield 200-400 gallons per minute.
- **Upper Cape Fear aquifer:** This aquifer is present in the western portions of the coastal plain at elevations of 295 to -1519 feet, averaging -250 feet. The upper Cape Fear aquifer ranges from 8 to 665 feet thick and averages about 150 feet thick. The aquifer is composed of very fine to coarse sands and occasional gravels. Wells typically yield 200-400 gallons per minute.
- **Black Creek aquifer:** This aquifer is present in the central and southwestern portions of the coastal plain at elevations of 317 to -1207 feet, averaging -135 feet. The Black Creek aquifer ranges from 18 to 972 feet thick and averages about 175 feet thick. The aquifer is composed of very fine to fine "salt and pepper" sands. Wells typically yield 200-400 gallons per minute.
- **Peedee aquifer:** This aquifer is present in the central to southeastern portion of the coastal plain at elevations of 114 to -796 feet, averaging -30 feet. The Peedee aquifer ranges from 8 to 404 feet thick and averages about 135 feet thick. The aquifer is composed of fine to medium sand. Wells typically yield up to 200 gallons per minute.
- **Castle Hayne aquifer:** This aquifer is widely used in the eastern portions of the coastal plain at elevations of 65 to -870 feet, averaging -90 feet. The Castle Hayne aquifer ranges from 15 to 954 feet thick and averages about 175 feet thick. The aquifer is composed of limestone, sandy limestone, and sand. It is the most productive aquifer in North Carolina. Wells typically yield 200-500 gallons per minute, but can exceed 2000 gallons per minute.

- **Yorktown aquifer:** This aquifer is present throughout most of the northern coastal plain at elevations ranging from 100 to -285 feet, averaging -3 feet. The Yorktown aquifer ranges from 4 to 709 feet thick and averages about 75 feet thick. Several localities tap this aquifer and produce high yielding wells including Roanoke Island, Kill Devil Hills, and Elizabeth City. Yorktown aquifer is composed of fine sand, silty and clayey sand, shell beds, and coarser sand beds. Wells typically yield 15-90 gallons per minute.
- **surficial aquifer:** This aquifer is widely used throughout the State for individual home wells. The surficial aquifer is the shallowest and most susceptible to contamination from septic tank systems and other pollution sources. Commonly, large diameter wells (up to 3 feet in diameter) are drilled up to 60 feet deep to store large quantities of water in the well casing. The surficial aquifer is also very sensitive to variations in rainfall amounts -- they are the first to dry-up in a drought. On the Outer Banks shallow wells are subject to rainfall amounts, saltwater intrusion, poor quality ground water, and ocean overwash. Wells typically yield 25-200 gallons per minute.
- **Fractured Bedrock aquifer:** This aquifer is widely used for home water supply in the western coastal plain, Piedmont, and Blue Ridge Provinces. Usually six inch wells are drilled to intercept water bearing fractures which are more common in valleys or draws. Thick sequences of regolith (surficial aquifer) above fractured bedrock can improve yields to 200 gallons per minute or more. industries and county or municipal well fields look for these higher yielding bedrock wells. Wells typically yield 5-35 gallons per minute.

Minor Aquifers

- **lower Cretaceous aquifer:** This aquifer is rarely used. It is only fresh in the northern part of the coastal plain below Hertford and Northhampton Counties. The top of this aquifer occurs at elevations of 355 to -2267 feet, averaging -1135 feet. The lower Cretaceous aquifer ranges from 25 to 812 feet thick and averages about 407 feet thick. The aquifer consists of fine to medium sand with occasional coarse sand and limestone beds.
- **Beaufort aquifer:** This aquifer is present in the eastern-central portion of the coastal plain at elevations of 22 to -1207 feet, averaging -237 feet. The Beaufort aquifer ranges from 4 to 148 feet thick and averages about 49 feet thick. This aquifer is composed of fine to medium glauconitic sand, clayey sand, with occasional shell and limestone beds.
- **Pungo River aquifer:** This aquifer is present in the north-central coastal plain at elevations of -29 to -617 feet, averaging -186 feet. The Pungo River aquifer ranges from 6 to 225 feet thick and averages about 56 feet thick. The aquifer consists of fine to medium sand.

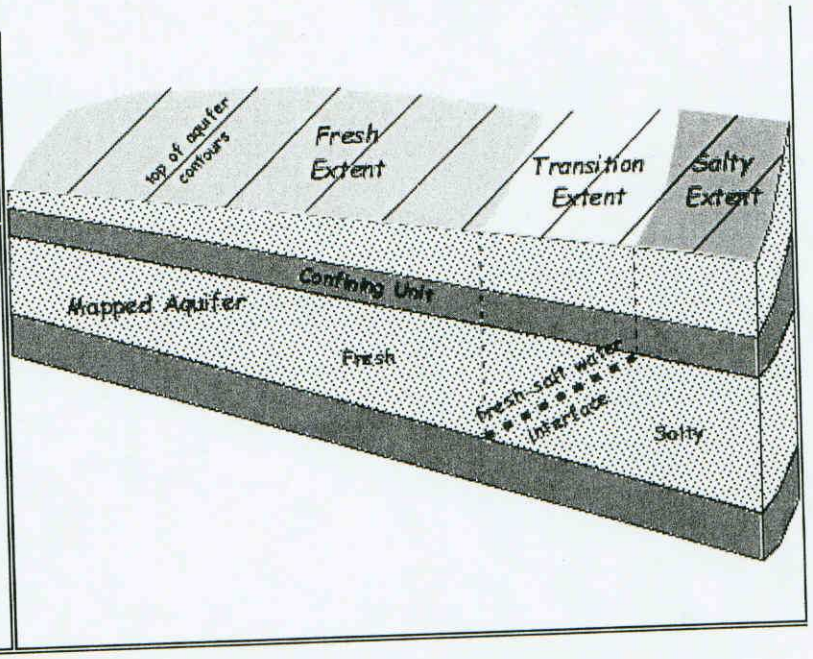
Aquifer Maps

Maps of the North Carolina regional aquifers follow. Please consider this information as "work in progress." Maps are based on data collected from USGS and NCDENR sources and will change as mapping and interpretation in DWR project areas progress. Sources include the following: USGS Open-File 87-690, USGS WRIR 93-4049, 89-4128, & 87-4178; and DWR's Hydrogeologic Assessments of Wilmington Harbor, North Albemarle, CUA #1, Southern Coastal Plain, and the Central Coastal Plain. Arcview shape files include a polygonal dataset of the extent of the fresh, transitional, and salty parts of the aquifer; the distribution of boreholes as point data; line data representing the contours of the aquifer top; and the image linked in this table.

Aquifer	Image	Shape Files (zip)	Date	Legend
Castle Hayne	***	***	1/2002	
Beaufort	***	***	1/2002	
Peedee	***	***	1/2002	
Black	***	***	1/2002	

Creek			
Upper Cape Fear	***	***	1/2002
Lower Cape Fear	***	***	1/2002

The block diagram to the right illustrates how the linked maps show the distribution of salty and fresh water in an aquifer. The width of the transition zone corresponds to the dip of the fresh-salt water interface. A well in the fresh extent shown on the map will be fresh in that aquifer. A well in the transition extent shown on the map will encounter salty water in that aquifer at some depth. A well in the salty extent shown on the map will be salty in that aquifer.



Approximate recharge areas for some of these aquifers are to be shown on a recharge map that is **under construction**.

Aquifer recharge areas indicate where the respective aquifer may be recharged by the surficial aquifer. Local conditions may not allow recharge to confined aquifers. Please refer to the typical water budget for the NC coastal plain. As is clear in this budget diagram, a very small percentage of rainfall infiltrates into the confined aquifer system. Most rainfall is lost to evapotranspiration, runoff, or infiltrates into the shallow ground water system then discharges to local rivers and streams. This discharge to surface drainage is commonly referred to as "base flow."

Those aquifers not shown are recharged laterally or by vertical movement through leaky confining units.

NC Division of Water Resources, DENR - 1611 Mail Service Center - Raleigh, NC 27699-1611
Phone: (919)733-4064 - Fax: (919)733-3558

Last Modified: 07.10.2006

APPENDIX D
SOIL BORING LOGS & WELL CONSTRUCTION RECORDS

BORING LOG				BORING NO: **MW-1**	PAGE 1 OF 1
LOCATION: Former Esso/Exxon			DATE COMPLETED: 10/17/06	PROJECT NO: 02060548.0	
TOTAL DEPTH (FT): 7.0'			GROUNDWATER DEPTH: 3.95'	SCREEN INTERVAL (FT): 2.0' - 7.0'	
DEPTH (FT)		UNIFIED CLASSIFICATION DESCRIPTION	SAMPLE NO.	OVA (PPM)	COMMENTS
0	1	SM	NS	0	Tan/dark brown, silty sand, fg sand, trace clay, no petroleum odor.
1	2	SM	NS	0	Tan/dark brown, silty sand, fg sand, trace clay, no petroleum odor.
2	3	SM	NS	0	Tan/dark brown, silty sand, fg sand, trace clay, no petroleum odor.
3	4	SM	NS	0	Tan/dark brown, silty sand, fg sand, some clay, no petroleum odor.
4	5	SC	NS	0	Clayey sand, gray/tan in color, fg-mg sand, moist, no fuel odor.
5	6	SC	NS	0	Clayey sand, gray/tan in color, fg-mg sand, moist, no fuel odor.
6	7	SC	NS	0	Clayey sand, gray/tan in color, fg-mg sand, moist, no fuel odor.
EQUIPMENT: Hand Auger					WITHERS & RAVENEL 111 MacKenan Drive Cary, NC 27511
NOTES: SI - Screen Interval BGS - Below Ground Surface			NS - No sample collected		

BORING LOG				BORING NO: **MW-2**	PAGE 1 OF 1
LOCATION: Former Esso/Exxon		DATE COMPLETED: 10/17/06		PROJECT NO: 02060548.0	
TOTAL DEPTH (FT): 6.5'		GROUNDWATER DEPTH: 4.22'		SCREEN INTERVAL (FT): 1.0' - 6.0'	
DEPTH (FT)		UNIFIED CLASSIFICATION DESCRIPTION	SAMPLE NO.	OVA (PPM)	COMMENTS
0	1	SM	NS	0	Tan/dark brown, silty sand, fg sand, trace clay, no petroleum odor.
1	2	SM	NS	0	Tan/dark brown, silty sand, fg sand, trace clay, no petroleum odor.
2	3	SM	NS	0	Tan/dark brown, silty sand, fg sand, trace clay, no petroleum odor.
3	4	SM	NS	0	Tan/dark brown, silty sand, fg sand, some clay, no petroleum odor.
4	5	SC	NS	11.2	Clayey sand, gray/tan in color, fg-mg sand, moist, diesel odor.
5	6.5	SC	NS	>2,000	Clayey sand, gray/tan in color, fg-mg sand, moist, strong diesel odor.
EQUIPMENT: Hand Auger					WITHERS & RAVENEL 111 MacKenan Drive Cary, NC 27511
NOTES: SI - Screen Interval NS - No sample collected BGS - Below Ground Surface					

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section
1636 Mail Service Center - Raleigh, N.C. 27699-1636-Phone (919) 733-3221

WELL CONSTRUCTION RECORD

WELL CONTRACTOR: Jayson Kilcoyne – Withers & Ravenel, Inc.
WELL CONTRACTOR CERTIFICATION #: 3457
STATE WELL CONSTRUCTION PERMIT #:

1. WELL USE (Check Applicable Box): Municipal ☐ Industrial ☐ Agricultural ☐ Monitoring ☒
Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use:

2. WELL LOCATION: (Show sketch of the location below)
Nearest Town: Bridgeton County: Craven
1709 U.S. Highway 17N
(Road Name and Numbers, Community, or Subdivision and Lot No.)

3. OWNER: NCDENR - DWM - UST
Address: 1637 Mail Service Center
Raleigh NC 27699
(City or Town) (State) (Zip Code)

4. DATE DRILLED 10-17-06
5. TOTAL DEPTH 7.0
6. CUTTINGS COLLECTED YES☐ NO☒
7. DOES WELL REPLACE EXISTING WELL? YES☐ NO☒
8. STATIC WATER LEVEL Below Top of Casing) 3.95 Ft.
(Use "+" if Above Top of Casing)
9. 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 NCAV 2C.0118
10. YIELD (gpm) N/A METHOD OF TEST N/A
11. WATER ZONES (depth) N/A

DRILLING LOG From	To	DEPTH Formation Description
0	3.5'	Silty Sand (SM)
3.5'	7.0'	Clayey Sand (SC)

If additional space is needed use back of form.

12. CLORINATION: Type N/A Amount N/A

13. CASING

	Depth			Diameter		Wall Thickness Or Weight/Ft.	Material
From	2.0	To	0 Ft.	2	In	sch 40	pvc
From		To	Ft.				
From		To	Ft.				

14. GROUT

	Depth			Material	Method
From	0.8	To	0 Ft.	neat cement	pour
From		To	Ft.		

15. SCREEN

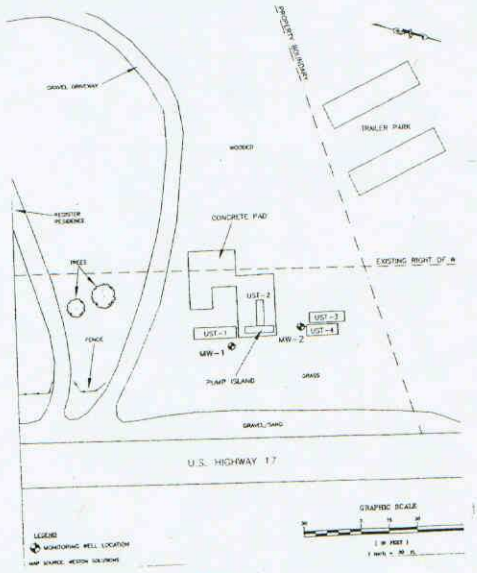
	Depth			Diameter		Slot Size		Material
From	7.0	To	2.0 Ft.	2	In	.010	In	pvc
From		To	Ft.		In		In	
From		To	Ft.		In		In	

16. SAND/GRAVEL PACK:

	Depth			Size	Material
From	7.0	To	1.5 Ft.	10/30	silica sand
From		To	Ft.		

17. REMARKS: Bentonite 1.5' to 0.8' BLS

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)



MW-1

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.

Jayson A. Kilcoyne 11/15/06
(SIGNATURE OF PERSON CONSTRUCTING THE WELL) (DATE)

Submit original to Division of Water Quality, Groundwater Section within 30 days.

FOR OFFICE USE ONLY
Quad no:
Serial No.

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section
1636 Mail Service Center - Raleigh, N.C. 27699-1636-Phone (919) 733-3221

WELL CONSTRUCTION RECORD

WELL CONTRACTOR: Jayson Kilcoyne – Withers & Ravenel, Inc.
WELL CONTRACTOR CERTIFICATION #: 3457
STATE WELL CONSTRUCTION PERMIT #:

1. WELL USE (Check Applicable Box): Municipal ☐ Industrial ☐ Agricultural ☐ Monitoring ☒
Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use:

2. WELL LOCATION: (Show sketch of the location below)
Nearest Town: Bridgeton County: Craven
1709 U.S. Highway 17N
(Road Name and Numbers, Community, or Subdivision and Lot No.)

3. OWNER: NCDENR - DWM - UST
Address: 1637 Mail Service Center
Raleigh NC 27699
(City or Town) (State) (Zip Code)

4. DATE DRILLED 10-17-06
5. TOTAL DEPTH 6.5
6. CUTTINGS COLLECTED YES☐ NO☒
7. DOES WELL REPLACE EXISTING WELL? YES☐ NO☒
8. STATIC WATER LEVEL Below Top of Casing) 4.22 Ft.
(Use "+" if Above Top of Casing)
9. 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 NCAV 2C.0118
10. YIELD (gpm) N/A METHOD OF TEST N/A
11. WATER ZONES (depth) N/A

DRILLING LOG From	To	DEPTH Formation Description
0	3.5'	Silty Sand (SM)
3.5'	6.5'	Clayey Sand (SC)

If additional space is needed use back of form.

12. CLORINATION: Type N/A Amount N/A

13. CASING

	Depth			Diameter		Wall Thickness Or Weight/Ft.	Material
From	2.0	To	0 Ft.	2	In	sch 40	pvc
From		To	Ft.				
From		To	Ft.				

14. GROUT

	Depth			Material	Method
From	0.5	To	0.2 Ft.	neat cement	pour
From		To	Ft.		

15. SCREEN

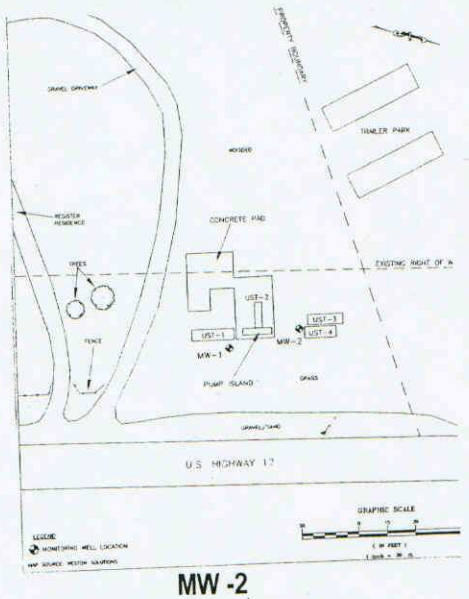
	Depth			Diameter		Slot Size		Material	
From	6.5	To	2.0 Ft.	2	In	.010	In	pvc	In
From		To	Ft.		In		In		In
From		To	Ft.		In		In		In

16. SAND/GRAVEL PACK:

	Depth			Size	Material
From	6.5	To	1.0 Ft.	10/30	silica sand
From		To	Ft.		

17. REMARKS: Bentonite 1.0' to 0.5' BLS

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)



MW -2

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.

Jayson A. Kilcoyne 11/15/06
(SIGNATURE OF PERSON CONSTRUCTING THE WELL) (DATE)

Submit original to Division of Water Quality, Groundwater Section within 30 days.

FOR OFFICE USE ONLY
Quad no:
Serial No.

APPENDIX E
LABORATORY REPORT AND CHAIN OF CUSTODY

Environmental Conservation Laboratories, Inc.
102-A Woodwinds Industrial Court
Cary NC, 27511
Phone: 919.467.3090 FAX: 919.467.3515

www.encolabs.com

Monday, October 30, 2006

Withers & Ravenel Environmental (WI009)

Attn: David Kwiatkowski

111 MacKenan Drive

Cary, NC 27511

RE: Project Number: 02060548.0, Project Name/Desc: Former Esso/Exxon
ENCO Workorder: C603951

Dear David Kwiatkowski,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Wednesday, October 18, 2006.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

This data has been produced in accordance with NELAC standards (June, 2003). This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Chuck Smith

Chuck Smith
Project Manager

Enclosure(s)

The total number of pages in this report, including this page is 23.

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: MW-1 **Lab ID:** C603951-01

Sampled: 10/17/06 19:30 **Received:** 10/18/06 13:00

Parameter	Hold Date/Time(s)		Prep Date/Time(s)	Analysis Date/Time(s)
EPA 625	10/24/06	12/02/06	10/23/06 07:23	10/24/2006 09:17
EPA 8260B/6210D	10/31/06		10/24/06 07:40	10/25/2006 15:38
MAEPH	10/31/06	12/03/06	10/24/06 12:21	10/25/2006 16:08
MAEPH	10/31/06	12/03/06	10/24/06 12:25	10/25/2006 16:08
MAVPH	10/31/06		10/24/06 06:52	10/24/2006 18:35

Client ID: MW-2 **Lab ID:** C603951-02

Sampled: 10/17/06 20:00 **Received:** 10/18/06 13:00

Parameter	Hold Date/Time(s)		Prep Date/Time(s)	Analysis Date/Time(s)
EPA 625	10/24/06	12/02/06	10/23/06 07:23	10/24/2006 09:47
EPA 8260B/6210D	10/31/06		10/24/06 07:40	10/25/2006 16:04
MAEPH	10/31/06	12/03/06	10/24/06 12:21	10/27/2006 20:14
MAEPH	10/31/06	12/03/06	10/24/06 12:25	10/27/2006 22:11
MAVPH	10/31/06		10/24/06 06:52	10/25/2006 08:21

SAMPLE DETECTION SUMMARY

Client ID: MW-2 **Lab ID: C603951-02**

Analyte	Results/Qual	MRL	Units	Method
1,2,4-Trimethylbenzene	330 D	10	ug/L	EPA 8260B/621(
1,3,5-Trimethylbenzene	130 D	10	ug/L	EPA 8260B/621(
1-Methylnaphthalene	8.9 J	10	ug/L	EPA 625
2-Methylnaphthalene	20	10	ug/L	EPA 625
4-Isopropyltoluene	13 D	10	ug/L	EPA 8260B/621(
Anthracene	1.2 J	10	ug/L	EPA 625
Benzo(a)anthracene	2.2 J	10	ug/L	EPA 625
Benzo(a)pyrene	2.1 J	10	ug/L	EPA 625
Benzo(b)fluoranthene	2.1 J	10	ug/L	EPA 625
Benzo(g,h,i)perylene	2.6 J	10	ug/L	EPA 625
Benzo(k)fluoranthene	2.4 J	10	ug/L	EPA 625
Bis(2-ethylhexyl)phthalate	3.6 J	10	ug/L	EPA 625
Butylbenzylphthalate	1.8 J	10	ug/L	EPA 625
C11-C22 Aromatics	114	100	ug/L	MAEPH
C5-C8 Aliphatics	633 D	40	ug/L	MAVPH
C9-C10 Aromatics	927 D	40	ug/L	MAVPH
C9-C12 Aliphatics	1700 D	60	ug/L	MAVPH
Chrysene	2.6 J	10	ug/L	EPA 625
Dibenzo(a,h)anthracene	2.6 J	10	ug/L	EPA 625
Diethylphthalate	1.0 J	10	ug/L	EPA 625
Di-n-butylphthalate	2.5 J	10	ug/L	EPA 625
Di-n-octylphthalate	2.6 J	10	ug/L	EPA 625
Ethylbenzene	48 D	10	ug/L	EPA 8260B/621(
Fluoranthene	1.8 J	10	ug/L	EPA 625
Indeno(1,2,3-cd)pyrene	2.7 J	10	ug/L	EPA 625
Isopropylbenzene	21 D	2.0	ug/L	EPA 8260B/621(
m,p-Xylenes	140 D	20	ug/L	EPA 8260B/621(
Naphthalene	20 D	10	ug/L	EPA 8260B/621(
Naphthalene	26	10	ug/L	EPA 625
n-Butyl Benzene	18 D	10	ug/L	EPA 8260B/621(
n-Propyl Benzene	54 D	10	ug/L	EPA 8260B/621(
Phenanthrene	1.1 J	10	ug/L	EPA 625
Pyrene	1.7 J	10	ug/L	EPA 625
Xylenes (Total)	140 D	30	ug/L	EPA 8260B/621(

www.encolabs.com

ANALYTICAL REPORT

Sample ID:	MW-1	Project:	Former Esso/Exxon
Lab #:	C603951-01	Work Order #:	C603951
Prep. Method:	EPA 5030B_MS	Matrix:	Ground Water
Analyzed:	10/25/06 By: spf	Unit:	ug/L
Anal. Method:	EPA 8260B/6210D	Dilution Factor:	1
Anal. Batch:			
QC Batch:	6J24003		

Volatile Organic Compounds by GCMS

Parameter	CAS Number	Analytical Results	MDL	MRL	Units
1,1,1,2-Tetrachloroethane	630-20-6	0.20 U	0.20	1.0	ug/L
1,1,1-Trichloroethane	71-55-6	0.20 U	0.20	1.0	ug/L
1,1,2,2-Tetrachloroethane	79-34-5	0.30 U	0.30	1.0	ug/L
1,1,2-Trichloroethane	79-00-5	0.40 U	0.40	1.0	ug/L
1,1-Dichloroethane	75-34-3	0.40 U	0.40	1.0	ug/L
1,1-Dichloroethene	75-35-4	0.40 U	0.40	1.0	ug/L
1,1-Dichloropropene	563-58-6	0.40 U	0.40	1.0	ug/L
1,2,3-Trichlorobenzene	87-61-6	0.20 U	0.20	1.0	ug/L
1,2,3-Trichloropropane	96-18-4	0.50 U	0.50	1.0	ug/L
1,2,4-Trichlorobenzene	120-82-1	0.20 U	0.20	1.0	ug/L
1,2,4-Trimethylbenzene	95-63-6	0.30 U	0.30	1.0	ug/L
1,2-Dibromo-3-chloropropane	96-12-8	0.60 U	0.60	1.0	ug/L
1,2-Dibromoethane	106-93-4	0.40 U	0.40	1.0	ug/L
1,2-Dichlorobenzene	95-50-1	0.30 U	0.30	1.0	ug/L
1,2-Dichloroethane	107-06-2	0.40 U	0.40	1.0	ug/L
1,2-Dichloropropane	78-87-5	0.20 U	0.20	1.0	ug/L
1,3,5-Trimethylbenzene	108-67-8	0.20 U	0.20	1.0	ug/L
1,3-Dichlorobenzene	541-73-1	0.30 U	0.30	1.0	ug/L
1,3-Dichloropropane	142-28-9	0.20 U	0.20	1.0	ug/L
1,4-Dichlorobenzene	106-46-7	0.30 U	0.30	1.0	ug/L
2,2-Dichloropropane	594-20-7	0.20 U	0.20	1.0	ug/L
2-Chlorotoluene	95-49-8	0.40 U	0.40	1.0	ug/L
4-Chlorotoluene	106-43-4	0.30 U	0.30	1.0	ug/L
4-Isopropyltoluene	99-87-6	0.30 U	0.30	1.0	ug/L
Benzene	71-43-2	0.20 U	0.20	1.0	ug/L
Bromobenzene	108-86-1	0.20 U	0.20	1.0	ug/L
Bromochloromethane	74-97-5	0.50 U	0.50	1.0	ug/L
Bromodichloromethane	75-27-4	0.20 U	0.20	0.40	ug/L
Bromoform	75-25-2	0.30 U	0.30	1.0	ug/L
Bromomethane	74-83-9	0.60 U	0.60	1.0	ug/L
Carbon Tetrachloride	56-23-5	0.20 U	0.20	1.0	ug/L
Chlorobenzene	108-90-7	0.30 U	0.30	1.0	ug/L
Chloroethane	75-00-3	0.40 U	0.40	1.0	ug/L
Chloroform	67-66-3	0.40 U	0.40	1.0	ug/L
Chloromethane	74-87-3	0.20 U	0.20	1.0	ug/L
cis-1,2-Dichloroethene	156-59-2	0.20 U	0.20	1.0	ug/L

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ANALYTICAL REPORT

Sample ID:	MW-1	Project:	Former Esso/Exxon
Lab #:	C603951-01	Work Order #:	C603951
Prep. Method:	EPA 5030B_MS	Matrix:	Ground Water
Analyzed:	10/25/06 By: spf	Unit:	ug/L
Anal. Method:	EPA 8260B/6210D	Dilution Factor:	1
Anal. Batch:			
QC Batch:	6J24003		

Volatile Organic Compounds by GCMS

Parameter	CAS Number	Analytical Results	MDL	MRL	Units
Dibromochloromethane	124-48-1	0.30 U	0.30	1.0	ug/L
Dibromomethane	74-95-3	0.30 U	0.30	1.0	ug/L
Dichlorodifluoromethane	75-71-8	0.30 U	0.30	1.0	ug/L
Ethylbenzene	100-41-4	0.10 U	0.10	1.0	ug/L
Hexachlorobutadiene	87-68-3	0.90 U	0.90	1.0	ug/L
Isopropylbenzene	98-82-8	0.10 U	0.10	0.20	ug/L
m,p-Xylenes	108-38-3/106-42-3	0.30 U	0.30	2.0	ug/L
Methylene Chloride	75-09-2	0.40 U	0.40	2.0	ug/L
Naphthalene	91-20-3	0.40 U	0.40	1.0	ug/L
n-Butyl Benzene	104-51-8	0.20 U	0.20	1.0	ug/L
n-Propyl Benzene	103-65-1	0.10 U	0.10	1.0	ug/L
o-Xylene	95-47-6	0.20 U	0.20	1.0	ug/L
sec-Butylbenzene	135-98-8	0.40 U	0.40	1.0	ug/L
Styrene	100-42-5	0.10 U	0.10	1.0	ug/L
tert-Butylbenzene	98-06-6	0.20 U	0.20	1.0	ug/L
Tetrachloroethene	127-18-4	0.90 U	0.90	1.0	ug/L
Toluene	108-88-3	0.20 U	0.20	1.0	ug/L
trans-1,2-Dichloroethene	156-60-5	0.40 U	0.40	1.0	ug/L
Trichloroethene	79-01-6	0.40 U	0.40	1.0	ug/L
Trichlorofluoromethane	75-69-4	0.20 U	0.20	1.0	ug/L
Vinyl chloride	75-01-4	0.30 U	0.30	1.0	ug/L
Xylenes (Total)	1330-20-7	0.50 U	0.50	3.0	ug/L

Surrogate Recovery		Result	Spike Level	% Recovery	% Recovery Limits
4-Bromofluorobenzene	460-00-4	45	50.0	91 %	70-130
Dibromofluoromethane	1868-53-7	53	50.0	105 %	73-138
Toluene-d8	2037-26-5	56	50.0	111 %	77-118

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ANALYTICAL REPORT

Sample ID:	MW-1	Project:	Former Esso/Exxon
Lab #:	C603951-01	Work Order #:	C603951
Prep. Method:	EPA 3510C_MS	Matrix:	Ground Water
Analyzed:	10/24/06 By: DFM	Unit:	ug/L
Anal. Method:	EPA 625	Dilution Factor:	1
Anal. Batch:			
QC Batch:	6J23003		

Semivolatile Organic Compounds by GCMS

Parameter	CAS Number	Analytical Results	MDL	MRL	Units
1,2,4-Trichlorobenzene	120-82-1	2.1 U	2.1	10	ug/L
1,2-Dichlorobenzene	95-50-1	2.3 U	2.3	10	ug/L
1,3-Dichlorobenzene	541-73-1	2.2 U	2.2	10	ug/L
1,4-Dichlorobenzene	106-46-7	2.2 U	2.2	10	ug/L
1-Methylnaphthalene	90-12-0	1.8 U	1.8	10	ug/L
2,4,6-Trichlorophenol	88-06-2	1.4 U	1.4	10	ug/L
2,4-Dichlorophenol	120-83-2	1.6 U	1.6	10	ug/L
2,4-Dimethylphenol	105-67-9	3.0 U	3.0	10	ug/L
2,4-Dinitrophenol	51-28-5	1.7 U	1.7	10	ug/L
2,4-Dinitrotoluene	121-14-2	1.1 U	1.1	10	ug/L
2,6-Dinitrotoluene	606-20-2	1.0 U	1.0	10	ug/L
2-Chloronaphthalene	91-58-7	1.6 U	1.6	10	ug/L
2-Chlorophenol	95-57-8	2.0 U	2.0	10	ug/L
2-Methyl-4,6-dinitrophenol	534-52-1	1.2 U	1.2	10	ug/L
2-Methylnaphthalene	91-57-6	2.0 U	2.0	10	ug/L
2-Nitrophenol	88-75-5	1.8 U	1.8	10	ug/L
3,3´-Dichlorobenzidine	91-94-1	1.8 U	1.8	10	ug/L
4-Bromophenyl-phenylether	101-55-3	1.1 U	1.1	10	ug/L
4-Chloro-3-methylphenol	59-50-7	1.4 U	1.4	10	ug/L
4-Chlorophenyl-phenylether	7005-72-3	1.2 U	1.2	10	ug/L
4-Nitrophenol	100-02-7	1.2 U	1.2	10	ug/L
Acenaphthene	83-32-9	1.4 U	1.4	10	ug/L
Acenaphthylene	208-96-8	1.4 U	1.4	10	ug/L
Anthracene	120-12-7	0.90 U	0.90	10	ug/L
Benzidine	92-87-5	1.5 U	1.5	10	ug/L
Benzo(a)anthracene	56-55-3	1.0 U	1.0	10	ug/L
Benzo(a)pyrene	50-32-8	1.1 U	1.1	10	ug/L
Benzo(b)fluoranthene	205-99-2	0.70 U	0.70	10	ug/L
Benzo(g,h,i)perylene	191-24-2	1.3 U	1.3	10	ug/L
Benzo(k)fluoranthene	207-08-9	1.8 U	1.8	10	ug/L
Bis(2-chloroethoxy)methane	111-91-1	2.0 U	2.0	10	ug/L
Bis(2-chloroethyl)ether	111-44-4	2.1 U	2.1	10	ug/L
Bis(2-chloroisopropyl)ether	108-60-1	2.2 U	2.2	10	ug/L
Bis(2-ethylhexyl)phthalate	117-81-7	1.0 U	1.0	10	ug/L
Butylbenzylphthalate	85-68-7	1.0 U	1.0	10	ug/L
Chrysene	218-01-9	1.0 U	1.0	10	ug/L

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ANALYTICAL REPORT

Sample ID:	MW-1	Project:	Former Esso/Exxon
Lab #:	C603951-01	Work Order #:	C603951
Prep. Method:	EPA 3510C_MS	Matrix:	Ground Water
Analyzed:	10/24/06 By: DFM	Unit:	ug/L
Anal. Method:	EPA 625	Dilution Factor:	1
Anal. Batch:			
QC Batch:	6J23003		

Semivolatile Organic Compounds by GCMS

Parameter	CAS Number	Analytical Results	MDL	MRL	Units
Dibenzo(a,h)anthracene	53-70-3	1.0 U	1.0	10	ug/L
Diethylphthalate	84-66-2	1.0 U	1.0	10	ug/L
Dimethylphthalate	131-11-3	1.1 U	1.1	10	ug/L
Di-n-butylphthalate	84-74-2	1.0 U	1.0	10	ug/L
Di-n-octylphthalate	117-84-0	0.90 U	0.90	10	ug/L
Fluoranthene	206-44-0	0.90 U	0.90	10	ug/L
Fluorene	86-73-7	1.1 U	1.1	10	ug/L
Hexachlorobenzene	118-74-1	1.1 U	1.1	10	ug/L
Hexachlorobutadiene	87-68-3	2.0 U	2.0	10	ug/L
Hexachlorocyclopentadiene	77-47-4	2.0 U	2.0	10	ug/L
Hexachloroethane	67-72-1	2.4 U	2.4	10	ug/L
Indeno(1,2,3-cd)pyrene	193-39-5	1.1 U	1.1	10	ug/L
Isophorone	78-59-1	1.8 U	1.8	10	ug/L
Naphthalene	91-20-3	2.1 U	2.1	10	ug/L
Nitrobenzene	98-95-3	1.9 U	1.9	10	ug/L
N-Nitrosodimethylamine	62-75-9	1.9 U	1.9	10	ug/L
N-Nitroso-di-n-propylamine	621-64-7	2.1 U	2.1	10	ug/L
N-Nitrosodiphenylamine	86-30-6	1.1 U	1.1	10	ug/L
Pentachlorophenol	87-86-5	0.90 U	0.90	10	ug/L
Phenanthrene	85-01-8	0.90 U	0.90	10	ug/L
Phenol	108-95-2	1.5 U	1.5	10	ug/L
Pyrene	129-00-0	0.90 U	0.90	10	ug/L

Surrogate Recovery		Result	Spike Level	% Recovery	% Recovery Limits
2,4,6-Tribromophenol	118-79-6	80	100	80 %	55-159
2-Fluorobiphenyl	321-60-8	33	50.0	66 %	44-131
2-Fluorophenol	367-12-4	43	100	43 %	30-114
Nitrobenzene-d5	NA	32	50.0	64 %	39-131
Phenol-d5	NA	46	100	46 %	12-122
Terphenyl-d14	NA	41	50.0	83 %	47-160

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ANALYTICAL REPORT

Sample ID:	MW-1	Project:	Former Esso/Exxon
Lab #:	C603951-01	Work Order #:	C603951
Prep. Method:	EPA 5030B	Matrix:	Ground Water
Analyzed:	10/24/06 By: jkg	Unit:	ug/L
Anal. Method:	MAVPH	Dilution Factor:	1
Anal. Batch:			
QC Batch:	6J24001		

Volatile Petroleum Hydrocarbons by GC

Parameter	CAS Number	Analytical Results	MDL	MRL	Units
C5-C8 Aliphatics	NA	3 U	3	20	ug/L
C9-C10 Aromatics	NA	10 U	10	20	ug/L
C9-C12 Aliphatics	NA	28 U	28	30	ug/L

Surrogate Recovery		Result	Spike Level	% Recovery	% Recovery Limits
2,5-Dibromotoluene (FID)	615-59-8	94.0	100	94 %	70-130
2,5-Dibromotoluene (PID)	615-59-8	94.1	100	94 %	70-130

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ANALYTICAL REPORT

Sample ID:	MW-1	Project:	Former Esso/Exxon
Lab #:	C603951-01	Work Order #:	C603951
Prep. Method:	EPA 3510C	Matrix:	Ground Water
Analyzed:	10/25/06 By: jj	Unit:	ug/L
Anal. Method:	MAEPH	Dilution Factor:	1
Anal. Batch:			
QC Batch:	6J24003		

Extractable Petroleum Hydrocarbons by GC

Parameter	CAS Number	Analytical Results	MDL	MRL	Units
C11-C22 Aromatics	NA	8 U	8	100	ug/L
C19-C36 Aliphatics	NA	30 U	30	500	ug/L
C9-C18 Aliphatics	NA	50 U	50	500	ug/L

Surrogate Recovery		Result	Spike Level	% Recovery	% Recovery Limits
Chloro-octadecane	3386-33-2	195	200	97 %	40-140
o-Terphenyl	84-15-1	41.2	40.0	103 %	40-140

ANALYTICAL REPORT

Sample ID:	MW-2	Project:	Former Esso/Exxon
Lab #:	C603951-02	Work Order #:	C603951
Prep. Method:	EPA 5030B_MS	Matrix:	Ground Water
Analyzed:	10/25/06 By: spf	Unit:	ug/L
Anal. Method:	EPA 8260B/6210D	Dilution Factor:	10
Anal. Batch:			
QC Batch:	6J24003		

Volatile Organic Compounds by GCMS

Parameter	CAS Number	Analytical Results	MDL	MRL	Units
1,1,1,2-Tetrachloroethane	630-20-6	2.0 U, D	2.0	10	ug/L
1,1,1-Trichloroethane	71-55-6	2.0 U, D	2.0	10	ug/L
1,1,2,2-Tetrachloroethane	79-34-5	3.0 U, D	3.0	10	ug/L
1,1,2-Trichloroethane	79-00-5	4.0 U, D	4.0	10	ug/L
1,1-Dichloroethane	75-34-3	4.0 U, D	4.0	10	ug/L
1,1-Dichloroethene	75-35-4	4.0 U, D	4.0	10	ug/L
1,1-Dichloropropene	563-58-6	4.0 U, D	4.0	10	ug/L
1,2,3-Trichlorobenzene	87-61-6	2.0 U, D	2.0	10	ug/L
1,2,3-Trichloropropane	96-18-4	5.0 U, D	5.0	10	ug/L
1,2,4-Trichlorobenzene	120-82-1	2.0 U, D	2.0	10	ug/L
1,2,4-Trimethylbenzene	95-63-6	**330** D	3.0	10	ug/L
1,2-Dibromo-3-chloropropane	96-12-8	6.0 U, D	6.0	10	ug/L
1,2-Dibromoethane	106-93-4	4.0 U, D	4.0	10	ug/L
1,2-Dichlorobenzene	95-50-1	3.0 U, D	3.0	10	ug/L
1,2-Dichloroethane	107-06-2	4.0 U, D	4.0	10	ug/L
1,2-Dichloropropane	78-87-5	2.0 U, D	2.0	10	ug/L
1,3,5-Trimethylbenzene	108-67-8	**130** D	2.0	10	ug/L
1,3-Dichlorobenzene	541-73-1	3.0 U, D	3.0	10	ug/L
1,3-Dichloropropane	142-28-9	2.0 U, D	2.0	10	ug/L
1,4-Dichlorobenzene	106-46-7	3.0 U, D	3.0	10	ug/L
2,2-Dichloropropane	594-20-7	2.0 U, D	2.0	10	ug/L
2-Chlorotoluene	95-49-8	4.0 U, D	4.0	10	ug/L
4-Chlorotoluene	106-43-4	3.0 U, D	3.0	10	ug/L
4-Isopropyltoluene	99-87-6	**13** D	3.0	10	ug/L
Benzene	71-43-2	2.0 U, D	2.0	10	ug/L
Bromobenzene	108-86-1	2.0 U, D	2.0	10	ug/L
Bromochloromethane	74-97-5	5.0 U, D	5.0	10	ug/L
Bromodichloromethane	75-27-4	2.0 U, D	2.0	4.0	ug/L
Bromoform	75-25-2	3.0 U, D	3.0	10	ug/L
Bromomethane	74-83-9	6.0 U, D	6.0	10	ug/L
Carbon Tetrachloride	56-23-5	2.0 U, D	2.0	10	ug/L
Chlorobenzene	108-90-7	3.0 U, D	3.0	10	ug/L
Chloroethane	75-00-3	4.0 U, D	4.0	10	ug/L
Chloroform	67-66-3	4.0 U, D	4.0	10	ug/L
Chloromethane	74-87-3	2.0 U, D	2.0	10	ug/L
cis-1,2-Dichloroethene	156-59-2	2.0 U, D	2.0	10	ug/L

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ANALYTICAL REPORT

Sample ID:	MW-2	Project:	Former Esso/Exxon
Lab #:	C603951-02	Work Order #:	C603951
Prep. Method:	EPA 5030B_MS	Matrix:	Ground Water
Analyzed:	10/25/06 By: spf	Unit:	ug/L
Anal. Method:	EPA 8260B/6210D	Dilution Factor:	10
Anal. Batch:			
QC Batch:	6J24003		

Volatile Organic Compounds by GCMS

Parameter	CAS Number	Analytical Results	MDL	MRL	Units
Dibromochloromethane	124-48-1	3.0 U, D	3.0	10	ug/L
Dibromomethane	74-95-3	3.0 U, D	3.0	10	ug/L
Dichlorodifluoromethane	75-71-8	3.0 U, D	3.0	10	ug/L
Ethylbenzene	100-41-4	**48** D	1.0	10	ug/L
Hexachlorobutadiene	87-68-3	9.0 U, D	9.0	10	ug/L
Isopropylbenzene	98-82-8	**21** D	1.0	2.0	ug/L
m,p-Xylenes	108-38-3/106-42-3	**140** D	3.0	20	ug/L
Methylene Chloride	75-09-2	4.0 U, D	4.0	20	ug/L
Naphthalene	91-20-3	**20** D	4.0	10	ug/L
n-Butyl Benzene	104-51-8	**18** D	2.0	10	ug/L
n-Propyl Benzene	103-65-1	**54** D	1.0	10	ug/L
o-Xylene	95-47-6	2.0 U, D	2.0	10	ug/L
sec-Butylbenzene	135-98-8	4.0 U, D	4.0	10	ug/L
Styrene	100-42-5	1.0 U, D	1.0	10	ug/L
tert-Butylbenzene	98-06-6	2.0 U, D	2.0	10	ug/L
Tetrachloroethene	127-18-4	9.0 U, D	9.0	10	ug/L
Toluene	108-88-3	2.0 U, D	2.0	10	ug/L
trans-1,2-Dichloroethene	156-60-5	4.0 U, D	4.0	10	ug/L
Trichloroethene	79-01-6	4.0 U, D	4.0	10	ug/L
Trichlorofluoromethane	75-69-4	2.0 U, D	2.0	10	ug/L
Vinyl chloride	75-01-4	3.0 U, D	3.0	10	ug/L
Xylenes (Total)	1330-20-7	**140** D	5.0	30	ug/L

Surrogate Recovery		Result		Spike Level	% Recovery	% Recovery Limits
4-Bromofluorobenzene	460-00-4	45		50.0	91 %	70-130
Dibromofluoromethane	1868-53-7	51		50.0	102 %	73-138
Toluene-d8	2037-26-5	59	S-GC	50.0	118 %	77-118

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ANALYTICAL REPORT

Sample ID:	MW-2	Project:	Former Esso/Exxon
Lab #:	C603951-02	Work Order #:	C603951
Prep. Method:	EPA 3510C_MS	Matrix:	Ground Water
Analyzed:	10/24/06 By: DFM	Unit:	ug/L
Anal. Method:	EPA 625	Dilution Factor:	1
Anal. Batch:			
QC Batch:	6J23003		

Semivolatile Organic Compounds by GCMS

Parameter	CAS Number	Analytical Results	MDL	MRL	Units
1,2,4-Trichlorobenzene	120-82-1	2.1 U	2.1	10	ug/L
1,2-Dichlorobenzene	95-50-1	2.3 U	2.3	10	ug/L
1,3-Dichlorobenzene	541-73-1	2.2 U	2.2	10	ug/L
1,4-Dichlorobenzene	106-46-7	2.2 U	2.2	10	ug/L
1-Methylnaphthalene	90-12-0	**8.9 J**	1.8	10	ug/L
2,4,6-Trichlorophenol	88-06-2	1.4 U	1.4	10	ug/L
2,4-Dichlorophenol	120-83-2	1.6 U	1.6	10	ug/L
2,4-Dimethylphenol	105-67-9	3.0 U	3.0	10	ug/L
2,4-Dinitrophenol	51-28-5	1.7 U	1.7	10	ug/L
2,4-Dinitrotoluene	121-14-2	1.1 U	1.1	10	ug/L
2,6-Dinitrotoluene	606-20-2	1.0 U	1.0	10	ug/L
2-Chloronaphthalene	91-58-7	1.6 U	1.6	10	ug/L
2-Chlorophenol	95-57-8	2.0 U	2.0	10	ug/L
2-Methyl-4,6-dinitrophenol	534-52-1	1.2 U	1.2	10	ug/L
2-Methylnaphthalene	91-57-6	**20**	2.0	10	ug/L
2-Nitrophenol	88-75-5	1.8 U	1.8	10	ug/L
3,3'-Dichlorobenzidine	91-94-1	1.8 U	1.8	10	ug/L
4-Bromophenyl-phenylether	101-55-3	1.1 U	1.1	10	ug/L
4-Chloro-3-methylphenol	59-50-7	1.4 U	1.4	10	ug/L
4-Chlorophenyl-phenylether	7005-72-3	1.2 U	1.2	10	ug/L
4-Nitrophenol	100-02-7	1.2 U	1.2	10	ug/L
Acenaphthene	83-32-9	1.4 U	1.4	10	ug/L
Acenaphthylene	208-96-8	1.4 U	1.4	10	ug/L
Anthracene	120-12-7	**1.2 J**	0.90	10	ug/L
Benzidine	92-87-5	1.5 U	1.5	10	ug/L
Benzo(a)anthracene	56-55-3	**2.2 J**	1.0	10	ug/L
Benzo(a)pyrene	50-32-8	**2.1 J**	1.1	10	ug/L
Benzo(b)fluoranthene	205-99-2	**2.1 J**	0.70	10	ug/L
Benzo(g,h,i)perylene	191-24-2	**2.6 J**	1.3	10	ug/L
Benzo(k)fluoranthene	207-08-9	**2.4 J**	1.8	10	ug/L
Bis(2-chloroethoxy)methane	111-91-1	2.0 U	2.0	10	ug/L
Bis(2-chloroethyl)ether	111-44-4	2.1 U	2.1	10	ug/L
Bis(2-chloroisopropyl)ether	108-60-1	2.2 U	2.2	10	ug/L
Bis(2-ethylhexyl)phthalate	117-81-7	**3.6 J**	1.0	10	ug/L
Butylbenzylphthalate	85-68-7	**1.8 J**	1.0	10	ug/L
Chrysene	218-01-9	**2.6 J**	1.0	10	ug/L
Dibenzo(a,h)anthracene	53-70-3	**2.6 J**	1.0	10	ug/L

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ANALYTICAL REPORT

Sample ID:	MW-2	Project:	Former Esso/Exxon
Lab #:	C603951-02	Work Order #:	C603951
Prep. Method:	EPA 3510C_MS	Matrix:	Ground Water
Analyzed:	10/24/06 By: DFM	Unit:	ug/L
Anal. Method:	EPA 625	Dilution Factor:	1
Anal. Batch:			
QC Batch:	6J23003		

Semivolatile Organic Compounds by GCMS

Parameter	CAS Number	Analytical Results	MDL	MRL	Units
Diethylphthalate	84-66-2	**1.0** J	1.0	10	ug/L
Dimethylphthalate	131-11-3	1.1 U	1.1	10	ug/L
Di-n-butylphthalate	84-74-2	**2.5** J	1.0	10	ug/L
Di-n-octylphthalate	117-84-0	**2.6** J	0.90	10	ug/L
Fluoranthene	206-44-0	**1.8** J	0.90	10	ug/L
Fluorene	86-73-7	1.1 U	1.1	10	ug/L
Hexachlorobenzene	118-74-1	1.1 U	1.1	10	ug/L
Hexachlorobutadiene	87-68-3	2.0 U	2.0	10	ug/L
Hexachlorocyclopentadiene	77-47-4	2.0 U	2.0	10	ug/L
Hexachloroethane	67-72-1	2.4 U	2.4	10	ug/L
Indeno(1,2,3-cd)pyrene	193-39-5	**2.7** J	1.1	10	ug/L
Isophorone	78-59-1	1.8 U	1.8	10	ug/L
Naphthalene	91-20-3	**26**	2.1	10	ug/L
Nitrobenzene	98-95-3	1.9 U	1.9	10	ug/L
N-Nitrosodimethylamine	62-75-9	1.9 U	1.9	10	ug/L
N-Nitroso-di-n-propylamine	621-64-7	2.1 U	2.1	10	ug/L
N-Nitrosodiphenylamine	86-30-6	1.1 U	1.1	10	ug/L
Pentachlorophenol	87-86-5	0.90 U	0.90	10	ug/L
Phenanthrene	85-01-8	**1.1** J	0.90	10	ug/L
Phenol	108-95-2	1.5 U	1.5	10	ug/L
Pyrene	129-00-0	**1.7** J	0.90	10	ug/L

Surrogate Recovery		Result	Spike Level	% Recovery	% Recovery Limits
2,4,6-Tribromophenol	118-79-6	78	100	78 %	55-159
2-Fluorobiphenyl	321-60-8	30	50.0	61 %	44-131
2-Fluorophenol	367-12-4	41	100	41 %	30-114
Nitrobenzene-d5	NA	31	50.0	62 %	39-131
Phenol-d5	NA	42	100	42 %	12-122
Terphenyl-d14	NA	41	50.0	82 %	47-160

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ANALYTICAL REPORT

Sample ID:	MW-2	Project:	Former Esso/Exxon
Lab #:	C603951-02	Work Order #:	C603951
Prep. Method:	EPA 5030B	Matrix:	Ground Water
Analyzed:	10/25/06 By: jkg	Unit:	ug/L
Anal. Method:	MAVPH	Dilution Factor:	2
Anal. Batch:			
QC Batch:	6J24001		

Volatile Petroleum Hydrocarbons by GC

Parameter	CAS Number	Analytical Results	MDL	MRL	Units
C5-C8 Aliphatics	NA	**633** D	6	40	ug/L
C9-C10 Aromatics	NA	**927** D	20	40	ug/L
C9-C12 Aliphatics	NA	**1700** D	56	60	ug/L

Surrogate Recovery		Result		Spike Level	% Recovery	% Recovery Limits
2,5-Dibromotoluene (FID)	615-59-8	173	S-06	100	173 %	70-130
2,5-Dibromotoluene (PID)	615-59-8	204	S-06	100	204 %	70-130

ANALYTICAL REPORT

Sample ID:	MW-2	Project:	Former Esso/Exxon
Lab #:	C603951-02	Work Order #:	C603951
Prep. Method:	EPA 3510C	Matrix:	Ground Water
Analyzed:	10/27/06 By: jj	Unit:	ug/L
Anal. Method:	MAEPH	Dilution Factor:	1
Anal. Batch:			
QC Batch:	6J24003		

Extractable Petroleum Hydrocarbons by GC

Parameter	CAS Number	Analytical Results	MDL	MRL	Units
C11-C22 Aromatics	NA	**114**	8	100	ug/L
C19-C36 Aliphatics	NA	30 U	30	500	ug/L
C9-C18 Aliphatics	NA	50 U	50	500	ug/L

Surrogate Recovery		Result	Spike Level	% Recovery	% Recovery Limits
2-Bromonaphthalene	580-13-2	36.3	40.0	91 %	40-140
2-Fluorobiphenyl	321-60-8	36.7	40.0	92 %	40-140
Chloro-octadecane	3386-33-2	124	200	62 %	40-140
o-Terphenyl	84-15-1	29.0	40.0	72 %	40-140

QUALITY CONTROL

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Sanple Notes

Volatile Organic Compounds by GCMS - Quality Control

Batch 6J24003 - EPA 5030B_MS

Blank (6J24003-BLK1) Prepared: 10/24/2006 07:40 Analyzed: 10/25/2006 11:43

Benzene	0.20 U	1.0	ug/L
Isopropylbenzene	0.10 U	0.20	ug/L
Bromobenzene	0.20 U	1.0	ug/L
Tetrachloroethene	0.90 U	1.0	ug/L
n-Propyl Benzene	0.10 U	1.0	ug/L
Bromochloromethane	0.50 U	1.0	ug/L
Trichloroethene	0.40 U	1.0	ug/L
n-Butyl Benzene	0.20 U	1.0	ug/L
Bromodichloromethane	0.20 U	0.40	ug/L
Bromoform	0.30 U	1.0	ug/L
Bromomethane	0.60 U	1.0	ug/L
sec-Butylbenzene	0.40 U	1.0	ug/L
tert-Butylbenzene	0.20 U	1.0	ug/L
Carbon Tetrachloride	0.20 U	1.0	ug/L
Chlorobenzene	0.30 U	1.0	ug/L
Chloroethane	0.40 U	1.0	ug/L
Chloroform	0.40 U	1.0	ug/L
Chloromethane	0.20 U	1.0	ug/L
2-Chlorotoluene	0.40 U	1.0	ug/L
4-Chlorotoluene	0.30 U	1.0	ug/L
Dibromochloromethane	0.30 U	1.0	ug/L
1,2-Dibromo-3-chloropropane	0.60 U	1.0	ug/L
1,2-Dibromoethane	0.40 U	1.0	ug/L
Dibromomethane	0.30 U	1.0	ug/L
1,2-Dichlorobenzene	0.30 U	1.0	ug/L
1,3-Dichlorobenzene	0.30 U	1.0	ug/L
1,4-Dichlorobenzene	0.30 U	1.0	ug/L
Dichlorodifluoromethane	0.30 U	1.0	ug/L
1,1-Dichloroethane	0.40 U	1.0	ug/L
1,2-Dichloroethane	0.40 U	1.0	ug/L
1,1-Dichloroethene	0.40 U	1.0	ug/L
cis-1,2-Dichloroethene	0.20 U	1.0	ug/L
trans-1,2-Dichloroethene	0.40 U	1.0	ug/L
1,2-Dichloropropane	0.20 U	1.0	ug/L
1,3-Dichloropropane	0.20 U	1.0	ug/L
2,2-Dichloropropane	0.20 U	1.0	ug/L
1,1-Dichloropropene	0.40 U	1.0	ug/L
Ethylbenzene	0.10 U	1.0	ug/L
Hexachlorobutadiene	0.90 U	1.0	ug/L
4-Isopropyltoluene	0.30 U	1.0	ug/L
Methylene Chloride	0.40 U	2.0	ug/L
Naphthalene	0.40 U	1.0	ug/L
Styrene	0.10 U	1.0	ug/L
1,1,1,2-Tetrachloroethane	0.20 U	1.0	ug/L
1,1,2,2-Tetrachloroethane	0.30 U	1.0	ug/L

QUALITY CONTROL

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Sanple Notes
Volatile Organic Compounds by GCMS - Quality Control										
Batch 6J24003 - EPA 5030B_MS										
Blank (6J24003-BLK1) Continued				Prepared: 10/24/2006 07:40 Analyzed: 10/25/2006 11:43						
Toluene	0.20 U	1.0	ug/L							
1,2,3-Trichlorobenzene	0.20 U	1.0	ug/L							
1,2,4-Trichlorobenzene	0.20 U	1.0	ug/L							
1,1,1-Trichloroethane	0.20 U	1.0	ug/L							
1,1,2-Trichloroethane	0.40 U	1.0	ug/L							
Trichlorofluoromethane	0.20 U	1.0	ug/L							
1,2,3-Trichloropropane	0.50 U	1.0	ug/L							
1,2,4-Trimethylbenzene	0.30 U	1.0	ug/L							
1,3,5-Trimethylbenzene	0.20 U	1.0	ug/L							
Vinyl chloride	0.30 U	1.0	ug/L							
m,p-Xylenes	0.30 U	2.0	ug/L							
o-Xylene	0.20 U	1.0	ug/L							
Xylenes (Total)	0.50 U	3.0	ug/L							
LCS (6J24003-BS1)				Prepared: 10/24/2006 07:40 Analyzed: 10/25/2006 12:08						
Benzene	16	1.0	ug/L	20.0		78	69-115			
Trichloroethene	16	1.0	ug/L	20.0		81	74-118			
Chlorobenzene	17	1.0	ug/L	20.0		87	76-118			
1,1-Dichloroethene	17	1.0	ug/L	20.0		84	64-139			
Toluene	16	1.0	ug/L	20.0		78	77-117			
Matrix Spike (6J24003-MS1)		**Source: C603999-04**		Prepared: 10/24/2006 07:40 Analyzed: 10/25/2006 12:34						
Benzene	17	1.0	ug/L	20.0	0.20 U	86	53-150			
Trichloroethene	19	1.0	ug/L	20.0	0.40 U	94	64-124			
Chlorobenzene	21	1.0	ug/L	20.0	0.30 U	103	44-128			
1,1-Dichloroethene	20	1.0	ug/L	20.0	0.40 U	98	36-177			
Toluene	19	1.0	ug/L	20.0	0.20 U	93	40-161			
Matrix Spike Dup (6J24003-MSD1)		**Source: C603999-04**		Prepared: 10/24/2006 07:40 Analyzed: 10/25/2006 13:01						
Benzene	17	1.0	ug/L	20.0	0.20 U	83	53-150	3	23	
Trichloroethene	18	1.0	ug/L	20.0	0.40 U	91	64-124	4	25	
Chlorobenzene	20	1.0	ug/L	20.0	0.30 U	98	44-128	5	22	
1,1-Dichloroethene	19	1.0	ug/L	20.0	0.40 U	94	36-177	4	30	
Toluene	17	1.0	ug/L	20.0	0.20 U	86	40-161	8	23	
Semivolatile Organic Compounds by GCMS - Quality Control										
Batch 6J23003 - EPA 3510C_MS										
Blank (6J23003-BLK1)				Prepared: 10/23/2006 07:23 Analyzed: 10/24/2006 04:29						
1,2,4-Trichlorobenzene	2.1 U	10	ug/L							
1,2-Dichlorobenzene	2.3 U	10	ug/L							
1,3-Dichlorobenzene	2.2 U	10	ug/L							
1,4-Dichlorobenzene	2.2 U	10	ug/L							
1-Methylnaphthalene	1.8 U	10	ug/L							
2,4,6-Trichlorophenol	1.4 U	10	ug/L							
2,4-Dichlorophenol	1.6 U	10	ug/L							
2,4-Dimethylphenol	3.0 U	10	ug/L							
2,4-Dinitrophenol	1.7 U	10	ug/L							

QUALITY CONTROL

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Sanple Notes

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 6J23003 - EPA 3510C_MS

Blank (6J23003-BLK1) Continued Prepared: 10/23/2006 07:23 Analyzed: 10/24/2006 04:29

2,4-Dinitrotoluene	1.1 U	10	ug/L
2,6-Dinitrotoluene	1.0 U	10	ug/L
2-Chloronaphthalene	1.6 U	10	ug/L
2-Chlorophenol	2.0 U	10	ug/L
2-Methylnaphthalene	2.0 U	10	ug/L
2-Nitrophenol	1.8 U	10	ug/L
3,3'-Dichlorobenzidine	1.8 U	10	ug/L
2-Methyl-4,6-dinitrophenol	1.2 U	10	ug/L
4-Bromophenyl-phenylether	1.1 U	10	ug/L
4-Chloro-3-methylphenol	1.4 U	10	ug/L
4-Chlorophenyl-phenylether	1.2 U	10	ug/L
4-Nitrophenol	1.2 U	10	ug/L
Acenaphthene	1.4 U	10	ug/L
Acenaphthylene	1.4 U	10	ug/L
Anthracene	0.90 U	10	ug/L
Benzo(a)anthracene	1.0 U	10	ug/L
Benzidine	1.5 U	10	ug/L
Benzo(a)pyrene	1.1 U	10	ug/L
Benzo(b)fluoranthene	0.70 U	10	ug/L
Benzo(g,h,i)perylene	1.3 U	10	ug/L
Benzo(k)fluoranthene	1.8 U	10	ug/L
Bis(2-chloroethoxy)methane	2.0 U	10	ug/L
Bis(2-chloroethyl)ether	2.1 U	10	ug/L
Bis(2-chloroisopropyl)ether	2.2 U	10	ug/L
Bis(2-ethylhexyl)phthalate	1.0 U	10	ug/L
Butylbenzylphthalate	1.0 U	10	ug/L
Chrysene	1.0 U	10	ug/L
Dibenzo(a,h)anthracene	1.0 U	10	ug/L
Diethylphthalate	1.0 U	10	ug/L
Dimethylphthalate	1.1 U	10	ug/L
Di-n-butylphthalate	1.2 J	10	ug/L
Di-n-octylphthalate	0.90 U	10	ug/L
Fluoranthene	0.90 U	10	ug/L
Fluorene	1.1 U	10	ug/L
Hexachlorobenzene	1.1 U	10	ug/L
Hexachlorobutadiene	2.0 U	10	ug/L
Hexachlorocyclopentadiene	2.0 U	10	ug/L
Hexachloroethane	2.4 U	10	ug/L
Indeno(1,2,3-cd)pyrene	1.1 U	10	ug/L
Isophorone	1.8 U	10	ug/L
Naphthalene	2.1 U	10	ug/L
Nitrobenzene	1.9 U	10	ug/L
N-Nitrosodimethylamine	1.9 U	10	ug/L
N-Nitroso-di-n-propylamine	2.1 U	10	ug/L
N-Nitrosodiphenylamine	1.1 U	10	ug/L

QUALITY CONTROL

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Sanple Notes
Semivolatile Organic Compounds by GCMS - Quality Control										
Batch 6J23003 - EPA 3510C_MS										
Blank (6J23003-BLK1) Continued				Prepared: 10/23/2006 07:23 Analyzed: 10/24/2006 04:29						
Pentachlorophenol	0.90 U	10	ug/L							
Phenanthrene	0.90 U	10	ug/L							
Phenol	1.5 U	10	ug/L							
Pyrene	0.90 U	10	ug/L							
Blank (6J23003-BLK2)				Prepared: 10/24/2006 07:23 Analyzed: 10/24/2006 19:26						
1,2,4-Trichlorobenzene	2.1 U	10	ug/L							
1,2-Dichlorobenzene	2.3 U	10	ug/L							
1,3-Dichlorobenzene	2.2 U	10	ug/L							
1,4-Dichlorobenzene	2.2 U	10	ug/L							
1-Methylnaphthalene	1.8 U	10	ug/L							
2,4,6-Trichlorophenol	1.4 U	10	ug/L							
2,4-Dichlorophenol	1.6 U	10	ug/L							
2,4-Dimethylphenol	3.0 U	10	ug/L							
2,4-Dinitrophenol	1.7 U	10	ug/L							
2,4-Dinitrotoluene	1.1 U	10	ug/L							
2,6-Dinitrotoluene	1.0 U	10	ug/L							
2-Chloronaphthalene	1.6 U	10	ug/L							
2-Chlorophenol	2.0 U	10	ug/L							
2-Methylnaphthalene	2.0 U	10	ug/L							
2-Nitrophenol	1.8 U	10	ug/L							
3,3'-Dichlorobenzidine	1.8 U	10	ug/L							
2-Methyl-4,6-dinitrophenol	1.2 U	10	ug/L							
4-Bromophenyl-phenylether	1.1 U	10	ug/L							
4-Chloro-3-methylphenol	1.4 U	10	ug/L							
4-Chlorophenyl-phenylether	1.2 U	10	ug/L							
4-Nitrophenol	1.2 U	10	ug/L							
Acenaphthene	1.4 U	10	ug/L							
Acenaphthylene	1.4 U	10	ug/L							
Anthracene	0.90 U	10	ug/L							
Benzo(a)anthracene	1.0 U	10	ug/L							
Benzidine	1.5 U	10	ug/L							
Benzo(a)pyrene	1.1 U	10	ug/L							
Benzo(b)fluoranthene	0.70 U	10	ug/L							
Benzo(g,h,i)perylene	1.3 U	10	ug/L							
Benzo(k)fluoranthene	1.8 U	10	ug/L							
Bis(2-chloroethoxy)methane	2.0 U	10	ug/L							
Bis(2-chloroethyl)ether	2.1 U	10	ug/L							
Bis(2-chloroisopropyl)ether	2.2 U	10	ug/L							
Bis(2-ethylhexyl)phthalate	1.0 U	10	ug/L							
Butylbenzylphthalate	1.0 U	10	ug/L							
Chrysene	1.0 U	10	ug/L							
Dibenzo(a,h)anthracene	1.0 U	10	ug/L							
Diethylphthalate	1.0 U	10	ug/L							
Dimethylphthalate	1.1 U	10	ug/L							
Di-n-butylphthalate	1.0 J	10	ug/L							

QUALITY CONTROL

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Sanple Notes
Semivolatile Organic Compounds by GCMS - Quality Control										
Batch 6J23003 - EPA 3510C_MS										
Blank (6J23003-BLK2) Continued				Prepared: 10/24/2006 07:23 Analyzed: 10/24/2006 19:26						
Di-n-octylphthalate	0.90 U	10	ug/L							
Fluoranthene	0.90 U	10	ug/L							
Fluorene	1.1 U	10	ug/L							
Hexachlorobenzene	1.1 U	10	ug/L							
Hexachlorobutadiene	2.0 U	10	ug/L							
Hexachlorocyclopentadiene	2.0 U	10	ug/L							
Hexachloroethane	2.4 U	10	ug/L							
Indeno(1,2,3-cd)pyrene	1.1 U	10	ug/L							
Isophorone	1.8 U	10	ug/L							
Naphthalene	2.1 U	10	ug/L							
Nitrobenzene	1.9 U	10	ug/L							
N-Nitrosodimethylamine	1.9 U	10	ug/L							
N-Nitroso-di-n-propylamine	2.1 U	10	ug/L							
N-Nitrosodiphenylamine	1.1 U	10	ug/L							
Pentachlorophenol	0.90 U	10	ug/L							
Phenanthrene	0.90 U	10	ug/L							
Phenol	1.5 U	10	ug/L							
Pyrene	0.90 U	10	ug/L							
LCS (6J23003-BS1)				Prepared: 10/23/2006 07:23 Analyzed: 10/24/2006 04:58						
1,2,4-Trichlorobenzene	6.9 J	10	ug/L	50.0		14	10-100			
1,4-Dichlorobenzene	7.2 J	10	ug/L	50.0		14	10-97			
2,4-Dinitrotoluene	40	10	ug/L	50.0		79	23-128			
2-Chlorophenol	35	10	ug/L	50.0		70	14-102			
4-Chloro-3-methylphenol	39	10	ug/L	50.0		79	10-126			
4-Nitrophenol	32	10	ug/L	50.0		64	10-131			
Acenaphthene	21	10	ug/L	50.0		41	22-115			
N-Nitroso-di-n-propylamine	32	10	ug/L	50.0		65	19-122			
Pentachlorophenol	49	10	ug/L	50.0		98	13-117			
Phenol	25	10	ug/L	50.0		51	11-87			
Pyrene	38	10	ug/L	50.0		76	45-123			
LCS (6J23003-BS2)				Prepared: 10/24/2006 07:23 Analyzed: 10/24/2006 19:57						
1,2,4-Trichlorobenzene	30	10	ug/L	50.0		61	10-100			
1,4-Dichlorobenzene	27	10	ug/L	50.0		54	10-97			
2,4-Dinitrotoluene	39	10	ug/L	50.0		78	23-128			
2-Chlorophenol	34	10	ug/L	50.0		67	14-102			
4-Chloro-3-methylphenol	39	10	ug/L	50.0		77	10-126			
4-Nitrophenol	27	10	ug/L	50.0		55	10-131			
Acenaphthene	37	10	ug/L	50.0		74	22-115			
N-Nitroso-di-n-propylamine	32	10	ug/L	50.0		64	19-122			
Pentachlorophenol	48	10	ug/L	50.0		96	13-117			
Phenol	19	10	ug/L	50.0		39	11-87			
Pyrene	42	10	ug/L	50.0		83	45-123			
Matrix Spike (6J23003-MS1)		**Source: C603999-02**		Prepared: 10/23/2006 07:23 Analyzed: 10/24/2006 05:56						
1,2,4-Trichlorobenzene	7.4 J	10	ug/L	50.0	2.1 U	15	10-97			

QUALITY CONTROL

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Sanple Notes
Semivolatile Organic Compounds by GCMS - Quality Control										
Batch 6J23003 - EPA 3510C_MS										
Matrix Spike (6J23003-MS1) Continued		**Source: C603999-02**		Prepared: 10/23/2006 07:23 Analyzed: 10/24/2006 05:56						
1,4-Dichlorobenzene	6.7 QM-07, J	10	ug/L	50.0	2.2 U	13	14-91			QM-07
2,4-Dinitrotoluene	44	10	ug/L	50.0	1.1 U	88	28-116			
2-Chlorophenol	35	10	ug/L	50.0	2.0 U	70	22-99			
4-Chloro-3-methylphenol	44	10	ug/L	50.0	1.4 U	89	37-109			
4-Nitrophenol	39	10	ug/L	50.0	1.2 U	79	10-140			
Acenaphthene	21	10	ug/L	50.0	1.4 U	42	23-119			
N-Nitroso-di-n-propylamine	33	10	ug/L	50.0	2.1 U	66	22-115			
Pentachlorophenol	56	10	ug/L	50.0	0.90 U	113	10-146			
Phenol	27	10	ug/L	50.0	1.5 U	54	10-92			
Pyrene	40	10	ug/L	50.0	0.90 U	80	43-123			
Matrix Spike Dup (6J23003-MSD1)		**Source: C603999-02**		Prepared: 10/23/2006 07:23 Analyzed: 10/24/2006 06:24						
1,2,4-Trichlorobenzene	7.4 J	10	ug/L	50.0	2.1 U	15	10-97	0.1	43	
1,4-Dichlorobenzene	6.9 J	10	ug/L	50.0	2.2 U	14	14-91	3	43	
2,4-Dinitrotoluene	42	10	ug/L	50.0	1.1 U	83	28-116	5	21	
2-Chlorophenol	30	10	ug/L	50.0	2.0 U	59	22-99	17	41	
4-Chloro-3-methylphenol	42	10	ug/L	50.0	1.4 U	84	37-109	6	22	
4-Nitrophenol	39	10	ug/L	50.0	1.2 U	78	10-140	0.9	52	
Acenaphthene	23	10	ug/L	50.0	1.4 U	45	23-119	8	28	
N-Nitroso-di-n-propylamine	28	10	ug/L	50.0	2.1 U	57	22-115	16	22	
Pentachlorophenol	58	10	ug/L	50.0	0.90 U	115	10-146	2	42	
Phenol	22	10	ug/L	50.0	1.5 U	43	10-92	22	44	
Pyrene	44	10	ug/L	50.0	0.90 U	87	43-123	8	32	
Volatile Petroleum Hydrocarbons by GC - Quality Control										
Batch 6J24001 - EPA 5030B										
Blank (6J24001-BLK1)				Prepared: 10/24/2006 06:52 Analyzed: 10/24/2006 13:08						
C5-C8 Aliphatics	3 U	20	ug/L							
C9-C10 Aromatics	10 U	20	ug/L							
C9-C12 Aliphatics	28 U	30	ug/L							
LCS (6J24001-BS1)				Prepared: 10/24/2006 06:52 Analyzed: 10/24/2006 10:02						
C9-C10 Aromatics ms	31.2	20	ug/L	40.0		78	70-130			
C9-C12 Aliphatics ms	131	30	ug/L	120		109	70-130			
C5-C8 Aliphatics ms	76.1	20	ug/L	80.0		95	70-130			
Matrix Spike (6J24001-MS1)		**Source: C603727-01**		Prepared: 10/24/2006 06:52 Analyzed: 10/24/2006 11:04						
C9-C10 Aromatics ms	46.4	20	ug/L	40.0	10 U	116	70-130			
C9-C12 Aliphatics ms	132	30	ug/L	120	28 U	110	70-130			
C5-C8 Aliphatics ms	78.2	20	ug/L	80.0	3 U	98	70-130			
Matrix Spike Dup (6J24001-MSD1)		**Source: C603727-01**		Prepared: 10/24/2006 06:52 Analyzed: 10/24/2006 12:38						
C9-C10 Aromatics ms	35.5	20	ug/L	40.0	10 U	89	70-130	26	50	
C9-C12 Aliphatics ms	146	30	ug/L	120	28 U	122	70-130	10	50	
C5-C8 Aliphatics ms	77.4	20	ug/L	80.0	3 U	97	70-130	1	50	

QUALITY CONTROL

QUALITY CONTROL

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Sanple Notes
Extractable Petroleum Hydrocarbons by GC - Quality Control										
Batch 6J24002 - EPA 3510C										
Blank (6J24002-BLK1)				Prepared: 10/24/2006 12:21 Analyzed: 10/27/2006 18:41						
C19-C36 Aliphatics	30 U	500	ug/L							
C9-C18 Aliphatics	50 U	500	ug/L							
Matrix Spike (6J24002-MS1)		**Source: B609197-01**		Prepared: 10/24/2006 12:21 Analyzed: 10/27/2006 19:27						
C19-C36 Aliphatics ms	245 J	500	ug/L	300	30 U	82	40-140			
C9-C18 Aliphatics ms	336 J	500	ug/L	520	50 U	65	40-140			
Matrix Spike Dup (6J24002-MSD1)		**Source: B609197-01**		Prepared: 10/24/2006 12:21 Analyzed: 10/27/2006 19:51						
C19-C36 Aliphatics ms	256 J	500	ug/L	300	30 U	85	40-140	4	50	
C9-C18 Aliphatics ms	367 J	500	ug/L	520	50 U	70	40-140	9	50	
Batch 6J24003 - EPA 3510C										
Blank (6J24003-BLK1)				Prepared: 10/24/2006 12:25 Analyzed: 10/27/2006 20:38						
C11-C22 Aromatics	8 U	100	ug/L							
Surrogate: o-Terphenyl	*34.1*		*ug/L*	*40.0*		*85*	*40-140*			
Surrogate: 2-Bromonaphthalene	*35.8*		*mg/L*	*40.0*		*89*	*40-140*			
Surrogate: 2-Fluorobiphenyl	*36.6*		*mg/L*	*40.0*		*92*	*40-140*			
LCS (6J24003-BS1)				Prepared: 10/24/2006 12:25 Analyzed: 10/27/2006 21:01						
C11-C22 Aromatics	79.6 J	100	ug/L	100		80	40-140			
Surrogate: o-Terphenyl	*38.1*		*ug/L*	*40.0*		*95*	*40-140*			
Surrogate: 2-Bromonaphthalene	*38.6*		*mg/L*	*40.0*		*96*	*40-140*			
Surrogate: 2-Fluorobiphenyl	*38.2*		*mg/L*	*40.0*		*96*	*40-140*			
Matrix Spike (6J24003-MS1)		**Source: B609197-01**		Prepared: 10/24/2006 12:25 Analyzed: 10/27/2006 21:24						
C11-C22 Aromatics ms	77.7 J	100	ug/L	100	8 U	78	40-140			
Surrogate: o-Terphenyl	*37.5*		*ug/L*	*40.0*		*94*	*40-140*			
Surrogate: 2-Bromonaphthalene	*36.3*		*mg/L*	*40.0*		*91*	*40-140*			
Surrogate: 2-Fluorobiphenyl	*37.9*		*mg/L*	*40.0*		*95*	*40-140*			
Matrix Spike Dup (6J24003-MSD1)		**Source: B609197-01**		Prepared: 10/24/2006 12:25 Analyzed: 10/27/2006 21:48						
C11-C22 Aromatics ms	78.0 J	100	ug/L	100	8 U	78	40-140	0.3	50	
Surrogate: o-Terphenyl	*38.9*		*ug/L*	*40.0*		*97*	*40-140*			
Surrogate: 2-Bromonaphthalene	*38.0*		*mg/L*	*40.0*		*95*	*40-140*			
Surrogate: 2-Fluorobiphenyl	*38.6*		*mg/L*	*40.0*		*97*	*40-140*			

NOTES AND DEFINITIONS

D	Data reported from a dilution
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
U	Analyte included in the analysis, but not detected

LABORATORY CERTIFICATION SUMMARY

Analysis	Matrix	Cert ID	Cert Number
625	Water	NC	591
VPH Aliph	Water	NC	591
VPH Arom	Water	NC	591
EPH Aliph	Water	NC	442
EPH Arom	Water	NC	442

ENVIRONMENTAL CONSERVATION LABORATORIES CHAIN-OF-CUSTODY RECORD

10775 Central Port Dr.
Orlando, FL 32824
(407) 826-5314 Fax (407) 850-6945

4810 Executive Park Court, Suite 211
Jacksonville, FL 32216-6069
(904) 296-3007 Fax (904) 296-6210

1015 Passport Way
Cary, NC 27513
(919) 677-1669 Fax (919) 677-9846

Client Name: Withers & Ravenel, Inc.	Project Number: 02060548.0
Address: 111 Mackenan Dr.	Project Name/Desc: Former Esso/Exxon
City/ST/Zip: Cary, NC 27511	PO # / Billing Info:
Tel: 919-469-3340 Fax:	Reporting Contact: Jayson Kilcoyne
Sampler(s) Name, Affiliation (Print): Jayson Kilcoyne - Env. Scient.	Billing Contact:
Sampler(s) Signature: Jayson Kilcoyne	Facility # (if required):

Requested Analyses

Preservation (See Codes) (Combine as necessary)

Item #	Sample ID (Field Identification)	Collection Date	Collection Time	Comp / Grab	Matrix (see codes)	Total # of Containers	6210D	625	MADEP VPH	MADEP EPH								
	MW-1	10/17/06	19:30	Grab	GW	7	X	X	X	X								
	MW-2	10/17/06	20:00	Grab	GW	6	X	X	X	X								

<-- Total # of Containers

Requested Turnaround Times

Note : Rush requests subject to acceptance by the facility

X Standard

___ Expedited

Due ___/___/___

Lab Workorder

Sample Comments

*Not enough water to fill all containers

Sample Kit Prepared By	Date/Time	Relinquished By: Jayson Kilcoyne	Date/Time	Received By	Date/Time: 10/18/06 13:00
Comments		Relinquished By	Date/Time	Received By	Date/Time
		Relinquished By	Date/Time	Received By	Date/Time
		Cooler #'s & Temps on Receipt: 4°C		Condition Upon Receipt: X Acceptable ___ Unacceptable	

Matrix : **GW**-Groundwater **SO**-Soil **SE**-Sediment **SW**-Surface Water **WW**-Wastewater **A**-Air **O**-Other (detail in comments)

Preservation: **I**-Ice **H**-HCl **N**-HNO3 **S**-H2SO4 **NO**-NaOH **O**-Other (detail in comments)

Note : All samples submitted to ENCO Labs are in accordance with the terms and conditions listed on the reverse of this form, unless prior written agreements exist