LEAKING UNDERGROUND STORAGE TANK (LUST) AND OIL/WATER SEPARATOR PHASE I LIMITED SITE ASSESSMENT REPORT

FOR

BUILDING AS-4159
MARINE CORPS AIR STATION
NEW RIVER, NORTH CAROLINA

NCDENR UST INCIDENT NO. PENDING

April 12, 2006

CONTRACT NO. N62470-05-D-6200
DELIVERY ORDER NO. 0016
CATLIN PROJECT NO. 205-077

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TABLE OF CONTENTS

TABLES

FIGURES

TABLE OF CONTENTS (continued)

APPENDICES

LIST OF ACRONYMS

2000 Guidelines	Groundwater Section Guidelines for Investigation and Remediation of Soil and Groundwater
2001 Guidelines	Guidelines for Assessment and Corrective Action, North Carolina Underground Storage Tank Section (Effective July 1, 2001)
2L GWQS	NCAC T15A:02L Groundwater Quality Standards
ARO	Asheville Regional Office
AS	Air Sparge
AST	Aboveground Storage Tank
BDL	Below Detection Limit
BN	Base/Neutral (extractables)
BNA	Base/Neutral/Acid (extractables)
BQL	Below Quantitation Limit
BLS	Below Land Surface
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAP	Corrective Action Plan
CATLIN	CATLIN Engineers and Scientists (Formerly RC&A)
CFR	Code of Federal Regulations
Cr	Chromium
CSA	Comprehensive Site Assessment
CNP	Carbon Nitrogen Phosphorous
CPT	Cone Penetrometer Test
DEM	Division of Environmental Management
DIPE	Diisopropyl Ether
DO	Dissolved Oxygen
DOD	Department of Defense
DPT	Direct Push Technology
DWQ	Division of Water Quality
DWM	Division of Waste Management
DTW	Depth to Water
EAD	Environmental Affairs Department
EDB	Ethylene di-bromide
EMD	Environmental Management Division
EPA	Environmental Protection Agency
EPH	Extractable Petroleum Hydrocarbons
EQB	Environmental Quality Branch
Fe	Iron
FID	Flame Ionization Detector
FOD	Foreign Object Debris
FRO	Fayetteville Regional Office
FT	Feet
GCL	Gross Contaminant Level
GIS	Geographic Information System
GPS	Global Positioning System

Guidelines Vol. I	Groundwater Section Guidelines for Investigation and Remediation of Soil and Groundwater, Volume I, Sources Other Than Petroleum Underground Storage Tanks (May 1998)
Guidelines Vol. II	Groundwater Section Guidelines for Investigation and Remediation of Soil and Groundwater, Volume II, Petroleum Underground Storage Tanks (January 2, 1998)
HDPE	High Density Polyethylene
I/C	Industrial/Commercial
ID	Identification
I&E	Installations and Environment Department
IGWQS	Interim Groundwater Quality Standards
IPE	Isopropyl Ether
LANTDIV	Atlantic Division
LSA	Limited Site Assessment
LUST	Leaking Underground Storage Tank
m-	meta
m	meter
MADEP	Massachusetts Department of Environmental Protection
MCALF	Marine Corps Auxiliary Landing Field
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MCOLF	Marine Corps Outlying Landing Field
MDL	Method Detection Limit
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Litre
MRO	Mooresville Regional Office
MSCC	Maximum Soil Contaminant Concentration
MSL	Mean Sea Level
MTBE	Methyl tertiary butyl ether
µg/Kg	Micrograms per Kilogram
µg/L	Micrograms per Litre
NA	Not Analyzed
N/A	Not Applicable
NC	North Carolina
NCAC	North Carolina Administrative Code
NCDENR	North Carolina Department of Environment and Natural Resources
NCDOC	North Carolina Department of Corrections
NCDOT	North Carolina Department of Transportation
NCSP	North Carolina State Plane
NCSPA	North Carolina State Ports Authority
NE	None Established
NM	Not Measured
NMT	No Measurable Thickness
NS	Not Sampled
o-	ortho
OVA	Organic Vapor Analyzer
p-	para
PAH	Polynuclear Aromatic Hydrocarbons
Pb	Lead
PPB	Parts Per Billion
PPM	Parts Per Million

PID	Photo Ionization Detector
PQL	Practical Quantitation Limit
PVC	Polyvinyl chloride
RBCA	Risk-Based Corrective Action
RCRA	Resource Conservation and Recovery Act
Res	Residential
ROI	Radius of Influence
RRO	Raleigh Regional Office
SOW	Scope of Work
STGW	Soil-to-Groundwater
SVE	Soil Vapor Extraction
SVOC	Semi Volatile Organic Compound
TDHF	Toxicologically Defined Hydrocarbons Fractions
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Identified Compound
TKN	Total Kjeldahl Nitrogen
TOC	Top of Casing
TPH	Total Petroleum Hydrocarbons
US	United States
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
VPH	Volatile Petroleum Hydrocarbons
WaRO	Washington Regional Office
WiRO	Wilmington Regional Office
WSRO	Winston-Salem Regional Office

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NCDENR UST INCIDENT NO. PENDING

April 12, 2006

PURPOSE OF INVESTIGATION

The purpose of this Phase 1 LSA is to provide the necessary information for NCDENR to classify the level of risk resulting from a suspected waste oil release. CATLIN Engineers and Scientists (CATLIN) was authorized to perform this Phase I Limited Site Assessment (LSA) by the NAVFAC Mid-Atlantic in accordance with the Order of Supplies Contract Number N62470-05-D-6200, Delivery Order Number 0016. Building AS-4159 (AS-4159) is located on Perimeter Road, aboard MCAS, New River, North Carolina. Building AS-4159 is within the Second Marine Air Wing Operational and Maintenance Facility compound and is used by the Marine Corps for vehicle maintenance and repair. Figure 1 illustrates the general site location within the local USGS topographic quadrangle map.

This LSA was conducted in response to the initial findings in the Shaw Environmental and Infrastructure, Inc. (Shaw) "Building AS-4159 UST and Oil/Water Separator Closure Report" documenting Oil/Water Separator and associated UST removal activities at the subject site. In January 1999, a concrete Oil/Water Separator (1,500 gallon), associated waste oil UST (1,000 gallon), and associated plumbing was installed at the Building AS-4159 site. Base personnel recently decided to have this system removed. In August of 2005 Shaw removed the waste oil tank and Oil/Water Separator system. Visual inspection of the removed equipment revealed no visual cracks in the concrete Oil/Water Separator or UST tank. However, inspection of the resulting excavation revealed soil staining and odors, often indicative of petroleum impact, in soils (approximately 8 feet BLS) between the former UST and Oil /Water Separator location. Initial abatement activities were approved and Shaw removed approximately 200 tons of non-hazardous TPH impacted soil from the former UST location.

Following completion of the excavation activities, sidewall soil samples were obtained for laboratory analysis. Soil samples from the former UST location (AS4159-01) were analyzed for TPH-DRO/GRO concentrations per EPA Method 3550 and 5030. Remaining excavation soil samples (AS4159-02 through AS4159-07) were analyzed per EPA Method 8260B + IPE & MTBE, EPA Method 8270C, EPA Method 8081A (pesticides), EPA Method 8082 (PCBs), MADEP EPH/VPH and EPA Method 3050 (chromium and lead). Laboratory analysis revealed

the following areas of concern: TPH DRO concentrations in sample AS4159-01 (384 mg/Kg) are in excess of applicable North Carolina Action Level of 10 mg/Kg. Soil sample AS4159-04 exhibited C_9-C_{22} Aromatic hydrocarbon fraction range concentration (1,190 mg/Kg) in excess of applicable North Carolina Res. (469 mg/Kg) and STGW (34 mg/Kg) MSCC standards. Soil sample AS4159-05 exhibited a C_9-C_{22} Aromatic hydrocarbon fraction range concentration (102.2 mg/Kg) in excess of applicable North Carolina STGW (34 mg/Kg) MSCC standard. No analytical result was in excess of applicable Industrial/Commercial MSCC.

The UST excavation intersected the site surficial groundwater; therefore, in accordance with *2001 Guidelines*, a temporary groundwater monitoring well (TW-1) was installed (September 26, 2005) within the boundary of the backfilled UST excavation. A groundwater sample was obtained from this temporary well for EPA Methods 8260B, 625 (+ TICS), 6010 and MADEP-EPH/VPH analysis by an independent analytical laboratory. Following groundwater sample collection the temporary well was abandoned by a North Carolina licensed driller. Analysis results indicated concentrations of chromium (52.5 ug/L – 2L GWQS 50 ug/L), Lead (33.1 ug/L – 2L GWQS 15 ug/L) and C_9-C_{22} Aromatic hydrocarbon fraction range (443 ug/L – 2L GWQS 210 ug/L) in excess of applicable 2l GWQS. Known areas of concern within site soils and surficial groundwater warranted preparation of this LSA.

Site soil quality concerns were addressed during the Oil/Water Separator and UST closure activities. However, the site surficial groundwater quality, between the former Oil/Water Separator and the former UST location, remained an area of concern. On January 17, 2006, CATLIN personnel installed a permanent Type II groundwater monitoring well (USTAS4159-MW01) between the former UST and Oil/Water Separator location. Groundwater samples were obtained from the newly installed monitoring well for Risk-Based laboratory analysis per EPA Method 6210D, EPA Method 625 (+ 10 largest non-target peaks), MADEP VPH/EPH and EPA Method 6020 (chromium and lead) in accordance with Table 10 of the *2001 Guidelines* .

This document provides data to fulfill the initial site assessment and risk characterization requirements in accordance with 15A NCAC 2L .0115(c)(4). Accordingly, this LSA document has been formatted to conform with the Guidelines for Assessment and Corrective Action effective July 1, 2001 (*2001 Guidelines*).

PHASE I LIMITED SITE ASSESSMENT REPORT

A. SITE IDENTIFICATION

DATE OF REPORT: April 12, 2006
Facility ID: N/A **UST Incident Number (if known):** Pending
Site Name: Building AS-4159
Site Location: Marine Corps Air Station, New River
Nearest City/Town: Jacksonville **County:** Onslow

UST Owner: Commanding Officer – MCB Camp Lejeune
I&E/EMD/EQB
Address: PSC 20004
MCB Camp Lejeune, NC 28542 **Phone:** (910) 451-5068

UST Operator: Same as above (see Table 2)
Address: Same as above **Phone:** Same as above

Property Owner: Same as above (see Table 2)
Address: Same as above **Phone:** Same as above

Property Occupant: Unknown
Address: Building AS-4159, Perimeter Road **Phone:**

Consultant/Contractor: CATLIN Engineers and Scientists
Address: 220 Old Dairy Road, Wilmington, North Carolina 28405 **Phone:** (910) 452-5861

Release Information

Date Discovered: August 2005
Longitude: 77° 19' 46.26" W **Latitude:** 34° 40' 22.56" N
Estimated Quantity of Release: Unknown
Cause of Release: Unknown
Source of Release (e.g. Piping/UST): The source of the release is unknown; however, the removed UST and associated piping appeared to be in good condition.

Sizes and contents of UST system(s) from which the release occurred:
One 1,000-gallon, double wall, polyethylene coated, steel UST. This UST stored waste oil from a site oil/water separator.

I, **Michael E. Mason** a Professional Engineer/Licensed Geologist **(circle one)** for CATLIN Engineers and Scientists, do certify that the information contained in this report is correct and accurate to the best of my knowledge.

(Please Affix Seal and Signature)

B. RISK CHARACTERIZATION

Limited Site Assessment Risk Classification and Land Use Form

Part I - Groundwater/Surface Water/Vapor Impacts
High Risk

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

   No information provided indicates a water supply well has been contaminated as a result of the release from the AS-4159 potential source area.

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

   There are two active potable water wells located within 1,000 feet of the subject site. PSWAS-4150 is located approximately 900 feet north-east of the potential source area. PSWAS-5001 is located approximately 850 feet south of the potential source area (A&H, August 2002). See Figure 1.

3. *Is a water supply well not used for drinking water (e.g., irrigation, washing cars, industrial cooling water, filling swimming pools) located within 250 feet of the source area of the release?* YES **NO**

   There is no water supply well located within 250 feet of the source area of the release.

4. *Does groundwater within 500 feet of the source area of the release have the potential for future use (there is no other source of water supply other than the groundwater)?* YES **NO**

   Currently MCAS New River has several locations for potential water supply well locations that are greater than 500 feet from the potential source area.

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

   Buildings within 500 feet of the potential source area are slab on grade. No evidence of vapor accumulations has been reported.

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 describe.

A review of data collected during this investigation does not provide evidence to suggest other factors that would cause the discharge or release to pose an imminent danger to public health, public safety, or the environment.

Intermediate Risk

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

The nearest mapped surface water body is a tributary to Southwest Creek located approximately 1,600 feet south west of the potential source area (see Figure 1).

*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**

8. *Is the source area of the discharge or release located within an approved or planned wellhead protection area as defined in 42 USC 300h-7(e)?* YES **NO**
If YES describe.

Wellhead protection areas on MCAS New River as defined by 42 USC 300h-7(e) have not, as of this time, been designated by the State. However, MCAS New River has identified wellhead protection areas on the base. Based on the most recent Wellhead Protection Plan – 2002 Update, the potential source area is currently not located within a proposed wellhead protection area.

9. *Is the 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

As identified in the Geologic Map of North Carolina (North Carolina Department of Natural Resources and Community Development 1985), the subject site lies within the Coastal Plain Physiographic Province. Figure 2 illustrates the subject site location in reference to the Geologic Map of North Carolina Coastal Plain physiographic province.

If YES, is the source area of the 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 describe

The potential source area is located just above an apparent unconfined surficial groundwater aquifer, which extends from the ground surface to approximately 32 feet below grade. While there is the potential for recharge by rainfall to the unconfined surficial aquifer at the Base, the surficial aquifer is not used for water supply aboard MCAS, New River. Groundwater obtained from the Castle Hayne Aquifer is the raw water source for the MCAS, New River potable water treatment facilities. An estimated 5 feet of Upper Tertiary Confining Unit, 27 feet of Upper Tertiary Aquifer and 40 feet of Castle Hayne Confining Unit separate the Castle Hayne aquifer from the surficial aquifer. Data regarding hydrogeologic units below the subject site are discussed in greater detail in Section C.5.

As stated previously, there are two active potable water wells located within 1,000 feet of the subject site. PSWAS- 4150 (193 feet deep BLS) is located approximately 850 feet north east of the potential source area. PSWAS-5001 (193 feet deep BLS) is located approximately 900 feet south of the potential source area. The unconfined surficial aquifer at the subject site does not appear to be a recharge source for the local Castle Hayne aquifer and no information provided indicates a nearby water supply well has been contaminated as a result of the release from the AS-4159 potential source area.

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

Surficial groundwater samples from site monitoring well USTAS4159-MW01 were analyzed per EPA Method 6210D, EPA Method 625+TICS, MADEP VPH/EPH and EPA Method 6020 (Chromium and Lead) parameters. A review of resulting laboratory analysis results indicates no subject analyte concentrations were detected in excess of applicable GCLs. These findings are discussed in greater detail in Section E of this report.

Part II - Land Use

Property Containing Source Area of 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**
Describe.

MCAS, New River does contain primary and secondary residences; however, they are more than 1,500 feet from the potential source area.

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**
Describe.

MCAS, New River does contain above described places of public assembly; however, they are more than 1,500 feet from the potential source area.

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
Describe.

Building AS-4159 is a slab on grade building utilized for Marine Corps vehicle maintenance and repair.

4. *Do children visit the property?* YES **NO**
Explain.

Under normal circumstances children are not expected to visit the property.

Is access to the property reliably restricted consistent with its use (e.g., by fences, security personnel or both)? **YES** NO
Explain.

Building AS-4159 is within the Second Marine Air Wing Operational and Maintenance Facility compound and is used for Marine Corps vehicle maintenance and repair. There is a security fence around the perimeter of this facility compound and accessibility is limited to appropriate Marine Corps and civil service personnel.

5. *Do pavement, buildings, or other structures cap the contaminated soil?* **YES** NO
Describe.

The potential source area is capped by asphalt.

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 current site use is not expected to change in the near future.

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

The MCAS, New River is not subject to local or county-zoning requirements; however, building AS-4159 is located within an Industrial/Commercial use zone.

7. *Is the use of the property likely to change in the next 20 years?* YES **NO**
Explain.

The current use of the local MCAS, New River area is not likely to change in the near future.

Property Surrounding Source Area of Release
The questions below pertain to the area within 1,500 feet of the source area of the release (excludes property containing source area of the release): See Figure 1

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

   MCAS, New River does contain primary and secondary residences; however, the nearest such area(s) are greater than 1,500 feet from the potential source area.

2. *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?*

   MCAS, New River does contain place(s) of public assembly; however, the nearest such area(s) are greater than 1,500 feet from the potential source area.

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

   As stated previously, building AS-4159 is located within an Industrial/Commercial use zone.

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

   Building AS-4159 is within the Second Marine Air Wing Operational and Maintenance Facility compound which is utilized for Marine Corps vehicle maintenance and repair.

C. RECEPTOR INFORMATION

1. Water Supply Wells

There are two active potable water wells located within 1,500 feet of the subject site. AS-5001 (193 feet deep) is located approximately 900 feet south of the potential source area. AS-4150 (193 feet deep) is located approximately 850 feet north-east of the potential source area.

2. Public Water Supplies

Are public water supplies available within 1,500 feet of the source area of the release? **YES** NO

If YES, where is the location of the nearest public water lines and the source(s) of the public water supply (indicate on map). Describe.

Public water is provided to Building AS-4159, as well as other buildings within 1,500 feet of the potential source area by water mains, which carry treated potable water. Potable water is supplied to the site and surrounding areas by the MCAS, New River water supply system. Groundwater obtained from the Castle Hayne Aquifer is the raw water source for the MCAS, New River potable water treatment facilities.

3. Surface Water

As stated previously, the nearest mapped surface water body is a tributary to Southwest Creek located approximately 1,600 feet southwest of the potential source area.

4. Wellhead Protection Areas

As stated previously, MCAS New River has identified wellhead protection areas on the base. Based on the most recent Wellhead Protection Plan – 2002 Update, the potential source area is not located within a proposed wellhead protection area.

5. Deep Aquifers in the Coastal Plain Physiographic Region

To determine deep aquifers underlying the subject site, the area was profiled in the "Visual Hydrogeologic Framework" database provided in the NCDENR Division of Water Resources website (VHF website) on January 23, 2006. This is a database of well and soil boring log data from numerous locations across the North Carolina Coastal Plain. The program uses data from the three locations closest to the point of interest to provide a cross-section of commonly identified hydrogeologic units likely to be present below the subject site.

Including the Surficial aquifer there are eleven identified aquifers (seven principal aquifers and four minor aquifers) within the North Carolina Coastal Plain Physiographic Region. The January 23, 2006 program results regarding deep aquifers below the subject site can be summarized as follows:

Hydrogeologic Units	Approximate Depth (feet)
Surficial Aquifer	0-32
Upper Tertiary Confining Unit	32-37
Upper Tertiary Aquifer	37-64
Castle Hayne Confining Unit	64-104
Castle Hayne Aquifer	104-254
Pee Dee Confining Unit	254-+280

A copy of the visual hydrogeologic framework results has been provided in Appendix A.

6. Subsurface Structures

Numerous underground utilities are present throughout MCAS, New River facility. These utilities are reportedly located above the surficial groundwater table (± 11 feet BLS) and therefore, are not considered potential receptors.

7. Property Owners and Occupants

The subject site is owned and operated by the Commanding Officer – Marine Corps Base, Camp Lejeune. Refer to Table 1.

D. SITE GEOLOGY AND HYDROGEOLOGY

D.1 Site Geology

The following site geology description is based on visual description of the soil split spoon samples obtained while installing the borehole for site groundwater monitoring well USTAS4159-MW-01. The encountered site soils can be summarized as follows:

USTAS4159-MW01		
Depth in feet BLS	Soil Description	USCS
0-0.5	Asphalt	
0.5-2	Tan, silty very fine to fine grained sandy gravel	SW/GM
2-4	No split spoon sample	
4-6	Tan/brown well sorted very fine to fine sands	SP
6-9	No split spoon sample	
9-11	Gray, silty, very fine to fine sands	SM
11-14	No split spoon sample	
14-16	Gray/brown, silty, very fine to fine sands	SM

The soils described above are consistent with undivided surficial deposits typically encountered within the area Coastal Plain physiographic province. A copy of the USTAS4159-MW01 boring log, monitoring well as-built, and North Carolina Well Construction record have been provided in Appendix B.

D.2 Site Hydrogeology

During the January 17, 2006 site visit, CATLIN personnel obtained depth to water data from site-monitoring well USTAS4159-MW01. Depth to surficial groundwater at well USTAS4159-MW01 was 11.70 feet below top of casing. Review of the data generated during this investigation, indicates the surficial groundwater encountered below the potential source area is part of an unconfined surficial aquifer. Site monitoring well details and the groundwater gauging data has been summarized on Table 3. The location of the site monitoring well has been illustrated on Figure 2.

E. SAMPLING RESULTS

The initial findings of the SHAW "Building AS-4159 UST and Oil/Water Separator Closure Report" indicated potential areas of concern in the site subsurface soils and groundwater. Soil quality data obtained during the closure activities were sufficient to assess on-site soil quality. To assess the potential impact to the site surficial aquifer a permanent Type II monitoring well (USTAS4159-MW-01) was installed at the location where soil staining was noted during the UST closure activities. All surficial groundwater assessment fieldwork methods were conducted in general accordance with CATLIN's Standard Methods of Investigation and Data Evaluation. A copy of the CATLIN Standard Methods of Investigation has been provided in Appendix C.

E.1 Soil Sampling

During the UST and oil/water separator closure activities, SHAW found indications of a subsurface product release. SHAW obtained soil samples (AS4159-01) from the former UST location for analysis per TPH-DRO/GRO per EPA Method 3550 and 5030. Remaining excavation soil samples (AS4159-02 through AS4159-07) were analyzed for suspected waste oil contamination per EPA Methods 8260B + IPE & MTBE, EPA Method 8270C, EPA Method 8081A (pesticides), EPA Method 8082 (PCBs), MADEP EPH/VPH and EPA Method 3050 (chromium and lead) in August of 2005. SHAW soil sampling and handling procedures are discussed in the "Building AS-4159 UST and Oil/Water Separator Closure Report". For regulatory compliance, the SHAW soil sample laboratory analysis data was compared to applicable I/C, Residential, and STGW MSCCs listed in the *2001 Guidelines*. Compounds with concentrations in excess of applicable MSCCs, or compounds of concern, can be summarized as follows:

EPA Method 3550 and 5030

Laboratory analysis of soil sample AS4159-01 revealed TPH DRO concentrations (384 mg/Kg) in excess of applicable North Carolina Action Level of 10 mg/Kg. Soil sample AS4159-01 exhibited TPH GRO concentrations of 2.53 mg/Kg or below the applicable North Carolina Action Level of 10 mg/Kg.

EPA Method 8260B/5035 (+ IPE & MTBE)

Analysis of site soil samples revealed all EPA Method 8260B/5035 analytes were either below the method detection limits or below applicable MSCCs. A copy of the EPA Method 8260B/5035 laboratory report data table (Table 3-3) and sample location Figures (1.3 and 1.4), from the SHAW report, has been provided in Appendix D.

EPA Method 8270C

Analysis of site soil samples revealed all EPA Method 8270C analytes were either below the method detection limits or below applicable MSCCs. A copy of the EPA Method 8270C laboratory report data table (Table 3-2) and sample location Figures (1.3 and 1.4), from the SHAW report, has been provided in Appendix D.

MADEP VPH/EPH

Analysis of site soil samples AS4159-02, AS4159-03, AS4159-06 and AS4159-07 revealed all MADEP VPH/EPH hydrocarbon fractions were below method detection limits. Sample AS4159-04 exhibited only C9-C22 Aromatic hydrocarbon fractions (1,190 mg/Kg) in excess of applicable Residential and STGW MSCCs. Sample AS4159-05 exhibited only C9-C22 Aromatic hydrocarbon fractions (102.2 mg/Kg) in excess of applicable STGW MSCCs. Concentrations of the remaining MADEP hydrocarbon fractions in samples AS4159-04 and AS4159-05 were below applicable MSCCs. A copy of the MADEP VPH/EPH laboratory report data table (Table 3-1) and sample location Figures (1.3 and 1.4), from the SHAW report, has been provided in Appendix D.

EPA Method 8081A (Pesticides)

Analysis of site soil samples AS4159-03, AS4159-04 and AS4159-07 revealed all EPA Method 8081A analytes were below the method detection limits. Trace levels of alpha-Chlordane (0.81 J to 1.3 J mg/Kg) and gamma-Chlordane (1.5 J to 2.9 mg/Kg) were detected in soil samples AS4159-02 and AS4159-05. The J suffix indicates the concentration is an estimated value. Trace levels of gamma-Chlordane (1.6 J mg/Kg) were detected in soil sample AS4159-06. No MSCCs have been established for these two compounds. A copy of the EPA Method 8081A laboratory report data table (Table 3-2) and sample location Figures (1.3 and 1.4), from the SHAW report, has been provided in Appendix D.

EPA Method 8082 (PCBs)

Analysis of site soil samples revealed all EPA Method 8082A analytes were below method detection limits. A copy of the EPA Method 8082A laboratory report data table (Table 3-2) and sample location Figures (1.3 and 1.4), from the SHAW report, has been provided in Appendix D.

EPA Method 6010B (chromium and lead)
Analysis detected chromium and lead concentrations in all site soil samples; however, all concentrations were below applicable MSCCs. A copy of the EPA Method 6010B laboratory report data table (Table 3-2) and sample location Figures (1.3 and 1.4), from the SHAW report, has been provided in Appendix D.

E.2 Groundwater Sampling

CATLIN personnel installed Type II monitoring well USTAS4159-MW01 on January 17, 2006. The well was allowed to equilibrate and was gauged for depth to water, potential free-phase product thickness, and to determine well volume. CATLIN purged a minimum of three well volumes from the monitoring well prior to placing groundwater samples directly into laboratory provided glassware. A copy of the sampling field data worksheet has been provided in Appendix E. All groundwater samples were labeled with the monitoring well identification, sample date, site name, sampler, and placed in an iced cooler. Samples were then delivered to Paradigm Analytical Laboratories, Inc. (Paradigm; North Carolina Certification #481) in Wilmington, North Carolina. In accordance with Table 10 of the *2001 Guidelines,* site groundwater samples were analyzed for suspected waste oil contamination per EPA Method 6210D, EPA Method 625 (+ 10 largest non-target peaks), MADEP VPH/EPH and EPA Method 6020 (chromium and lead).

A copy of the resulting groundwater sample laboratory analysis report has been provided in Appendix F. For regulatory compliance, the resulting laboratory analysis data have been compared to applicable groundwater quality standards (2L GWQS) listed in the *2001 Guidelines.* Analysis of the groundwater samples submitted for laboratory analysis can be summarized as follows:

EPA METHOD 625 + TICS
Analysis of the monitoring well USTAS4159-MW01 groundwater sample revealed that EPA Method 625 analyte concentrations were either below method detection limits or below applicable 2L GWQS and GCLs.

In accordance with the *2001 Guidelines* EPA Method 625 sample(s) are also analyzed for the ten (10) largest (peak area) non-target compounds, or Tentatively Identified Compounds (TICs). TICs refer to detected compounds, which are not present in the EPA Method 625 list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared using a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist. Quantitation was accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. The quantitation standard provided is an estimate. There are no established 2L GWQS or GCL standards for any of these TICs. Laboratory analysis of the USTAS4159-MW01 groundwater samples revealed Ten TICs. The EPA Method 625 + TICs laboratory

report data has been summarized on Table 4A. Figure 4A shows a summary of the data in relation to the site map.

EPA METHOD 6210D

Analysis of the monitoring well USTAS4159-MW01 groundwater sample revealed that EPA Method 6210D analyte concentrations were either below method detection limits or below applicable 2L GWQS and GCLs. USTAS4159-MW01 groundwater samples exhibited detectable levels of 4-Isopropyltoluene (0.600 ug/L); however, 2L GWQS and GCL standards have not been established for this compound. The EPA Method 6210D laboratory report data has been summarized on Table 4B. Figure 4B shows a summary of the data in relation to the site map.

MADEP VPH/EPH

Analysis of the monitoring well USTAS4159-MW01 groundwater sample revealed that MADEP VPH/EPH targeted hydrocarbon fraction concentrations were below method detection limits. MADEP EPH/VPH laboratory report data has been summarized on Table 4C. Figure 4C shows a summary of the data in relation to the site map.

EPA METHOD 6020 (chromium and lead)

Analysis of the monitoring well USTAS4159-MW01 groundwater sample revealed EPA Method 6020 chromium (0.00770 ug/L) and lead (0.00646 ug/L) concentrations were below applicable 2L GWQS and GCLs. EPA Method 6020 laboratory report data has been summarized on Table 4D. Figure 4D shows a summary of the data in relation to the site map.

E.3 Free-Phase Product

No measurable thickness of free-phase product was detected in the site groundwater monitoring well USTAS4159-MW01 during this Phase I LSA.

F. CONCLUSIONS AND RECOMMENDATIONS

F.1 Conclusions

LSA field and laboratory findings can be summarized as follows:

- Based on the field and laboratory findings of this Phase I LSA, CATLIN concludes that the subject site meets the criteria for Industrial/Commercial (I/C) land use and High Risk classification. The High Risk classification is due to two active potable water wells located within 1,000 feet of the source area.

- Site soil samples were analyzed per EPA Methods 8260B +IPE & MTBE, EPA Method 8270C, EPA Method 8081A (pesticides), EPA Method 8082 (PCBs), MADEP EPH/VPH and EPA Method 3050 (chromium and lead). Analysis of site soil samples revealed no analytes detected above method detection limits or applicable MSCCs, except as follows:

- Soil sample AS4159-04 exhibited C9-C22 Aromatic hydrocarbon fractions (1,190 mg/Kg) in excess of applicable Residential and STGW MSCCs and sample AS4159-05 exhibited C9-C22 Aromatic hydrocarbon fractions (102.2 mg/Kg) in excess of applicable STGW MSCCs. The former UST and Oil/Water separator location is capped with asphalt.

- Trace levels of alpha-Chlordane (0.81 J to 1.3 J mg/Kg) and gamma-Chlordane (1.5 J to 2.9 mg/Kg) were detected in soil samples AS4159-02 and AS4159-05. Trace levels of gamma-Chlordane (1.6 J mg/Kg) were detected in soil sample AS4159-06. No MSCCs have been established for these two compounds.

o Site USTAS4159-MW01 groundwater samples were analyzed per EPA Method 6210D, EPA Method 625 (+ 10 largest non-target peaks), MADEP VPH/EPH and EPA Method 6020 (chromium and lead). Laboratory analyses revealed that all analyte concentrations were either below method detection limits or below applicable 2L GWQS and GCLs, except as follows:

- USTAS4159-MW01 groundwater samples exhibited detectable levels of 4-Isopropyltoluene (0.600 ug/L) however; a 2L GWQS or GCL has not been established for this compound.

o No free-phase product was measured at the site groundwater monitoring well.

o The potential source area is capped with asphalt.

F.2 Recommendations

Ultimately, the NCDENR Division of Waste Management UST Section Underground Storage Section personnel will determine the risk classification for the incident at the subject site. Any additional assessment and/or remediation activities would be based on the pending risk classification. The following recommendations are based on CATLIN personnel evaluating site findings in accordance with the 2001 Guidelines.

Current site soil and groundwater conditions apparently meet the criteria for "No Further Action" with a "Notice of Residual Petroleum" or Land Use Restrictions.

A copy of this report should be forwarded to the NCDENR at the following address:

North Carolina Department of Environment and Natural Resources
Division of Waste Management
UST Section
Attention: Mr. Bruce Reed
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

G. REFERENCES

AH Environmental Consultants, Wellhead Protection Plan – 2002 Update, Marine Corp Base, Camp Lejeune, North Carolina, August 2002.

North Carolina Department of Natural Resources and Community Development. *Geology Map of North Carolina* 1985.

North Carolina Department of Environment and Natural Resources (NCDENR), Underground Storage Tank Section. *Guidelines for Assessment and Corrective Action*. Effective July 1, 2001.

North Carolina Department of Environment and Natural Resources (NCDENR), Division of Water Resources, Hydrogeology Framework Database. http:/www.ehnr.state.nc.us/Data_and_Modeling/Ground_Water_Databases/frametstnew.php.

North Carolina Geological Survey Website. http://www.geology.enr.state.nc.us/

Shaw Environmental Inc. *Building AS-4159 UST and Oil/Water Separator Closure Report, Marine Corps Base Camp Lejeune, Onslow County North Carolina,* November, 2005.

Winner, M.D., Jr., and Coble, R.W., 1989, *Hydrogeologic Framework of the North Carolina Coastal Plain Aquifer System: U.S. Geological Survey Open-File Report 87-690,* 155 p.

TABLES

TABLE 1

SITE HISTORY
UST SYSTEM INFORMATION

Building AS-4159

UST ID Number	**Product** (gasoline, diesel, jet fuel, etc.)	**Capacity** (gallons)	**Date Installed** (m/dd/yy)	**Date Permanently Closed (P), or Still in Use* (C)** (m/dd/yy)	**Was Release Associated With UST System?** (Yes / No)
AS4159-2	Used Oil	1,000	January-99	(P) August 29, 2005	Yes

TABLE 2

SITE HISTORY
UST OWNER/OPERATOR INFORMATION

Building AS-4159

UST ID Number	Name of Owner or Operator	Dates of Ownership/Operation (m/dd/yy) to (m/dd/yy)	UST usage
AS4159-2	Commanding Officer Attn: Director I&E/EMD/EQB Camp Lejeune, NC	January 1999 to August 2005	Waste Oil Storage

Address	Telephone Number
PSC Box 20004 Marine Corps Base, Camp Lejeune, NC 28542-0004	910-451-5068

TABLE 3 WELL CONSTRUCTION INFORMATION

Date: February 2006 Incident Number and Name: Pending/Building AS-4159

Well ID	**Date Installed** (m/dd/yy)	**Date Water Level Measured** (m/dd/yy)	**Well Casing Depth** (ft. BGS)	**Screened Interval** (x to y ft. BGS)	**Bottom of Well** (ft. BGS)	**Top of Casing Elevation** (ft.)	**Depth to Water from Top of Casing** (ft.)	**Free Product Thickness** (ft.)	**Ground Water Elevation** (ft.)	**Comments**
USTAS4159-MW01	1/17/2006	1/17/2006	5	5-15	15	22.13	11.7	0.00	10.43	Monitoring

ft BLS = feet below land surface

TABLE 4A SUMMARY OF GROUNDWATER LABORATORY RESULTS

Date: March 2006

Incident Number and Name: Pending/Building AS-4159

Analytical Method: EPA Method 625 + TICS				(TICS) Top Ten Tentatively Identified Compounds									
Well ID	Contaminant of Concern → Sample ID	Date Collected	EPA Method 625 Parameters	Carboxylic Acid, Unknown	Alkane, Unknown	Alcohol, Unknown	Unknown	Unknown	Alcohol, Unknown	Unknown	Carboxylic Acid, Unknown	Unknown	Unknown
2L GWQS			Varies	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GCL			Varies	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
USTAS4159-MW01	USTAS4159-MW01	1/17/2006	BQL	89.6	33	26.6	22	20.5	18.7	18.3	17.8	16.8	14.6

BQL = Below quantitation limit

All results in mg/L

TICS - Refers to the ten detected substances, not included in the standard EPA Method 6255 list, with the highest concentration. TICS are identified and quantitated only if the peak area is equal or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

NE - Not Established

TABLE 4B
SUMMARY OF GROUNDWATER LABORATORY RESULTS
Date: March 2006

Incident Number/Name: Pending/Building AS-4159

Analytical Method: EPA Method 6210D

Well ID	Contaminant of Concern → / Sample ID	Date Collected	Benzene	sec-Butylbenzene	Ethylbenzene	Isopropylbenzene	4-Isopropyltoluene	Methyl-tert-butyl ether (MTBE)	Naphthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	M/P-Xylene	o-Xylene	Remaining EPA Method 6210D compounds
2L GWQS GCL			1 5,000	70 8,500	550 84,500	70 25,000	NE NE	200 200,000	21 15,500	70 30,000	1,000 257,500	350 28,500	350 25,000	530* 87,500*		Varies Varies
USTAS4159-MW01	USTAS4159-MW01	1/17/2006	0.910	0.520	0.440 J	0.300 J	**0.600**	0.380 J	1.82	0.380 J	0.180 J	4.69	1.70	<0.388	0.660	<0.500
USTAS4159-MW01 DUP	USTAS4159-MW01 DUP	1/17/2006	0.920	0.550	0.490 J	0.310 J	**0.600**	0.310 J	1.69	0.410 J	<0.500	5.14	1.85	<0.388	0.690	<0.500

Concentrations are in micrograms per Liter - ug/L.

NE - Not Established

* - Total Xylenes limit

Bold figure indicates concentrations were detected for a compound with no established 2L GWQS or GCL.

J - Indicates concentration is an estimated value.

TABLE 4C SUMMARY OF GROUNDWATER LABORATORY RESULTS
Date: February 2006 Incident Number and Name: Pending/Building AS-4159

Analytical Method: MADEP Method VPH/EPH as compared to NCDENR 2L GWQS

Well ID	Hydrocarbon Fraction of Concern →		C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
	Sample ID	Date Collected				
GCL 2L GWQS			NE 420	NE 4200	NE 42000	NE 210
USTAS4159-MW-01	USTAS4159-MW-01	1/17/2006	<100	<200	<100	<200

All results in µg/L

TABLE 4D SUMMARY OF GROUNDWATER LABORATORY RESULTS

Date: March 2006 Incident Number and Name: Pending/Building AS-4159

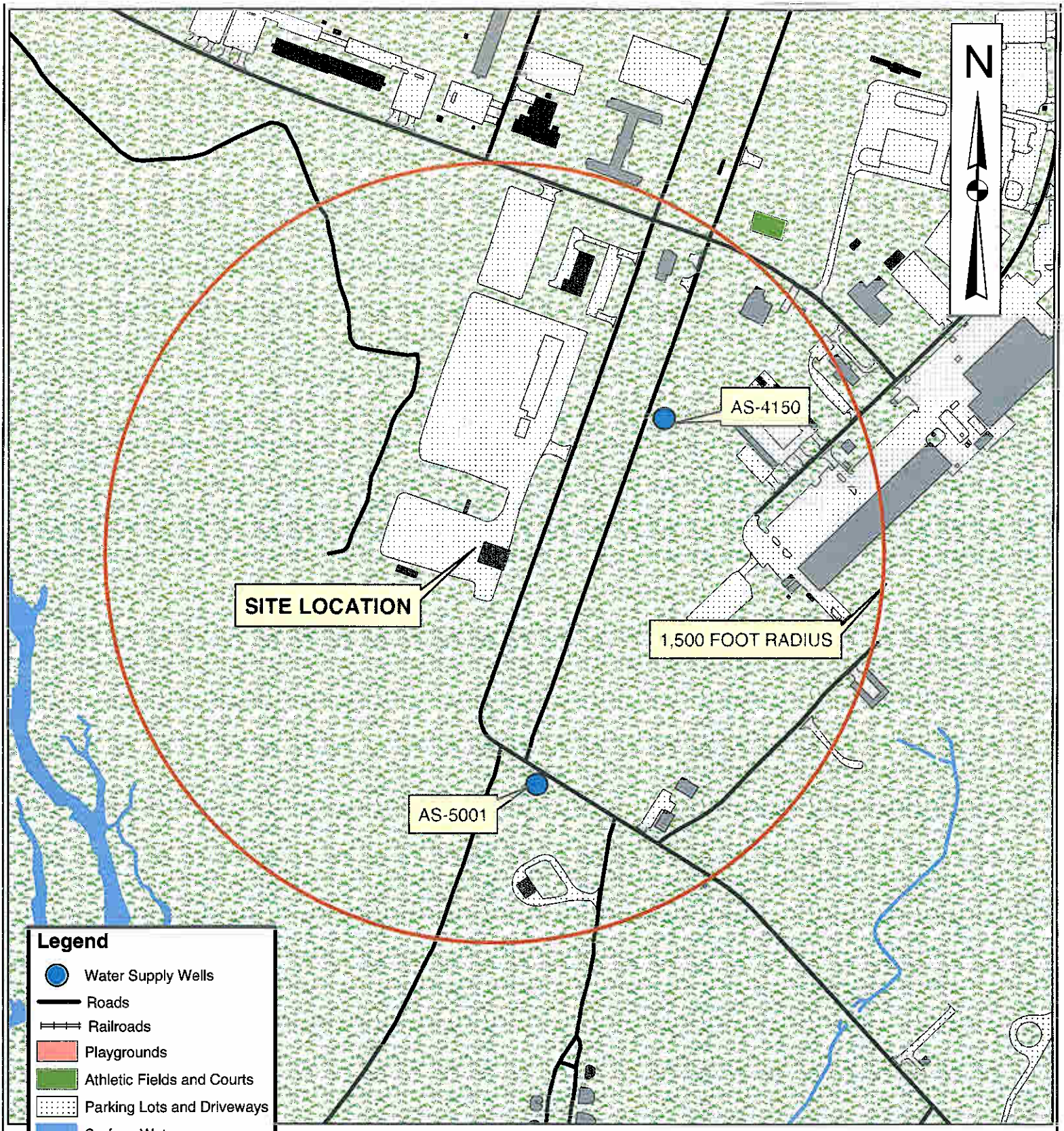
Analytical Method: EPA Method 6020

Well ID	Contaminant of Concern →		Chromium	Lead
	Sample ID	Date Collected		
2L GWQS GCL			50 50,000	15 15,000
USTAS4159-MW01	USTAS4159-MW01	1/17/2006	0.00770 B	0.00647

Concentrations are in micrograms per Liter - ug/L.

B - Indicates amount in prep blank > Mehtood Detection Limit

FIGURES



Data Sources: Data Layers provided by MCB Camp Lejeune GIS Office.

CATLIN ENGINEERS and SCIENTISTS
WILMINGTON, NORTH CAROLINA

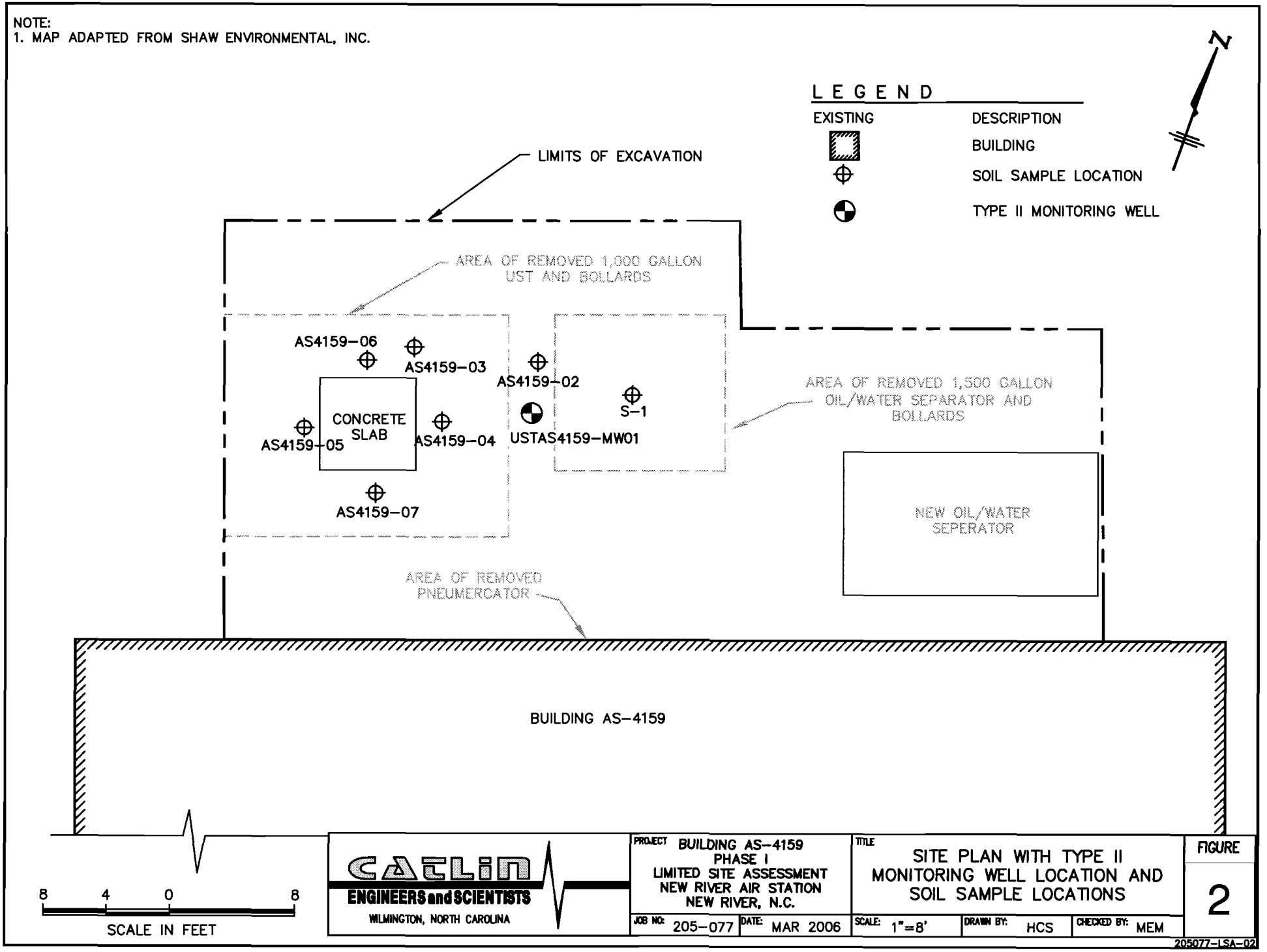
PROJECT
BUILDING AS-4159
PHASE I - LSA
MARINE CORPS BASE
CAMP LEJEUNE, NC

TITLE
SITE LOCATION AND WATER SURVEY

FIGURE
1

JOB NO.	DATE	SCALE	DRAWN BY	CHECKED BY
205-077	MAR 2006	AS SHOWN	SAC	JKB

NOTE:
1. MAP ADAPTED FROM SHAW ENVIRONMENTAL, INC.



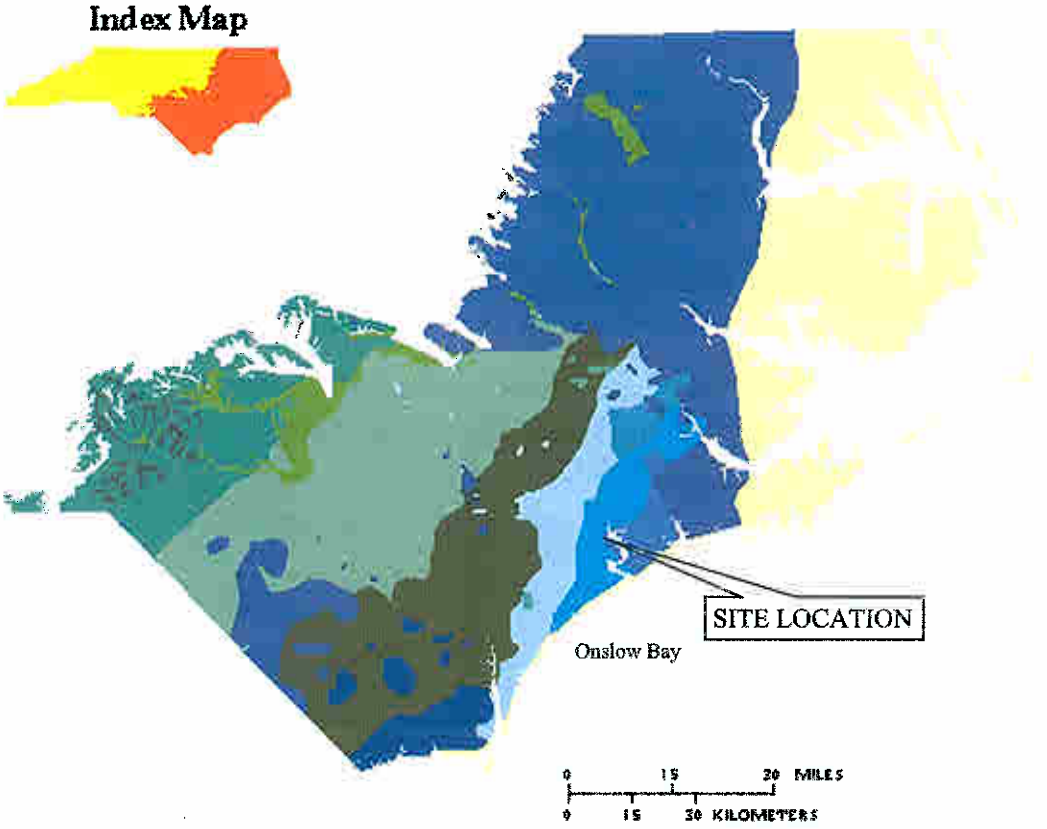
CATLIN ENGINEERS and SCIENTISTS
WILMINGTON, NORTH CAROLINA

PROJECT: BUILDING AS-4159 PHASE I LIMITED SITE ASSESSMENT NEW RIVER AIR STATION NEW RIVER, N.C.	TITLE: SITE PLAN WITH TYPE II MONITORING WELL LOCATION AND SOIL SAMPLE LOCATIONS			FIGURE 2
JOB NO: 205-077	DATE: MAR 2006	SCALE: 1"=8'	DRAWN BY: HCS	CHECKED BY: MEM

205077-LSA-02

COASTAL PLAIN PHYSIOGRAPHIC PROVINCE

Index Map



Quaternary

- Qp - Surficial Deposits, Undivided

Tertiary

- Tec - Pinehurst Formation
- Tpa - Terrace Deposits
- Tpyw - Waccamaw Formation
- Tpy - Yorktown and Duplin Formations
- Tob - Belgrade Formation
- Tor - River Bend Formation
- Tecs - Spring Garden Member

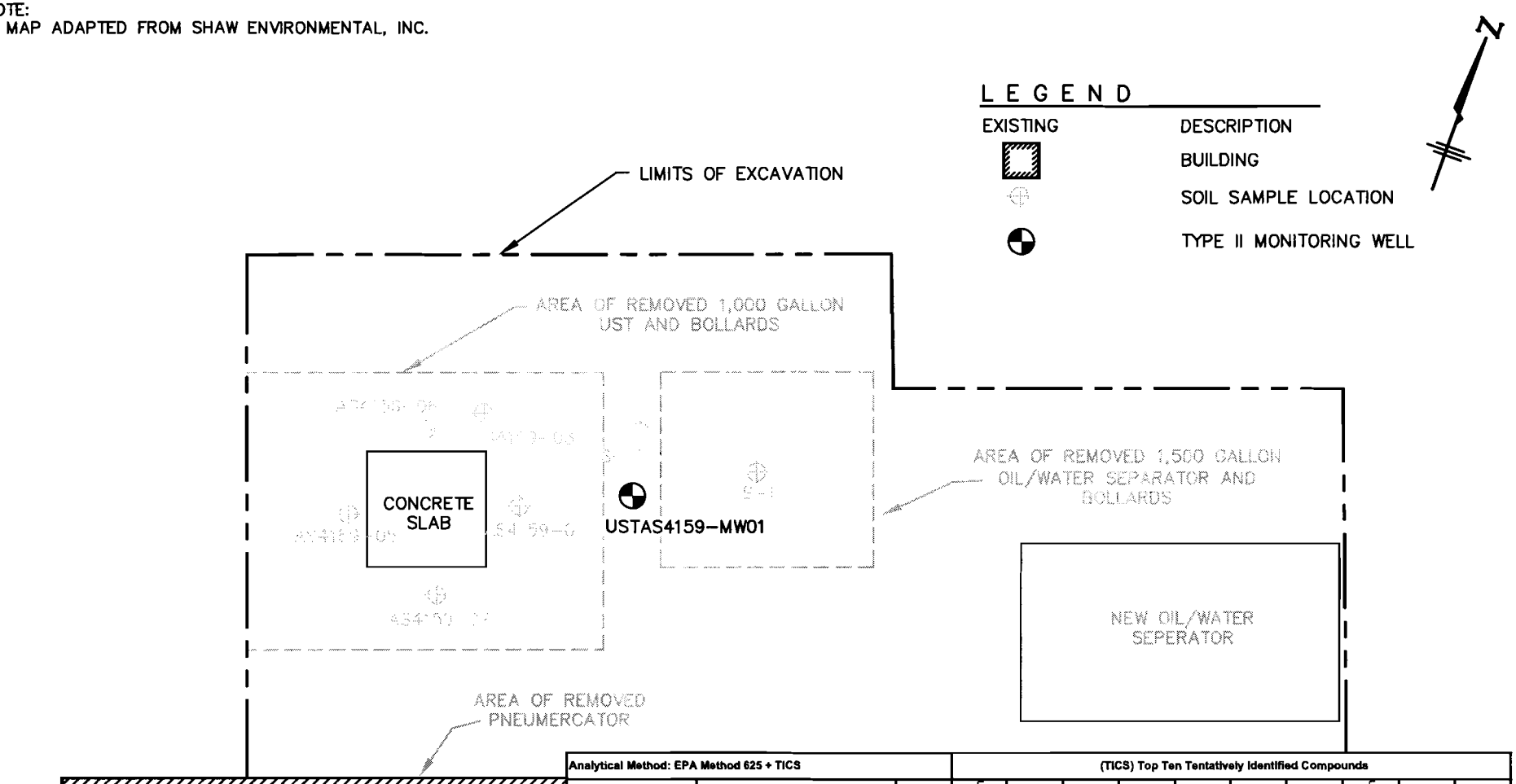
Cretaceous

- Kp - Pee Dee Formation
- Kb - Black Creek Formation
- Km - Middendorf Formation
- Kc - Cape Fear Formation

CATLIN ENGINEERS and SCIENTISTS, WILMINGTON, NORTH CAROLINA	PROJECT: BUILDING AS-4159 PHASE I LIMITED SITE ASSESSMENT NEW RIVER AIR STATION NEW RIVER, N.C.	TITLE: COASTAL PLAIN PHYSIOGRAPHIC PROVINCE			FIGURE 3
	JOB NO: 205-077	DATE: FEB 2006	SCALE: AS SHOWN	DRAWN BY: MDM	CHECKED BY: SAT

205077-LSA-03

NOTE:
1. MAP ADAPTED FROM SHAW ENVIRONMENTAL, INC.



Analytical Method: EPA Method 625 + TICS				(TICS) Top Ten Tentatively Identified Compounds									
Well ID	Contaminant of Concern →		EPA Method 625 Parameters	Carboxylic Acid, Unknown	Alkane, Unknown	Alcohol, Unknown	Unknown	Unknown	Alcohol, Unknown	Unknown	Carboxylic Acid, Unknown	Unknown	Unknown
	Sample ID	Date Collected											
2L GWQS GCL			Varies Varies	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
USTAS4159-MW01	USTAS4159-MW01	1/17/2006	BQL	89.8	33	26.6	22	20.5	18.7	18.3	17.8	16.8	14.8

8 4 0 8
SCALE IN FEET

CATLIN ENGINEERS and SCIENTISTS
WILMINGTON, NORTH CAROLINA

PROJECT: BUILDING AS-4159 PHASE I LIMITED SITE ASSESSMENT NEW RIVER AIR STATION NEW RIVER, N.C.

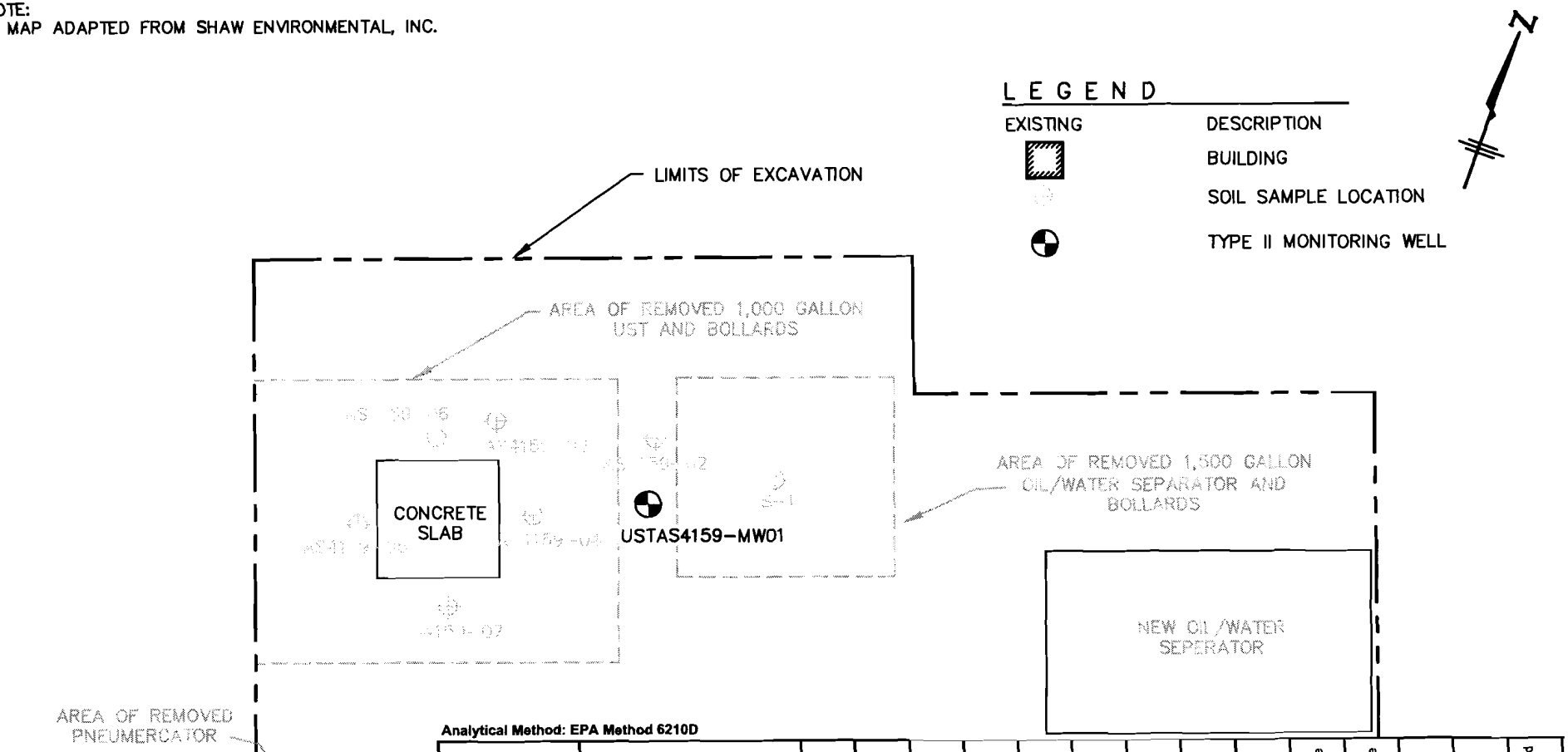
TITLE: SITE PLAN WITH GROUNDWATER ANALYSIS RESULTS – EPA METHOD 625 + TICS

FIGURE 4A

JOB NO: 205-077 | DATE: MAR 2006 | SCALE: 1"=8' | DRAWN BY: HCS | CHECKED BY: MEM

205077-LSA-04A

NOTE:
1. MAP ADAPTED FROM SHAW ENVIRONMENTAL, INC.



Analytical Method: EPA Method 6210D

Well ID	Contaminant of Concern →		Benzene	sec-Butylbenzene	Ethylbenzene	Isopropylbenzene	4-Isopropyltoluene	Methyl-tert-butyl ether (MTBE)	Naphthalene	n-Propyl benzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	M/P-Xylene	o-Xylene	Remaining EPA Method 6210D compounds
	Sample ID	Date Collected														
2L GWQS GCL			1 5,000	70 8,500	550 84,500	70 25,000	NE NE	200 200,000	21 15,500	70 30,000	1,000 257,500	350 28,500	350 25,000	530* 87,500*		varies varies
USTAS4159-MW01	USTAS4159-MW01	1/17/2006	0.910	0.520	0.440	0.300	**0.600**	0.380	1.82	0.380	0.180	4.69	1.70	<0.388	0.660	<0.500
USTAS4159-MW01 DUP	USTAS4159-MW01 DUP	1/17/2006	0.920	0.550	0.490	0.310	**0.600**	0.310	1.69	0.410	<0.500	5.14	1.85	<0.388	0.690	<0.500

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WILMINGTON, NORTH CAROLINA

PROJECT: BUILDING AS-4159 PHASE I LIMITED SITE ASSESSMENT NEW RIVER AIR STATION NEW RIVER, N.C.

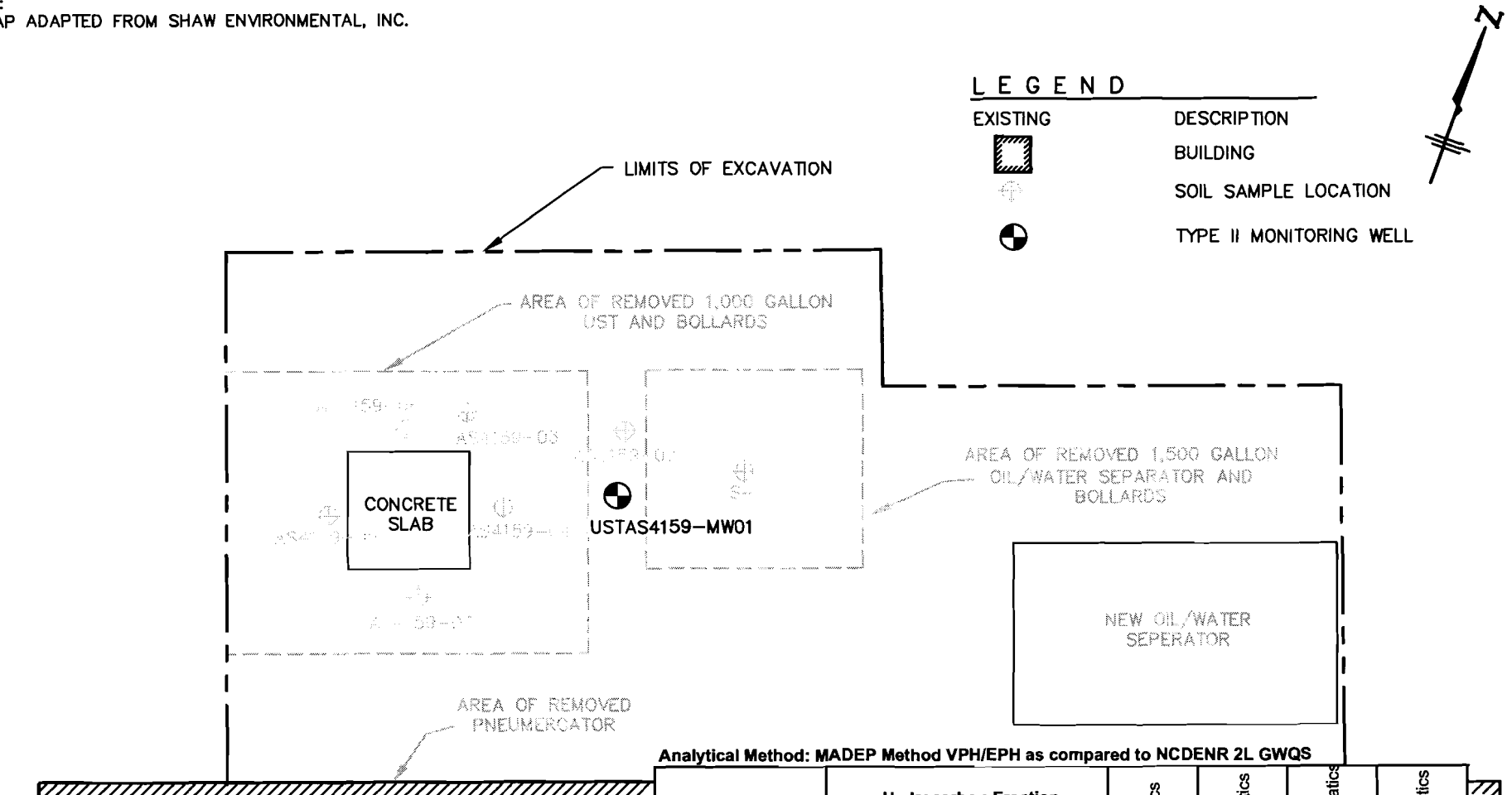
TITLE: SITE PLAN WITH GROUNDWATER ANALYSIS RESULTS – EPA METHOD 6210D

FIGURE 4B

JOB NO: 205-077 | DATE: MAR 2006 | SCALE: 1"=8' | DRAWN BY: HCS | CHECKED BY: MEM

205077-LSA-048

NOTE:
1. MAP ADAPTED FROM SHAW ENVIRONMENTAL, INC.



Analytical Method: MADEP Method VPH/EPH as compared to NCDENR 2L GWQS

Well ID	Hydrocarbon Fraction of Concern → Sample ID	Date Collected	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
GCL 2L GWQS			NE 420	NE 4200	NE 42000	NE 210
USTAS4159-MW-01	USTAS4159-MW-01	1/17/2006	<100	<200	<100	<200

8 4 0 8
SCALE IN FEET

CATLIN ENGINEERS and SCIENTISTS
WILMINGTON, NORTH CAROLINA

PROJECT: BUILDING AS-4159 PHASE I LIMITED SITE ASSESSMENT NEW RIVER AIR STATION NEW RIVER, N.C.

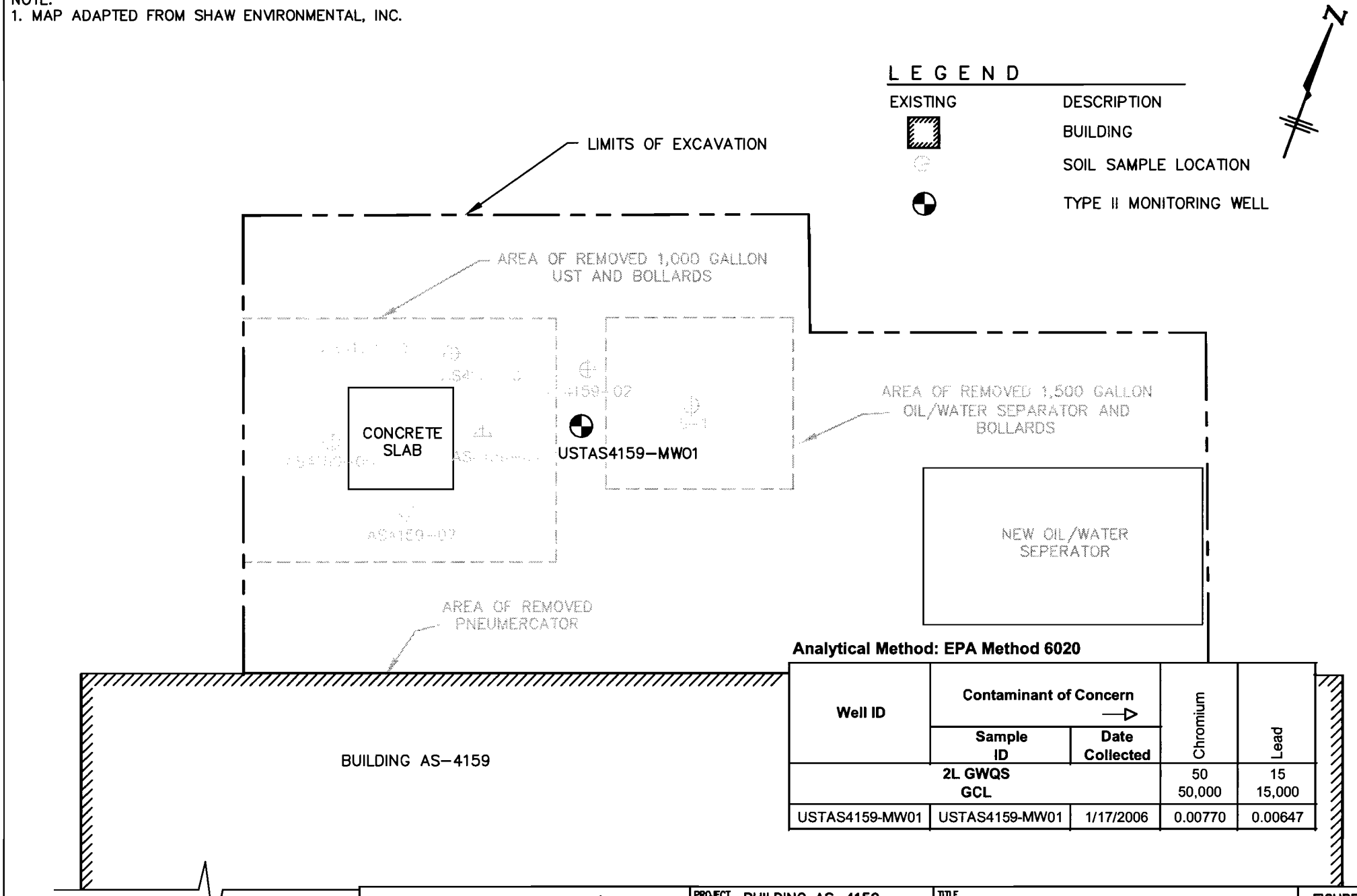
TITLE: SITE PLAN WITH GROUNDWATER ANALYSIS RESULTS - MADEP VPH/EPH AS COMPARED TO NCDENR 2L GWQS

FIGURE 4C

JOB NO: 205-077 | DATE: MAR 2006 | SCALE: 1"=8' | DRAWN BY: HCS | CHECKED BY: MEM

205077-LSA-04C

NOTE:
1. MAP ADAPTED FROM SHAW ENVIRONMENTAL, INC.



Analytical Method: EPA Method 6020

Well ID	Contaminant of Concern → Sample ID	Date Collected	Chromium	Lead
2L GWQS GCL			50 50,000	15 15,000
USTAS4159-MW01	USTAS4159-MW01	1/17/2006	0.00770	0.00647

8 4 0 8
SCALE IN FEET

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WILMINGTON, NORTH CAROLINA

PROJECT: BUILDING AS-4159
PHASE I
LIMITED SITE ASSESSMENT
NEW RIVER AIR STATION
NEW RIVER, N.C.

JOB NO: 205-077 | DATE: MAR 2006

TITLE: SITE PLAN WITH GROUNDWATER ANALYSIS RESULTS – EPA METHOD 6020

SCALE: 1"=8' | DRAWN BY: HCS | CHECKED BY: MEM

FIGURE 4D

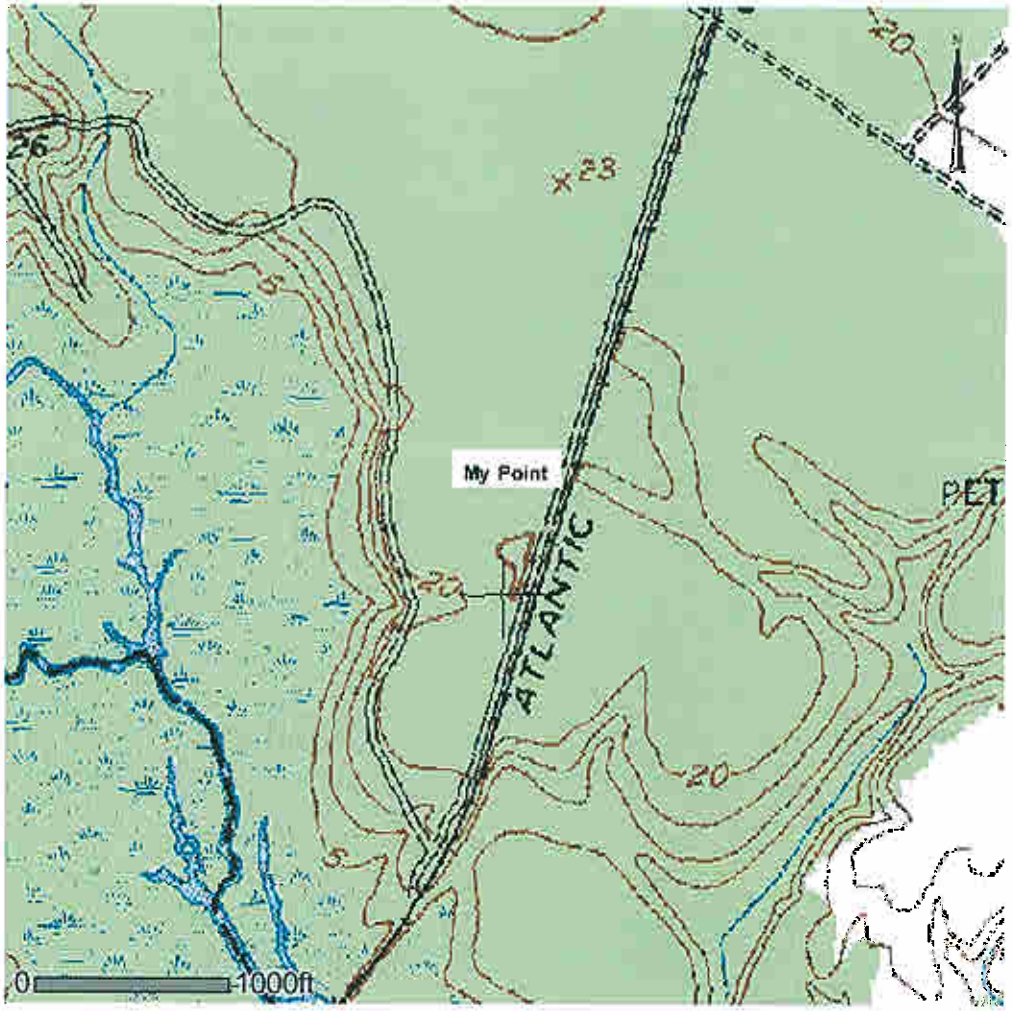
205077-LSA-04D

APPENDIX A

VISUAL HYDROGEOLOGY FRAMEWORK

Map for The Map Location

Location of My Point

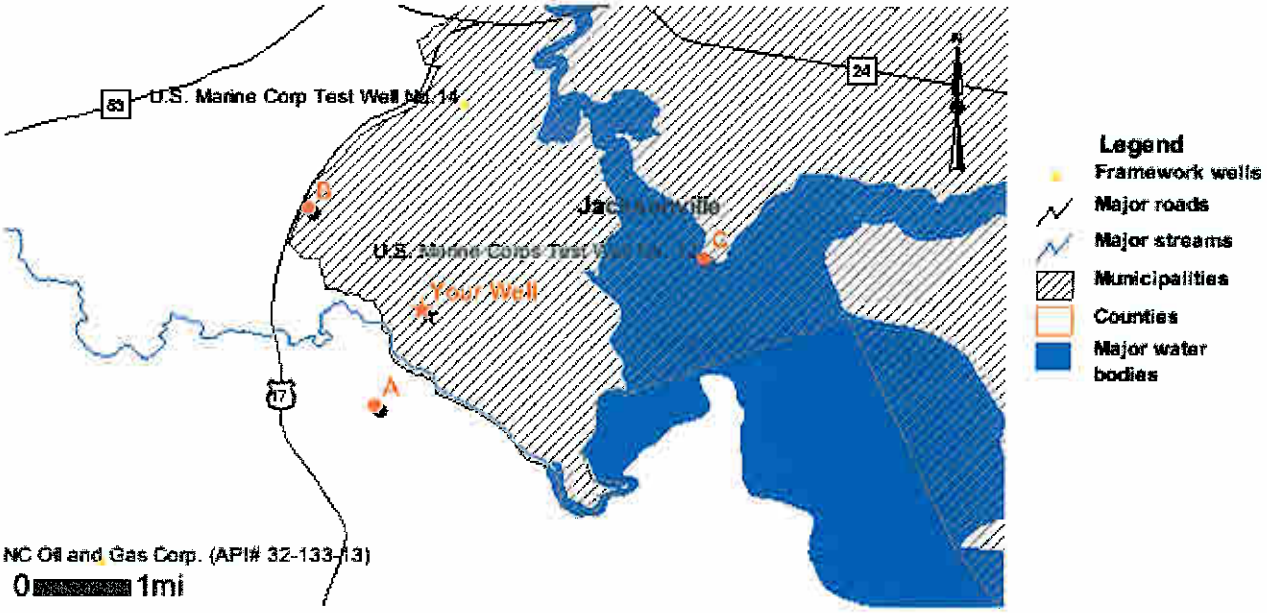


1:12,000

Jacksonville South
7.5-minute Quadrangle

Index map

NC SPCS E: 750850.1, N:107557.6 meters (NAD83)
Long: -77.4579495 W, Lat: 34.7096990 N (NAD83)

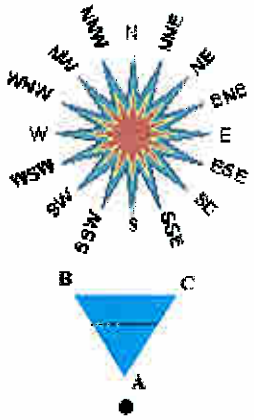

U.S. Marine Corp Test Well No.14
Jacksonville
Your Well
A
B
C
NC Oil and Gas Corp. (API# 32-133-13)
0
1mi
Legend
Framework wells
Major roads
Major streams
Municipalities
Counties
Major water bodies

North Carolina Department of Environment and Natural Resources

Division of Water Resources

FrameWork Query Results

- Scroll to bottom half of page for cross-section.
- Framework Map with borehole locations may be viewed in a separate window.
- The triangle to the right shows the relative position of the three boreholes to one another and the beginning (left) and ending (right) sides of the cross-section line.
- The dot indicates the location of the viewer of the cross-section.



Cross-section line is oriented approximately: **E-W** (91.17)

Well of Interest

Location: 34.709699, -77.457949; **Well Depth:** 15 feet; **Screen Depth:** 5 feet; **Land Surface (estimated):** 21 feet; Show Map

Approximate depths to hydrogeological units (feet):

SURFICIAL
0

- Hydrogeologic unit top depths estimated to well depth.
- If estimated land surface elevation is higher than actual then subtract the difference from the estimated depths of units.
- If estimated land surface elevation is lower than actual then add the difference to the estimated depths of units.

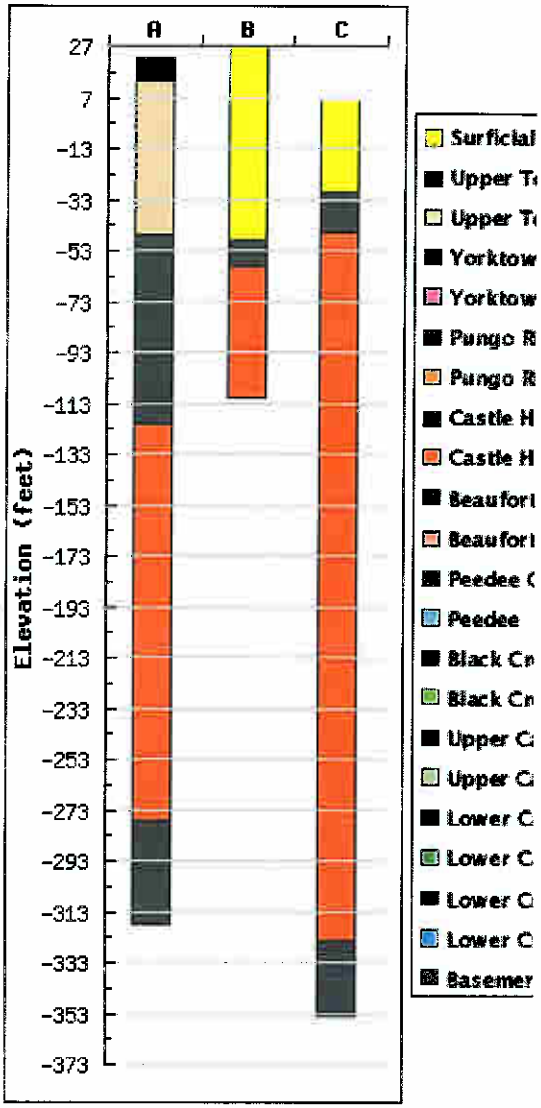
Boreholes

A: Alliance Environmental, X 25R; **Land Surface:** 23 feet; **Location:** 34.695555, -77.465; Geophysical Logs, Hydrogeologic Units

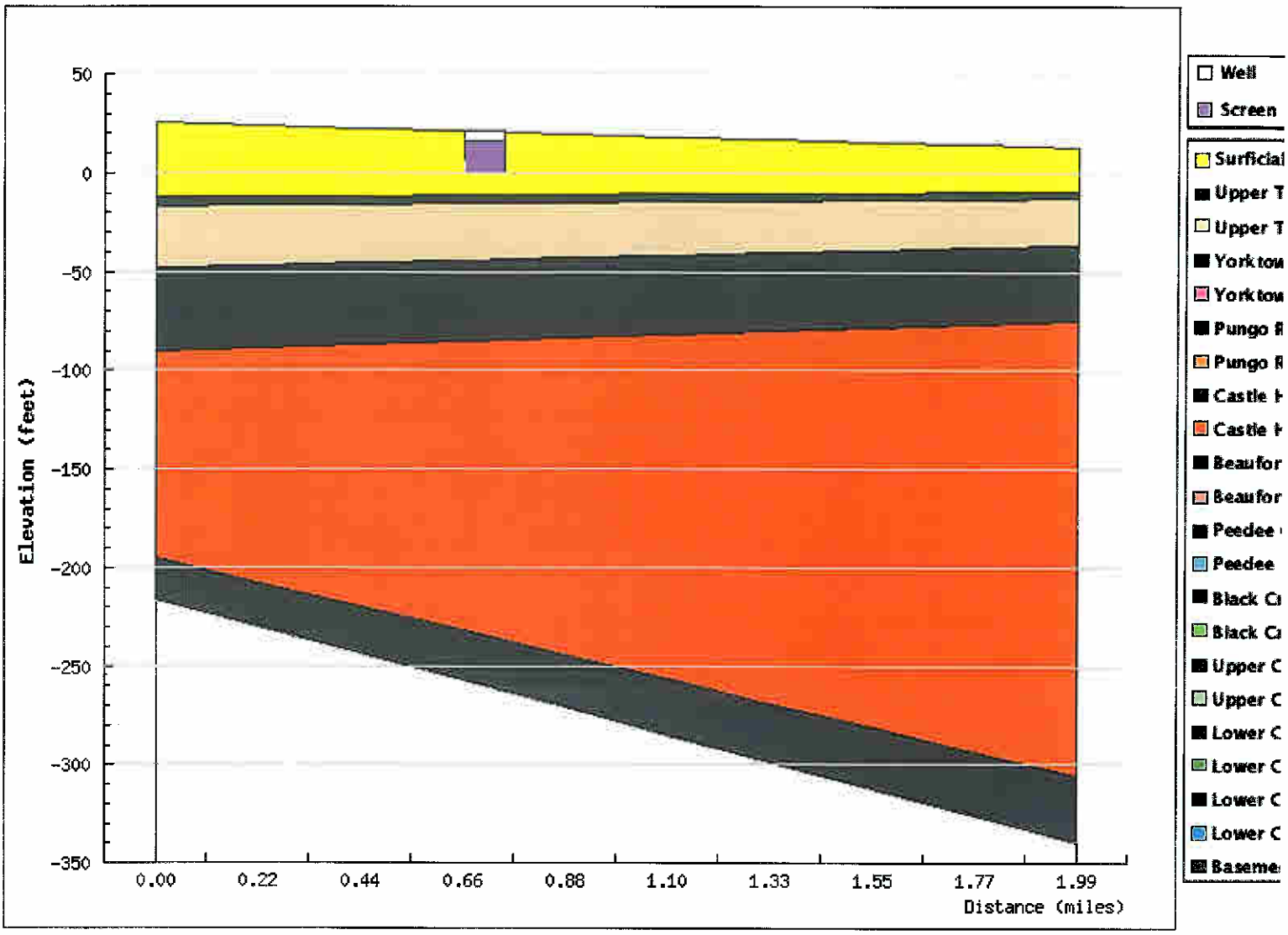
B: Carl Beacham, X 25G; **Land Surface:** 27 feet; **Location:** 34.725, -77.475; Geophysical Logs, Hydrogeologic Units

C: U.S. Marine Corps Test Well No. 12, X 24F; **Land Surface:** 6 feet; **Location:** 34.7175, -77.416111; Hydrogeologic Units

Borehole Hydrogeology



Calculated Cross-Section



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

Last Modified: 01.19.2006

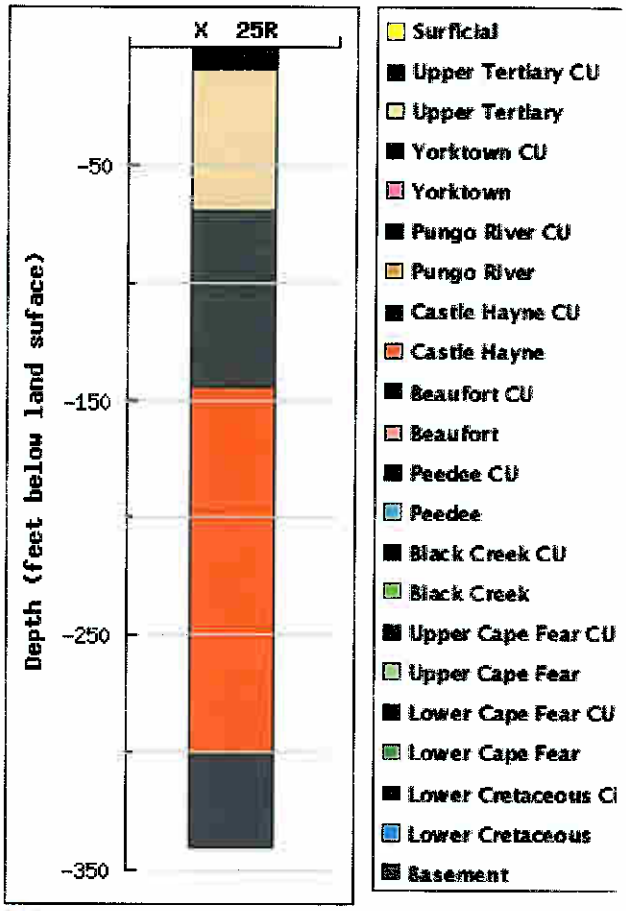
North Carolina Department of Environment and Natural Resources

Division of Water Resources

DWR Hydrogeologic Framework Detail for X 25R

Field	Data
County	Onslow
Latitude	34.695555
Longitude	-77.465000
Location Accuracy Show Map	Map
Quad	X 25R
Name link to logs	Alliance Environmental
Depth	341.00
Land Surface	23.00
Upper Tertiary CU	23
Upper Tertiary	14
Yorktown CU	10001
Yorktown	10001
Pungo River CU	10001
Pungo River	10001
Castle Hayne CU	-47
Castle Hayne	-121
Beaufort CU	10001
Beaufort	10001
Peedee CU	-277
Peedee	10000
Black Creek CU	10000
Black Creek	10000
Upper Cape Fear CU	10000
Upper Cape Fear	10000
Lower Cape Fear CU	10000
Lower Cape Fear	10000
Lower Cretaceous CU	10000
Lower Cretaceous	10000
Basement	10000

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



Codes:

- 10002 - unit probably exists, but there is no data to pick elevation
- 10001 - unit does not exist
- 10000 - unit 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: 01.19.2006

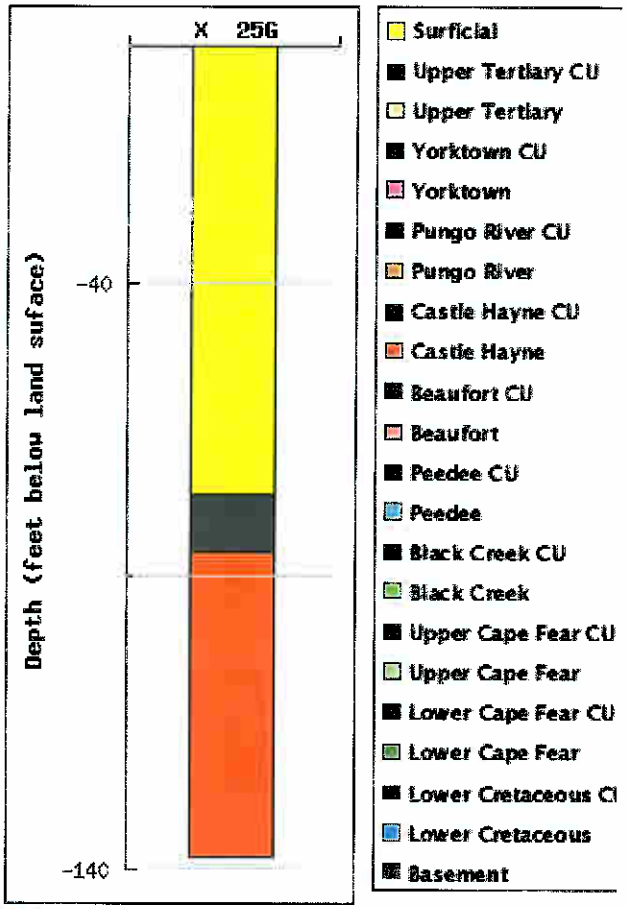
North Carolina Department of Environment and Natural Resources

Division of Water Resources

DWR Hydrogeologic Framework Detail for X 25G

Field	Data
County	Onslow
Latitude	34.725000
Longitude	-77.475000
Location Accuracy Show Map	Map
Quad	X 25G
Name link to logs	Carl Beacham
Depth	138.00
Land Surface	27.00
Upper Tertiary CU	10001
Upper Tertiary	10001
Yorktown CU	10001
Yorktown	10001
Pungo River CU	10001
Pungo River	10001
Castle Hayne CU	-49
Castle Hayne	-59
Beaufort CU	10000
Beaufort	10000
Peedee CU	10000
Peedee	10000
Black Creek CU	10000
Black Creek	10000
Upper Cape Fear CU	10000
Upper Cape Fear	10000
Lower Cape Fear CU	10000
Lower Cape Fear	10000
Lower Cretaceous CU	10000
Lower Cretaceous	10000
Basement	10000

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



Codes:

- 10002 - unit probably exists, but there is no data to pick elevation
- 10001 - unit does not exist
- 10000 - unit 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: 01.19.2006

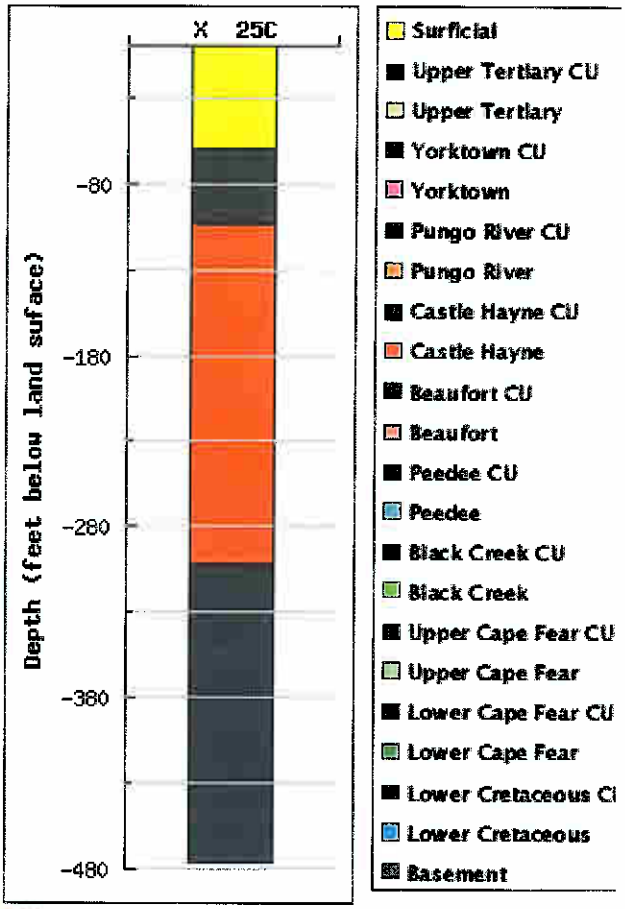
North Carolina Department of Environment and Natural Resources

Division of Water Resources

DWR Hydrogeologic Framework Detail for X 25C

Field	Data
County	Onslow
Latitude	34.740278
Longitude	-77.451944
Location Accuracy Show Map	Map
Quad	X 25C
Name	USMC Camp Lejeune T-15
Depth	477.00
Land Surface	15.00
Upper Tertiary CU	10001
Upper Tertiary	10001
Yorktown CU	10001
Yorktown	10001
Pungo River CU	10001
Pungo River	10001
Castle Hayne CU	-44
Castle Hayne	-89
Beaufort CU	10001
Beaufort	10001
Peedee CU	-287
Peedee	10000
Black Creek CU	10000
Black Creek	10000
Upper Cape Fear CU	10000
Upper Cape Fear	10000
Lower Cape Fear CU	10000
Lower Cape Fear	10000
Lower Cretaceous CU	10000
Lower Cretaceous	10000
Basement	10000

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



Codes

- 10002 - unit probably exists, but there is no data to pick elevation;
- 10001 - unit does not exist;
- 10000 - unit 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: 01.19.2006

APPENDIX B

BORING LOGS, MONITORING WELL AS-BUILTS, AND NORTH CAROLINA WELL CONSTRUCTION RECORDS

WELL CONSTRUCTION RECORD

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

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Bobbie Fowler **CERTIFICATION #** 2869

WELL CONTRACTOR COMPANY NAME CATLIN Engineers & Scientists **PHONE #** (910) 452-5861

STATE WELL CONSTRUCTION PERMIT # (if applicable) _____ **ASSOCIATED WQ PERMIT #** (if applicable) N/A

USTAS4159 -MW01

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   _____
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/Land Setting
☐ Ridge ☐ Slope ☐ Valley ☒ Flat
(check appropriate box)

Northing/Easting of well location
352867.07/2463326.859
NCSP NAD 83 (USft)

Latitude/longitude source: ☒ GPS ☐ Topo. map
(check box)

3. OWNER: Commanding General MCB
   Address: Attn: I&E/ EMD/ EQB/ PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number

DEPTH From To — DRILLING LOG Formation Description

4. DATE DRILLED: 1/17/2006
5. TOTAL DEPTH: 15
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 11.7 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 0 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118

SEE ATTACHED

9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
    _____
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From	0	To 5 ft.	2 in.	Sch. 40	PVC
From		To ft.	in.		
From		To ft.	in.		

14. GROUT:

	Depth		Material	Method
From	0	To 1 ft.	Portland Cement	Surface Pour
From	1	To 3 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth		Diameter	Slot Size	Material
From	5	To 15 ft.	2 in.	Slot .010 in.	PVC
From		To ft.	in.	in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From	3	To 15 ft.	#2 Medium	Torpedo Sand
From		To ft.		

SEE ATTACHED

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

17. REMARKS: _____

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.

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE 2-8-06

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

Modified from: GW-1 REV.07/2001

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.:	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: AS-4159	LOGGED BY: Charles Ray		WELL ID: USTAS4159 -MW01
	DRILLER: Bobbie Fowler		
NORTHING: 352867.1	EASTING: 2463326.9	CREW:	
SYSTEM: NCSP NAD 83 (USft)	BORING LOCATION: See map		T.O.C. ELEV.:
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW: 11.7	BORING DEPTH: 16.0
START DATE: 01/17/06	FINISH DATE: 01/17/06	24 HOUR DTW: NM	WELL DEPTH: 15.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	WELL DETAIL
									0.0	LAND SURFACE	0.0
									0.5	ASPHALT	0.0
							SW/ GW		2.0	Tan, silty, f. to vf. sandy GRAVEL (from cuttings).	1.0
									4.0		3.0
4.0	4	6	6	8			SP		6.0	Tan to brown, f. to vf. SAND. Well sorted. Moist.	5.0
									9.0		
9.0	3	3	4	8			SM		11.0	Gray, silty, f. to vf. SAND. Strong hydrocarbon odor. Sheen on sample. Sat.	
									14.0		
14.0	6	7	5	3			SM		16.0	Same as above, but gray to brown in color. Strong hydrocarbon odor. Sat.	15.0
										Boring Terminated at Depth 16.0 ft	15.0

2" Sch. 40 PVC

2" Slot .010 Sch. 40 PVC

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 205-077 AS-4159.GPJ TEST.GDT 02/08/06

APPENDIX C

CATLIN STANDARD METHODS OF INVESTIGATION

CATLIN STANDARD METHODS OF INVESTIGATION

(REVISED APRIL 2002)

1.0 DATA COLLECTION

1.1 BACKGROUND DATA

Background data and history information relevant to the site investigation is generated through numerous sources. These sources may include, but are not limited to, the following:

- Conversations with the client and regulatory officials involved with the incident.
- Review of pertinent regulatory correspondence.
- Review of previous and existing reports and other technical data.
- Review of available historical records.

1.2 SURVEYS AND POTENTIAL RECEPTOR DATA

Physical survey and potential receptor data are collected in accordance with the intended level of investigation. In general, the purpose is to collect sufficient information for site assessment and corrective action planning.

Individual receptors are identified and evaluated in the context of their potential for contaminant impact. Potential receptors of contamination can include surface water bodies, groundwater supply wells, wellhead protection areas, and subsurface building structures.

1.2.1 Horizontal Survey

Horizontal survey data are generated using either accepted general field surveying techniques, or existing survey maps; or by using a combination of existing data and field generated information. The survey area generally extends to a point at least 50 feet beyond suspected plume boundaries. A receptor scale survey of a larger area surrounding a site will be made if appropriate and necessary.

1.2.2 Vertical Survey

A vertical survey is conducted at the site typically within an accuracy of 0.01 foot. The datum plane is generally assumed unless otherwise noted. Assumed temporary benchmarks (TBM) are selected near ground level. The vertical survey includes such points as top of all well casings, selected ground shots, important utility inverts, utility fluid levels, important surface water levels, and other items determined to be significant.

1.3 DRILLING AND MONITORING WELL/PIEZOMETER INSTALLATION

Necessary permits are applied for and obtained in accordance with federal, state, and local requirements prior to drilling or well construction activities. Additionally, the well locations are scanned for underground utilities prior to conducting intrusive subsurface activities. Wells are installed under applicable licensing requirements, and are designed and constructed in accordance with accepted standards and practices. Any wells purposely installed at off-site locations are permitted through appropriate right-of-entry agreements with all necessary property owners and/or their agents.

1.3.1 Drilling Methods and Subsurface Data Collection

Drilling is accomplished utilizing one or more of the following methods:

Auger Drilling

Auger drilling is the preferred, most often used method of subsurface investigation and is accomplished using a vehicle or trailer mounted drill rig. Continuous flight auger types used vary upon the site and situation; ranging from the 4-inch outside diameter solid stem to the 12-inch outside diameter hollow stem. Auger type is selected based upon appropriateness and/or site-specific requirements.

Hand Augering

Hand augering is utilized when economically and scientifically feasible, or when no other method is suitable. Hand augers typically produce three-inch diameter holes and are generally limited to depths of less than 15 feet.

Direct Push

Direct push methods of subsurface investigation are used generally for soil screening purposes or collection of groundwater samples where permanent wells are not viable.

Other Methods

Other drilling methods, such as mud and air rotary, rock coring, cable tool, and large bucket augering are used when site conditions or project requirements dictate.

Regardless of the drilling method used, the drill rig(s) and all drilling tools are thoroughly cleaned between boreholes to prevent cross introduction of contaminants. Split spoon samples are collected and field-described at intervals of five feet or less, and cuttings are continuously monitored for organic vapors. Drill cuttings are containerized for off-site disposal or are spread on the ground surface in proximity to the well or boring in accordance with North Carolina Department of Environment and Natural Resources (NCDENR) requirements. A geologist or engineer, trained in using visual/manual techniques, is always present during drilling and is responsible for subsurface contaminant and geologic data collection. Soils are classified in general agreement with the Unified Soils Classification System (USCS).

1.3.2 Hydropunch Installation

Hydropunch penetrometers (Hydropunches) are used to delineate the spatial extent of dissolved and free phase plumes. Soil borings are advanced to the appropriate depth and then the Hydropunch is advanced through the soil boring into undisturbed material. Groundwater samples are collected by pulling back on the body of the Hydropunch and allowing the groundwater to enter the screened portion of the sample chamber. Samples are retrieved using a decontaminated Teflon bailer or peristaltic pump.

1.3.3 Well Installation

Wells are typically constructed of threaded PVC casing and screen. No glues or cements are used in joining PVC components. Well diameter, slot sizes, and protective covers vary depending upon site-specific conditions or situation-specific requirements.

1.3.4 Well Development

Wells are developed by over-pumping or surging using appropriate pumps, blocks, or bailers. Through development, unwanted fine materials are removed from the natural formation surrounding the well. Well development will be performed no sooner than 24-hours after grouting is completed for the Type III wells. Water generated during development is containerized and properly disposed or is discharged onto the ground in proximity of the well in accordance with NCDENR requirements.

1.4 HYDROGEOLOGIC DATA COLLECTION

Data used to help characterize hydrogeologic conditions at a site are obtained through various procedures including, but not necessarily limited to, those described below:

1.4.1 Regional Geology

Information pertaining to the regional geologic framework is compiled from existing publications, maps, and scientific papers.

1.4.2 Site Geology

Shallow site geology is generally determined from field descriptions and borehole samples. Interpretations with regard to hydrogeologically important contacts, zones, fractures, faults, cleavage, and facies changes are made when possible.

1.4.3 Groundwater Occurrence and Characteristics

Groundwater data is obtained utilizing a number of methods and procedures, not limited to the general list below:

Well Water Levels

After well development, wells are allowed to stabilize for a minimum of 24 hours prior to measuring. Water level and free product thickness (where applicable) measurements are performed using an electronic interface probe or steel tape with water/product finding pastes.

The specific gravity of any accumulated product is determined and used to calculate true hydraulic grade from measured water levels. This information is combined with vertical survey data to determine relative potentiometric surface elevations for all wells.

Aquifer Testing

Various aquifer tests may be used to make determinations of hydraulic conductivity. Slug or pumping tests are often used to characterize site hydrogeologic conditions and to develop remedial action alternatives utilizing appropriate pumping technologies.

Other Methods

Other methods may be deemed appropriate for determining various groundwater characteristics. These other methods may include nested well configurations and/or clustered piezometer installations; sieve or pipette analysis; fracture trace analysis; computer modeling; and geophysical logging.

1.5 PETROLEUM HYDROCARBON DATA COLLECTION

1.5.1 Collection Methods

Petroleum hydrocarbon data is obtained through various methods including, but not limited to, the following:

Field Analysis

- Direct thickness measurement of phase separated components using tapes and/or probes.
- Manual vapor analysis using a photoionization detector (PID) or flame ionization detector (FIS).
- Detectable odor and visual observation.

Laboratory Analysis

- Laboratory analysis of phase-separated products.
- Laboratory vapor, soil, and groundwater analysis using appropriate EPA Methods.

1.5.2 Field Sampling

Field sampling procedures are performed in accordance with recommended protocol, accepted industry standards, and under appropriate chain-of-custody procedures. Generally, sampling procedures are as follows:

Product Samples

Product samples are obtained using clean equipment and containers. Each is shipped to the analytical laboratory in protective containers.

Vapor Samples

PID/FID readings are measured from soil sample headspace using containerized samples that have been brought to ambient temperature.

Carbon tubes are utilized in conjunction with a laboratory-calibrated vacuum pump to obtain vapor samples. The carbon tubes are sealed and refrigerated for shipment to the analytical laboratory (This method is known as the Carbon Adsorption Method).

Soil Samples

Soil samples are immediately packed into clean containers, and refrigerated for shipment to the analytical laboratory.

Groundwater Samples

Groundwater samples are collected in accordance with the following procedures:

- Creeks/Lakes/Etc.

  Grab samples are obtained.

- Domestic Wells

  Wells are pumped for a time sufficient to completely purge the well and any pressure or holding tanks prior to sampling.

- Monitoring Wells

  Water level measurements are made and well volumes calculated for each well.

  Three well volumes are removed from each well using a thoroughly cleaned Teflon bailer or appropriate purging pump. If it is not possible to remove three volumes, due to very low yields, a minimum of one volume is removed prior to obtaining a sample.

  Where analysis for metals is required, wells are typically sampled utilizing low flow techniques, which reduce turbidity and the potential for matrix interference.

Samples are collected and containerized in a manner that minimizes agitation and contact with the air.

Sampling records are field prepared.

Samples are labeled and proper chain of custody documents are maintained.

Samples are promptly protectively packed, refrigerated, and shipped to the analytical laboratory for analysis.

2.0 DATA EVALUATION

Data obtained as a result of the site investigation is compiled and evaluated and a report is prepared for client review and distribution to the appropriate agencies. Generally, specific data are evaluated as follows:

- Background data are evaluated in context with the suspected or confirmed problem.
- Survey data are utilized to develop site maps and to evaluate contaminant receptors.
- Well construction records are compiled and presented as part of the report. As-built information is used in combination with other data to evaluate subsurface conditions and monitoring well screen settings as they relate to the investigation.
- Subsurface drilling logs are used to develop geologic cross-sections, fence diagrams, isopachs, structure contours, or other constructions. Regional geologic data are used to obtain an overall framework.
- Hydrogeologic data are used to develop contour maps, flow nets and other constructions. The data is also used to calculate various hydrogeologic parameters that describe aquifer characteristics.
- Hydrocarbon data are utilized to develop various plume geometry and isoconcentration maps.
- All data are compiled and utilized for making specific recommendations with regard to remedial action alternatives.

APPENDIX D

SHAW TABLES AND FIGURES

Table 3.1
Building AS-4159
MADEP-EPH/VPH Summary Confirmation soil Sample Analytical Results

Method for Ranges: MADEP-EPH/VPH		Sample Identification			AS4159-02	AS4159-03	AS4159-04	AS4159-05
Hydrocarbon Ranges	Units of Measure	Residential	Industrial	Soil to Water				
C9-C18 Aliphatics	mg/kg	9,386	245,280	3,255	ND	ND	1,750	169
C19-C36 Aliphatics	mg/kg	93,860	#	#	ND	ND	ND	16.2
C9-C22 Aromatics (Unadj.)	mg/kg	469	12,264	34	ND	ND	**190**	**102.2**
C5-C8 Aliphatics	mg/kg	939	24,528	72	ND	ND	ND	ND

Bold = Above Soil-to-Groundwater MSCC

Shaded = Above Residential MSCC

Method for Ranges: MADEP-EPH/VPH		Sample Identification			AS4159-06	AS4159-07	AS4159-08
Hydrocarbon Ranges	Units of Measure	Residential	Industrial	Soil to Water			
C9-C18 Aliphatics	mg/kg	9,386	245,280	3,255	ND	ND	ND
C19-C36 Aliphatics	mg/kg	93,860	#	#	ND	ND	ND
C9-C22 Aromatics (Unadj.)	mg/kg	469	12,264	34	ND	ND	ND
C5-C8 Aliphatics	mg/kg	939	24,528	72	ND	ND	ND

Bold = Above Soil-to-Groundwater MSCC

Shaded = Above Residential MSCC

= Health Based Level >100% Solubility

Table 3-2
AS-4159
VOC, SVOC, Metals and Pesticides Confirmation Soil Sample Analytical Results

Date:	9/13/2005		Project Number and Name:	109972 AS-4159																	
Analytical Method:				8260B																	
Contaminant of Concern				Acetone	Benzene	Bromodichloromethane	Bromoform	Chlorobenzene	Chloroethane	Chloroform	Carbon disulfide	Carbon tetrachloride	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane	Di-Isopropyl ether	Dibromochloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	trans-1,2-Dichloroethene
Sample ID	Date Collected	Sample Depth (ft bgs)																			
AS4159-002 Product Line next to OWS	8/29/2005	4		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-003 Product Line next to UST	8/29/2005	4		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-004 North End of UST	8/29/2005	8.5		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-005 South End of UST	8/29/2005	8.5		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-006 West End of UST	8/29/2005	8.5		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-007 East End of UST	8/29/2005	8.5		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Soil to Groundwater MSCC (mg/kg)				3	0.0058	NS	NS	NS	NS	0.001	4	NS	4	0.045	0.0018	0.0029	0.37	0.002	0.35	0.0009	0.38
Residential MSCC (mg/kg)				1564	22	NS	NS	NS	NS	100	1564	NS	1560	1	7	9	156	7	156	4	320
Industrial/Commercial MSCC (mg/kg)				40800	200	NS	NS	NS	NS	938	40880	NS	40000	10	63	84	4088	68	4000	33	8200

Date:	9/13/2005		Project Number and Name:	109972 AS-4159																	
Analytical Method:				8260B																	
Contaminant of Concern				trans-1,3-Dichloropropene	Ethylbenzene	2-Hexanone	4-Methyl-2-pentanone	Methyl bromide	Methyl chloride	Methylene chloride	Methyl ethyl ketone	Methyl tert Butyl ether	Styrene	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	Tetrachloroethene	Toluene	Trichloroethene	Vinyl chloride	Xylenes (total)
Sample ID	Date Collected	Sample Depth (ft bgs)																			
AS4159-002 Product Line next to OWS	8/29/2005	4		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-003 Product Line next to UST	8/29/2005	4		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-004 North End of UST	8/29/2005	8.5		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.703 J
AS4159-005 South End of UST	8/29/2005	8.5		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-006 West End of UST	8/29/2005	8.5		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-007 East End of UST	8/29/2005	8.5		ND	ND	ND	ND	ND	ND	0.0103 JB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Soil to Groundwater MSCC (mg/kg)				0.0009	0.24	1.9	NS	NS	0.02	0.02	0.7	0.92	2.24	NS	0.001	NS	0.0074	7	0.0183	NS	5
Residential MSCC (mg/kg)				4	1560	625	NS	NS	49	85	9385	156	3128	NS	3	NS	12	3200	58	NS	32000
Industrial/Commercial MSCC (mg/kg)				33	40000	16352	NS	NS	440	763	245280	4088	81760	NS	28	NS	110	82000	520	NS	200000

Indicate method detection limit for contaminants when analyzed but not detected (i.e., <1.0)
List any contaminant detected above the method detection limit
MSCC = Maximum Soil Contamination Concentration
ft bgs = feet below ground surface
Results must be reported in mg/kg
mg/kg = milligrams per kilogram
NA = not applicable
NS = no standard

Table 3-2
AS-4159
VOC, SVOC, Metals and Pesticides Confirmation Soil Sample Analytical Results

Date:	9/13/2005		Project Number and Name:	109972 AS-4159																	
Analytical Method:														8270C							
Contaminant of Concern			Benzoic acid	2-Chlorophenol	4-Chloro-3-methylphenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	4,6-Dinitro-o-cresol	2-Methylphenol	3&4-Methylphenol	2-Nitrophenol	4-Nitrophenol	Pentachlorophenol	Phenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	Acenaphthene	Acenaphthylene
Sample ID	Date Collected	Sample Depth (ft bgs)																			
AS4159-002 Product Line next to OWS	8/29/2005	4	ND	ND	ND	ND	ND	ND	<0.36	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-003 Product Line next to UST	8/29/2005	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-004 North End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-005 South End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-006 West End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-007 East End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Soil to Groundwater MSCC (mg/kg)			NS	NS	NS	NS	0.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	8	11
Residential MSCC (mg/kg)			NS	NS	NS	NS	312	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	940	469
Industrial/Commercial MSCC (mg/kg)			NS	NS	NS	NS	8176	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	24000	12264

Date:	9/13/2005		Project Number and Name:	109972 AS-4159																	
Analytical Method:														8270C							
Contaminant of Concern			4-Chlorophenyl phenyl ether	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	3,3'-Dichlorobenzidine	Dibenzo(a,h)anthracene	Dibenzofuran	Di-n-butyl phthalate	Di-n-octyl phthalate	Diethyl phthalate	Dimethyl phthalate	Bis(2-ethylhexyl)phthalate	Fluoranthene	Fluorene	Hexachlorobenzene
Sample ID	Date Collected	Sample Depth (ft bgs)																			
AS4159-002 Product Line next to OWS	8/29/2005	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-003 Product Line next to UST	8/29/2005	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-004 North End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.196 J	ND
AS4159-005 South End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.446	ND	ND	ND
AS4159-006 West End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-007 East End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Soil to Groundwater MSCC (mg/kg)			NS	7	24	1	NS	NS	NS	0.17	4.7	NS	NS	NS	NS	6.67	276	44	NS
Residential MSCC (mg/kg)			NS	1400	1400	27	NS	NS	NS	0.088	62	NS	NS	NS	NS	46	620	620	NS
Industrial/Commercial MSCC (mg/kg)			NS	36000	36000	240	NS	NS	NS	0.78	1635	NS	NS	NS	NS	410	16400	16400	NS

Indicate method detection limit for contaminants when analyze
but not detected (i.e., <1.0)
List any contaminant detected above the method detection limit
MSCC = Maximum Soil Contamination Concentration
ft bgs = feet below ground surface
Results must be reported in mg/kg
mg/kg = milligrams per kilogram
NA = not applicable
NS = no standard

Table 3-2
AS-4159
VOC, SVOC, Metals and Pesticides Confirmation Soil Sample Analytical Results

Date: 9/13/2005			Project Number and Name: 109972 AS-4159															
Analytical Method:			8270C															
Contaminant of Concern			Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	4-Bromophenyl phenyl ether	Butyl benzyl phthalate	Benzyl alcohol	2-Chloronaphthalene	4-Chloroaniline	Carbazole	Chrysene	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl)ether
Sample ID	Date Collected	Sample Depth (ft bgs)																
AS4159-002 Product Line next to OWS	8/29/2005	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-003 Product Line next to UST	8/29/2005	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-004 North End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-005 South End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-006 West End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-007 East End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Soil to Groundwater MSCC (mg/kg)			995	0.34	0.061	1	6720	12	NS	NS	NS	NS	NS	NS	38	NS	0.0002	NS
Residential MSCC (mg/kg)			4600	0.88	0.088	0.88	469	9	NS	NS	NS	NS	NS	NS	88	NS	0.58	NS
Industrial/Commercial MSCC (mg/kg)			122000	8	0.76	8	12264	78	NS	NS	NS	NS	NS	NS	780	NS	5.2	NS

Date: 9/13/2005			Project Number and Name: 109972 AS-4159															
Analytical Method:			8270C															
Contaminant of Concern			Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	2-Methylnaphthalene	2-Nitroaniline	3-Nitroaniline	4-Nitroaniline	Naphthalene	Nitrobenzene	N-Nitroso-di-n-propylamine	N-Nitrosodiphenylamine	Phenanthrene	Pyrene	1,2,4-Trichlorobenzene
Sample ID	Date Collected	Sample Depth (ft bgs)																
AS4159-002 Product Line next to OWS	8/29/2005	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-003 Product Line next to UST	8/29/2005	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-004 North End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	1.5	ND	ND	ND	0.311 J	ND	ND	ND	0.285 J	ND	ND
AS4159-005 South End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-006 West End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-007 East End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Soil to Groundwater MSCC (mg/kg)			0.26	NS	NS	3	NS	3	NS	NS	NS	0.58	NS	NS	NS	60	266	2.6
Residential MSCC (mg/kg)			3.1	NS	NS	0.88	NS	63	NS	NS	NS	63	NS	NS	NS	469	469	156
Industrial/Commercial MSCC (mg/kg)			73	NS	NS	8	NS	1635	NS	NS	NS	1635	NS	NS	NS	12264	12264	4088

Indicate method detection limit for contaminants when analyze
but not detected (i.e., <1.0)
List any contaminant detected above the method detection limit
MSCC = Maximum Soil Contamination Concentration
ft bgs = feet below ground surface
Results must be reported in mg/kg
mg/kg = milligrams per kilogram
NA = not applicable
NS = no standard

Table 3-2
AS-4159
VOC, SVOC, Metals and Pesticides Confirmation Soil Sample Analytical Results

Date:	9/13/2005		Project Number and Name:	109972 AS-4159														
Analytical Method:													8081A					
Contaminant of Concern			Aldrin	alpha-BHC	beta-BHC	delta-BHC	gamma-BHC (Lindane)	alpha-Chlordane	gamma-Chlordane	Dieldrin	4,4'-DDD	4,4'-DDE	4,4'-DDT	Endrin	Endosulfan sulfate	Endrin aldehyde	Endrin ketone
Sample ID	Date Collected	Sample Depth (ft bgs)																
AS4159-002 Product Line next to OWS	8/29/2005	4	ND	ND	ND	ND	ND	0.0013 J	0.0029	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-003 Product Line next to UST	8/29/2005	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-004 North End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-005 South End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	0.00081 J	0.0015 J	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-006 West End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	0.0016 J	ND	ND	ND	ND	ND	ND	ND	ND
AS4159-007 East End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Soil to Groundwater MSCC (mg/kg)			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Residential MSCC (mg/kg)			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Industrial/Commercial MSCC (mg/kg)			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Date:	9/13/2005		Project Number and Name:	109972 AS-4159														
Analytical Method:			8081A						8082							6010B		
Contaminant of Concern			Endosulfan-I	Endosulfan-II	Heptachlor	Heptachlor epoxide	Methoxychlor	Toxaphene	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Chromium	Lead
Sample ID	Date Collected	Sample Depth (ft bgs)																
AS4159-002 Product Line next to OWS	8/29/2005	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.7	3.7 B
AS4159-003 Product Line next to UST	8/29/2005	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.5	2.8 B
AS4159-004 North End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.5	2.7 B
AS4159-005 South End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.2	4.2 B
AS4159-006 West End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4	4.2 B
AS4159-007 East End of UST	8/29/2005	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.4	2.3 B
Soil to Groundwater MSCC (mg/kg)			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	27	270
Residential MSCC (mg/kg)			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	47	400
Industrial/Commercial MSCC (mg/kg)			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1226	400

Indicate method detection limit for contaminants when analyze
but not detected (i.e., <1.0)
List any contaminant detected above the method detection limit
MSCC = Maximum Soil Contamination Concentration
ft bgs = feet below ground surface
Results must be reported in mg/kg
mg/kg = milligrams per kilogram
NA = not applicable
NS = no standard

Table 3.3
Building AS-4159
VOC and SVOC Groundwater Sample Analytical Results

Date:	8/25/2005		Project Number and Name:	109972 Building AS-4159																
Analytical Method:														8260B						
Contaminant of Concern			Acetone	Benzene	Bromodichloromethane	Bromoform	Chlorobenzene	Chloroethane	Chloroform	Carbon disulfide	Carbon tetrachloride	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane	Dibromochloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	trans-1,2-Dichloroethene
Sample ID	Date Collected	Sample Depth (ft bgs)																		
AS4158-009 Temp Well UST Pit	10/3/2005	N/A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
		GWQS (ug/L)	700	1	NS	NS	NS	NS	0.00019	700	NS	700	7	0.38	0.56	0.002	70	0.2	70	
		GCL (ug/L)	700000	5000	NS	NS	NS	NS	190	700000	NS	700000	7000	380	560	68	70000	200	70000	

Date:	8/25/2005		Project Number and Name:	109972 Building AS-4159																
Analytical Method:														8260B						
Contaminant of Concern			trans-1,3-Dichloropropene	Ethylbenzene	2-Hexanone	4-Methyl-2-pentanone	Methyl bromide	Methyl chloride	Methylene chloride	Methyl ethyl ketone	Methyl Tert Butyl Ether	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	Tetrachloroethene	Toluene	Trichloroethene	Vinyl chloride	Xylenes (total)
Sample ID	Date Collected	Sample Depth (ft bgs)																		
AS4158-009 Temp Well UST Pit	10/3/2005	N/A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
		GWQS (ug/L)	0.2	29	280	NS	NS	2.6	5	170	0.1	NS	0.17	NS	0.7	1000	2.8	0.015	530	
		GCL (ug/L)	200	29000	280000	NS	NS	2600	5000	170000	100000	NS	170	NS	700	257500	2800	15	87500	

Indicate method detection limit for contaminants when analyzed but not detected (i.e., <1.0)
List any contaminant detected above the method detection limit
Detectable concentration exceeds GWQS
GWQS = Groundwater Quality Standard
GCL = Groundwater Contamination Level
Results must be reported in ug/L
ug/L = micrograms per liter
J = detectable concentration below reporting limit
NA = not applicable
NS = no standard

Table 3.3
Building AS-4159
VOC and SVOC Groundwater Sample Analytical Results

Date:	8/25/2005		Project Number and Name:	109972 Building AS-4159																
Analytical Method:				8270C																
Contaminant of Concern			Benzoic acid	2-Chlorophenol	4-Chloro-3-methylphenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	4,6-Dinitro-o-cresol	2-Methylphenol	3&4-Methylphenol	2-Nitrophenol	4-Nitrophenol	Pentachlorophenol	Phenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	Acenaphthene	Acenaphthylene
Sample ID	Date Collected	Sample Depth (ft bgs)																		
AS4158-009 Temp Well UST Pit	10/3/2005	N/A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
		GWQS (ug/L)	28000	NS	NS	NS	140	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	80	210
		GCL (ug/L)	1450000	NS	NS	NS	140000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	2120	1965

Date:	8/25/2005		Project Number and Name:	109972 Building AS-4159																
Analytical Method:				8270C																
Contaminant of Concern			4-Chlorophenyl phenyl ether	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	3,3'-Dichlorobenzidine	Dibenzo(a,h)anthracene	Dibenzofuran	Di-n-butyl phthalate	Di-n-octyl phthalate	Diethyl phthalate	Dimethyl phthalate	Bis(2-ethylhexyl)phthalate	Fluoranthene	Fluorene	Hexachlorobenzene
Sample ID	Date Collected	Sample Depth (ft bgs)																		
AS4158-009 Temp Well UST Pit	10/3/2005	N/A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
		GWQS (ug/L)	NS	620	620	75	NS	NS	NS	0.0047	28	NS	NS	NS	NS	3	280	280	NS	
		GCL (ug/L)	NS	72500	61500	39500	NS	NS	NS	0.25	2800	NS	NS	NS	NS	3000	280	950	NS	

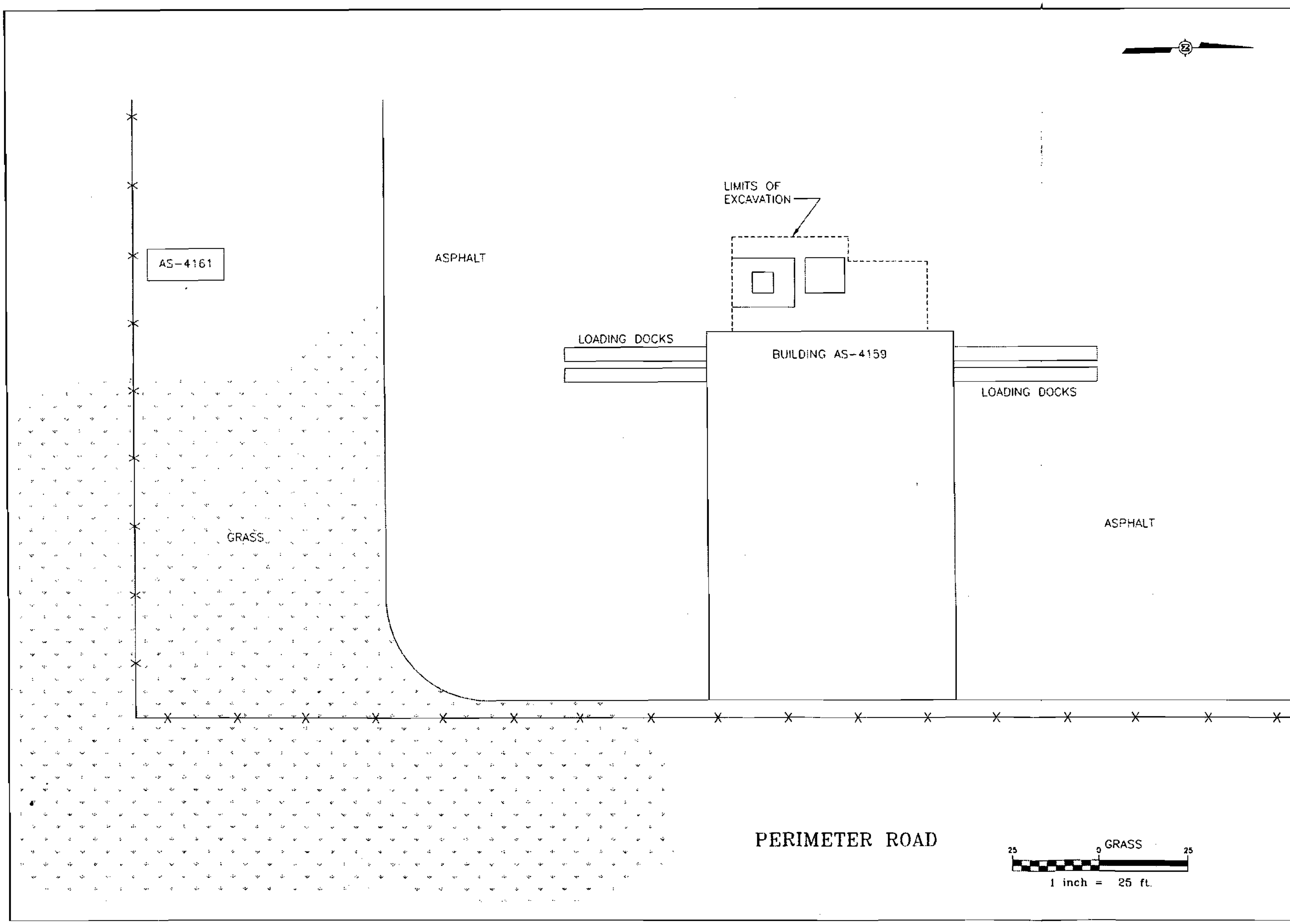
Indicate method detection limit for contaminants when analyzed but not detected (i.e., <1.0)
List any contaminant detected above the method detection limit
Detectable concentration exceeds GWQS
GWQS = Groundwater Quality Standard
GCL = Groundwater Contamination Level
Results must be reported in ug/L
ug/L = micrograms per liter
J = detectable concentration below reporting limit
NA = not applicable
NS = no standard

Table 3.3
Building AS-4159
VOC and SVOC Groundwater Sample Analytical Results

Date:	8/25/2005		Project Number and Name:	109972 Building AS-4159																		
Analytical Method:			8270C																		Metals 6010B	
Contaminant of Concern			Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	4-Bromophenyl phenyl ether	Butyl benzyl phthalate	Benzyl alcohol	2-Chloronaphthalene	4-Chloroaniline	Carbazole	Chrysene	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl)ether	Chromium	Lead
Sample ID	Date Collected	Sample Depth (ft bgs)																				
AS4158-009 Temp Well UST Pit	10/3/2005	N/A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	52.6	33.1		
		GWQS (ug/L)	2100	0.05	0.0047	0.047	210	0.47	NS	NS	NS	NS	NS	NS	5	NS	0.031	NS	50	13		
		GCL (ug/L)	2100	22	1.5	0.6	210	0.47	NS	NS	NS	NS	NS	NS	5	NS	31	NS	NS	NS		

Date:	8/25/2005		Project Number and Name:	109972 Building AS-4159																		
Analytical Method:			8270C																			
Contaminant of Concern			Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	2-Methylnaphthalene	2-Nitroaniline	3-Nitroaniline	4-Nitroaniline	Naphthalene	Nitrobenzene	N-Nitroso-di-n-propylamine	N-Nitrosodiphenylamine	Phenanthrene	Pyrene	1,2,4-Trichlorobenzene				
Sample ID	Date Collected	Sample Depth (ft bgs)																				
AS4158-009 Temp Well UST Pit	10/3/2005	N/A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND				
		GWQS (ug/L)	44	NS	NS	0.047	NS	28	NS	NS	NS	21	NS	NS	NS	210	210	70				
		GCL (ug/L)	440	NS	NS	31	NS	12500	NS	NS	NS	15500	NS	NS	NS	410	210	9500				

Indicate method detection limit for contaminants when analyzed but not detected (i.e., <1.0)
List any contaminant detected above the method detection limit
Detectable concentration exceeds GWQS
GWQS = Groundwater Quality Standard
GCL = Groundwater Contamination Level
Results must be reported in ug/L
ug/L = micrograms per liter
J = detectable concentration below reporting limit
NA = not applicable
NS = no standard



REV	DATE	BY	CHK'D	APPR'D	DESCRIPTION/ISSUE
0	4/03				DRAFT FORENSICS WP

REVISIONS

Shaw Environmental, Inc.

PROJECT NO. 109972

DESIGNED BY: RBK | CHECKED BY: RBK | DRAWN BY: JCL | APPROVED BY:

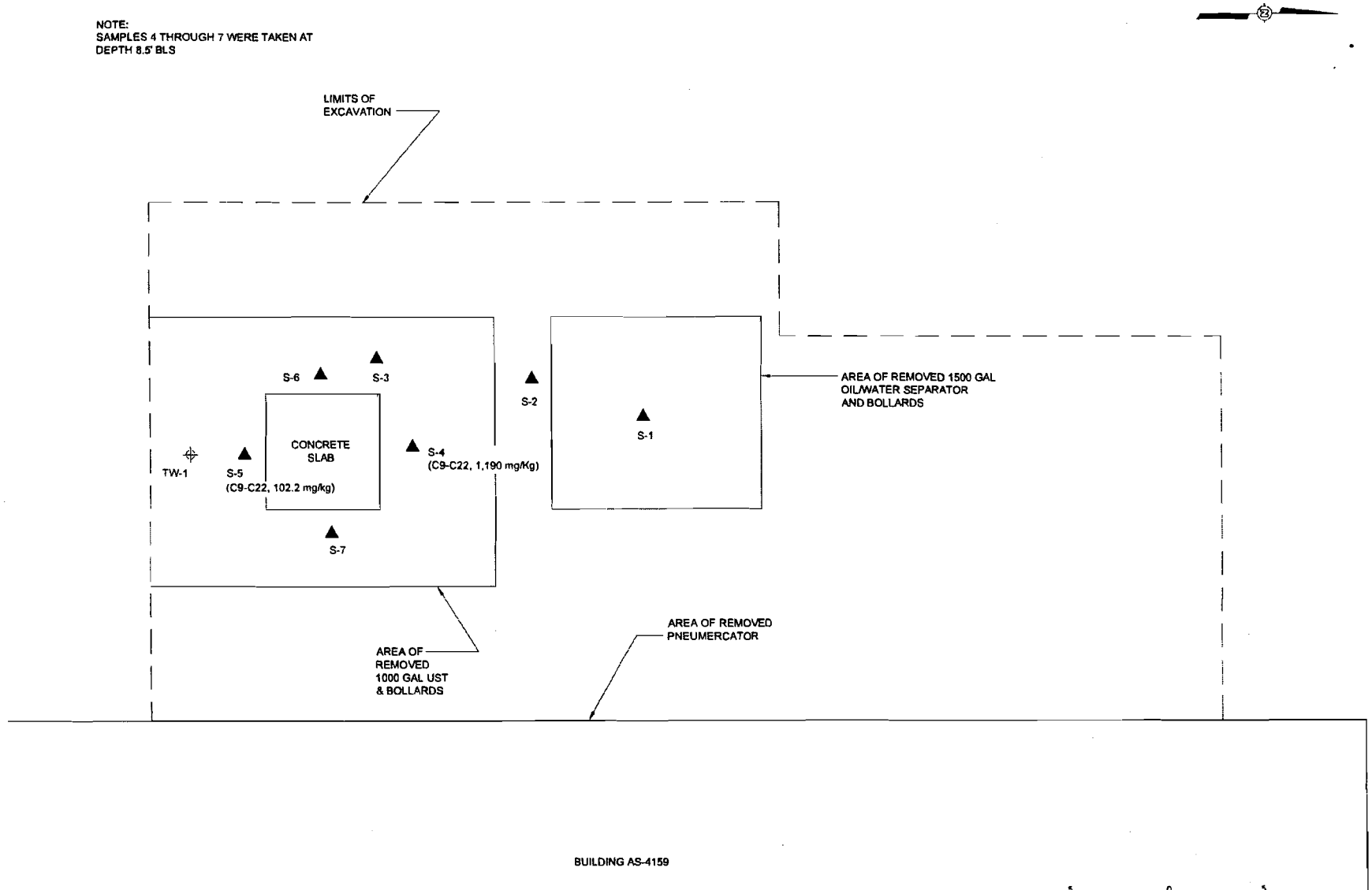
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NAVAL STATION NORFOLK, VIRGINIA
MCB CAMP LEJEUNE JACKSONVILLE, N.C.

BUILDING AS-4159
NEW RIVER AIR STATION, NORTH CAROLINA

UST REMOVAL SITE

SCALE: AS SHOWN
SIZE:
DELIVERY ORDER NO. 033
CONSTR CONTRACT NO. N62470-97-D-5000
NAVFAC DRAWING NO.
SHEET I.D. 1.3

NOTE:
SAMPLES 4 THROUGH 7 WERE TAKEN AT
DEPTH 8.5' BLS



REVISIONS

REV	DATE	BY	CHK'D	APP'VD	DESCRIPTION/ISSUE
0	4/00				DRAFT FORENSICS WP

Shaw Environmental, Inc.
PROJECT NO. 109972

DESIGNED BY: RBK | CHECKED BY: RBK | APPROVED BY:
DRAWN BY: JCL

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NORFOLK, VIRGINIA
JACKSONVILLE, N.C.
NAVAL STATION
MCB CAMP LEJEUNE
BUILDING AS-4159
NEW RIVER AIR STATION, NORTH CAROLINA
UST REMOVAL SITE AND SAMPLE LOCATIONS

SCALE: AS SHOWN
SIZE:
DELIVERY ORDER NO 033
CONSTR. CONTRACT NO. N62470-97-D-9000
NAVFAC DRAWING NO.
SHEET I.D. 1.4

APPENDIX E

SAMPLING FIELD DATA WORKSHEET

SAMPLING FIELD DATA WORKSHEET

BUILDING AS-4159
MARINE CORP BASE
CAMP LEJEUNE, NORTH CAROLINA

Well No.	Date	Time Sampled	Diameter (in.)	Well Depth (feet)	DTW (feet)	Feet of Water in Well	Gal/Foot	One Volume (gals.)	Three Volumes (gals.)	Volume of Bailer (gals.)	No. Bails Required	No. Bails Taken
USTAS4159-MW01	1/17/2006	1300	2	15	11.70	3.30	0.163	0.54	1.61	0.24	6.72	10

APPENDIX F

LABORATORY REPORTS
AND
CHAIN-OF-CUSTODY DOCUMENTATION

205-071

PARADIGM ANALYTICAL LABORATORIES, INC.
5500 Business Drive
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

FILE COPY

Mr. Mike E. Mason
Richard Catlin & Associates
P.O. Box 10279
Wilmington NC 28404-0279

Report Number: G128-1674

Client Project: AS-4159

Dear Mr. Mason:

Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call Paradigm at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
Paradigm Analytical Laboratories, Inc.

1/31/06

Laboratory Director — Date
J. Patrick Weaver

Results for Volatiles
by GCMS 6210D

Client Sample ID: USTAS4159-MW01
Client Project ID: AS-4159
Lab Sample ID: G128-1674-1A
Lab Project ID: G128-1674

Analyzed By: JTF
Date Collected: 1/17/06 13:00
Date Received: 1/17/06
Matrix: Water

Compound	Result UG/L	Quantitation Limit UG/L	MDL UG/L	Dilution Factor	Date Analyzed	Flag
Benzene	**0.910**	0.500	0.152	1	1/20/06	
Bromobenzene	BQL	0.500	0.199	1	1/20/06	
Bromochloromethane	BQL	0.500	0.312	1	1/20/06	
Bromodichloromethane	BQL	0.500	0.195	1	1/20/06	
Bromoform	BQL	0.500	0.116	1	1/20/06	
Bromomethane	BQL	0.500	0.398	1	1/20/06	
n-Butylbenzene	BQL	0.500	0.262	1	1/20/06	
sec-Butylbenzene	**0.520**	0.500	0.234	1	1/20/06	
tert-Butylbenzene	BQL	0.500	0.181	1	1/20/06	
Carbon tetrachloride	BQL	0.500	0.150	1	1/20/06	
Chlorobenzene	BQL	0.500	0.178	1	1/20/06	
Chloroethane	BQL	0.500	0.373	1	1/20/06	
Chloroform	BQL	0.500	0.195	1	1/20/06	
Chloromethane	BQL	0.500	0.457	1	1/20/06	
2-Chlorotoluene	BQL	0.500	0.204	1	1/20/06	
4-Chlorotoluene	BQL	0.500	0.198	1	1/20/06	
Dibromochloromethane	BQL	0.500	0.198	1	1/20/06	
1,2-Dibromo-3-chloropropane	BQL	5.00	1.89	1	1/20/06	
Dibromomethane	BQL	0.500	0.276	1	1/20/06	
1,2-Dibromoethane (EDB)	BQL	0.500	0.269	1	1/20/06	
1,2-Dichlorobenzene	BQL	0.500	0.187	1	1/20/06	
1,3-Dichlorobenzene	BQL	0.500	0.242	1	1/20/06	
1,4-Dichlorobenzene	BQL	0.500	0.177	1	1/20/06	
1,1-Dichloroethane	BQL	0.500	0.201	1	1/20/06	
1,1-Dichloroethene	BQL	0.500	0.159	1	1/20/06	
1,2-Dichloroethane	BQL	0.500	0.223	1	1/20/06	
cis-1,2-Dichloroethene	BQL	0.500	0.161	1	1/20/06	
trans-1,2-dichloroethene	BQL	0.500	0.230	1	1/20/06	
1,2-Dichloropropane	BQL	0.500	0.132	1	1/20/06	
1,3-Dichloropropane	BQL	0.500	0.163	1	1/20/06	
2,2-Dichloropropane	BQL	0.500	0.263	1	1/20/06	
1,1-Dichloropropene	BQL	0.500	0.176	1	1/20/06	
Dichlorodifluoromethane	BQL	5.00	0.459	1	1/20/06	
Diisopropyl ether (DIPE)	BQL	0.500	0.204	1	1/20/06	
Ethylbenzene	**0.440**	0.500	0.183	1	1/20/06	J
Hexachlorobutadiene	BQL	0.500	0.406	1	1/20/06	
Isopropylbenzene	**0.300**	0.500	0.163	1	1/20/06	J
4-Isopropyltoluene	**0.600**	0.500	0.203	1	1/20/06	
Methylene chloride	BQL	5.00	0.176	1	1/20/06	
Methyl-tert-butyl ether (MTBE)	**0.380**	0.500	0.201	1	1/20/06	J
Naphthalene	**1.82**	0.500	0.259	1	1/20/06	
n-Propyl benzene	**0.380**	0.500	0.203	1	1/20/06	J

Results for Volatiles
by GCMS 6210D

Client Sample ID: USTAS4159-MW01
Client Project ID: AS-4159
Lab Sample ID: G128-1674-1A
Lab Project ID: G128-1674

Analyzed By: JTF
Date Collected: 1/17/06 13:00
Date Received: 1/17/06
Matrix: Water

Compound	Result UG/L	Quantitation Limit UG/L	MDL UG/L	Dilution Factor	Date Analyzed	Flag
Styrene	BQL	0.500	0.235	1	1/20/06	
1,1,1,2-Tetrachloroethane	BQL	0.500	0.298	1	1/20/06	
1,1,2,2-Tetrachloroethane	BQL	0.500	0.217	1	1/20/06	
Tetrachloroethene	BQL	0.500	0.219	1	1/20/06	
Toluene	**0.180**	0.500	0.154	1	1/20/06	J
1,2,3-Trichlorobenzene	BQL	0.500	0.206	1	1/20/06	
1,2,4-Trichlorobenzene	BQL	0.500	0.271	1	1/20/06	
Trichloroethene	BQL	0.500	0.201	1	1/20/06	
1,1,1-Trichloroethane	BQL	0.500	0.168	1	1/20/06	
1,1,2-Trichloroethane	BQL	0.500	0.231	1	1/20/06	
Trichlorofluoromethane	BQL	0.500	0.481	1	1/20/06	
1,2,3-Trichloropropane	BQL	0.500	0.214	1	1/20/06	
1,2,4-Trimethylbenzene	**4.69**	0.500	0.205	1	1/20/06	
1,3,5-Trimethylbenzene	**1.70**	0.500	0.179	1	1/20/06	
Vinyl chloride	BQL	0.500	0.464	1	1/20/06	
m-,p-Xylene	BQL	1.00	0.388	1	1/20/06	
o-Xylene	**0.660**	0.500	0.156	1	1/20/06	

	Spike Added	Spike Result	Percent Recovered
4-Bromofluorobenzene	10	10.6	106
1,2-Dichloroethane-d4	10	10.3	103
Toluene-d8	10	10	100

Comments:

Flags:
BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By: _____

Results for Volatiles
by GCMS 6210D

Client Sample ID: USTAS4159-MW01 DUP
Client Project ID: AS-4159
Lab Sample ID: G128-1674-2A
Lab Project ID: G128-1674

Analyzed By: JTF
Date Collected: 1/17/06 13:00
Date Received: 1/17/06
Matrix: Water

Compound	Result UG/L	Quantitation Limit UG/L	MDL UG/L	Dilution Factor	Date Analyzed	Flag
Benzene	**0.920**	0.500	0.152	1	1/20/06	
Bromobenzene	BQL	0.500	0.199	1	1/20/06	
Bromochloromethane	BQL	0.500	0.312	1	1/20/06	
Bromodichloromethane	BQL	0.500	0.195	1	1/20/06	
Bromoform	BQL	0.500	0.116	1	1/20/06	
Bromomethane	BQL	0.500	0.398	1	1/20/06	
n-Butylbenzene	BQL	0.500	0.262	1	1/20/06	
sec-Butylbenzene	**0.550**	0.500	0.234	1	1/20/06	
tert-Butylbenzene	BQL	0.500	0.181	1	1/20/06	
Carbon tetrachloride	BQL	0.500	0.150	1	1/20/06	
Chlorobenzene	BQL	0.500	0.178	1	1/20/06	
Chloroethane	BQL	0.500	0.373	1	1/20/06	
Chloroform	BQL	0.500	0.195	1	1/20/06	
Chloromethane	BQL	0.500	0.457	1	1/20/06	
2-Chlorotoluene	BQL	0.500	0.204	1	1/20/06	
4-Chlorotoluene	BQL	0.500	0.198	1	1/20/06	
Dibromochloromethane	BQL	0.500	0.198	1	1/20/06	
1,2-Dibromo-3-chloropropane	BQL	5.00	1.89	1	1/20/06	
Dibromomethane	BQL	0.500	0.276	1	1/20/06	
1,2-Dibromoethane (EDB)	BQL	0.500	0.269	1	1/20/06	
1,2-Dichlorobenzene	BQL	0.500	0.187	1	1/20/06	
1,3-Dichlorobenzene	BQL	0.500	0.242	1	1/20/06	
1,4-Dichlorobenzene	BQL	0.500	0.177	1	1/20/06	
1,1-Dichloroethane	BQL	0.500	0.201	1	1/20/06	
1,1-Dichloroethene	BQL	0.500	0.159	1	1/20/06	
1,2-Dichloroethane	BQL	0.500	0.223	1	1/20/06	
cis-1,2-Dichloroethene	BQL	0.500	0.161	1	1/20/06	
trans-1,2-dichloroethene	BQL	0.500	0.230	1	1/20/06	
1,2-Dichloropropane	BQL	0.500	0.132	1	1/20/06	
1,3-Dichloropropane	BQL	0.500	0.163	1	1/20/06	
2,2-Dichloropropane	BQL	0.500	0.263	1	1/20/06	
1,1-Dichloropropene	BQL	0.500	0.176	1	1/20/06	
Dichlorodifluoromethane	BQL	5.00	0.459	1	1/20/06	
Diisopropyl ether (DIPE)	BQL	0.500	0.204	1	1/20/06	
Ethylbenzene	**0.490**	0.500	0.183	1	1/20/06	J
Hexachlorobutadiene	BQL	0.500	0.406	1	1/20/06	
Isopropylbenzene	**0.310**	0.500	0.163	1	1/20/06	J
4-Isopropyltoluene	**0.600**	0.500	0.203	1	1/20/06	
Methylene chloride	BQL	5.00	0.176	1	1/20/06	
Methyl-tert-butyl ether (MTBE)	**0.310**	0.500	0.201	1	1/20/06	J
Naphthalene	**1.69**	0.500	0.259	1	1/20/06	
n-Propyl benzene	**0.410**	0.500	0.203	1	1/20/06	J

Results for Volatiles
by GCMS 6210D

Client Sample ID: USTAS4159-MW01 DUP
Client Project ID: AS-4159
Lab Sample ID: G128-1674-2A
Lab Project ID: G128-1674

Analyzed By: JTF
Date Collected: 1/17/06 13:00
Date Received: 1/17/06
Matrix: Water

Compound	Result UG/L	Quantitation Limit UG/L	MDL UG/L	Dilution Factor	Date Analyzed	Flag
Styrene	BQL	0.500	0.235	1	1/20/06	
1,1,1,2-Tetrachloroethane	BQL	0.500	0.298	1	1/20/06	
1,1,2,2-Tetrachloroethane	BQL	0.500	0.217	1	1/20/06	
Tetrachloroethene	BQL	0.500	0.219	1	1/20/06	
Toluene	BQL	0.500	0.154	1	1/20/06	
1,2,3-Trichlorobenzene	BQL	0.500	0.206	1	1/20/06	
1,2,4-Trichlorobenzene	BQL	0.500	0.271	1	1/20/06	
Trichloroethene	BQL	0.500	0.201	1	1/20/06	
1,1,1-Trichloroethane	BQL	0.500	0.168	1	1/20/06	
1,1,2-Trichloroethane	BQL	0.500	0.231	1	1/20/06	
Trichlorofluoromethane	BQL	0.500	0.481	1	1/20/06	
1,2,3-Trichloropropane	BQL	0.500	0.214	1	1/20/06	
1,2,4-Trimethylbenzene	**5.14**	0.500	0.205	1	1/20/06	
1,3,5-Trimethylbenzene	**1.85**	0.500	0.179	1	1/20/06	
Vinyl chloride	BQL	0.500	0.464	1	1/20/06	
m-,p-Xylene	BQL	1.00	0.388	1	1/20/06	
o-Xylene	**0.690**	0.500	0.156	1	1/20/06	

	Spike Added	Spike Result	Percent Recovered
4-Bromofluorobenzene	10	10.4	104
1,2-Dichloroethane-d4	10	10.4	104
Toluene-d8	10	10.2	102

Comments:

Flags:
BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By: _____

Results for Volatiles
by GCMS 6210D

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: VBLK1012006B
Lab Project ID:

Analyzed By: JTF
Date Collected:
Date Received:
Matrix: Water

Compound	Result UG/L	Quantitation Limit UG/L	MDL UG/L	Dilution Factor	Date Analyzed	Flag
Benzene	BQL	0.500	0.152	1	1/20/06	
Bromobenzene	BQL	0.500	0.199	1	1/20/06	
Bromochloromethane	BQL	0.500	0.312	1	1/20/06	
Bromodichloromethane	BQL	0.500	0.195	1	1/20/06	
Bromoform	BQL	0.500	0.116	1	1/20/06	
Bromomethane	BQL	0.500	0.398	1	1/20/06	
n-Butylbenzene	BQL	0.500	0.262	1	1/20/06	
sec-Butylbenzene	BQL	0.500	0.234	1	1/20/06	
tert-Butylbenzene	BQL	0.500	0.181	1	1/20/06	
Carbon tetrachloride	BQL	0.500	0.150	1	1/20/06	
Chlorobenzene	BQL	0.500	0.178	1	1/20/06	
Chloroethane	BQL	0.500	0.373	1	1/20/06	
Chloroform	BQL	0.500	0.195	1	1/20/06	
Chloromethane	BQL	0.500	0.457	1	1/20/06	
2-Chlorotoluene	BQL	0.500	0.204	1	1/20/06	
4-Chlorotoluene	BQL	0.500	0.198	1	1/20/06	
Dibromochloromethane	BQL	0.500	0.198	1	1/20/06	
1,2-Dibromo-3-chloropropane	BQL	5.00	1.89	1	1/20/06	
Dibromomethane	BQL	0.500	0.276	1	1/20/06	
1,2-Dibromoethane (EDB)	BQL	0.500	0.269	1	1/20/06	
1,2-Dichlorobenzene	BQL	0.500	0.187	1	1/20/06	
1,3-Dichlorobenzene	BQL	0.500	0.242	1	1/20/06	
1,4-Dichlorobenzene	BQL	0.500	0.177	1	1/20/06	
1,1-Dichloroethane	BQL	0.500	0.201	1	1/20/06	
1,1-Dichloroethene	BQL	0.500	0.159	1	1/20/06	
1,2-Dichloroethane	BQL	0.500	0.223	1	1/20/06	
cis-1,2-Dichloroethene	BQL	0.500	0.161	1	1/20/06	
trans-1,2-dichloroethene	BQL	0.500	0.230	1	1/20/06	
1,2-Dichloropropane	BQL	0.500	0.132	1	1/20/06	
1,3-Dichloropropane	BQL	0.500	0.163	1	1/20/06	
2,2-Dichloropropane	BQL	0.500	0.263	1	1/20/06	
1,1-Dichloropropene	BQL	0.500	0.176	1	1/20/06	
Dichlorodifluoromethane	BQL	5.00	0.459	1	1/20/06	
Diisopropyl ether (DIPE)	BQL	0.500	0.204	1	1/20/06	
Ethylbenzene	BQL	0.500	0.183	1	1/20/06	
Hexachlorobutadiene	BQL	0.500	0.406	1	1/20/06	
Isopropylbenzene	BQL	0.500	0.163	1	1/20/06	
4-Isopropyltoluene	BQL	0.500	0.203	1	1/20/06	
Methylene chloride	BQL	5.00	0.176	1	1/20/06	
Methyl-tert-butyl ether (MTBE)	BQL	0.500	0.201	1	1/20/06	
Naphthalene	BQL	0.500	0.259	1	1/20/06	
n-Propyl benzene	BQL	0.500	0.203	1	1/20/06	

Results for Volatiles
by GCMS 6210D

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: VBLK1012006B
Lab Project ID:

Analyzed By: JTF
Date Collected:
Date Received:
Matrix: Water

Compound	Result UG/L	Quantitation Limit UG/L	MDL UG/L	Dilution Factor	Date Analyzed	Flag
Styrene	BQL	0.500	0.235	1	1/20/06	
1,1,1,2-Tetrachloroethane	BQL	0.500	0.298	1	1/20/06	
1,1,2,2-Tetrachloroethane	BQL	0.500	0.217	1	1/20/06	
Tetrachloroethene	BQL	0.500	0.219	1	1/20/06	
Toluene	BQL	0.500	0.154	1	1/20/06	
1,2,3-Trichlorobenzene	BQL	0.500	0.206	1	1/20/06	
1,2,4-Trichlorobenzene	BQL	0.500	0.271	1	1/20/06	
Trichloroethene	BQL	0.500	0.201	1	1/20/06	
1,1,1-Trichloroethane	BQL	0.500	0.168	1	1/20/06	
1,1,2-Trichloroethane	BQL	0.500	0.231	1	1/20/06	
Trichlorofluoromethane	BQL	0.500	0.481	1	1/20/06	
1,2,3-Trichloropropane	BQL	0.500	0.214	1	1/20/06	
1,2,4-Trimethylbenzene	BQL	0.500	0.205	1	1/20/06	
1,3,5-Trimethylbenzene	BQL	0.500	0.179	1	1/20/06	
Vinyl chloride	BQL	0.500	0.464	1	1/20/06	
m-,p-Xylene	BQL	1.00	0.388	1	1/20/06	
o-Xylene	BQL	0.500	0.156	1	1/20/06	

	Spike Added	Spike Result	Percent Recovered
4-Bromofluorobenzene	10	9.94	99
1,2-Dichloroethane-d4	10	10.3	103
Toluene-d8	10	10	100

Comments:

Flags:
BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By:

Results for MS/MSD
by GC/MS

Client Project ID: Batch QC
Lab Sample ID: g122-2700-1a x100
Batch ID: 1012006

Date Analyzed: 20 Jan 2006 9:55 pm
Matrix: water
Analyzed By: JTF

Compound	Unspiked Sample ug/L	Spike conc. ug/L	Recovered MS %	Recovered MSD %	Limits Lower %	Limits Upper %	RPD %	RPD Limit %
benzene	0.6	5	93.6	88.4	61.6	135	5.7	30
chlorobenzene	BQL	5	89.5	102.2	77.2	118	13.3	30
1,1-dichloroethene	BQL	5	94.7	92.0	64.4	130	2.8	30
toluene	BQL	5	96.8	92.0	66.4	128	5.1	30
trichloroethene	BQL	5	99.5	90.7	84.9	136	9.2	30

Comments:

Concentrations are on column amounts.
Concentration Units: ug/L

Flags:

* = Out of limits.
NA = Not applicable
BQL = Below quantitation limit.

Reviewed By: 

VO43.072303.1

Results for Laboratory Control Spike (LCS)
by GC/MS

Lab Sample ID: lcs1012006a
Analyst: JTF
Batch ID: 1012006

Date Analyzed: 20 Jan 2006 12:56 pm
Matrix: Water

Compound	Spiked ug/L	Amount recovered	LCS (%)	Limits Lower (%)	Limits Upper (%)
benzene	5.0	4.73	94.7	77.4	123
chlorobenzene	5.0	4.49	89.8	72.5	128
1,1-dichloroethene	5.0	4.62	92.4	71.7	128
toluene	5.0	4.59	91.8	75.9	124
trichloroethene	5.0	4.50	89.9	77.9	122

Comments:
Concentration values are on column amount.

Flags:
* = Out of limits.
NA = Not applicable

Reviewed By: _____

VO42.072303.1

Results for Semivolatiles
by GCMS 625

Client Sample ID: USTAS4159-MW01
Client Project ID: AS-4159
Lab Sample ID: G128-1674-1J
Lab Project ID: G128-1674

Analyzed By: MRC
Date Collected: 1/17/2006 13:00
Date Received: 1/17/2006
Date Extracted: 1/17/2006
Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	10.0	1.22	1	1/18/2006	
Acenaphthylene	BQL	10.0	1.12	1	1/18/2006	
Anthracene	BQL	10.0	1.75	1	1/18/2006	
Benzo[a]anthracene	BQL	10.0	1.36	1	1/18/2006	
Benzo[a]pyrene	BQL	10.0	1.27	1	1/18/2006	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	1/18/2006	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	1/18/2006	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	1/18/2006	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	1/18/2006	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	1/18/2006	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	1/18/2006	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	1/18/2006	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	1/18/2006	
Butylbenzylphthalate	BQL	10.0	1.53	1	1/18/2006	
2-Chloronaphthalene	BQL	10.0	1.25	1	1/18/2006	
2-Chlorophenol	BQL	10.0	4.22	1	1/18/2006	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	1/18/2006	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	1/18/2006	
Chrysene	BQL	10.0	1.11	1	1/18/2006	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	1/18/2006	
Di-n-Butylphthalate	BQL	10.0	1.65	1	1/18/2006	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	1/18/2006	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	1/18/2006	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	1/18/2006	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	1/18/2006	
2,4-Dichlorophenol	BQL	10.0	3.75	1	1/18/2006	
Diethylphthalate	BQL	10.0	1.48	1	1/18/2006	
Dimethylphthalate	BQL	10.0	1.04	1	1/18/2006	
2,4-Dimethylphenol	BQL	10.0	9.25	1	1/18/2006	
Di-n-octylphthalate	BQL	10.0	1.16	1	1/18/2006	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	1/18/2006	
2,4-Dinitrophenol	BQL	50.0	4.20	1	1/18/2006	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	1/18/2006	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	1/18/2006	
Diphenylamine *	BQL	10.0	1.53	1	1/18/2006	
Fluoranthene	BQL	10.0	1.41	1	1/18/2006	
Fluorene	BQL	10.0	1.22	1	1/18/2006	
Hexachlorobenzene	BQL	10.0	1.22	1	1/18/2006	
Hexachlorobutadiene	BQL	10.0	1.58	1	1/18/2006	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	1/18/2006	
Hexachloroethane	BQL	10.0	1.58	1	1/18/2006	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	1/18/2006	

Results for Semivolatiles
by GCMS 625

Client Sample ID: USTAS4159-MW01
Client Project ID: AS-4159
Lab Sample ID: G128-1674-1J
Lab Project ID: G128-1674

Analyzed By: MRC
Date Collected: 1/17/2006 13:00
Date Received: 1/17/2006
Date Extracted: 1/17/2006
Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	10.0	1.27	1	1/18/2006	
Naphthalene	BQL	10.0	1.08	1	1/18/2006	
Nitrobenzene	BQL	10.0	1.32	1	1/18/2006	
2-Nitrophenol	BQL	10.0	3.52	1	1/18/2006	
4-Nitrophenol	BQL	50.0	3.17	1	1/18/2006	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	1/18/2006	
Pentachlorophenol	BQL	50.0	2.83	1	1/18/2006	
Phenanthrene	BQL	10.0	1.38	1	1/18/2006	
Phenol	BQL	10.0	3.38	1	1/18/2006	
Pyrene	BQL	10.0	2.08	1	1/18/2006	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	1/18/2006	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	1/18/2006	

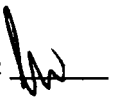
	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.5	65
2-Fluorophenol	10	7.8	78
Nitrobenzene-d5	10	7.8	78
Phenol-d6	10	7.7	77
2,4,6-Tribromophenol	10	8.5	85
4-Terphenyl-d14	10	8.7	87

Comments:

* N-Nitrosodiphenylamine is reported as the breakdown product Diphenylamine.

Flags:

BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By: 

Results of Library Search for Semivolatile Compounds

by GCMS

Client Sample ID: USTAS4159-MW01
Client Project ID: AS-4159
Lab Sample ID: G128-1674-1J
Lab Project ID: G128-1674
Sample Wt/Vol: 500 ML
Dilution: 1

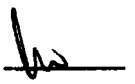
Analyzed By: MRC
Date Collected: 1/17/2006 13:00
Date Received: 1/17/2006
Date Extracted: 1/17/2006
Date Analyzed: 1/18/2006
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Carboxylic Acid, Unknown	10.42			89.6
2	Alkane, Unknown	7.84			33
3	Alcohol, Unknown	8.77			26.6
4	Unknown	11.22			22
5	Unknown	8.47			20.5
6	Alcohol, Unknown	10.83			18.7
7	Unknown	9.59			18.3
8	Carboxylic Acid, Unknown	11.04			17.8
9	Unknown	8.60			16.8
10	Unknown	7.18			14.6

Comment:

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak area of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak area is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

Results for Semivolatiles
by GCMS 625

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: PB4344
Lab Project ID:

Analyzed By: MRC
Date Collected:
Date Received:
Date Extracted: 1/17/2006
Matrix: WATER

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	10.0	1.22	1	1/18/2006	
Acenaphthylene	BQL	10.0	1.12	1	1/18/2006	
Anthracene	BQL	10.0	1.75	1	1/18/2006	
Benzo[a]anthracene	BQL	10.0	1.36	1	1/18/2006	
Benzo[a]pyrene	BQL	10.0	1.27	1	1/18/2006	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	1/18/2006	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	1/18/2006	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	1/18/2006	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	1/18/2006	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	1/18/2006	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	1/18/2006	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	1/18/2006	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	1/18/2006	
Butylbenzylphthalate	BQL	10.0	1.53	1	1/18/2006	
2-Chloronaphthalene	BQL	10.0	1.25	1	1/18/2006	
2-Chlorophenol	BQL	10.0	4.22	1	1/18/2006	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	1/18/2006	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	1/18/2006	
Chrysene	BQL	10.0	1.11	1	1/18/2006	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	1/18/2006	
Di-n-Butylphthalate	BQL	10.0	1.65	1	1/18/2006	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	1/18/2006	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	1/18/2006	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	1/18/2006	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	1/18/2006	
2,4-Dichlorophenol	BQL	10.0	3.75	1	1/18/2006	
Diethylphthalate	BQL	10.0	1.48	1	1/18/2006	
Dimethylphthalate	BQL	10.0	1.04	1	1/18/2006	
2,4-Dimethylphenol	BQL	10.0	9.25	1	1/18/2006	
Di-n-octylphthalate	BQL	10.0	1.16	1	1/18/2006	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	1/18/2006	
2,4-Dinitrophenol	BQL	50.0	4.20	1	1/18/2006	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	1/18/2006	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	1/18/2006	
Diphenylamine *	BQL	10.0	1.53	1	1/18/2006	
Fluoranthene	BQL	10.0	1.41	1	1/18/2006	
Fluorene	BQL	10.0	1.22	1	1/18/2006	
Hexachlorobenzene	BQL	10.0	1.22	1	1/18/2006	
Hexachlorobutadiene	BQL	10.0	1.58	1	1/18/2006	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	1/18/2006	
Hexachloroethane	BQL	10.0	1.58	1	1/18/2006	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	1/18/2006	

Results for Semivolatiles
by GCMS 625

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: PB4344
Lab Project ID:

Analyzed By: MRC
Date Collected:
Date Received:
Date Extracted: 1/17/2006
Matrix: WATER

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	10.0	1.27	1	1/18/2006	
Naphthalene	BQL	10.0	1.08	1	1/18/2006	
Nitrobenzene	BQL	10.0	1.32	1	1/18/2006	
2-Nitrophenol	BQL	10.0	3.52	1	1/18/2006	
4-Nitrophenol	BQL	50.0	3.17	1	1/18/2006	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	1/18/2006	
Pentachlorophenol	BQL	50.0	2.83	1	1/18/2006	
Phenanthrene	BQL	10.0	1.38	1	1/18/2006	
Phenol	BQL	10.0	3.38	1	1/18/2006	
Pyrene	BQL	10.0	2.08	1	1/18/2006	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	1/18/2006	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	1/18/2006	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.8	68
2-Fluorophenol	10	6.4	64
Nitrobenzene-d5	10	6.4	64
Phenol-d6	10	6.3	63
2,4,6-Tribromophenol	10	7.2	72
4-Terphenyl-d14	10	10.7	107

Comments:

* N-Nitrosodiphenylamine is reported as the breakdown product Diphenylamine.

Flags:

BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By:

Results For Matrix Spike / Matrix Spike Duplicate and Laboratory Control Standard (MS/MSD/LCS)
by GCMS

Client Sample ID: Batch QC
Client Project ID:
Lab Sample ID: Batch-4344-MS/MSD/LCS
Lab Project ID:
Matrix: WATER
Prep Method: 3520

Date Collected:
Date Received:
Date Extracted: 01/17/06
Date Analyzed: 01/18/06
Analyzed By: MRC
Dilution: 1

	Sample Amount (µg/L)	MS Spike (µg/L)	MS Conc. (µg/L)	MS Spike % Rec.	MSD Spike (µg/L)	MSD Conc. (µg/L)	MSD Conc. % Rec.	RPD	QC Limits RPD	QC Limits % Rec.
Acenaphthylene	BQL	222	204	92.0	222	195	87.8	4.67	30	62.0-119
4-Chloro-3-methylphenol	BQL	222	196	88.2	222	191	85.9	2.64	30	67.0-109
2-Chlorophenol	BQL	222	163	73.3	222	167	75.0	2.29	30	59.0-95.0
1,4-Dichlorobenzene	BQL	222	111	50.1	222	115	51.7	3.14	30	29.0-86.0
2,4-Dinitrotoluene	BQL	222	182	82.0	222	177	79.5	3.10	30	63.0-103
N-Nitrosodi-n-propylamine	BQL	222	179	80.5	222	172	77.6	3.67	30	67.0-107
4-Nitrophenol	BQL	222	179	80.5	222	169	76.1	5.62	30	49.0-146
Pentachlorophenol	BQL	222	123	55.5	222	115	51.8	6.90	30	43.0-106
Phenol	BQL	222	164	73.8	222	163	73.2	0.816	30	61.0-100
Pyrene	BQL	222	240	108	222	238	107.0	0.558	30	41.0-123
1,2,4-Trichlorobenzene	BQL	222	155	69.6	222	156	70.2	0.858	30	41.0-96.0

	Spiked Amount (µg/L)	LCS Conc. (µg/L)	LCS Spike %	QC Limits % Rec.
Acenaphthylene	100	85.6	85.6	66.1-116
4-Chloro-3-methylphenol	100	85.4	85.4	64.3-128
2-Chlorophenol	100	73.2	73.2	56.9-93.4
1,4-Dichlorobenzene	100	48.1	48.1	20.6-82.8
2,4-Dinitrotoluene	100	75.2	75.2	63.7-116
N-Nitrosodi-n-propylamine	100	77.5	77.5	62.6-108
4-Nitrophenol	100	70.9	70.9	53.7-143
Pentachlorophenol	100	54.4	54.4	31.0-102
Phenol	100	71.6	71.6	57.4-99.5
Pyrene	100	101	101	44.1-124
1,2,4-Trichlorobenzene	100	67.0	67.0	37.6-97.9

Comments:

Concentrations reflect the spiked sample amounts.

Flags:

* = Out of limits.
NA = Not applicable.

Reviewed By:

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Richard Catlin & Associates

Project Name: AS-4159

Sample Information and Analytical Results	
Sample Identification	USTAS4159-MW01
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	01/17/06
Date Received	01/17/06
Date Extracted	01/24/06
Date Analyzed	01/24/06
Dry Weight	
Dilution Factor	1
C_5-C_8 Aliphatics**	< 100 (µg/L)
C_9-C_{12} Aliphatics**	< 100 (µg/L)
C_9-C_{10} Aromatics**	< 100 (µg/L)
Surrogate % Recovery - PID	95
Surrogate % Recovery - FID	110

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

** = Excludes any surrogates or internal standards.

Lab Info: g128-1674-1d

Reviewed By:

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 10/31/05 PID Initial Calibration Date: 10/31/05

Calibration Ranges and Limits

Range	MDL (07/15/2004) (µg/L)	ML (µg/L)	RL (µg/L)	RL (mg/Kg)
C_5-C_8 Aliphatics	4.4	14	100	10
C_9-C_{12} Aliphatics	3.4	11	100	10
C_9-C_{10} Aromatics	0.13	0.41	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	%RSD or CCC	Method of Quantitation
C_5-C_8 Aliphatics	40	7.9	Calibration Factor
	1000		
	2000		
	3000		
	4000		
C_9-C_{12} Aliphatics	10	1.00	Linear Regression
	250		
	500		
	750		
	1000		
C_9-C_{10} Aromatics	10	16.20	Calibration Factor
	250		
	500		
	750		
	1000		

Calibration Check Date: 01/23/06

Calibration Check

Range	Levels (µg/L)	(mg/Kg)	RPD
C_5-C_8 Aliphatics	2000	200	1.9
C_9-C_{12} Aliphatics	500	50	-4.4
C_9-C_{10} Aromatics	500	50	18.0

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit
RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: AS-4159

Sample Information and Analytical Results	
Sample Identification	USTAS4159-MW01
Sample Matrix	Water
Date Collected	01/17/06
Date Received	01/17/06
Date Extracted	01/17/06
Date Analyzed	01/21/06
Dry Weight	
Dilution Factor	1:1
C_9-C_{18} Aliphatics*	< 100 (ug/L)
C_{19}-C_{36} Aliphatics*	< 100 (ug/L)
C_{11}-C_{22} Aromatics*	< 100 (ug/L)
Aliphatic Surrogate % Recovery	40
Aromatic Surrogate % Recovery	60
Fractionation Surrogate 1 % Recovery	100

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G128-1674-1K

Reviewed By:

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 12/28/05

Calibration Ranges and Limits

Range	MDL (2/2004) (µg/L)	ML (µg/L)	RL (µg/L)	RL (mg/Kg)
C_9-C_{18} Aliphatics	3.84	12.2	100	10
C_{19}-C_{36} Aliphatics	0.57	1.8	100	10
C_{11}-C_{22} Aromatics	4.54	14.4	100	10

Calibration Concentration Levels

Range	Levels (µg/mL)	%RSD or CCC	Method of Quantitation
C_9-C_{18} Aliphatics	6	24.90	Calibration Factor
	30		
	60		
	120		
	240		
C_{19}-C_{36} Aliphatics	8	15.4	Calibration Factor
	40		
	80		
	160		
	320		
C_{11}-C_{22} Aromatics	17	9.8	Calibration Factor
	85		
	170		
	340		
	680		

Calibration Check Date: 01/20/06

Calibration Check

Range	Levels (µg/mL)	RPD
C_9-C_{18} Aliphatics	120	17.9
C_{19}-C_{36} Aliphatics	160	10.3
C_{11}-C_{22} Aromatics	340	15.3

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit
RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

Results for Metals

Client Sample ID:	USTAS4159-MW01	Analyzed By:	RML
Client Project ID:	AS-4159	Date Collected:	1/17/2006 13:00
Lab Sample ID:	G128-1674-1	Date Received:	1/17/06
Lab Project ID:	G128-1674	Matrix:	WATER
Batch ID:	4356		

Metals	Result	RL	MDL	DF	Units	Method	Date Analyzed	Flags
Chromium	**0.00770**	0.00500	0.00143	25	MG/L	6020	1/19/06	B
Lead	**0.00647**	0.00500	0.000470	25	MG/L	6020	1/19/06	

Comments
BQL = Below Quantitation Limits
DF = Dilution Factor
J = Between MDL and RL
B= Amount in Prep Blank > MDL
Samples Prepared by 3030C

Reviewed By: MET_EMS_4 0

Results for Metals

Client Sample ID:	Lab Blank	Analyzed By:	RML
Client Project ID:		Date Collected:	
Lab Sample ID:	pb4356	Date Received:	
Lab Project ID:		Matrix:	WATER
Batch ID:	4356		

Metals	Result	RL	MDL	DF	Units	Method	Date Analyzed	Flags
Chromium	**0.00440**	0.00500	0.00143	25	MG/L	6020	1/19/06	JB
Lead	BQL	0.00500	0.000470	25	MG/L	6020	1/19/06	

Comments
BQL = Below Quantitation Limits
DF = Dilution Factor
J = Between MDL and RL
B= Amount in Prep Blank > RL
Samples Prepared by 3030C

Reviewed By: PrepBlank

PARADIGM ANALYTICAL LABORATORIES, INC.

MS/MSD Results for METALS

Lab ID: G128-1674-1
MS Lab ID: G128-1674-1
MSD Lab ID: G128-1674-1
ICP Batch: 4356
HG Batch:
Other:

Analyzed By: RML
Matrix: Water
Units: MG/L

Analyte	Sample Result	SA MS	MS Result	MS %REC	SA MSD	MSD Result	MSD %REC	Limit Lower	Limit Upper	RPD	RPD Limit
Chromium	BQL	0.400	0.368	92.0	0.400	0.372	93.0	75	125	1.08	20
Lead	BQL	0.400	0.371	92.8	0.400	0.375	93.8	75	125	1.07	20

Comments

*=Out of Limits
NA = Not applicable, due to sample concentration greater than three times spike concentration

Reviewed By:

METALS Results for LCS/LCD

ICP Batch: 4356
HG Batch:
Other:

Matrix: WATER
Units: MG/L

Analyte	TRUE Value	LCS	LCS %REC	LCD	LCD %REC	Limit Lower	Limit Upper	RPD	RPD Limit
Chromium	0.400	0.377	94.3	0.375	93.8	80	120	0.532	20
Lead	0.400	0.381	95.3	0.373	93.3	80	120	2.12	20

Reviewed By:

List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL = Reporting Limit

RPD = Relative Percent Difference

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% soilds = Percent Solids

Special Notes:

1) Metals and mercury samples are digested with a hot block, see the standard operating procedure document for details.

2) Uncertainty for all reported data is less than or equal to 30 percent.

PARADIGM ANALYTICAL LABORATORIES, INC.
5500 Business Drive, Wilmington, NC 28405
Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 52648
Page 1 of 1

25 of 25

Client: Catlin Eng. & Sci. | Project ID: AS-4159 | Date: 1-17-06 | Report To: Mike E. Mason
Address: 120 Old Dairy Rd. | Contact: Mike E. Mason | Turnaround: Std.
Address: Wilmington NC 28405 | Phone: 452-5861 | Job Number: 205-077
Quote #: DOD101 | Fax: 452-7563 | P.O. Number: 260117-4 | Invoice To: Sheila

Sample ID	Date	Time	Matrix	Preservatives: HCl	HNO3			Analyses: 6210 D	625+10 TICs	VPH	EPH	Metals Cr + Pb 3050C					Comments: Please specify any special reporting requirements
																	G128-1674
ASTAS4159-MW01	1-17-06	1300	W	1	1			1	1	1	1	1					- Summary EDD Format
ASTAS4159-MW01 DUP	1-17-06	1300	W	1				1									- Report Low Flows

Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
[signature]	1-17-06	1440	[signature]	1/17/06	1440	on ice 5.8°C	NC ___ SC ___ Other ___
							SEE REVERSE FOR TERMS AND CONDITIONS

ORIGINAL

PARADIGM ANALYTICAL LABORATORIES, INC.

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