UNDERGROUND STORAGE TANK
CLOSURE REPORT
FOR
UST AS-4151-2
BUILDING AS-4151

MCAS NEW RIVER, NORTH CAROLINA

NAVY CONTRACT NO. N62470-05-D-6200
DELIVERY ORDER NO. 0016

CATLIN PROJECT NO. 205-077

PREPARED BY:

CATLIN ENGINEERS AND SCIENTISTS
P. O. BOX 10279
WILMINGTON, NORTH CAROLINA 28404-0279
(910) 452-5861

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EXECUTIVE SUMMARY

A 1,000-gallon diesel fuel tank (AS-4151-2) was located near the south-west corner of Building AS-4151 from 1977 until removal on March 30, 1994. An as-built figure dated April 24, 1996 (NAVFAC Drawing No. 4265473) illustrates the approximate former tank location and excavation limits (see Appendix A). No soil sample or soil disposal records are on file with the Marine Corps Base Camp Lejeune Environmental Quality Branch or the North Carolina Department of Environment and Natural Resources. A Certificate of Disposal from Nationwide Tank Disposal Services in Matthew, North Carolina indicates the AS-4151-2 tank (previously identified as Tank #94329) was properly disposed of (cut for melting and recycling) on June 20, 1994.

Recently the North Carolina Department of Environment and Natural Resources (NCDENR) requested sampling and reporting in accordance with the Underground Storage Tank Closure Guidelines. CATLIN Engineers and Scientists personnel collected four soil samples around the approximate former tank location for laboratory analysis. A monitoring well was also installed and sampled by CATLIN adjacent to the approximate former tank location.

Known historical information and recent soil and groundwater sampling results have been combined in the following report. The report follows in general accordance with the latest NCDNER *Underground Storage Tank Closure Report (following UST-12 format)* and *Site Investigation Report for Permanent Closure or Change-in-Service of UST (UST-2 Form).*

It is our understanding from the 1998 NCDENR *Guidelines for the Investigation and Remediation of Soils and Groundwater, Volume II, Petroleum Underground Storage Tanks (1998 Guidelines)* that since tank AS-4151-2 was removed in 1994, the soil action levels of 10 mg/kg GRO and 40 mg/kg DRO are applicable.

Since there are no soil contaminant concentrations greater than the action levels, no further soil investigation is recommended. Additionally, since there are no groundwater contaminant concentrations above the 2L GWQS, no further groundwater investigation is recommended.

UNDERGROUND STORAGE TANK
CLOSURE REPORT
FOR
UST AS-4151-2
BUILDING AS-4151

MCAS NEW RIVER, NORTH CAROLINA

JANUARY 28, 2008

A. SITE INFORMATION

1. SITE IDENTIFICATION

UST AS-4151-2
Building AS-4151
Campbell Street
MCAS, New River

Description of Geographical Point: Top of casing at monitoring well USTAS4151-2-MW01

Location Method: Trimble 5800 global positioning system

Latitude: 34° 43' 2.95" N Longitude: 77° 27' 6.65" W

2. CONTACT INFORMATION

2.1 UST and Property Owner/Operator

Commanding Officer-MCB Camp Lejeune, NC
PSC BOX 20004
Marine Corps Base
Camp Lejeune, NC 28542

Telephone: (910) 451-5068

2.2 Property Occupant

Building AS-4151
Campbell Street
MCAS New River, NC

2.3 Primary Contact Person

Ms. Johanna E. Arnold, Ph.D.
I&E / EMD / EQB
Marine Corps Base
PSC 20004
McHugh Boulevard
Building 12, Room 235
Camp Lejeune, North Carolina 28542-0004

Telephone: (910) 451-9114

2.4 Closure Contractor

Jones & Frank
(Address and Telephone as of March 1994)
622 Maywood Avenue
Raleigh, North Carolina 27603

Telephone Number: (910) 452-5861

2.5 Primary Consultant

CATLIN Engineers and Scientists
Attn: Michael E. Mason, PE
P.O. Box 10279
Wilmington, North Carolina 28404-0279

Telephone Number: (910) 452-5861

2.6 Analytical Laboratory

SGS Environmental Services, Inc.
5500 Business Drive
Wilmington, NC 28405

Telephone: (910) 350-1903
North Carolina State Certification No. 481

3. RELEASE INFORMATION

No releases are on record for the AS-4151-2 tank.

B. SITE HISTORY AND CHARACTERIZATION

Site history information is summarized on Tables 1 and 2. The site vicinity and current Site Map with the approximate former tank location is illustrated on Figures 1

and 2 respectively.

A *Notice of Intent: UST Permanent Closure of Change-in-Service (*GW/UST-*3)* form was received by the North Carolina Division of Environmental Management on February 23, 1994. The GW/UST-3 form is provided in Appendix A and indicates tank removal by closure to be performed by Jones & Frank on March 30, 1994. According to the Environmental Quality Branch (EQB), the 1,000-gallon diesel fuel tank (AS-4151-2) provided emergency generator fuel for Building AS-4151 from 1977 until it was removed on March 30, 1994 and replaced with an above ground tank (AST). An As-Built figure dated April 24, 1996 (NAVFAC Drawing No. 4265473) illustrates the approximate former UST location and excavation limits. (see Appendix A). A Tank Closure Report is not on file with the EQB or the North Carolina Department of Environment and Natural Resources (NCDENR).

C. UST CLOSURE PROCEDURES

As previously mentioned, minimal historical tank closure information is available. Known information has been provided on the UST-2 Form in Appendix B. A Certificate of Disposal dated June 23, 1994 from Nationwide Tank Disposal Services in Matthews, NC states that the tank was cut into strips and shipped to Foil's Recycling Center in Harrisburg, NC for recycling (see Appendix A).

D. UST SITE INVESTIGATION

All field work during this recent investigation was conducted in general accordance with the CATLIN Standard Methods of Investigation provided in Appendix C. Site conditions observed during the December 2007 field investigation are shown on the photographs provided in Appendix D.

1. FIELD-SCREENING

Due to the shallow water table encountered during hand auger soil boring advancement (approximately two to four feet deep) no field screening with an organic vapor analyzer (OVA) equipped with a photo-ionization detector was conducted during soil sampling. Soils collected during boring advancement for monitoring well construction were screened with an OVA. The OVA results ranged from 0.7 to 2.9 parts per million and are provided on the USTAS4151-2-MW01 boring log in Appendix E.

2. SOIL SAMPLING INFORMATION

Hand auger borings (four total) were advanced near the approximate former UST AS-4151-2 excavation sidewalls on December 19, 2007. One grab soil sample was collected from each hand auger boring approximately two feet BLS and approximately one foot above the water table.

A mixture of sands and clays were encountered at each boring location.

Complete boring lithological descriptions can be found on the boring logs in Appendix E. Soil boring/sample locations are illustrated on Figure 3.

A total of four soil samples were collected and submitted for total petroleum hydrocarbon (TPH) gasoline and diesel range organics (GRO and DRO) laboratory analysis by Environmental Protection Agency (EPA) Method 8015. Soils were also analyzed at the laboratory for the presence of Chromium and Lead per EPA Method 6010B. The sample identifications and dates are provided in Table 3. Soil sample times and laboratory submittal information is included on the Chain of Custody document following the laboratory analytical report in Appendix F.

3. GROUNDWATER SAMPLING INFORMATION

Well construction information is summarized on Table 4. A soil boring record and groundwater monitoring well as-built detail are included in Appendix E. A Well Construction Record has been submitted to the Division of Water Quality (DWQ) and a copy is also included in Appendix E. The monitoring well location is illustrated on Figure 3.

The boring for monitoring well construction was advanced by a North Carolina licensed well driller utilizing 4.25-inch inside diameter hollow stem augers and a trailer mounted D-50 drill rig on December 19, 2007. Cuttings generated during drilling activities were spread on-site.

The well was constructed of new, threaded, polyvinyl chloride (PVC) casing and screen. No glues or cements were used in joining PVC components. New, nitrile gloves were worn while handling all well materials.

Shallow Type II monitoring well USTAS4151-2-MW01 was constructed to 13 feet BLS using a 0.5 foot pointed PVC sediment trap (well point), 9.5 feet of two inch diameter 0.010 inch slotted PVC well screen and two inch diameter solid PVC riser to the surface.

The annular space for the well was filled with coarse sand pack at least one foot above the well screen, one foot of bentonite chips, and then grout to within one-half foot of the ground surface. The bentonite chips are poured from the surface while simultaneously pouring water to facilitate hydration.

The well was finished with concrete, a flush-mount steel wellhead, and a locking cap. Following well construction, an appropriately sized pump was used to develop the well by over-pumping and surging. Through development, unwanted fine materials were removed from the natural formation surrounding the well.

A groundwater sample (USTAS4151-2-MW01) was collected on December 26, 2007 and submitted for laboratory analysis per EPA Methods 602 and 625, and

Massachusetts Department of Environmental Protection (MADEP) extractable and volatile petroleum hydrocarbons (EPH/VPH). The sample time and laboratory submittal information is included on the Chain of Custody document following the laboratory analytical report in Appendix F.

4. QUALITY CONTROL MEASURES

Clean disposable nitrile gloves were used for each sampling event. Soil samples were collected by hand from the hand auger bucket and packed directly into new laboratory provided glassware. The hand auger was decontaminated with Liqui-Nox®, pesticide grade isopropyl alcohol, and rinsed with distilled water before each boring and prior to soil sample collection.

A minimum of three well water volumes were removed from the well using a new pre-cleaned, disposable bailer. A groundwater sample was then collected using the bailer and poured into appropriate laboratory glassware

All samples were placed into appropriate sample jars (provided by the laboratory) with Teflon® lid liners, labeled with the site location, date and time, initials of person collecting sample, sample identification number, and tests required. One duplicate soil sample was collected and submitted for laboratory analysis. Samples were then placed on ice in a cooler and maintained at approximately 4° Celsius during storage and transport to the laboratory. A temperature blank was preserved in the cooler along with the site samples. A Chain of Custody form was maintained from the point of sampling until delivery to the laboratory.

Specific laboratory receipt dates and times are indicated on the Chain of Custody document provided following the analytical reports in Appendix F. The laboratory method blank and quality control analyses were within acceptable ranges.

Following field work completion and upon review of field notes and the proposed workplan it was realized that the site and subsequent samples were improperly identified. This investigation was being conducted in concurrence with an adjacent site investigation and the identifications were transposed. The correct sample identifications have been marked by hand and initialed on the attached laboratory analytical report.

5. INVESTIGATION RESULTS

The soil sample results are summarized in Table 3 and illustrated on Figure 3. The complete analytical report is provided in Appendix F. All TPH GRO and DRO concentrations were reported below the laboratory quantitation limits (approximately four to six milligrams per kilogram) expect minor DRO concentrations detected at samples collected from borings AS4151-2-SB02 and SB03. The AS4151-2-SB02 boring was advanced on the west side of the

existing AST and the AS4151-2-SB03 boring was advanced on the south side of the existing AST.

Soil samples AS4151-2-SB02 (0-1') and AS4151-2-SB03 (1-2') revealed 10.7 milligrams per kilogram (mg/kg) and 9.21 mg/kg DRO, respectively. Minor concentrations of Chromium and Lead below the lowest corresponding maximum soil contaminant concentration were detected in each soil sample.

The top of casing (TOC) elevation was established at the well utilizing a Trimble 5800 global positioning system survey equipment. Depth to groundwater was measured at 3.60 feet below the monitoring well USTAS4151-2-MW01 TOC. The USTAS4151-2-MW01 TOC elevation was surveyed at 18.57 feet above mean sea level. The depth to water, water table elevation and TOC elevation information is provided on the boring log and well construction record in Appendix E and on Table 4.

The USTAS4151-2-MW01 groundwater sample information is summarized on Table 3 and illustrated on Figure 3. The complete analytical report is provided in Appendix F. No compound or analyte concentrations were detected above the North Carolina Administrative Code (NCAC) T15A:02L Groundwater Quality Standards (2L GWQS) or laboratory reporting limits.

E. CONCLUSIONS AND RECOMMENDATIONS

Soil samples were collected from around the approximate former UST AS-4151-2 location. Four soil borings were advanced and samples were collected from each boring for TPH GRO and DRO and Chromium and Lead laboratory analysis. The soil samples collected to the east (AS4151-2-SB02(0-1')) and south (AS4151-2-SB03 (1-2')) of the approximate former tank location revealed 10.7 mg/kg and 9.21 mg/kg DRO respectively.

The groundwater sample collected for laboratory analysis from monitoring well USTAS4151-2-MW01 installed near the approximate former UST AS-4151-2 location did not reveal any contaminant concentrations above the 2L GWQS or laboratory method detection limits.

Based on the shallow depth of the revealed DRO impacted soils (approximately one foot deep), it is possible the minor impacts were the result of historical surface spills rather than a leaking UST. Although minimal information is available regarding the history and removal of the AS-4151-2 tank, a release resulting in petroleum impacts to groundwater was not revealed during this investigation. The minor DRO impacted soils identified to the east and south of the approximate former AS-4151-2 tank location are apparently not acting as a secondary source to impact groundwater.

It is our understanding that from the 1998 NCDENR *Guidelines for the Investigation and Remediation of Soils and Groundwater, Volume II, Petroleum Underground*

Storage Tanks (1998 Guidelines) that since tank AS-4151-1 was removed in 1994, the soil action levels of 10 mg/kg GRO and 40 mg/kg DRO are applicable. Therefore, no further action is recommended at the AS-4151-2 site.

F. LIMITATIONS

This report is based on the agreed work scope and a review of available data from limited sampling. It is possible that this investigation may have failed to reveal the presence of contamination on the subject site where such contamination may exist. Although CATLIN has used accepted methods appropriate for soil and groundwater sampling, CATLIN cannot guarantee that additional soil and/or groundwater contamination does not exist.

G. REFERENCES

NAVFAC Drawing No. 4265473, "Site Plan AS-4151", April 24, 1996.

North Carolina Department of Environment, Health, & Natural Resources, Groundwater Section, "Guidelines for the Investigation and Remediation of Soils and Groundwater, Volume II, Petroleum Underground Storage Tanks", January 2, 1998.

North Carolina Department of Environment and Natural Resources, Underground Storage Tank Section, "Guidelines for Site Checks, Tank Closure, and Initial Response and Abatement", effective July 1, 2007.

H. SIGNATURE OF PROFESSIONAL ENGINEER

Michael E. Mason, P.E.
Contract Manager

Benjamin J. Ashba
Project Manager

TABLES

TABLE 1 (B-1)
SITE HISTORY - UST/AST SYSTEM INFORMATION

Incident Name: AS-4151-2

UST ID Number	Previous Contents	Capacity (gallons)	Construction Details	Tank Dimensions	Description of Associated Piping and Pumps	Date Tank Installed	Status of UST	Was release associated with the UST System
UST AS-4151-2	Diesel	1,000	Steel	Unknown	Unknown	1977	Removed March 30, 1994	Unknown

TABLE 2 (B-2)
SITE HISTORY - UST OWNER AND OPERATOR INFORMATION

Incident Name: AS-4151-2

UST ID Number:	AS-4151-2	**Facility ID Number:** None
Owner/Operator:	Commanding Officer Marine Corps Base Camp Lejeune, NC	**Dates of Operation:** 1977 to March 30, 1994
Address:	PSC BOX 20004 Marine Corps Base Camp Lejeune, NC 28542	
Telephone:	(910) 451-5068	

TABLE 3 (B-3)

SUMMARY OF SOIL LABORATORY RESULTS – TOTAL PETROLEUM HYDROCARBON GASOLINE AND DIESEL RANGE ORGANICS, CHROMIUM, AND LEAD – EPA METHODS 8015 AND 6010B

Incident Name: AS-4151-2

Sample ID	Contaminant of Concern →		Gasoline Range Organics	Diesel Range Organics	Chromium	Lead
	Date Collected	Sample Depth (ft. BLS)				
1998 NCDENR Action Level (mg/kg)			10	40	NE	NE
AS4151-2-SB01 (2-3')	12/19/2007	2-3	<5.82	<6.89	10.4	6.35
AS4151-2-SB02 (0-1')	12/19/2007	0-1	<5.20	10.7	15.1	7.56
AS4151-2-SB03 (1-2')	12/19/2007	1-2	<6.78	9.21	24.1	10.1
AS4151-2-SB04 (2-3')	12/19/2007	2-3	<4.39	<6.61	8.70	6.29

ft. BLS = feet below land surface

All results in milligrams per kilogram (mg/kg).

NE = None Established

TABLE 4 (B-7)

MONITORING WELL CONSTRUCTION INFORMATION

Incident Name: AS-4151-2

Well ID	Date Installed (m/dd/yy)	Date Water Level Measured (m/dd/yy)	Well Casing Depth (ft. BLS)	Screened Interval (x to y ft. BLS)	Bottom of Well (ft. BLS)	Top of Casing Elevation (ft.)	Depth to Water from Top of Casing (ft.)	Free-Phase Product Thickness (ft.)	Ground Water Elevation (ft.)	Comments
USTAS4151-2-MW01	12/19/2007	12/26/2007	3	3-12.5	13	18.57	3.60	0	14.97	Monitoring

ft BLS = feet below land surface

TABLE 5 (B-4)
SUMMARY OF GROUNDWATER LABORATORY RESULTS
EPA METHODS 602 AND 625 AND MADEP EPH/VPH

Incident Name: AS-4151-2

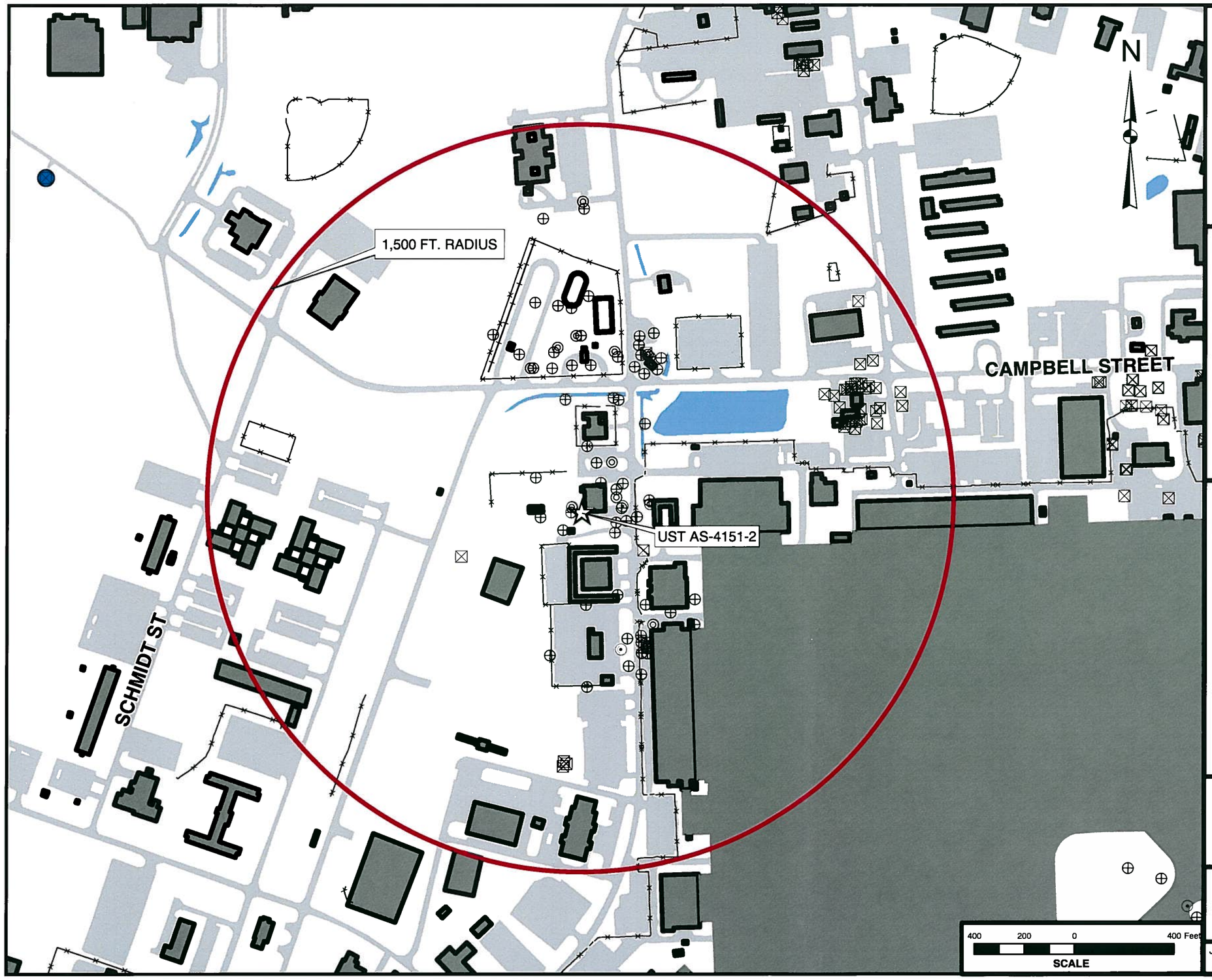
Well ID	Contaminant of Concern → Sample ID	Date Collected	All EPA Method 602 Compounds	All EPA Method 625 Compounds	All MADEP EPH/VPH Analytes
GCL (µg/L)			Varies	Varies	Varies
2L GWQS (µg/L)			Varies	Varies	Varies
USTAS4151-2-MW01	USTAS4151-2-MW01	12/26/2007	BMDL	BMDL	BRL

All results in micrograms per liter (µg/L).
BMDL = Below Method Detection Limit
BRL = Below Reporting Limit
GCL = Gross Contaminant Level
2L GWQS = NCAC T15A:02L Groundwater Quality Standards

FIGURES

UST CLOSURE
UST AS-4151-2
BUILDING AS-4151
MCAS NEW RIVER

NAVFAC
Naval Facilities Engineering Command



LEGEND

- Type I Monitoring Well
- Type II Monitoring Well
- Type III Monitoring Well
- Pumping Well
- Unknown Well Type
- Fence
- Approximate Former UST Locations
- Buildings and Structures
- Oil/Water Separators
- Slabs
- Roads
- Driveways
- Parking Lots
- Forestland

NOTES

1. GIS Data Layers provided by MCB Camp Lejeune.

CATLIN
Engineers and Scientists

SITE VICINITY MAP

FIGURE 1

Job No.:	Date:	Scale:	Drawn By:	Checked By:
205-077	DEC 2007	AS SHOWN	KAWS	MEM

205-077-LSAs-CLOSURES-FIGURES- JAN08 FIGURES-USTAS4151-2-FIGURE-1

UST CLOSURE
UST AS-4151-2
BUILDING AS-4151
MCAS NEW RIVER

NAVFAC
Naval Facilities Engineering Command

LEGEND

- Type I Monitoring Well
- Type II Monitoring Well
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- Slabs
- Roads
- Driveways
- Parking Lots
- Forestland
- Above Ground Storage Tank (AST)

NOTES

1. GIS Data Layers provided by MCB Camp Lejeune.

CATLIN
Engineers and Scientists

FIGURE 2

SITE MAP

Job No.:	Date:	Scale:	Drawn By:	Checked By:
205-077	DEC 2007	AS SHOWN	KAWS	MEM

wpmktg/PROJECTS/2005-205-077/AS-4151 Tank Closure Reports/FIGURES/JAN08 FIGURES/USTAS4151-2/FIGURE-2

SUMMARY OF SOIL LABORATORY RESULTS – TOTAL PETROLEUM HYDROCARBON GASOLINE AND DIESEL RANGE ORGANICS, CHROMIUM, AND LEAD – EPA METHODS 8015 AND 6010B

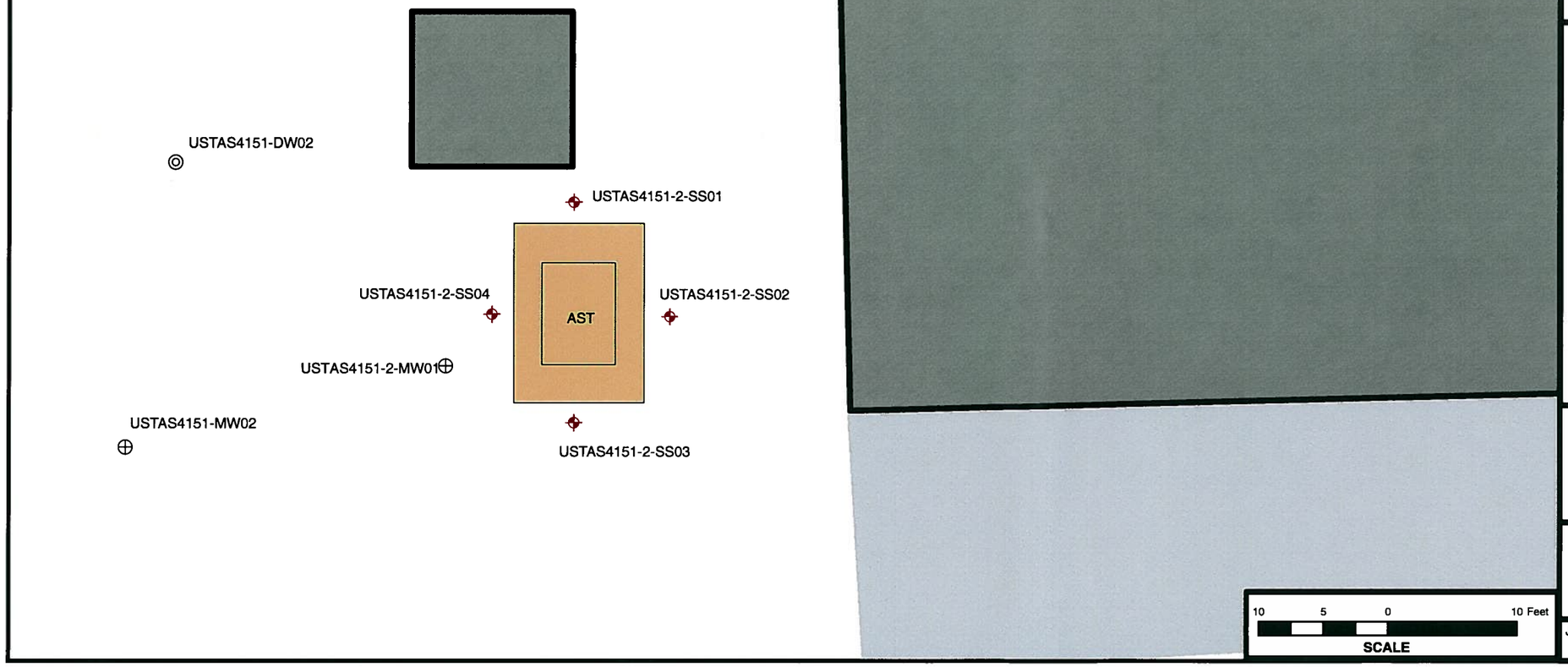
Sample ID	Contaminant of Concern →		Gasoline Range Organics	Diesel Range Organics	Chromium	Lead
	Date Collected	Sample Depth (ft. BLS)				
1998 NCDENR Action Level (mg/kg)			10	10	NE	NE
AS4151-2-SB01 (2-3')	12/19/2007	2-3	<5.82	<6.89	10.4	6.35
AS4151-2-SB02 (0-1')	12/19/2007	0-1	<5.20	10.7	15.1	7.56
AS4151-2-SB03 (1-2')	12/19/2007	1-2	<6.78	9.21	24.1	10.1
AS4151-2-SB04 (2-3')	12/19/2007	2-3	<4.39	<6.61	8.70	6.29

ft. BLS = feet below land surface
All results in milligrams per kilogram (mg/kg).
NE = None Established

SUMMARY OF GROUNDWATER LABORATORY RESULTS EPA METHODS 602 AND 625 AND MADEP EPH/VPH

Well ID	Contaminant of Concern →		All EPA Method 602 Compounds	All EPA Method 625 Compounds	All MADEP EPH/VPH Analytes
	Sample ID	Date Collected			
GCL (µg/L)			Varies	Varies	Varies
2L GWQS (µg/L)			Varies	Varies	Varies
USTAS4151-2-MW01	USTAS4151-2-MW01	12/26/2007	BMDL	BMDL	BRL

All results in micrograms per liter (µg/L).
BMDL = Below Method Detection Limit
BRL = Below Reporting Limit
GCL = Gross Contaminant Level
2L GWQS = NCAC T15A:02L Groundwater Quality Standards



UST CLOSURE
UST AS-4151-2
BUILDING AS-4151
MCAS NEW RIVER

NAVFAC Naval Facilities Engineering Command

LEGEND

- Type I Monitoring Well
- Type II Monitoring Well
- Type III Monitoring Well
- Pumping Well
- Unknown Well Type
- Fence
- Approximate Former UST Locations
- Buildings and Structures
- Oil/Water Separators
- Slabs
- Roads
- Driveways
- Parking Lots
- Forestland
- Above Ground Storage Tank (AST)

NOTES

1. GIS Data Layers provided by MCB Camp Lejeune.

CATLIN Engineers and Scientists

SITE PLAN WITH SOIL AND GROUNDWATER SAMPLE LOCATIONS AND RESULTS

FIGURE 3

Job No.:	Date:	Scale:	Drawn By:	Checked By:
205-077	DEC 2007	AS SHOWN	KAWS	MEM

205-077-LSAs-CLOSURES-FIGURES- JAN08 FIGURES-USTAS4151-2-FIGURE-3

APPENDIX A

HISTORICAL DOCUMENTS

FORM # 12

(GW/UST-3) Notice of Intent: UST Permanent Closure or Change-In-Service

FOR TANKS IN NC

Return Completed Form To: The appropriate DEM Regional Office according to the county of the facility's location. [SEE REVERSE SIDE OF OWNER'S COPY (PINK FOR REGIONAL OFFICE ADDRESS).

State Use Only
I. D. Number
Date Received

RECEIVED FEB 23 1994

INSTRUCTIONS

Complete and return thirty (30) days prior to closure or change-in-service.

I. OWNERSHIP OF TANK(S)

Tank Owner Name: COMMANDING GENERAL MARINE CORPS BASE
(Corporation, Individual, Public Agency, or Other Entity)

Street Address: ATTN: FACILITIES DIVISION

County: ONSLOW

City: CAMP LEJEUNE State: NC Zip Code: 28540

Tele. No. (Area Code): (919) 451-3034

II. LOCATION OF TANK(S)

Facility Name or Company: CAMP LEJEUNE MCB

Facility ID # (if available): BLDG - 12

Street Address or State Road:

County: ONSLOW City: CAMP LEJEUNE Zip Code: 28540

Tele. No. (Area Code):

III. CONTACT PERSON

Name: Brent Rowse Job Title: ENVIRONMENTAL ENG Telephone Number: (919) 451-3034 506

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

1. Contact Local Fire Marshall.
2. Plan the entire closure event.
3. Conduct Site Soil Assessments.
4. If Removing Tanks or Closing in Place refer to API Publications. 2015 "Cleaning Petroleum Storage Tanks" & 1604 "Removal & Disposal of Used Underground Petroleum Storage Tanks".
5. Provide a sketch locating piping, tanks and soil sampling locations.
6. Fill out form GW/UST-2 "Site Investigation Report for Permanent Closure" and return within 30 days following the site investigation.
7. Keep records for 3 years.

V. WORK TO BE PERFORMED BY:

(Contractor) Name: JONES & FRANK CORP.

Address: 622 MAYWOOD AVE RALEIGH State: NORTH CAROLINA Zip Code: 27603

Contact: ANDREW TYO Phone: (919) 832-3081

VI. TANK(S) SCHEDULED FOR CLOSURE OR CHANGE-IN-SERVICE

TANK ID#	TANK CAPACITY	LAST CONTENTS	PROPOSED ACTIVITY: CLOSURE: Removal	CLOSURE: Abandonment in Place	CHANGE-IN-SERV: New Contents Sto
AS-4151	1,000	DIESEL FUEL	X		

VII. OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE

Print name and official title: Bob Warner AC/S EMD

Signature: [signature]

Scheduled Removal Date: 3/30/94

Date Submitted:

*If scheduled work date changes, notify your appropriate DEM Regional Office 48 hours prior to originally scheduled date.

Nationwide Tank Disposal Services

2752 Bent Oak Drive
Matthews, NC 28105
704-882-2238

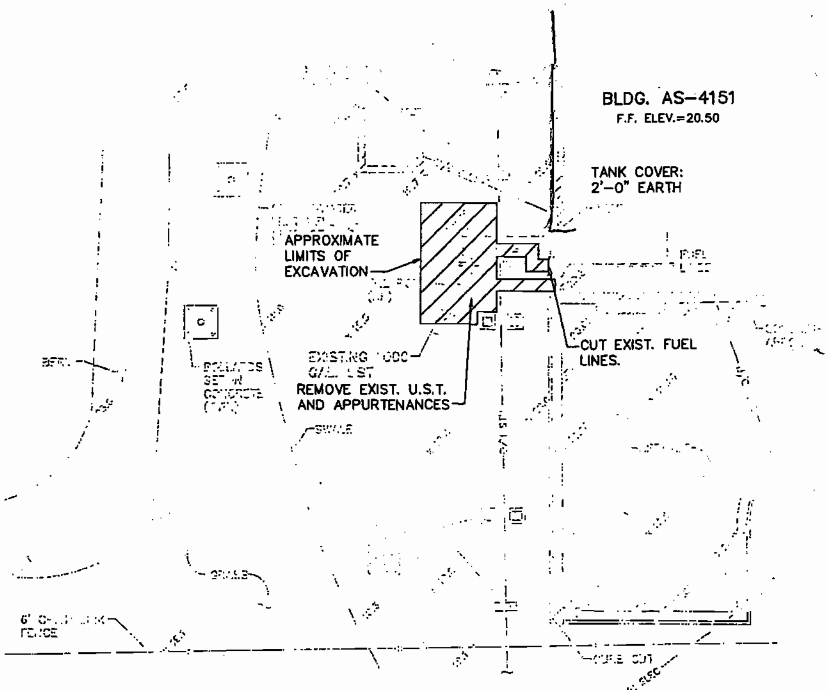
Certificate of Disposal

Tank # 94329 Size 1,000 gallon

This is to certify that the above tank has been disposed of by Nationwide Tank Disposal in accordance with and exceeding EPA regulations on Petroleum Tank Disposal. On June 20, 1994 this tank was cut into 30" x 18' strips of steel scrap and shipped to Foil's Recycling Center in Harrisburg, NC to be melted down into new steel.

Certified by _____ Date 6/23/94

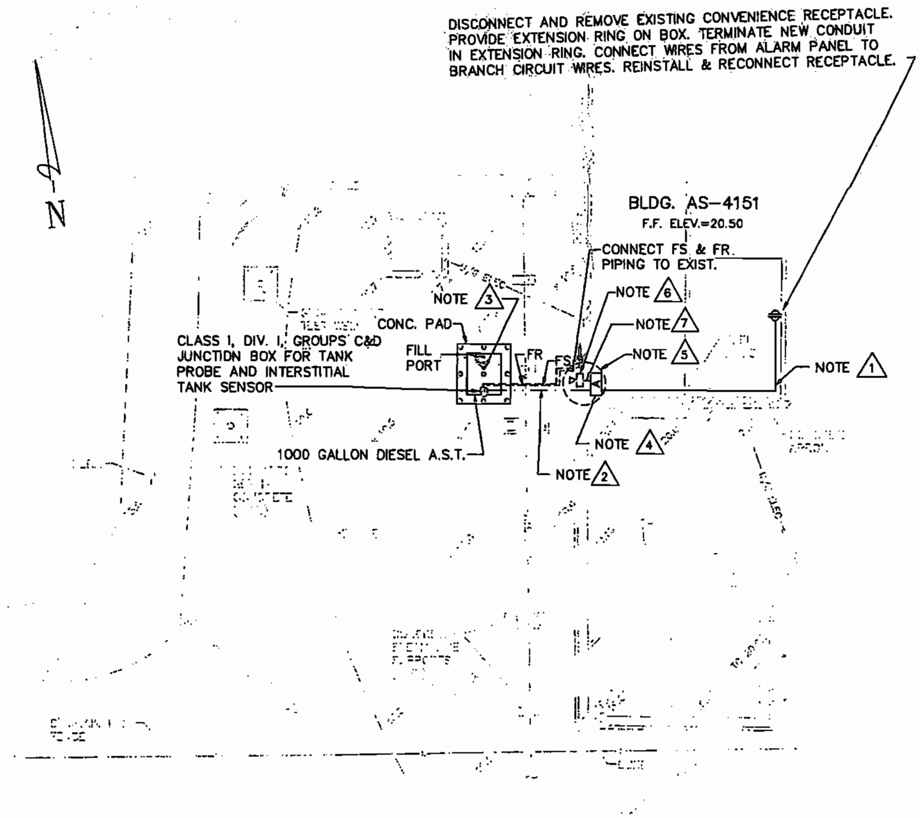
Camp LeJeune, NC via Jones and Frank AS 4151-2



NOTE: SEE DEMOLITION NOTES, SHEET T-2.

DEMOLITION PLAN AS-4151

SCALE: 1" = 10'

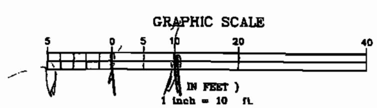


NEW WORK PLAN AS-4151

SCALE: 1" = 10'

NOTES:

1. PROVIDE 2-#12 & 1-#12 GR. IN 1/2"C. COORDINATE ACTUAL LOCATION AND INSTALLATION PRIOR TO ROUGH-IN.
2. PROVIDE 3/4" PVC COATED RIGID STEEL CONDUIT WITH 4-#12 & 1-#12 GR. BURIED MIN. 24" BELOW GRADE FOR CONDUCTOR INSTALLATION TO EQUIPMENT AT TANK AS SHOWN. COORDINATE ACTUAL LOCATION AND INSTALLATION PRIOR TO ROUGH-IN.
3. PROVIDE NEW VENT WITH INSECT SCREEN.
4. MOUNT BOTTOM OF NEW TANK ALARM PANEL 4'-6" A.F.F. LOCATION SHOWN IS APPROXIMATE. COORDINATE ACTUAL LOCATION WITH BUILDING SUPERVISOR.
5. PROVIDE A CONDUIT SEAL ON EACH CONDUIT AT ITS POINT OF ENTRY INTO BUILDING.
6. MOUNT BOTTOM OF NEW OVERFILL ALARM 5'-6" A.F.G. OVERFILL ALARM HORN AND LIGHT TO REMAIN ON FOR 30 SEC. UNLESS DEACTIVATED BY RESET BUTTON.
7. PROVIDE 3-#12 & 1-#12 GR. IN 1/2"C TO ALARM PANEL.



AS-BUILT 4/24/96

C-12

URS CONSULTANTS
5806B VA. BEACH BLVD.
EXECUTIVE COVE CENTER
VA. BEACH, VA 23462
(804) 499-4224

DES. RDH | DR. CDC | CHK. REU

SUBMITTED BY: 6/1/93

F. TAYLOR, III

APPROVED: 6-16-93

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

MARINE CORPS BASE, CAMP LEJEUNE

JACKSONVILLE, NORTH CAROLINA

REPLACE UNDERGROUND STORAGE TANKS
AS, FC AREAS, MCB CAMP LEJEUNE, N.C.
AND MCAS, NEW RIVER, JACKSONVILLE N.C.

SITE PLAN
AS-4151

SIZE	CODE IDENT. NO.	NAVFAC DRAWING NO.	PWC DRAWING NO.
F	80091	4265473	
		CONSTR. CONTR. NO. N62470-92-B-8262	

APPENDIX B

UST-2 FORM

UST-2 Site Investigation Report for Permanent Closure or Change-in-Service of UST

Return completed form to:
The DWM Regional Office located in the area where the facility is located. Send a copy to the Central Office in Raleigh so that the status of the tank may be changed to "PERMANENTLY CLOSED" and your tank fee account can be closed out.
SEE MAP ON THE BACK OF THIS FORM FOR THE CENTRAL AND REGIONAL OFFICE ADDRESSES.

STATE USE ONLY:
I.D. #_____
Date Received_____

INSTRUCTIONS (READ THIS FIRST)

For more than five UST systems you may attach additional forms as needed.

Permanent closure – For permanent closure, complete all sections of this form.

Change-in-service – For change-in-service where UST systems will be converted from containing a regulated substance to storing a non-regulated substance, complete sections I, II, III, IV, and VIII

Effective February 1, 1995, all UST closure/change-in-service reports must be submitted in the format provided in the UST-12 form. UST closure and change-in-services must be completed in accordance with the latest version of the *Guidelines for Tank Closure*. A copy of the UST-12 form and the *Guidelines for Tank Closure* can be obtained at www.wastenotnc.org.

You must make sure that USTs removed from your property are disposed of properly. When choosing a closure contractor, ask where the tank(s) will be taken for disposal. Usually, USTs are cleaned and cut up for scrap metal. This is dangerous work and must be performed by a qualified company. Tanks disposed of illegally in fields or other dumpsites can leak petroleum products and sludge into the environment. If your tanks are disposed of improperly, you could be held responsible for the cleanup of any environmental damage that occurs.

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

I. OWNERSHIP OF TANKS

Owner Name (Corporation, Individual, Public Agency, or Other Entity) Commanding Officer - Marine Corps Base	
Street Address PSC BOX 20004	
City MCB Campl Lejeune	County Onslow
State NC	Zip Code 28542
Phone Number (910) 451-5068	

II. LOCATION OF TANKS

Facility Name or Company Building AS-4151		
Facility ID # (If known)		
Street Address Campbell		
City MCAS New River	County Onslow	Zip Code 28542
Phone Number none		

III. CONTACT PERSONNEL

Contact for Facility: Commanding Officer -Marine Corps Base		Job Title: Commanding Officer	Phone. No: 910-451-5068
Closure Contractor Name: Anderw Tyo	Closure Contractor Company: Jones & Frank	Address: 622 Maywood Ave. Raleigh, NC 27603	Phone. No: 919-832-3081
Primary Consultant Name: Michael E. Mason	Primary Consultant Company: CATLIN	Address: 220 Old Dairy Rd. ILM, NC 28405	Phone. No: 910-452-5861

IV. UST INFORMATION FOR REGISTERED UST SYSTEMS

V. EXCAVATION CONDITION

Tank ID No.	Size in Gallons	Tank Dimensions	Last Contents	Last Use Date	Permanent Close Date	Change-in-Service Date	Water in excavation		Free product		Notable odor or visible soil contamination	
							Yes	No	Yes	No	Yes	No
AS-4151-2	1000	Unknown	Diesel	3/30/94	3/30/94		☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐

VI. UST INFORMATION FOR UNREGISTERED UST SYSTEMS

VII. EXCAVATION CONDITION

Tank ID No.	Size in Gallons	Tank Dimensions	Last Contents	Last Use Date	Permanent Close Date	Tank Owner Name *	Water in excavation		Free product		Notable odor or visible soil contamination	
							Yes	No	Yes	No	Yes	No
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐

* If the tank owner address is different from the one listed in Section I., then enter the street address, city, state, zip code and telephone no. below:

VIII. CERTIFICATION

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

Print name and official title of owner or owner's authorized representative	Signature	Date Signed
Michael E. Mason - CATLIN Agent for MCB Camp Lejeune & MCAS New River	Michael Mason	1/28/2008

APPENDIX C

CATLIN STANDARD METHODS OF INVESTIGATION

CATLIN STANDARD METHODS OF INVESTIGATION

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 (FID).
- 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, isopaths, 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

PHOTOGRAPHS

PHOTOGRAPHS
Former UST AS-4151-2 Location

December 2007

Looking East –
Along southern side of
Building AS-4151

Looking Northwest –
Towards Southwest corner of
Building AS-4151

Looking Northeast –
Towards Building AS-4151

Looking South –
Away from Building AS-4151

APPENDIX E

BORING LOGS, AS-BUILT, AND WELL CONSTRUCTION RECORD

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
205-077
Wilmington, NC

SHEET 1 OF 1

PROJECT NO.: 205-077	STATE: NC	COUNTY: Onslow	LOCATION: MCAS, New River
PROJECT NAME: AS-4151-1 and AS-4151-2 Tank Closures	LOGGED BY: Justin Heter		WELL ID: USTAS4151-2 -MW01
	DRILLER: Bobbie D. Fowler		
NORTHING: 3844451.2	EASTING: 275474.3	CREW: Tony Chance	
SYSTEM: UTM NAD83 (m)	BORING LOCATION: USTAS4151-2 (see map)		T.O.C. ELEV.: 18.57
DRILL MACHINE: Diedrich D-50	METHOD: H.S. Augers	0 HOUR DTW: 9.7	TOTAL DEPTH: 13.0
START DATE: 12/19/07	FINISH DATE: 12/19/07	24 HOUR DTW: 3.7	WELL DEPTH: 13.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	19.2	0.0
0.0	P	U	S	H	0.7		SW/SC		Brown, Clayey SAND w/organic debris and gravel.	2.0	17.2	- 0.6
3.0	2	2	2	3	1.5		CH		Brown and gray, fat CLAY. High plasticity. No HCO.	5.0	14.2	1.0
										8.0	11.2	2.0
8.0	W	O	H	1	2.9		CH		Gray, S.A.A. No HCO.	10.0	9.2	3.0
										11.0	8.2	
11.0	P	U	S	H			CH		S.A.A.	13.0	6.2	12.5
									Boring Terminated at Elevation 6.2 ft CLAY.			13.0

2" Sch. 40 PVC

2" Slot .010 Sch. 40 PVC

13.0

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 205-077 AS-4151.GPJ TEST.GDT 1/25/08

NON RESIDENTIAL WELL CONSTRUCTION RECORD

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

WELL CONTRACTOR CERTIFICATION #: 2869

1. WELL CONTRACTOR:

Bobbie D. Fowler
Well Contractor (Individual) Name

CATLIN Engineers and Scientists
Well Contractor Company Name

STREET ADDRESS 220 Old Dairy Road

Wilmington | North Carolina | 28405
City or Town | State | Zip Code

(910) - 452-5861
Area code - Phone number

2. WELL INFORMATION

SITE WELL ID #(if applicable): USTAS4151-2 -MW01
STATE WELL PERMIT #(if applicable): N/A
DWQ or OTHER PERMIT # (if applicable): N/A
WELL USE(Check Applicable Box): Monitoring ☒ Municipal/Public ☐
Industrial/Commercial ☐ Agricultural ☐ Recovery ☐ Injection ☐
Irrigation ☐ Other ☐ (list use): _____
DATE DRILLED: 12/19/2007
TIME COMPLETED: 13:30 **AM** ☐ **PM** ☒

3. WELL LOCATION:

CITY: MCAS, New River COUNTY: Onslow
Building AS-4151 - White Street, 28545
(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

TOPOGRAPHIC / LAND SETTING
Slope ☐ Valley ☐ Flat ☒ Ridge ☐ Other: _____

NORTHING: 3,844,451.2
EASTING: 275,474.3
UTM NAD83 (m)
May be in degrees, minutes, seconds, or in a decimal format

Latitude/longitude source: ☒ GPS ☐ Topo. map
(Location of well must be shown on a USGS topo map and attached to this form if not using a GPS.)

4. FACILITY - is the name of the business where the well is located.

FACILITY ID #(if applicable) N/A
NAME OF FACILITY:
STREET ADDRESS: Building AS-4151 - White Street
MCAS, New River | NC | 28545
City or Town | State | Zip Code
CONTACT PERSON: Mr. Andrew Smith
STREET ADDRESS: Attn: I&E/ EMD/ EQB/ PSC Box 20004

Camp Lejeune | NC | 28542-0004
City or Town | State | Zip Code
(910)- 451-9017
Area code - Phone number

5. WELL DETAILS:

a. TOTAL DEPTH: 13
b. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
c. WATER LEVEL Below Top of Casing: 3.69 FT.
(Use "+" if Above Top of Casing)

d. TOP OF CASING IS -0.6 FT. Above Land Surface*
* Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118

e. YIELD (gpm): N/A **METHOD OF TEST:** N/A
f. DISINFECTION: Type N/A **Amount:** N/A
g. WATER ZONES(depth):
From ____ To ____ From ____ To ____
From ____ To ____ From ____ To ____
From ____ To ____ From ____ To ____

6. CASING:

	Depth		Diameter	Thickness/ Weight	Material
From	0.6	To 3 ft.	2"	Sch. 40	PVC
From		To ft.	"		
From		To ft.	"		

7. GROUT:

	Depth		Material	Method
From	0.7	To 1 Ft.	Portland Cement	Surface Pour
From	1	To 2 Ft.	Bent. Pellets	Surface Pour
From		To Ft.		

8. SCREEN:

	Depth		Diameter	Slot Size	Material
From	3	To 12.5 Ft.	2 in.	Slot .010 in.	PVC
From		To Ft.	in.	in.	
From		To Ft.	in.	in.	

9. SAND/GRAVEL PACK:

	Depth		Size	Material
From	2	To 13 Ft.	#2 Medium	Torpedo Sand
From		To Ft.		
From		To Ft.		

10. DRILLING LOG

From	To	Formation Description
		SEE ATTACHED

11. 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 CERTIFIED WELL CONTRACTOR — DATE: 1-28-08

Bobbie D. Fowler
PRINTED NAME OF PERSON CONSTRUCTING THE WELL

Submit the original to the Division of Water Quality within 30 days, Attn: Information Management, 1617 Mail Service Center - Raleigh, NC 27699167, Phone No. (919) 733-7015 ext 568.

Modified from Form GW-1b Rev. 7/05

BORING LOG

CATLIN ENGINEERS and SCIENTISTS
205-077
Wilmington, NC

SHEET 1 OF 1

PROJECT NO.: 205-077	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** MCAS, New River
PROJECT NAME: AS-4151-1 and AS-4151-2 Tank Closures		**LOGGED BY:** Justin Heter **DRILLER:** Justin Heter	**BORING ID:** AS-4151-2 SB01
NORTHING:	**EASTING:**	**CREW:**	
SYSTEM:	**BORING LOCATION:** USTAS4151-2 (see map)		**LAND ELEV.:** NM
DRILL MACHINE: Hand Auger	**METHOD:** Hand Auger	**0 HOUR DTW:** 4.0	**BORING DEPTH:** 4.0
START DATE: 12/18/07	**FINISH DATE:** 12/18/07	**24 HOUR DTW:**	**ROCK DEPTH:** --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	OVA RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0	HAND AUGER	M			SC/ CL			Brown CLAYEY SAND to SANDY CLAY. Moist.	
2.0	HAND AUGER	M		1050 (2-3')	SC/ CL		2.0	Same as above. Wet @ 4'.	
4.0							4.0	Boring Terminated at Depth 4.0 ft CLAYEY SAND to SANDY CLAY.	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 205-077 AS-4151.GPJ CATLIN.GDT 1/25/08

BORING LOG

CATLIN ENGINEERS and SCIENTISTS
205-077
Wilmington, NC

SHEET 1 OF 1

PROJECT NO.: 205-077	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** MCAS, New River
PROJECT NAME: AS-4151-1 and AS-4151-2 Tank Closures		**LOGGED BY:** Justin Heter **DRILLER:** Justin Heter	**BORING ID:** AS-4151-2 SB02
NORTHING:	**EASTING:**	**CREW:**	
SYSTEM:	**BORING LOCATION:** USTAS4151-2 (see map)		**LAND ELEV.:** NM
DRILL MACHINE: Hand Auger	**METHOD:** Hand Auger	**0 HOUR DTW:** 1.5	**BORING DEPTH:** 1.5
START DATE: 12/18/07	**FINISH DATE:** 12/18/07	**24 HOUR DTW:**	**ROCK DEPTH:** --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	OVA RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0	HAND AUGER	Sat.		1120 (0-1')	SC/ CL			Brown CLAYEY SAND to SANDY CLAY. Saturated @ 1.5'.	
1.5							1.5	Boring Terminated at Depth 1.5 ft Saturated CLAYEY SAND to SANDY CLAY.	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 205-077 AS-4151.GPJ CATLIN.GDT 1/25/08

BORING LOG

CATLIN ENGINEERS and SCIENTISTS
205-077
Wilmington, NC

SHEET 1 OF 1

PROJECT NO.: 205-077	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** MCAS, New River
PROJECT NAME: AS-4151-1 and AS-4151-2 Tank Closures	**LOGGED BY:** Justin Heter		**BORING ID:** AS-4151-2 SB03
	DRILLER: Justin Heter		
NORTHING:	**EASTING:**	**CREW:**	
SYSTEM:	**BORING LOCATION:** USTAS4151-2 (see map)		**LAND ELEV.:** NM
DRILL MACHINE: Hand Auger	**METHOD:** Hand Auger	**0 HOUR DTW:** NM	**BORING DEPTH:** 4.0
START DATE: 12/18/07	**FINISH DATE:** 12/18/07	**24 HOUR DTW:**	**ROCK DEPTH:** --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	OVA RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0	HAND AUGER	M		1125 (1-2')	SC/ CL			Brown SANDY CLAY to CLAYEY SAND. Moist.	
2.0							2.0		
	HAND AUGER	M			SC/ CL			Same as above.	
4.0							4.0		
								Boring Terminated at Depth 4.0 ft SANDY CLAY to CLAYEY SAND.	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 205-077 AS-4151.GPJ CATLIN.GDT 1/25/08

BORING LOG

CATLIN ENGINEERS and SCIENTISTS
205-077
Wilmington, NC

SHEET 1 OF 1

PROJECT NO.: 205-077	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** MCAS, New River
PROJECT NAME: AS-4151-1 and AS-4151-2 Tank Closures		**LOGGED BY:** Justin Heter **DRILLER:** Justin Heter	**BORING ID:** AS4151-2 SB04
NORTHING:	**EASTING:**	**CREW:**	
SYSTEM:	**BORING LOCATION:** USTAS4151-2 (see map)		**LAND ELEV.:** NM
DRILL MACHINE: Hand Auger	**METHOD:** Hand Auger	**0 HOUR DTW:** NM	**BORING DEPTH:** 4.0
START DATE: 12/18/07	**FINISH DATE:** 12/18/07	**24 HOUR DTW:**	**ROCK DEPTH:** --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	OVA RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0	HAND AUGER	M			SC/ CL			Brown CLAYEY SAND to SANDY CLAY. Moist.	
2.0							2.0		
	HAND AUGER	M		1130 (2-3')	SC/ CL			Same as above.	
4.0							4.0		
								Boring Terminated at Depth 4.0 ft SANDY CLAY to CLAYEY SAND.	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 205-077 AS-4151 GPJ CATLIN GDT 1/25/08

APPENDIX F

LABORATORY ANALYTICAL REPORTS
AND
CHAIN OF CUSTODY DOCUMENTATION

Mr. Ben Ashba
Richard Catlin & Associates
P.O. Box 10279
Wilmington NC 28404-0279

Report Number: G128-2092

Client Project: AS4151-2

Dear Mr. Ashba:

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 SGS at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS Environmental Services for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
SGS Environmental Services, Inc.

Laboratory Director — Date 1/3/08
R. Kendall Sutler

List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit (RL or MDL)

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.

SGS ENVIRONMENTAL SERVICES, INC.

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: AS4151-2-SB01 (2-3')
Client Project ID: AS4151-1 & AS4151-2
Lab Sample ID: G128-2092-1
Lab Project ID: G128-2092
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 12/19/2007 10:50
Date Received: 12/19/2007
Matrix: Soil
Solids 89.09

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.82	5035	1	12/24/07
Diesel Range Organics	BQL	6.89	3541	1	12/20/07

Comments:

Flags:

Reviewed By: _____
TPH.XLS

SGS ENVIRONMENTAL SERVICES, INC.

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID:	AS4151-2-SB02 (0-1')	Analyzed By:	DVG
Client Project ID:	AS4151-1 & AS4151-2	Date Collected:	12/19/2007 11:20
Lab Sample ID:	G128-2092-2	Date Received:	12/19/2007
Lab Project ID:	G128-2092	Matrix:	Soil
Report Basis:	Dry Weight	Solids	83.30

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.20	5035	1	12/24/07
Diesel Range Organics	**10.7**	7.45	3541	1	12/20/07

Comments:

Flags:

Reviewed By: _____

TPH.XLS

SGS ENVIRONMENTAL SERVICES, INC.

Results for Total Petroleum Hydrocarbons
by **GC/FID 8015**

Client Sample ID: AS4151-2SB03 (1-2')
Client Project ID: AS4151-1 & AS4151-2
Lab Sample ID: G128-2092-3
Lab Project ID: G128-2092
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 12/19/2007 11:25
Date Received: 12/19/2007
Matrix: Soil
Solids 76.96

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.78	5035	1	12/24/07
Diesel Range Organics	**9.21**	8.10	3541	1	12/20/07

Comments:

Flags:

Reviewed By: TPH.XLS

SGS ENVIRONMENTAL SERVICES, INC.

Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: AS4151-1-SB04 (2-3')
Client Project ID: AS4151-1 & AS4151-2
Lab Sample ID: G128-2092-4
Lab Project ID: G128-2092
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 12/19/2007 11:30
Date Received: 12/19/2007
Matrix: Soil
Solids 88.87

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	4.39	5035	1	12/24/07
Diesel Range Organics	BQL	6.61	3541	1	12/20/07

Comments:

Flags:

Reviewed By: _____
TPH.XLS

SGS ENVIRONMENTAL SERVICES, INC.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: PB9995
Lab Project ID:
Report Basis: Dry Weight

Analyzed By: EAW
Date Collected:
Date Received:
Matrix: SOIL
Solids 100.00

Analyte	Result mg/KG	RL mg/KG	Prep Method	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.25	3541	1	12/20/07

Comments:

Flags:

Reviewed By: _____
TPH.XLS

SGS ENVIRONMENTAL SERVICES, INC.

QC Results for Total Petroleum Hydrocarbons
by GC/FID

Client Sample ID: Batch QC
Lab Sample ID: G128-2092-3E
Batch ID: 9995

Analyzed By: EAW
Matrix: Soil
Solids 82.57

MS/MSD

Analyte units	Sample MG/KG	Spiked MG/KG	MS MG/KG	REC %		Spiked MG/KG	MSD MG/KG	REC %		RPD %
DRO	17.2	75.5	125	143	#	75.3	133	154	#	7.41

LCS

Analyte units		Spiked MG/KG	Result MG/KG	REC %		LIMITS Lower	 Upper	
DRO		62.5	55.8	89.3		40	140	

Comments: Sample was a non-homogenous matrix.
= Outside Control Limits

Reviewed By: alc

SGS ENVIRONMENTAL SERVICES, INC.

Results for Metals

Client Sample ID:	AS4151-2-SB01 (2-3')	Analyzed By:	PSW
Client Project ID:	AS4151-1 & AS4151-2	Date Collected:	12/19/2007 10:50
Lab Sample ID:	G128-2092-1	Date Received:	12/19/2007
Lab Project ID:	G128-2092	Matrix:	SOIL
Batch ID:	9989	Solids	89.09
Report Basis:	Dry		

Metals	Result	RL	MDL	DF	Units	Method	Date Analyzed	Flags
Chromium	**10.4**	0.968	0.639	100	MG/KG	6020	12/20/2007	
Lead	**6.35**	0.0968	0.0167	10	MG/KG	6020	12/20/2007	

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

Reviewed By: _____
METALS

SGS ENVIRONMENTAL SERVICES, INC.

Results for Metals

Client Sample ID:	AS4151-2-SB02 (0-1')	Analyzed By:	PSW
Client Project ID:	AS4151-1 & AS4151-2	Date Collected:	12/19/2007 11:20
Lab Sample ID:	G128-2092-2	Date Received:	12/19/2007
Lab Project ID:	G128-2092	Matrix:	SOIL
Batch ID:	9989	Solids	83.30
Report Basis:	Dry		

Metals	Result	RL	MDL	DF	Units	Method	Date Analyzed	Flags
Chromium	**15.1**	1.09	0.720	100	MG/KG	6020	12/20/2007	
Lead	**7.56**	0.109	0.0189	10	MG/KG	6020	12/20/2007	

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

Reviewed By: _____
METALS

SGS ENVIRONMENTAL SERVICES, INC.

Results for Metals

Client Sample ID:	AS4151-2-SB03 (1-2')	Analyzed By:	PSW
Client Project ID:	AS4151-1 & AS4151-2	Date Collected:	12/19/2007 11:25
Lab Sample ID:	G128-2092-3	Date Received:	12/19/2007
Lab Project ID:	G128-2092	Matrix:	SOIL
Batch ID:	9989	Solids	76.96
Report Basis:	Dry		

Metals	Result	RL	MDL	DF	Units	Method	Date Analyzed	Flags
Chromium	**24.1**	1.23	0.809	100	MG/KG	6020	12/20/2007	
Lead	**10.1**	0.123	0.0212	10	MG/KG	6020	12/20/2007	

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

Reviewed By: _____
METALS

SGS ENVIRONMENTAL SERVICES, INC.

Results for Metals

Client Sample ID:	AS4151-2-SB04 (2-3')	Analyzed By:	PSW
Client Project ID:	AS4151-1 & AS4151-2	Date Collected:	12/19/2007 11:30
Lab Sample ID:	G128-2092-4	Date Received:	12/19/2007
Lab Project ID:	G128-2092	Matrix:	SOIL
Batch ID:	9989	Solids	88.87
Report Basis:	Dry		

Metals	Result	RL	MDL	DF	Units	Method	Date Analyzed	Flags
Chromium	**8.70**	0.104	0.0688	10	MG/KG	6020	12/20/2007	
Lead	**6.29**	0.104	0.0180	10	MG/KG	6020	12/20/2007	

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

Reviewed By: _____
METALS

CHAIN OF CUSTODY RECORD
SGS Environmental Services Inc.

SGS

Locations Nationwide
- Alaska
- Ohio
- New Jersey
- West Virginia
- Hawaii
- Maryland
- North Carolina

www.us.sgs.com

092

CLIENT: Catlin
CONTACT: Ben Ashba — PHONE NO: (910) 452.5861
PROJECT: AS4151-1 & AS4151-2 — SITE/PWSID#: 205-077
REPORTS TO: Ben Ashba — E-MAIL:
FAX NO.: ( )
INVOICE TO: Sheila @ Catlin — QUOTE #
P.O. NUMBER

SGS Reference: G128-2092
PAGE 1 OF

Preservatives Used: MEOH | – | –

Analysis Required: GRO | DRO | 6210B Cr & Pb ICPMS METHOD IS 6020 12/20

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE C=COMP G=GRAB	GRO	DRO	6210B Cr & Pb / IS 6020	REMARKS
	AS4151-2-SB01 (2-3')	12/19/07	1050	S	3	G	✓	✓	✓	No jars/containers for 6210B
	AS4151-2-SB02 (0-1')		1120				✓	✓	✓	
	AS4151-2-SB03 (1-2')		1125				✓	✓	✓	
	AS4151-2-SB04 (2-3')		1130				✓	✓	✓	
	~~AS4151-2-SB04 (2-3')~~		~~1135~~				✓	✓	X	
	~~AS4151-2-SB02 (1-2')~~		~~1400~~				✓	✓	X	~~Added per B. Ashba~~
	~~AS4151-2-SB03 (2-3')~~		~~1405~~				✓	✓	X	~~on 12/27 Wll.~~
	~~AS4151-2-SB04 (1-2')~~		~~1410~~				X	✓	X	
	~~Dup. AS4151-2-SB01~~		~~1415~~				✓	✓	X	

NOT INCLUDED IN THIS REPORT

Collected/Relinquished By: (1)	Date	Time	Received By:	Date	Time
[signature]	12/19/07	1635			
Relinquished By: (2)	Date	Time	Received By:	Date	Time
Relinquished By: (3)	Date	Time	Received By:	Date	Time
Relinquished By: (4)	Date	Time	Received By: [signature]	Date 12/19/07	Time 1635

Shipping Carrier:
Shipping Ticket No:
Samples Received Cold? (Circle) (YES) NO
Temperature °C: 4.6
Special Deliverable Requirements:
Chain of Custody Seal: (Circle) INTACT BROKEN (ABSENT)
Special Instructions:
Requested Turnaround Time:
☐ RUSH ________ Date Needed
☑ STD

N.C. CERTIFICATION #481

SGS ENVIRONMENTAL SERVICES, INC.

Mr. Ben Ashba
Richard Catlin & Associates
P.O. Box 10279
Wilmington NC 28404-0279

Report Number: G128-2096

Client Project: AS4151-2

Dear Mr. Ashba:

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.

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Thank you for using SGS Environmental Services for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
SGS Environmental Services, Inc.

Laboratory Director
R. Kendall Sutler

Date 1/9/08

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LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

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RPD = Relative Percent Difference

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

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

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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.

SGS ENVIRONMENTAL SERVICES, INC.

Results for Semivolatiles by GCMS 625

Client Sample ID: USTAS4151-3-MW01
Client Project ID: AS4151-1 & AS4151-2
Lab Sample ID: G128-2096-1H
Lab Project ID: G128-2096

Analyzed By: DCS
Date Collected: 12/26/2007 15:20
Date Received: 12/26/2007
Date Extracted: 12/27/2007
Matrix: Water

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	10.0	1.22	1	1/2/2008	
Acenaphthylene	BQL	10.0	1.12	1	1/2/2008	
Anthracene	BQL	10.0	1.75	1	1/2/2008	
Benzo[a]anthracene	BQL	10.0	1.36	1	1/2/2008	
Benzo[a]pyrene	BQL	10.0	1.27	1	1/2/2008	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	1/2/2008	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	1/2/2008	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	1/2/2008	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	1/2/2008	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	1/2/2008	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	1/2/2008	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	1/2/2008	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	1/2/2008	
Butylbenzylphthalate	BQL	10.0	1.53	1	1/2/2008	
2-Chloronaphthalene	BQL	10.0	1.25	1	1/2/2008	
2-Chlorophenol	BQL	10.0	4.22	1	1/2/2008	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	1/2/2008	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	1/2/2008	
Chrysene	BQL	10.0	1.11	1	1/2/2008	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	1/2/2008	
Di-n-Butylphthalate	BQL	10.0	1.65	1	1/2/2008	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	1/2/2008	
2,4-Dichlorophenol	BQL	10.0	3.75	1	1/2/2008	
Diethylphthalate	BQL	10.0	1.48	1	1/2/2008	
Dimethylphthalate	BQL	10.0	1.04	1	1/2/2008	
2,4-Dimethylphenol	BQL	10.0	9.25	1	1/2/2008	
Di-n-octylphthalate	BQL	10.0	1.16	1	1/2/2008	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	1/2/2008	
2,4-Dinitrophenol	BQL	50.0	4.20	1	1/2/2008	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	1/2/2008	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	1/2/2008	
Diphenylamine *	BQL	10.0	1.53	1	1/2/2008	
Fluoranthene	BQL	10.0	1.41	1	1/2/2008	
Fluorene	BQL	10.0	1.22	1	1/2/2008	
Hexachlorobenzene	BQL	10.0	1.22	1	1/2/2008	
Hexachlorobutadiene	BQL	10.0	1.58	1	1/2/2008	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	1/2/2008	
Hexachloroethane	BQL	10.0	1.58	1	1/2/2008	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	1/2/2008	
Isophorone	BQL	10.0	1.27	1	1/2/2008	
Naphthalene	BQL	10.0	1.08	1	1/2/2008	
Nitrobenzene	BQL	10.0	1.32	1	1/2/2008	
2-Nitrophenol	BQL	10.0	3.52	1	1/2/2008	
4-Nitrophenol	BQL	50.0	3.17	1	1/2/2008	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	1/2/2008	
Pentachlorophenol	BQL	50.0	2.83	1	1/2/2008	
Phenanthrene	BQL	10.0	1.38	1	1/2/2008	

8270.xls

N.C. CERTIFICATION #481

SGS ENVIRONMENTAL SERVICES, INC.

Results for Semivolatiles
by GCMS 625

Client Sample ID: USTAS4151-MW01
Client Project ID: AS4151-1 & AS4151-2
Lab Sample ID: G128-2096-1H
Lab Project ID: G128-2096

Analyzed By: DCS
Date Collected: 12/26/2007 15:20
Date Received: 12/26/2007
Date Extracted: 12/27/2007
Matrix: Water

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Phenol	BQL	10.0	3.38	1	1/2/2008	
Pyrene	BQL	10.0	2.08	1	1/2/2008	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	1/2/2008	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	1/2/2008	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.4	84
2-Fluorophenol	10	7.4	74
Nitrobenzene-d5	10	8	80
Phenol-d6	10	6.7	67
2,4,6-Tribromophenol	10	7.6	76
4-Terphenyl-d14	10	9.2	92

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

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

Reviewed By:

8270.xls

SGS ENVIRONMENTAL SERVICES, INC.

Results of Library Search for Semivolatile Compounds

by GCMS

Client Sample ID: USTAS4151-2MW01
Client Project ID: AS4151-1 & AS4151-2
Lab Sample ID: G128-2096-1H
Lab Project ID: G128-2096
Sample Wt/Vol: 500 ML
Dilution: 1

Analyzed By: DES
Date Collected: 12/26/2007 15:20
Date Received: 12/26/2007
Date Extracted: 12/27/2007
Date Analyzed: 1/2/2008
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Unknown	4.40			5.04
2					
3					
4					
5					
6					
7					
8					
9					
10					

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: _____

SV_TICS_for old msd6.xls

SGS ENVIRONMENTAL SERVICES, INC.

Results for Volatiles
by GC 602

Client Sample ID: USTAS4151-1-MW01
Client Project ID: AS4151-1 & AS4151-2
Lab Sample ID: G128-2096-1A
Lab Project ID: G128-2096

Analyzed By: RSB
Date Collected: 12/26/07 15:20
Date Received: 12/26/07
Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.183	1	1/4/08	
Diisopropyl ether (DIPE)	BQL	1.00	0.229	1	1/4/08	
Ethylbenzene	BQL	1.00	0.181	1	1/4/08	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.359	1	1/4/08	
Toluene	BQL	1.00	0.157	1	1/4/08	
m/p-Xylene	BQL	2.00	0.481	1	1/4/08	
o-Xylene	BQL	2.00	0.584	1	1/4/08	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.5	101

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

Reviewed By: _____
GC-VOA_WA.XLS

SGS ENVIRONMENTAL SERVICES, INC.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Richard Catlin & Associates

Project Name: AS4151-1 & AS4151-2

Sample Information	
Sample Identification	USTAS4151-1-MW01
Sample Matrix	Water
Collection Option (for Soil)*	NA
Date Collected	12/26/07
Date Received	12/26/07
Date Extracted	12/27/07 23:32 - 12/27/07 23:32
Date Analyzed	12/27/07 23:32 - 12/27/07 23:32
Dry Weight	NA
Dilution Factor	1 - 1

Analytical Results			
Analyte	Result µg/L	Report Limit µg/L	Flags
C_5-C_8 Aliphatics**	BQL	100	
C_9-C_{12} Aliphatics**	BQL	100	
C_9-C_{10} Aromatics**	BQL	100	

	Percent Recovery	Flags	Limits Lower	Limits Upper
Surrogate % Recovery - PID	77.6		70	130
Surrogate % Recovery - FID	95.3		70	130

* = 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 and are unadjusted for individual analytes.

Lab Info: g128-2096-1d	Lab Info: g128-2096-1d
FID Info: VP122707/035F0101.D	PID Info: VP122707/035R0101.D

Reviewed By:

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 12/08/07 PID Initial Calibration Date: 12/08/07

Calibration Ranges and Limits

Range	MDL (µg/L)	MDL (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (mg/Kg)
C_5-C_8 Aliphatics	33.1	0.265	105	0.842	100	10
C_9-C_{12} Aliphatics	30.9	0.247	98.3	0.786	100	10
C_9-C_{10} Aromatics	27.7	0.222	88.1	0.705	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	Levels (mg/Kg)	%RSD if CF r if LR	Method of Quantitation
C_5-C_8 Aliphatics	10	0.8	11.01	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		
C_9-C_{12} Aliphatics	10	0.8	1.00	Linear Regression
	50	4		
	100	8		
	200	16		
	500	40		
C_9-C_{10} Aromatics	10	0.8	15.27	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 12/27/07 Filename: VP122707/002F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	1.6	-19.5	±25%
C_9-C_{12} Aliphatics	200	1.6	-4.3	±25%
C_9-C_{10} Aromatics	200	1.6	-19.6	±25%

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

SGS ENVIRONMENTAL SERVICES, INC.

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Richard Catlin & Associates

Project Name: AS4151-1 & AS4151-2

Sample Information	
Sample Identification	USTAS4151-MW01
Sample Matrix	WATER
Date Collected	12/26/07
Date Received	12/26/07
Date Extracted	12/27/07
Date Analyzed	12/29/07 03:44 - 12/29/07 04:12
Dry Weight	100
Dilution Factor	1 - 1
Initial Volume (mL)	500
Final Volume (mL)	5.0

Analytical Results			
Analytes**	Result µg/L	Report Limit µg/L	Flags
C9-C18 Aliphatics	BQL	100	
C19-C36 Aliphatics	BQL	100	
C11-C22 Aromatics	BQL	100	

Surrogates	Percent Recovery	Flags	Limits Lower	Limits Upper
Aliphatic (chloro-octadecane)	48.3		40	140
Aromatic (ortho-terphenyl)	53.3		40	140
Fractionation 1 (2-bromonaphthalene)	83.9		40	140
Fractionation 2 (2-fluorobiphenyl)	85.2		40	140

** = Excludes any surrogates or internal standards and are unadjusted for individual analytes.

Duplicate analysis confirms low surrogates.

Lab Info: G128-2096-1I	Lab Info: G128-2096-1I
Aliphatic: EP122807/026F2301.D	Aromatic: EP122807/027F2401.D

Reviewed By:

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 12/26/07

Calibration Ranges and Limits

Range	MDL (10/17/06) (µg/L)	MDL (10/17/06) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (mg/Kg)
C9-C18 Aliphatics	28.1	0.847	89	2.69	100	10
C19-C36 Aliphatics	36.5	1.17	116	3.72	100	10
C11-C22 Aromatics	27.6	9.47	87.8	30.1	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	Levels (mg/Kg)	%RSD if CF r if LR	Method of Quantitation
C_9-C_{18} Aliphatics	400	12.5	3.80	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		
C_{19}-C_{36} Aliphatics	400	12.5	6.26	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		
C_{11}-C_{22} Aromatics	400	12.5	4.66	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		

Calibration Check Date: 12/28/07
12/28/07

Filenames: ep122807/001f0101.d
ep122807/002f0201.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	200	6.25	-7.3	≤±25%
C19-C36 Aliphatics	200	6.25	-8.1	≤±25%
C11-C22 Aromatics	200	6.25	1.4	≤±25%

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

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 12/26/07

Calibration Ranges and Limits

Range	MDL (10/17/06) (µg/L)	MDL (10/17/06) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (mg/Kg)
C9-C18 Aliphatics	28.1	0.847	89	2.69	100	10
C19-C36 Aliphatics	36.5	1.17	116	3.72	100	10
C11-C22 Aromatics	27.6	9.47	87.8	30.1	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	Levels (mg/Kg)	%RSD if CF r if LR	Method of Quantitation
C_9-C_{18} Aliphatics	400	12.5	3.80	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		
C_{19}-C_{36} Aliphatics	400	12.5	6.26	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		
C_{11}-C_{22} Aromatics	400	12.5	4.66	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		

Calibration Check Date: 12/28/07, 12/29/07

Filenames: ep122807/040f3701.d, ep122807/041f3801.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	200	6.25	0.3	≤±25%
C19-C36 Aliphatics	200	6.25	0.8	≤±25%
C11-C22 Aromatics	200	6.25	6.1	≤±25%

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

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 12/26/07

Calibration Ranges and Limits

Range	MDL (10/17/06) (µg/L)	MDL (10/17/06) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (mg/Kg)
C9-C18 Aliphatics	28.1	0.847	89	2.69	100	10
C19-C36 Aliphatics	36.5	1.17	116	3.72	100	10
C11-C22 Aromatics	27.6	9.47	87.8	30.1	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	Levels (mg/Kg)	%RSD if CF r if LR	Method of Quantitation
C_9-C_{18} Aliphatics	400	12.5	3.80	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		
C_{19}-C_{36} Aliphatics	400	12.5	6.26	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		
C_{11}-C_{22} Aromatics	400	12.5	4.66	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		

Calibration Check Date: 12/31/07
12/31/07

Filenames: ep123107/001f0101.d
ep123107/002f0201.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	200	6.25	2.6	≤±25%
C19-C36 Aliphatics	200	6.25	2.1	≤±25%
C11-C22 Aromatics	200	6.25	4.1	≤±25%

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

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 12/26/07

Calibration Ranges and Limits

Range	MDL (10/17/06) (µg/L)	MDL (10/17/06) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (mg/Kg)
C9-C18 Aliphatics	28.1	0.847	89	2.69	100	10
C19-C36 Aliphatics	36.5	1.17	116	3.72	100	10
C11-C22 Aromatics	27.6	9.47	87.8	30.1	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	Levels (mg/Kg)	%RSD if CF r if LR	Method of Quantitation
C_9-C_{18} Aliphatics	400	12.5	3.80	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		
C_{19}-C_{36} Aliphatics	400	12.5	6.26	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		
C_{11}-C_{22} Aromatics	400	12.5	4.66	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		

Calibration Check Date: 12/31/07
12/31/07

Filenames: ep123107/009f0701.d
ep123107/010f0801.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	200	6.25	6.7	≤±25%
C19-C36 Aliphatics	200	6.25	6.4	≤±25%
C11-C22 Aromatics	200	6.25	6.1	≤±25%

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

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N.C. CERTIFICATION #481

From-CATLIN ENGINEERS AND SCIENTISTS

dec-27-07 12:12pm

SGS ENVIRONMENTAL SERVICES, INC.

1

CLIENT: CATLIN

CONTACT: Ben Ashba PHONE NO:(910) 452-5861

PROJECT: AS4151-1 & AS4151-2 SITE/PWSID#: 205-077

REPORTS TO: Ben Ashba E-MAIL: FAX NO.:( )

INVOICE TO: Sheila@CATLIN QUOTE # P.O. NUMBER

SGS Reference: G128-2896

PAGE ____ OF ____

2

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE C=COMP G=GRAB	Preservatives Used	Analysis Required (3) EPA 6210 D	EPA 625+BNA+TICS	EPA 602	3030C Chrom VI Lead	MADEP EPH & VPH	REMARKS
	~~2~~ 3 (BA) USTAS4151-MW01	12/26	1520	W	8	G		X	X		X		
NOT INCLUDED IN THIS REPORT	~~2~~ 3 (BA) USTAS4151-MW01	12/26 WL	1500 WL	W	8	G		X	X	X	X		

5

Collected/Relinquished By:(1) WL	Date	Time	Received By: WL	Date	Time
J. Hoder	12/26	1632	A. Thompson	12/26	1632
Relinquished By: (2)	Date	Time	Received By:	Date	Time
Relinquished By: (3)	Date	Time	Received By:	Date	Time
Relinquished By: (4)	Date	Time	Received By:	Date	Time

4

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature °C: _____ °F: _____

Special Deliverable Requirements:

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed ☐ STD