

**IDENTIFICATION, CORRELATION, and ASSIMILATION
of ORGANIC SUBSURFACE SOILS**

HADNOT POINT FUEL FARM

**MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA**

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LIST OF ACRONYMS

2000 Guidelines	Groundwater Section Guidelines for Investigation and Remediation of Soil and Groundwater. (Effective July 1, 2000)
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 Liter
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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JUNE 19, 2002

EXECUTIVE SUMMARY

Any reference to the Hadnot Point Fuel Farm (HPFF) in this document should be construed as a reference to the former Hadnot Point Fuel Farm, exclusive of the new Temporary Fuel Farm. Hadnot Point Fuel Farm has been the center of a number of detailed investigations. Information generated during a number of previous investigations was utilized to attempt to explain petroleum hydrocarbon impact in the deeper portions of the underlying aquifer. Geological interpretation of data generated during the previous investigations suggests that the underlying strata are composed of sands, clays, silts, sand clay/silt mixtures, peat and organic rich silt/clay, and limestone. Paleochannels have been identified in the subsurface of the MCB during previous investigations. Evidence suggests that similar features are present at, or in the immediate vicinity of HPFF. A continuous confining unit overlying the Castle Hayne aquifer has not been identified at the HPFF site. Sand units have been identified extending from or near the existing land surface to the top of the underlying limestone and water producing sands. A peat unit, and highly organic silt/sand/clay units have been identified that exhibits evidence of possible de-watering and subsequent compaction resulting in the potential “slumping” of the overlying sediments. Additionally, evidence suggests that the underlying calcareous sediments have undergone a weathering process that has weakened the structural integrity of the material resulting in the “collapse” of the sediments and subsequent “slumping” of the overlying materials. These geologic features may act as preferential pathways to accommodate downward vertical migration of groundwater and the associated petroleum hydrocarbon contamination and product. The peat and other units of presumably low permeability (silts, clays, etc.) are not spatially consistent across the site and would allow the vertical migration of fluids. Pumping of numerous public water-supply wells, essentially encircling the HPFF site, may have acted in conjunction with natural processes to decrease the hydrostatic head in portions of the Castle Hayne aquifer. The decrease in hydrostatic head, in conjunction with the absence of an aquitard, may have, facilitated downward migration of groundwater and the associated petroleum hydrocarbon contamination, from the surficial aquifer to the underlying Castle Hayne aquifer.

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1.0 INTRODUCTION

1.1 BACKGROUND AND PURPOSE

The former HPFF has been the focus of numerous studies since leaks in fuel lines and tanks associated with the site were documented in 1983. During the course of these investigations, dissolved and free phase petroleum was identified in the shallow subsurface and at depths in excess of 150 feet BLS. Additionally, numerous other ongoing studies within the immediate surrounding area were incorporated into the HPFF study due to overlapping plume boundaries. Lithologic information from borings HPFF-60, HPFF-66, and HPFF-68 was incorporated into this report from an ongoing study that includes the installation of approximately 29 monitoring wells.

The various studies performed at the HPFF and Building 1115 areas have produced the following reports, from which the site-specific information has been obtained:

1. A Verification Step Study, prepared by Environmental Science and Engineering, Inc. (ESE), 1985.
2. Characterization Step Report, prepared by Environmental Science and Engineering, Inc. (ESE), 1988.
3. Contaminated Groundwater Study, Marine Corps Base, Camp Lejeune, NC Hadnot Point Area, prepared by O'Brien & Gere Engineers, Inc., December 1988.
4. Product Recovery System Design, Hadnot Point Fuel Farm, Marine Corps Base, Camp Lejeune, NC, prepared by O'Brien and Gere Engineers, Inc., January 1990.
5. Hadnot Point Fuel Recovery System Quarterly Report for the Period of 1 January through 31 March 1993, prepared by Geophex, Ltd.
6. Hadnot Point Fuel Recovery System, Monthly Report (February 1993), prepared by Geophex, Ltd., April 16, 1993.

7. Five Well Plus Five Additional Well Site Check Report, Building 1115, Marine Corps Base, Camp Lejeune, NC, prepared by Groundwater Technology Government Service, October 14, 1993.
8. Remedial Investigation Report Operable Unit No. 1 (Sites 21, 24, and 78), Marine Corps Base, Camp Lejeune, NC, prepared by Baker Environmental, Inc., June 1994.
9. Leaking Underground Storage Tank Comprehensive Site Assessment, Tank 1115, Marine Corps Base, Camp Lejeune, NC, prepared by Richard Catlin & Associates, Inc., March 13, 1998.
10. Leaking Underground Storage Tank Additional Site Assessment Report, Marine Corps Base, Camp Lejeune, NC, prepared by Richard Catlin & Associates, Inc., March 13, 1998.
11. Leaking Underground Storage Tank Comprehensive Site Assessment, Hadnot Point Fuel Farm, Marine Corps Base, Camp Lejeune, NC, prepared by Richard Catlin & Associates, Inc., June 20, 1997.
12. Hadnot Point Fuel Recovery System, Monthly Report (December 1996), prepared by Geophex, Ltd., January 13, 1997.
13. Hadnot Point Fuel Recovery System, Quarterly Report, Fourth Quarter, 1996, prepared by Geophex, Ltd., January 15, 1997.
14. Quarterly Monitoring Report, Operable Unit No. 1 (Sites 24 and 78), Marine Corps Base, Camp Lejeune, NC, prepared by Baker Environmental, Inc., February 7, 1997.
15. Quarterly Monitoring Report, Operable Unit No. 1 (Sites 24 and 78), Marine Corps Base, Camp Lejeune, NC, prepared by Baker Environmental, Inc., April 24, 1997.
16. Leaking Underground Storage Tank Corrective Action Plan for Soil and Groundwater Remediation Via Aggressive Fluid/Vapor Recovery, Soil Vapor Extraction, Air Sparging, and Natural Attenuation/Degradation at the Hadnot Point Fuel Farm/Building 1115, Marine Corps Base, Camp Lejeune, NC, prepared by CATLIN Engineers and Scientists, April 30, 1998.
17. Wellhead Protection Plan Update. Camp Lejeune, Onslow County, North Carolina, prepared by Triangle Environmental, Inc., Raleigh, North Carolina. March 1999.

On February 8, 2001, Ms. Lori Reuther, Navy Technical Representative (NTR) with NAVFACENGCOM, in cooperation with OHM Remediation Services Corporation, presented "Hadnot Point Fuel Farm: A Hypothesis to Explain the Persistence of Free Product in the Subsurface." CATLIN was subsequently contracted to attempt to confirm/refute a portion of the hypothesis that identified the interface between numerous peat layers and the overlying/underlying soils as potential preferential pathways for contaminate migration. The information provided in this report is intended to identify processes and activities that may exacerbate conditions necessary for vertical migration of contaminants.

1.2 SCOPE OF WORK

The scope of this investigation was to review existing soil boring data to facilitate identification and mapping of the numerous peat/highly organic units that had been noted during the advancement of soil borings across the site. To accomplish this task, soil boring information was entered into boring log software capable of generating numerous detailed subsurface geologic profiles. To address the processes of vertical contaminant migration, information pertaining to the construction and operation of numerous water supply wells in the immediate vicinity of HPFF was reviewed.

1.3 AREA OF INVESTIGATION

(Figure 1 and Figure 2)

The site is located in the Hadnot Point "mainside" area of the MCB Camp Lejeune, North Carolina (see Figure 1). The project area is generally bounded by Holcomb Boulevard to the north, Michael Road to the south, Birch Street to the west, and the Vehicle Ready Fuel Storage facility and Temporary Fuel Farm to the east. A Site Plan is presented on Figure 2.

The project area consists of two primary source areas; the former Hadnot Point Fuel Farm, and former underground storage tanks (UST) associated with Building 1115. Site reconnaissance and research conducted during this, and previous, investigations revealed numerous sources and types of contamination that may have contributed to the subsurface impact identified across the site. The additional identified sources are presented in the contaminant source inventories included in the Building 1115 and Hadnot Point Fuel Farm CSAs prepared by CATLIN.

1.4 SUMMARY OF SITE CONDITIONS

1.4.1 Groundwater Flow Direction

(Table 1 and Figures 3 through 6)

Throughout the process of investigating HPFF, a number of well gauging events have been performed across the site. Most recently, on August 16, 2001, the existing monitoring wells at the Hadnot Point Fuel Farm site were gauged for free product and depth to groundwater. The intent of the gauging activities was to determine the spatial extent of free product at the site and to produce a water table contour map in order to discern the direction of groundwater flow, and hence contaminant movement. Monitoring well gauging data from the August 16, 2001 gauging event is included in Table 1.

As depicted on Figure 3, strict interpolation of the water table elevation data in the shallow Type II monitoring wells reveals a general flow trend to the west with variable localized flow directions. The localized variable flow directions may be attributed to the numerous remediation efforts currently occurring at the site. The generalized flow direction of the deeper aquifers (Figures 4 through 6) appears to be similar.

1.4.2 Extent of Free Product

(Table 1 and Figure 7)

Based on the well gauging activities of August 16, 2001, five general areas have been identified with measurable free product accumulations. Free product has been gauged in shallow monitoring wells MW-2 (.01ft), MW-12 (.06ft), MW-15 (.06ft), MW-16R (2.21ft), and HPFF-15 (.48ft). MW-18 contained a trace (<.01ft) amount of product. Free product accumulations are shown on Figure 7.

An analysis of the recent areal extent of free product reveals an overall trend in the reduction of the free product. As can be seen on Figure 7, it appears that the plumes near Building 1115 and in the area northwest of the former HPFF have been reduced in areal extent. The plume south of the former fuel farm is existent but appears to have been significantly reduced in areal extent. The data additionally suggests a reduction in plume thickness. The maximum thickness of product gauged in 1997 and 1998 was 5.29 and 4.24 feet respectively. The maximum thickness gauged during the August 16, 2001 gauging event was 2.21 feet. These reductions may be attributed to the free product recovery efforts currently taking place.

Additionally, free product was measured at a thickness of 6.0 feet in well 78GW-32-03 in the summer of 2000. Well 78GW-32-03 is 153 feet deep with a screened interval of 140 to 150 feet BLS. Following one aggressive fluid/vapor recovery (AFVR) performed on 78GW-32-03, no substantial amount of free product was measured in 78GW-32-03 until January 2001 when roughly two feet of free product was detected. This well is paired with well 78GW-32-02, which is 77 feet deep with a screened interval of 64 to 74 feet BLS. No evidence of free phase product has ever been noted in well 78GW-32-02.

1.4.3 Groundwater Contamination

Dissolved-phase contamination associated with petroleum has been identified at this site at concentrations in excess of the appropriate 2L GWQS. Results from the June 1997 sampling event indicated that the horizontal extent of the dissolved contamination in the upper portion of the surficial aquifer (less than 50 feet deep) has been essentially delineated. The plume was bounded to the north by wells HPFF-1, HPFF-2, and DPT-22; to the east by monitoring wells HPFF-3 and 78GW-21; to the south by wells MW-3, MW-15, and 78GW-17-01; and to the west by 1115-2, 1115-11, 78GW-19, and DPT-23.

Dissolved petroleum contamination has been identified in all 50 feet deep Type III monitoring wells. The contamination at this depth has not been delineated. Dissolved petroleum compounds were also identified in Type III monitoring wells greater than 50 feet deep

2.0 GEOLOGY

2.1 REGIONAL GEOLOGY

The project site lies within the southeastern portion of the Outer Coastal Plain Physiographic Province of North Carolina. The Outer Coastal Plain, as described by David R. Soller and Hugh H. Mills in *The Geology of the Carolinas* (1991), is the eastern portion of the Coastal Plain where constructional topography is evident or dominant. The Inner Coastal Plain begins at the Fall Line and narrows northerly, and is considered to be an area of erosional topography. According to Horton and Zullo in *The Geology of the Carolinas* (1991), the Coastal Plain is comprised of a seaward thickening wedge of post-Triassic, primarily unconsolidated, siliclastic sediments and carbonate rocks that extend from the Fall Line to the continental shelf break. Coastal Plain sediments were deposited in a number of different environments including, but not limited to, offshore marine, near-shore marine, lagoonal, and deltaic. The eustatic rise and fall of sea level has

resulted in numerous sedimentary packages of transgressive and regressive sequences deposited throughout the Coastal Plain. In Onslow County, the pre-Mesozoic crystalline basement rock, onto which the Coastal Plain was deposited, lies approximately 1300 feet below mean sea level (MSL). The dominant structural features within the surrounding area of the subject site are the Cape Fear arch, a seaward (southeasterly) plunging anticline and the Albemarle Embayment. The axis of the Cape Fear arch is located roughly 100 miles southwest of the subject site. The Albemarle Embayment lies along the northeastern border of the Cape Fear arch (Horton and Zullo, 1991).

As detailed in the Wellhead Management Program report (Geophex, 1991), geologic units identified beneath the MCB include the Cretaceous Peedee Formation which is composed of sands, clayey sands, and clay. The Peedee Formation does not outcrop anywhere on base and has only been identified in the vicinity from drill-hole data. The Upper Eocene Castle Hayne Formation lies unconformably on the Peedee Formation. The Castle Hayne consists of widespread limestone units that are intermixed with substantial beds of calcareous sands and silty sands. Overlying the Castle Hayne is moldic limestone of the upper Oligocene River Bend Formation. The uppermost limestone unit in much of the MCB area is the lower Miocene Belgrade Formation. The Belgrade rests unconformably on the River Bend or directly on the Castle Hayne Formation where the River Bend is absent. The Belgrade is typically overlain by undifferentiated surficial sediments throughout most of the MCB.

2.2 SITE GEOLOGY

Lithologic descriptions from borings advanced during numerous investigations conducted at HPFF were utilized to produce geologic cross sections across the site. Soils were correlated between borings based on the continuity of lithologic descriptions, in conjunction with field USCS classifications. Characteristics such as predominant materials (sand, silt, clay, etc.), color, grain size, sorting, and presence/absence of petroleum hydrocarbon odor were used to assist in the correlation of the predominant underlying strata. In particular, information generated during the advancement of boring HPFF-60 (installed to construct well HPFF-60) was used as a reference boring to correlate geologic units. The boring was continuously sampled with a combination of split spoon sampler and core barrel, to a depth of 150 feet BLS, in October of 2001. Recovered samples were placed in clear acetate liners and subsequently laid out to scale to allow for a thorough geologic description of the stratigraphy.

Numerous preliminary cross sections were generated to ensure proper stratigraphic sequencing. Emphasis was placed on the estimated hydraulic conductivity of the underlying materials. Materials with assumed relatively

“high” hydraulic conductivity (sand and sand mixtures) were correlated with similar materials, and materials with assumed low hydraulic conductivity (clay, silt, peat, etc) were correlated with similar materials. The underlying sediments are described below in two sections. The first section consists of sediments situated above or incising indurated material and the second sections consists of indurated material and those materials situated below the indurated materials. The two sections are referred to as shallow conditions and deep conditions respectively.

2.2.1 Shallow Conditions *(Figures 8 through 16)*

The shallow section of the underlying material is composed primarily of undifferentiated surficial sediments and severely weathered limestone (sand) assumed to be the Belgrade Formation. The undifferentiated surficial material consists of inter-fingering lenses of sands, clayey/silty sands, silts, and clays. Due to the inter-fingering of the units, the exact depositional sequence has not been determined. As presented on the cross sections, large amounts of permeable material (B and C, and to a lesser extent D and H) appear to be prevalent across the subject site. Units B and C are composed principally of gray to tan orange, very fine to medium grained sand.

The sand is typically moderately to moderately well sorted (SW to SP) with basal units roughly five feet thick, of silty/clayey sand (SM to SC). The two units vary in thickness from roughly 10 to 40 feet combined. Unit B was interpreted to be spatially consistent across the project site. Unit C is prevalent across the site but incised or interfingering by younger units. The units display overall characteristics that would indicate moderate to high hydraulic conductivity. Unit D and Unit H are similar in lithology. Both units are composed of sand and silty/clayey sand of varying degrees. Unit D is varying shades of gray to grayish tan fine to medium grained sand (SW and SP) and clayey/silty sand (SC and SM). Unit H is varying shades and combinations of brown and tan very fine to medium grained sand and clayey/silty sand. The units were moderately poor to moderately well sorted overall, indicating a potentially moderate to moderately poor hydraulic conductivity. However, a number of lenses and layers of permeable sand (SP) were identified in each of the units.

Unit E, which is comprised of silt, clay, and sand silt/clay mixtures, was identified sporadically across the site. USCS field classifications for the sediments include CH, MH, CL, ML, and to a lesser extent SC and SM. The unit is not laterally continuous and often interfingers with Unit H, indicating that the units are of the same relative age.

The unit displayed a wide range of coloring from dark green gray to mottled red, orange, and brown. The material is typically soft to very soft and contains a large amount of fines. Estimated plasticity for the unit ranged from slightly to highly plastic. The clay/silt units are shaded on the cross sections. The material is possibly the remnants of the Castle Hayne confining unit considered by many to be the Belgrade Formation. However, due to the difficulties of positively identifying the non-indurated sediments at the site, the material will be considered as part of the undifferentiated surficial material.

The highly organic clay/silt materials and peat (Unit G) and the clay unit (F) appear to be remnants of sedimentation typically associated with paleochannels and their associated environment of deposition. Evidence of paleochannels and the associated structures and sediments have additionally been identified in previous investigations by Cardinell et al (1993) and Geophex (1994). The organic material was identified across the subject site in numerous borings at an elevation of roughly zero feet MSL, and ranged in thickness from a few inches to greater than four feet. A number of split-spoon samples obtained from within the peat unit(s) contained material that was dry, although they were collected from well within the zone of saturation. Neither unit G or F was laterally continuous across the site.

Unit F (clay) is roughly 40 feet thick in boring HPFF-13 and extends from an elevation of -20 feet to approximately -60 feet MSL. Indurated materials were typically identified in other borings at an approximate elevation of -20 feet MSL. However, in boring HPFF-13, indurated material was not encountered until approximately 85 feet BLS (roughly -60 feet MSL) indicating that the indurated material has possibly been eroded, i.e. paleochannel or "slumped" due to erosion of the underlying material.

2.2.2 Deep Conditions *(Figures 8 through 16)*

Indurated material (limestone) was encountered spatially consistent across the subject site. However, the degree of induration and depth at which the material was encountered is highly variable. The upper contact with the limestone was encountered at an average elevation of roughly -10 to -20 feet MSL but in some cases (HPFF-13), was not encountered until an elevation of approximately -60 feet MSL. Additionally, indurated limestone was not encountered in boring 1115-22 that extended to a depth of 80 feet BLS (elevation of roughly -54.5 feet MSL). The top portion of the limestone was consistently weathered, and often exhibited the characteristics of soil rather than

limestone due to the extreme degree of weathering. The indurated portion of the limestone averaged roughly five to ten feet thick. Cores obtained from boring HPFF-60 revealed the limestone to be fossiliferous moldic limestone. Additionally, penetration rates in conjunction with core recovery indicate that the indurated intervals contained solution cavities or other such “voids” or “soft zones”. During the advancement of numerous other borings, additional potential “voids” were noted within the weathered portions, and in between the indurated intervals, of the limestone. Fine grained sand and clayey/silty sand with shell fragments and inter-bedded cemented lenses were consistently encountered below the upper limestone strata to the termination of the borings. This material is believed to be the upper portions of the Castle Hayne Formation.

3.0 HYDROGEOLOGY

3.1 REGIONAL HYDROGEOLOGY

As detailed by Cardinell, et al (1995), Camp Lejeune is located in the Coastal Plain physiographic province that contains numerous varieties of coastal environments of deposition. The majority of the underlying sediments were deposited in marine or near-shore environments. The thickness of the sedimentary beds in the area of Camp Lejeune is roughly 1500 feet. Aquifers underlying Camp Lejeune include the surficial, Castle Hayne, Beaufort, and Peedee. These aquifers are typically separated by confining units of less permeable materials consisting of beds or groups of clay and silt containing varying amounts of sand (Winner and Coble, 1989). Recharge to Coastal Plain aquifers occurs predominantly through direct surface recharge by rainfall in interstream areas (Cardinell, et al, 1995).

The surficial aquifer consists of sand, clay, sandy clay, and silts. The aquifer ranges in thickness from zero to 73 feet (Cardinell, et al, 1995). The average hydraulic conductivity of the surficial aquifer was estimated by Cardinell, et al (1995) to be about 50 feet per day (ft/day).

The Castle Hayne aquifer includes the Eocene Castle Hayne Formation and Oligocene River Bend Formation. The Castle Hayne aquifer consists of beds of sand, limestone, and cemented/calcareous sand with discontinuous lenses of clay, silt and clay/silt sand mixtures. According to Cardinell, et al (1995), the upper portions of the Castle Hayne aquifer are composed of calcareous sand with interbedded clay and silt beds. The top of the Castle Hayne aquifer was interpreted by Cardinell, et al (1995) to range from 10 to 68 feet above sea level on Camp Lejeune and range in thickness from 156 to 400 feet.

Numerous studies have been conducted to estimate the hydraulic properties

of the Castle Hayne aquifer. A summary of the results as presented by Cardinell, et al (1995) include:

Transmissivity (T)	820 – 24500 (ft ² /day)
Hydraulic conductivity (K)	14 – 91 ft/day (65 ft/day average)
Storage coefficients (S)	0.0002 – 0.001

The Castle Hayne is the primary source of potable water on Camp Lejeune.

Representative values of hydraulic conductivities for a number of materials, as presented by Todd (1980), and estimated transmissivity values are as follows;

MATERIAL	HYDRAULIC CONDUCTIVITY (ft/day)	TYPE OF MEASUREMENT	ESTIMATED TRANSMISSIVITY (ft ² /day)
Gravel, coarse	492	Repacked	24600
Gravel, medium	886	Repacked	44300
Gravel, fine	1476	Repacked	73800
Sand, coarse	147.6	Repacked	7380
Sand, medium	39.4	Repacked	1970
Sand, fine	8.2	Repacked	410
Silt	0.26	Vertical	13
Clay	0.0007	Vertical	0.035
Sandstone, fine-grained	0.66	Vertical	33
Sandstone, med.-grained	10.2	Vertical	510
Limestone	3.1	Vertical	155
Peat	18.7	Vertical	935

Transmissivity values (T) were calculated using $T = Kb$, where K is the estimated hydraulic conductivity and b is the estimated aquifer thickness. An estimated aquifer thickness of 50 feet was used for comparative analysis. It should be noted that all hydraulic conductivity values were converted to ft/day from meters per day (m/day).

The Castle Hayne confining unit, where present, is composed primarily of beds of clay, silt, sandy clay/silt, and clayey/silty sand. According to Winner and Coble (1989), the beds belong chiefly to the Belgrade, Pungo River, and Yorktown Formations. The unit has an overall average thickness of roughly 14 feet. Cardinell, et al (1995) estimated the average thickness of the unit at Camp Lejeune to be approximately nine feet where present with an approximate vertical hydraulic gradient of 0.0014 to 0.41 ft/day. Winner and

Coble (1989) stated that throughout much of the unit, enough sand was contained to allow for significant leakage between the Castle Hayne aquifer and the overlying aquifers. Additionally, Cardinell, et al (1995) concluded through seismic profiling, that the unit was incised by paleochannels as well as the New River and its major tributaries.

3.2 SITE HYDROGEOLOGY

3.2.1 Shallow Conditions

(Table 1 and Figure 3)

Field measurements recorded during the August 16, 2001 gauging event were utilized to prepare a water table contour map (Figure 3).

In locations in which measurable amounts of free product were encountered, an adjusted water table elevation was calculated to account for the product weight. Gauging data from the August 16, 2001 gauging event is presented on Table 1. As depicted on Figure 3, strict interpolation of the water table elevation data in the Type II monitoring wells reveals a general flow trend to the west with variable localized flow directions. This phenomenon may be attributed to the numerous remediation efforts currently occurring at the site.

Aquifer testing conducted by CATLIN in the Leaking Underground Storage Tank Comprehensive Site Assessment for Tank 1115 (1998) included standard recovery slug testing and an 8-hour pumping test. Results from slug testing performed on wells 1115-3, 1115-9, and 1115-11, revealed hydraulic conductivity values of 23 ft/day, 17 ft/day, and 17 ft/day respectively. The pumping test was performed on monitoring well 1115-16.

Well 1115-16 is 6 inches in diameter and screened from roughly 5 to 40 feet BLS. Evaluation of data generated during the pumping test indicated that the most significant drawdown values in the surrounding wells were recorded from the Type III wells (50 feet deep screened from 45-50 feet BLS), not the shallow Type II wells. Hydrogeological interpretations and calculations of the pumping test were based on the Type III well and are included in Section 3.2.2.

3.2.2 Deep Conditions

(Figures 4 through 6)

In order to portray the subsurface hydrogeological conditions, groundwater data was interpolated for the deeper portions of the site in three zones; Type III wells 50 feet deep (Figure 4), Type III wells 70 to 90 feet deep (Figure 5), and Type III wells greater than 90 feet

deep (Figure 6). The generalized flow direction of all of the deeper aquifers appears to be in a westerly direction, similar to the shallow wells. This phenomenon further suggests that the “aquifers” may be hydraulically linked.

Hydraulic conductivity interpreted from the pumping test data generated during the Building 1115 CSA (1998) was calculated at 54.2 ft/day, Transmissivity was calculated at 2,095 ft²/day, and the Storage Coefficient was calculated to be .00592. Additionally, the vertical gradient between well pairs 1115-12/1115-15, 1115-10/1115-13, and 1115-11/1115-14 were determined during the 1998 investigation to be +0.10, +0.06, and +0.06 respectively, indicating the potential for downward groundwater migration. Although no calculations have been conducted utilizing the August 16, 2001 data, consistently higher groundwater elevations of the Type II wells, as compared to the paired Type III wells, indicate a similar trend of potential downward groundwater migration.

4.0 GROUNDWATER/CONTAMINANT MIGRATION

4.1 HORIZONTAL MIGRATION – SURFICIAL/SHALLOW ZONE

As previously discussed, strict interpolation of the groundwater elevation data generated during the August 16, 2001 gauging event revealed a westerly groundwater flow direction. Due to the irregular nature of the contours, a direct hydraulic gradient was not calculated. An estimated gradient was calculated between monitoring wells 1115-2 and HPFF-22 and determined to be approximately 0.4 percent. Additional hydraulic gradient calculations conducted during previous investigations revealed similar results with an approximate average gradient of 1 percent.

The relatively continuous sand layers present in the shallow subsurface across the site appear to be preferential pathways for groundwater/contaminant migration. Numerous interbedded clays, silts, and sand clay/silt mixtures appear to affect the localized horizontal groundwater flow velocity. The silts and clays additionally may “trap” the groundwater/contamination and greatly inhibit remedial efforts.

The major process involved in the horizontal movement of the surficial groundwater appears to be discharge into the New River, which is located roughly 7,000 feet due west of the subject site. Discharge to the numerous smaller creeks and streams located in the surrounding vicinity additionally assist in the horizontal movement of groundwater within the shallow zone.

Remedial activities including pumping, sparging, and AFVR appear to have the greatest influence on localized horizontal groundwater movement.

4.2 **DEEP MIGRATION** (Figures 8 through 20)

4.2.1 **Pathways**

Numerous migration pathways capable of facilitating the vertical movement of groundwater, and subsequently dissolved and free phase contamination, have been identified during this investigation and numerous other investigations. A product “fingerprint” analysis was conducted by Amerada Hess on product obtained from well 78GW-32-03 (screened from 140-150 feet BLS) and a shallow Type II well HPFF-15. Results of the test indicated that the product collected from the two wells was identical, indicating a direct hydrogeologic link between the two wells.

As previously discussed, the Castle Hayne confining unit does not appear to be spatially consistent in the immediate vicinity of HPFF. The confining unit, where present, was found to be highly incised by possible paleochannels and other such geologic features that would enable the vertical movement of fluids. Additionally, much of the material that is possibly the remnants of the confining unit exhibits a high sand content, which would allow the migration of groundwater through the unit. The numerous sand units identified across the site often extend from ground surface, through areas of impacted groundwater to the top of the underlying limestone (Castle Hayne aquifer). These units (Units B, C, D, and H on Figures 9 through 16) contain a relatively large amount of sand and would presumably exhibit hydraulic conductivity/permeability values that would enable the migration of fluids through the units.

Geological conditions similar to the HPFF site have apparently been encountered at the Savannah River Site (SRS) located in west central South Carolina. According to R.K. Aadland and others (2000), evidence of “soft zones” has been noted throughout middle Eocene marine carbonates and clastics of the Santee Formation, Clinchfield Formation, and the Dry Branch Formation in the central portion of the SRS. These formations are the South Carolina geologic equivalents of the Castle Hayne and other formations encountered in the shallow (<100 feet BLS) subsurface at HPFF. The soft zones, as described by Aadland and others (2000), were historically identified at the SRS by rod drops, lost circulation (during conventional mud rotary drilling), and low N-values (5 and less) while drilling in the carbonate rich formations. Numerous hypotheses exist to explain the process involved in creating these soft zones, including carbonate dissolution resulting in solution cavities. Additionally, Aadland and others in *Carbonate Sediments in the General Separations Area, Savannah*

River Site, South Carolina (1990) further describe the potential of historical carbonate removal within the Eocene formations. The removal of the carbonate matrix lead to thinning of the underlying beds and subsequently to slumping of the overlying strata. Similar geologic conditions appear to exist at HPFF.

Preliminary geophysical data generated by Geophex (2002) indicates the presence of soft sediment “faulting” or slumping beneath the HPFF site. These “faults”, or “slip planes” may act as preferential pathways for fluid migration. These geologic features may be the result of carbonate dissolution/removal similar to that as described at the SRS. No direct lithologic evidence, such as offset bedding planes has been correlated in the shallow subsurface at the HPFF site. However, a more in depth analysis of the lithology may be necessary to verify such conclusions.

The soil/peat interface may also act as a preferential pathway for fluid migration. The occurrence of dry peat/organic sediments indicates that the material has potentially gone through a stage of de-watering and subsequent compaction. Numerous sources indicate that peat may undergo a volume reduction of as much as 85% when de-watered.

Large scale groundwater pumping commenced near the site in roughly 1941. Due to the complex geology of the site, isolated areas of the peat may have been de-watered, which would potentially lead to a volume reduction of the peat. This reduction in volume may have facilitated the subsequent slumping of the overlying sediments. The boundary, or “slip planes”, of these slumped areas would theoretically exhibit a lower density than the surrounding material, and would possibly create a preferential pathway for fluid migration along these planes. The compaction of the peat, in conjunction with the capillary action of the surrounding material would possibly hinder the re-hydration of the peat lenses. Additionally if the peat unit was “dry” during the initial process of contaminant impact, the petroleum may have saturated the outer portion of the peat. This petroleum-saturated peat would be hydrophobic and resistant to saturation during subsequent times of submersion. Split spoon samples collected from directly above and directly below the peat units were often noted to exhibit high petroleum hydrocarbon odors. However, split spoon samples collected from within the peat unit (within the same borings) typically did not exhibit petroleum hydrocarbon odor. The peat and organic silts/clays are depicted by the darker shaded strata (Unit G) of Figures 9 through 16. The cross section plan view is included on Figure 8. The estimated areal extent of the peat unit at

different elevation intervals are presented on Figures 21 through 25.

4.2.2 Processes

(Figures 3 through 6 and 17 through 20)

A number of processes appear to influence the vertical migration of groundwater/contamination at the HPFF site. As detailed by Triangle (1999), two naturally occurring processes account for a portion of vertical, and subsequent horizontal, groundwater movement through the deeper portions of the underlying aquifers.

The first occurs as rainwater inflows into the Castle Hayne aquifer along its outcrop in the west-northwest portion of the Base. If the Castle Hayne is truly a confined aquifer, then recharge into the aquifer would only occur at the outcrop belt. However, as demonstrated through this and numerous additional reports, the confining unit is often non-existent, or where present, leaky. The higher groundwater elevations, or hydrostatic head, commonly observed in the shallow Type II wells as compared to the paired deeper Type III wells, indicate a trend for downward flow into the underlying aquifer.

The second occurs due to the absence of a confining unit below the New River and a substantial drop in the recorded water table elevations from upland areas to the river. The rapid drop in head creates the potential for groundwater flow towards the New River. Water table and hydraulic head contours, as presented on Figures 3 through 6 appear to substantiate this phenomenon.

The previously discussed processes may account for dissolved contamination identified in the deeper portions of the subject site. However, the presence of free product identified in well 78GW-32-03 indicates that one or more additional "drastic" processes affecting groundwater migration are/have occurred at the HPFF site. According to Triangle (1999), more than 120 public water-supply wells have been installed at the Base during the last 50 years. Triangle (1999) further states that the average supply well is 183 feet deep, 10 inches in diameter, with a screen interval from 97 to 175 feet BLS. The values of each of these parameters are highly variable with depths ranging from 52 to 330 feet BLS; well diameters ranging from eight to 18 inches; length of screen or water bearing interval (open hole) ranging from 10 to 145 feet; the top of the intake as shallow as 28 feet and as deep as 188 feet; and the bottom of the intake ranging from 62 to 300 feet.

Production wells identified in the immediate vicinity of HPFF are as

follows: HP-601, HP-602, HP-603, HP-608, HP-630, HP-634, HP-635, HP-637, and HP-642. Well locations are exhibited on Figure 17 and generalized as-built details are included in the Appendix. The production wells essentially encircle the HPFF site and theoretically would “de-water” the site during times of simultaneous well operation. Generalized cross-sections were prepared (Figures 18-20) comparing the screened/cased intervals of the production wells to zones of potential “high” hydraulic conductivity/permeability identified in boring HPFF-60. As depicted in Figures 18 through 20, these zones (shaded areas) of potentially increased permeability/hydraulic conductivity are roughly oriented at similar elevations as the screened intervals of the surrounding production wells.

Evidence of deep contamination was observed in boring HPFF-60 primarily through the presence/absence of petroleum hydrocarbon odor in the split spoon samples obtained during the advancement of the boring. The zones below roughly 50 feet, exhibiting petroleum hydrocarbon odor were typically those zones that exhibited comparatively lower hydraulic conductivity/permeability characteristics than the over/underlying zones. This may possibly indicate that the zones of increased hydraulic conductivity are actively transferring contaminants horizontally from beneath the site. The presence of petroleum hydrocarbon within the zones of lesser hydraulic conductivity/permeability indicates that these zones have been impacted by petroleum hydrocarbons during episodes of vertical contaminant migration.

The simultaneous operation of the production wells surrounding the area would potentially create radii of influence that, when combined, would create a substantial drop in hydrostatic head beneath the HPFF site. Vertical zones which are horizontally limited, such as the “slip planes” along slumping features would tend to be affected to a greater extent than the surficial aquifer as a whole. This may have resulted in an even greater drop in hydrostatic head, thus facilitating the downward migration of free phase product.

As previously stated the interpreted primary recharge source for the Castle Hayne aquifer near HPFF is via surficial groundwater. Any reduction below the steady state conditions of the underlying aquifer may result in the downward migration of groundwater, and the associated dissolved and free phase contamination, during the recharge processes. Additionally, during periods of groundwater “draw-down”, any free product or impacted groundwater that migrated below the peat, or other aquitards such as the clay units, or

into the voids or soft zones would be essentially “trapped” below the features. During subsequent periods of de-watering and recovery, the amount of free product below the less permeable units may thicken as the fluids accumulate. Additionally, any product that was drawn into the deep subsurface during periods of de-watering would potentially migrate upward during periods of hydrostatic change, i.e. excessive rainfall or drought conditions. This may account for the sporadic appearance of free product in well 78GW-32-03.

5.0 SUMMARY AND CONCLUSION

The evidence presented in this and other reports suggests that the surficial and Castle Hayne aquifer, underlying the HPFF, are hydrogeologically connected. Petroleum hydrocarbon impacted groundwater, in addition to free phase product, has been identified in the shallow and deep subsurface of the site. The dominant recharge into the Castle Hayne aquifer at Camp Lejeune is the infiltration of rainwater through surficial sediments into the underlying aquifers. Geologic strata comprised predominantly of sand have been identified in the subsurface of HPFF that extend from existing land surface to, and in some cases within, the Castle Hayne aquifer. Peat and organic rich silt/clays have been identified spatially sporadic across the project site. The organic units are at an elevation of roughly zero feet MSL and appear to be the associated sediments of paleochannels that are possibly located within, or in the immediate vicinity of, the project site. Compression or mass reduction of the organic units and the subsequent slumping of the overlying material appear to have the potential to contribute to the vertical migration of groundwater while hindering the hydrostatic rebound of groundwater following times of drawdown. Additionally, the weathering and ensuing erosion of the calcium rich matrix of the underlying limestone and calcium rich sediments may have resulted in the reduction of structural support within the units leading to the slumping of the overlying material. The boundaries between the slumped materials and the surrounding materials may act as preferential pathways for fluid migration.

It appears that the natural hydrologic cycle, in conjunction to the pumping of public water-supply wells surrounding the site, have acted as the process to facilitate the downward migration into, and the horizontal migration through, the Castle Hayne aquifer. As the surrounding production wells were pumped the hydraulic head within the Castle Hayne aquifer beneath the site may have been substantially lowered below that of the surficial aquifer, creating an environment favorable for downward migration of groundwater and contamination.

These pathways and processes may account for the relatively high amount of impacted groundwater, and free product identified beneath the units of assumed lower hydraulic permeability/permeability.

A detailed study of the hydraulic interaction of the surrounding production wells with

each other, and the underlying hydrogeologic conditions, may help to substantiate this hypothesis. A comprehensive report incorporating all of the existing data along with the geologic/geophysical data currently being generated would be beneficial. Joint efforts among participating parties may alleviate redundant or conflicting results and interpretations.

6.0 REFERENCES

- Aadland, R.D., W.H. Parker, R.J. Cumbest, 2000, Significance of Soft Zone Sediments at the Savannah River Site, *in* Wyatt, Douglass E. and Mary K. Harris, eds., Savannah River Site Environmental Remediation Systems In Unconsolidated Upper Coastal Plain Sediments Stratigraphic and Structural Considerations, Carolina Geological Society 2000 Field Trip Guidebook: p. F-1 – F-15.
- Aadland, R.D., P.A. Thayer, W.H. Parker, J.M Rine, D.W. Engelhardt, R.J. Cumbest, 2000, Carbonate Sediments in the General Separations Area, Savannah River Site, South Carolina, *in* Wyatt, Douglass E. and Mary K. Harris, eds., Savannah River Site Environmental Remediation Systems In Unconsolidated Upper Coastal Plain Sediments Stratigraphic and Structural Considerations, Carolina Geological Society 2000 Field Trip Guidebook: p. G-1 – G-30.
- Cardinell, Alex P., Berg, Steven A., and Lloyd, Orville B., Jr., 1993, Hydrogeologic Framework of U.S. Marine Corps Base at Camp Lejeune, North Carolina: United States Geologic Survey Water-Resources Investigations Report 93-4049, 45 p.
- Geophex, Ltd., 2001, Wellhead Management Program Engineering Study 91-36, Prepared for Officer in Charge of Construction Marine Corps Base Camp Lejeune, North Carolina.
- Geophex, Ltd., 2002, Geophysical Investigation at the Former Fuel Farm Facility And Surrounding Areas, Hadnot Point, MCB Camp Lejeune NC. Prepared for IT Corporation, Alpharetta, GA. Volumes 4 and 5.
- Harris, W. Burleigh, and Zullo, Victor A., 1991, Eocene and Oligocene Stratigraphy of the Outer Coastal Plain *in* Horton J.W., Jr., and Zullo, V.A., eds., The Geology of the Carolinas; Carolina Geological Society Fiftieth Anniversary Volume, pp. 251-262.
- Horton, J. Wright Jr., and Zullo, Victor A., 1991, An Introduction to the Geology of the Carolinas *in* Horton J.W., Jr., and Zullo, V.A., eds., The Geology of the Carolinas; Carolina Geological Society Fiftieth Anniversary Volume, pp. 58 - 59.
- Sohl, Norman F., and Owens, James P., 1991, Cretaceous Stratigraphy of the Carolina Coastal Plain *in* Horton J.W., Jr., and Zullo, V.A., eds., The Geology of the Carolinas; Carolina Geological Society Fiftieth Anniversary Volume, pp. 58 - 59.

- Soller, David R., and Mills, Hugh H., 1991, Surficial Geology and Geomorphology *in* Horton J.W., Jr., and Zullo, V.A., eds., The Geology of the Carolinas; Carolina Geological Society Fiftieth Anniversary Volume, pp. 58 - 59.
- Todd, D.K., 1980, Groundwater Hydrology, John Wiley & Sons, New York, 535 pp.
- Triangle Environmental, Inc., March 1999, Wellhead Protection Plan Update, Camp Lejeune, Onslow County, North Carolina, Prepared for Naval Facilities Engineering Command, Camp Lejeune, North Carolina.
- Ward, Lauck W., Richard H. Bailey, and Joseph G. Carter, 191, Pliocene and Early Pleistocene Stratigraphy, Depositional History, and Molluscan Paleobiogeography of the Coastal Plain *in* Horton J.W., Jr., and Zullo, V.A., eds., The Geology of the Carolinas; Carolina Geological Society Fiftieth Anniversary Volume, pp. 58 - 59.
- Winner, M.D., Jr., and Coble, R.W., 1989, Hydrogeologic Framework of the North Carolina Coastal Plain Aquifer System: United States Geological Survey Open-File Report 87-690, 155 p.

TABLES

TABLE 1
August 16, 2001 Gauging Event
WELL CONSTRUCTION AND WATER LEVEL GAUGING INFORMATION
Hadnot Point Fuel Farm
Camp Lejeune, NC

WELL IDENTIFICATION	DATE INSTALLED	DATE WATER LEVEL MEASURED	WELL CASING DEPTH (ft. BLS)	SCREEN INTERVAL (ft. BLS)	BOTTOM OF WELL (ft. BLS)	TOP OF CASING ELEV.* (ft.)	DEPTH TO WATER From Top of Casing (ft.)	FREE PRODUCT THICKNESS ** (ft.)	GROUND WATER ELEV. *(ft.)	OUTER CASING DEPTH (ft. BLS) Type III	THIRD CASING DEPTH (ft. BLS) Triple Cased Type III
1115-01	11/29/93	08/16/02	5.0	5.0 - 15.0	15.0	26.11	8.08	NMT	18.03	-	-
1115-02	11/29/93	08/16/02	4.0	4.0 - 14.0	14.0	25.97	8.20	NMT	17.77	-	-
1115-03	12/14/93	08/16/02	5.0	5.0 - 20.0	20.0	26.17	6.85	NMT	19.32	-	-
1115-04	11/30/93	08/16/02	5.0	5.0 - 15.0	15.0	27.31	7.93	NMT	19.38	-	-
1115-05	11/30/93	08/16/02	5.0	5.0 - 15.0	15.0	26.37	4.69	NMT	21.68	-	-
1115-06	12/16/93	08/16/02	5.0	5.0 - 20.0	20.0	28.20	8.74	NMT	19.46	-	-
1115-07	12/14/93	08/16/02	5.0	5.0 - 20.0	20.0	26.28	7.25	NMT	19.03	-	-
1115-08	12/15/93	08/16/02	5.0	5.0 - 20.0	20.0	27.89	8.96	NMT	18.93	-	-
1115-09	12/02/93	08/16/02	5.0	5.0 - 20.0	20.0	28.48	10.44 ^c	NMT		-	-
1115-10	11/29/93	08/16/02	4.0	4.0 - 14.0	14.0	25.92	5.27	NMT	20.65	-	-
1115-11	12/14/93	08/16/02	5.0	5.0 - 20.0	20.0	27.89	7.04	NMT	20.85	-	-
1115-12	11/30/93	08/16/02	5.0	5.0 - 15.0	15.0	26.17	5.13 ^c	NMT		-	-
1115-13	12/09/93	08/16/02	46.0	46.0 - 51.0	51.0	25.90	8.96	NMT	16.94	40.0	-
1115-14	12/06/93	08/16/02	46.0	46.0 - 51.0	51.0	27.96	10.88	NMT	17.08	40.0	-
1115-15	12/02/93	08/16/02	46.0	46.0 - 51.0	51.0	25.93	8.59	NMT	17.34	40.0	-
1115-16	12/13/93	08/16/02	3.5	3.5 - 40.0	40.0	26.85	3.87	NMT	22.98	-	-
1115-17	06/01/95	08/16/02	45.0	45.0 - 50.0	50.0	26.19	9.82	NMT	16.37	40.0	-
1115-18	06/08/95	08/16/02	45.0	45.0 - 50.0	50.0	27.61	NM ^c	NM		40.0	-
1115-19	06/09/95	08/16/02	45.0	45.0 - 50.0	50.0	26.11	7.72	NMT	18.39	40.0	-
1115-20	06/12/95	08/16/02	45.0	45.0 - 50.0	50.0	26.24	8.33	NMT	17.91	40.0	-

* Reference Point for Elevation Measurements (Brass Monument E-4), Elevation: (26.475ft. MSL)

** If free product is present in a well, ground water elevation was calculated by: [Top of Casing Elevation - Depth to Water] + [Free Product Thickness x 0.77 (for gasoline)]

ft. BLS = feet below land surface CNL = Could not locate ^c = Well bubbling, not used for contouring ^{ccc} = Well bubbling and top of casing damaged, not used for contouring
NMT = No Measurable Thickness DEST. = Well Destroyed ^{cc} = Top of casing damaged, not used for contouring

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1115-21	06/07/95	08/16/02	45.0	45.0 - 50.0	50.0	25.89	9.08	NMT	16.81	40.0	-
1115-22	07/11/95	08/16/02	75.0	75.0 - 80.0	80.0	27.48	11.59	NMT	15.89	70.0	-
1115-23	07/11/95	08/16/02	75.0	75.0 - 80.0	80.0	27.90	10.78	NMT	17.12	70.0	-
1115-24	06/29/95	08/16/02	75.0	75.0 - 80.0	80.0	26.18	10.38	NMT	15.80	70.0	-
1115-25	07/05/95	08/16/02	75.0	75.0 - 80.0	80.0	26.16	9.60	NMT	16.56	70.0	-
78GW-12	11/18/86	08/16/02	5.0	5.0 - 25.0	25.0	25.11	11.85	NMT	13.26	-	-
78GW-13	11/17/86	08/16/02	5.0	5.0 - 25.0	25.0	25.79	11.77	NMT	14.02	-	-
78GW-14	11/05/86	08/16/02	5.0	5.0 - 25.0	25.0	24.51	7.85	NMT	16.66	-	-
78GW-15	11/06/86	08/16/02	5.0	5.0 - 15.0	25.0	26.93	8.89	NMT	18.04	-	-
78GW-19	11/06/86	08/16/02	5.0	5.0 - 25.0	25.0	29.18	8.54'	NMT		-	-
78GW-21	11/19/86	08/16/02	5.0	5.0 - 25.0	25.0	33.79	9.98	NMT	23.81	-	-
78GW-31 -02	12/17/90	08/16/02	65.0	65.0 - 75.0	78.0	26.87	10.95	NMT	15.92	-	-
78GW-31 -03	12/17/90	08/16/02	140.0	140.0 - 150.0	158.0	25.98	10.31	NMT	15.67	-	-
78GW-32 -02	12/20/90	08/16/02	64.0	64.0 - 74.0	77.0	26.87	8.35	NMT	18.52	-	-
78GW-32 -03	12/20/90	08/16/02	140.0	140.0 - 150.0	153.0	27.11	9.37	NMT	17.74	-	-
GT-01	06/15/93	08/16/02	5.0	5.0 - 20.0	20.0	26.75	CNL	NM		-	-
GT-02	06/15/93	08/16/02	5.0	5.0 - 20.0	20.0	25.59	5.47'''	NMT		-	-
GT-03	06/15/93	08/16/02	5.0	5.0 - 20.0	20.0	26.58	7.99'	NMT		-	-
GT-04	06/15/93	08/16/02	5.0	5.0 - 20.0	20.0	26.50	4.23''	NMT		-	-
GT-05	06/15/93	08/16/02	5.0	5.0 - 20.0	20.0	26.51	5.81'	NMT		-	-

* Reference Point for Elevation Measurements (Brass Monument E-4), Elevation: (26.475ft. MSL)

** If free product is present in a well, ground water elevation was calculated by:[Top of Casing Elevation - Depth to Water] + [Free Product Thickness x 0.77 (for gasoline)]

ft. BLS =feet below land surface CNL = Couln not locate ' = Well bubbling, not used for contouring ''' = Well bubbling and top of casing damaged, not used for contouring
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GT-06	06/15/93	08/16/02	5.0	5.0 - 20.0	20.0	26.59	5.09	NMT	21.50	-	-
GT-07	06/15/93	08/16/02	4.0	4.0 - 19.0	19.0	26.24	4.95	NMT	21.29	-	-
GT-08	06/16/93	08/16/02	4.5	4.5 - 19.5	19.5	26.97	5.86	NMT	21.11	-	-
GT-09	06/16/93	08/16/02	5.0	5.0 - 20.0	20.0	26.48	5.39**	NMT		-	-
HPFF-01	11/21/95	08/16/02	5.0	5.0 - 15.0	15.0	28.46	4.32	NMT	24.14	-	-
HPFF-02	11/21/95	08/16/02	5.0	5.0 - 15.0	15.0	29.47	6.37	NMT	23.10	-	-
HPFF-03	11/21/95	08/16/02	6.0	6.0 - 16.0	16.0	31.21	9.58	NMT	21.63	-	-
HPFF-04	11/21/95	08/16/02	5.0	5.0 - 15.0	15.0	31.02	9.59	NMT	21.43	-	-
HPFF-05	11/21/95	08/16/02	5.0	5.0 - 15.0	15.0	27.33	6.32	NMT	21.01	-	-
HPFF-06	11/08/95	08/16/02	45.0	45.0 - 50.0	50.0	30.93	10.79	NMT	20.14	40.0	-
HPFF-07	11/10/95	08/16/02	44.5	44.5 - 49.5	49.5	28.28	9.40	NMT	18.88	40.0	-
HPFF-08	11/17/95	08/16/02	44.5	44.5 - 49.5	49.5	34.90	15.39	NMT	19.51	40.0	-
HPFF-09	11/16/95	08/16/02	45.0	45.0 - 50.0	50.0	27.13	8.47	NMT	18.66	40.0	-
HPFF-10	07/17/97	08/16/02	75.0	75.0 - 80.0	80.0	32.50	14.03	NMT	18.47	70.0	40.0
HPFF-11	07/28/97	08/16/02	105.0	105.0 - 110.0	110.0	32.28	13.65	NMT	18.63	100.0	40.0
HPFF-12	07/16/97	08/16/02	105.0	105.0 - 110.0	110.0	27.12	9.27	NMT	17.85	100.0	40.0
HPFF-13	07/10/97	08/16/02	105.0	105.0 - 110.0	110.0	26.32	10.46	NMT	15.86	100.0	40.0
HPFF-14	06/25/97	08/16/02	5.0	5.0 - 15.0	15.0	27.02	5.45	NMT	21.57	-	-
HPFF-15	06/25/97	08/16/02	5.0	5.0 - 15.0	15.0	27.69	6.42	0.48	21.64	-	-
HPFF-16	06/25/97	08/16/02	5.0	5.0 - 15.0	15.0	27.93	7.05	NMT	20.88	-	-

* Reference Point for Elevation Measurements (Brass Monument E-4), Elevation: (26.475ft. MSL)

** If free product is present in a well, ground water elevation was calculated by: [Top of Casing Elevation - Depth to Water] + [Free Product Thickness x 0.77 (for gasoline)]

ft. BLS = feet below land surface CNL = Couldn't locate ' = Well bubbling, not used for contouring "" = Well bubbling and top of casing damaged, not used for contouring

NMT = No Measurable Thickness DEST. = Well Destroyed "" = Top of casing damaged, not used for contouring

TABLE 1
August 16, 2001 Gauging Event
WELL CONSTRUCTION AND WATER LEVEL GAUGING INFORMATION
Hadnot Point Fuel Farm
Camp Lejeune, NC

WELL IDENTIFICATION	DATE INSTALLED	DATE WATER LEVEL MEASURED	WELL CASING DEPTH (ft. BLS)	SCREEN INTERVAL (ft. BLS)	BOTTOM OF WELL (ft. BLS)	TOP OF CASING ELEV.* (ft.)	DEPTH TO WATER From Top of Casing (ft.)	FREE PRODUCT THICKNESS ** (ft.)	GROUND WATER ELEV. *(ft.)	OUTER CASING DEPTH (ft. BLS) Type III	THIRD CASING DEPTH (ft. BLS) Triple Cased Type III
HPFF-17	06/26/97	08/16/02	5.0	5.0 - 15.0	15.0	27.61	7.16	NMT	20.45	-	-
HPFF-18	07/08/97	08/16/02	5.0	5.0 - 15.0	15.0	26.06	DEST.	NM		-	-
HPFF-19	07/08/97	08/16/02	5.0	5.0 - 15.0	15.0	26.43	5.07	NMT	21.36	-	-
HPFF-20	07/08/97	08/16/02	5.0	5.0 - 15.0	15.0	28.74	7.32	NMT	21.42	-	-
HPFF-21	01/17/01	08/16/02	4.5	4.5 - 14.5	14.5	27.27	4.32	NMT	22.95	-	-
HPFF-22	01/17/00	08/16/02	4.0	4.0 - 14.0	14.0	26.82	4.50	NMT	22.32	-	-
HPFF-23	01/19/01	08/16/02	2.5	2.5 - 12.5	12.5	26.44	6.97	NMT	19.47	-	-
HPFF-24	01/20/00	08/16/02	5.3	5.3 - 15.3	15.3	31.37	11.20	NMT	20.17	-	-
HPFF-25	01/20/00	08/16/02	5.3	5.3 - 15.3	15.3	31.41	11.26	NMT	20.15	-	-
HPFF-26	01/21/00	08/16/02	5.3	5.3 - 15.3	15.3	31.57	11.48	NMT	20.09	-	-
HPFF-27	01/28/00	08/16/02	4.0	4.0 - 14.0	14.0	30.54	10.15	NMT	20.39	-	-
HPFF-28	01/19/00	08/16/02	4.0	4.0 - 14.0	14.0	27.48	7.14	NMT	20.34	-	-
HPFF-29	01/21/00	08/16/02	4.0	4.0 - 14.0	14.0	27.67	CNL	NM		-	-
HPFF-30	01/21/00	08/16/02	2.0	2.0 - 12.0	12.0	26.80	4.71	NMT	22.09	-	-
HPFF-31	01/21/00	08/16/02	4.0	4.0 - 14.0	14.0	28.45	8.31	NMT	20.14	-	-
HPFF-32	01/26/00	08/16/02	4.0	4.0 - 14.0	14.0	29.65	9.57	NMT	20.08	-	-
HPFF-33	01/26/00	08/16/02	4.0	4.0 - 14.0	14.0	29.74	10.10	NMT	19.64	-	-
HPFF-34	01/26/00	08/16/02	4.0	4.0 - 14.0	14.0	26.58	7.72	NMT	18.86	-	-
HPFF-35	01/31/00	08/16/02	4.0	4.0 - 14.0	14.0	26.72	7.45	NMT	19.27	-	-
HPFF-36	02/02/00	08/16/02	3.9	3.9 - 13.9	13.9	26.63	7.58	NMT	19.05	-	-

* Reference Point for Elevation Measurements (Brass Monument E-4), Elevation: (26.475ft. MSL)

** If free product is present in a well, ground water elevation was calculated by: [Top of Casing Elevation - Depth to Water] + [Free Product Thickness x 0.77 (for gasoline)]

ft. BLS = feet below land surface CNL = Couln not locate ‘ = Well bubbling, not used for contouring ‘‘ = Well bubbling and top of casing damaged, not used for contouring

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HPFF-37	02/02/00	08/16/02	3.8	3.8 - 13.8	13.8	26.00	7.19	NMT	18.81	-	-
HPFF-38	01/31/00	08/16/02	4.0	4.0 - 14.0	14.0	30.31	7.09	NMT	23.22	-	-
HPFF-39	02/29/00	08/16/02	5.0	5.0 - 15.0	15.0	24.85	4.38	NMT	20.47	-	-
HPFF-40	02/09/00	08/16/02	5.0	5.0 - 15.0	15.0	27.90	5.69	NMT	22.21	-	-
HPFF-41	03/02/00	08/16/02	5.0	5.0 - 15.0	15.0	29.59	8.13	NMT	21.46	-	-
HPFF-42	03/03/00	08/16/02	5.0	5.0 - 15.0	15.0	27.71	6.24	NMT	21.47	-	-
MW-01	02/24/88	08/16/02	7.0	7.0 - 17.0	17.0	30.18	8.57	NMT	21.61	-	-
MW-02	02/24/88	08/16/02	7.0	7.0 - 17.0	17.0	31.86	10.54	0.01		-	-
MW-03	02/25/88	08/16/02	5.0	5.0 - 15.0	15.0	29.22	7.55	NMT	21.67	-	-
MW-04	02/25/88	08/16/02	5.0	5.0 - 15.0	15.0	31.22	9.74	NMT	21.48	-	-
MW-05	02/25/88	08/16/02	5.0	5.0 - 15.0	15.0	28.17	4.75	NMT	23.42	-	-
MW-06	03/01/88	08/16/02	5.0	5.0 - 15.0	15.0	30.10	DRY	NMT		-	-
MW-07	03/01/88	08/16/02	5.0	5.0 - 15.0	15.0	27.37	CNL	NM		-	-
MW-08	03/01/88	08/16/02	5.0	5.0 - 15.0	15.0	26.35	CNL	NM		-	-
MW-09	02/25/88	08/16/02	5.0	5.0 - 15.0	15.0	29.37	8.37	NMT	21.00	-	-
MW-10R	03/30/95	08/16/02	5.0	5.0 - 15.0	15.0	30.00	11.84	NMT	18.16	-	-
MW-11	03/02/88	08/16/02	5.0	5.0 - 25.0	25.0	28.74	6.74	NMT	22.00	-	-
MW-12	03/07/88	08/16/02	5.0	5.0 - 25.0	25.0	28.73	7.56	0.06	21.22	-	-
MW-13	03/09/88	08/16/02	5.0	5.0 - 25.0	25.0	30.56	CNL	NM		-	-
MW-14	03/08/88	08/16/02	5.0	5.0 - 25.0	25.0	27.70	CNL	NM		-	-

* Reference Point for Elevation Measurements (Brass Monument E-4), Elevation: (26.475ft. MSL)

** If free product is present in a well, ground water elevation was calculated by: [Top of Casing Elevation - Depth to Water] + [Free Product Thickness x 0.77 (for gasoline)]

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MW-15	03/08/88	08/16/02	5.0	5.0 - 25.0	25.0	30.45	8.37	0.06	22.13	-	-
MW-17	03/09/88	08/16/02	5.0	5.0 - 25.0	25.0	31.33	11.11	NMT	20.22	-	-
MW-18	03/11/88	08/16/02	5.0	5.0 - 25.0	25.0	31.97	11.11	NMT	20.86	-	-
MW-19	03/15/88	08/16/02	5.0	5.0 - 25.0	25.0	32.18	10.78	NMT	21.40	-	-
MW-20	03/14/88	08/16/02	4.0	4.0 - 24.0	24.0	31.23	7.90	NMT	23.33	-	-

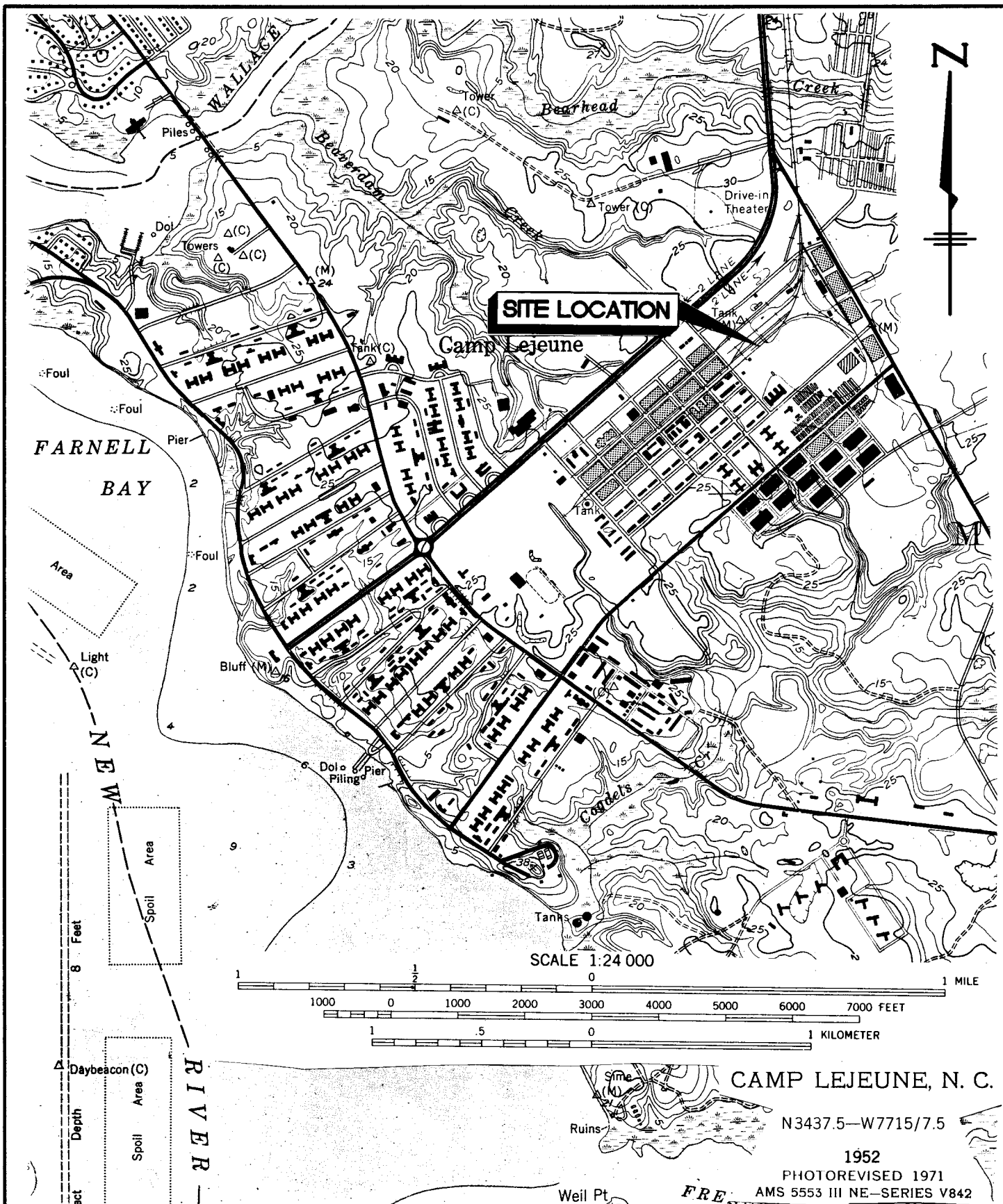
* Reference Point for Elevation Measurements (Brass Monument E-4), Elevation: (26.475ft. MSL)

** If free product is present in a well, ground water elevation was calculated by: [Top of Casing Elevation - Depth to Water] + [Free Product Thickness x 0.77 (for gasoline)]

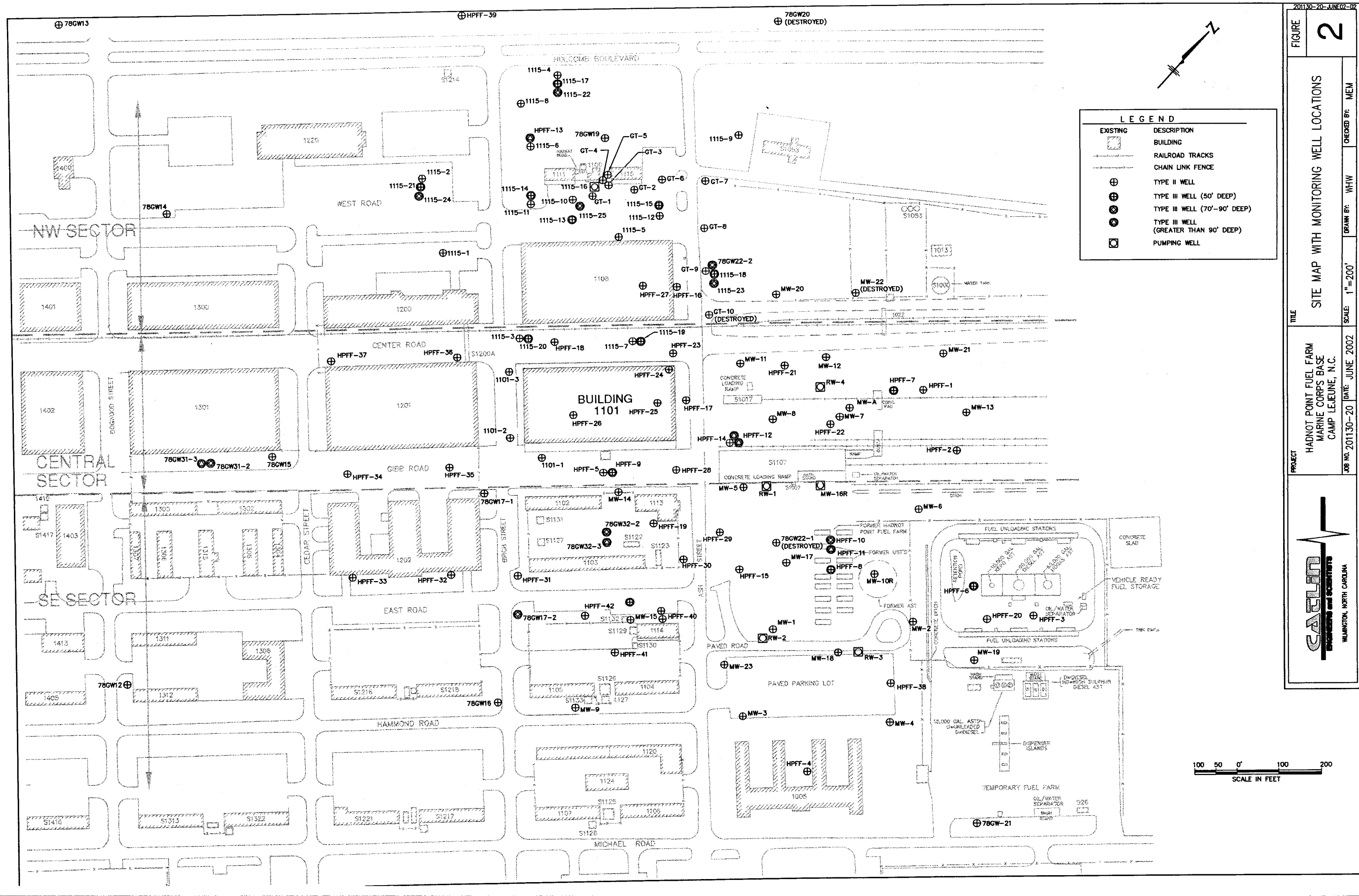
ft. BLS = feet below land surface CNL = Could not locate ‘ = Well bubbling, not used for contouring ““ = Well bubbling and top of casing damaged, not used for contouring

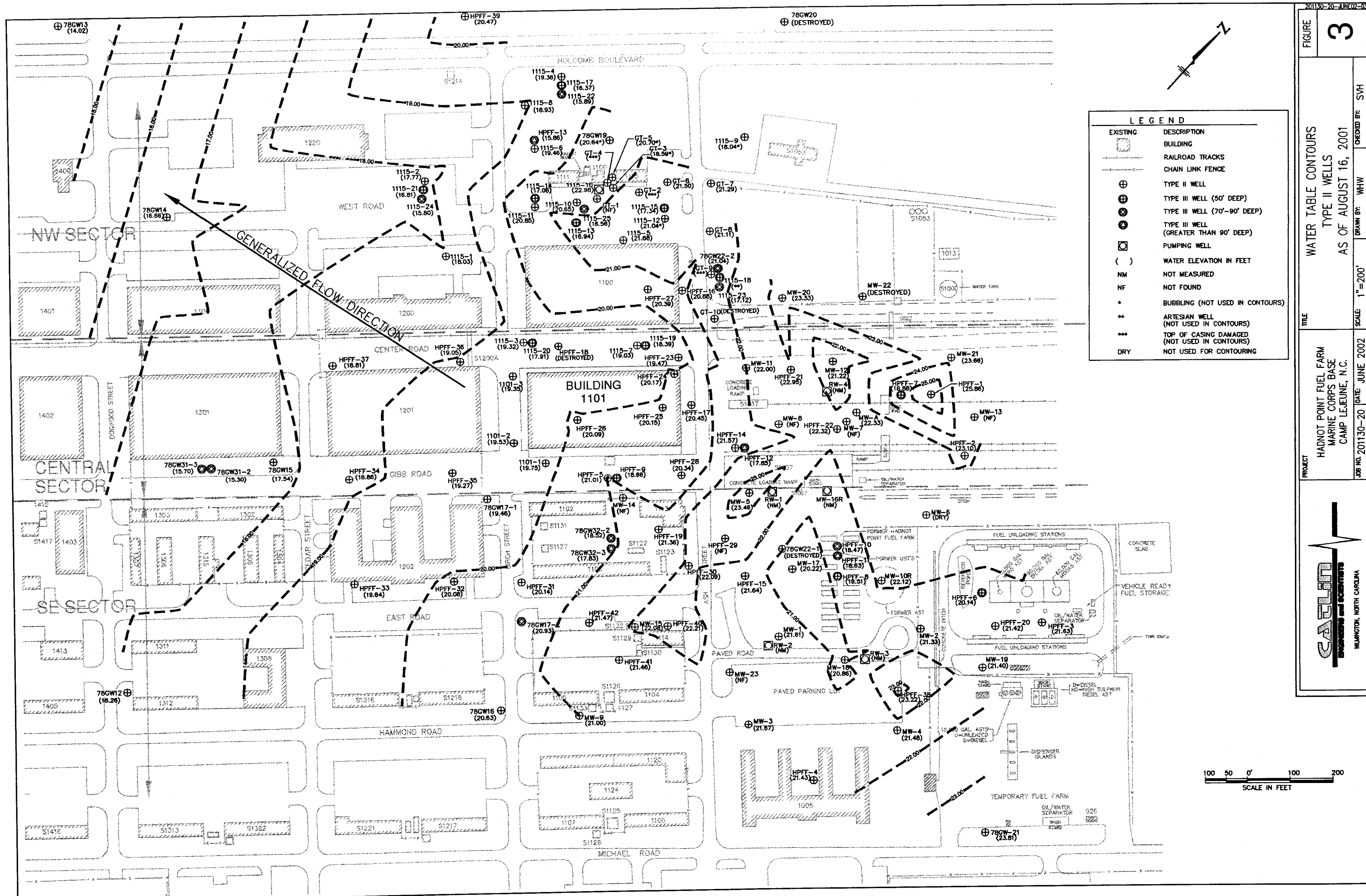
NMT = No Measurable Thickness DEST. = Well Destroyed ““ = Top of casing damaged, not used for contouring

FIGURES



CAELIN ENGINEERS and SCIENTISTS WILMINGTON, NORTH CAROLINA	PROJECT HADNOT POINT FUEL FARM MARINE CORPS BASE CAMP LEJEUNE, N.C. JOB NO: 201130-20 DATE: DEC 2001	TITLE GENERAL LOCATION USGS TOPOGRAPHIC QUADRANGLE SCALE: 1"=2000' DRAWN BY: SVH CHECKED BY: MEM	FIGURE 1 20130-20-01





FIGURE

3

WATER TABLE CONTOURS

TYPE II WELLS

AS OF AUGUST 16, 2001

PROJECT

HADNOT POINT FUEL FARM
MARINE CORPS BASE
CAMP LEJUNE, N.C.

TITLE

WATER TABLE CONTOURS

CHECKED BY:

SVH

DATE:

JUNE 2002

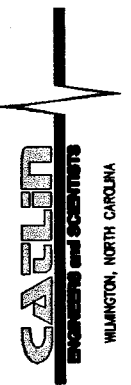
SCALE:

1"=200'

JOB NO.:

201130-20

WILMINGTON, NORTH CAROLINA





LEGEND	
EXISTING	DESCRIPTION
	BUILDING
	RAILROAD TRACKS
	CHAIN LINK FENCE
	TYPE II WELL
	TYPE III WELL (50' DEEP)
	TYPE III WELL (70'-90' DEEP)
	TYPE III WELL (GREATER THAN 90' DEEP)
	PUMPING WELL
	WATER ELEVATION IN FEET
NM	NOT MEASURED
NF	NOT FOUND
*	BUBBLING (NOT USED IN CONTOURS)
**	ARTESIAN WELL (NOT USED IN CONTOURS)
---	TOP OF CASING DAMAGED (NOT USED IN CONTOURS)
DRY	NOT USED FOR CONTOURING

FIGURE

4

HYDRAULIC HEAD CONTOURS

TYPE III WELLS (50 FEET DEEP)

AS OF AUGUST 16, 2001

PROJECT

HADNOT POINT FUEL FARM

MARINE CORPS BASE

CAMP LEJEUNE, N.C.

TITLE

HYDRAULIC HEAD CONTOURS

DATE

JUNE 2002

SCALE

1" = 200'

DRAWN BY

WHW

CHECKED BY

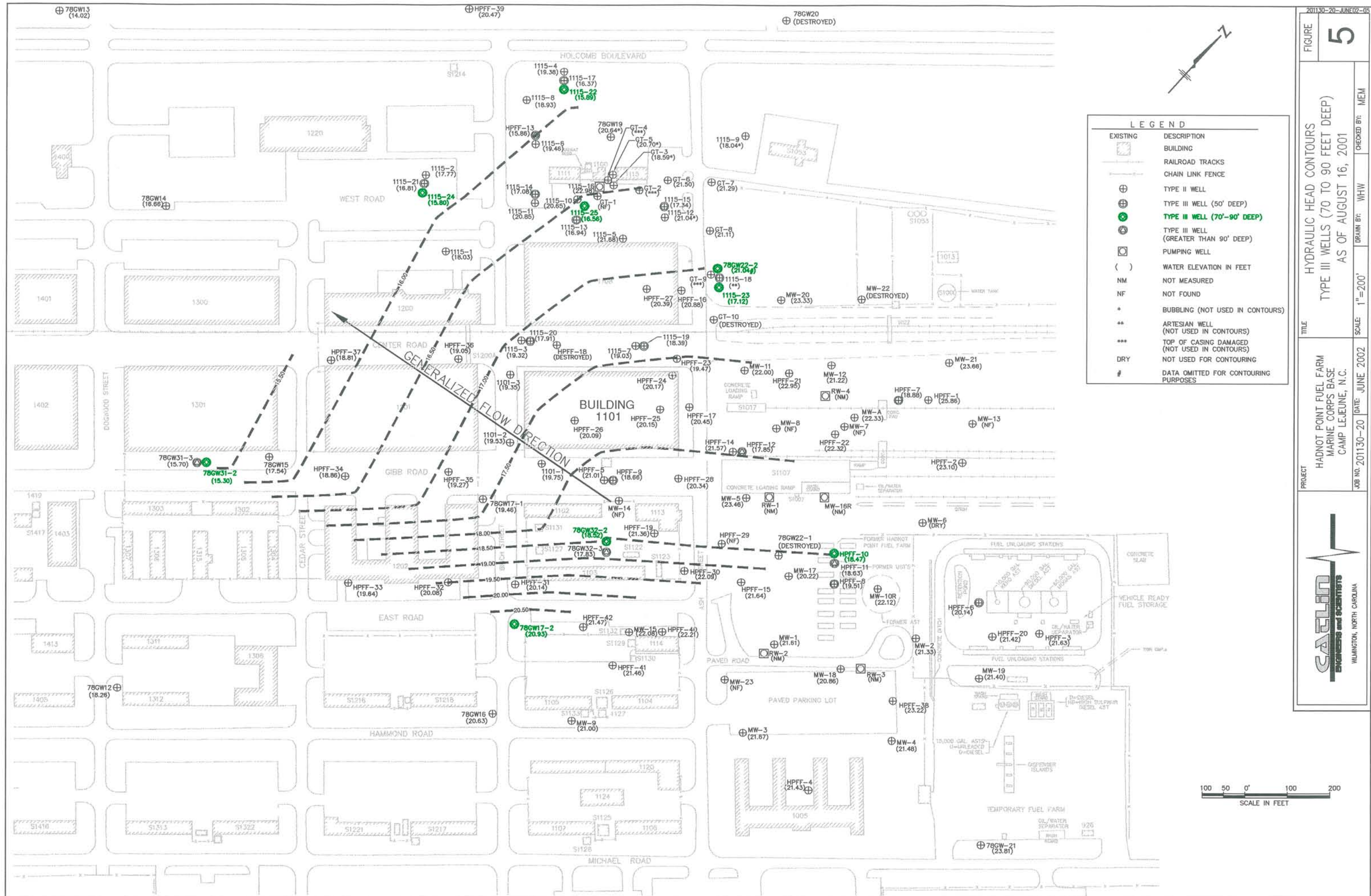
MEM

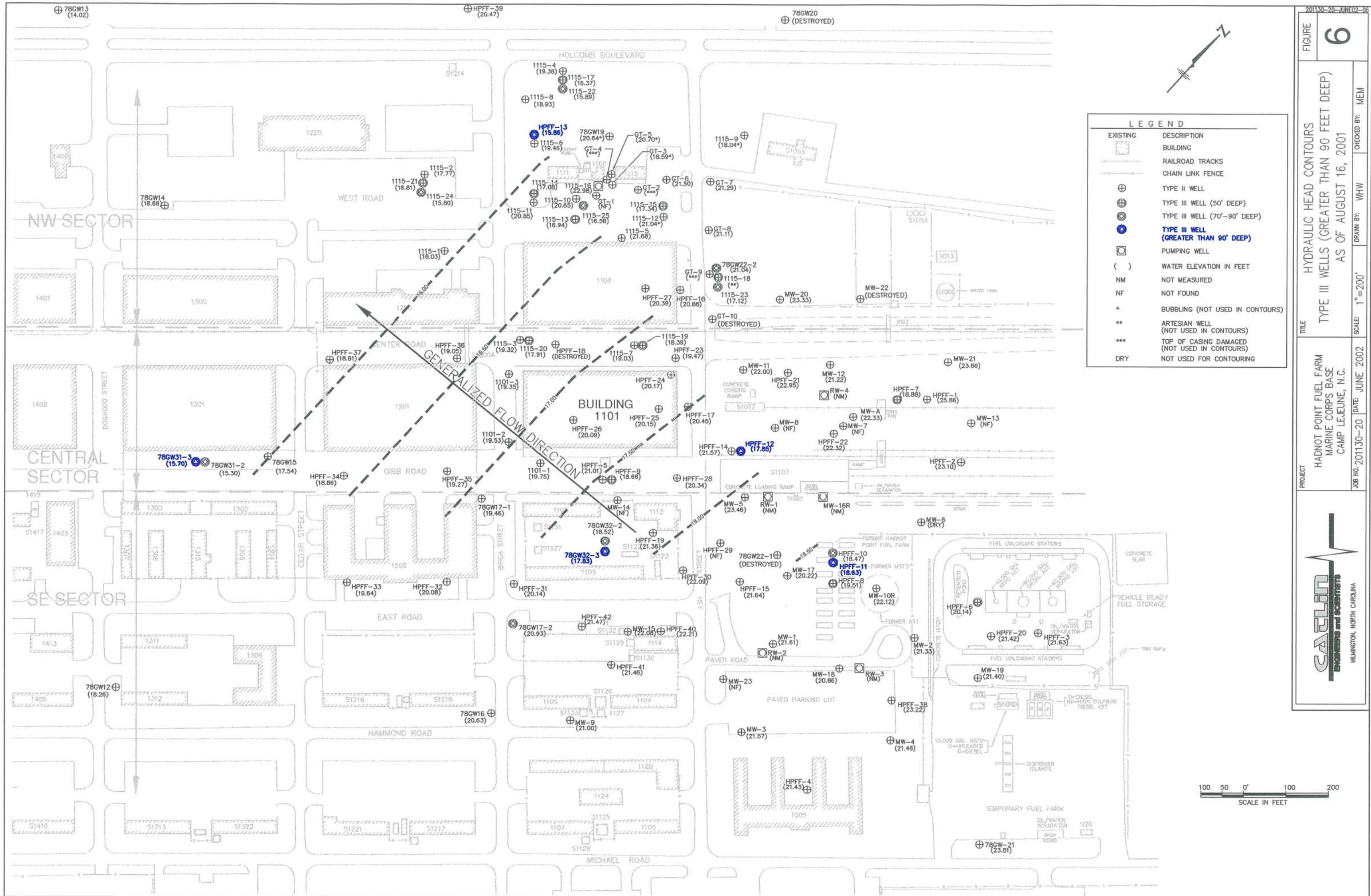
20110-20-JUN02-04

CARLIN

ENGINEERS and SCIENTISTS

WILMINGTON, NORTH CAROLINA





FIGURE

6

201130-20-JUNE02-05

HYDRAULIC HEAD CONTOURS

TYPE III WELLS (GREATER THAN 90 FEET DEEP)

AS OF AUGUST 16, 2001

MEM

WHW

1"=200'

JUNE 2002

DATE: JUNE 2002

201130-20

JOB NO.

PROJECT

HADNOT POINT FUEL FARM

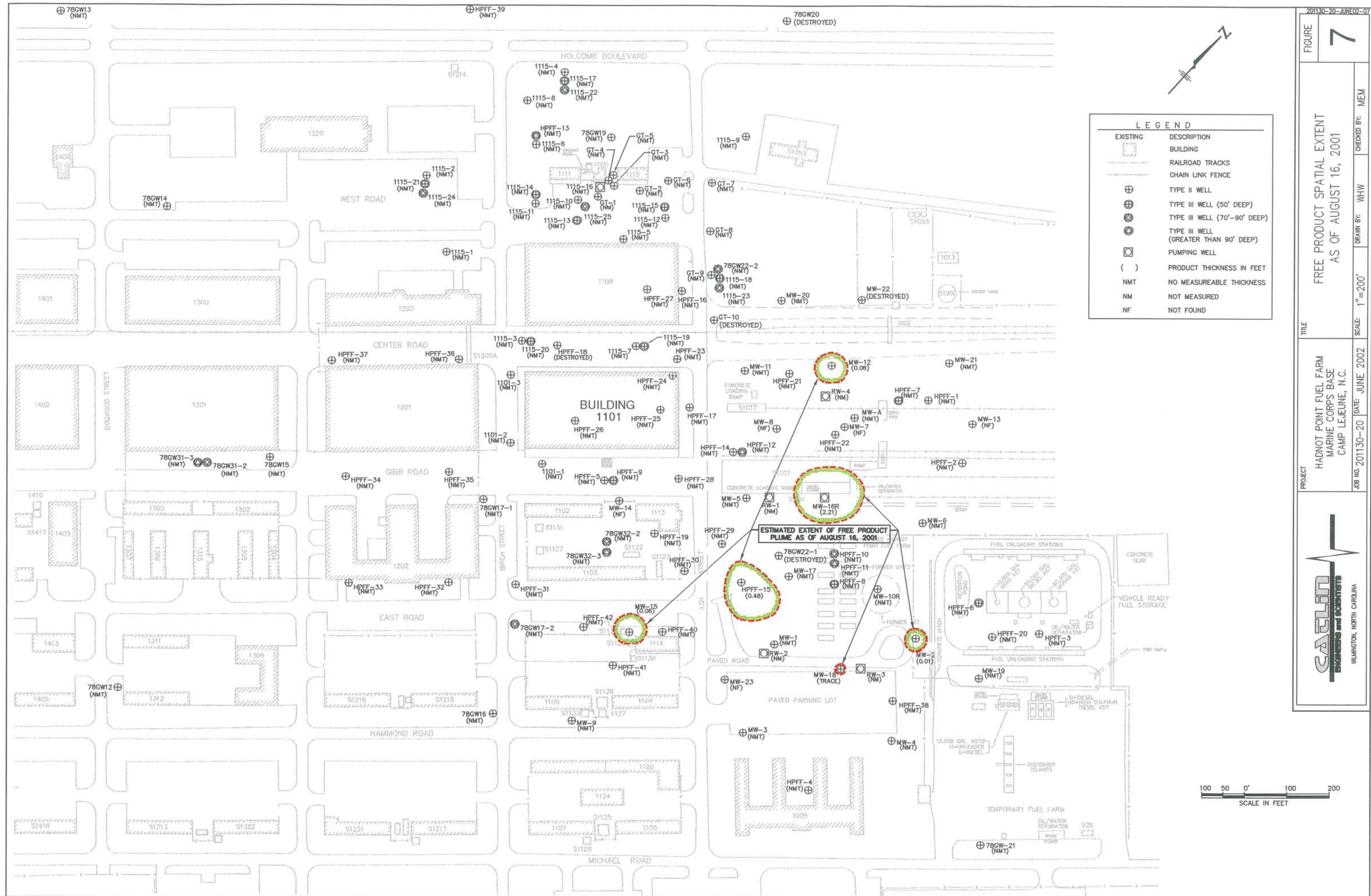
MARINE CORPS BASE

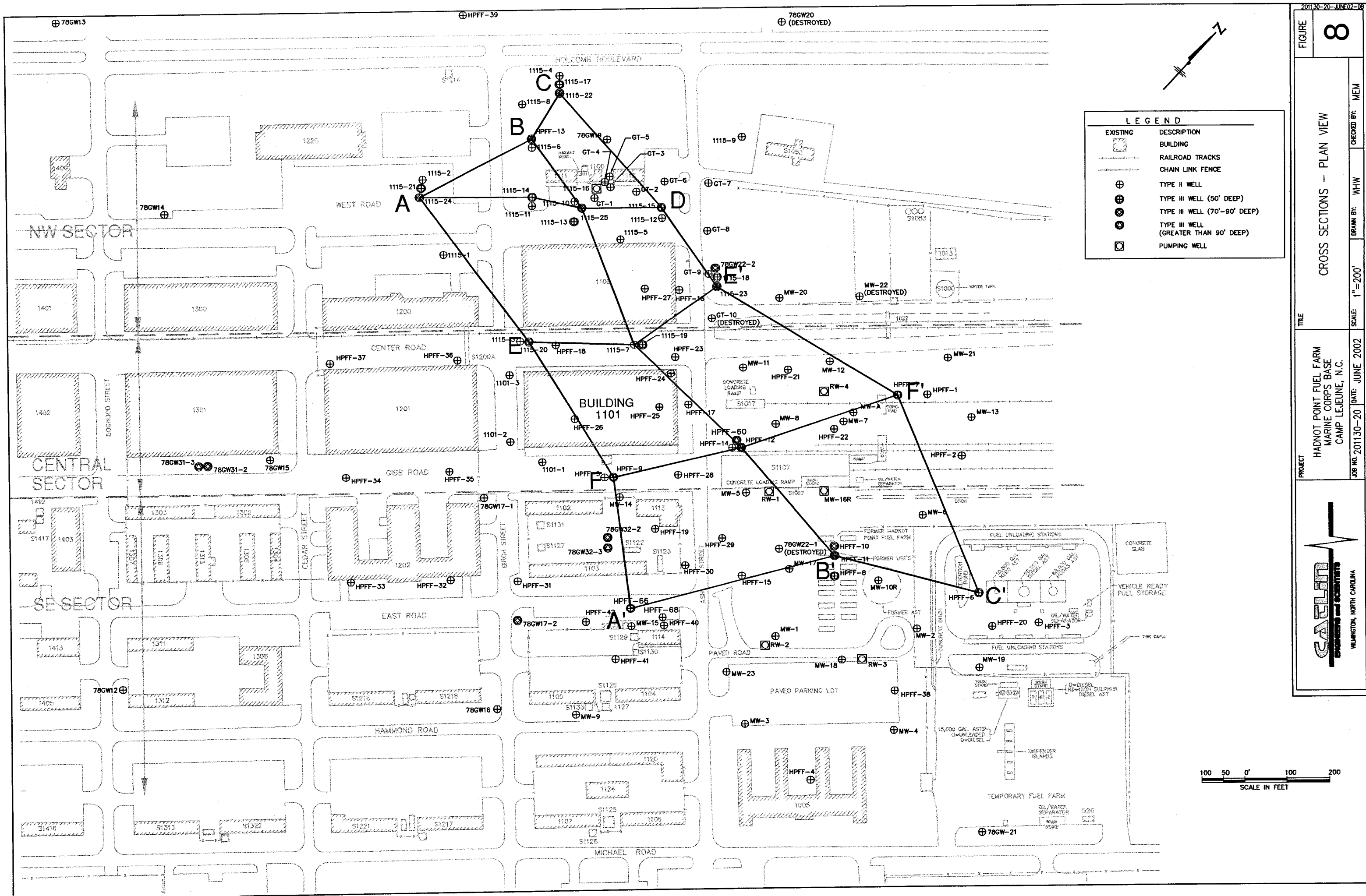
CAMP LEJUNE, N.C.

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FIGURE

8

CROSS SECTIONS - PLAN VIEW

MEM

TITLE

HADNOT POINT FUEL FARM
MARINE CORPS BASE
CAMP LEJUNE, N.C.

PROJECT

DATE: JUNE 2002

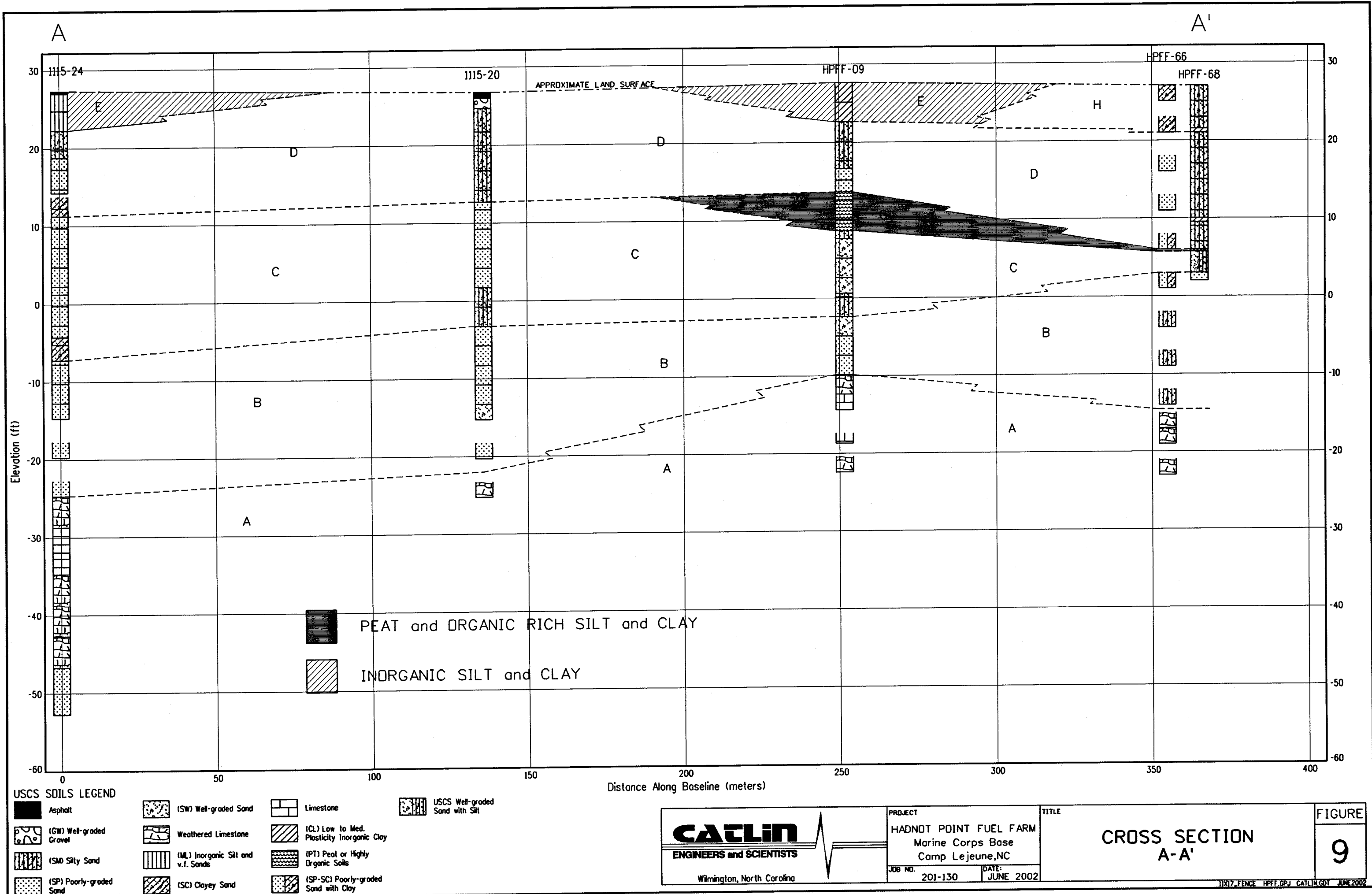
SCALE: 1"=200'

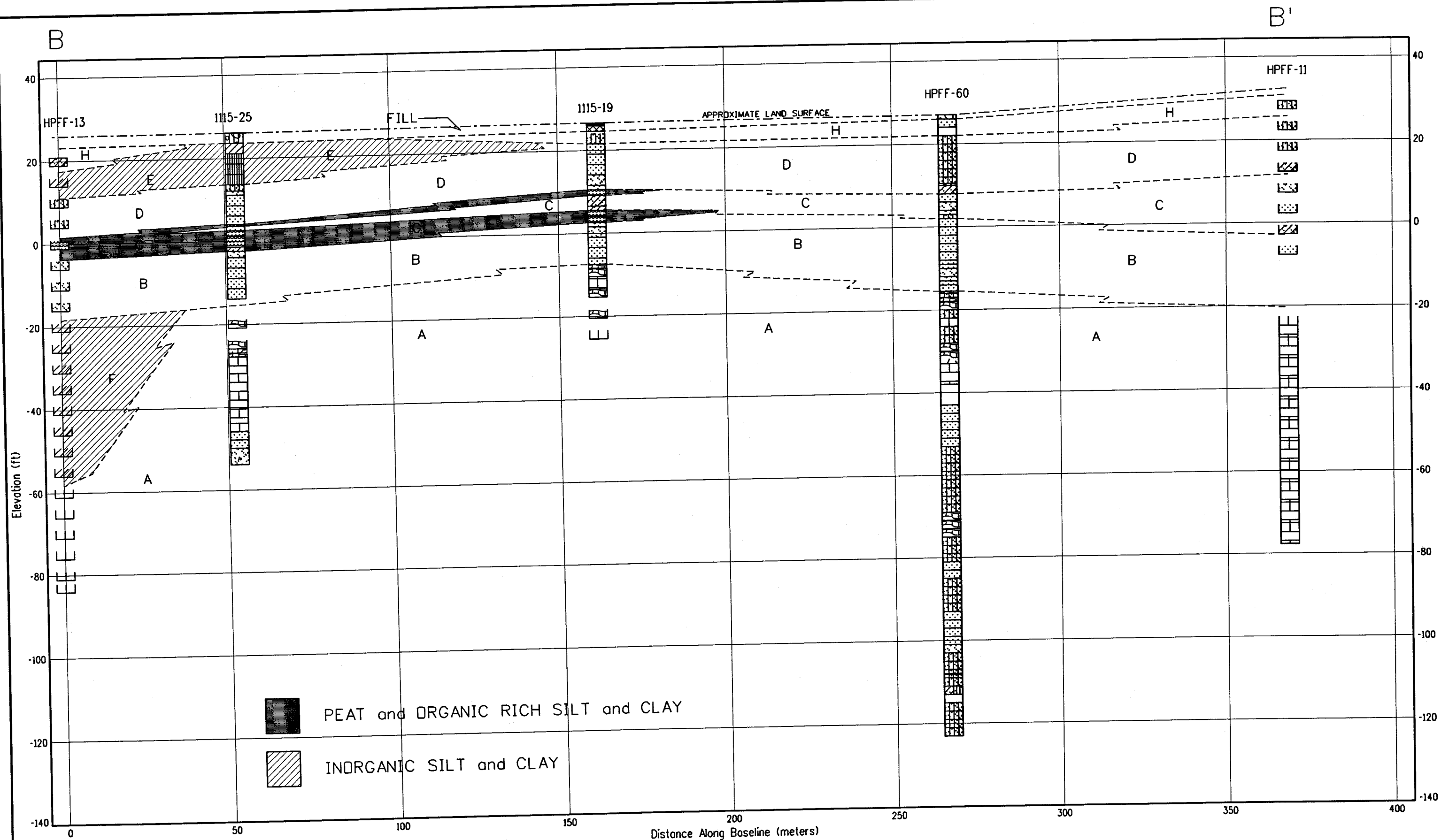
CHECKED BY: WHW

DRAWN BY: WHW

WILMINGTON, NORTH CAROLINA

ENGINEERS and SCIENTISTS





USCS SOILS LEGEND

Asphalt	(SW) Well-graded Sand	Limestone	(OH) High Plasticity Organic Silt or Clay
Fill (made ground)	(PT) Peat or Highly Organic Soils	(GM) Silty Gravel	(SP-SC) Poorly-graded Sand with Clay
(SM) Silty Sand	(SC) Clayey Sand	(CL) Low to Med. Plasticity Inorganic Clay	(GW) Well-graded Gravel
(SP) Poorly-graded	Weathered Limestone	(MH) Elastic Inorganic	(SC-SM) Clayey/Silty Sand

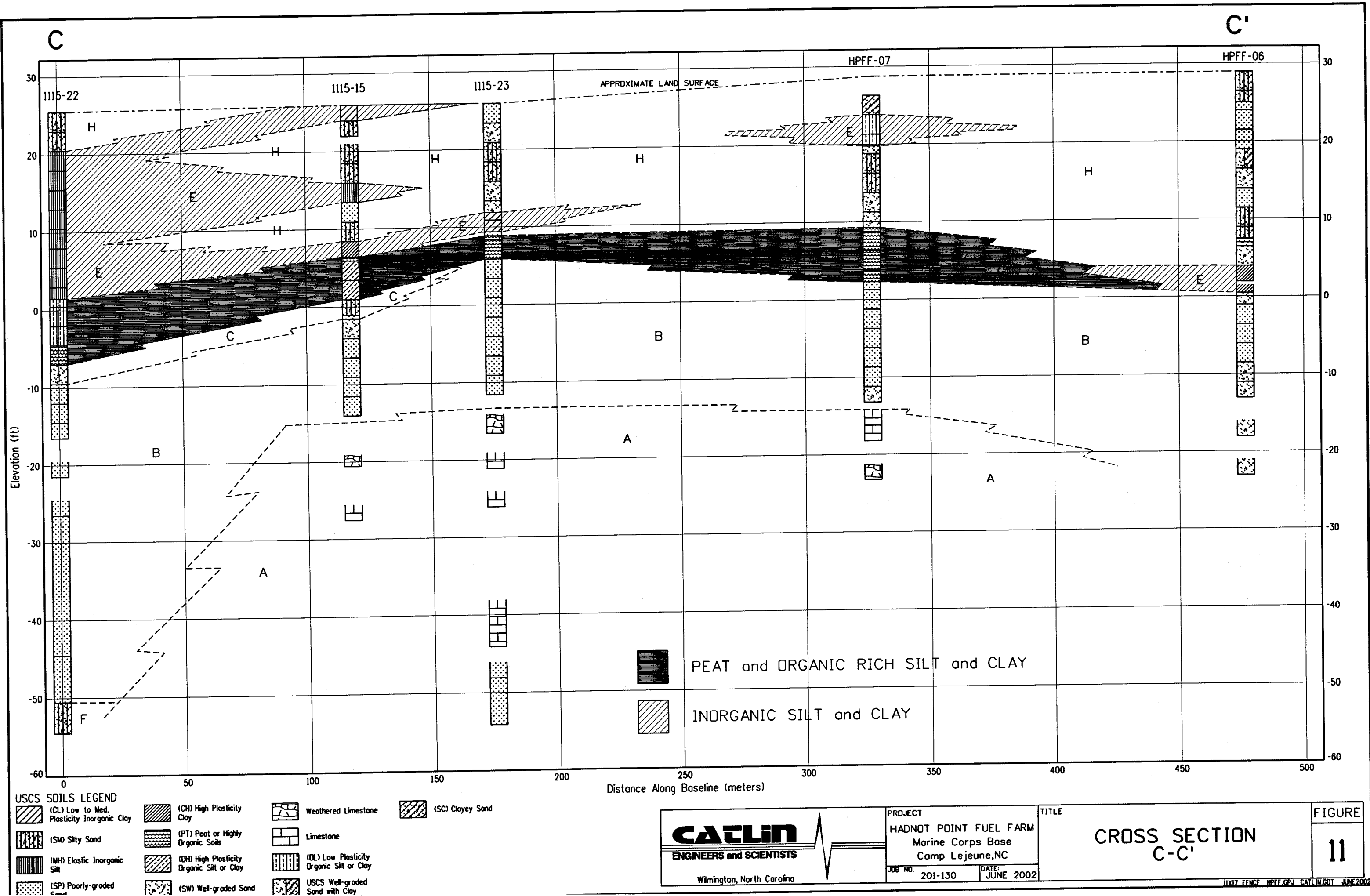
CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

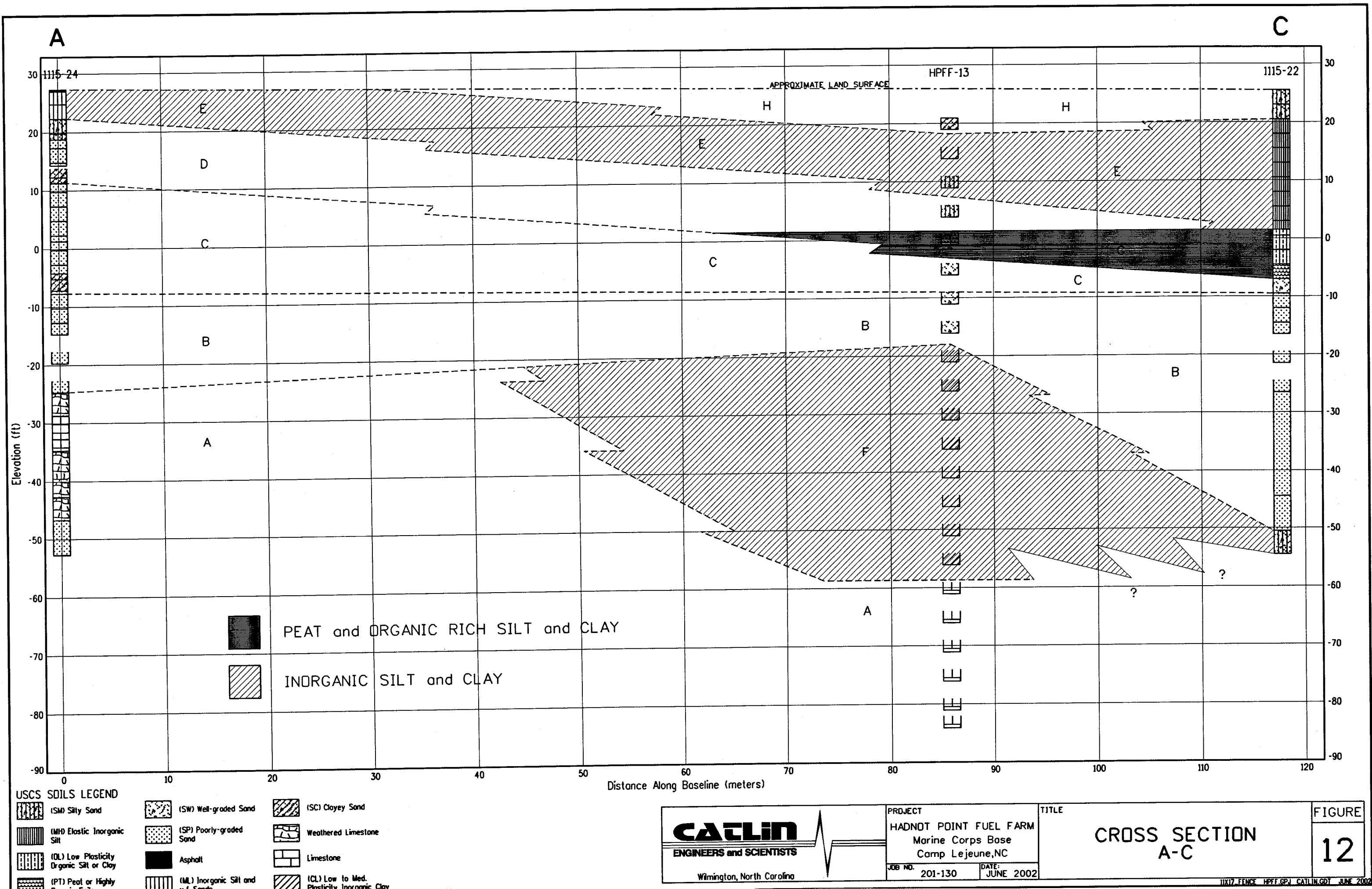
PROJECT	HADNOT POINT FUEL FARM Marine Corps Base Camp Lejeune, NC
JOB NO.	201-130
DATE	JUNE 2002

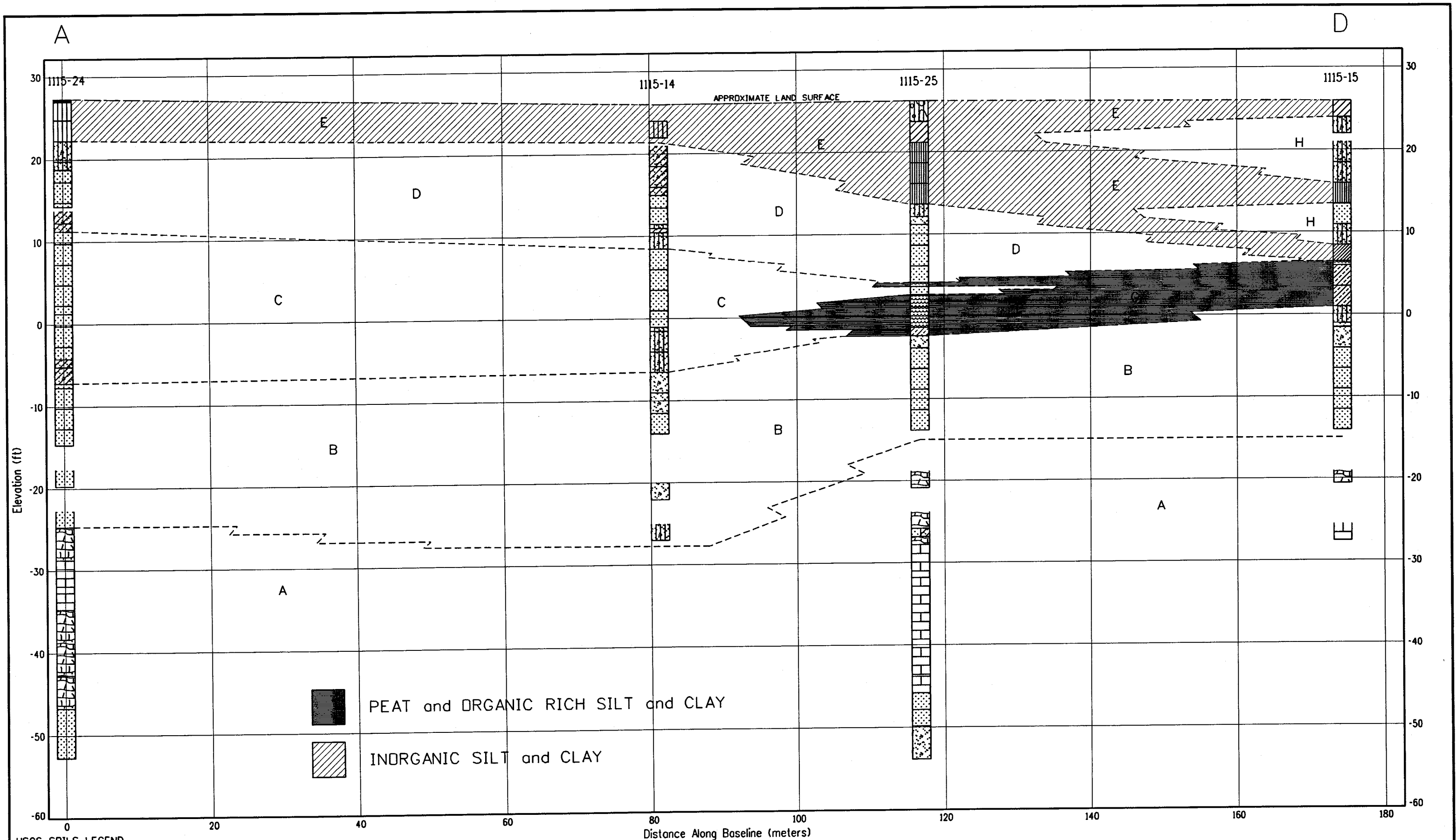
TITLE
**CROSS SECTION
B-B'**

FIGURE
10

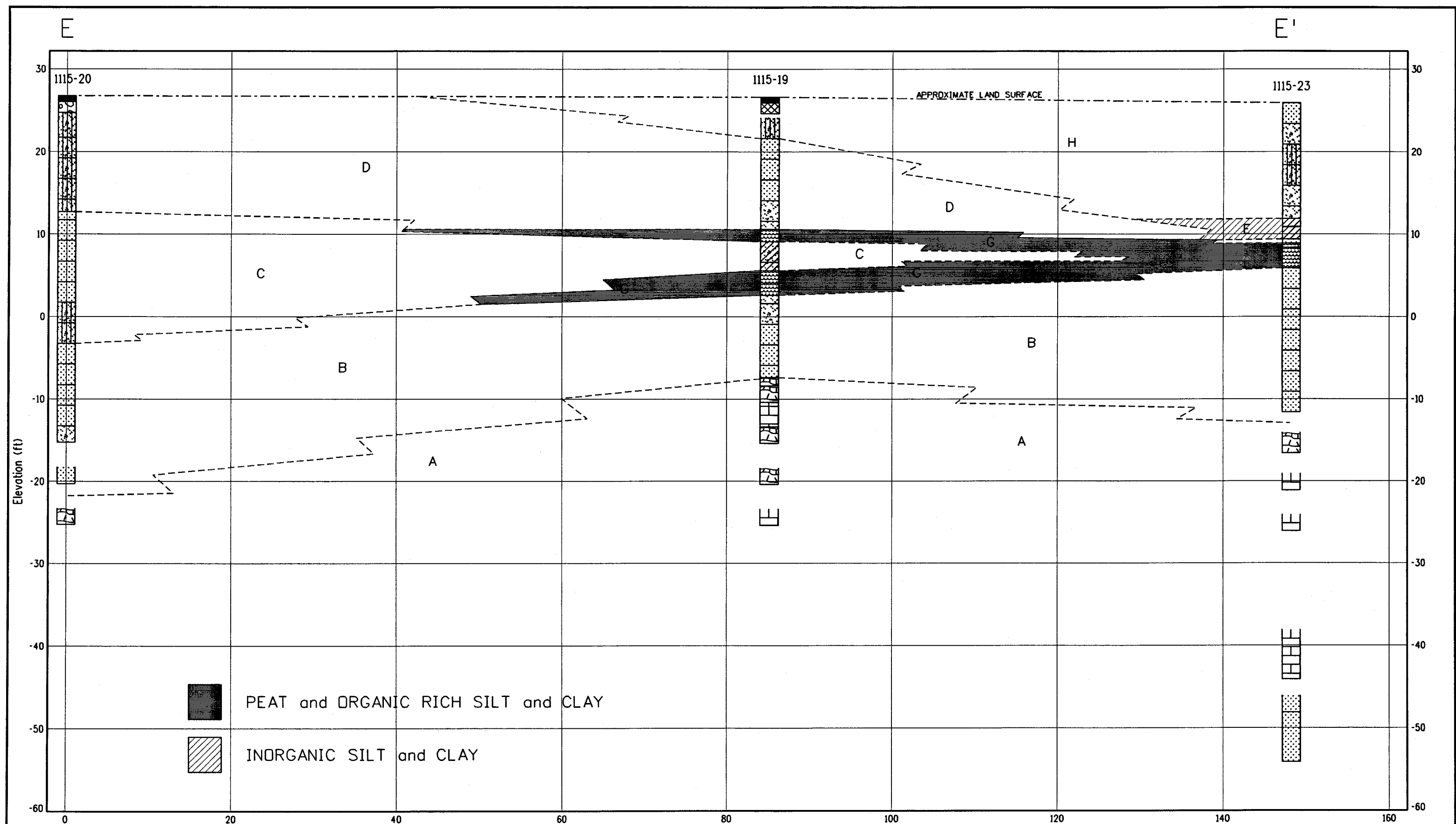
11117_FENCE HPFF.GPJ CATLIN.GDT JUNE 2002







CATLIN ENGINEERS and SCIENTISTS Wilmington, North Carolina	PROJECT HADNOT POINT FUEL FARM Marine Corps Base Camp Lejeune, NC	TITLE CROSS SECTION A-D	FIGURE 13
	JOB NO. 201-130	DATE: JUNE 2002	
	11117.FEENCE HPFF.GPJ CATLIN.GDT JUNE 2002		



USCS SOILS LEGEND

	Asphalt		(ISW) Well-graded Sand		Limestone
	Fill (made ground)		(PT) Peat or Highly Organic Soils		(GW) Well-graded Gravel
	(SM) Silty Sand		(SC) Clayey Sand		(CL) Low to Med. Plasticity Inorganic Clay
	(SP) Poorly-graded Sand		Weathered Limestone		

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ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT
HADNOT POINT FUEL FARM
Marine Corps Base
Camp Lejeune, NC

JOB NO. 201-130

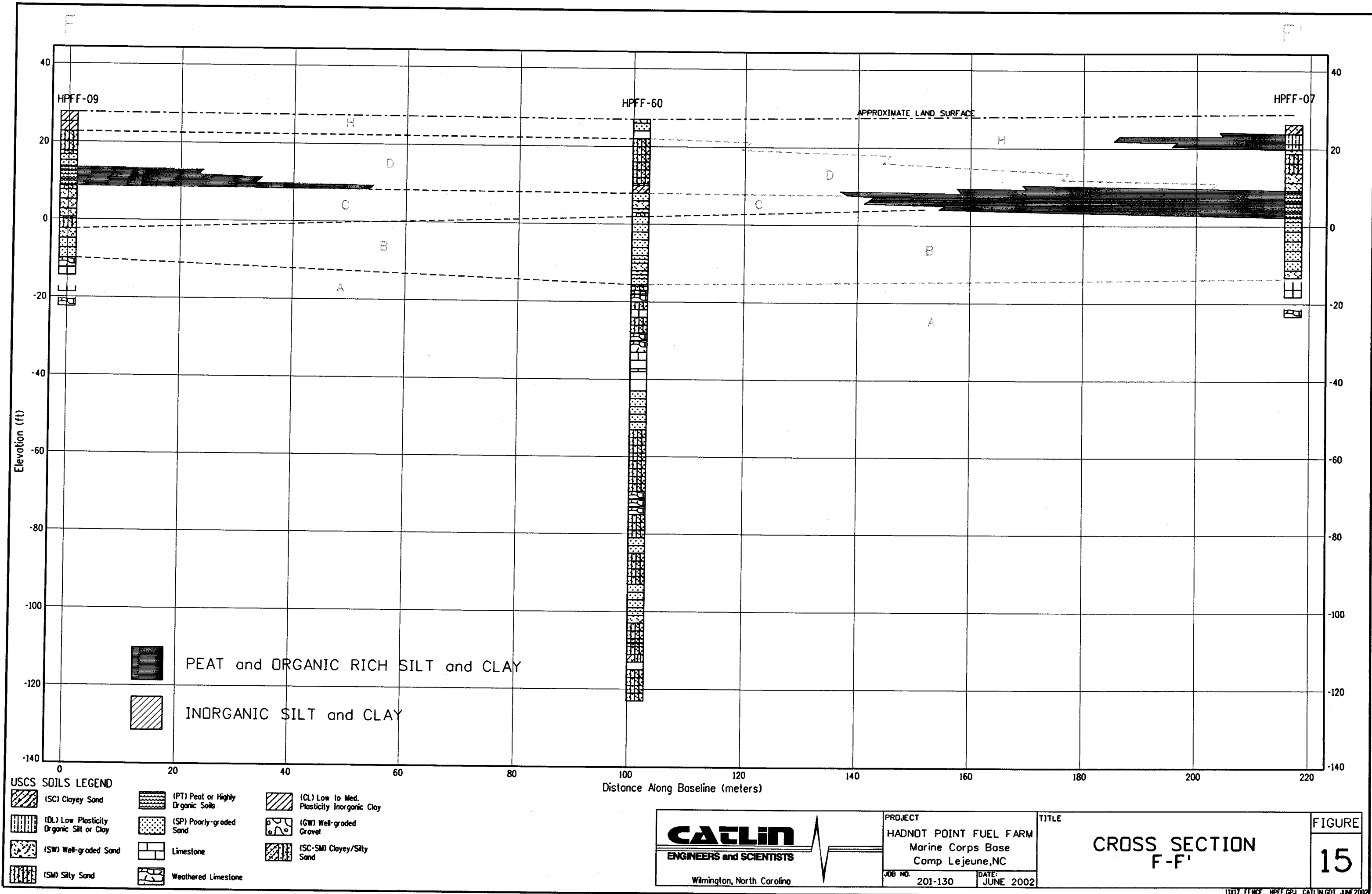
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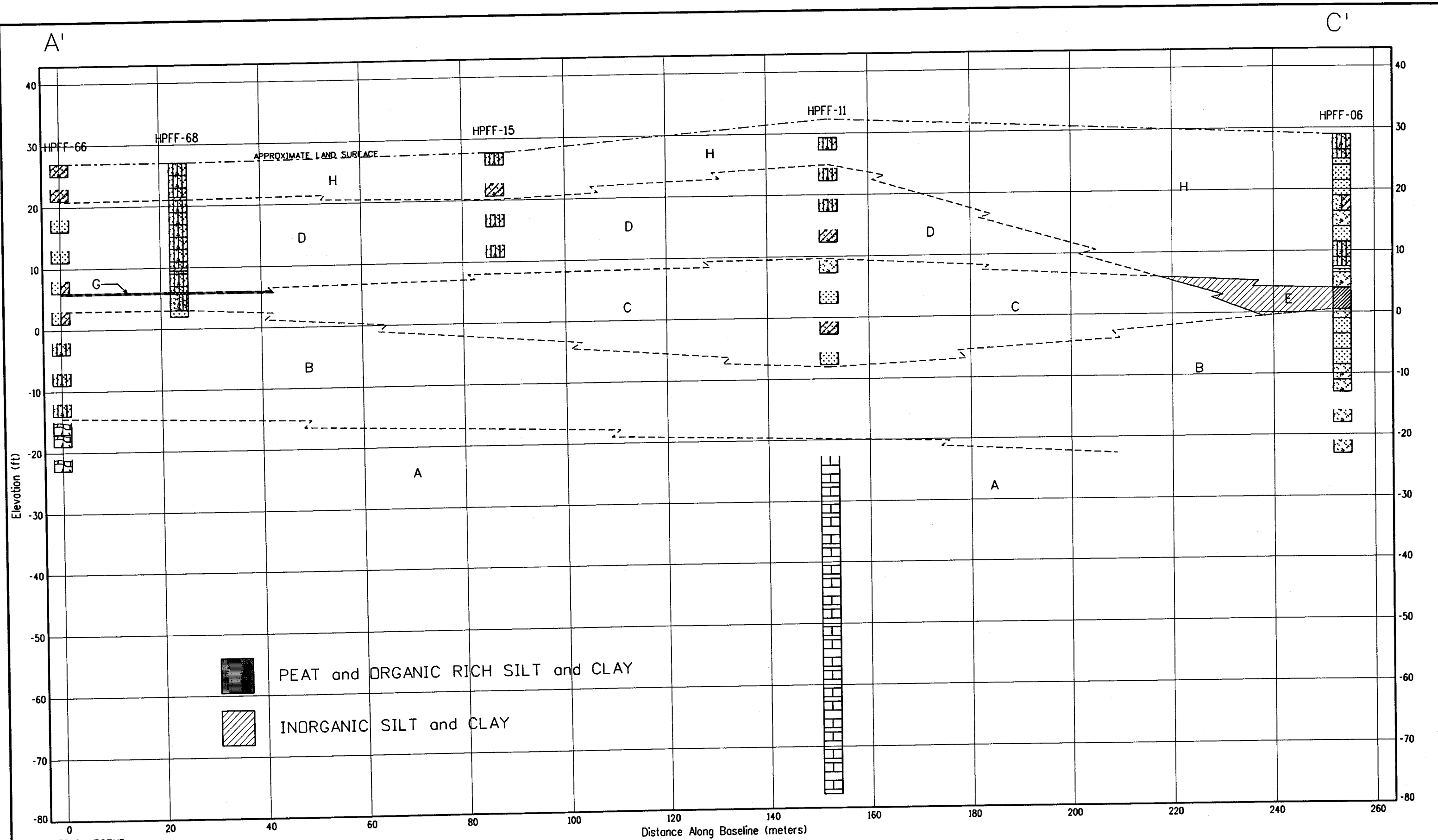
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**CROSS SECTION
E-E'**

FIGURE

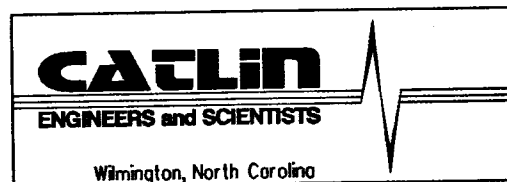
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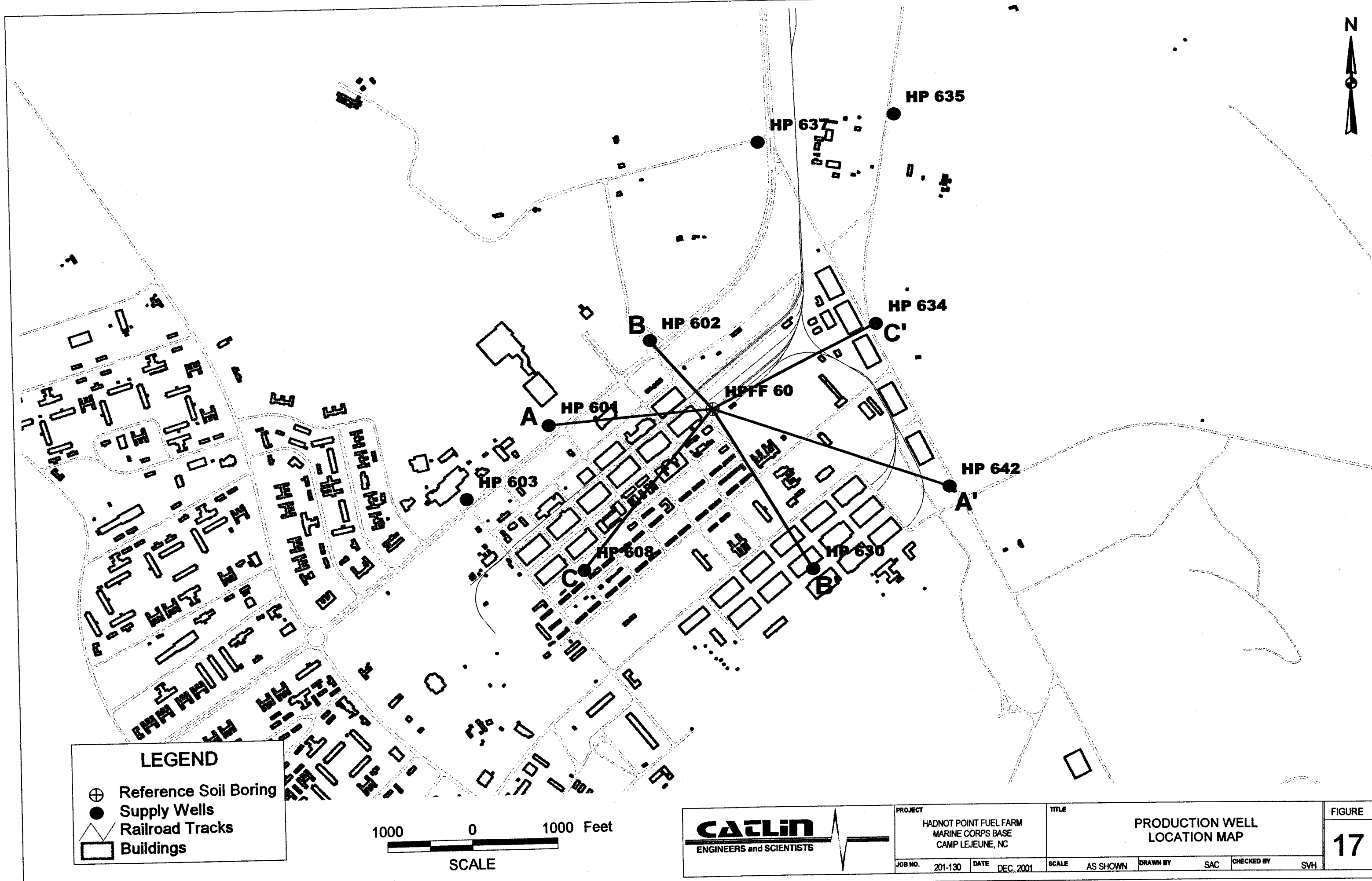
USCS SOILS LEGEND

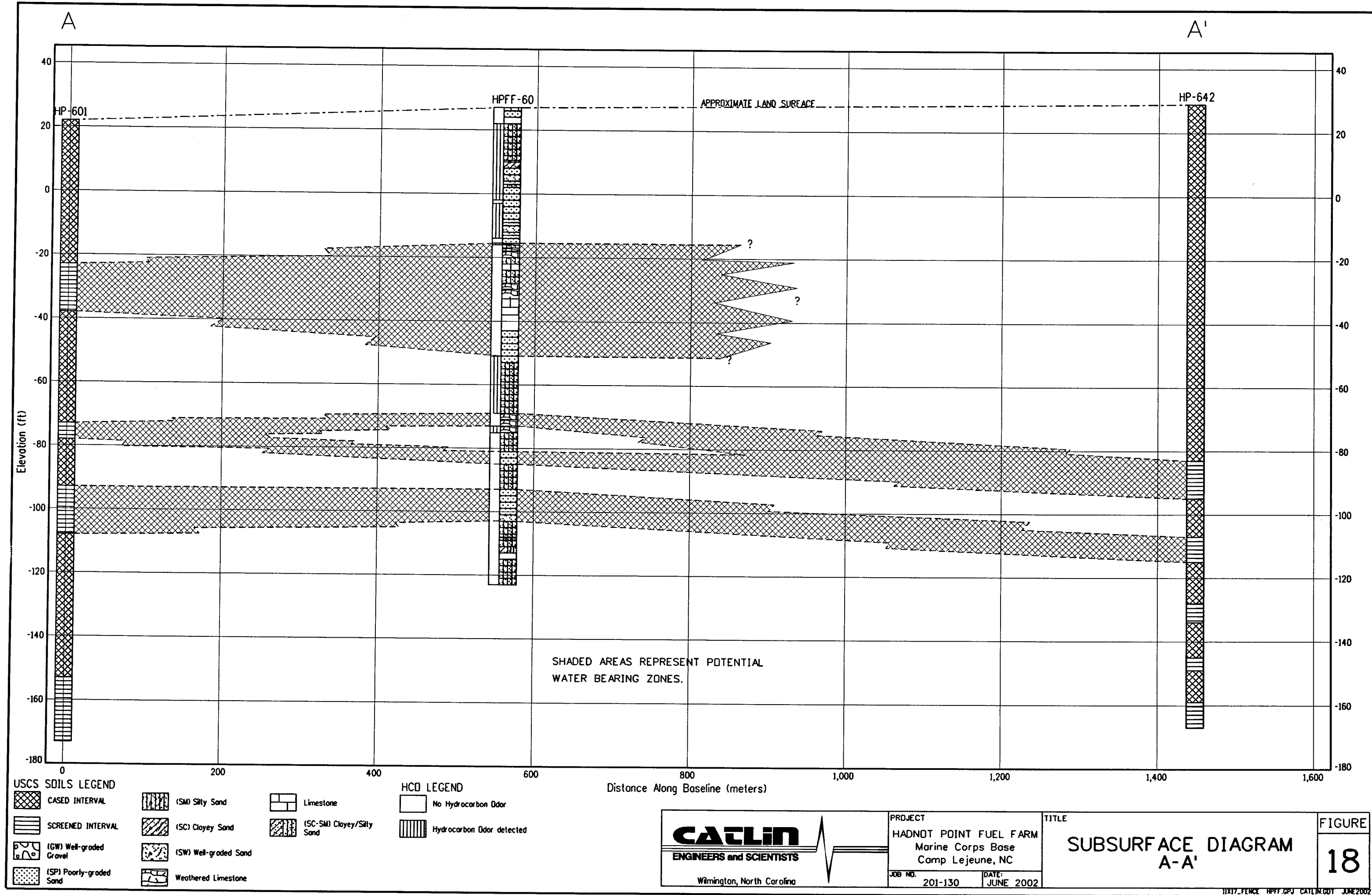
	(SM) Silty Sand		(CH) High Plasticity Clay		Weathered Limestone
	(SP) Poorly-graded Sand		(SC) Clayey Sand		(CL) Low to Med. Plasticity Inorganic Clay
	USCS Well-graded Sand with Clay		Limestone		(PT) Peat or Highly Organic Soils
	(SP-SC) Poorly-graded		USCS Well-graded		

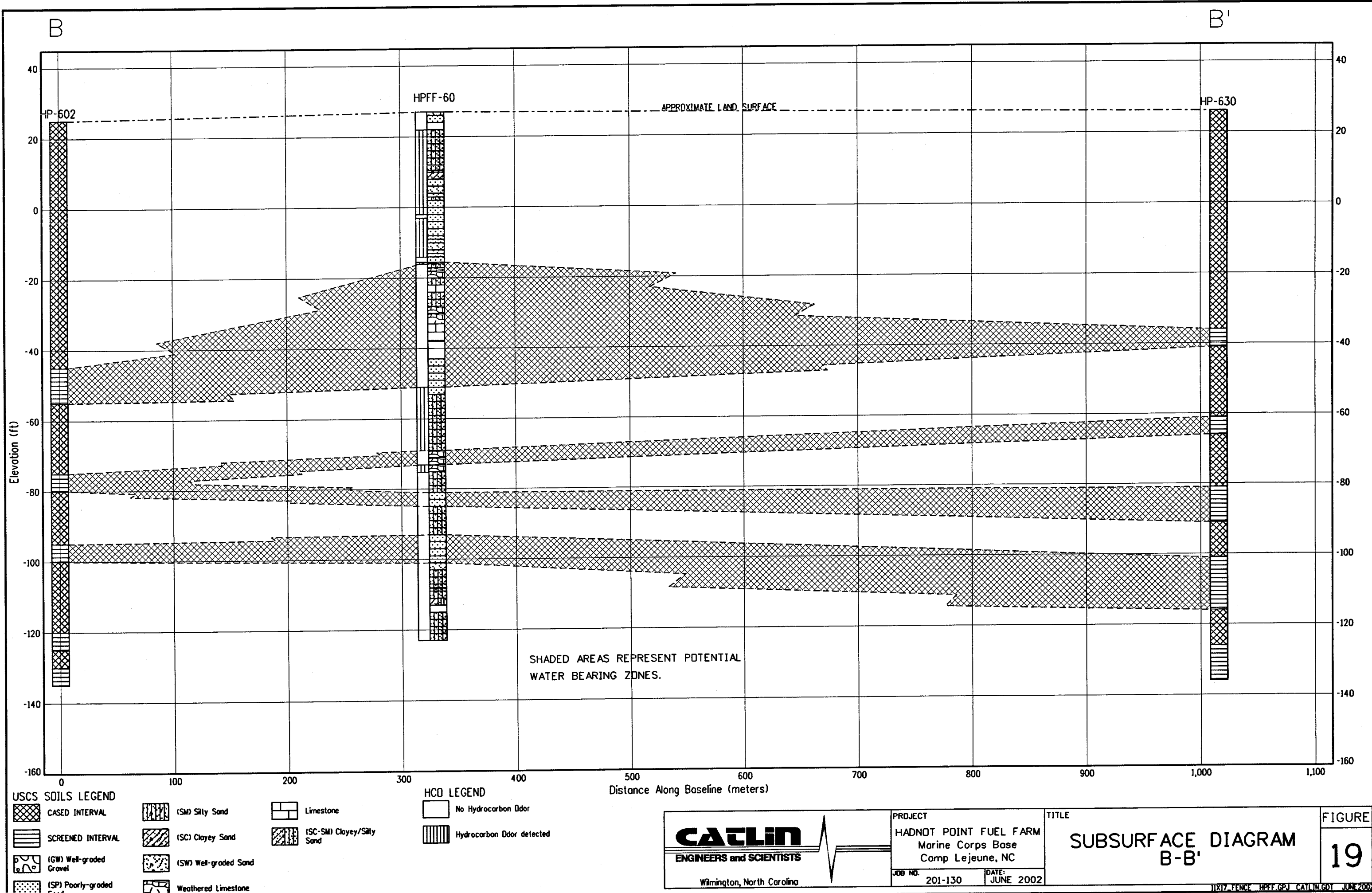


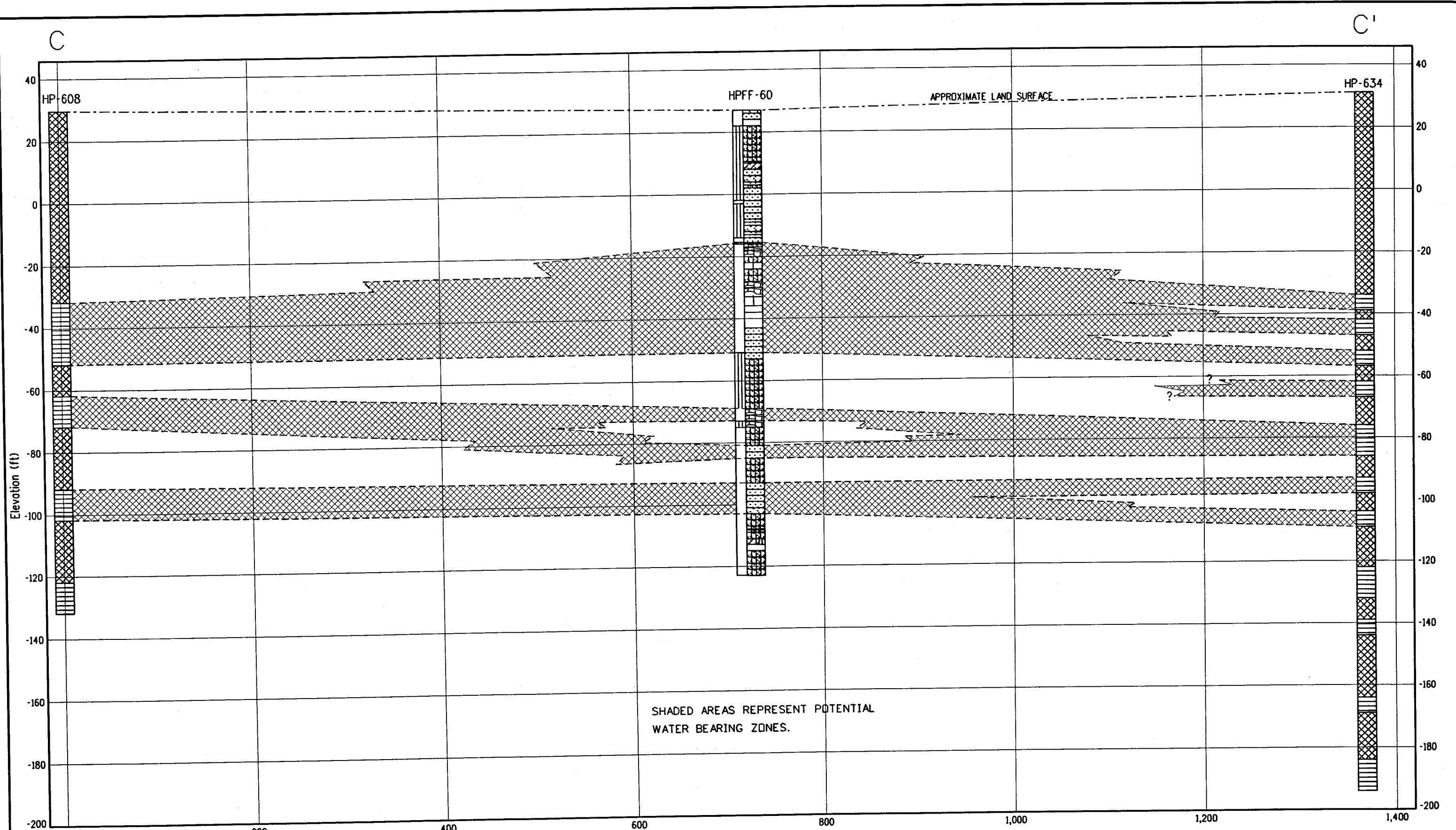
PROJECT	HADNOT POINT FUEL FARM
	Marine Corps Base
	Camp Lejeune, NC
JOB NO.	201-130
DATE:	JUNE 2002

TITLE	FIGURE
CROSS SECTION A'-C'	16









- USCS SOILS LEGEND**

 - CASED INTERVAL
 - SCREENED INTERVAL
 - (GW) Well-graded Gravel
 - (SP) Poorly-sorted
 - (SM) Silty Sand
 - (SC) Clayey Sand
 - (SW) Well-graded Sand
 - Weathered Limestone
 - Limestone
 - (SC-SM) Clayey/Silty Sand
- HCD LEGEND**

 - No Hydrocarbon Odor
 - Hydrocarbon Odor detected

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PROJECT
HADNOT POINT FUEL FARM
Marine Corps Base
Camp Lejeune, NC

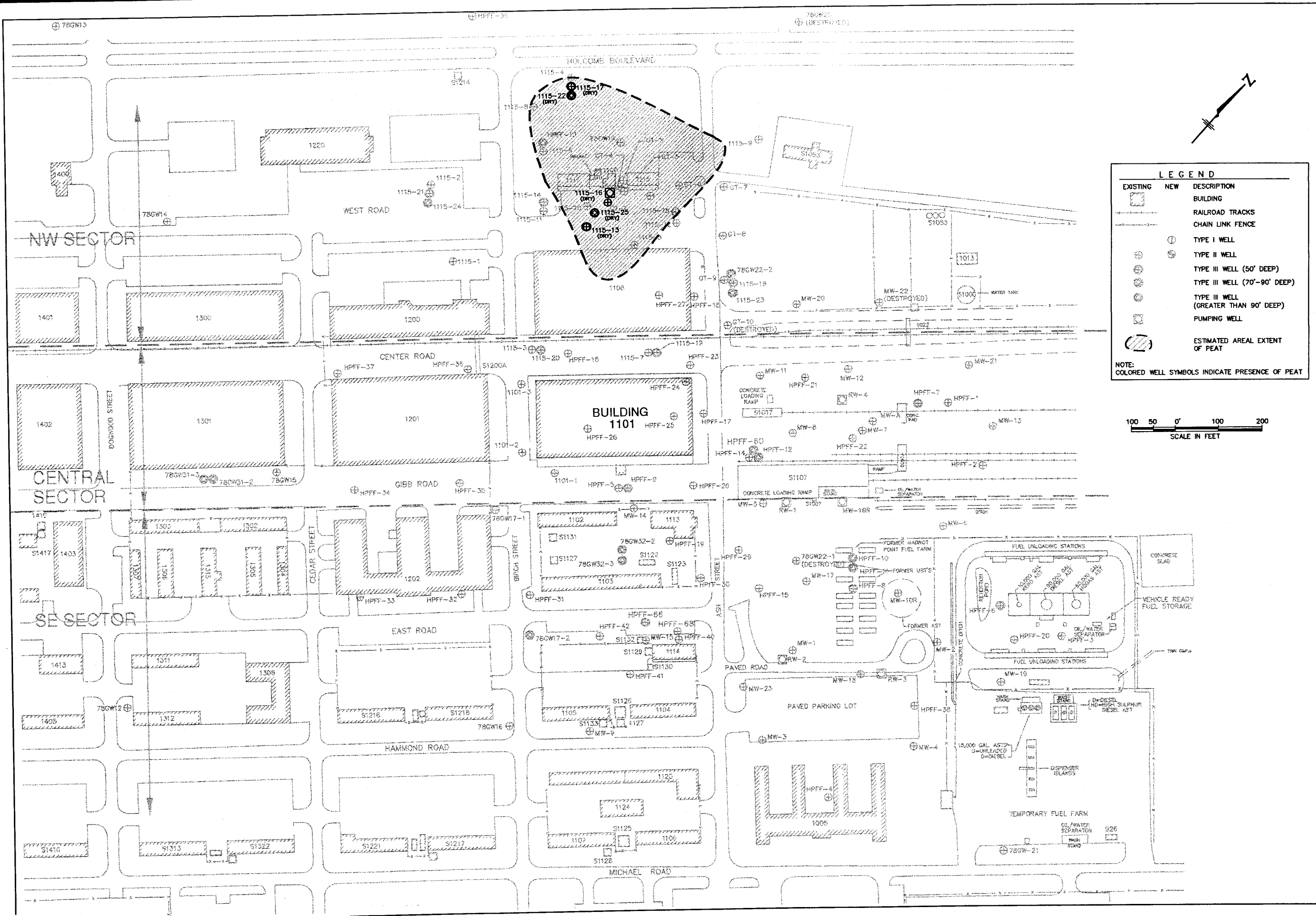
JOB NO. 201-130

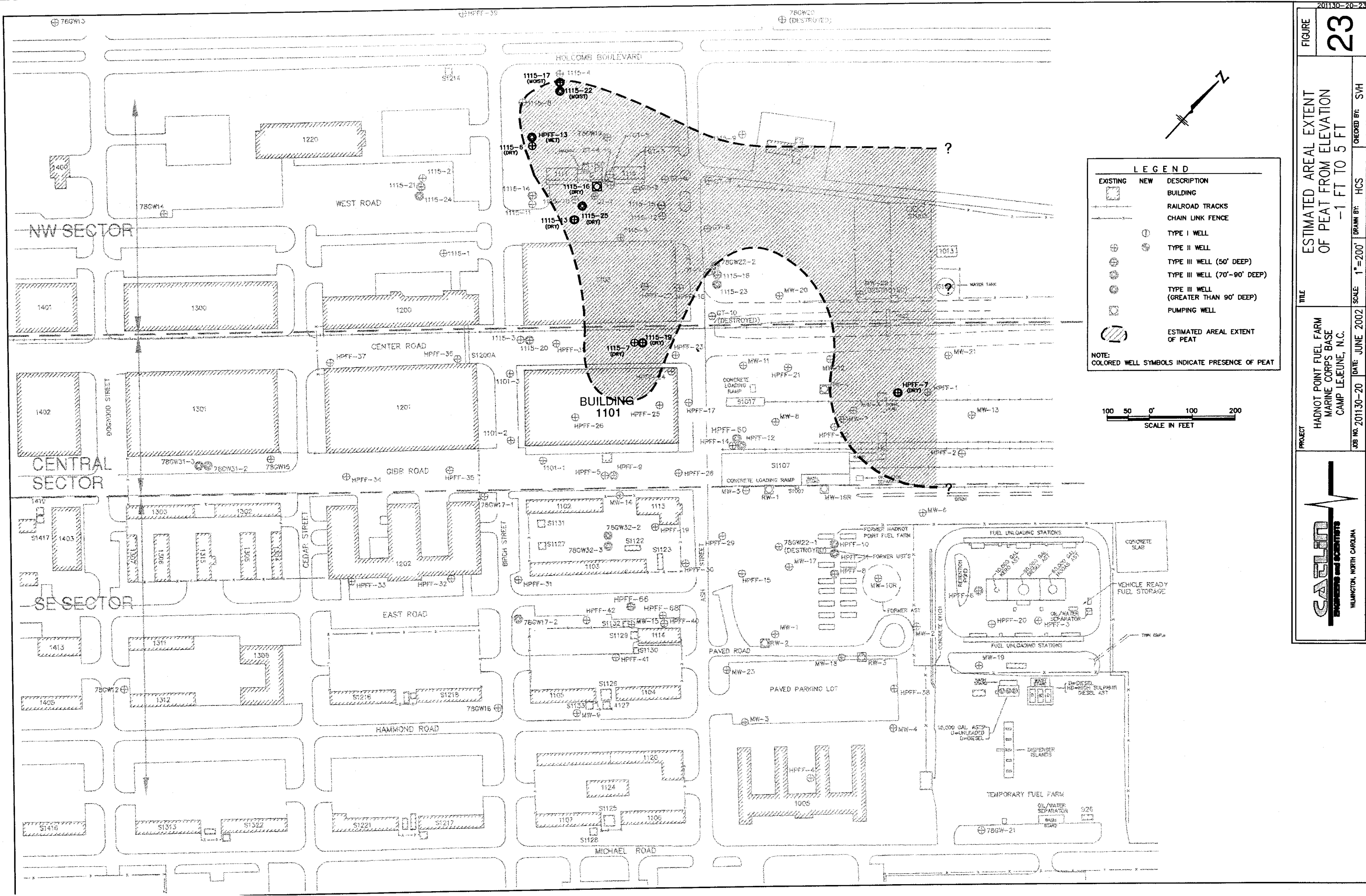
DATE: JUNE 2002

TITLE
**SUBSURFACE DIAGRAM
C-C'**

FIGURE
20

11217_FENCE HPFF.GPJ CATLIN.GDT JUNE 2002





LEGEND

EXISTING	NEW	DESCRIPTION
[Symbol]	[Symbol]	BUILDING
[Symbol]	[Symbol]	RAILROAD TRACKS
[Symbol]	[Symbol]	CHAIN LINK FENCE
[Symbol]	[Symbol]	TYPE I WELL
[Symbol]	[Symbol]	TYPE II WELL
[Symbol]	[Symbol]	TYPE III WELL (50' DEEP)
[Symbol]	[Symbol]	TYPE III WELL (70'-90' DEEP)
[Symbol]	[Symbol]	TYPE III WELL (GREATER THAN 90' DEEP)
[Symbol]	[Symbol]	PUMPING WELL
[Symbol]	[Symbol]	ESTIMATED AREAL EXTENT OF PEAT

NOTE: COLORED WELL SYMBOLS INDICATE PRESENCE OF PEAT



FIGURE

23

ESTIMATED AREAL EXTENT OF PEAT FROM ELEVATION -1 FT TO 5 FT

201130-20-23

PROJECT

HADNOT POINT FUEL FARM
MARINE CORPS BASE
CAMP LEJEUNE, N.C.

TITLE

ESTIMATED AREAL EXTENT OF PEAT FROM ELEVATION -1 FT TO 5 FT

CHECKED BY:

SVH

DATE:

JUNE 2002

SCALE:

1"=200'

DRAWN BY:

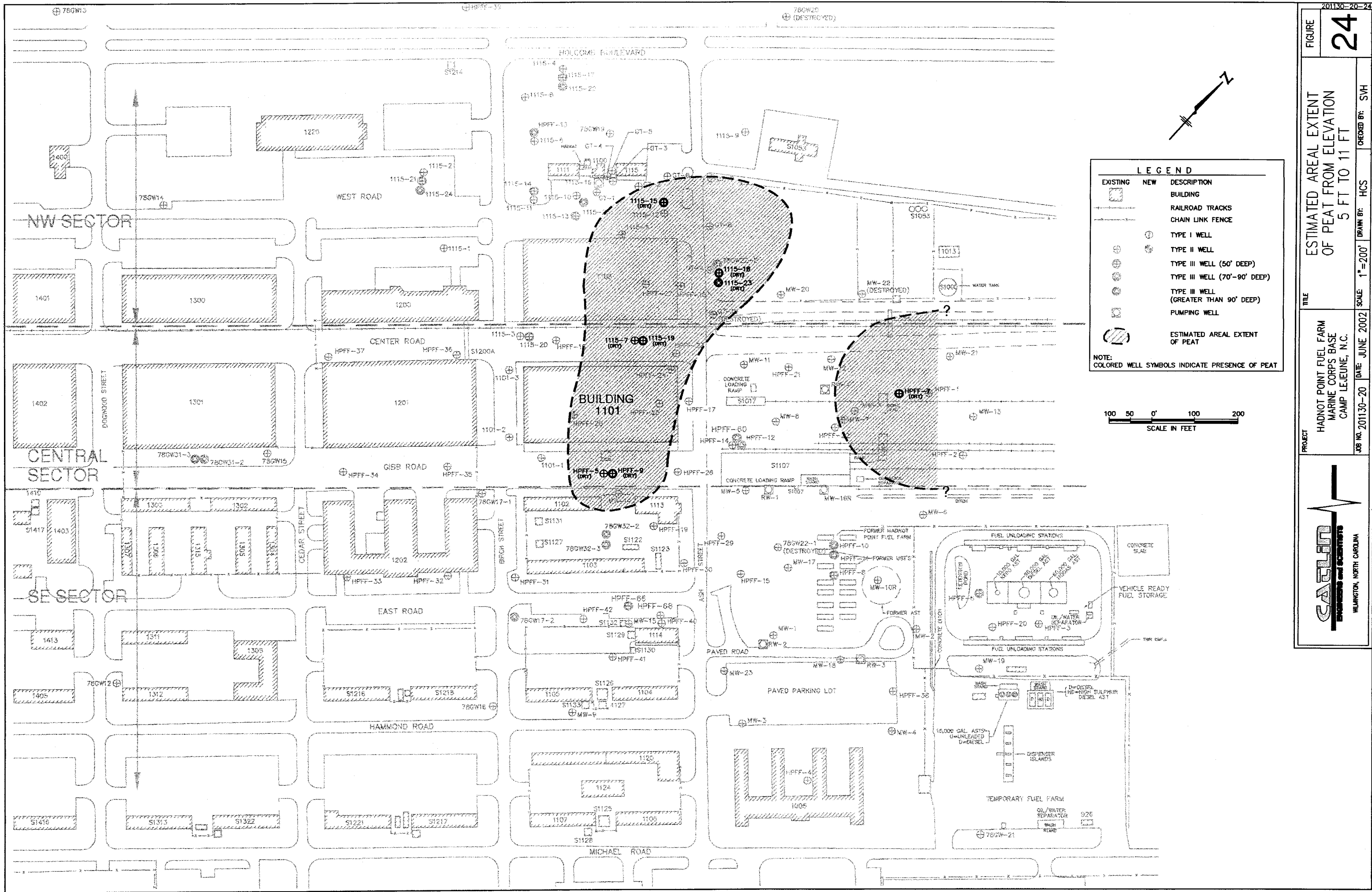
HCS

JOB NO.

201130-20

WILMINGTON, NORTH CAROLINA

CATLIN ENGINEERS and SCIENTISTS



LEGEND

EXISTING	NEW	DESCRIPTION
[Symbol]	[Symbol]	BUILDING
[Symbol]	[Symbol]	RAILROAD TRACKS
[Symbol]	[Symbol]	CHAIN LINK FENCE
[Symbol]	[Symbol]	TYPE I WELL
[Symbol]	[Symbol]	TYPE II WELL
[Symbol]	[Symbol]	TYPE III WELL (50' DEEP)
[Symbol]	[Symbol]	TYPE III WELL (70'-90' DEEP)
[Symbol]	[Symbol]	TYPE III WELL (GREATER THAN 90' DEEP)
[Symbol]	[Symbol]	PUMPING WELL
[Symbol]	[Symbol]	ESTIMATED AREAL EXTENT OF PEAT

NOTE: COLORED WELL SYMBOLS INDICATE PRESENCE OF PEAT



FIGURE

24

ESTIMATED AREAL EXTENT OF PEAT FROM ELEVATION 5 FT TO 11 FT

PROJECT

HADNOT POINT FUEL FARM
MARINE CORPS BASE
CAMP LEJUNE, N.C.

TITLE

201130-20-24

DATE

JUNE 2002

SCALE

1"=200'

DRAWN BY

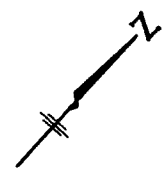
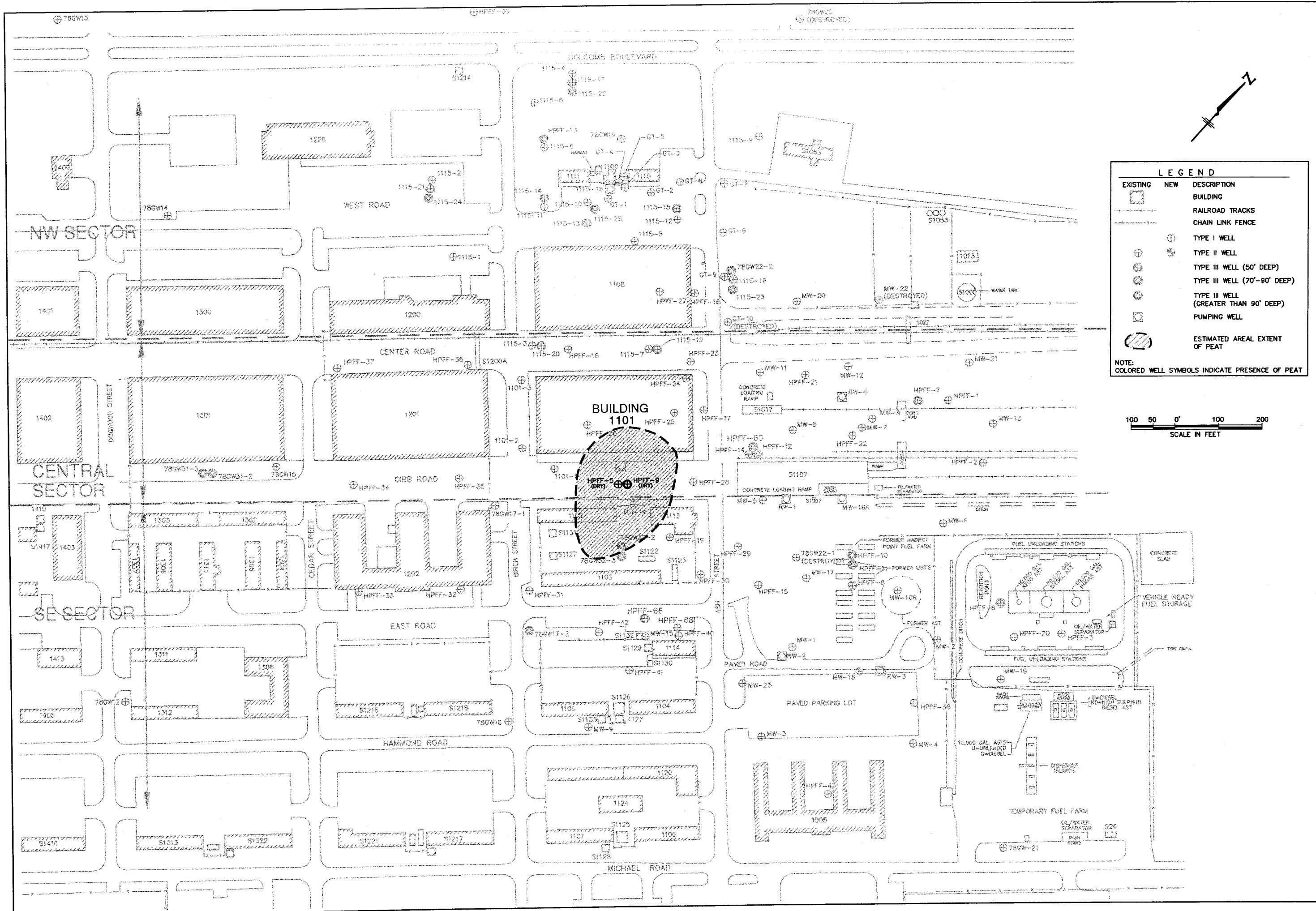
HCS

CHECKED BY

SVH

WILMINGTON, NORTH CAROLINA





LEGEND

EXISTING	NEW	DESCRIPTION
[Symbol]	[Symbol]	BUILDING
[Symbol]	[Symbol]	RAILROAD TRACKS
[Symbol]	[Symbol]	CHAIN LINK FENCE
[Symbol]	[Symbol]	TYPE I WELL
[Symbol]	[Symbol]	TYPE II WELL
[Symbol]	[Symbol]	TYPE III WELL (50' DEEP)
[Symbol]	[Symbol]	TYPE III WELL (70'-90' DEEP)
[Symbol]	[Symbol]	TYPE III WELL (GREATER THAN 90' DEEP)
[Symbol]	[Symbol]	PUMPING WELL
[Symbol]	[Symbol]	ESTIMATED AREAL EXTENT OF PEAT

NOTE: COLORED WELL SYMBOLS INDICATE PRESENCE OF PEAT



FIGURE

25

ESTIMATED AREAL EXTENT OF PEAT FROM ELEVATION 11 FT TO 17 FT

MEM

PROJECT

HADNOT POINT FUEL FARM
MARINE CORPS BASE
CAMP LEJEUNE, N.C.

DATE

JUNE 2002

SCALE

1" = 200'

DRAWN BY

HCS

CHECKED BY

MEM

CATLIN

ENGINEERS AND SCIENTISTS

WILMINGTON, NORTH CAROLINA

APPENDIX

APPENDIX A

**SOIL TEST BORING RECORDS and
WELL CONSTRUCTION DETAILS**

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Steven Hudson	WELL ID: 1115-01	
	DRILLER: Mike Sage		
NORTHING: 3,839,153.9	EASTING: 286,040.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Between Bld. 1200 and West Road			T.O.C. ELEV.: 26.11
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 11/29/93	FINISH DATE: 11/29/93	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.1	0.0
2.0	G	R	A	B	1.2		ML		2.0	Orange/brown, CLAYEY SILT with minor sands, v.f. to cse., poorly sorted. No HCO.	24.1	2.0
4.0									4.0		22.1	3.0
5.0									5.0		21.1	5.0
7.0	4	4	4	4	0.4		SM		7.0	Gray, SILTY SAND, fine to med. fine grained, moderately poor sorting, slightly cohesive, firm and dense. No HCO.	19.1	
10.0									10.0		16.1	
12.0	10	8	8	6	1.8		SP/SM		12.0	Gray to gray/orange SAND with minor SILT, med. fine to fine grained, moderate sorting. No HCO.	14.1	
15.0									15.0		11.1	15.0
17.0	4	8	8	6	3.6		SW		16.0	Gray to orange/brown SAND w/1" clayey sand lenses, cse. to v.f. grained. No HCO.	10.1	
							SP		17.0	Gray to orange/brown SAND, mod. sorted. No HCO.	9.1	
										Boring Terminated at Elevation 9.1 ft		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

CATLIN

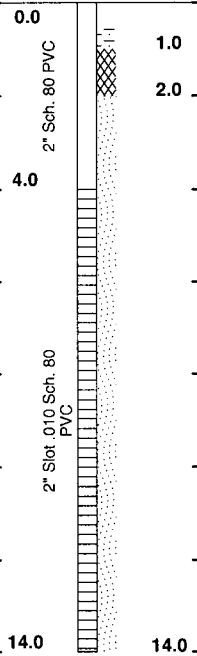
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Mike Sage	1115-02
NORTHING: 3,839,187.7	EASTING: 285,994.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Northern corner of library (Bld. 1220) parking lot.			T.O.C. ELEV.: 25.97
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 11/29/93	FINISH DATE: 11/29/93	24 HOUR DTW:	WELL DEPTH: 14.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in								
									0.0 LAND SURFACE	26.0	0.0
2.0	G	R	A	B	1.2		ML		Orange/tan, SANDY SILT with clays, v.f. to med.. No HCO.	24.0	1.0
4.0									4.0	22.0	2.0
5.0									5.0	21.0	
7.0	2	2	2	2	0.8		SM		Dark gray, SILTY, v.f. to med. grained SAND, poorly sorted, semi-cohesive to cohesive, semi-elastic. No HCO.	19.0	
10.0									10.0	16.0	
12.0	HP	HP	HP	HP	1.0		SP		Light gray SAND, med. to med. cse. grained, moderately well sorted. No HCO.	14.0	
15.0									15.0	11.0	
17.0	8	12	14	22	7.6		SC		15.5 Light gray, CLAYEY, v.f. to med. grained SAND, dense, cohesive and nonplastic. No HCO.	10.5	
							SP		17.0 Medium cse. to cse. SAND, mod. well sorted, high perm.. No HCO.	9.0	
Boring Terminated at Elevation 9.0 ft											



CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID: 1115-03
		DRILLER: Mike Sage	
NORTHING: 3,839,134.7	EASTING: 286,119.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Intersect. of Center Rd. & Birch St. by Bld. 1108			T.O.C. ELEV.: 26.17
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 22.0
START DATE: 12/14/93	FINISH DATE: 12/14/93	24 HOUR DTW:	WELL DEPTH: 20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in							
									0.0 LAND SURFACE	26.2	0.0
2.0									2.0 24.2		2.0
	G	R	A	B	4.6		ML		Buff orange, SILTY SAND to SANDY SILT, v.f. to fine grained, moderately poor sorting, semi-cohesive and nonplastic. No HCO.	22.2	3.0
4.0									4.0 21.2		
5.0									5.0 19.2		
	3	3	2	3	0.8		SM		Orange to light gray, SILTY, v.f. to fine grained SAND w/minor clay, poorly sorted, low permeability. No HCO.	17.0	
7.0									7.0 16.2		
									10.0 14.2		
10.0									10.0 11.2		
	4	5	5	6	0.6		SM		Light gray to orange, SILTY, v.f. to med. fine grained SAND w/minor clay, semi-cohesive and nonplastic. No HCO.	9.2	
12.0									12.0 6.2		
									15.0 5.2		
15.0									15.0 4.2		
	8	6	10	12	2.7		SP		Light gray to buff yellow, SAND, med. fine to med. grained, moderately well sorted, high permeability. No HCO.	20.0	
17.0									17.0 21.0		
									20.0 22.0		
20.0									20.0 4.2		
	2	2	2	2	1.5		SM		Orange, SILTY, fine to med. grained SAND, moderately sorted, moderate permeability. No HCO.		
22.0							SM		Light gray, S.A.A. Sharp contact.		
									Boring Terminated at Elevation 4.2 ft		

2" Sch. 80 PVC
2" Slot 010 Sch. 80 PVC

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Alan Melton	1115-04
NORTHING: 3,839,307.3	EASTING: 286,027.7	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Grass area by Bld. 1115 along Holcomb Blvd.			T.O.C. ELEV.: 27.31
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 11/30/93	FINISH DATE: 11/30/93	24 HOUR DTW: 7.93	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	24.8	2.5
2.0									2.0		22.8	0.0
	G	R	A	B	1.7		SM		4.0	Dark brown to orange brown, SILTY, v.f. to fine SAND. Mod. poor sorting, slightly cohesive and loose. Dry/damp. No HCO	20.8	2.0
4.0									5.0		19.8	3.0
5.0	4	4	4	4	0.8		CL		7.0	Buff orange, CLAY, mod. well sorted w/trace v.f. sand and root frags. Slight plasticity. Moist. No HCO.	17.8	5.0
7.0									10.0		14.8	
10.0	1	1	1	1	460		MH		12.0	Dark gray, CLAYEY SILT w/minor v.f. to fine sands, poorly sorted. High elasticity. Wet. No HCO.	12.8	2" Sch. 40 PVC
12.0									15.0		9.8	2" Slot .010 Sch. 40 PVC
15.0	HP	HP	HP	HP	960		MH		17.0	S.A.A. w/minor v.f. to fine sands decreasing with depth. Wet. No HCO.	7.8	15.0
17.0										Boring Terminated at Elevation 7.8 ft 24 hour DTW from August 16, 2001 gauging event		15.0

CATLIN BORING LOG 201-130.GPJ CATLIN.GPJ 06/13/02



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Mike Sage	1115-05
NORTHING: 3,839,239.6	EASTING: 286,134.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - NW of central portion of Bld. 1108 along West Rd.			T.O.C. ELEV.: 26.37
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 11/30/93	FINISH DATE: 11/30/93	24 HOUR DTW: 4.69	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in								
									0.0 LAND SURFACE	26.4	0.0
2.0	G	R	A	B	0.8		SM		Brown orange, SILTY, v.f. to med. SAND. Poorly sorted, semi-cohesive. Damp. No HCO.	24.4	2.0
4.0										22.4	3.0
5.0										21.4	5.0
7.0	3	4	3	4	1.4		SM		Mottled orange tan to gray, SILTY, v.f. to fine SAND. Mod. poor sorting. Cohesive. Damp. No HCO.	19.4	
10.0										16.4	
12.0	HP	HP	HP	HP	10		ML		Dark gray, CLAYEY SILT w/minor v.f. to fine sand. Medium to high elasticity. Wet. Mod. HCO.	14.4	
15.0										11.4	15.0
17.0	HP	HP	HP	HP	490		SW		Gray to dark gray, fine to med. SAND w/minor SILT. Mod. sorting. Wet. Strong HCO.	9.4	15.0
									Boring Terminated at Elevation 9.4 ft 24 hour DTW from August 16, 2001 gauging event		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Mike Sage	1115-06
NORTHING: 3,839,255.0	EASTING: 286,042.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - SW corner of grass area by Bld. 1115 along Birch St.			T.O.C. ELEV.: 28.20
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 22.0
START DATE: 12/14/93	FINISH DATE: 12/16/93	24 HOUR DTW: 10.17	WELL DEPTH: 20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	26.2	2.0
2.0									2.0		24.2	0.0
	G	R	A	B	1.3		SM		4.0	Orange brown, SILTY, v.f. to fine SAND. Poorly sorted w/root fragments. Damp. No HCO.	22.2	2.0
4.0									5.0		21.2	3.0
5.0	3	3	3	3	9.4		SM		7.0	Mottled, light gray to orange red, SILTY, v.f. to med. SAND. Mod. poor sorting sorted w/root fragments. Damp. No HCO.	19.2	5.0
7.0									10.0		16.2	
10.0	1	1	1	1	4.2		MH		12.0	Dark gray, SILTY CLAY w/trace v.f. to fine sand. Med. to high elasticity. Low permeability. Wet. Possible HCO.	14.2	
12.0									15.0		11.2	
15.0	HP	HP	HP	12	0.0		SP		17.0	Gray, fine to med. SAND w/minor SILT. Mod. sorted w/mod. to mod. high permeability. Wet. No HCO.	9.2	
17.0									20.0		6.2	20.0
20.0	3	5	5	5	240		SM		20.5	Drk gray, SILTY, v.f. to med. SAND. Wet. No HCO.	5.7	
							ML		21.0	Drk gray, SANDY SILT w/clay. Wet. No HCO.	5.2	
22.0							PT		22.0	Drk brown, SILTY PEAT. Dry	4.2	
										Boring Terminated at Elevation 4.2 ft 24 hour DTW from March 25, 2002 gauging event		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Steven Hudson	WELL ID: 1115-07	
	DRILLER: Mike Sage		
NORTHING: 3,839,188.2	EASTING: 286,188.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Between Blds. 1108 & 1101 on Center Rd.			T.O.C. ELEV.: 26.28
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 22.0
START DATE: 12/14/93	FINISH DATE: 12/14/93	24 HOUR DTW: 7.25	WELL DEPTH: 20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in								
									0.0 LAND SURFACE	26.3	0.0
2.0	G	R	A	B	420		ML		Tan to brown/orange, v.f. to fine SANDY SILT. Poorly sorted. Semi-cohesive and non-plastic. Damp. Strong HCO.	24.3	2.0
4.0										22.3	3.0
5.0										21.3	5.0
7.0	3	3	2	2	1000+		SP		Light gray, med. to fine SAND. Mod. well sorted w/med. to high permeability. Dry. Strong HCO.	19.3	
10.0										16.3	
12.0	3	4	5	6	1000+		SP		Light gray w/trace brown/orange, fine to med. SAND. Mod. sorted w/trace silt. Mod. permeability. Wet. Strong HCO.	14.3	
15.0										11.3	
17.0	5	2	3	3	1000+		SW		Gray, v.f. to med. SAND. Mod. poorly sorted w/minor SILT, clays, and root fragments. Mod. low permeability. Wet. Strong HCO.	10.3	
							PT		Brown, SILTY PEAT w/interbedded clay lenses. Very low permeability. Damp to dry. Possible HCO.	9.3	
20.0										6.3	20.0
22.0	3	4	3	5	1000+		SM		Gray to gray/brown, SILTY, v.f. to cse. SAND w/clay. Poorly sorted w/many root fragments. Mod. low permeability. Wet. Strong HCO.	4.8	
							PT		Brown. CLAYEY PEAT.	4.3	
Boring Terminated at Elevation 4.3 ft 24 hour DTW from August 16, 2001 gauging event											

CATLIN BORING LOG_201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID: 1115-08
		DRILLER: Mike Sage	
NORTHING: 3,839,272.5	EASTING: 286,018.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - West central portion of grass area by Bld. 1115 on Birch St.			T.O.C. ELEV.: 27.89
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 22.0
START DATE: 12/15/93	FINISH DATE: 12/15/93	24 HOUR DTW:	WELL DEPTH: 20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	25.9	2.0
2.0	G	R	A	B	0.0		SM		2.0	Brown to orange/brown, SILTY SAND with minor clays, poorly sorted, v.f. to med. grained, low permeability. No HCO.	23.9	0.0
4.0									4.0		21.9	2.0
5.0	3	3	4	4	0.0		SM		5.0	Orange/brown to light gray, SILTY SAND, with veins of dry white sands, v.f. to med. fine, poorly sorted, semi-cohesive, low permeability. No HCO.	20.9	3.0
7.0									7.0		18.9	
10.0	1	1	1	2	60		CL/CH		10.0	Gray to light brown, SILTY CLAY, v.f. grained, moderate sorting, low permeability. No HCO.	15.9	
12.0									12.0		13.9	
15.0									15.0		10.3	
17.0	1	1	1	3	9.5		ML		17.0	Gray, SANDY SILT, very poorly sorted, v.f. to med. grained, low permeability. No HCO.	8.9	
20.0	WR	WR	WR	WR	3.2		ML		20.0	Gray, SANDY SILT with 2" clay lenses 6" to 8" apart, v.f. to med. grained, very poorly sorted, low permeability. No HCO.	5.9	20.0
22.0									22.0		3.9	
										Boring Terminated at Elevation 3.9 ft		

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Mike Sage	1115-09
NORTHING: 3,839,336.3	EASTING: 286,124.5	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Grass area west of car wash (S1053)			T.O.C. ELEV.: 28.48
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 22.0
START DATE: 12/02/93	FINISH DATE: 12/02/93	24 HOUR DTW:	WELL DEPTH: 20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	26.0	2.5
2.0									2.0		24.0	0.0
4.0	G	R	A	B	2.6		ML		4.0	Brown orange to tan/brown, SANDY SILT w/clay, v.f. to very cse., poorly sorted, cohesive and plastic. No HCO.	22.0	2.0
5.0									5.0		21.0	3.0
7.0	3	3	3	3	0.9		CL		7.0	Gray to orange, SANDY CLAY, v.f. to med. fine grained, moderately poor sorting, plastic, not very cohesive. No HCO.	19.0	5.0
10.0									10.0		16.0	
12.0	1	1	1	1	10		ML		12.0	Dark gray, SANDY SILT w/clay, v.f. to med. fine grained, moderately poor sorting, soft, plastic and cohesive. No HCO.	14.0	
15.0									15.0		11.0	
17.0	HP	HP	HP	HP	750		CL/ML		17.0	Dark gray, CLAYEY SILT w/some sand, v.f. to fine grained, root fragments, moderately sorted, slick, cohesive and plastic. No HCO.	9.0	
20.0									20.0		6.0	20.0
22.0	7	10	10	16	1000+		SW		22.0	Gray SAND with minor SILT, poor to moderate poor sorting, fine to med. fine grained, many root fragments, not cohesive.	4.0	20.0
										Boring Terminated at Elevation 4.0 ft		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/15/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

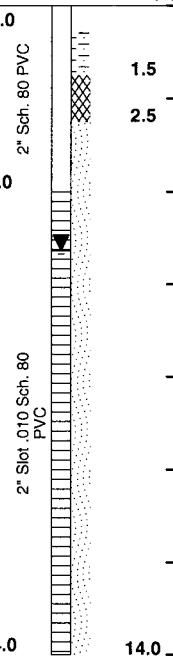
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Mike Sage	1115-10
NORTHING: 3,839,246.0	EASTING: 286,094.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - In parking lot @ Bld 1111 & 1115 along West St.			T.O.C. ELEV.: 25.92
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 11/29/93	FINISH DATE: 11/29/93	24 HOUR DTW: 5.27	WELL DEPTH: 14.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	25.9	0.0
2.0	G	R	A	B	1.6		MH		2.0	Tan/orange, v.f. to fine SANDY SILT w/clay. Mod. poor sorting. Cohesive and elastic. Damp. No HCO.	23.9	1.5
4.0									4.0		21.9	2.5
5.0									5.0		20.9	
7.0	1	1	2	2	50		MH		7.0	Tan to gray, v.f. to med. SANDY SILT w/clay. Poorly sorted. Cohesive and elastic. Wet. Strong HCO.	18.9	
10.0									10.0		15.9	
12.0	HP	HP	HP	HP	230		CH		12.0	Dark gray, CLAY w/minor silt. Mod. sorting. Soft, cohesive, and plastic. Wet. No HCO.	13.9	
15.0									15.0		10.9	
17.0	2	2	5	3	1000+		SP		17.0	Dark gray, CLAYEY SILT w/some sand, v.f. to fine grained, root fragments, moderately sorted, slick, cohesive and plastic. No HCO.	8.9	
										Boring Terminated at Elevation 8.9 ft 24 hour DTW from August 16, 2001 gauging event		



Portland Cement	Bentonite Pellets	#2 Medium Sand

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/13/02

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	Steven Hudson	WELL ID:
					DRILLER:	Mike Sage	1115-11
NORTHING:	3,839,224.6	EASTING:	286,067.6	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION: NW SECTOR - Grass area (Bld. 1115) @ corner of West Rd. & Birch St.							T.O.C. ELEV.: 27.89
DRILL MACHINE:	Diedrich D-50	METHOD:	HSA	0 HOUR DTW:		BORING DEPTH:	22.0
START DATE:	12/14/93	FINISH DATE:	12/14/93	24 HOUR DTW:		WELL DEPTH:	20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	25.9	2.0
2.0									2.0		23.9	0.0
4.0	G	R	A	B	0.0				4.0	Brown/gray, SANDY SILT, v.f. to med. fine grained, poorly sorted, semi-cohesive, not plastic, root fragments.	21.9	2.0
5.0									5.0		20.9	3.0
7.0	2	2	2	4	3.0		CL/ML		7.0	Gray/brown to orange, CLAYEY SILT w/sand, v.f. to med. fine grained, moderately poor sorting, cohesive, semi-plastic, root fragments.	18.9	5.0
10.0									10.0		15.9	
12.0	2	6	6	6	100		SM		10.5	Orange to light gray, mottled, SAND w/silt and minor clay, moderate sorting, moderate permeability. Possible HCO.	15.4	
							SP		12.0	Dark gray, CLAYEY SILT w/some sand, v.f. to fine grained, root fragments, moderately sorted, slick, cohesive and plastic. No HCO.	13.9	
15.0									15.0		10.9	
17.0	6	8	10	8	1000+		SM		17.0	Gray, SILTY, fine to med. grained SAND, moderately poor sorted, moderately low permeability. Strong HCO.	8.9	
20.0									20.0		5.9	20.0
22.0	HP	HP	HP	HP	1000+		SP		22.0	Light gray SAND w/minor clay lenses, med. well to well sorted, fine to med. cse. grained, moderate to high permeability. Strong HCO.	3.9	20.0
										Boring Terminated at Elevation 3.9 ft		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Mike Sage	1115-12
NORTHING: 3,839,274.9	EASTING: 286,143.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Corner of parking lot @ Bld. 1115 @ corner of Ash St. & West			T.O.C. ELEV.: 26.17
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 11/30/93	FINISH DATE: 11/30/93	24 HOUR DTW: 5.13	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	26.2	0.0
2.0									2.0		24.2	2.0
	G	R	A	B	1000+		SM		4.0	Gray orange to orange/brown, SILTY, v.f. to med. fine SAND. Poorly sorted w/root fragments and minor clay. Damp. Mod. HCO.	22.2	3.0
4.0									5.0		21.2	5.0
5.0	2	2	2	4	1000+		SM		7.0	Yellow/gray to brown, SILTY, fine to med. SAND. Mod. poor sorting. Cohesive. Damp. Strong HCO.	19.2	
7.0									10.0		16.2	
10.0	HP	HP	HP	HP	320		CH		11.0	Dark gray, SILTY CLAY. Mod. sorting. Plastic. Wet. Strong HCO.	15.2	
12.0							SM		12.0	Dark gray, CLAYEY SILT w/some sand, v.f. to fine grained, root fragments, moderately sorted, slick, cohesive and plastic. No HCO.	14.2	
15.0									15.0		11.2	15.0
	HP	HP	HP	HP	130		SP		17.0	Dark gray, med. fine to fine SAND. Mod. sorting w/silt. Wet. Possible HCO.	9.2	15.0
17.0										Boring Terminated at Elevation 9.2 ft 24 hour DTW from August 16, 2001 gauging event		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Steven Hudson	WELL ID: 1115-13	
NORTHING: 3,839,246.8	EASTING: 286,093.7	DRILLER: Mike Sage	
		SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - In parking lot @ Bld 1111 & 1115 along West St.			T.O.C. ELEV.: 25.90
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 52.0
START DATE: 11/17/93	FINISH DATE: 12/09/93	24 HOUR DTW: 8.96	WELL DEPTH: 51.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	25.9	0.0
0.0	G	R	A	B	80		GM			Light orange to brown, GRAVEL with CLAYEY SILT and minor v.f. to cse. sand. Poorly sorted. Dry. Weak HCO.		
2.5									2.5		23.4	
	2	2	2	2	4.0		CL			Buff orange to light gray, v.f. to fine SANDY CLAY w/med. fine sand lenses. Poorly sorted. Damp. No HCO.		
5.0									5.0		20.9	
	2	2	2	2	400		MH			Light greenish gray to tan, SANDY SILT. Poorly sorted w/minor clay. Cohesive and elastic. Wet. Strong HCO.		
7.5									7.5		18.4	
	1	2	1	1	300		MH			Dark gray, CLAYEY SILT w/some sand, v.f. to fine grained, root fragments, moderately sorted, slick, cohesive and plastic. No HCO.		
10.0									10.0		15.9	
	1	1	1	1	250		MH			Gray to dark gray, CLAYEY SILT w/trace v.f. sand. Cohesive and plastic. Wet. Possible HCO.		
12.5									12.5		13.4	
	1	1	6	12	1000+		SM			Gray, SILTY, v.f. to fine SAND. Loose. Wet. Slight HCO.		
							SW/SP		14.0		11.9	
15.0									15.0	Gray, med. SAND. Mod. poor sorting. Wet. Strong HCO.	10.9	
	2	3	6	5	1000+		SP			Gray, med. SAND. Mod. well sorted. High permeability. Wet. Strong HCO.		
17.5									17.5		8.4	
	5	5	6	8	1000+		SP			S.A.A. Wet. Strong HCO.		
20.0									20.0		5.9	
	2	3	3	4	1000+		SP			S.A.A. Wet. Strong HCO.		
									22.0		3.9	
22.5							PT		22.5	Dark brown, SILTY PEAT. Dense w/many root frags.. Dry. No HCO.	3.4	
	4	4	5	4	1000+		SP		23.5	Medium SAND. Mod. sorted. Damp. Possible HCO.	2.4	
							PT			Dark brown, PEAT. Many root fragments. Dry. No HCO.		
25.0									25.0		0.9	
	HP	HP	HP	HP	1000+		PT			Dark brown, SILTY PEAT. Dense w/many root frags.. Dry. No HCO.		
27.5									27.5		-1.6	
							OH		28.5	Dark gray, SILTY CLAY. Cohesive and plastic. Wet. HCO.	-2.6	
	8	14	16	44	1000+		SW			Dark to light gray, med. fine to med. SAND. Mod. sorted w/mod. permeability. Wet. HCO.		
									30.0		-4.1	

CATLIN BORING LOG 201-130.GPJ CATLIN.GPJ 06/13/02

2" Sch. 80 PVC

6" Sch. 40 PVC

Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

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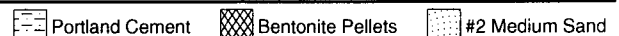
Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Mike Sage	1115-13
NORTHING: 3,839,246.8	EASTING: 286,093.7	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - In parking lot @ Bld 1111 & 1115 along West St.			T.O.C. ELEV.: 25.90
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 52.0
START DATE: 11/17/93	FINISH DATE: 12/09/93	24 HOUR DTW: 8.96	WELL DEPTH: 51.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.0	22	22	24	25	1000+		SP		30.0	Light gray, med. SAND. Mod. well to well sorted w/mod. high to high permeability. Wet.	-6.6	
32.5	16	18	12	24	1000+		SP		32.5	S.A.A.. Wet.	-9.1	
35.0	10	10	10	8	790		SP		35.0	S.A.A., med. to med. cse.. Wet. Strong HCO.	-11.6	
37.5	4	4	4	6	1000+		SP		37.5	S.A.A., cse. to med. cse.. Wet. Strong HCO.	-14.1	
40.0									40.0		-14.1	40.0 40.5
45.0	WRWR	5	8	1000+					45.0	Dark gray, fine to med. SAND. Mod. poor sorting w/minor calcareous fragments. Mod. to low permeability. Saturated. Strong HCO.	-19.1	43.5
47.0									47.0		-21.1	46.0
50.0	4	4	7	10	1000+				50.0	S.A.A. w/calcareous fragments and silt increasing w/depth. Saturated. Strong HCO.	-24.1	51.0
52.0									52.0	Boring Terminated at Elevation -26.1 ft 24 hour DTW from August 16, 2001 gauging event	-26.1	51.0

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02


 Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Mike Sage	1115-14
NORTHING: 3,839,225.3	EASTING: 286,065.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Grass area (Bld. 1115) @ intersection of West Rd. & Birch St.			T.O.C. ELEV.: 27.96
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 53.0
START DATE: 12/06/93	FINISH DATE: 12/06/93	24 HOUR DTW: 10.88	WELL DEPTH: 51.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.0	2.0
												0.0
2.0									2.0		24.0	
	G	R	A	B	15		ML			Brown, v.f. to med. SANDY SILT. Poorly sorted w/root frags. Damp. No HCO.		
4.0									4.0		22.0	
5.0									5.0		21.0	
	HP	HP	HP	HP	1.0		SC			Orange brown to gray brown, CLAYEY, v.f. to med. SAND. Poorly sorted. Damp. No HCO.		
7.5									7.5		18.5	
	HP	HP	HP	HP	2.2		SC			Red to mottled orange tan, v.f. to med. SANDY CLAY/CLAYEY SAND. Poorly sorted w/slight plasticity and silt. Wet. No HCO.		
10.0									10.0		16.0	
	HP	HP	HP	HP	1000+		SC		11.0	Gray to orange brown, CLAYEY, v.f. to med. SAND. Poorly sorted. Wet. HCO present.	15.0	
12.5							SP		12.5	Gray, med. SAND. Mod. well sorted w/high permeability. Wet. HCO present.	13.5	
	18	16	12	14	1000+		SP			S.A.A. Wet. HCO present.		
14.5									14.5		11.5	
15.0							SM		15.0	Dark gray to brown, SILTY, fine to med. SAND. Mod. poor to poor sorting. Low permeability. Wet. HCO present.	11.0	
	16	18	6	12	940		SC		15.5		10.5	
17.5							SM		17.5	Brown gray, CLAYEY, v.f. to med. SAND. Poorly sorted. Cohesive w/slight plasticity. Wet. Strong HCO.	8.5	
	10	10	12	12	1000+		SP			Brown gray, fine to med. SAND w/minor silt. Mod. to mod. poor sorting. Mod. permeability. Wet. Strong HCO.		
20.0									20.0	Light gray, med. to fine SAND. Mod. well sorted. High permeability. Wet. Possible HCO.	6.0	
	18	18	24	16	1000+		SP			S.A.A. Wet. Possible HCO.		
22.5									22.5		3.5	
	8	10	10	10	1000+		SP			S.A.A. Wet. Possible HCO.		
25.0									25.0		1.0	
	7	7	6	4	1000+		SP			S.A.A. Wet. Possible HCO.		
27.5									27.0		-1.0	
	HP	HP	HP	HP	1000+		SM		27.5	Light gray, SILTY, v.f. to med. SAND. Poorly sorted w/clay. Low permeability. Wet. HCO.	-1.5	
							SM			S.A.A. Wet. HCO.		
									30.0		-4.0	

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC


 Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Mike Sage	1115-14
NORTHING: 3,839,225.3	EASTING: 286,065.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Grass area (Bld. 1115) @ intersection of West Rd. & Birch St.			T.O.C. ELEV.: 27.96
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 53.0
START DATE: 12/06/93	FINISH DATE: 12/06/93	24 HOUR DTW: 10.88	WELL DEPTH: 51.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in								
30.0	HP	HP	HP	HP	540		SM		S.A.A. Wet. HCO.		
32.5										-6.5	
35.0	HP	HP	HP	HP	480		SW		Light gray, fine to cse. SAND. Poorly sorted w/silt. Mod. low permeability. Wet. Possible HCO.	-9.0	
37.5	4	6	6	4	360		SW		S.A.A. w/traces of glauconite. Wet. Possible HCO.	-11.5	
40.0	5	5	5	4	64		SP		Light gray, med. to med. cse. SAND. Mod. well sorted w/traces of glauconitic clay. Wet. Possible HCO.	-14.0	
46.0										-20.0	
48.0	WRWR	6	5		850		SW		Dark gray, med. fine to fine SAND. Mod. poor sorting. Mod. permeability. Wet. Strong HCO.	-22.0	
51.0										-25.0	
53.0	WRWRWR	4			1000+		SM		Dark gray, SILTY, v.f. to med. fine SAND. Poorly sorted. Low permeability. Wet. Strong HCO.	-27.0	
Boring Terminated at Elevation -27.0 ft 24 hour DTW from August 16, 2001 gauging event											

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Steven Hudson	WELL ID: 1115-15	
	DRILLER: Mike Sage		
NORTHING: 3,839,273.8	EASTING: 286,145.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR -Corner of parking lot @ Bld. 1115 @ corner of Ash St. & West			T.O.C. ELEV.: 25.93
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 53.5
START DATE: 12/02/93	FINISH DATE: 12/02/93	24 HOUR DTW: 8.59	WELL DEPTH: 51.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	25.9	0.0
0.0	8	6	6	8	1000+		CL		2.0	Orange/brown to tan, SILTY CLAY. Poorly sorted w/v.f. to med. fine sand. Damp. Strong HCO.	23.9	
2.0	4	6	6	4	1000+		SM		4.0	Gray/orange to orange/brown, SILTY, v.f. to med. fine SAND. Poorly sorted w/minor clays. Damp. Strong HCO.	21.9	
4.0									5.0		20.9	
5.0												
	3	3	2	2	1000+		SM		7.5	S.A.A. Wet. Strong HCO.	18.4	
7.5	WRWRWR				1	1000+	SM		10.0	S.A.A. Wet. Strong HCO.	15.9	
10.0	HP	HP	HP	HP	560		MH		12.5	Gray, v.f. to med. fine SANDY SILT. Poorly sorted w/root frags. Cohesive and elastic. Wet. HCO not monitored below 10 feet due to consistent strong odor.	13.4	
12.5												
	10	12	8	4	740		SP		15.0	Gray, med. SAND. Well sorted. High permeability. Wet.	10.9	
15.0												
	HP	HP	HP	HP	480		SM		17.5	Dark gray, SILTY, v.f. to med. SAND. Poorly sorted. Low Permeability. Wet.	8.4	
17.5												
	HP	HP	HP	HP	1000+		CH		19.5	Gray CLAY w/minor SILT. Mod. sorted. Cohesive and plastic. Wet.	6.4	
20.0							PT		20.0	Brown, SILTY PEAT. Firm. Very low permeability. Dry to damp.	5.9	
	HP	HP	HP	HP	1000+		OH		22.5	Dark brown CLAY w/much root and tree frags. Cohesive and plastic. Mod. well sorted. Wet.	3.4	
22.5												
	HP	HP	HP	HP	1000+		OH		25.0	S.A.A. w/decreasing root and tree frags. Wet.	0.9	
25.0												
	12	14	10	8	1000+		SM		27.0	SILTY, v.f. to fine SAND. Poorly sorted. Low permeability. Wet.	-1.1	
27.5							SW		27.5	Very fine to med. fine SAND. Mod. sorting. Mod. permeability. Wet.	-1.6	
	6	6	6	4	1000+		SW		30.0	Gray, med. fine to fine SAND. Mod. poor sorting w/low to mod. low permeability. Wet.	-4.1	

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/13/02

2" Sch. 80 PVC

6" Sch. 40 PVC

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

 Portland Cement  Bentonite Pellets  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Mike Sage	1115-16
NORTHING: 3,839,262.3	EASTING: 286,096.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Near former USTs @ Bld. 1115			T.O.C. ELEV.: 26.85
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 40.0
START DATE: 12/13/93	FINISH DATE: 12/13/93	24 HOUR DTW: 3.87	WELL DEPTH: 40.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	26.9	0.0
2.0									2.0		24.9	1.5
4.0	4	5	6	6	84		SM		4.0	Light gray to orange/brown, SILTY, v.f. to med. fine SAND. Poorly sorted w/clay. Cohesive and slightly plastic. Damp. Slight HCO.	22.9	2.5
10.0									10.0		16.9	
12.0	1	1	2	1	320		CH		12.0	Dark gray CLAY w/trace silt. Cohesive and plastic w/very low permeability. Wet. Possible HCO.	14.9	
17.0									17.0		9.9	
19.0	13	15	22	22	1000+		SP		19.0	Gray, med. fine to med. SAND. Mod. well sorted w/mod. high permeability. Wet. Strong HCO.	7.9	
22.0									22.0		4.9	
	4	6	5	8	1000+		CL		22.5	Dark brown, SILTY CLAY. Mod. well sorted. Cohesive w/low to no plasticity. Damp to dry.	4.4	
24.0							PT		24.0	Dark brown, SANDY PEAT. Poorly sorted. Damp to dry.	2.9	
27.0									27.0		-0.1	
29.0	7	10	6	6	1000+		PT		29.0	Dark brown, SILTY PEAT. Dry.	-2.2	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

6" Slot .010 Sch. 40 PVC

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Alan Melton	1115-17
NORTHING: 3,839,301.5	EASTING: 286,028.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Grass area by Bld. 1115 along Holcomb Blvd.			T.O.C. ELEV.: 26.19
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 52.0
START DATE: 05/30/95	FINISH DATE: 06/01/95	24 HOUR DTW: 9.82	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	24.7	1.5
0.0	G	R	A	B	2.4		SM			Dark brown, SILTY, v.f. to fine SAND. Mod. to poorly sorted w/root frags. Dry. No HCO.		
2.5	G	R	A	B	1.3		SM		2.5	S.A.A. Dry. No HCO.	22.2	
5.0	HP	HP	HP	HP	0.0		MH		5.0	Dark gray, CLAYEY SILT w/trace v.f. to fine SAND. Mod. to poorly sorted. Loose. Elastic. Wet. No HCO.	19.7	
7.5	HP	HP	HP	HP	40		MH		7.5	S.A.A. Wet. No HCO.	17.2	
10.0	HP	HP	HP	HP	520		MH		10.0	S.A.A. Wet. No HCO.	14.7	
12.5	HP	HP	HP	HP	350		MH		12.5	S.A.A. Wet. No HCO.	12.2	
15.0	HP	HP	HP	HP	900		MH		15.0	S.A.A. Wet. No HCO.	9.7	
17.5	WRWRWR	HP			NM		MH		17.5	S.A.A. Wet. No HCO.	7.2	
20.0	WRWRWRWR				980		MH		20.0	S.A.A. Wet. No HCO.	4.7	
22.5							MH		22.5	S.A.A. Wet. No HCO.	2.2	
							OL		24.0	Dark brown SILT w/peat. Highly organic w/root frags. Moist. No HCO.	0.7	
25.0	HP	HP	HP	HP	200		OL		25.0	S.A.A. Moist. No HCO.	-0.3	
27.5	HP	HP	HP	HP	460		OL		27.5	S.A.A. Damp. No HCO.	-2.8	
									30.0		-5.3	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	Steven Hudson	WELL ID:
					DRILLER:	Alan Melton	1115-17
NORTHING:	3,839,301.5	EASTING:	286,028.1	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION: NW SECTOR - Grass area by Bld. 1115 along Holcomb Blvd.							T.O.C. ELEV.: 26.19
DRILL MACHINE:	Diedrich D-50	METHOD:	HSA/MR	0 HOUR DTW:		BORING DEPTH:	52.0
START DATE:	05/30/95	FINISH DATE:	06/01/95	24 HOUR DTW:	9.82	WELL DEPTH:	50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in							
30.0	HP	HP	HP	HP	1000+		PT		Dark brown PEAT w/minor silt and sand. Large root frags. Dry. No HCO.	-7.8	
32.5	HP	HP	3	3	720		SW		Gray, fine to med. SAND. Trace peat packets. Mod. to poorly sorted. Damp to moist. Mild HCO.	-10.3	
35.0	6	6	3	4	1000+		SP		Gray, med. SAND. Mod. well to well sorted. Wet. Strong HCO.	-12.8	
37.5	WR	4	7	4	1000+		SP		S.A.A. Wet. Strong HCO.	-15.3	
40.0	WRWRWRWR				1000+		SP		S.A.A., med. to fine. Wet. Very strong HCO.	-17.3	
42.0											
45.0	WRWRWRWR				700		SP		Dark gray, fine SAND. Well sorted. High permeability. Wet. Strong HCO.	-22.3	
47.0											
50.0	HP	HP	HP	HP	680		SP		S.A.A. Wet. Strong HCO.	-27.3	
52.0									Boring Terminated at Elevation -27.3 ft 24 hour DTW from August 16, 2001 gauging event		

CATLIN BORING LOG 201-130.GPJ CATLIN GDI 06/13/02

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Steven Hudson	WELL ID: 1115-18	
	DRILLER: Alan Melton		
NORTHING: 3,839,262.7	EASTING: 286,201.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Across Ash St. from middle of Bld. 1108			T.O.C. ELEV.: 27.61
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 51.3
START DATE: 06/02/95	FINISH DATE: 06/08/95	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in								
									0.0 LAND SURFACE	25.6	2.0
0.0	G	R	A	B	7.2		SP		Yellowish orange, v.f. to fine SAND. Mod. sorted. Dry. No HCO.	23.1	0.0
2.5	G	R	A	B	1.0		SW		Mottled, yellowish orange and brown, v.f. to fine SAND. Mod. sorted w/trace fines and large brick fragments. Semi-cohesive. Dry. No HCO.	20.6	
5.0	HP	HP	HP	HP	4.8		SM		Mottled, yellowish orange and light gray, SILTY, v.f. to med. SAND. Poorly sorted. Moist. No HCO.	18.1	
7.5	HP	HP	HP	HP	2.6		SM		S.A.A. Moist. No HCO.	15.6	
10.0	HP	HP	HP	HP	2.0		SW		Gray, fine to med. SAND. Mod. to poorly sorted. Wet. No HCO.	13.1	
12.5	HP	HP	HP	HP	11		SW		Gray, v.f. to med. SAND. Poorly sorted w/minor clay. Loose. Wet. No HCO.	11.6	
15.0	HP	HP	HP	HP	420		CL		Gray, med., SANDY CLAY. Mod. sorted. Soft w/mod. plasticity. Wet. No HCO.	10.6	
17.5	HP	HP	HP	HP	900		CL		S.A.A. Wet. No HCO.	9.1	
20.0	HP	HP	HP	HP	88		SP		Brown, med. SAND. Mod. well sorted. Wet. No HCO.	8.6	
22.5	HP	HP	HP	HP	34		PT		Dark brown, med. grained SANDY PEAT. Firm, large root fragments. Damp.	8.1	
25.0	HP	HP	HP	HP	660		PT		Dark brown PEAT w/minor med. sands. Firm, large root fragments. Dry. No HCO.	5.6	
27.5	HP	HP	HP	HP	1000+		SP		Gray/brown, fine to med. SAND. Mod. well sorted w/trace root frags. High permeability. Wet. No HCO.	3.1	
	HP	HP	HP	HP			SP		Light gray, fine to med. SAND. Well sorted w/high permeability and trace root frags. Wet. No HCO.	0.6	
	HP	HP	HP	HP			SP		Greenish gray, fine SAND. Well sorted w/high permeability and trace root frags. Wet. Possible HCO.	-1.9	
	HP	HP	HP	HP			SP		S.A.A. Wet. Possible HCO.	-4.4	

2" Sch. 40 PVC

6" Sch. 40 PVC



Portland Cement



Bentonite Pellets



#2 Medium Sand

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Alan Melton	1115-18
NORTHING: 3,839,262.7	EASTING: 286,201.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Across Ash St. from middle of Bld. 1108			T.O.C. ELEV.: 27.61
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 51.3
START DATE: 06/02/95	FINISH DATE: 06/08/95	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.0	HP	HP	HP	HP	1000+		SP			Light gray, v.f. to fine SAND. Mod. well sorted w/mod. high permeability. Wet. Possible HCO.	-6.9	
32.5	HP	HP	HP	HP	450		SP			S.A.A., fine to med. SAND. Wet. Possible HCO.	-9.4	
35.0	HP	17	12	50/4	240					Light gray, med. SAND. Well sorted w/echinoderm spines and other fossil frags. High permeability. Wet. Possible HCO.	-11.9	
36.8												
40.0	WR	4	4	4	1000+					Gray, v.f. to med. SAND. Mod. sorted w/weathered LIMESTONE fragments. Wet. Mod. to strong HCO.	-14.4	
42.0												
45.0	12	50/5			120					Tan/brown, SANDY LIMESTONE w/fine sands and SILT. Poorly indurated. Wet. Mild HCO.	-19.4	45.0
45.9												
50.0	WR	7	50/4		14					S.A.A. Wet. Mild HCO.	-24.4	50.0
51.3												
										Boring Terminated at Elevation -25.7 ft DTW Not Recorded during August 16, 2001 due to rapid bubbling in well		

2" Slot .010 S.H. 40
PVC

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/13/02

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Alan Melton	1115-19
NORTHING: 3,839,189.8	EASTING: 286,190.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Between Blds. 1108 & 1101 on Center Rd.			T.O.C. ELEV.: 26.11
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 52.0
START DATE: 06/08/95	FINISH DATE: 06/09/95	24 HOUR DTW: 7.72	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in												
												0.0	LAND SURFACE	26.6	0.0
0.0												0.7	Asphalt. Strong HCO.	25.9	-0.5
	G	R	A	B	640							2.0	MARL Fill. Dry. Strong HCO.	24.6	
2.5												2.5		24.1	
	G	R	A	B	380		SM					5.0	Mottled, light gray to brown, SILTY, v.f. to fine SAND. Mod. sorted. Loose. Dry. Strong HCO.	21.6	
5.0	HP	HP	HP	HP	1000+		SP					7.5	Light gray, fine SAND. Mod. well sorted. Dry. Strong HCO.	19.1	
7.5	3	3	3	3	1000+		SP					10.0	S.A.A. Wet. Strong HCO.	16.6	
10.0	HP	HP	HP	HP	1000+		SP					12.5	Light gray w/minor brown/orange, fine to med. SAND. Mod. to mod. well sorted w/trace SILT. Wet. Very strong HCO.	14.1	
12.5	4	3	3	2	1000+		SW					15.0	Gray, v.f. to med. SAND. Mod. to poorly sorted w/minor SILT and clays. Wet. Very strong HCO.	11.6	
15.0	HP	HP	HP	HP	1000+		SW					16.0	S.A.A. Damp. Very strong HCO.	10.6	
17.5							PT					17.5	Brown, SILTY PEAT w/clay lenses. Dry. Minor HCO.	9.1	
	HP	HP	HP	HP	1000+		SC					20.0	Gray to gray/brown, CLAYEY, v.f. to cse. SAND. Poorly sorted w/silt and root frags. Wet. Strong HCO.	6.6	
20.0	HP	HP	HP	HP	1000+		SC					21.0	S.A.A. Damp. Mild HCO.	5.6	
22.5							PT					22.5	Dark brown, CLAYEY PEAT. Dense. Low permeability. Dry. Mild HCO.	4.1	
	HP	HP	HP	HP	1000+		PT					24.0	S.A.A. Dry. Mild HCO.	2.6	
25.0							SW					25.0	Gray, fine to cse. SAND. Poorly sorted. Wet. Strong HCO.	1.6	
	HP	HP	HP	HP	900		SW					27.5	S.A.A. Wet. Strong HCO.	-0.9	
27.5	HP	3	3	6	880		SP					30.0	Brown, fine to med. SAND. Mod. well sorted. Wet. Strong HCO.	-3.4	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC

 Portland Cement	 Bentonite Pellets	 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Alan Melton	1115-19
NORTHING: 3,839,189.8	EASTING: 286,190.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Between Blds. 1108 & 1101 on Center Rd.			T.O.C. ELEV.: 26.11
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 52.0
START DATE: 06/08/95	FINISH DATE: 06/09/95	24 HOUR DTW: 7.72	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
30.0	2	2	4	5	1000+		SP		30.0	S.A.A. w/echinoderm fragments. Wet. Strong HCO.		
32.5							SP		32.5		-5.9	
	HP	HP	2	2	640				34.0	S.A.A. Wet. Strong HCO.	-7.4	
35.0									35.0	Brown, v.f. to med. SAND. Mod. to poorly sorted. Loose. Minor LIMESTONE and echinoderm fragments. Wet. Strong HCO.	-8.4	
	HP	HP	HP	HP	200				37.0	S.A.A. Wet. Strong HCO.	-10.4	
37.5									37.5	Tan/brown, SANDY LIMESTONE. Mod. indurated w/silty sand matrix. Wet. Mod. HCO.	-10.9	
	WR	9	18	27	960					S.A.A. Wet. Mod. HCO.		
40.0									40.0		-13.4	
	16	23	27	13	26				42.0	Tan to light gray, SANDY LIMESTONE. Mod. to poorly indurated. Very sandy. Wet. Mild HCO.	-15.4	
42.0												
45.0									45.0		-18.4	45.0
	WR	15	15	12	14				47.0	S.A.A. Wet. Possible HCO.	-20.4	
47.0												
50.0									50.0		-23.4	50.0
	G	R	A	B	NM				52.0	Light gray, SANDY LIMESTONE. Fine sand matrix. Well indurated.	-25.4	
52.0										Boring Terminated at Elevation -25.4 ft 24 hour DTW from August 16, 2001 gauging event		

2" Slot .010 Sch. 40
PVC

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Alan Melton	1115-20
NORTHING: 3,839,135.5	EASTING: 286,121.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Intersect. of Center Rd. & Birch St. by Bld. 1108			T.O.C. ELEV.: 26.24
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 52.0
START DATE: 06/08/95	FINISH DATE: 06/12/95	24 HOUR DTW: 7.48	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.7	0.0
0.0									0.7	ASPHALT	26.0	-0.5
	G	R	A	B	3.0		GW		2.0	MARL FILL	24.7	
2.5												
	G	R	A	B	4.8		SM			Yellowish orange, SILTY, v.f. to fine grained SAND to SANDY SILT. Poorly sorted. Damp. No HCO.		
5.0									5.0		21.7	
	HP	HP	HP	HP	0.4		SM			S.A.A. Damp. No HCO.		
7.5									7.5		19.2	
	HP	HP	HP	HP	0.0		SM			Mottled, yellowish orange to gray, SILTY, v.f. to fine grained SAND. Mod poorly sorted. Semi-cohesive. Damp. No HCO.		
10.0									10.0		16.7	
	HP	HP	HP	HP	3.2		SM			S.A.A. Damp. No HCO.		
12.5									12.5		14.2	
	HP	HP	HP	HP	4.6		SM		14.0	S.A.A. Wet. No HCO.	12.7	
15.0									15.0	Yellowish orange, fine grained, SAND. Mod. well sorted w/mod. high permeability. Wet. No HCO.	11.7	
	HP	4	4	4	1.0		SP			Light gray to yellowish orange, fine grained SAND. Mod. well sorted w/mod. high permeability. Wet. No HCO.		
17.5									17.5		9.2	
	HP	HP	HP	HP	3.0		SP			S.A.A. Wet. No HCO.		
20.0									20.0		6.7	
	HP	HP	HP	HP	6.4		SP			S.A.A. Wet. No HCO.		
22.5									22.5		4.2	
	HP	HP	HP	HP	32		SP			Mottled, light gray to yellowish orange, v.f. to fine grained SAND. Mod. well sorted w/mod. high permeability. Wet. Mild HCO.		
25.0									25.0		1.7	
	HP	HP	HP	HP	21		SM			Light gray to yellowish orange, SILTY, v.f. to fine grained SAND. Poorly sorted w/minor clay. Wet. Mild HCO.		
27.5									27.5		-0.8	
	HP	HP	HP	HP	3.2		SM			S.A.A. Wet. Mild HCO.		
									30.0		-3.3	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC

 Portland Cement	 Bentonite Pellets	 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Alan Melton	1115-20
NORTHING: 3,839,135.5	EASTING: 286,121.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Intersect. of Center Rd. & Birch St. by Bld. 1108			T.O.C. ELEV.: 26.24
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 52.0
START DATE: 06/08/95	FINISH DATE: 06/12/95	24 HOUR DTW: 7.48	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in							
30.0	HP	HP	HP	HP	0.0		SP		Light gray, v.f. SAND. Mod. well sorted w/trace SILT. Wet. No HCO.	-5.8	
32.5	HP	HP	HP	HP	1.0		SP		S.A.A. Wet. No HCO.	-8.3	
35.0	HP	HP	HP	HP	1.8		SP		S.A.A. Wet. No HCO.	-10.8	
37.5	HP	HP	HP	HP	17		SP		S.A.A. Wet. possible HCO.	-13.3	
40.0	HP	HP	HP	HP	370		SW		Light gray, v.f. to med. SAND. Mod. well sorted w/minor SILT/clays. Wet. Mild HCO.	-15.3	
42.0											
45.0	HP	HP	HP	HP	1000+		SP		Gray, med. SAND. Well sorted w/trace silt and clay. High permeability. Wet. Very Strong HCO.	-20.3	
47.0											
50.0	HP	HP	HP	HP	1000+				Gray, med. SAND w/LIMESTONE frag. High permeability. Wet. Strong HCO.	-25.3	
52.0									Boring Terminated at Elevation -25.3 ft 24 hour DTW from August 16, 2001 gauging event		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Alan Melton	1115-21
NORTHING: 3,839,186.7	EASTING: 285,995.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Northern corner of library (Bld. 1220) parking lot.			T.O.C. ELEV.: 25.89
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 52.0
START DATE: 06/05/95	FINISH DATE: 06/07/95	24 HOUR DTW: 8.68	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.4	0.0
0.0									0.3	ASPHALT	26.1	- 0.5
	G	R	A	B	0.0		ML			Mottled, orange/brown to tan, v.f. to med. grained SANDY SILT. Mod. sorted and semi-cohesive. Damp. No HCO.		
2.5									2.5		23.9	
	G	R	A	B	0.4		ML			S.A.A. Damp. No HCO.		
5.0									5.0		21.4	
	HP	HP	HP	HP	0.0		SM			Dark gray, SILTY, v.f. to med. grained SAND. Poorly sorted. Wet. No HCO.		
7.5									7.5		18.9	
	HP	HP	HP	HP	1.0		SM		8.5	S.A.A. Wet. No HCO.	17.9	
10.0							SP		10.0	Light gray, mod. to well sorted SAND. High permeability. Wet. No HCO.	16.4	
	HP	HP	HP	HP	1.0		SP			S.A.A. Wet. No HCO.		
12.5									12.5		13.9	
	HP	HP	HP	HP	8.0		SP		13.0	S.A.A. Wet. No HCO.	13.4	
									13.5		12.9	
15.0							SC			Light gray, CLAYEY, v.f. to med. grained SAND. Poorly sorted. Nonplastic. Wet. No HCO.	11.4	
	6	6	8	9	3.4		SC		15.0			
									16.0	S.A.A. Wet. No HCO.	10.4	
17.5							SP			Light gray, med. to cse. grained SAND. Mod. well sorted w/mod. high permeability. Wet. No HCO.	8.9	
	3	2	8	9	0.0		SP		17.5			
20.0									20.0	Tan/brown, fine grained SAND. Mod. well sorted w/minor fines. Wet. No HCO.	6.4	
	HP	HP	HP	HP	1.6		SP			Tan/brown to light green gray, v.f. to fine grained SAND. Mod. sorted w/mod. fines. Wet. No HCO.		
22.5									22.5		3.9	
	HP	HP	HP	HP	1.0		SP			Tan/brown, v.f. to fine grained SAND. Mod. well sorted w/minor fines. Wet. No HCO.		
25.0									25.0		1.4	
	HP	HP	6	6	12		SP		26.0	S.A.A. Wet. No HCO.	0.4	
27.5							SP			Tan/brown, fine grained SAND. Mod. well sorted w/minor fines. Wet. No HCO.		
	4	4	7	3	30		SP		27.5		-1.1	
										S.A.A. Wet. No HCO.		
									30.0		-3.6	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Alan Melton	1115-21
NORTHING: 3,839,186.7	EASTING: 285,995.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Northern corner of library (Bld. 1220) parking lot.			T.O.C. ELEV.: 25.89
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 52.0
START DATE: 06/05/95	FINISH DATE: 06/07/95	24 HOUR DTW: 8.68	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in											
30.0													S.A.A. Wet. No HCO.		
	2	2	2	2	74							31.5		-5.1	
													Tan/brown, v.f. to fine SAND w/SANDY CLAY lenses throughout. Mod. to poorly sorted. Wet. No HCO.	-6.1	
32.5												32.5			
	HP	4	4	3	320							34.5	S.A.A. Wet. Possible HCO.	-8.1	
												35.0	Gray, fine to med. SAND. Mod. well sorted. Wet. Possible HCO.	-8.6	
35.0													Gray, med. SAND. Well sorted. High permeability. Wet. Possible HCO.		
	6	7	9	10	780							37.5		-11.1	
37.5													S.A.A. Wet. Possible HCO.		
	WR	5	5	6	200							40.0		-13.6	
40.0													S.A.A. Wet. No HCO.		
	WR	HP	HP	6	12							42.0		-15.6	
42.0															
												45.0		-18.6	45.0
45.0													Gray w/black speckles, med. to fine SAND. Mod. well sorted. Wet. No HCO.		
	3	3	3	3	3.2							47.0		-20.6	
47.0															
												50.0		-23.6	50.0
50.0													Gray w/black speckles, fine SAND. Trace thin clay stringers. Well sorted. Wet. No HCO.		
	WR	6	5	6	2.0							52.0		-25.6	
52.0													Boring Terminated at Elevation -25.6 ft 24 hour DTW from August 16, 2001 gauging event		

 2" Slot .010 Sch. 40
PVC



CATLIN BORING LOG 201-130.GPJ CATLIN.GPJ 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID: 1115-22
		DRILLER:	
NORTHING: 3,839,300.3	EASTING: 286,030.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Grass area by Bld. 1115 along Holcomb Blvd.			T.O.C. ELEV.: 27.48
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 06/23/95	FINISH DATE: 07/11/95	24 HOUR DTW: 10.78	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in											
												0.0	LAND SURFACE	24.5	3.0
0.0	G	R	A	B	2.4		SM						Dark brown, SILTY, v.f. to fine SAND. Mod. to poorly sorted w/root frags. Dry. No HCO.		0.0
2.5	G	R	A	B	1.3		SM					2.5	S.A.A. Dry. No HCO.	22.0	
5.0	HP	HP	HP	HP	0.0		MH					5.0	Dark gray, CLAYEY SILT w/trace v.f. to fine SAND. Mod. to poorly sorted. Loose. Elastic. Wet. No HCO.	19.5	
7.5	HP	HP	HP	HP	40		MH					7.5	S.A.A. Wet. No HCO.	17.0	
10.0	HP	HP	HP	HP	520		MH					10.0	S.A.A. Wet. No HCO.	14.5	
12.5	HP	HP	HP	HP	350		MH					12.5	S.A.A. Wet. No HCO.	12.0	
15.0	HP	HP	HP	HP	900		MH					15.0	S.A.A. Wet. No HCO.	9.5	
17.5	WR	WR	WR	HP	NM		MH					17.5	S.A.A. Wet. No HCO.	7.0	
20.0	WR	WR	WR	WR	980		MH					20.0	S.A.A. Wet. No HCO.	4.5	
22.5							MH					22.5	S.A.A. Wet. No HCO.	2.0	
24.0							OL					24.0	Dark brown SILT w/peat. Highly organic w/root frags. Moist. No HCO.	0.5	
25.0	HP	HP	HP	HP	200		OL					25.0	S.A.A. Moist. No HCO.	-0.5	
27.5	HP	HP	HP	HP	460		OL					27.5	S.A.A. Damp. No HCO.	-3.0	
30.0												30.0		-5.5	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID: 1115-22
		DRILLER:	
NORTHING: 3,839,300.3	EASTING: 286,030.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Grass area by Bld. 1115 along Holcomb Blvd.			T.O.C. ELEV.: 27.48
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 06/23/95	FINISH DATE: 07/11/95	24 HOUR DTW: 10.78	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.0	HP	HP	HP	HP	1000+		PT			Dark brown PEAT w/minor SILT and sands. Large root frags. Dry. No HCO.	-8.0	2" Sch. 40 PVC 6" Sch. 40 PVC
32.5	HP	HP	3	3	720		SW			Gray, fine to med. SAND. Trace pockets of peat. Mod. to poorly sorted. Damp to moist. Mild HCO.	-10.5	
35.0	6	6	3	4	1000+		SP			Gray, med. SAND. Mod. well to well sorted. Wet. Strong HCO.	-13.0	
37.5	WR	4	7	4	1000+		SP			S.A.A. Wet. Strong HCO.	-15.5	
40.0	WR	WR	WR	WR	1000+		SP			Gray, med. to fine SAND. Mod. to well sorted. Mod. high permeability. Wet. Very strong HCO.	-17.5	
42.0												
45.0												
47.0	WR	WR	WR	WR	700		SP			Dark gray, fine SAND. Well sorted. High permeability. Wet. Strong HCO.	-22.5	
50.0												
52.0	HP	HP	HP	HP	680		SP			S.A.A. Wet. Strong HCO.	-27.5	
57.0	G	R	A	B	NM		SP			Dark gray, fine to med. SAND. Mod. well sorted w/trace clay. Logged from cuttings.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER:	1115-22
NORTHING: 3,839,300.3	EASTING: 286,030.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Grass area by Bld. 1115 along Holcomb Blvd.			T.O.C. ELEV.: 27.48
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 06/23/95	FINISH DATE: 07/11/95	24 HOUR DTW: 10.78	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
							SP		70.0	Dark gray, fine to med. SAND. Mod. well sorted w/trace clay. Logged from cuttings. (continued)	-45.5	
							SP		76.0	Light gray w/black speckles, med. SAND w/trace to minor cse. sand. Thin clay lenses and phosphatic fine sands and shell fragments. Logged from cuttings. No HCO.	-51.5	
	G	R	A	B	NM		SM		80.0	Light gray to gray, SILTY, v.f. to fine SAND. Mod. sorted w/clay lenses and phosphatic fine sand. Logged from cuttings. No HCO.	-55.5	
										Boring Terminated at Elevation -55.5 ft 24 hour DTW from August 16, 2001 gauging event		

2" Slot .010 Sch. 40
PVC

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER:	1115-23
NORTHING: 3,839,261.3	EASTING: 286,201.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Across Ash St. from middle of Bld. 1108			T.O.C. ELEV.: 27.90
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 06/26/95	FINISH DATE: 07/11/95	24 HOUR DTW: 9.97	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	25.9	2.0
0.0	G	R	A	B	7.2		SP		2.5	Yellowish orange, v.f. to fine SAND. Mod. sorted. Dry. No HCO.	23.4	0.0
2.5	G	R	A	B	1.0		SW		5.0	Mottled, yellowish orange and brown, v.f. to fine SAND. Mod. sorted w/trace fines and large brick fragments. Semi-cohesive. Dry. No HCO.	20.9	
5.0	HP	HP	HP	HP	4.8		SM		7.5	Mottled, yellowish orange and light gray, SILTY, v.f. to med. SAND. Poorly sorted. Moist. No HCO.	18.4	
7.5	HP	HP	HP	HP	2.6		SM		10.0	S.A.A. Moist. No HCO.	15.9	
10.0	HP	HP	HP	HP	2.0		SW		12.5	Gray, fine to med. SAND. Mod. to poorly sorted. Wet. No HCO.	13.4	
12.5	HP	HP	HP	HP	11		SW		14.0	Gray, v.f. to med. SAND. Poorly sorted w/minor clay. Loose. Wet. No HCO.	11.9	
15.0	HP	HP	HP	HP	420		CL		15.0	Gray, med. grained SANDY CLAY. Mod. sorted. Soft w/mod. plasticity. Wet. No HCO.	10.9	
	HP	HP	HP	HP			CL		16.5	S.A.A. Wet. No HCO.	9.4	
17.5	HP	HP	HP	HP	900		SP		17.0	Brown, med. SAND. Mod. well sorted. Wet. No HCO.	8.9	
	HP	HP	HP	HP			PT		17.5	Dark brown, med. grained, SANDY PEAT. Firm, large root fragments. Damp.	8.4	
20.0	HP	HP	HP	HP	88		PT		20.0	Dark brown PEAT w/minor med. sands. Firm, large root frags. Dry. No HCO.	5.9	
22.5	HP	HP	HP	HP	34		SP		22.5	Gray brown, fine to med. SAND. Mod. well sorted w/trace root frags. High permeability. Wet. No HCO.	3.4	
25.0	HP	HP	HP	HP	660		SP		25.0	Light gray, fine to med. SAND. Well sorted w/high permeability and trace root frags. Wet. No HCO.	0.9	
27.5	HP	HP	HP	HP	1000+		SP		27.5	Greenish gray, fine SAND. Well sorted w/high permeability and trace root frags. Wet. Possible HCO.	-1.6	
	HP	HP	HP	HP			SP		30.0	S.A.A. Wet. Possible HCO.	-4.1	

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

SHEET 2 OF 3

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm				LOGGED BY: Steven Hudson		WELL ID: 1115-23	
				DRILLER:			
NORTHING:	3,839,261.3	EASTING:	286,201.0	SYSTEM: UTM NAD83 (m)			
BORING LOCATION: NW SECTOR - Across Ash St. from middle of Bld. 1108						T.O.C. ELEV.: 27.90	
DRILL MACHINE: Diedrich D-50		METHOD: HSA/MR		0 HOUR DTW:		BORING DEPTH: 80.0	
START DATE: 06/26/95		FINISH DATE: 07/11/95		24 HOUR DTW: 9.97		WELL DEPTH: 80.0	

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CATLIN BOBING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER:	1115-23
NORTHING: 3,839,261.3	EASTING: 286,201.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Across Ash St. from middle of Bld. 1108			T.O.C. ELEV.: 27.90
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 06/26/95	FINISH DATE: 07/11/95	24 HOUR DTW: 9.97	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH			
64.0									64.0		-38.1	
	G	R	A	B	NM				Buff tan, SANDY LIMESTONE. Numerous shell fragments w/interbedded sandy clay lenses. Well indurated. Logged from cuttings.			67.0
70.0									70.0		-44.1	70.0
72.0									72.0		-46.1	
	16	29	34	49	380		SP		Green/gray, fine SAND. Well sorted w/minor shell frags. Wet. Strong HCO.			74.0
74.0									74.0		-48.1	74.0
	G	R	A	B	NM				S.A.A. Wet. Strong HCO. Logged from cuttings.			75.0
80.0									80.0		-54.1	80.0
									Boring Terminated at Elevation -54.1 ft 24 hour DTW from August 16, 2001 gauging event			

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER:	1115-24
NORTHING: 3,839,185.8	EASTING: 285,994.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Northern corner of library (Bld. 1220) parking lot.			T.O.C. ELEV.: 26.18
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 06/28/95	FINISH DATE: 06/29/95	24 HOUR DTW: 9.96	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.7	0.0
									0.3	ASPHALT	26.4	- 0.5
0.0	G	R	A	B	0.0		ML			Mottled, orange/brown to tan, v.f. to med. SANDY SILT. Mod. sorted and semi-cohesive. Damp. No HCO.		
2.5									2.5		24.2	
	G	R	A	B	0.4		ML			S.A.A. Damp. No HCO.		
5.0									5.0		21.7	
	HP	HP	HP	HP	0.0		SM			Dark gray, SILTY, v.f. to med. SAND. Poorly sorted. Wet. No HCO.		
7.5									7.5		19.2	
	HP	HP	HP	HP	1.0		SM		8.5	S.A.A. Wet. No HCO.	18.2	
10.0							SP		10.0	Light gray, mod. to well sorted SAND. High permeability. Wet. No HCO.	16.7	
	HP	HP	HP	HP	1.0		SP			S.A.A. Wet. No HCO.		
12.5									12.5		14.2	
	HP	HP	HP	HP	8.0		SP		13.0	S.A.A. Wet. No HCO.	13.7	
15.0									13.5		13.2	
	6	6	8	9	3.4		SC		15.0	Light gray, CLAYEY, v.f. to med. SAND. Poorly sorted. Nonplastic. Wet. No HCO.	11.7	
17.5							SC		16.0	S.A.A. Wet. No HCO.	10.7	
	3	2	8	9	0.0		SP		17.5	Light gray, med. to cse. SAND. Mod. well sorted w/mod. high permeability. Wet. No HCO.	9.2	
20.0									20.0	Tan/brown, fine SAND. Mod. well sorted w/minor fines. Wet. No HCO.	6.7	
	HP	HP	HP	HP	1.6		SP		22.5	Tan/brown to light green gray, v.f. to fine SAND. Mod. sorted w/mod. fines. Wet. No HCO.	4.2	
22.5									25.0	Tan/brown, v.f. to fine SAND. Mod. well sorted w/minor fines. Wet. No HCO.	1.7	
	HP	HP	HP	HP	1.0		SP		26.0	S.A.A. Wet. No HCO.	0.7	
25.0									27.5	Tan/brown, fine SAND. Mod. well sorted w/minor fines. Wet. No HCO.	-0.8	
	HP	HP	6	6	12		SP					
27.5									30.0	S.A.A. Wet. No HCO.	-3.3	
	4	4	7	3	30		SP					

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID: 1115-24
		DRILLER:	
NORTHING: 3,839,185.8	EASTING: 285,994.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Northern corner of library (Bld. 1220) parking lot.			T.O.C. ELEV.: 26.18
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 06/28/95	FINISH DATE: 06/29/95	24 HOUR DTW: 9.96	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in											
30.0													S.A.A. Wet. No HCO.		
	2	2	2	2	74							31.5		-4.8	
													Tan/brown, v.f. to fine SAND w/SANDY CLAY lenses throughout. Mod. to poorly sorted. Wet. No HCO.	-5.8	
32.5															
	HP	4	4	3	320							34.5	S.A.A. Wet. Possible HCO.	-7.8	
35.0												35.0	Gray, fine to med. SAND. Mod well sorted. Wet. Possible HCO.	-8.3	
	6	7	9	10	780								Gray, med. SAND. Well sorted. High permeability. Wet. Possible HCO.		
												37.5		-10.8	
37.5															
	WR	5	5	6	200								S.A.A. Wet. Possible HCO.		
												40.0		-13.3	
40.0															
	WR	HP	HP	6	12								S.A.A. Wet. No HCO.		
												42.0		-15.3	
42.0															
												45.0		-18.3	
45.0															
	3	3	3	3	3.2								Gray w/black speckles, med. to fine SAND. Mod. well sorted. Wet. No HCO.		
												47.0		-20.3	
47.0															
												50.0		-23.3	
50.0															
	WR	6	5	6	2.0								S.A.A. Wet. No HCO.		
												52.0		-25.3	
52.0															
	G	R	A	B	NM								Gray, CLAYEY, v.f. to cse. SAND. Numerous shell frags. and sandy limestone frags. Poorly sorted. No HCO.		
												56.0		-29.3	
56.0															
	G	R	A	B	NM								Gray and tan/brown, very SANDY LIMESTONE. Poorly to mod. indurated w/lenses of SANDY CLAY w/shell frags.		
												60.0		-33.3	
60.0															
	G	R	A	B	NM								Gray/brown, FOSSILIFEROUS SANDY LIMESTONE. Well indurated.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID: 1115-24
		DRILLER:	
NORTHING: 3,839,185.8	EASTING: 285,994.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Northern corner of library (Bld. 1220) parking lot.			T.O.C. ELEV.: 26.18
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 06/28/95	FINISH DATE: 06/29/95	24 HOUR DTW: 9.96	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
62.0									62.0		-35.3	
										Gray/brown, weathered sandy/shelly FOSSILIFEROUS LIMESTONE interbedded w/SANDY/SHELLY CLAY. Poorly sorted and indurated. No HCO.		
	G	R	A	B	NM							
70.0									70.0		-43.3	
										Light gray/brown, FOSSILIFEROUS LIMESTONE. Very sandy w/minor clay lenses and shell hash. Poorly indurated. No HCO.		
	G	R	A	B	NM							
74.0									74.0		-47.3	
	G	R	A	B	NM		SP			Gray, fine to med. SAND. Mod. well sorted w/clay stringers and trace shell hash.		
80.0									80.0		-53.3	
										Boring Terminated at Elevation -53.3 ft 24 hour DTW from August 16, 2001 gauging event		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 08/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

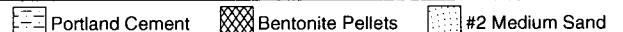
Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER:	1115-25
NORTHING: 3,839,246.9	EASTING: 286,094.3	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - In parking lot @ Bld 1111 & 1115 along West St.			T.O.C. ELEV.: 26.16
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 06/30/95	FINISH DATE: 07/05/95	24 HOUR DTW: 9.6	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.2	0.0
0.0	G	R	A	B	80		GM			Light orange to brown, GRAVEL with CLAYEY SILT and minor v.f. to cse. sand. Poorly sorted. Dry. Weak HCO.		
2.5									2.5		23.7	
	2	2	2	2	4.0		CL			Buff orange to light gray, v.f. to fine grained SANDY CLAY w/med. fine grained sand lenses. Poorly sorted. Damp. No HCO.		
5.0									5.0		21.2	
	2	2	2	2	400		MH			Light greenish gray to tan, SANDY SILT. Poorly sorted w/minor clay. Cohesive and elastic. Wet. Strong HCO.		
7.5									7.5		18.7	
	1	2	1	1	300		MH			S.A.A. Wet. Strong HCO.		
10.0									10.0		16.2	
	1	1	1	1	250		MH			S.A.A. Wet. Possible HCO.		
12.5									12.5		13.7	
	1	1	6	12	1000+		SM			Gray, SILTY, v.f. to fine grained SAND. Loose. Wet. Slight HCO.		
15.0							SW/SP		14.0	Gray, med. grained SAND. Mod. poor sorting. Wet. Strong HCO.	12.2	
	2	3	6	5	1000+		SP		15.0		11.2	
17.5										Gray, med. grained SAND. Mod. well sorted. High permeability. Wet. Strong HCO.		
	5	5	6	8	1000+		SP		17.5		8.7	
20.0									20.0	S.A.A. Wet. Strong HCO.	6.2	
	2	3	3	4	1000+		SP			S.A.A. Wet. Strong HCO.		
22.5							PT		22.0		4.2	
	4	4	5	4	1000+		SP		22.5	Dark brown, SILTY PEAT. Dense w/many root frags.. Dry. No HCO.	3.7	
25.0							PT		23.5	Medium grained SAND. Mod. sorted. Damp. Possible HCO.	2.7	
	HP	HP	HP	HP	1000+		PT		25.0	Dark brown PEAT. Many root fragments. Dry. No HCO.	1.2	
27.5									27.5	Dark brown, SILTY PEAT. Dense w/many root frags.. Dry. No HCO.	-1.3	
	8	14	16	44	1000+		OH		28.5	Dark gray, SILTY CLAY. Cohesive and plastic. Wet. HCO.	-2.3	
							SW		30.0	Dark to light gray, med. fine to med. grained SAND. Mod. sorted w/mod. permeability. Wet. HCO.	-3.8	

CATLIN BORING LOG 201-130.GPJ CATLIN.GPJ 06/13/02


 Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	Steven Hudson	WELL ID:
					DRILLER:		1115-25
NORTHING:	3,839,246.9	EASTING:	286,094.3	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION: NW SECTOR - In parking lot @ Bld 1111 & 1115 along West St.							T.O.C. ELEV.: 26.16
DRILL MACHINE:	Diedrich D-50	METHOD:	HSA/MR	0 HOUR DTW:		BORING DEPTH:	80.0
START DATE:	06/30/95	FINISH DATE:	07/05/95	24 HOUR DTW:	9.6	WELL DEPTH:	80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.0												
	22	22	24	25	1000+		SP			Light gray, med. grained SAND. Mod. well to well sorted w/mod. high to high permeability. Wet. HCO.		
32.5									32.5		-6.3	
	16	18	12	24	1000+		SP			S.A.A. Wet.		
35.0									35.0		-8.8	
	10	10	10	8	790		SP			S.A.A., med. to med. cse. grained. Wet. Strong HCO.		
37.5									37.5		-11.3	
	4	4	4	6	1000+		SP			S.A.A. Wet. Strong HCO.		
40.0									40.0		-13.8	
45.0									45.0		-18.8	
	WRWR	5	8	1000+			SW			Dark gray, fine to med. grained SAND. Mod. poor sorting w/minor calcareous fragments increasing w/depth. Mod. to low permeability. Saturated. Strong HCO.		
47.0									47.0		-20.8	
50.0									50.0		-23.8	
	4	4	7	10	1000+		SW			S.A.A. Saturated. Strong HCO.		
52.0									52.0		-25.8	
	G	R	A	B	NM		SP/SC			Gray/brown, mod. sorted SAND w/minor clay. Sandy clay lenses throughout. Possible HCO.		
53.0									53.0		-26.8	
	G	R	A	B	NM					Light gray brown, very sandy LIMESTONE. Sandy clay interbedded. Poorly indurated. Mild HCO.		
54.0									54.0		-27.8	
	G	R	A	B	NM					Tan/gray, FOSSILIFEROUS SANDY LIMESTONE. Thin sandy clay lenses. Mod. to mod. well indurated. Strong HCO.		
58.0									58.0		-31.8	
										Well indurated FOSSILIFEROUS LIMESTONE. 6" thick sandy clay layers throughout.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02


 Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER:	1115-25
NORTHING: 3,839,246.9	EASTING: 286,094.3	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - In parking lot @ Bld 1111 & 1115 along West St.			T.O.C. ELEV.: 26.16
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 06/30/95	FINISH DATE: 07/05/95	24 HOUR DTW: 9.6	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in								
	G	R	A	B	NM				Well indurated FOSSILIFEROUS LIMESTONE. 6" thick sandy clay layers throughout. (continued)		
70.0										-43.8	
	G	R	A	B	NM				Light gray/brown, very SANDY FOSSILIFEROUS LIMESTONE. Well indurated w/minor clay lenses.		
72.0										-45.8	
	37	35	47	50/5	NM		SP		Light blue/gray, fine to med. grained SAND. Well sorted w/minor shell fragments and cse. sands. Wet. No HCO.		
74.0										-47.8	
	G	R	A	B	NM		SP		S.A.A. Wet. No HCO.		
76.0										-49.8	
	G	R	A	B	NM		SW		Light gray, SAND w/minor clay stringers and shell fragments. Mod. to poorly sorted.		
80.0										-53.8	
Boring Terminated at Elevation -53.8 ft											

 2" Slot .010 Sch. 40
PVC

67.0

70.0

73.0

75.0

80.0

80.0

CATLIN BORING LOG_201-130.GPJ CATLIN.GDT 06/13/02



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	Brentlinger	WELL ID:
					DRILLER:	Clayton Davis	78GW-13
NORTHING:	3,839,130.8	EASTING:	285,701.6	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION: NW SECTOR - Corner of Dogwood & Holcomb Blvd. on N side of Holcomb							T.O.C. ELEV.: 25.79
DRILL MACHINE:		METHOD:	HSA	0 HOUR DTW:		BORING DEPTH:	25.5
START DATE:	11/17/86	FINISH DATE:	11/17/86	24 HOUR DTW:		WELL DEPTH:	25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	23.3	2.5
0.0	4	8	14				SM		1.5	Brown-pale brown, SILTY, fine SAND. Organic matter and gravel throughout. Moist.	21.8	0.0
1.5	6	4	6				SM		3.0	Very dark gray, SILTY, fine SAND w/gray mottles. Moist.	20.3	2.0
3.0	6	3	3				SC		4.5	Light olive gray, SILTY, fine SANDY CLAY. Slightly plastic. Moist.	18.8	3.0
4.5	2	3	6				SC/CL		6.0	Light olive yellow brown w/oxide streaks, SILTY/SANDY CLAY. Slight plastic. Moist.	17.3	5.0
6.0	4	8	6				CL			Light olive gray yellow brown to gray brown, SILTY CLAY. Plastic. Moist.		
7.5	3	3	5									
9.0	2	2	2						10.5		12.8	
10.5												
									14.0		9.3	
14.0	2	2	4				SW/SM		15.5	Very pale brown, SILTY, medium SAND. Wet.	7.8	
15.5												
									19.0		4.3	
19.0	2	2	0				SW/SM		20.5	Gray to olive gray w/green tint, SILTY, medium SAND. Wet.	2.8	
20.5												
									24.0		-0.7	
24.0	2	1	4				SP		25.5	Gray, clean medium SAND. Wet.	-2.2	25.0
25.5												25.0
										Boring Terminated at Elevation -2.2 ft Adapted from logs generated by ESE, Inc.		

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/13/02



Concrete



Bentonite Pellets



Coarse Gravel Pack

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

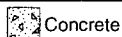
Wilmington, North Carolina

SHEET 1 OF 1

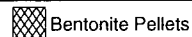
PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Conrad	WELL ID: 78GW-14
		DRILLER: Charlie Smith	
NORTHING: 3,839,053.7	EASTING: 285,867.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Corner of Dogwood & West Rd. south of library (Bld 1220)			T.O.C. ELEV.: 24.51
DRILL MACHINE: Mobile 33 ATV	METHOD: HSA	0 HOUR DTW: 10.81	BORING DEPTH: 25.5
START DATE: 11/05/86	FINISH DATE: 11/05/86	24 HOUR DTW:	WELL DEPTH: 25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	22.0	2.5
0.0	3	4	3				PT		1.5	Very dark brown, PEAT w/5-10% sand, silty w/roots and organic debris. Moist.	20.5	0.0
1.5	4	4	5				OL		3.0	Light yellowish brown to very dark brown, fine SANDY SILT w/35-40% organics. Moist.	19.0	2.0
3.0	3	4	4				CL		4.5	Mottled light yellowish to strong brown, fine SANDY/SILTY CLAY. Low plasticity. Moist.	17.5	3.0
4.5	4	6	4				SP		6.0	Light gray to white, fine SAND w/trace silt and clay. Moist.	16.0	5.0
6.0	6	6	7				SM		7.5	Mottled whit to brownish yellow, SILTY, fine SAND w/trace clay. Moist.	14.5	
7.5	2	3	3				ML		9.0	Mottled light gray to yellow, CLAYEY, fine SAND. Slightly plastic. Moist.	13.0	
9.0	3	2	3				CL		10.5	Light gray w/distinct black lines haloed by strong brown, fine SANDY CLAY w/trace silt. Plastic. Moist.	11.5	
10.5												
14.0									14.0		8.0	
15.5	1	0	1				PT		15.5	Black, PEAT w/~5% sand. Wood fragments.	6.5	
19.0									19.0		3.0	
20.5	8	5	9				SP		20.5	Light brownish gray, SAND uniform w/15% silt. Sat. Slight HCO.	1.5	
24.0									24.0		-2.0	
24.0	6	9	15				SC		24.8	Light gray, CLAYEY SAND. Foul odor.	-2.8	
25.0							CH		25.0	Light gray, CLAY w/~5% sand. Plastic.	-3.0	
25.5							SC		25.5	Light gray, CLAYEY SAND. Foul odor.	-3.5	
Boring Terminated at Elevation -3.5 ft Adapted from logs generated by ESE, Inc.												

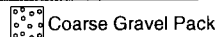
CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02



Concrete



Bentonite Pellets



Coarse Gravel Pack

SHEET 1 OF 1

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm				LOGGED BY: Brentlinger		WELL ID: 78GW-15	
				DRILLER: Charlie Smith			
NORTHING:	3,838,961.7	EASTING:	286,035.6	SYSTEM: UTM NAD83 (m)			
BORING LOCATION: CENTRAL SECTOR - Corner of Gibb Rd. & Cedar St. by Bld. 1301						T.O.C. ELEV.: 26.93	
DRILL MACHINE:		METHOD: HSA		0 HOUR DTW: 12.21		BORING DEPTH: 26.4	
START DATE: 11/06/86		FINISH DATE: 11/06/86		24 HOUR DTW:		WELL DEPTH: 25.0	

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK			WELL DETAIL
	6in	6in	6in	6in					DEPTH	DESCRIPTION	ELEVATION	
									0.0	LAND SURFACE	26.9	0.0
0.0	G	R	A	B						CEMENT & ASPHALT		
1.5	13	22	24				SM		1.9		25.0	2.0
3.0	3	6	4				SM		3.0	Light gray brown, SILTY, fine SAND. Dry to moist.	23.9	3.0
4.5	4	5	5				SC/ SM		4.5	Olive yellow, SILTY, fine SAND. Dry to moist.	22.4	5.0
6.0	6	8	8				SM		6.0	Yellow, SILTY/CLAYEY SAND. Slightly plastic.	20.9	
7.5	8	8	7				SW		8.0	Yellow-light brown, SILTY, fine SAND. Moist.	18.9	
9.0	8	10	8				SM		9.0	Yellow, fine SAND w/~10% silt. Moist.	17.9	
10.5									10.5	Light gray-pale yellow, SILTY, fine SAND. Moist-wet.	16.4	
14.0	WRWR	3					SW		14.0	Light gray, ultra fine SAND w/30% uncemented clastics. Wet.	12.9	15.0
15.5									15.5		11.4	
19.0	WR	3	6				SW		19.0	Light gray, SILTY, fine-med. SAND. Wet.	7.9	
20.5									20.5		6.4	
24.0	WR	2	1				SW		24.0	Light gray, med.-fine SAND w/little to no silt. Wet.	2.9	25.0
25.5							SW		24.9	Light gray, med. SAND w/coarse pebbles and sand. Wet.	2.0	25.0
									25.5		1.4	
	Boring Terminated at Elevation 0.5 ft Adapted from logs generated by ESE, Inc.											

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02



 Concrete

 Bentonite Pellets

Coarse Gravel Pack

WELL LOG

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ENGINEERS and SCIENTISTS

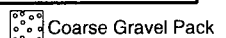
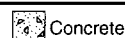
Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: David Brentlinger	WELL ID: 78GW-17-01
		DRILLER:	
NORTHING: 3,839,033.7	EASTING: 286,173.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Corner of Gibb Rd. & Birch St. on N corner of Bld. 1202			T.O.C. ELEV.: 19.99
DRILL MACHINE:	METHOD: HSA	0 HOUR DTW: 11.08	BORING DEPTH: 25.5
START DATE: 11/06/86	FINISH DATE: 11/06/86	24 HOUR DTW:	WELL DEPTH: 25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	17.5	2.5
0.0	2	2	4				SM		1.5	Very dark brown, SILTY, fine SAND. Organic matter in top 6". Moist.	16.0	0.0
1.5	5	6	6				SC/SM			Light yellow brown, SILTY/CLAYEY, fine SAND. Slightly plastic.		2.0
3.0	4	4	4						4.5		13.0	3.0
4.5	3	4	3				SM		5.5	Light gray, SILTY, ultra fine-fine SAND. Moist.	12.0	
6.0							SP		6.0	Light gray, very fine SAND. Moist.	11.5	
7.5	3	5	7				SM			Light gray-white, SILTY, fine SAND. Non plastic. Moist.		
9.0	5	6	5						9.0		8.5	
10.5	2	10	11				SC		10.5	Light gray, SILTY/SANDY CLAY. Sticky & slightly plastic.	7.0	
14.0	4	4	8				SC/SM		14.0	Light gray, SILTY/CLAYEY SAND. Silt and clay ~40%. 20% coarse sand. Wet.	3.5	
15.5									15.5		2.0	
19.0									19.0		-1.5	
20.5	4	10	12				SM		20.5	Light brown gray, SILTY, fine-med. SAND. ~20% coarse sand. Non plastic.	-3.0	
24.0									24.0		-6.5	
25.5	2	3	5				SC/SM		25.5	Light gray-white, SILTY, medium SAND w/20% clay. High plasticity clay. Wet.	-8.0	25.0
										Boring Terminated at Elevation -8.0 ft Adapted from logs generated by ESE, Inc.		25.0

CATLIN BORING LOG 201-130.GEL CATLIN.GDI 06/14/02



WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

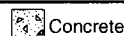
Wilmington, North Carolina

SHEET 1 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: David Brentlinger	WELL ID: 78GW-17-03
		DRILLER: Clayton Davis	
NORTHING: 3,838,998.8	EASTING: 286,210.7	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: Location not known			T.O.C. ELEV.:
DRILL MACHINE:	METHOD: MR	0 HOUR DTW: 12.6	BORING DEPTH: 152.0
START DATE: 07/16/87	FINISH DATE: 07/17/87	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	WELL DETAIL
	6in	6in	6in	6in							
0.0									0.0	LAND SURFACE	2.5
5.0	C	O	R	E			SC/SM		5.0	SILTY/CLAYEY, fine SAND w/high organic content.	5.0
10.0	C	O	R	E			CL			Dark brown to black, SILTY, fine grained SANDY CLAY.	
15.0	C	O	R	E			SM		15.0	SILTY, fine-med. SAND w/coarse sand and well rounded pebbles. Some clay in upper part of sample.	
20.0	C	O	R	E			SC/SM		20.0	SILTY/CLAYEY, medium SAND w/little to no coarse grains.	
25.0	C	O	R	E			SW/SM		25.0	ORGANIC MATER	
30.0	C	O	R	E					30.0	SILTY, fine SAND w/some med.-coarse material.	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02



WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: David Brentlinger	WELL ID: 78GW-17-03
		DRILLER: Clayton Davis	
NORTHING: 3,838,998.8	EASTING: 286,210.7	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: Location not known			T.O.C. ELEV.:
DRILL MACHINE:	METHOD: MR	0 HOUR DTW: 12.6	BORING DEPTH: 152.0
START DATE: 07/16/87	FINISH DATE: 07/17/87	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	WELL DETAIL
	6in	6in	6in	6in						
30.0										
	C	O	R	E			SM		SILTY, fine-med. SAND w/clay layers and coarse sand.	
35.0										
	C	O	R	E			SW		Med.-coarse SAND and pebbles. Some silt and light gray clay peds. w/well rounded pebbles.	
40.0										
	C	O	R	E			SW/SM		SILTY med. SAND.	
45.0										
	C	O	R	E			SM		SILTY med. SAND w/clay layers. Little to no coarse material.	
50.0										
	C	O	R	E			SW/SM		SILTY, fine-med. grading to fine SAND.	
55.0										
	C	O	R	E						
60.0							GW		Coarse SAND w/cemented to semi-cemented clastics.	

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/14/02



Concrete



Portland Cement



Bentonite Pellets

WELL LOG

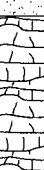
CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: David Brentlinger	WELL ID: 78GW-17-03
		DRILLER: Clayton Davis	
NORTHING: 3,838,998.8	EASTING: 286,210.7	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: Location not known			T.O.C. ELEV.:
DRILL MACHINE:	METHOD: MR	0 HOUR DTW: 12.6	BORING DEPTH: 152.0
START DATE: 07/16/87	FINISH DATE: 07/17/87	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	WELL DETAIL
	6in	6in	6in	6in						
65.0	C	O	R	E			GW		Coarse SAND w/cemented to semi-cemented clastics. (continued)	2" Sch. 40 PVC
70.0	C	O	R	E					LIMESTONE w/high shell and pebble content. Less dense below 68 ft.	
75.0	C	O	R	E			SW		SILTY, medium-coarse SAND w/little to no shells or fines.	
80.0	C	O	R	E			SP		SILTY, fine SAND.	
85.0	C	O	R	E						
							SW		SILTY, fine SAND w/light clay peds.	
90.0	C	O	R	E						
							SW		Coarse SAND and shells w/some well rounded pebbles and clay peds.	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02



WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 4 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: David Brentlinger	WELL ID: 78GW-17-03
		DRILLER: Clayton Davis	
NORTHING: 3,838,998.8	EASTING: 286,210.7	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: Location not known			T.O.C. ELEV.:
DRILL MACHINE:	METHOD: MR	0 HOUR DTW: 12.6	BORING DEPTH: 152.0
START DATE: 07/16/87	FINISH DATE: 07/17/87	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	WELL DETAIL
	6in	6in	6in	6in							
95.0							SW		95.0	Coarse SAND and shells w/some well rounded pebbles and clay peds. <i>(continued)</i>	
									97.0	Hard LIMESTONE layer.	
	C	O	R	E							
100.0							SW			SILTY, medium SAND and shells. Some coarse sand and pebbles.	
	C	O	R	E							
105.0									105.0		
	C	O	R	E							
110.0											
	C	O	R	E							
115.0							SW			Cemented clastics w/shells and coarse sand.	115.0
	C	O	R	E							
120.0											
	C	O	R	E							
125.0									125.0	SILTY, fine-medium SAND.	125.0

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02

 Concrete

 Portland Cement

 Bentonite Pellets

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 5 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: David Brentlinger	WELL ID: 78GW-17-03
NORTHING: 3,838,998.8		EASTING: 286,210.7	DRILLER: Clayton Davis
BORING LOCATION: Location not known			SYSTEM: UTM NAD83 (m)
DRILL MACHINE:		METHOD: MR	0 HOUR DTW: 12.6
START DATE: 07/16/87		FINISH DATE: 07/17/87	24 HOUR DTW:
			T.O.C. ELEV.: BORING DEPTH: 152.0
			WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	WELL DETAIL
	6in	6in	6in	6in							
130.0	C	O	R	E							
135.0	C	O	R	E			SM			SILTY, fine-medium SAND. (continued)	
140.0	C	O	R	E							
145.0	C	O	R	E			SP			SILTY, fine SAND.	
150.0	C	O	R	E							
										Boring Terminated at Depth 152.0 ft Adapted from logs generated by ESE, Inc.	

2" Slot .010 Sch.
40 PVC

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02



WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	David Brentlinger	WELL ID:
					DRILLER:	Clayton Davis	78GW-19
NORTHING:	3,839,296.5	EASTING:	286,081.7	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION: NW SECTOR - Center of grass area between Bld. 1115 & Holcomb Blvd.							T.O.C. ELEV.: 29.18
DRILL MACHINE:		METHOD:	HSA	0 HOUR DTW:	9.08	BORING DEPTH:	25.5
START DATE:	11/06/86	FINISH DATE:	11/06/86	24 HOUR DTW:		WELL DEPTH:	25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.7	2.5
0.0	2	4	4				SM		1.5	Very pale brown, SILTY, fine SAND (30% silt). Moist.	25.2	0.0
1.5	2	6	3				SC/ SM		3.0	Light brown gray, SILTY, fine SAND (25% silt). Clay mottles (10% clay). Slightly plastic. Moist.	23.7	2.0
3.0	4	5	6				SC/ CL		4.5	Gray-light gray, SILTY to SANDY CLAY (silt & sand 30%). Slightly plastic. Moist.	22.2	3.0
4.5	3	4	5				CH					5.0
6.0	3	4	3							Gray-light gray, CLAY w/trace silt and sand. Very plastic.		
7.5	2	3	2									
9.0	1	1	2				ML		9.0	Gray, SILTY CLAY. Plastic. Moist-wet. Silt 40%.	17.7	
10.5									10.5		16.2	
14.0	14	7	8				SC/ SM		14.0		12.7	
15.5										Light gray-gray, SILTY CLAYEY fine-medium SAND (25-30% silt & clay). Clay mottles very sticky. Wet.		
19.0	8	5	4				MH		19.0		7.7	
									19.5	Dark-very dark gray, very plastic, very sticky CLAY w/20% silt & sand.	7.2	
20.5									20.5		6.2	
24.0	1	2	1				OL		24.0	Black, PEAT w/silt (silt ~20%). Slightly plastic. Dry-moist.	2.7	
25.5									25.5		1.2	25.0
										Boring Terminated at Elevation 1.2 ft Adapted from logs generated by ESE, Inc.		25.0

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/13/02

 Concrete

 Bentonite Pellets

 Coarse Gravel Pack

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

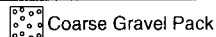
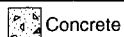
Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: David Brentlinger	WELL ID: 78GW-21	
	DRILLER: Clayton Davis		
NORTHING: 3,839,067.6	EASTING: 286,606.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Grass area along Michael Rd. in front of temporary fuel farm			T.O.C. ELEV.: 33.79
DRILL MACHINE:	METHOD: HSA	0 HOUR DTW: 9.08	BORING DEPTH: 25.5
START DATE: 11/19/86	FINISH DATE: 11/19/86	24 HOUR DTW:	WELL DEPTH: 25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	31.3	2.5
0.0	6	6	6						1.5	CEMENT FILL & GRAVEL	29.8	0.0
1.5	4	15	12				SC/		4.5	Olive yellow-light olive brown, SILTY, fine SANDY CLAY to SILTY, clayey fine SAND. Slightly to non plastic. Moist.	26.8	2.0
3.0	3	5	6				SM		6.0	White-light gray, SILTY, ultra fine-fine SAND (~0-30% silt). Moist.	23.8	3.0
4.5	2	5	7				SW/		7.5	White-light gray, SILTY, fine SANDY CLAY. Wet.	21.3	5.0
6.0	6	10	8				SM		10.0	Yellow-pale yellow, medium SAND w/10-15% silt. Wet.	20.8	
7.5	2	7	5				SC		10.5			
9.0									14.0	Dark gray, very soft and sticky CLAY w/30% silt. Plastic. Wet.	15.8	
10.5							SW		15.5			
									19.0	Light gray, fine-medium SAND w/10% clay layers throughout. Clay is plastic. Wet.	10.8	
14.0							CH		24.0	Light gray, SANDY SILT & LS. frags. Wet.	6.3	
15.5									25.0			
19.0	7	9	8				SW					
20.5												
24.0							GC					
25.5												
										Boring Terminated at Elevation 5.8 ft Adapted from logs generated by ESE, Inc.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02



WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

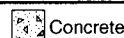
Wilmington, North Carolina

SHEET 1 OF 3

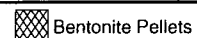
PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-31-02
		DRILLER: Env. Mon. & Testing	
NORTHING: 3,838,929.5	EASTING: 286,001.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - SE of center of Bld. 1301 along Gibb Rd.			T.O.C. ELEV.: 26.87
DRILL MACHINE:	METHOD: MR	0 HOUR DTW:	BORING DEPTH: 83.0
START DATE: 12/12/90	FINISH DATE: 12/17/90	24 HOUR DTW:	WELL DEPTH: 78.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.2	0.0
							SM			Brown grading to gray tan, SILTY, fine to medium SAND w/trace to little pebbles.		-0.3
									15.0		12.2	
							SC			Gray tan, CLAYEY, fine to coarse SAND w/trace pebbles. Cohesive.		
									24.0		3.2	
							SC			Gray tan, CLAYEY, fine to medium SAND. Cohesive.		
									29.0		-1.8	
							SM			Gray tan, SILTY, fine to medium SAND.		

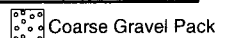
CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02



Concrete



Bentonite Pellets



Coarse Gravel Pack

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

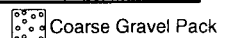
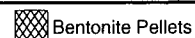
Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-31-02
		DRILLER: Env. Mon. & Testing	
NORTHING: 3,838,929.5	EASTING: 286,001.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - SE of center of Bld. 1301 along Gibb Rd.			T.O.C. ELEV.: 26.87
DRILL MACHINE:	METHOD: MR	0 HOUR DTW:	BORING DEPTH: 83.0
START DATE: 12/12/90	FINISH DATE: 12/17/90	24 HOUR DTW:	WELL DEPTH: 78.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
							SM		33.0	Gray tan, SILTY, fine to medium SAND. (continued)	-5.8	4" Sch. 40 PVC
							SC/SM		36.0	Gray tan, CLAYEY/SILTY SAND w/some pebbles.	-8.8	
							SM		40.0	Gray tan, SILTY, fine to medium SAND w/some pebbles.	-12.8	
							SM		44.0	Gray tan, SILTY, fine to medium SAND. Little clay, somewhat cohesive.	-16.8	
							SiM		50.0	Gray tan, SILTY, fine to medium SAND w/trace pebbles.	-22.8	
							SM		60.0	Dark gray, SILTY, fine SAND.	-32.8	
							PT			Dark gray, PEAT.		60.7

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02



WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 3

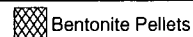
PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-31-02
		DRILLER: Env. Mon. & Testing	
NORTHING: 3,838,929.5	EASTING: 286,001.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - SE of center of Bld. 1301 along Gibb Rd.			T.O.C. ELEV.: 26.87
DRILL MACHINE:	METHOD: MR	0 HOUR DTW:	BORING DEPTH: 83.0
START DATE: 12/12/90	FINISH DATE: 12/17/90	24 HOUR DTW:	WELL DEPTH: 78.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
							PT		65.0	Dark gray, PEAT. (continued)	-37.8	65.0
							SM		69.0	Med. gray, SILTY, fine to medium SAND w/little shell and organics.	-41.8	
							SM		79.0	Med. gray, SILTY, fine to medium SAND w/shell and limestone fragments.	-51.8	75.0
							SM		83.0	Med. gray, SILTY, fine to medium SAND w/trace shell fragments.	-55.8	78.0
										Boring Terminated at Elevation -55.8 ft Lithology from 78GW-31-03 Adapted from logs generated by ESE, Inc.		83.0

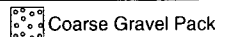
CATLIN BORING LOG_201-130.GPJ CATLIN.GDT_06/14/02



Concrete



Bentonite Pellets



Coarse Gravel Pack

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 6

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-31-03
		DRILLER: Env. Mon. & Testing	
NORTHING: 3,838,926.0	EASTING: 285,996.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - SE of center of Bld. 1301 along Gibb Rd.			T.O.C. ELEV.: 25.98
DRILL MACHINE:	METHOD: MR	0 HOUR DTW:	BORING DEPTH: 149.0
START DATE: 12/12/90	FINISH DATE: 12/17/90	24 HOUR DTW:	WELL DEPTH: 158.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.4	0.0
							SM			Brown grading to gray tan, SILTY, fine to medium SAND w/trace to little pebbles.		-0.5
									15.0		11.4	
							SC			Gray tan, CLAYEY, fine to coarse SAND w/trace pebbles. Cohesive.		
									24.0		2.4	
							SC			Gray tan, CLAYEY, fine to medium SAND. Cohesive.		
									29.0		-2.6	
							SM			Gray tan, SILTY, fine to medium SAND.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02



Portland Cement



Bentonite Pellets



Coarse Gravel Pack

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 6

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-31-03
		DRILLER: Env. Mon. & Testing	
NORTHING: 3,838,926.0	EASTING: 285,996.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - SE of center of Bld. 1301 along Gibb Rd.			T.O.C. ELEV.: 25.98
DRILL MACHINE:	METHOD: MR	0 HOUR DTW:	BORING DEPTH: 149.0
START DATE: 12/12/90	FINISH DATE: 12/17/90	24 HOUR DTW:	WELL DEPTH: 158.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
							SM		33.0	Gray tan, SILTY, fine to medium SAND. (continued)	-6.6	
							SC/SM		36.0	Gray tan, CLAYEY/SILTY SAND w/some pebbles.	-9.6	
							SM		40.0	Gray tan, SILTY, fine to medium SAND w/some pebbles.	-13.6	
							SM		44.0	Gray tan, SILTY, fine to medium SAND. Little clay, somewhat cohesive.	-17.6	
							SM		50.0	Gray tan, SILTY, fine to medium SAND w/trace pebbles.	-23.6	
							SM		60.0	Dark gray, SILTY, fine SAND.	-33.6	
							PT			Dark gray, PEAT.		

CATLIN BORING LOG 201-130.GEL CATLIN.GDI 06/14/02



Portland Cement



Bentonite Pellets



Coarse Gravel Pack

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 6

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-31-03
		DRILLER: Env. Mon. & Testing	
NORTHING: 3,838,926.0	EASTING: 285,996.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - SE of center of Bld. 1301 along Gibb Rd.			T.O.C. ELEV.: 25.98
DRILL MACHINE:	METHOD: MR	0 HOUR DTW:	BORING DEPTH: 149.0
START DATE: 12/12/90	FINISH DATE: 12/17/90	24 HOUR DTW:	WELL DEPTH: 158.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
							PT		65.0	Dark gray, PEAT. (continued)	-38.6	4" Sch. 40 PVC
							SM		69.0	Med. gray, SILTY, fine to medium SAND w/little shell and organics.	-42.6	
							SM		79.0	Med. gray, SILTY, fine to medium SAND w/shell and limestone fragments.	-52.6	
							SM			Med. gray, SILTY, fine to medium SAND w/trace shell fragments.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 4 OF 6

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-31-03
		DRILLER: Env. Mon. & Testing	
NORTHING: 3,838,926.0	EASTING: 285,996.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - SE of center of Bld. 1301 along Gibb Rd.			T.O.C. ELEV.: 25.98
DRILL MACHINE:	METHOD: MR	0 HOUR DTW:	BORING DEPTH: 149.0
START DATE: 12/12/90	FINISH DATE: 12/17/90	24 HOUR DTW:	WELL DEPTH: 158.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
							PT		94.0	PEAT	-67.6	
									96.5		-70.1	
							SM			Med. gray, SILTY, fine to medium SAND w/trace shell fragments interbedded with cemented sand and limestone lenses.		

CATLIN BORING LOG_201-130.GPJ CATLIN GDT_06/14/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 5 OF 6

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-31
		DRILLER: Env. Mon. & Testing	-03
NORTHING: 3,838,926.0	EASTING: 285,996.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - SE of center of Bld. 1301 along Gibb Rd.			T.O.C. ELEV.: 25.98
DRILL MACHINE:	METHOD: MR	0 HOUR DTW:	BORING DEPTH: 149.0
START DATE: 12/12/90	FINISH DATE: 12/17/90	24 HOUR DTW:	WELL DEPTH: 158.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
							SM			Med. gray, SILTY, fine to medium SAND w/trace shell fragments interbedded with cemented sand and limestone lenses. (continued)		
									149.0		-122.6	
										Boring Terminated at Elevation -122.6 ft Adapted from logs generated by ESE, Inc.	150.0	
										NO RECORD.		

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/14/02

Coarse Gravel Pack

WELL LOG

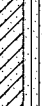
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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-32-02
		DRILLER: Env. Mon. & Testing	
NORTHING: 3,839,062.2	EASTING: 286,265.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between Blds 1102, 1113, & 1103 between Gibb & East Rds.			T.O.C. ELEV.: 26.87
DRILL MACHINE:		METHOD: MR	0 HOUR DTW:
START DATE: 12/18/90		FINISH DATE: 12/20/90	24 HOUR DTW:
			BORING DEPTH: 83.0
			WELL DEPTH: 77.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.1	0.0
											-0.2	
									10.0		17.1	
							SC/SM		12.0	Brown/gray, CLAYEY/SILTY SAND w/4" thick PEAT seams.	15.1	
									14.0		13.1	
							PT		14.6	PEAT w/some wood chips.	12.5	
							SC/SM		16.4	Brown/gray, CLAYEY/SILTY SAND w/4" thick PEAT seams.	10.7	
									18.0		9.1	
							SC/SM		20.4	Gray, SILTY/CLAYEY SAND. HCO from 18' to 18'7".	6.7	
									24.0		3.1	
							CL		24.8	Gray, SILTY, fine to med. SANDY CLAY.	2.3	
									28.0		-0.9	
							CL		29.0	S.A.A.	-1.9	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02

 Concrete

 Bentonite Pellets

 Coarse Gravel Pack

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-32
		DRILLER: Env. Mon. & Testing	-02
NORTHING: 3,839,062.2	EASTING: 286,265.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between Blds 1102, 1113, & 1103 between Gibb & East Rds.			T.O.C. ELEV.: 26.87
DRILL MACHINE:	METHOD: MR	0 HOUR DTW:	BORING DEPTH: 83.0
START DATE: 12/18/90	FINISH DATE: 12/20/90	24 HOUR DTW:	WELL DEPTH: 77.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									34.0 34.2	PT Light brown, WOOD CHIPS	-6.9 -7.1	4" Sch. 40 PVC
									38.9 38.9	PT Orange/brown, WOOD CHIPS	-10.9 -10.9	
									48.0		-20.9	
							SC/SM		49.5	Gray, SILTY/CLAYEY SAND. Some shell fragments.	-22.4	
									54.0		-26.9	
							SM		55.7	Gray, SILTY, fine to med. SAND. Little clay, some shell fragments, trace organic matter.	-28.6	57.0
									58.0		-30.9	
							SC			Gray, SILTY, CLAYEY SAND. Some LIMESTONE fragments.		61.0

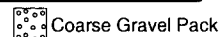
CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02



Concrete



Bentonite Pellets



Coarse Gravel Pack

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 3

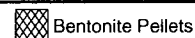
PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-32-02
		DRILLER: Env. Mon. & Testing	
NORTHING: 3,839,062.2	EASTING: 286,265.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between Blds 1102, 1113, & 1103 between Gibb & East Rds.			T.O.C. ELEV.: 26.87
DRILL MACHINE:	METHOD: MR	0 HOUR DTW:	BORING DEPTH: 83.0
START DATE: 12/18/90	FINISH DATE: 12/20/90	24 HOUR DTW:	WELL DEPTH: 77.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								62.1		-35.0	
												64.0		-36.8	64.0
												64.1	Gray, CLAYEY, fine to med. SAND. Some shell fragments and organic material.	-37.0	
												65.4	LIMESTONE FRAGMENTS.	-38.3	
												68.0		-40.9	
												68.5	Gray, SHELLY LIMESTONE w/silty, fine to med. sand.	-41.4	
												74.0		-46.9	74.0
												74.2	S.A.A.	-47.1	
												78.0		-50.9	77.0
												78.2	S.A.A.	-51.1	
Boring Terminated at Elevation -55.9 ft Lithology from 78GW-32-03 Adapted from logs generated by ESE, Inc.															83.0

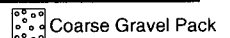
CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02



Concrete



Bentonite Pellets



Coarse Gravel Pack

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 6

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-32-03
		DRILLER: Env. Mon. & Testing	
NORTHING: 3,839,058.5	EASTING: 286,268.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between Blds 1102, 1113, & 1103 between Gibb & East Rds.			T.O.C. ELEV.: 27.11
DRILL MACHINE:	METHOD: MR	0 HOUR DTW: 9.37	BORING DEPTH: 158.0
START DATE: 12/18/90	FINISH DATE: 12/20/90	24 HOUR DTW:	WELL DEPTH: 153.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.4	0.0
											-0.2	
10.0					2.6		SC/SM		10.0	Brown/gray, CLAYEY/SILTY SAND w/4" thick PEAT seams.	17.4	
11.8									12.0		15.4	
14.0							PT		14.0	PEAT w/some wood chips.	13.4	
							SC/SM		14.6	Brown/gray, CLAYEY/SILTY SAND w/4" thick PEAT seams.	12.8	
16.4									16.4		11.0	
18.0									18.0		9.4	
					13.2		SC/SM			Gray, SILTY/CLAYEY SAND. HCO from 18' to 18'7".		
20.4									20.4		7.0	
24.0									24.0		3.4	
24.8							CL		24.8	Gray, SILTY, fine to med. SANDY CLAY.	2.6	
28.0									28.0		-0.6	
29.0							CL		29.0	S.A.A.	-1.7	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 6

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-32-03
		DRILLER: Env. Mon. & Testing	
NORTHING: 3,839,058.5	EASTING: 286,268.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between Blds 1102, 1113, & 1103 between Gibb & East Rds.			T.O.C. ELEV.: 27.11
DRILL MACHINE:	METHOD: MR	0 HOUR DTW: 9.37	BORING DEPTH: 158.0
START DATE: 12/18/90	FINISH DATE: 12/20/90	24 HOUR DTW:	WELL DEPTH: 153.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH			
34.0									34.9	Light brown, WOOD CHIPS	-8.7	
34.2							PT		34.2			
38.0									38.9	Orange/brown, WOOD CHIPS	-18.7	
38.2							PT		38.2			
48.0									48.0		-20.7	
49.5					3.4		SC/ SM		49.5	Gray, SILTY/CLAYEY SAND. Some shell fragments.	-22.2	
54.0									54.0		-26.7	
55.7							SM		55.7	Gray, SILTY, fine to med. SAND. Little clay, some shell fragments, trace organic matter.	-28.4	
58.0									58.0		-30.7	
							SC			Gray, SILTY, CLAYEY SAND. Some Limestone fragments.		

CATLIN BORING LOG 201-130.GEL CATLIN.GDT 06/14/02

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 6

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-32-03
NORTHING: 3,839,058.5	EASTING: 286,268.2	DRILLER: Env. Mon. & Testing	SYSTEM: UTM NAD83 (m)
BORING LOCATION: SE SECTOR - Between Blds 1102, 1113, & 1103 between Gibb & East Rds.			T.O.C. ELEV.: 27.11
DRILL MACHINE:	METHOD: MR	0 HOUR DTW: 9.37	BORING DEPTH: 158.0
START DATE: 12/18/90	FINISH DATE: 12/20/90	24 HOUR DTW:	WELL DEPTH: 153.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
62.1									62.1		-34.8	4" Sch. 40 PVC
64.0								SC	64.0 64.1	Gray, CLAYEY, fine to med. SAND. Some shell fragments and organic material.	-36.8 -36.8	
65.4									65.4	LIMESTONE FRAGMENTS.	-38.1	
68.0									68.0		-40.7	
68.5									68.5	Gray, SHELLY LIMESTONE w/silty, fine to med. sand.	-41.2	
74.0									74.0		-46.0	
74.2									74.2	S.A.A.	-46.0	
78.0									78.0		-50.0	
78.2									78.2	S.A.A.	-50.0	
84.0								SM	84.0 84.2	Gray, SILTY, fine to med. SAND. Trace shell fragments.	-56.0 -56.0	
88.0									88.0		-60.7	
91.4								SM	91.4	Gray, SILTY, fine to med. SAND.	-64.1	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 4 OF 6

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Paul Feinberg	WELL ID: 78GW-32
		DRILLER: Env. Mon. & Testing	-03
NORTHING: 3,839,058.5	EASTING: 286,268.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between Blds 1102, 1113, & 1103 between Gibb & East Rds.			T.O.C. ELEV.: 27.11
DRILL MACHINE:	METHOD: MR	0 HOUR DTW: 9.37	BORING DEPTH: 158.0
START DATE: 12/18/90	FINISH DATE: 12/20/90	24 HOUR DTW:	WELL DEPTH: 153.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
94.0							SM		94.0	S.A.A. w/trace shell fragments.	-66.7	
96.4									96.4		-69.1	
104.0							SM		104.0		-76.7	
104.8									104.8	Blue/gray, SILTY, fine to med. SAND. Dense w/some limestone fragments.	-77.5	
108.0							SM		108.0		-80.7	
109.4									109.4	Light gray tan, SILTY, fine to med. SAND. Dense w/some shell fragments.	-82.1	
114.0							SM		114.0		-86.7	
115.4									115.4	S.A.A.	-88.1	
118.0							SM		118.0		-90.7	
119.6									119.6	S.A.A.	-92.3	
124.0							SM		124.0		-96.7	
124.7									124.7	S.A.A.	-97.4	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02



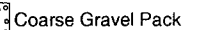
Portland Cement



Bentonite Pellets



Coarse Gravel Pack



WELL LOG

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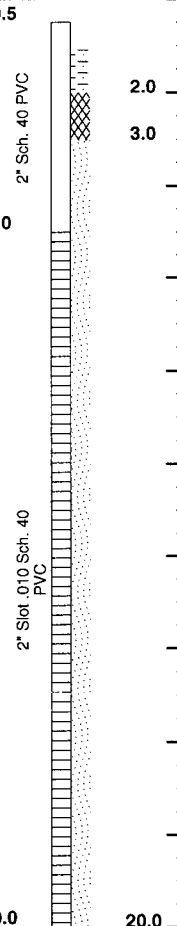
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	Tim Pac	WELL ID:
					DRILLER:	Robert Schmon	GT-01
NORTHING:	3,839,259.8	EASTING:	286,099.3	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION: NW SECTOR - Near former USTs @ Bld. 1115							T.O.C. ELEV.: 26.75
DRILL MACHINE:	Mobil B-47	METHOD:	HSA	0 HOUR DTW:	5.03	BORING DEPTH:	20.0
START DATE:	06/15/93	FINISH DATE:	06/15/93	24 HOUR DTW:		WELL DEPTH:	20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.3	0.0
0.0	2	3	3		1		SP		1.5	Orange gray, medium to very fine SAND w/trace silt. Moist.	25.8	- 0.5
1.5									3.5		23.8	2.0
3.5	2	1	3		5		SM		5.0	Gray and orange, SILTY, fine to very fine SAND w/some clay.	22.3	3.0
5.0									8.5		18.8	5.0
8.5	1	1	1		3		CL/ML		10.0	Gray, SILT and CLAY w/trace very fine sand. Wet.	17.3	
10.0									13.5		13.8	
13.5	5	3	4		120		SW		15.0	Gray, coarse to fine SAND w/some silt. Wet.	12.3	
15.0									18.5		8.8	
18.5	8	6	7		60		SW		20.0	S.A.A.	7.3	
20.0										Boring Terminated at Elevation 7.3 ft Adapted from logs generated by Groudwater Technology Government Services, Inc.		



CATLIN BORING LOG_201-130.GPJ CATLIN.GDT_06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tim Pac	WELL ID:
		DRILLER: Robert Schmon	GT-02
NORTHING: 3,839,279.3	EASTING: 286,124.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Eastern corner of Bld. 1115			T.O.C. ELEV.: 25.59
DRILL MACHINE: Mobil B-47	METHOD: HSA	0 HOUR DTW: 7.0	BORING DEPTH: 20.0
START DATE: 06/15/93	FINISH DATE: 06/15/93	24 HOUR DTW:	WELL DEPTH: 20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in							
									0.0 LAND SURFACE	26.1	0.0
0.0	6	5	3		450		SP		Gray, medium to very fine SAND w/trace silt. Dry.	24.6	- 0.5
1.5											1.0
3.5											2.0
5.0	2	1	1		1600		SM		Gray, SILTY, fine to very fine SAND w/some clay. Moist.	21.1	5.0
8.5											
10.0	1	0	0		750		CL/ML		Gray, SILT and CLAY w/trace very fine sand. Wet.	16.1	
13.5											
15.0	4	3	3		1000		SW		Gray, very coarse to medium SAND w/some silt. Wet.	11.1	
18.5											
20.0	1	1	1		75		SW/SC		Interbedded gray, very coarse to medium SAND and dark gray SILT and CLAY. Wet.	6.1	20.0
Boring Terminated at Elevation 6.1 ft Adapted from logs generated by Groudwater Technology Government Services, Inc.											

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/13/02



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tim Pac	WELL ID: GT-03
NORTHING: 3,839,269.3		EASTING: 286,103.6	SYSTEM: UTM NAD83 (m)
BORING LOCATION: NW SECTOR - Near former USTs @ Bld. 1115			T.O.C. ELEV.: 26.58
DRILL MACHINE: Mobil B-47	METHOD: HSA	0 HOUR DTW: 7.0	BORING DEPTH: 20.0
START DATE: 06/15/93	FINISH DATE: 06/15/93	24 HOUR DTW:	WELL DEPTH: 20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	27.1	0.0
0.0	3	4	4		2		SP		1.5	Brown, medium to very fine SAND. Dry.	25.6	- 0.5
1.5									3.5		23.6	1.0
3.5	1	2	1		1300		SW		5.0	Gray, medium to very fine SAND w/trace silt. Moist.	22.1	2.0
5.0												
8.5	3	4	3		850		CL/ML		8.5	Gray, SILT and CLAY. Wet.	18.6	
10.0									10.0		17.1	
13.5									13.5		13.6	
15.0	1	1	1		30		SP		15.0	Gray, coarse to medium SAND. Wet.	12.1	
18.5									18.5		8.6	
20.0					1500		SM		20.0	Gray, SILT and CLAY and coarse to medium SAND.	7.1	20.0
Boring Terminated at Elevation 7.1 ft Adapted from logs generated by Groudwater Technology Government Services, Inc.												

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

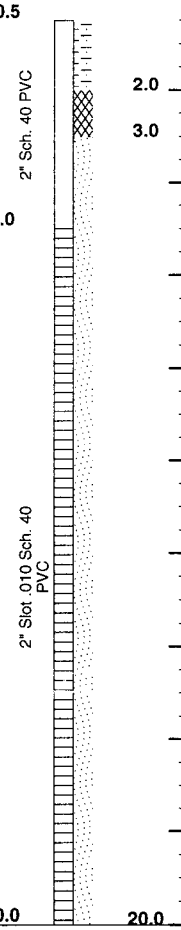
CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tim Pac	WELL ID:
		DRILLER: Robert Schmon	GT-04
NORTHING: 3,839,269.5	EASTING: 286,099.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Near former USTs @ Bld. 1115			T.O.C. ELEV.: 26.50
DRILL MACHINE: Mobil B-47	METHOD: HSA	0 HOUR DTW: 7.1	BORING DEPTH: 20.0
START DATE: 06/15/93	FINISH DATE: 06/15/93	24 HOUR DTW:	WELL DEPTH: 20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	27.0	0.0
0.0	3	3	4		15		SP		1.5	Tan, medium to very fine SAND grading to white, very coarse to medium SAND. Dry to moist.	25.5	- 0.5
1.5												
3.5									3.5		23.5	
5.0	1	2	1		500		SM		5.0	Dark black, SILTY, medium to very fine SAND w/trace clay. Moist.	22.0	5.0
8.5							SP		8.5		18.5	
							CL/ML		9.0	Brown, medium to fine SAND w/trace silt. Wet.	18.0	
10.0	1	0	0		30				10.0	Gray, SILT and CLAY w/trace very fine sand. Wet.	17.0	
13.5									13.5		13.5	
15.0	3	4	3		330		SP		15.0	Gray, coarse to medium SAND. Wet.	12.0	
18.5									18.5		8.5	
20.0	1	2	2		80		SM		20.0	Gray, SILT and CLAY and coarse to medium SAND.	7.0	20.0
										Boring Terminated at Elevation 7.0 ft Adapted from logs generated by Groudwater Technology Government Services, Inc.		



WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tim Pac	WELL ID:
		DRILLER: Robert Schmon	GT-05
NORTHING: 3,839,272.3	EASTING: 286,098.5	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Near former USTs @ Bld. 1115			T.O.C. ELEV.: 26.51
DRILL MACHINE: Mobil B-47	METHOD: HSA	0 HOUR DTW: 7.1	BORING DEPTH: 20.0
START DATE: 06/15/93	FINISH DATE: 06/15/93	24 HOUR DTW:	WELL DEPTH: 20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	27.0	0.0
0.0	6	6	7		150		SP		0.5	CONCRETE	26.5	- 0.5
1.5									1.5	Light brown gray, medium to very fine SAND w/clay.	25.5	
3.5									3.5		23.5	
5.0	1	1	2		270		SW		5.0	Brown, gray, and black, fine to very fine SAND w/trace silt, clay, and wood/root fragments. Moist to wet.	22.0	5.0
8.5									8.5		18.5	
10.0	1	0	0		22		CL		10.0	Gray, CLAY w/some silt and trace very fine sand. Wet.	17.0	
13.5									13.5		13.5	
15.0	3	3	3		30		SW		15.0	Gray, coarse to fine SAND. Running sands. Wet.	12.0	
18.5									18.5		8.5	
20.0	1	1	3		20		SW		20.0	S.A.A.	7.0	20.0
Boring Terminated at Elevation 7.0 ft Adapted from logs generated by Groudwater Technology Government Services, Inc.												

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

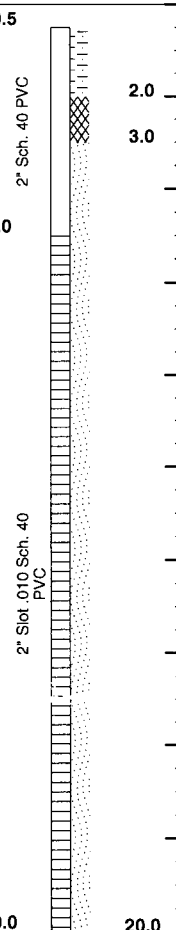
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tim Pac	WELL ID: GT-06
DRILLER: Robert Schmon			
NORTHING: 3,839,294.0	EASTING: 286,131.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Eastern corner of Bld. 1115			T.O.C. ELEV.: 26.59
DRILL MACHINE: Mobil B-47	METHOD: HSA	0 HOUR DTW: 7.1	BORING DEPTH: 20.0
START DATE: 06/15/93	FINISH DATE: 06/15/93	24 HOUR DTW:	WELL DEPTH: 20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.1	0.0
0.0	7	6	7		50		SM		1.5	Gray/brown, SILTY, medium to very fine SAND w/trace clay. Moist.	25.6	- 0.5
1.5									3.5		23.6	2.0
3.5	2	1	2		150		CL/ML		5.0	Gray/brown, SILT and CLAY w/trace fine sand. Moist.	22.1	3.0
5.0									8.5		18.6	5.0
8.5	2	1	2		150		SP		10.0	Gray, medium to very fine SAND w/some silt and trace clay. Wet.	17.1	
10.0									13.5		13.6	
13.5	3	2	1		40		SW		15.0	Gray, very coarse to medium SAND. Wet.	12.1	
15.0									18.5		8.6	
18.5	5	3	3		20		SW		19.0	S.A.A.	8.1	
							CL/ML		19.3	Gray, SILT and CLAY. Wet.	7.8	
20.0							PT		20.0	Black, PEAT w/wood frags.	7.1	20.0
Boring Terminated at Elevation 7.1 ft Adapted from logs generated by Groudwater Technology Government Services, Inc.												



CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tim Pac	WELL ID: GT-07
DRILLER: Robert Schmon			
NORTHING: 3,839,312.2	EASTING: 286,155.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Across Ash St. from eastern corner of Bld. 1115			T.O.C. ELEV.: 26.24
DRILL MACHINE: Mobil B-47	METHOD: HSA	0 HOUR DTW: 7.1	BORING DEPTH: 20.0
START DATE: 06/15/93	FINISH DATE: 06/15/93	24 HOUR DTW:	WELL DEPTH: 19.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.7	0.0
0.0	4	10	10		90		SP		1.5	Brown, gray, black, medium to very fine SAND w/trace silt. Dry.	25.2	- 0.5
1.5									3.5		23.2	1.0
3.5	3	2	2		650		SM		5.0	Gray and orange, SILTY, medium to very fine SAND w/trace clay. Moist.	21.7	2.0
5.0												
8.5	1	2	2		50		SC/ SM SP		8.5	Gray, SILTY/CLAYEY, very coarse to medium SAND. Wet.	18.2	
10.0									10.0	Gray, very coarse to medium SAND w/trace silt. Wet.	16.7	
13.5	4	4	4		150		SP		13.5	S.A.A.	13.2	
15.0									15.0		11.7	
18.5	4	4	3		110		CL/ ML PT		18.5	Gray, SILT and CLAY. Wet.	8.2	
20.0									19.0	Brown, PEAT w/little fine sand. Wet.	7.7	19.0
									20.0		6.7	19.0
Boring Terminated at Elevation 6.7 ft Adapted from logs generated by Groudwater Technology Government Services, Inc.												

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tim Pac	WELL ID: GT-08
		DRILLER: Robert Schmon	
NORTHING: 3,839,285.7	EASTING: 286,178.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - North of Bld. 1108 across Ash St. @ corner of Ash St. & West Rd.			T.O.C. ELEV.: 26.97
DRILL MACHINE: Mobil B-47	METHOD: HSA	0 HOUR DTW: 7.1	BORING DEPTH: 20.0
START DATE: 06/16/93	FINISH DATE: 06/16/93	24 HOUR DTW:	WELL DEPTH: 19.5

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	27.5	0.0
0.0	3	5	7		150		SM		1.0	Brown, SILTY, medium to very fine SAND (top soil). Dry.	26.5	- 0.5
1.5							SP		1.5	Gray, orange, and black, medium to very fine SAND w/trace silt. Dry.	26.0	
3.5									3.5		24.0	
5.0	10	11	4		700		SP		5.0	Dark brown, medium to very fine SAND w/organic material. Moist.	22.5	4.5
8.5									8.5		19.0	
10.0	1	1	1		25		SP/SC		10.0	Gray, medium to very fine SAND interbedded with silt and clay. Wet.	17.5	
13.5									13.5		14.0	
15.0	2	2	2		150		SP		15.0	Gray, coarse SAND. Wet.	12.5	
18.5									18.5		9.0	
20.0	2	1	2		200		SP		19.5	S.A.A.	8.0	19.5
							CL/ML		20.0	Gray, SILT and CLAY. Wet.	7.5	
Boring Terminated at Elevation 7.5 ft Adapted from logs generated by Groudwater Technology Government Services, Inc.												

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tim Pac	WELL ID: GT-09
		DRILLER: Robert Schmon	
NORTHING: 3,839,261.5	EASTING: 286,197.5	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Across Ash St. from middle of Bld. 1108			T.O.C. ELEV.: 26.48
DRILL MACHINE: Mobile B-47	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 20.0
START DATE: 06/16/93	FINISH DATE: 06/16/93	24 HOUR DTW:	WELL DEPTH: 20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.0	0.0
0.0												-0.5
1.5												2.0
3.5												3.0
5.0												5.0
8.5												
10.0												
13.5												
15.0												
18.5												
20.0									20.0		7.0	20.0
										Boring Terminated at Elevation 7.0 ft Adapted from logs generated by Groudwater Technology Government Services, Inc.		20.0

UNABLE TO LOCATE BORING LOG

2" Slot .010 Sch. 40
PVC

2" Sch. 40 PVC

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tim Pac	WELL ID:
		DRILLER: Robert Schmon	GT-10
NORTHING: 3,839,214.4	EASTING: 286,197.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Across from Bld 1108 @ corner of Center Rd. and Ash St.			T.O.C. ELEV.: 26.40
DRILL MACHINE: Mobile B-47	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 20.0
START DATE: 06/16/93	FINISH DATE: 06/16/93	24 HOUR DTW:	WELL DEPTH: 20.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in							
									0.0 LAND SURFACE	26.9	0.0
0.0	7	6	7		50		SP		Grayish brown, medium to very fine SAND w/trace clay. Moist.	25.4	- 0.5
1.5											
3.5	2	1	2		150		CL/ML		Gray and orange, SILT and CLAY w/trace fine sand. Moist.	23.4	2.0
5.0										21.9	3.0
8.5	2	1	2		150		SW		Gray, medium to very fine SAND w/some silt and trace clay. Wet.	18.4	
10.0										16.9	
13.5	3	2	1		40		SP		Gray, very coarse to medium SAND. Wet.	13.4	
15.0										11.9	
18.5	5	3	3		20		SP		S.A.A.	8.4	
20.0							PT		20.0 Brown, PEAT. Wet.	7.4	
									Boring Terminated at Elevation 6.9 ft WELL DESTROYED Adapted from logs generated by Groudwater Technology Government Services, Inc.		20.0

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

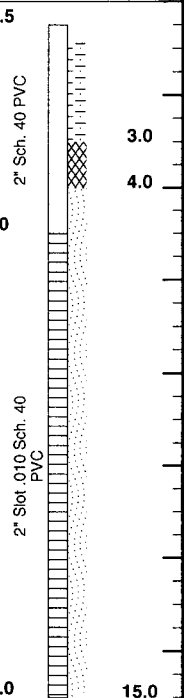
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Steven Hudson	WELL ID: HPFF-01	
	DRILLER: Alan Melton		
NORTHING: 3,839,290.5	EASTING: 286,376.6	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - ~300' NW of temporary fuel farm between RR tracks.			T.O.C. ELEV.: 28.46
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 11/21/95	FINISH DATE: 11/21/95	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in							
									0.0 LAND SURFACE	29.0	0.0
2.0											- 0.5
4.0	4	4	6	7	38		SC/CL		Dark gray, SANDY CLAY to CLAYEY SAND, moderately sorted, low permeability, med. stiffness, low plasticity. No HCO.	27.0	3.0
5.0											4.0
7.0	2	2	3	3	27		SC		Light gray with dark brown lenses, SANDY CLAY, fine grained SANDS, moderately sorted, soft, moderate to moderately low plasticity, low permeability. No HCO.	24.0	5.0
10.0											
12.0	6	3	3	5	33		ML		Gray, v.f. to fine grained, SANDY SILT, poorly sorted, no to low plasticity, moderately cohesive. No HCO.	19.0	
15.0											
17.0	4	5	7	8	16		SW		Light gray, v.f. to fine/med. grained SAND, poorly sorted, slightly cohesive, low permeability, loose. No HCO.	14.0	15.0
									Boring Terminated at Elevation 12.0 ft	12.0	



CATLIN BORING LOG 201-130.GPJ CATLIN.GDI 06/13/02

WELL LOG

CATLIN

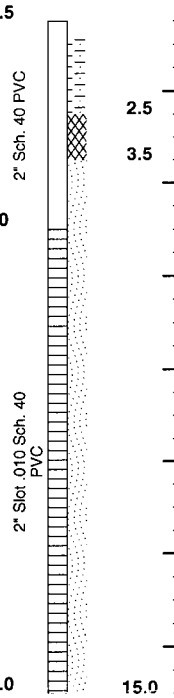
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Steven Hudson	WELL ID: HPFF-02	
	DRILLER: Alan Melton		
NORTHING: 3,839,271.1	EASTING: 286,423.8	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - ~200' NW of temporary fuel farm between RR tracks.			T.O.C. ELEV.: 29.47
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 11/21/95	FINISH DATE: 11/21/95	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	30.0	0.0
2.0	HP	HP	HP	HP	9.3		SC/CL		2.0	Light gray to orange-brown, v.f. to med. grained, SANDY CLAY, mottled, moderately sorted, low permeability, cohesive, no to low plasticity. No HCO.	28.0	- 0.5
4.0									4.0		26.0	2.5
5.0							ML		5.0	Light gray to orange-brown, v.f. grained SANDS, mottled, moderately sorted, low permeability, cohesive, no to low plasticity. No HCO.	25.0	3.5
7.0	3	7	9	7	3.7		SM		6.5		23.5	5.0
									7.0	Light brown, v.f. to med. grained, SILTY SAND, moderately sorted, root fragments, low permeability. No HCO.	23.0	
10.0									10.0		20.0	
12.0	8	8	8	8	12		SW		12.0	Gray to light gray, v.f. to fine/med. grained SAND, moderately sorted, moderate permeability. No HCO.	18.0	
15.0									15.0		15.0	
17.0	6	7	9	7	6.2		SW		17.0	S.A.A.	13.0	
										Boring Terminated at Elevation 13.0 ft		



CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID: HPFF-03
NORTHING: 3,839,211.4		EASTING: 286,543.7	SYSTEM: UTM NAD83 (m)
BORING LOCATION: SE SECTOR - Grass area in temporary fuel farm			T.O.C. ELEV.: 31.21
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 11/21/95	FINISH DATE: 11/21/95	24 HOUR DTW:	WELL DEPTH: 16.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	29.2	2.0
2.0	HP	HP	HP	HP	8.0		ML		2.0	Brown, v.f. to med. grained, SANDY SILT, organic rich, poorly sorted, low permeability, cohesive, no plasticity. No HCO.	27.2	0.0
4.0									4.0		25.2	4.0
5.0									5.0		24.2	5.0
7.0	7	7	7	7	6.4		SP		7.0	Light gray-white, fine grained SAND, "clean" sands, well sorted, high permeability. No HCO.	22.2	6.0
10.0	HP	HP	HP	HP			SW		10.0	Gray brown, v.f. to fine grained SAND with minor SILT, moderate to poorly sorted, moderate permeability. No HCO.	19.2	2" Sch. 40 PVC
12.0									12.0		17.2	2" Slot .010 Sch. 40 PVC
15.0									15.0		14.2	
17.0	7	7	12	12	24		SP		17.0	Light gray-white, fine grained SAND, well sorted, high permeability. No HCO.	12.2	16.0
										Boring Terminated at Elevation 12.2 ft		16.0

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Alan Melton	HPFF-04
NORTHING: 3,839,020.4	EASTING: 286,484.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between wings of Bld. 1005			T.O.C. ELEV.: 31.02
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 11/21/95	FINISH DATE: 11/21/95	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in								
									0.0 LAND SURFACE	31.5	0.0
2.0	G	R	A	B	7.2		SC/CL		Orange-brown, v.f. to med. grained, SANDY CLAY, moderately sorted, cohesive, no plasticity, root fragments, low permeability. No HCO.	29.5	3.0
4.0									4.0	27.5	4.0
5.0									5.0	26.5	5.0
7.0	15	11	17	16	1.2		SP		Light gray-white, fine to med. grained SAND, "clean" sands, well sorted, very high permeability. No HCO.	24.5	
10.0									10.0	21.5	
12.0	11	17	12	14	4.9		SP		S.A.A.	19.5	
15.0									15.0	18.5	15.0
17.0	9	8	9	9	3.1		SP/SC		Light gray-white, fine to med. grained SAND, with 2" thick lenses of SANDY CLAY, well sorted, very high permeability. No HCO.	14.5	
									Boring Terminated at Elevation 14.5 ft		

- 0.5

2" Sch. 40 PVC

5.0

2" Slot .010 Sch. 40 PVC

15.0

15.0



Portland Cement



Bentonite Pellets



#2 Medium Sand

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Alan Melton	HPFF-05
NORTHING: 3,839,099.6	EASTING: 286,231.7	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Along Gibb Rd. SE of center of Bld. 1101			T.O.C. ELEV.: 27.33
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 11/21/95	FINISH DATE: 11/21/95	24 HOUR DTW: 6.32	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.8	0.0
2.0	HP	HP	HP	HP	4.6		CL		2.0	Light tan/brown, CLAY. Minor sands and SILT. Cohesive w/low to mod. plasticity. Damp. No HCO.	25.8	- 0.5
4.0									4.0		23.8	2.0
5.0									5.0		22.8	4.0
7.0	3	3	3	3	7.3		SM		7.0	Light brown/gray, SILTY, v.f. to fine SAND. Dry. No HCO.	20.8	5.0
10.0									10.0		17.8	
	4	4	5	4	9.6		SM		11.0	Brownish gray, SILTY, v.f. to fine SAND. Mod. cohesive. Low to mod. low permeability. Moist. No HCO.	16.8	
12.0							SP		12.0	Light gray, fine to v.f. SAND. Mod. sorted w/minor silt. Mod. high permeability. Wet. No HCO.	15.8	2" Sch. 40 PVC
15.0									15.0		12.8	5.0
17.0	1	2	1	1	42		PT		17.0	Dark brown, SANDY PEAT. Medium sands and large root frags. Damp to dry. No HCO.	10.8	15.0
										Boring Terminated at Elevation 10.8 ft 24 hour DTW from August 16, 2001 gauging event		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/15/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

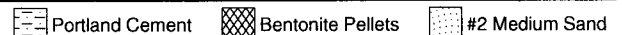
Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	Steven Hudson	WELL ID:
					DRILLER:	Alan Melton	HPFF-06
NORTHING:	3,839,201.6	EASTING:	286,496.6	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION: SE SECTOR - Grass area in temporary fuel farm							T.O.C. ELEV.: 30.93
DRILL MACHINE:	Diedrich D-50	METHOD:	HSA/MR	0 HOUR DTW:		BORING DEPTH:	52.0
START DATE:	11/06/95	FINISH DATE:	11/08/95	24 HOUR DTW:	10.79	WELL DEPTH:	50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	28.9	2.0
0.0	G	R	A	B	32.3		SM			Brown, SILTY, v.f. to fine SAND. Mod. sorting and perm. w/root frags. Dry. Mild HCO.		0.0
2.5							SM		2.5	Light brown, S.A.A. Dry. Mild HCO.	26.4	
	7	11	15	20	30.3		SP		4.0	Light gray/white, fine SAND. Well sorted w/high perm. Dry. Mild HCO.	24.9	
5.0							SP		5.0	Light gray and light gray/white, mottled, v.f. to fine SAND. Mod well sorted w/high perm. Moist. Possible HCO.	23.9	
	6	12	12	15	29.8		SP		7.5	Light gray/brown, S.A.A.	21.4	
7.5							SP		10.0	Light gray/brown to orange/brown, poorly sorted SAND w/4" thick, SANDY CLAY layers. Mod. perm. Wet. Possible HCO.	18.9	
	6	6	10	10	400		SW/SC		12.5	Light gray/white, v.f. to fine SAND. Mod. sorted w/trace SILT. Mod. perm. Wet. Possible HCO.	16.4	
10.0							SW		15.0	Light gray/white, fine SAND. Well sorted w/high perm. Wet. Possible HCO.	13.9	
	6	9	18	17	2235		SP		17.5	Light orange/brown, SILTY, v.f. to fine SAND. Mod. poor sorting. Wet. Possible HCO.	11.4	
17.5							SM		20.0	S.A.A. Wet. Possible HCO.	8.9	
	7	6	6	4	192		SM		21.5	Light gray/white, fine SAND. Well sorted. High perm. Wet. Possible HCO.	7.4	
20.0							SW		22.0	Light orange/brown, v.f. to med. SAND. Mod. to poorly sorted. Mod. perm. Wet. Possible HCO. S.A.A.	6.9	
	7	7	8	16	1560		SW		22.5		6.4	
22.5							CH		25.0	Light brown CLAY w/minor silt and 1/2" thick sandy clay lenses. High plasticity. Wet. Possible HCO.	3.9	
	4	6	4	14	437		CH		27.0		1.9	
25.0							CH		27.5		1.4	
	4	5	5	5	680		CH		28.5	S.A.A. Wet. Possible HCO.	0.4	
27.5							SW		30.0	Light gray/white to orange/brown, fine to med. SAND. Mod. sorted. High perm. Wet. Strange sweet odor.	-1.1	
	6	7	15	23	1430		SW					

CATLIN BORING LOG_201-130.GPJ CATLIN GDI_06/13/02



WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	Steven Hudson	WELL ID:
					DRILLER:	Alan Melton	HPFF-06
NORTHING:	3,839,201.6	EASTING:	286,496.6	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION: SE SECTOR - Grass area in temporary fuel farm							T.O.C. ELEV.: 30.93
DRILL MACHINE:	Diedrich D-50	METHOD:	HSA/MR	0 HOUR DTW:		BORING DEPTH:	52.0
START DATE:	11/06/95	FINISH DATE:	11/08/95	24 HOUR DTW:	10.79	WELL DEPTH:	50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.0												
	17	28	39	48	638		SP			Light gray/white, med. SAND. Well sorted w/trace fine sands. High perm. Wet. Possible HCO.		
32.5									32.5		-3.6	
	16	37	32	43	435		SP			S.A.A. Wet. Possible HCO.		
35.0									35.0		-6.1	
	15	12	9	9	237		SP			Mottled, orange/brown to light gray/white, med. to fine SAND. Mod. well sorted. Mod. high perm. Wet. No HCO.		
37.5									37.5		-8.6	
	11	10	11	12	98.6		SW			Orange brown, med. to fine SAND. Mod. sorted. Mod. high perm. Wet. No HCO.		
40.0									40.0		-11.1	
	5	7	8	8	36.2		SW			Dark brown/red, med. to fine SAND. Mod. sorted. Mod. high perm. Wet. No HCO.		
42.0									42.0		-13.1	
45.0									45.0		-16.1	
	9	10	10	15	21.7		SW			Light brown, S.A.A. Wet. No HCO.		
47.0									47.0		-18.1	
50.0									50.0		-21.1	
	10	12	12	16	16.4		SW			S.A.A. Wet. No HCO.		
52.0									52.0		-23.1	
										Boring Terminated at Elevation -23.1 ft 24 hour DTW from August 16, 2001 gauging event		

 2" Slot .010 Std. 40
PVC


Portland Cement



Bentonite Pellets



#2 Medium Sand

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Steven Hudson	WELL ID: HPFF-07	
	DRILLER: Alan Melton		
NORTHING: 3,839,277.2	EASTING: 286,357.6	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - ~300' NW of temporary fuel farm between RR tracks.			T.O.C. ELEV.: 28.28
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 52.0
START DATE: 11/09/95	FINISH DATE: 11/10/95	24 HOUR DTW: 9.40	WELL DEPTH: 49.5

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	28.8	0.0
											- 0.5	
2.5									2.5		26.3	
	G	R	A	B	932		SC			Dark brown, CLAYEY, v.f. to fine SAND. Slightly cohesive. Damp. Mild HCO.		
5.0									5.0		23.8	
	2	2	4	6	19		OL			Brown/black, CLAYEY SILT w/minor to mod. amounts of sand. Numerous large root frags. Wet. Mild HCO.		
7.5									7.5		21.3	
	1	2	2	4	103		OL			S.A.A. Wet. Possible HCO.		
10.0									9.0		19.8	
							SW		10.0	Light gray, v.f. to med. SAND. Poorly sorted w/minor SILT. Mod. to low permeability. Wet. Possible HCO.	18.8	
	9	9	7	8	82		SM			Light gray to gray, SILTY SAND to SANDY SILT. Non elastic. Wet. No HCO.		
12.5									12.5		16.3	
	6	6	6	7	37		SM			Light gray, SILTY, v.f. to med. SAND. Mod. sorted w/mod. permeability. Wet. Possible HCO.		
15.0									15.0		13.8	
	5	6	8	5	22		SW			Light gray, v.f. to med. SAND. Mod. to poorly sorted. Mod. permeability. Wet. Possible HCO.		
17.5									17.5		11.3	
	7	6	6	6	115		SW			S.A.A. Moist to dry. Possible HCO.		
20.0									19.5		9.3	
							PT		20.0	Dark brown PEAT. Minor sand and silt. Large root frags. Moist to dry. No HCO.	8.8	
	5	6	5	6	123		PT			S.A.A. Moist to dry. No HCO.		
22.5									22.5		6.3	
	8	9	11	11	106		PT			Dark brown PEAT. Minor sand and silt. Large root frags. and 1/2" thick well sorted sand stringers. Moist to dry. No HCO.		
25.0									25.0		3.8	
							PT			S.A.A. Moist to dry. No HCO.		
27.5	12	15	15	18	79				26.5		2.3	
							SP		27.5	Gray, v.f. to fine SAND. Mod. well sorted w/minor silt. Mod. high permeability. Wet. No HCO.	1.3	
	9	9	12	11	58		SP			S.A.A. Wet. No HCO.		
									30.0		-1.2	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

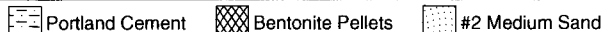
Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Steven Hudson	WELL ID: HPFF-07	
	DRILLER: Alan Melton		
NORTHING: 3,839,277.2	EASTING: 286,357.6	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - ~300' NW of temporary fuel farm between RR tracks.			T.O.C. ELEV.: 28.28
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 52.0
START DATE: 11/09/95	FINISH DATE: 11/10/95	24 HOUR DTW: 9.40	WELL DEPTH: 49.5

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
30.0	13	18	12	12	56		SP		30.0	S.A.A. Wet. No HCO.		
32.5									32.5		-3.7	
	9	5	12	5	45		SP			S.A.A. Wet. No HCO.		
35.0									35.0		-6.2	
	5	7	13	13	26		SP			Brown/gray, fine to med. SAND. Mod. sorted w/mod. to mod. high permeability. Wet. Possible HCO.		
37.5									37.5		-8.7	
	11	7	7	7	24		SP			S.A.A. Wet. Possible HCO.		
40.0									40.0		-11.2	
	WR	5	5	9	2.5		SW			Gray, v.f. to med. SAND. Mod. to mod poorly sorted. Mod. permeability. Wet. Moderate HCO.		
42.0									42.0		-13.2	
43.0	32	50/			15				43.0	Tan/brown, FOSSILIFEROUS LIMESTONE. Sandy. Mod. indurated w/mod. to mod. high permeability. Wet. Possible HCO.	-14.2	
43.8	4											
45.0									45.0		-16.2	
	WR	9	26	17	3.5					S.A.A. Wet. Possible HCO.		
47.0									47.0		-18.2	
50.0									50.0		-21.2	
	WR	12	15	3	3.3					Brown/gray, WEATHERED LIMESTONE. Consists of fine to med. cse. sand w/limestone frags. Poorly sorted. Wet. Possible HCO.		
52.0									52.0		-23.2	
										Boring Terminated at Elevation -23.2 ft 24 hour DTW from August 16, 2001 gauging event		

 2" Slot .01" Sch. 40
PV 2



CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	Steven Hudson	WELL ID:
					DRILLER:	Alan Melton	HPFF-08
NORTHING:	3,839,146.4	EASTING:	286,407.3	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION: SE SECTOR - Within UST basin of former fuel farm							T.O.C. ELEV.: 34.90
DRILL MACHINE:	Diedrich D-50	METHOD:	HSA/MR	0 HOUR DTW:		BORING DEPTH:	50.0
START DATE:	11/13/95	FINISH DATE:	11/17/95	24 HOUR DTW:	15.39	WELL DEPTH:	49.5

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	32.9	2.0
0.0	G	R	A	B	1206		SC			Light gray/brown, CLAYEY, v.f. to fine SAND. Mod. sorted w/mod. to low permeability. Dry. Strong HCO.		0.0
2.5	HP	HP	HP	HP	2553		SC		2.5	S.A.A. Dry. Strong HCO.	30.4	
5.0									5.0		27.9	
	6	4	2	2	2794		SC			S.A.A. Dry. Strong HCO.		
7.5									7.5		25.4	
	7	4	4	6	10		SP			Light gray, fine SAND. Mod. well sorted w/trace silt/clay. High permeability. Moist. Strong HCO.		
10.0									10.0		22.9	
	3	7	7	6	16		SC			Mottled, light gray and orange/brown, CLAYEY, v.f. to fine SAND. Mod. permeability. Moist to wet. Strong HCO.		
12.5									12.5		20.4	
	5	4	5	4	4.6		SC			Light gray, v.f. to med. fine, SANDY CLAY. Mod. sorted. Mod. cohesive w/low to no plasticity. Wet. Very strong HCO.		
15.0									15.0		17.9	
	3	3	3	4	5.2		SC			S.A.A. Wet. Very strong HCO.		
17.5									17.5		15.4	
	7	9	9	11	12		SW/ SC			Yellowish orange and light gray, fine to med. SAND. Mod. poorly sorted w/interbedded 1/2" thick clay stringers. Low plasticity.		
20.0									20.0		12.9	
	4	3	7	8	17		SW			Yellowish orange, v.f. to med. SAND. Mod. to poorly sorted w/minor clay. Mod. permeability. Wet. Strong HCO.		
22.5									22.5		10.4	
	5	6	7	7	9.6		SW			S.A.A. Wet. Strong HCO.		
25.0									25.0		7.9	
	9	6	9	8	2.4		SW			Light gray, v.f. to med. SAND. Mod. to poorly sorted w/minor clay. Mod. permeability. Wet. Strong HCO.		
27.5									27.5		5.4	
	10	12	13	9	2.1		SW			S.A.A. Dry. Strong HCO.		
									30.0		2.9	

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC



Portland Cement



Bentonite Pellets



#2 Medium Sand

 Portland Cement
 Bentonite Pellets
 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Steven Hudson	WELL ID: HPFF-09	
	DRILLER: Alan Melton		
NORTHING: 3,839,100.0	EASTING: 286,232.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Along Gibb Rd. SE of center of Bld. 1101			T.O.C. ELEV.: 27.13
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 11/15/95	FINISH DATE: 11/16/95	24 HOUR DTW: 8.47	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.6	0.0
0.0	G	R	A	B	7.4		CL			Light tan/brown CLAY. Minor SILT and fine sands. Mod. plasticity. Low permeability. Damp. No HCO.		- 0.5
2.5	G	R	A	B	4.3		CL		2.5	S.A.A. Damp. No HCO.	25.1	
5.0									5.0		22.6	
4	3	2	3	6.6			SM		7.5	Tan/brown to light gray, SILTY, v.f. to fine SAND. Mod. cohesive. Low to mod. low permeability. Dry. No HCO.	20.1	
6	3	3	3	3.2			SM		10.0	Orange/brown, S.A.A. Moist. No HCO.	17.6	
10.0									11.0	Brownish gray, S.A.A. Wet. No HCO.	16.6	
4	4	5	4	9.6			SP		12.5	Light gray, fine to v.f. SAND. Mod. sorted w/minor SILT. Mod. high permeability. Wet. No HCO.	15.1	
12.5									14.0	S.A.A. Damp. No HCO.	13.6	
2	2	2	2	18.4			PT		15.0	SANDY PEAT. Low permeability. Damp. No HCO.	12.6	
15.0									17.5	Dark brown, SANDY PEAT. Trace med. sands and large root fragments. Damp to dry. No HCO.	10.1	
1	2	1	1	41.2			PT		19.0	S.A.A. Damp to dry. No HCO.	8.6	
2	4	3	3	15.4			SM		20.0	Light brownish gray, SILTY, v.f. to fine SAND. Wet. No HCO.	7.6	
20.0									22.5	Light gray, v.f. to med. SAND. Mod. sorted w/trace SILT. Mod. permeability. Wet. No HCO.	5.1	
4	5	6	5	11.3			SW		25.0	S.A.A. Wet. No HCO.	2.6	
22.5									27.0	Orange/brown, S.A.A. Wet. No HCO.	0.6	
4	4	4	4	27.3			SW		27.5	Greenish gray, SILTY, v.f. to med. SAND. Poor to mod. sorting. Wet. No HCO.	0.1	
25.0										S.A.A. Wet. Possible HCO.		
6	3	2	4	73.1			SM		30.0		-2.4	
7	2	3	3	376			SM					

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Steven Hudson	WELL ID: HPFF-09	
	DRILLER: Alan Melton		
NORTHING: 3,839,100.0	EASTING: 286,232.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Along Gibb Rd. SE of center of Bld. 1101			T.O.C. ELEV.: 27.13
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 11/15/95	FINISH DATE: 11/16/95	24 HOUR DTW: 8.47	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.0												
	3	3	5	4	631		SW			Greenish gray, v.f. to med. SAND. Mod. to poorly sorted w/mod. permeability. Wet. Strong HCO.	-4.9	
32.5												
	7	4	4	8	682		SP			Greenish gray, fine to med. SAND. Mod. sorting w/mod. to high permeability. Wet. Strong HCO.	-7.4	
35.0												
	5	5	5	6	823		SP			Greenish to brownish gray, med. SAND. Well sorted w/trace fine sand. High permeability. Wet. Very strong HCO.	-9.9	
37.5												
	13	14	22	16	784					Greenish gray, fine to med. SAND. Mod. to poorly sorted w/limestone fragments. Mod. to mod. low permeability. Wet. Mod. to strong HCO.	-12.4	
40.0												
	17	36	24	48	653					Greenish gray, med., SANDY LIMESTONE. High permeability. Mod. indurated. Wet. Mod. to strong HCO.	-14.4	
42.0												
45.0												
	32	44	50/3		326					Light gray, SANDY LIMESTONE. Fossiliferous w/echinoderm spines. Mod. to mod. high permeability. Mod. well indurated. Sweet odor. Wet. Mod. HCO.	-17.4	45.0
46.3											-18.7	
48.0											-20.4	
	14	21	17	17	194					Gray mixture of SAND, SILT, and LIMESTONE FRAGMENTS. Very poorly sorted. Angular. Low permeability. Sweet odor. Wet. Possible HCO.	-22.4	50.0
50.0												50.0
										Boring Terminated at Elevation -22.4 ft 24 hour DTW from August 16, 2001 gauging event		

2" Slot .010 S/in. 40
PVC

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Bill Walsh	WELL ID: HPFF-10
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,158.9	EASTING: 286,395.8	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Within UST basin of former fuel farm			T.O.C. ELEV.: 32.50
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 82.0
START DATE: 06/25/97	FINISH DATE: 07/17/97	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in											
												0.0	LAND SURFACE	33.0	0.0
3.0												3.0		30.0	
	HP	HP	HP	HP	0.0					SW			Brown, fine to med. grained SAND, some silt. No HCO.		
5.0												5.0		28.0	
8.0												8.0		25.0	
	HP	HP	HP	HP	300					SW			Grayish tan, med. to fine grained SAND, some silt. Possible HCO.		
10.0												10.0		23.0	
13.0												13.0		20.0	
	HP	HP	HP	HP	860					SW			S.A.A. Strong HCO.		
15.0												15.0		18.0	
18.0												18.0		15.0	
	HP	HP	HP	HP	680					SC			Gray CLAYEY SAND. Strong HCO.		
20.0												20.0		13.0	
23.0												23.0		10.0	
	12	13	11	12	1000+					SP			Brownish tan, med. to fine grained SAND, well sorted. Strong HCO.		
25.0												25.0		8.0	
28.0												28.0		5.0	
	7	8	8	5	900					SP			Gray, cse., med., and fine grained SAND, well sorted. Strong HCO.		
												30.0		3.0	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

6" Sch. 40 PVC

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Bill Walsh	WELL ID: HPFF-10
DRILLER: Bobbie Fowler			
NORTHING: 3,839,158.9	EASTING: 286,395.8	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Within UST basin of former fuel farm			T.O.C. ELEV.: 32.50
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 82.0
START DATE: 06/25/97	FINISH DATE: 07/17/97	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.0												
33.0									33.0			
35.0	HP	HP	HP	HP	200		SC		35.0	Gray, cse. to med. grained CLAYEY SAND. Possible HCO.	-2.0	
38.0									38.0		-5.0	
40.0	15	15	25	15	550		SP		40.0	Coarse to med. grained SAND, trace fines. Strong HCO.	-7.0	
55.0									55.0		-22.0	
57.0	G	R	A	B	26				57.0	Orange, gray, and tan LIMESTONE FRAGMENTS with some clay globules. No HCO.	-24.0	
60.0									60.0		-27.0	
	G	R	A	B	1.0					Orange, gray, and tan LIMESTONE FRAGMENTS. No HCO.		

2" Sch. 40 PVC

4" Sch. 40 PVC

 Portland Cement  Bentonite Pellets  #2 Medium Sand

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Bill Walsh	WELL ID: HPFF-10
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,158.9	EASTING: 286,395.8	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Within UST basin of former fuel farm			T.O.C. ELEV.: 32.50
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 82.0
START DATE: 06/25/97	FINISH DATE: 07/17/97	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
62.0									62.0		-29.0	
65.0	G	R	A	B	2.0				65.0	Orange, gray, and tan LIMESTONE FRAGMENTS with some sand. No HCO.	-32.0	
67.0									67.0		-34.0	
70.0	G	R	A	B	2.0				70.0	Gray LIMESTONE FRAGMENTS with fossils. No HCO.	-37.0	
72.0									72.0		-39.0	
75.0	G	R	A	B	3.0		CL		75.0	Grayish tan SANDY CLAY and limestone fragments. No HCO.	-42.0	75.0
77.0									77.0		-44.0	
80.0	G	R	A	B	2.0				80.0	Grayish tan, LIMESTONE FRAGMENTS with some sandy clay, fossils, and worm tubes. No HCO.	-47.0	80.0
82.0									82.0	Boring Terminated at Elevation -49.0 ft	-49.0	

2" Slot 0.10 Sch. 40
PVC

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 4

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Bill Walsh	WELL ID: HPFF-11
NORTHING: 3,839,152.9		EASTING: 286,400.8	SYSTEM: UTM NAD83 (m)
BORING LOCATION: SE SECTOR - Within UST basin of former fuel farm			T.O.C. ELEV.: 32.28
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 10.0
START DATE: 06/26/97	FINISH DATE: 07/28/97	24 HOUR DTW: 13.65	WELL DEPTH: 110.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	32.3	0.0
3.0									3.0		29.3	
	HP	HP	HP	HP	NM		SM		5.0	Brown, SILTY, fine to med. SAND. Dry. No HCO.	27.3	
5.0									8.0		24.3	
	HP	HP	HP	HP	NM		SM		10.0	Grayish-tan, S.A.A. Dry. Possible HCO.	22.3	
10.0									13.0		19.3	
	HP	HP	HP	HP	NM		SM		15.0	S.A.A. Wet. Strong HCO.	17.3	
15.0									18.0		14.3	
	HP	HP	HP	HP	NM		SC		20.0	Gray, CLAYEY SAND. Wet. Strong HCO.	12.3	
20.0									23.0		9.3	
	HP	HP	HP	HP	NM		SW		25.0	Brownish-tan, fine to med. SAND. Wet. Strong HCO.	7.3	
25.0									28.0		4.3	
	HP	HP	HP	HP	NM		SP		30.0	Gray, fine to cse. SAND. Well sorted. Wet. Strong HCO.	2.3	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02

6" Sch. 40 PVC

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	Charles Ray	WELL ID:
					DRILLER:	Bobbie Fowler	HPFF-55
NORTHING:	3,839,394.9	EASTING:	286,256.3	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION: NW SECTOR - ~200' NE of car wash (S1053) along gravel road							T.O.C. ELEV.: 27.50
DRILL MACHINE:	Diedrich D-50	METHOD:	HSA/MR	0 HOUR DTW:			BORING DEPTH: 80.0
START DATE:	12/11/01	FINISH DATE:	02/24/02	24 HOUR DTW:			WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	28.4	0.0
1.0									1.0		27.4	-0.9
	5	6	4	4	0		SM			Brown, tan, SILTY, v.f. to f. SAND. Wet. No HCO.		
3.0									3.0		25.4	
4.0									4.0		24.4	
	1	2	4	4	1.0		CH		6.0	Gray, tan, SILTY, CLAY with high plasticity. Sat. No HCO.	22.4	
6.0												
9.0									9.0		19.4	
	1	2	1	2	5.2		CL		11.0	Gray, SILTY, v.f. to f. SANDY CLAY with med. plasticity. Sat. No HCO.	17.4	
11.0												
14.0									14.0		14.4	
	1	1	2	2	200		CL		16.0	S.A.A.	12.4	
16.0												
19.0									19.0		9.4	
	1	1	1	1	110		CL		21.0	S.A.A except v.f. SANDY CLAY.	7.4	
21.0												
24.0									24.0		4.4	
	3	4	5	6	1000+		PT		26.0	Brown, gray, SILTY, v.f. to f. SANDY CLAY with wood fragments. (PEAT?). Moist.	2.4	
26.0												
29.0							SP		29.0	Gray, well sorted, v.f. to f. SAND. Wet. No HCO.	-0.6	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDI 06/18/02

6" Sch. 40 PVC

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-55
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,394.9	EASTING: 286,256.3	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - ~200' NE of car wash (S1053) along gravel road			T.O.C. ELEV.: 27.50
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/11/01	FINISH DATE: 02/24/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION			WELL DETAIL
	6in	6in	6in	6in					DEPTH	DESCRIPTION	ELEVATION	
31.0	21	22	23	24	1000+		SP		31.0	Gray, well sorted, v.f. to f. SAND. Wet. No HCO. (continued)	-2.7	2" Sch. 40 PVC
34.0									34.0		-5.7	
36.0	10	20	22	20	500		SP		36.0	S.A.A, v.f. to med.	-7.7	
39.0									39.0		-10.7	
41.0	8	12	16	16	200		SP		41.0	S.A.A.	-12.7	
43.0									43.0		-14.7	
45.0	12	26	14	10	220		SM		45.0	Light green, SILTY, v.f. to f. SAND with weathered LS and cemented sand. Sat. No HCO.	-16.7	
48.0									48.0		-19.7	
50.0	8	17	22	27	500		SP		50.0	Green, well sorted, v.f. SAND with trace silt. Wet. Slight HCO.	-21.7	
53.0									53.0		-24.7	
55.0	11	21	12	18	530		SM		55.0	Light green, SILTY, v.f. to med. SAND with cemented sands.	-26.7	4" Sch. 40 PVC
									56.0		-27.7	
58.0							SM		58.0	Layers of cemented sands.	-29.7	
									59.0	CORE RUN FROM 58-63	-30.7	
									58-59	SANDY LS with shell frags.		
	5	50/3					SP			No return from 59-63, assumed to be sand.		

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/18/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-55
NORTHING: 3,839,394.9	EASTING: 286,256.3	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - ~200' NE of car wash (S1053) along gravel road			T.O.C. ELEV.: 27.50
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/11/01	FINISH DATE: 02/24/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK		WELL DETAIL
	6in	6in	6in	6in					DEPTH	DESCRIPTION	
63.0							SP		63.0	No return from 59-63, assumed to be sand. (continued)	-34.7
65.0	8	27	29	25	120		SP		65.0	Green/gray, well sorted, v.f. to f. SAND with trace silt and shell frags. Wet. No HCO.	-36.7
68.0									68.0		-39.7
70.0	17	27	37	47	70		SP		70.0	Green, well sorted, fine SAND. Wet. No HCO.	-41.7
78.0									78.0		-49.7
80.0	16	26	36	41	50		SP		80.0	S.A.A with trace shell frags. Wet. No HCO.	-51.7
Boring Terminated at Elevation -51.7 ft											

2" Slot 0.10 Sch. 40
PVC

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-56
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,256.8	EASTING: 286,039.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - SW corner of grass area by Bld. 1115 along Birch St.			T.O.C. ELEV.: 27.93
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 12/13/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	28.7	0.0
0.0	6	10	6	8	0		SC/SM		0.5	Brown, moderately sorted, SILTY, v.f. to f. SAND.		- 0.8
2.0									2.0	.5-2.0 Tan, SILTY, v.f. to f. CLAYEY SAND. Moist. NO HCO	26.7	
3.5									3.5		25.2	
4	6	7	6	0			SC		5.5	Tan, gray, orange, SILTY, v.f. to f. CLAYEY SAND. Moist. No HCO	23.2	
5.5												
8.5									8.5		20.2	
10.5	1	2	1	2	0		CL		10.5	Tan, gray, orange, v. soft, SILTY, v.f. to f. SANDY CLAY. Wet. No HCO.	18.2	
13.5									13.5		15.2	
15.5	4	8	8	13	15		SP		15.5	Gray, well sorted, fine SAND. Sat. No HCO.	13.2	
18.5									18.5		10.2	
20.5	7	7	4	4	64		SP		20.5	S.A.A. with some silt.	8.2	
23.5									23.5		5.2	
25.5	4	4	10	15	40		SW		25.0	Brown, gray, well sorted, fine SAND with wood fragments.	3.7	
							SP		25.5	Gray, well sorted, fine SAND. Wet. No HCO.	3.2	
28.5									28.5		0.2	
7	10	10	9	12			SP			Gray, well sorted, v.f. to f. SAND. Sat. No HCO.		

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/13/02

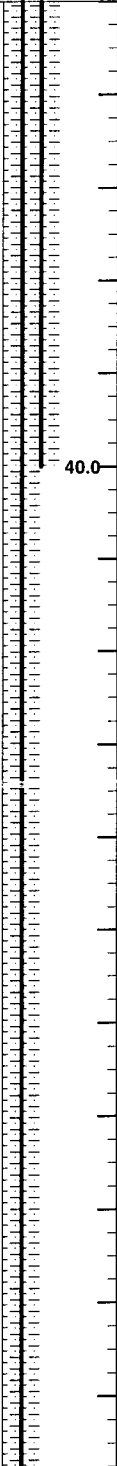
WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-56
DRILLER: Bobbie Fowler			
NORTHING: 3,839,256.8	EASTING: 286,039.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - SW corner of grass area by Bld. 1115 along Birch St.			T.O.C. ELEV.: 27.93
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 12/13/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.5									30.5		-1.8	
33.5									33.5		-4.8	
35.5	5	7	8	8	1000+		SP		33.5-34.5 S.A.A. 34.5-35.5 Light gray, S.A.A. Sat. Moderate HCO.		-6.8	
38.5									38.5		-9.8	
40.5	6	7	7	6	1000+		SP		S.A.A. Sat. Moderate HCO.		-11.8	
43.0									43.0		-14.3	
45.0	4	3	3	4	78		SP		Gray, well sorted, fine SAND. Sat. High HCO.		-16.3	
48.0									48.0		-19.3	
50.0	2	3	2	1	220		SC		Dark gray, SILTY, v.f. to f. CLAYEY SAND. Sat. High HCO.		-21.3	
53.0									53.0		-24.3	
55.0	2	1	WHWH	1000+			SC		54.0 S.A.A. Sat. High HCO.		-25.3	
58.0									Rods fell from 54' to 58' bls. Possible very loose clayey sand/void.			
60.0	2	WHWHWH	420				SC		58.0 58.5 S.A.A. with less clay.		-29.3 -29.8	
									Rods fell from 58.5' to 61' bls. Possible very loose clayey sand/void.			
									61.0		-32.3	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-56
NORTHING: 3,839,256.8	EASTING: 286,039.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - SW corner of grass area by Bld. 1115 along Birch St.			T.O.C. ELEV.: 27.93
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 12/13/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
63.0									63.0		-34.3	2" Sch. 40 PVC
	4	5	5	7	120		SM			Light green, SILTY, v.f. to f. SAND. Sat. High HCO.		
65.0									65.0		-36.3	
68.0									68.0		-39.3	
	7	10	14	14	320		SP			Green, well sorted, v.f. to f. SAND. Sat. High HCO.		
70.0									70.0		-41.3	
73.0									73.0		-44.3	
	8	9	10	11	64		SP			S.A.A. Sat. Moderate HCO.		
75.0									75.0		-46.3	4" Sch. 40 PVC
78.0									78.0		-49.3	
	8	10	9	7	98		SP			S.A.A. Wet. Moderate HCO.		
80.0									80.0		-51.3	
88.0									88.0		-59.3	
	13	13	21	27	87		SC			Light green, SILTY, v.f. to f., CLAYEY SAND with shell fragments. Sat. Moderate HCO.		
90.0									90.0		-61.3	
									93.0		-64.3	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 4 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-56
NORTHING: 3,839,256.8	EASTING: 286,039.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - SW corner of grass area by Bld. 1115 along Birch St.			T.O.C. ELEV.: 27.93
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 12/13/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK			WELL DETAIL
	6in	6in	6in	6in					DEPTH	DESCRIPTION	ELEVATION	
									95.0	Hit hard thin layers of cemented sands with some weathered limestone. (continued)	-66.3	
98.0									98.0		-69.3	
100.0	21	26	17	31	17		SM		100.0	Light green, SILTY, v.f. to f. SAND with cemented clusters of sand grading to a green, well sorted, v.f. to f. SAND. Wet to Sat. Slight HCO.	-71.3	
108.0									108.0		-79.3	
110.0	25	40	50/6		13		SM		110.0	Gray/green, tan, SILTY, v.f. to f. SAND. Sat. Slight HCO.	-81.3	
118.0									118.0		-89.3	
120.0	31	50/4			10		SM		120.0	Green/tan, S.A.A. Sat. Slight HCO.	-91.3	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 5 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-56
NORTHING: 3,839,256.8	EASTING: 286,039.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - SW corner of grass area by Bld. 1115 along Birch St.			T.O.C. ELEV.: 27.93
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 12/13/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH			
128.0									128.0		-99.3	
	20	31	32	35	7		SM		S.A.A with trace shell fragments. Wet. Slight HCO.			
130.0									130.0		-101.3	
138.0									138.0		-109.3	
	16	30	50/4		2		SM		S.A.A. Wet to sat. No HCO.			
140.0									140.0		-111.3	
148.0	20	31	50/4		0		SM		148.0		-119.3	
									S.A.A. Wet to sat. No HCO.			
150.0									150.0		-121.3	
									Boring Terminated at Elevation -121.3 ft			

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: CWR, TWL, TS	WELL ID:
		DRILLER: William Miller	HPFF-57
NORTHING: 3,839,033.9	EASTING: 286,020.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Between Buildings 1200 & 1201 on Center Rd.			T.O.C. ELEV.: 26.05
DRILL MACHINE: CME 45B ATV	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 10/01/01	FINISH DATE: 10/08/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.4	0.0
1.0									1.0		25.4	- 0.3
	G	R	A	B	20		SC/	SM	3.0	Light brown, CLAYEY/SILTY, fine SAND. Dry. No HCO.	23.4	
3.0									5.0		21.4	
	3	4	5	5	8		SC		7.0	Light gray, CLAYEY, v.f. SAND. Wet. No HCO.	19.4	
5.0									9.0		17.4	
	8	8	7	7	50		SC		11.0	S.A.A.	15.4	
7.0									14.0		12.4	
	15	18	18	18	32		SW		16.0	Light gray, v.f. SAND w/ some clay and silt. No HCO.	10.4	
9.0									19.0		7.4	
	8	8	9	6	1.2		SP		21.0	Light gray, v.f. SAND. Trace silt and clay. No HCO.	5.4	
11.0									24.0		2.4	
	4	3	3	9	0		SM		26.0	Light gray to tan, SILTY, fine SAND. No HCO.	0.4	
13.0									29.0		-2.6	
							SC/			Orange- tan, poorly sorted, CLAYEY SAND w/sandy		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC


 Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: CWR, TWL, TS	WELL ID: HPFF-57
NORTHING: 3,839,033.9		EASTING: 286,020.4	SYSTEM: UTM NAD83 (m)
BORING LOCATION: CENTRAL SECTOR - Between Buildings 1200 & 1201 on Center Rd.			T.O.C. ELEV.: 26.05
DRILL MACHINE: CME 45B ATV	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 10/01/01	FINISH DATE: 10/08/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in											
31.0	2	3	3	6	0.4		CL					31.0	clay layers. No HCO.	-4.6	
34.0												34.0		-7.6	
36.0	5	3	5	9	0.2		SC/CL					36.0	S.A.A.	-9.6	
39.0												39.0		-12.6	
41.0	12	16	25	23	0		SC/CL					41.0	S.A.A. with reddish orange layering up to 2cm. in thickness.	-14.6	
44.0												44.0		-17.6	
46.0	8	12	14	27	7.5		SP					46.0	Tan gray, fine SAND w/trace cse. sands. Saturated, Slight HCO.	-19.6	
48.0												48.0		-21.6	
50.0	2	1	2	2	49		SP					50.0	Green, v.f. to med. SAND. Well sorted. Saturated, HCO.	-23.6	
													Boring Terminated at Elevation -23.6 ft		

2" Slot .010 Sch. 40 PVC

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-58
NORTHING: 3,839,186.1	EASTING: 286,185.8	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Between Blds. 1108 & 1101 on Center Rd.			T.O.C. ELEV.: 26.34
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/13/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.7	0.0
												-0.4
3.5	6	7	7	6	1000+		SC		3.5	Gray, tan, orange, SILTY, v.f. to f. CLAYEY SAND. Moist. Moderate HCO.	23.2	
5.5									5.5		21.2	
8.5	2	1	2	4	1000+		SC		8.5	S.A.A with more silt content. Sat. Moderate HCO.	18.2	
10.5									10.5		16.2	
13.5	7	6	8	10	90		SM		13.5	Gray, SILTY, v.f. to f. SAND. Sat. Moderate HCO.	13.2	
15.5									15.5		11.2	
18.5	2	2	4	5	400		PT		18.5	PEAT- Brown, SILTY, v.f. to f. SANDY CLAY with wood fragments. Moist. Moderate HCO.	8.2	
20.5									20.5		6.2	
23.5	2	4	9	5	420		PT		23.5	S.A.A. w/more SAND. Moist. Moderate HCO.	3.2	
25.5									25.5		1.2	
28.5	2	2	1	2	1000+		SM		28.5	Brown, gray, SILTY, v.f. to f. SAND. Sat. High HCO.	-1.8	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

6" Sch. 40 PVC

 Portland Cement	 Bentonite Pellets	 #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Charles Ray	WELL ID: HPFF-58	
	DRILLER: Bobbie Fowler		
NORTHING: 3,839,186.1	EASTING: 286,185.8	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Between Blds. 1108 & 1101 on Center Rd.			T.O.C. ELEV.: 26.34
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/13/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.5									30.5		-3.8	2" Sch. 40 PVC
33.5									33.5		-6.8	
35.5	9	13	13	15	80		SP		35.5	Gray, well sorted, fine SAND. Sat. High HCO.	-8.8	
38.5									38.5		-11.8	
40.5	5	9	7	10	50		SP		40.5	S.A.A. Sat. High HCO.	-13.8	
42.5									42.5		-15.8	
44.5	10	15	13	17	190		SM		44.5	Green, moderately sorted, v.f. to f. SILTY SAND with trace shell fragments and cemented sands. Wet. Moderate HCO.	-17.8	
47.5									47.5		-20.8	
49.5	13	23	20	20	60		SM		49.5	S.A.A. Wet. Moderate HCO.	-22.8	
52.5									52.5		-25.8	
54.5	5	11	15	19	67		SC		54.5	Green, tan, SILTY, v.f. to f. CLAYEY SAND with shell fragments. Wet. High HCO.	-27.8	4" Sch. 40 PVC
57.5									57.5		-30.8	
59.5	31	50/5							59.5	Core Run from 58 to 63 Limestone to 59.5	-32.8	
							SP			No return from core run --- assumed to be sand.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-58
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,186.1	EASTING: 286,185.8	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Between Blds. 1108 & 1101 on Center Rd.			T.O.C. ELEV.: 26.34
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/13/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH			
							SP		63.0	No return from core run --- assumed to be sand. (continued)	-36.3	
67.5									67.5		-40.8	
	20	40	40	40	7.7		SP			Green, well sorted, fine SAND. Wet. Slight HCO.		68.5
69.5									69.5		-42.8	70.0
												73.0
												75.0
78.0									78.0		-51.3	2" Slot .010 Sch. 40 PVC
	16	30	32	37	3.7		SP			S.A.A with trace shell fragments. Wet. Slight HCO.		
80.0									80.0		-53.3	80.0
										Boring Terminated at Elevation -53.3 ft		

CATLIN BORING LOG_201-130.GPJ CATLIN.GDT_06/13/02

 Portland Cement	 Bentonite Pellets	 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-59
NORTHING: 3,839,280.3	EASTING: 286,349.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - ~300' NW of temporary fuel farm between RR tracks.			T.O.C. ELEV.: 27.94
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 01/03/02	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	28.4	0.0
1.0									1.0		27.4	- 0.4
	9	6	5	6			SM			Brown, moderately sorted, SILTY, v.f. to f. SAND. Dry. No HCO.		
3.0									3.0		25.4	
5.0									5.0		23.4	
	2	2	3	3			CL			Tan, gray, orange, SILTY, v.f., SANDY CLAY. Sat. No HCO.		
7.0									7.0		21.4	
8.0									8.0		20.4	
	3	2	2	2			SM			Gray, SILTY, v.f. SAND. Sat. Moderate HCO.		
10.0									10.0		18.4	
13.0									13.0		15.4	
	3	3	4	5			SM			S.A.A. Sat. Slight HCO.		
15.0									15.0		13.4	
18.0									18.0		10.4	
	4	5	5	4			SP			Brown/gray, well sorted, v.f. to f. SAND with trace silt. Sat. Slight HCO.		
20.0									20.0		8.4	
23.0									23.0		5.4	
	2	2	3	4			PT			PEAT-Brown, SILTY, v.f. to f. CLAYEY SAND with wood fragments. Moist. Moderate HCO.		
25.0									25.0		3.4	
28.0									28.0		0.4	
	6	8	8	11			SP			Gray, well sorted, fine SAND. Sat. Slight HCO.		
									30.0		-1.7	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

6" Sch. 40 PVC


 Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-59
DRILLER: Bobbie Fowler			
NORTHING: 3,839,280.3	EASTING: 286,349.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - ~300' NW of temporary fuel farm between RR tracks.			T.O.C. ELEV.: 27.94
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 01/03/02	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in											
30.0															
33.0												33.0		-4.7	
	5	7	7	9			SP						S.A.A. with some silt.		
35.0												35.0		-6.7	
38.0												38.0		-9.7	
	4	4	5	5			SP					40.0	Dark green/gray, S.A.A. w/trace cse. size grains. Sat. HCO.	-11.7	
40.0															
42.5												42.5		-14.2	
	2	2	2	2	28		SP					44.5	Dark green, well sorted, fine SAND with trace silt and gravels. Sat. Slight HCO.	-16.2	
44.5												45.5	** Hammer on last hit dropped the spoon approx. 1.0 foot. Possible void or very soft sediment.	-17.2	
47.5												47.5		-19.2	
	6	25	26	30	12		SP					49.5	Light green, well sorted, v.f. to f. SAND with trace med. sand size shell frags. Moist. Moderate HCO.	-21.2	
49.5													Drilled through thin layers of cemented sand throughout the 5' run.		
52.5												52.5		-24.2	
	10	16	19	33	30		SM					54.5	Green, moderately sorted, SILTY, v.f. to f. SAND with med. size shell fragments. Wet. Moderate HCO.	-26.2	
54.5															
57.5												57.5		-29.2	
	24	29	38	42	10		GM					58.5	WEATHERED LIMESTONE. Sat. moderate HCO.	-30.2	
59.5												59.0	SANDY LIMESTONE. Mod. HCO.	-30.7	
												59.5	SEVERELY WEATHERED LIMESTONE. Mod. HCO.	-31.2	

2" Sch. 40 PVC

4" Sch. 40 PVC

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-59
NORTHING: 3,839,280.3		EASTING: 286,349.4	SYSTEM: UTM NAD83 (m)
BORING LOCATION: CENTRAL SECTOR - ~300' NW of temporary fuel farm between RR tracks.			T.O.C. ELEV.: 27.94
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 01/03/02	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH			
62.5									62.5		-34.2	
	28	50/3			36		SM			Light green, moderately sorted, SILTY, v.f. to f. SAND with cemented sands. Sat. HCO.	-36.2	
64.5									64.5			
67.5									67.5		-39.2	
	18	38	43	40	37		SP			Light green, well sorted, fine SAND. Wet. HCO.	-41.2	
69.5									69.5			70.0
												71.0
73.0									73.0		-44.7	
	25	40	50/5		22		SP			Green, S.A.A.	-46.7	75.0
75.0									75.0			
78.0									78.0		-49.7	
	19	25	35	45	8		SM			Green, moderately sorted, SILTY, v.f. to f. SAND with trace sand size shell frags. Wet. Slight HCO.	-51.7	80.0
80.0									80.0			
										Boring Terminated at Elevation -51.7 ft		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-60
NORTHING: 3,839,178.6	EASTING: 286,296.7	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Loading ramp (S1107) @ corner of Gibb Rd. & Ash St.			T.O.C. ELEV.: 27.19
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 10/08/01	FINISH DATE: 10/17/01	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.7	0.0
0.0	G	R	A	B			GW		1.0	GRAVEL w/v.f. to med. sand.	26.7	- 0.5
1.0							SP			Tan/brown, well sorted, v.f. to med. SAND. Moist.		
	12	18	9	6					3.0		24.7	
3.0										NO RETURN		
	3	4	4	5					5.0		22.7	
5.0							SM			Gray, SILTY, v.f. to fine SAND. Saturated. Strong HCO.		
	1	1	1	2					7.0		20.7	
7.0							SM			S.A.A. Sat. Strong HCO.		
	2	1	2	3					9.0		18.7	
9.0							SM			S.A.A. Sat. Strong HCO.		
	4	2	2	7					11.0		16.7	
11.0							SM			S.A.A. Sat. Strong HCO.		
	5	6	7	7					13.0		14.7	
13.0							SM			S.A.A. Sat. Strong HCO.		
	6	7	8	9					15.0		12.7	
15.0							SM			S.A.A. Sat. Strong HCO.		
	4	6	4	4					16.5		11.2	
17.0							SC		17.0	Gray, SILTY/CLAYEY, v.f. to fine SAND. Saturated, High HCO.	10.7	
	1	2	4	4			SC			S.A.A. Sat. High HCO.		
19.0									19.0		8.7	
	4	9	13	12			SP			Gray, well sorted, v.f. to fine SAND. Moist. High HCO.		
21.0									21.0		6.7	
	7	12	17	25			SW			Gray, mod. sorted, v.f. to med. SAND. Some brown staining. Wet. High HCO.		
23.0									23.0		4.7	
	11	10	3	10			SW		24.0	S.A.A. Wet. High HCO.	3.7	
25.0							SM		25.0	Gray, SILTY, v.f. to fine SAND. Wet. High HCO.	2.7	
	7	9	11	11			SP			Gray, well sorted, fine SAND. Moist to wet, High HCO.		
27.0									27.0		0.7	
	4	7	6	5			SP			S.A.A. Moist to wet, High HCO.		
29.0							SP		29.0		-1.3	
										Gray, green, S.A.A. Saturated, High HCO.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

6" Sch. 40 PVC


 Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-60
NORTHING: 3,839,178.6	EASTING: 286,296.7	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Loading ramp (S1107) @ corner of Gibb Rd. & Ash St.			T.O.C. ELEV.: 27.19
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 10/08/01	FINISH DATE: 10/17/01	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
31.0	5	6	6	7			SP		31.0	Gray, green, S.A.A. Saturated, High HCO. (continued)	-3.3	
	2	2	5	10			SP			S.A.A. w/increase in green color.		
33.0									33.0		-5.3	
	1	2	2	5			SP			Gray, S.A.A. Sat. High HCO.		
35.0									35.0		-7.3	
	1	2	2	5			SP		36.0	S.A.A. Sat. High HCO.	-8.3	
							SP		37.0	Tan/orange, well sorted, v.f. to fine SAND. Saturated, High HCO.	-9.3	
	2	3	5	6			SW			Gray, w/some tan/orange, v.f. to med. SAND. Saturated, High HCO.		
39.0									39.0		-11.3	
	3	10	21	47			SW		40.0	S.A.A. Sat. High HCO.	-12.3	
							SP		41.0	Tan, orange, well sorted, v.f. SAND. High HCO.	-13.3	
41.0												
	12	15	19	26			SP		42.5	Tan, v.f. to fine SAND.	-14.8	
							SW		43.0	Olive green, v.f. to fine SAND w/cse. SHELL FRAGMENTS. Wet. High HCO.	-15.3	
43.0							SM		44.0	Olive green, SILTY, v.f. to fine SAND. Wet.	-16.3	
	7	14	22	33					45.0	Olive green, SILTY, v.f. to med. SAND w/LIMESTONE fragments.	-17.3	
45.0												
	10	17	13	19					47.0	Olive green, SILTY, v.f. SAND w/cse. LIMESTONE fragments.	-19.3	
47.0												
	5	12	18	30			SM		49.0	Olive green, SILTY, v.f. SAND. No HCO.	-21.3	
49.0												
	8	16	12	16					51.0	Olive green, SILTY, v.f. to cse., weathered, SANDY LIMESTONE. No HCO. 1" to 2" thick lenses of indurated materials through interval while drilling.	-23.3	
51.0												
	14	25	38	43			SM		53.0	Green, SILTY, v.f. SAND. Wet. No HCO.	-25.3	
53.0												
	8	9	13	22			SM		55.0	S.A.A. w/SHELL FRAGMENTS. Last 1" of spoon = shell fragments.	-27.3	
55.0												
	5	7	11	44			CL		57.0	Green, SILTY, v.f., SANDY CLAY w/cse. SHELL and LIMESTONE fragments. Moist to wet, No HCO.	-29.3	
57.0												
	14	32	18	36			SC/CL			Green, SILTY/CLAYEY, v.f. to fine SAND w/SHELL and LIMESTONE fragments. Saturated, No HCO.		
59.0									60.0		-32.3	
60.0	36	50/5								Gray, FOSSILIFEROUS, SANDY LIMESTONE. 4' of recovery from 5' of core.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-60
NORTHING: 3,839,178.6	EASTING: 286,296.7	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Loading ramp (S1107) @ corner of Gibb Rd. & Ash St.			T.O.C. ELEV.: 27.19
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 10/08/01	FINISH DATE: 10/17/01	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in											
	C	O	R	E									Gray, FOSSILIFEROUS, SANDY LIMESTONE. 4' of recovery from 5' of core. (continued)		
65.0												65.0		-37.3	
	C	O	R	E									NO RETURN. Assumed to be Green, well sorted, fine SAND.		
70.0												70.0		-42.3	
72.0	13	32	48	50/4						SP		72.0	Green, well sorted, fine SAND. Saturated. No HCO.	-44.3	2" Sch. 40 PVC
74.0	19	23	40	50/4						SP		74.0	S.A.A. Saturated. No HCO.	-46.3	
75.0	20	50/5								SP		76.0	S.A.A. Saturated. No HCO.	-48.3	
76.0	25	40	50/5							SP		78.0	S.A.A. w/trace cse. SHELL fragments. Saturated. No HCO.	-50.3	
78.0	28	43	44	50						SP		80.0	S.A.A w/trace cse. SHELL fragments Saturated HCO.	-52.3	
80.0	25	33	35	46						SM		82.0	Green, SILTY, v.f. to fine SAND w/trace med. SHELL fragments. Saturated. HCO.	-54.3	4" Sch. 40 PVC
82.0	13	22	24	42						SM		84.0	S.A.A. w/increasing SILT. Saturated. HCO.	-56.3	
84.0	10	12	26	45						SM		86.0	S.A.A. Saturated. HCO.	-58.3	
86.0	5	18	42	50/3						SM		88.0	S.A.A. Saturated. HCO.	-60.3	
88.0	40	49	50/5							SM		90.0	Light green, SILTY, v.f. to fine SAND w/SHELL fragments. Wet. HCO.	-62.3	
89.5															
90.0	21	32	48	50/3						SM		92.0	Green, S.A.A. HCO	-64.3	
92.0	25	22	30	35						SM			S.A.A. Saturated. HCO.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 4 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Charles Ray	WELL ID: HPFF-60	
	DRILLER: Bobbie Fowler		
NORTHING: 3,839,178.6	EASTING: 286,296.7	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Loading ramp (S1107) @ corner of Gibb Rd. & Ash St.			T.O.C. ELEV.: 27.19
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 10/08/01	FINISH DATE: 10/17/01	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
94.0									94.0		-66.3	
	17	27	34	43			SM			S.A.A. Saturated. Slight HCO		
96.0									96.0		-68.3	
96.5	50/4									Light green, SILTY, v.f. to fine SAND w/SHELL and LIMESTONE fragments. Wet. No HCO		
98.0									98.0		-70.3	
	12	29	40	44						Severely WEATHERED SANDY LIMESTONE w/shell fragments. Saturated. No HCO.		
100.0									100.0		-72.3	
	17	30	29	21						Light green, severely WEATHERED, SANDY LIMESTONE. Very fine to med. sands w/silty sands in last 4" of spoon. Wet to saturated, HCO .		
102.0									102.0		-74.3	
	13	30	47	50/4			SM			Green, SILTY, v.f. to fine SAND w/trace SHELL fragments. Saturated, No HCO		
104.0									104.0		-76.3	
	11	39	50/3				SM			S.A.A. w/o shell fragments.		
106.0									106.0		-78.3	
	27	50/4					SM			S.A.A.		
107.0									107.0		-80.3	
	28	50/4					SP			Light green, well sorted, fine SAND w/SHELL fragments. No HCO.		
108.0									108.0		-82.3	
	20	40	49	50/4			SP			S.A.A. w/o shell fragments. No HCO.		
110.0									110.0		-84.3	
	22	48	50/4				SM			Light green/tan, SILTY, v.f. to fine SAND. Saturated. No HCO.		
112.0									112.0		-86.3	
	33	48	45	50/4			SM			S.A.A. w/less silt.		
114.0									114.0		-88.3	
	21	35	49	50/3			SM			S.A.A. w/trace SHELL fragments.		
116.0									116.0		-90.3	
	17	43	50	50/4			SM			S.A.A.		
118.0									118.0		-92.3	
	14	33	50	50/2			SP			Light green/tan, well sorted, fine SAND. Saturated. No HCO.		
120.0									120.0		-94.3	
	17	50	50/3				SP			S.A.A.		
122.0									122.0		-96.3	
	35	50/3					SP			S.A.A. w/increasing green color.		
124.0									124.0			
125.0												

CATLIN BORING LOG 201-130.GPJ CATLIN.GPJ 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 5 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Charles Ray	WELL ID: HPFF-60	
	DRILLER: Bobbie Fowler		
NORTHING: 3,839,178.6	EASTING: 286,296.7	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Loading ramp (S1107) @ corner of Gibb Rd. & Ash St.			T.O.C. ELEV.: 27.19
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 10/08/01	FINISH DATE: 10/17/01	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
126.0	33	50/3							126.0		-98.3	
127.0							SP		127.0	S.A.A.		
128.0									128.0		-100.3	
	25	45	45	50/4			SW			Green/tan, fine SAND w/trace SHELL fragments and silt.		
130.0									130.0		-102.3	
	14	22	24	36			SM			Green/tan, SILTY, fine SAND w/trace SHELL fragments.		
132.0									132.0		-104.3	
	6	27	50/4				SM			S.A.A.		
133.5									133.5		-106.3	
134.0									134.0		-107.3	
	26	41	50/4				SM		135.0	S.A.A.	-107.3	
135.5							SC-SM		135.5	S.A.A. w/thin clay lenses.	-107.5	
136.0							SM		136.0	Green/tan, SILTY, fine SAND w/trace SHELL fragments.	-108.3	
	16	32	50/4				SM			S.A.A.		
137.5									137.5		-110.3	
138.0									138.0		-110.3	
	19	26	27	42			SC/SM			S.A.A. w/interbedded clay lenses.		
140.0									140.0		-112.3	
	8	50/3								No Return		
142.0									142.0		-114.3	
	27	50/4					SM			Green/olive green, SILTY, v.f. to f. SAND with a f. to cse. SAND layer with shell fragments from 142.2 to 142.4 ft. Sat. No HCO..		
144.0									144.0		-116.3	
	21	45	50/3				SM			Green, SILTY, v.f. to med. SAND with trace shell fragments. Sat. No HCO. Layer of med. to cse SAND with cse. size shell fragments from 144.4 to 144.7 ft.		
146.0									146.0		-118.3	
	27	50/5					SM			Green, SILTY, v.f. to med. SAND. Sat. No HCO.		
148.0									148.0		-120.3	
	14	50/5					SM			S.A.A.		
150.0									150.0		-122.3	
Boring Terminated at Elevation -122.3 ft												

CATLIN BORING LOG 201-130.GPJ CATLIN.GPJ 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-61
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,175.7	EASTING: 286,294.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Loading ramp (S1107) @ corner of Gibb Rd. & Ash St.			T.O.C. ELEV.: 27.34
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 09/29/01	FINISH DATE: 10/17/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.8	0.0
0.0	15	16	11	100			SM			Brown, SILTY, v.f. to f. SAND with some clay layers. Moist. High HCO.		-0.5
2.0									2.0		25.8	
4.0									4.0		23.8	
	2	1	2	2	1000+		SM		5.5	S.A.A. Moist. High HCO.	22.3	
6.0							CH		6.0	Gray fat CLAY.	21.8	
9.0									9.0		18.8	
	5	3	6	8	180		SM			Gray, SILTY, v.f. to f. SAND with some clayey layers. Sat. High HCO.		
11.0									11.0		16.8	
14.0									14.0		13.8	
	6	8	9	10	420		SM			S.A.A. Sat. High HCO.		
16.0									16.0		11.8	
19.0									19.0		8.8	
	4	8	17	17	1000+		SM			S.A.A. Sat. High HCO.		
21.0									21.0		6.8	
24.0									24.0		3.8	
	3	4	10	10	580		CH		25.0	Gray, SILTY, v.f. to f., SANDY CLAY. Sat. High HCO.	2.8	
26.0							SP		26.0	Tan, well sorted, v.f. to med. SAND. Sat. High HCO.	1.8	
29.0							SP		29.0	Green, S.A.A. Sat. High HCO.	-1.2	

CATLIN BORING LOG 201-130.GEL CATLIN.GDI 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC

 Portland Cement	 Bentonite Pellets	 #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-61
NORTHING: 3,839,175.7		EASTING: 286,294.1	SYSTEM: UTM NAD83 (m)
BORING LOCATION: CENTRAL SECTOR - Loading ramp (S1107) @ corner of Gibb Rd. & Ash St.			T.O.C. ELEV.: 27.34
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 09/29/01	FINISH DATE: 10/17/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL	
	6in	6in	6in	6in					DEPTH				
31.0	3	4	8	13	620		SP		31.0	Green, S.A.A. Sat. High HCO. (continued)	-3.2		
34.0									34.0		-6.2		
36.0	8	10	11	11	1000+		SP		36.0	Tan/Brown, S.A.A. Sat. High HCO.	-8.2		
39.0									39.0		-11.2		
41.0	13	14	26	35	480		SP		41.0	Tan, S.A.A. Sat. High HCO.	-13.2		
43.0	6	13	17	26	80		SM		43.0	Gray, SILTY, v.f. to f. SAND. Wet. Slight HCO.	-15.2		
48.0									48.0		-20.2		
50.0	2	9	16	19	64		SM		50.0	Gray, SILTY, v.f. to med. SAND w/trace cse. sand and shell fragments. Sat. Slight HCO.	-22.2		
										Boring Terminated at Elevation -22.2 ft			

2" Slot .010 Sch. 40
PVC

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-62
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,056.8	EASTING: 286,263.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between Blds 1102, 1113, & 1103 between Gibb & East Rds.			T.O.C. ELEV.: 26.86
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 155.0
START DATE: 10/18/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 155.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	27.4	0.0
0.0	17	34	17	50	200		SC		2.0	Tan, black, SILTY, v.f. to f., CLAYEY SAND. Dry. Moderate HCO.	25.4	-0.5
2.0									3.0		24.4	
3.0	2	3	3	4	360		CH		5.0	Brown, SILTY, v.f. to f., SANDY CLAY. Low to med. plasticity. Moist. Moderate HCO.	22.4	
5.0									8.0		19.4	
8.0	2	3	3	7	200		SM		10.0	Gray, SILTY, v.f. to f. SAND. Sat. Moderate HCO.	17.4	
10.0									13.0		14.4	
13.0	6	1	2	3	710		CH		13.5	Gray, SILTY CLAY. (FAT CLAY). Moist. No HCO.	13.9	
15.0							PT		15.0	Brown, SILTY, v.f., SANDY CLAY with wood fragments. (PEAT?). Moist. No HCO.	12.4	
18.0									18.0		9.4	
20.0	15	23	25	20	1000+		SP		20.0	Gray, well sorted, v.f. to f. SAND. Wet. High HCO.	7.4	
23.0									23.0		4.4	
25.0	5	6	8	7	200		SM		25.0	Gray, SILTY, fine SAND with CLAYEY layers. Sat. High HCO.	2.4	
28.0									28.0		-0.6	
	4	4	3	2	460		SP		30.0	Gray/Dark gray, well sorted, fine SAND. Sat. High HCO.	-2.6	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-62
NORTHING: 3,839,056.8	EASTING: 286,263.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between Blds 1102, 1113, & 1103 between Gibb & East Rds.			T.O.C. ELEV.: 26.86
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 155.0
START DATE: 10/18/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 155.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
30.0												
33.0									33.0		-5.6	
1	2	8	12	300		SP			S.A.A. Sat. High HCO.			
35.0									35.0		-7.6	
38.0									38.0		-10.6	
14	17	17	14	660		SM			Gray, well sorted, v.f. to med. SAND. Sat. High HCO.			
40.0									40.0		-12.6	
43.0									43.0		-15.6	
9	8	11	10	440		GW			Green, SILTY, v.f. to med. SANDY, weathered LS. Sat. Slight HCO.			
45.0									45.0		-17.6	
48.0									48.0		-20.6	
7	13	16	19	100		SC			Green, SILTY, v.f. to med., CLAYEY SAND with weathered LS. Sat. HCO.			
50.0									50.0		-22.6	
53.0									53.0		-25.6	
7	13	17	32	60		SM			Green, SILTY, v.f. to f. SAND with trace shell fragments. Sat. No HCO.			
55.0									55.0		-27.6	
58.0									58.0		-30.6	
7	14	14	30	200		CL			Green, SILTY, v.f. to med. SANDY CLAY with shell fragments. Sat. HCO.			
60.0									60.0		-32.6	

6" Sch. 40 PVC

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-62
NORTHING: 3,839,056.8	EASTING: 286,263.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between Blds 1102, 1113, & 1103 between Gibb & East Rds.			T.O.C. ELEV.: 26.86
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 155.0
START DATE: 10/18/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 155.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH			
63.0									63.0		-35.6	2" Sch. 40 PVC
21	29	34	48	340		SP			Green, well sorted, v.f. to f. SAND with trace shell fragments. Wet. Moderate HCO.		-37.6	
65.0									65.0		-37.6	
68.0									68.0		-40.6	
11	19	27	39	160		SP			Gray well sorted, v.f. to f. SAND with trace silt. Wet. Slight HCO.		-42.6	
70.0									70.0		-42.6	
73.0									73.0		-45.6	
17	41	50/5		370		SP			S.A.A.		-47.6	
75.0									75.0		-47.6	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 5 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-62
NORTHING: 3,839,056.8	EASTING: 286,263.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between Blds 1102, 1113, & 1103 between Gibb & East Rds.			T.O.C. ELEV.: 26.86
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 155.0
START DATE: 10/18/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 155.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL	
	6in	6in	6in	6in					DEPTH				
133.0									133.0		-105.6		
	21	30	41	50/3			SP		S.A.A.				
135.0									135.0		-107.6		
143.0									143.0		-115.6		
	19	34	43	50/5			SP		S.A.A.				
145.0									145.0		-117.6		
153.0									153.0		-125.6		
	25	35	45	50/5			SP		S.A.A.				
155.0									155.0		-127.6		
Boring Terminated at Elevation -127.6 ft													

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/18/02

2" Slot .010 Sch. 40
PVC

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tom Stetler	WELL ID:
		DRILLER: William Miller	HPFF-63
NORTHING: 3,838,923.0	EASTING: 286,137.3	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SW SECTOR - SE corner of Building 1202 along East Rd.			T.O.C. ELEV.: 29.73
DRILL MACHINE: CME 45B ATV	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 10/01/01	FINISH DATE: 10/09/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in								
									0.0 LAND SURFACE	30.2	0.0
0.0	1	2	1	1	10		SM		Dark brown to tan, SILTY SAND. Dry. No HCO.		- 0.5
2.0									2.0	28.2	
5.0									5.0	25.2	
7.0	4	4	5	6	5		SC/SM		Interbedded, light tan to orange/tan, SILTY/CLAYEY, fine SAND. Dry. Slight HCO.		
									7.0	23.2	
9.0									9.0	21.2	
11.0	4	4	2	2	5		SC		S.A.A.		
									11.0	19.2	
14.0									14.0	16.2	
16.0	3	7	5	7	5		SW		Light gray, med. to fine SAND. Wet to sat. No HCO.		
									16.0	14.2	
19.0									19.0	11.2	
21.0	5	3	6	6	6		SW		S.A.A. w/ thin lenses of clayey sand. No HCO.		
									21.0	9.2	
24.0									24.0	6.2	
26.0	4	8	12	13	5		SM		Light gray, SILTY, fine SAND w/ clay. Thin lenses of orange/tan material. No HCO.		
									26.0	4.2	
29.0									29.0	1.2	
							SM		S.A.A.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tom Stetler	WELL ID:
		DRILLER: William Miller	HPFF-63
NORTHING: 3,838,923.0	EASTING: 286,137.3	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SW SECTOR - SE corner of Building 1202 along East Rd.			T.O.C. ELEV.: 29.73
DRILL MACHINE: CME 45B ATV	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 10/01/01	FINISH DATE: 10/09/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH	DESCRIPTION		
31.0	13	11	18	20	8		SM		31.0	S.A.A. (continued)	-0.8	
34.0									34.0		-3.8	
36.0	3	3	8	5	4		SM		36.0	Light gray, SILTY, fine to cse. SAND. Interbedded w/poorly sorted lenses (3" thick) of sand and FOSSIL FRAGMENTS and clay rich sands.	-5.8	
39.0									39.0		-8.8	
41.0	7	11	15	15	6		SP		41.0	Light gray, fine SAND w/fine phosphatic sands throughout.	-10.8	
44.0									44.0		-13.8	
46.0	7	8	11	16	13		SP		46.0	Orange, well sorted, fine SAND. Saturated, Slight HCO.	-15.8	
48.0									48.0		-17.8	
50.0	9	10	17	17	2		SP		50.0	Tan, orange, well sorted, fine SAND. Wet.	-19.8	
										Boring Terminated at Elevation -19.8 ft		

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

CATLIN BORING LOG 201-130.GPJ CATLIN.GPJ 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-64
DRILLER: Bobbie Fowler			
NORTHING: 3,839,111.6	EASTING: 286,356.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Middle of former fuel farm along Ash St.			T.O.C. ELEV.: 27.58
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 51.0
START DATE: 09/25/01	FINISH DATE: 10/10/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	28.1	0.0
0.0	10	11	12	10	120		SM		2.0	Tan to dark gray, SILTY, v.f. to fine SAND. Moist. Strong HCO.	26.1	-0.5
2.0									3.5		24.6	
3.5	4	5	6	6	1000+		SM		5.5	Dark gray to gray, S.A.A. Moist. Strong HCO.	22.6	
5.5									8.5		19.6	
8.5	3	3	5	5	1000+		SC/SM		10.5	Tan, gray, SILTY, v.f. to fine SAND w/CLAYEY SAND throughout. Sat. Strong HCO.	17.6	
10.5									13.5		14.6	
13.5	6	11	11	8	1000+		SP		15.5	Gray, well sorted, v.f. to med. SAND. Sat. strong HCO.	12.6	
15.5									18.5		9.6	
18.5	7	8	9	11	1000+		SM		20.5	Brown, gray, SILTY, v.f. to fine SAND. Sat. Strong HCO.	7.6	
20.5									23.5		4.6	
23.5	3	10	10	11	1000+		OH		24.5	Gray, SILTY CLAY w/WOOD FRAGMENTS. Sat. Mod. to high plasticity. Strong HCO.	3.6	
25.5							SP		25.5	Gray, well sorted, v.f. to med. SAND. Sat. Strong HCO.	2.6	
28.5	6	11	13	16	1000+		SP		28.5	S.A.A. Sat. Strong HCO.	-0.4	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-64
DRILLER: Bobbie Fowler			
NORTHING: 3,839,111.6	EASTING: 286,356.1	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Middle of former fuel farm along Ash St.			T.O.C. ELEV.: 27.58
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 51.0
START DATE: 09/25/01	FINISH DATE: 10/10/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.5									30.5		-2.4	
33.5									33.5		-5.4	
35.5	5	11	12	14	1000+		SP		35.5	Tan/orange to gray, S.A.A. Sat. Strong HCO.	-7.4	
38.5									38.5		-10.4	
40.5	5	11	12	11	1000+		SP		40.5	Gray w/some green, S.A.A. Sat. HCO.	-12.4	
44.0									44.0		-15.9	
44.5	50/5								44.5	No Return. Spoon broke after 50 blows through 6". Assumed to be limestone.	-16.4	
49.0									49.0		-20.9	
51.0	HP	HP	HP	HP	0				51.0	Gray, v.f. to fine SAND w/high amount of LIMESTONE and SHELL Fragments. Sat.	-22.9	
										Boring Terminated at Elevation -22.9 ft		

2" Slot .010 Sch. 40 PVC

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray/ Chris Jolly	WELL ID: HPFF-65
DRILLER: Bobbie Fowler			
NORTHING: 3,839,134.3	EASTING: 286,361.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Central portion of former fuel farm			T.O.C. ELEV.: 29.79
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/17/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	30.3	0.0
0.0	7	8	9	11	500		SM		2.0	Dark brown to gray, v.f. to f., SILTY SAND. No HCO.	28.3	-0.5
2.0									4.0		26.3	
4.0	WHWH	4	2	1000+		SC			6.0	Brown, v.f. to f., CLAYEY SAND. HCO.	24.3	
6.0									9.0		21.3	
9.0	3	4	4	4	1000+	SC			11.0	Gray, S.A.A with low plasticity. HCO.	19.3	
11.0									14.0		16.3	
14.0	6	11	13	14	1000+	SM			16.0	Gray to dark brown, SILTY, f. to med. SAND. Staining from 15 to 16'. Strong HCO.	14.3	
16.0									19.0		11.3	
19.0	WH	6	7	8	1000+	SC			21.0	Gray, fine to med. grained, CLAYEY SAND with no plasticity grading to a more dense, CLAYEY SAND with low plasticity. HCO.	9.3	
21.0									24.0		6.3	
24.0	6	9	9	9	1000+	SC			26.0	Brown, med. grained, CLAYEY SAND. Moderate HCO.	4.3	
26.0									29.0		1.3	
29.0						SC				Light gray, fine to med. grained, CLAYEY SAND.		

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/13/02

6" Sch. 40 PVC

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Charles Ray/ Chris Jolly	DRILLER: Bobbie Fowler	WELL ID: HPFF-65
NORTHING: 3,839,134.3	EASTING: 286,361.2	SYSTEM: UTM NAD83 (m)	T.O.C. ELEV.: 29.79
BORING LOCATION: CENTRAL SECTOR - Central portion of former fuel farm	DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	BORING DEPTH: 80.0
START DATE: 12/17/01	FINISH DATE: 02/06/02	0 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL	
	6in	6in	6in	6in									
31.0	6	10	11	11	1000+		SC		31.0	HCO.	-0.8	2" Sch. 40 PVC	
34.0									34.0		-3.8		
36.0	6	10	10	9	1000+		SC/ SM		36.0	Light gray, CLAYEY, med. to cse. SAND. Grading to a SILTY SAND. HCO.	-5.8		
39.0									39.0		-8.8		
41.0	6	6	7	8	1000+		SC		41.0	Tan, fine to med., CLAYEY SAND. HCO.	-10.8		
44.0									44.0		-13.8		
46.0	1	3	9	12	4.0		SM		46.0	Tan/orange, moderately sorted, SILTY, v.f. to f., SAND with trace gravels. Sat. HCO.	-15.8		
49.0									49.0		-18.8		
51.0	15	20	21	20	2.5		SC		51.0	Light green/green, SILTY/CLAYEY, v.f. to f. SANDY, WEATHERED LS. Sat. Slight HCO.	-20.8		
54.0									54.0		-23.8		
56.0	12	26	33	50/ 6	1.5		SP		56.0	Light green/green, well sorted, v.f. to f. SAND with trace cse. shell frags. and silt. Sat. Slight HCO.	-25.8	4" Sch. 40 PVC	
59.0									59.0		-28.8		
61.0	18	24	17	33	7.0		SC		61.0	Green, SILTY, v.f. to med., SANDY CLAY with weathered LS frags and shells. Wet. Slight to moderate HCO.	-30.8		
	Cemented sand layers throughout this 5' run.												

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

SHEET 3 OF 3

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm	LOGGED BY:	Charles Ray/ Chris Jolly			WELL ID:	HPFF-65
		DRILLER:	Bobbie Fowler				
NORTHING:	3,839,134.3	EASTING:	286,361.2	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION:CENTRAL SECTOR - Central portion of former fuel farm						T.O.C. ELEV.: 29.79	
DRILL MACHINE: Diedrich D-50		METHOD: HSA/MR		0 HOUR DTW:		BORING DEPTH: 80.0	
START DATE: 12/17/01		FINISH DATE: 02/06/02		24 HOUR DTW:		WELL DEPTH: 80.0	

[illegible]

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement  Bentonite Pellets  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	CWR, TWL, TS	WELL ID:
					DRILLER:	William Miller	HPFF-66
NORTHING:	3,839,025.2	EASTING:	286,313.0	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION:	SE SECTOR - Corner of Ash St. & East Rd. @ Bld. 1114						T.O.C. ELEV.: 27.41
DRILL MACHINE:	CME 45B ATV	METHOD:	HSA/MR	0 HOUR DTW:			BORING DEPTH: 50.0
START DATE:	10/01/01	FINISH DATE:	10/09/01	24 HOUR DTW:			WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.9	0.0
0.0	3	4	3	3	0		SC		2.0	Reddish tan, CLAYEY SAND. Dry. No HCO.	25.9	-0.5
2.0									4.0		23.9	
4.0	2	2	1	1	1000+		SC		6.0	Tan, CLAYEY, fine SAND. Wet to saturated. Slight HCO.	21.9	
6.0									9.0		18.9	
9.0	4	5	8	10	500		SP		11.0	Grayish tan, fine to med. SAND. Strong HCO.	16.9	
11.0									14.0		13.9	
14.0	9	12	14	20	10		SP		16.0	Gray, brown. fine SAND. Slight HCO.	11.9	
16.0									19.0		8.9	
19.0	9	9	13	14	1000+		SP/SC		21.0	Light gray, fine SAND w/interbedded SANDY CLAY lenses (1" to 2" thick). Strong HCO.	6.9	
21.0									24.0		3.9	
24.0	9	5	13	14	600		SP/SC		26.0	S.A.A. w/CLAYEY SAND (4" thick) interbedded.	1.9	
26.0									29.0		-1.1	
29.0							SM			Dark gray, fine SAND w/SILT. Strong HCO.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: CWR, TWL, TS	WELL ID:
		DRILLER: William Miller	HPFF-66
NORTHING: 3,839,025.2	EASTING: 286,313.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Corner of Ash St. & East Rd. @ Bld. 1114			T.O.C. ELEV.: 27.41
DRILL MACHINE: CME 45B ATV	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 10/01/01	FINISH DATE: 10/09/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in							
31.0	5	5	7	7	350		SM		Dark gray, fine SAND w/SILT. Strong HCO. (continued)	-3.1	
34.0										-6.1	
36.0	3	5	7	14	150		SM		Light gray, fine SAND w/SILT and trace FOSSIL FRAGMENTS and phosphatic fines. HCO.	-8.1	
39.0										-11.1	
41.0	16	21	25	23	250		SM		Light gray, fine SAND w/SILT and trace FOSSIL FRAGMENTS, well rounded quartz pebbles, and phosphatic fines. HCO.	-13.1	
42.0										-14.1	
44.0	10	18	29	25	9				Olive green, fine to med. SAND w/SHELL and LIMESTONE fragments. Wet.	-16.1	
46.0	13	26	17	18	0				S.A.A.	-18.1	
48.0										-20.1	
50.0	26	22	24	25	20				S.A.A. w/silt.	-22.1	
Boring Terminated at Elevation -22.1 ft											

2" Slot .010 S/h. 40 PVC

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Charles Ray	WELL ID: HPFF-67	
	DRILLER: Bobbie Fowler		
NORTHING: 3,839,026.7	EASTING: 286,312.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Corner of Ash St. & East Rd. @ Bld. 1114			T.O.C. ELEV.: 27.40
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/18/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.8	0.0
0.0					13		SC	0.4	0.4	ASPHALT	27.4	-0.4
2.0							SC		2.0	Tan, SILTY, fine, CLAYEY SAND. Moist. No HCO.	25.8	
3.5									3.5		24.3	
5.5	2	2	1	2	1000+		SC		5.5	Tan, SILTY, v.f. to f., CLAYEY SAND. Wet. HCO.	22.3	
8.5									8.5		19.3	
10.5	4	5	9	9	720		SP		10.5	Gray, tan, well sorted, fine to med. SAND. Sat. HCO.	17.3	
13.5									13.5		14.3	
15.5	10	11	16	18	200		SP		15.5	Gray, brown, well sorted, fine SAND. Sat. Slight HCO.	12.3	
18.5									18.5		9.3	
20.5	7	11	12	15	400		SC		20.5	Light gray, well sorted SAND with clay layers. Sat. Moderate HCO.	7.3	
23.5									23.5		4.3	
25.5	8	6	14	13	500		SC		25.5	S.A.A.	2.3	
28.5									28.5		-0.7	
	5	5	7	8	500		SM			Gray, SILTY, v.f. to f. SAND. Sat. Moderate HCO.		

CATLIN BORING LOG_201-130.GPJ CATLIN.GPJ 06/13/02

6" Sch. 40 PVC

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-67
NORTHING: 3,839,026.7		EASTING: 286,312.9	SYSTEM: UTM NAD83 (m)
BORING LOCATION: SE SECTOR - Corner of Ash St. & East Rd. @ Bld. 1114			T.O.C. ELEV.: 27.40
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/18/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.5									30.5		-2.7	2" Sch. 40 PVC
33.5									33.5		-5.7	
	3	5	7	14	450		SM			Light gray, S.A.A with shell frags. Moderate HCO.	-7.7	
35.5									35.5		-7.7	
38.5									38.5		-10.7	
	16	21	25	23	250		SM			S.A.A.	-12.7	
40.5									40.5		-12.7	
43.0									43.0		-15.2	
	6	10	6	8	28		GW/GM			Light green, poorly sorted, SILTY, v.f. to cse. SAND with shell frags. and lithified sands. Sat. Moderate HCO.	-17.2	
45.0									45.0		-17.2	
48.0									48.0		-20.2	4" Sch. 40 PVC
	1	1	11	14	7.9		SM			Weathered, SANDY LS. Sat. High HCO.	-21.2	
							SP			Green, SILTY, v.f. to f. SAND. Sat. High HCO.	-22.2	
50.0									50.0		-22.2	
53.0									53.0		-25.2	
	2	8	11	22	2.0		SM			Green, moderately sorted, SILTY, v.f. to f. SAND. Sat. High HCO.	-27.2	
55.0									55.0		-27.2	
58.0									58.0		-30.2	
	14	20	19	22	3.2		SM			S.A.A with trace shell frags. and cemented sands.	-32.2	
60.0									60.0		-32.2	

CATLIN BORING LOG 201-130.GPJ CATLIN.GPJ 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130 STATE: NC COUNTY: Onslow LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm LOGGED BY: Tom Landis WELL ID:
DRILLER: William Miller
NORTHING: 3,839,025.2 EASTING: 286,351.1 SYSTEM: UTM NAD83 (m) **HPFF-68**
BORING LOCATION: SE SECTOR - Corner of Ash St. & East Rd. @ Bld. 1114 T.O.C. ELEV.: 27.37
DRILL MACHINE: CME 45B ATV METHOD: HSA 0 HOUR DTW: BORING DEPTH: 25.0
START DATE: 10/11/01 FINISH DATE: 10/11/01 24 HOUR DTW: 5.21 WELL DEPTH: 25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in								
									0.0 LAND SURFACE	27.7	0.0
0.0	5	6	6	10	200		SM		Yellowish orange to dark gray, SILTY, fine SAND. Loose. Dry. No HCO.		- 0.3
2.0	7	7	11	8	16		SM		S.A.A. Moist. No HCO.	25.7	1.5
4.0	3	2	2	3	600				Mottled, yellowish orange to light gray, S.A.A. Wet. Mod. HCO.	23.7	3.0
6.0	1	2	2	6	5.0		CL		Mottled, gray and black, v.f. SANDY CLAY. Soft. Wet. Mod. HCO.	22.2	5.0
8.0	6	6	6	8	12		SM		Olive gray, SILTY, v.f. to fine SAND w/ trace shell frags. throughout. Sat. No HCO.	21.7	
10.0	6	10	12	17	8.8		SM		S.A.A.	19.7	
12.0	7	17	22	17	0.0		SM		Light gray, SILTY, v.f. to fine SAND w/minor clay lenses throughout. No shell frags. Sat. No HCO.	17.7	
14.0	7	9	10	14	40		SM		S.A.A. w/o clay lenses. Sat. No HCO.	15.7	
16.0	7	4	4	9	120		SM		Brown, SILTY, v.f. to fine SAND. Med. dense. Sat. Slight HCO.	14.0	
18.0	6	7	10	14	1000+		SM		S.A.A.	13.7	
20.0	6	7	10	14	1000+		CL		Light gray CLAY w/trace v.f. sands. Stiff. Sat. Mod. HCO.	11.7	
22.0	7	8	11	22	1000+		SM		Brown, SILTY, v.f. to fine SAND. Med. dense. Sat. Slight HCO.	10.7	
24.0	6	9			1000+		SM		S.A.A.	10.2	
25.0							PT		WOOD FRAGMENTS	9.7	
							SM		S.A.A. Sat. Slight HCO.	7.7	
							SM		Brown, SILTY, v.f. to fine SAND. Med. dense. Sat. Slight HCO.	6.7	
							SP		Light gray, v.f. SAND w/trace silt. Loose to med. dense. Sat. Strong HCO.	6.4	
									Boring Terminated at Elevation 2.7 ft	5.7	
										2.7	25.0
											25.0

CATLIN BORING LOG - 201-130.GPJ CATLIN.GPJ 06/13/02

Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-69
NORTHING: 3,839,102.6	EASTING: 286,446.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between parking lot northwest of Building 1005 and looped drive			T.O.C. ELEV.: 29.87
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 09/26/01	FINISH DATE: 10/03/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in								
									0.0 LAND SURFACE	30.2	
0.0									0.4 ASPHALT	29.8	-0.3
	13	5	5	7	0			SP	1.0 Tan, well sorted, fine to med. SAND.	29.2	
2.0											
3.5									3.5	26.7	
5.5	5	11	13	14	1000+			SW	Tan, orange, well sorted, v.f. to med. SAND w/some silt. Moist. HCO.	24.7	
8.5									8.5	21.7	
10.5	12	17	10	10	1000+			SM	Light gray to tan, SILTY, v.f. to fine SAND. Wet. Strong HCO.	19.7	
13.5									13.5	16.7	
15.5	2	7	3	9	1000+			SM	S.A.A. w/clay lenses. Wet. Strong HCO.	14.7	
18.5									18.5	11.7	
20.5	8	6	9	6	1000+			SP	Light gray, v.f. to fine SAND. Sat. Strong HCO.	9.7	
23.5									23.5	6.7	
25.5	3	2	3	7	1000+			SW	Light gray, poorly sorted, fine to cse. SAND. Sat. HCO.	4.7	
28.5									28.5	1.7	
	9	25	29	17	1000+			SM	Light gray, SILTY, v.f. to med. SAND w/clay lenses. Sat. HCO.		

2" Sch. 40 PVC

6" Sch. 40 PVC

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

Wilmington, North Carolina

 Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Charles Ray	WELL ID: HPFF-70	
	DRILLER: Bobbie Fowler		
NORTHING: 3,839,024.4	EASTING: 286,481.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between wings of Bld. 1005			T.O.C. ELEV.: 30.76
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 09/26/01	FINISH DATE: 10/03/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	31.2	0.0
0.0	2	6	7	5	8.0		SC		2.0	Light gray to tan, SILTY/CLAYEY, v.f. to fine SAND.	29.2	- 0.4
2.0									3.5		27.7	
3.5	6	10	9	11	12.0		SM		5.5	Mottled, tan, gray, and orange, SILTY, v.f. to fine SAND. Moist. No HCO.	25.7	
5.5									8.5		22.7	
8.5	4	3	5	5	3.2		SM		10.5	S.A.A. w/increasing silt content. Wet.	20.7	
10.5									13.5		17.7	
13.5	3	4	6	4	6.6		SC		15.5	Light gray, SILTY/CLAYEY, v.f. to fine SAND. Sat. No HCO.	15.7	
15.5									18.5		12.7	
18.5	7	8	8	8	10.2		SP		20.5	Light gray, v.f. to fine SAND. Sat. No HCO.	10.7	
20.5									23.5		7.7	
23.5	2	2	5	4	0.2		SM		25.5	Light gray, SILTY, v.f. to fine SAND. Sat. No HCO.	5.7	
25.5									28.5		2.7	
28.5	7	13	13	16	0		SM			S.A.A. w/clay lenses. Sat. No HCO.		

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-70
NORTHING: 3,839,024.4	EASTING: 286,481.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between wings of Bld. 1005			T.O.C. ELEV.: 30.76
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 09/26/01	FINISH DATE: 10/03/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in											
30.5												30.5		0.7	
33.5												33.5		-2.3	
	2	2	10	11	0		CL					34.5	Light gray, tan/orange, SILTY, v.f. to fine, SANDY CLAY w/med. plasticity. No HCO.	-3.3	
35.5							SM					35.5	Light gray, tan, SILTY, v.f. to med. SAND. Sat. No HCO.	-4.3	
38.5												38.5		-7.3	
40.5	6	11	14	14	0		SW					40.5	Tan/orange to light gray, v.f. to fine SAND w/some silt. Sat. No HCO.	-9.3	
44.0												44.0		-12.8	
	1	4	4	2	0		SP					44.5	Orange, well sorted, v.f. to fine SAND. Sat. No HCO.	-13.3	
46.0							SP					46.0	Tan, well sorted, v.f. to fine SAND w/shell fragments. Sat. No HCO.	-14.8	
48.0												48.0		-16.8	
	15	26	34	30	0							49.0	Olive green, WEATHERED LS w/silty v.f. to fine sand. Slight HCO.	-17.8	
50.0							SW					50.0	Olive green, SILTY, v.f. to fine SAND w/trace LS frags.	-18.8	
Boring Terminated at Elevation -18.8 ft															

 2" Slot .010 Sch. 40
PVC

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-71
NORTHING: 3,839,021.7	EASTING: 286,478.5	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between wings of Bld. 1005			T.O.C. ELEV.: 30.74
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/18/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in								
									0.0 LAND SURFACE	31.2	0.0
0.0	2	6	7	6	5.0		SC/		0-0.5 Topsoil, brown, SILTY, v.f. to f. SAND with roots.		- 0.4
2.0							SM		0.5-2.0 Tan, SILTY, v.f. to f. CLAYEY SAND. Moist. No HCO	29.2	
3.5										27.7	
5.5	5	11	12	12	20		SM		Tan, gray, orange, SILTY, v.f. to f. SAND. Moist. No HCO.	25.7	
8.5											
10.5	4	3	5	6	2.8		SM		S.A.A with increasing silt. Wet.	22.7	
13.5										20.7	
15.5											
18.5										17.7	
20.5	3	5	5	4	0.6		SC		Light gray, SILTY, v.f. to f. CLAYEY SAND. Sat. No HCO.	15.7	
23.5											
25.5										12.7	
28.5	8	7	9	7	0.2		SP		Light gray, well sorted, v.f. to f. SAND. Sat. No HCO.	10.7	
										7.7	
	2	3	5	4	1.0		SM		Light gray, SILTY, v.f. to f. SAND. Sat. No HCO.	5.7	
										2.7	
	8	13	12	14	0.8		SM		S.A.A with clay layers. Sat. No HCO.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

6" Sch. 40 PVC

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-71
NORTHING: 3,839,021.7	EASTING: 286,478.5	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between wings of Bld. 1005			T.O.C. ELEV.: 30.74
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/18/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.5									30.5		0.7	
33.5									33.5		-2.3	
35.5	2	2	10	11	0		SC/CL		35.5	Light gray, tan/orange, SILTY, v.f. to f., SANDY CLAY with med. plasticity. Grading to a SILTY, v.f. to med. SAND. Sat. No HCO.	-4.3	
38.5									38.5		-7.3	
40.5	5	12	13	15	0		SP		40.5	Tan/orange/light gray, v.f. to f. SAND with some silt. Sat. No HCO.	-9.3	
43.0									43.0		-11.8	
45.0	5	7	10	7	4.2		SP		45.0	Tan, orange, well sorted, fine SAND. Sat. No HCO.	-13.8	
48.0									48.0		-16.8	
50.0	10	20	28	26	0		SP		50.0	Green, well sorted, v.f. SAND with trace shell fragments and cemented sands. Sat. Slight HCO.	-18.8	
53.0									53.0		-21.8	
55.0	9	14	18	30	2.2		SM		55.0	S.A.A with silt. Wet. Moderate HCO.	-23.8	
58.0									58.0		-26.8	
60.0	6	12	16	26	2.2		SM		60.0	S.A.A.	-28.8	

2" Sch. 40 PVC

40.0

4" Sch. 40 PVC

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02


 Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-71
DRILLER: Bobbie Fowler			
NORTHING: 3,839,021.7	EASTING: 286,478.5	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between wings of Bld. 1005			T.O.C. ELEV.: 30.74
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/18/01	FINISH DATE: 02/06/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK			WELL DETAIL
	6in	6in	6in	6in					DEPTH	DESCRIPTION	ELEVATION	
63.0									63.0		-31.8	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement	 Bentonite Pellets	 #2 Medium Sand

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

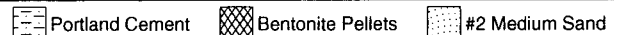
SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Charles Ray	WELL ID: HPFF-72	
NORTHING: 3,839,024.9	EASTING: 286,316.1	DRILLER: Bobbie Fowler	
BORING LOCATION: SE SECTOR - Corner of Ash St. & East Rd. @ Bld. 1114	SYSTEM: UTM NAD83 (m)	T.O.C. ELEV.: 27.84	
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 03/06/02	FINISH DATE: 03/06/02	24 HOUR DTW:	WELL DEPTH: 30.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	28.4	0.0
0.0	2	2	2	1	0		SM		2.0	Dark brown, SILTY, v.f. to f. SAND with roots and grass @ top 4". Moist. No HCO.	26.4	-0.5
2.0	1	2	2	1	240		SM		4.0	Dark brown, SILTY/CLAYEY, v.f. to f. SAND. Sat. High HCO.	24.4	
4.0	1	2	1	1			SM		6.0	S.A.A.	22.4	
6.0	1	2	2	3	1000+		SM		8.0	Tan/gray, brown, SILTY, v.f. to f. SAND. Sat. High HCO.	20.4	
8.0	4	5	6	6	1000+		SM		10.0	Tan, S.A.A.	18.4	
10.0	5	12	12	14	1000+		SP		12.0	Tan, well sorted, fine SAND. Sat. High HCO.	16.4	
12.0	3	6	13	10	1000+		SP		14.0	S.A.A.	14.4	
14.0	6	9	8	9	1000+		SC		16.0	Brown, SILTY, v.f. to f., CLAYEY SAND. Sat. High HCO.	12.4	
16.0	7	8	6	4	1000+		SM		18.0	Tan/gray, SILTY, v.f. to f. SAND. Last 4" of spoon, gray, SILTY/SANDY CLAY with med. stiffness. Sat. High HCO.	10.4	18.0
18.0	7	9	8	10	1000+		SP		20.0	Gray, well sorted, fine to med. SAND. Sat. High HCO.	8.4	
20.0	4	11	13	13	1000+		SP		22.0	S.A.A.	6.4	
22.0	3	6	12	12	1000+		SP		24.0	S.A.A.	4.4	
24.0	6	11	10	9	1000+		SP		26.0	Gray, well sorted, fine SAND. Sat. High HCO.	2.4	
26.0	7	6	5	4	850		SP		28.0	S.A.A with trace med. size grains.	0.4	
28.0	3	3	3	3	420		SP		30.0	Dark gray, well sorted, v.f. to f. SAND. Sat. High HCO.	-1.6	30.0

2" Sch. 40 PVC

2" Slot .010 Sch. 40 PVC


 Portland Cement Bentonite Pellets #2 Medium Sand

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

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Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-72
NORTHING: 3,839,024.9		EASTING: 286,316.1	SYSTEM: UTM NAD83 (m)
BORING LOCATION: SE SECTOR - Corner of Ash St. & East Rd. @ Bld. 1114			T.O.C. ELEV.: 27.84
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 03/06/02	FINISH DATE: 03/06/02	24 HOUR DTW:	WELL DEPTH: 30.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.0	2	1	1	2	500		SP		32.0	S.A.A.	-3.6	
32.0	2	2	6	8	260		SM		34.0	White, light gray, SILTY, v.f. to f. SAND with weathered LS. Sat. High HCO.	-5.6	
34.0	3	9	7	13	290		SM		36.0	Light gray, SILTY, v.f. to f. SAND. Sat. High HCO.	-7.6	
36.0	4	9	22	17	530		SP		38.0	Gray, well sorted, fine SAND with sand size shell frags. Sat. High HCO.	-9.6	
38.0	14	12	14	19	200		SP		40.0	S.A.A with cemented sands.	-11.6	
40.0	13	19	19	29	160		SP		42.0	S.A.A with cemented sands, without shell frags. Wet. Moderate HCO.	-13.6	
42.0	3	20	16	14	110		SP		44.0	S.A.A.	-15.6	
44.0	7	10	11	9	120		SP		44.5	S.A.A.	-16.1	
46.0									46.0	Severely weathered LS. w/silty, fine sands. Sat. Slight HCO.	-17.6	
48.0	1	6	6	22	80				48.0	Severely weathered, SILTY, v.f. to f., SANDY LS. Sat. Slight to moderate HCO.	-19.6	
50.0	3	13	29	22	90		SP		50.0	Gray/green, well sorted, fine SAND. Wet. Moderate HCO.	-21.6	
										Boring Terminated at Elevation -21.6 ft		

CATLIN BORING LOG_201-130.GPJ CATLIN.GDT_06/13/02

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Mike Wittner	WELL ID:
		DRILLER: Sanford Sweetey	MW-01
NORTHING: 3,839,259.8	EASTING: 286,099.3	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - South corner of former fuel farm			T.O.C. ELEV.: 30.18
DRILL MACHINE:		METHOD:	0 HOUR DTW: 9
START DATE: 02/24/88		FINISH DATE: 02/24/88	24 HOUR DTW:
			BORING DEPTH: 17.0
			WELL DEPTH: 17.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	28.3	1.9
0.0	3	4	5	5	4		SM		1.5	Dark brown grading to tan-buff, SILTY SAND. Dry.	26.8	0.0
2.0							SC		2.0	Tan, CLAYEY SAND. Dry.	26.3	
5.0									5.0		23.3	
7.0	4	4	5	6	60		SC		6.7	Dark brown, CLAYEY SAND. Dry.	21.6	
							SP		7.0	White to light tan, fine SAND. Dry.	21.3	7.0
10.0									10.0		18.3	
12.0	7	10	8	8	140		SC		11.6	Dirty brown, CLAYEY SAND. Damp.	16.7	
							SP		12.0	White, medium SAND. Wet. Strong HCO.	16.3	
15.0									15.0		13.3	
17.0	11	13	15	18	180		SP		17.0	White and tan w/some gray streaks, medium SAND.	11.3	17.0
Boring Terminated at Elevation 11.3 ft Adapted from logs generated by Obrien & Gere Engineers, Inc.												

CATLIN BORING LOG_201-130.GPJ CATLIN.GDT 06/18/02

 Portland Cement  Bentonite Pellets  Coarse Gravel Pack

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Mike Wittner	WELL ID:
		DRILLER: Sanford Sweetey	MW-03
NORTHING: 3,839,022.3	EASTING: 286,422.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - North west corner of Building 1005 between parking lot and building			T.O.C. ELEV.: 29.22
DRILL MACHINE:	METHOD:	0 HOUR DTW: 10.5	BORING DEPTH: 17.0
START DATE: 02/25/88	FINISH DATE: 02/25/88	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL	
	6in	6in	6in	6in									
									0.0	LAND SURFACE	29.0	0.2	0.0
0.0	3	4	4	3	0		SP			Dirty brown and tan, fine SAND. Dry.			
2.0									2.0		27.0		2.0
													3.0
5.0									5.0		24.0	5.0	
	3	5	7	10	0		SM			Dirty brown, SILTY, fine SAND. Dry.			
7.0							SW		6.7		22.3		
									7.0	Tan and white-gray, fine-med. SAND. Dry to slightly damp.	22.0		
10.0									10.0		19.0		
	4	4	4	2	0		SW			Tan-brown, fine-med. SAND. Damp.			
12.0							SP		11.5		17.5		
									12.0	Gray to brown, fine SAND. Damp.	17.0		
15.0									15.0		14.0	15.0	15.0
	6	9	13	13	0		SW			Light gray, fine-med. SAND. Lightly damp.			
17.0									17.0		12.0		
										Boring Terminated at Elevation 12.0 ft Adapted from logs generated by Obrien & Gere Engineers, Inc.			

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/18/02

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Mike Wittner	WELL ID:
		DRILLER: Sanford Sweetey	MW-04
NORTHING: 3,839,065.0	EASTING: 286,483.6	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - North corner of Building 1005 between parking lot and building			T.O.C. ELEV.: 31.22
DRILL MACHINE:		METHOD:	0 HOUR DTW: 9.5
START DATE: 02/25/88		FINISH DATE: 02/25/88	24 HOUR DTW:
			BORING DEPTH: 17.0
			WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in							
									0.0 LAND SURFACE	29.8	1.4
0.0	3	4	6	5	0		SP		Tan to light olive green and dirty brown, fine SAND. Dry.	27.8	0.0
2.0											2.0
5.0											3.0
8	13	21	28	0			SW		White-light gray, fine-med. SAND. Dry.	24.8	5.0
7.0										22.8	
10.0											
1	1	1	1	0			ML		White-light tan, CLAYEY and SANDY SILT. Damp.	19.8	
12.0										17.8	
15.0											
2	4	6	8	0			SP		Brown and gray, fine SAND. Damp.	14.8	15.0
							CL		Gray, CLAY. Damp.	14.5	
							SP		Gray, fine SAND. Damp.	14.2	
							CL		Gray, CLAY. Damp.	13.8	
							SP		Gray, fine SAND. Damp.	13.7	
							CL		Gray, CLAY. Damp.	13.6	
							SP		Gray, fine SAND. Damp.	12.8	
							SP		Tan to orange tan, fine SAND. Damp.		

Boring Terminated at Elevation 12.8 ft
Adapted from logs generated by Obrien & Gere

CATLIN BORING LOG_201-130.GPJ_CATLIN.GDT_06/18/02

WELL LOG

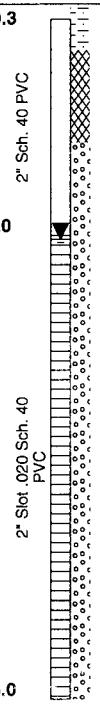
CATLIN
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Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Mike Wittner	WELL ID: MW-05
		DRILLER: Sanford Sweetey	
NORTHING: 3,839,155.6	EASTING: 286,333.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - South corner of loading ramp (S-1007)			T.O.C. ELEV.: 28.17
DRILL MACHINE:	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 02/25/88	FINISH DATE: 02/25/88	24 HOUR DTW: 4.75	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
0.0									0.0	LAND SURFACE	28.5	0.0
	4	7	28	10	0				1.0	Surface gravel and concrete.	27.5	- 0.3
2.0							SC		2.0	Brown, surficial debris.	26.5	1.0
												3.0
5.0									5.0		23.5	5.0
	2	1	2	2	<1		CL			Light gray to light green, SANDY CLAY. Damp.		
7.0									7.0		21.5	
10.0									10.0		18.5	
	3	3	3	4	<1		SP			Gray, fine SAND. Damp to wet.		
12.0									12.0		16.5	
15.0									15.0		13.5	15.0
	6	6	7	7	<1		SP			Tan, fine SAND. Wet.		
17.0									17.0		11.5	15.0
										Boring Terminated at Elevation 11.5 ft Adapted from logs generated by Obrien & Gere Engineers, Inc.		



CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/16/02

WELL LOG

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Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: John Brod	WELL ID: MW-06
NORTHING: 3,839,219.6	EASTING: 286,427.8	DRILLER: Sanford Sweetey	
SYSTEM: UTM NAD83 (m)			
BORING LOCATION: SE SECTOR - Northern corner of former fuel farm			T.O.C. ELEV.: 30.10
DRILL MACHINE:	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 03/01/88	FINISH DATE: 03/01/88	24 HOUR DTW: DRY	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	27.8	2.3
0.0	3	5	6	5	1		SP		2.0	Brown, med. fine SAND. Little silt. Damp. Slight HCO.	25.8	0.0
2.0									5.0		22.8	2" Sch. 40 PVC
5.0	2	4	5	7	1		SP		5.5	S.A.A.	22.3	5.0
7.0							SW		7.0	Gray w/light brown mottling, fine to med. SAND. Some silt. Moist. Light HCO.	20.8	
10.0									10.0		17.8	2" Slot. 020 Sch. 40 PVC
12.0	7	11	12	13	150		SP		12.0	Gray, med. SAND. Some fine sand and little silt. Wet. Strong HCO.	15.8	
15.0									15.0		12.8	15.0
17.0	4	8	10	10	165		SP		17.0	S.A.A. Product evident. Wet. Strong HCO.	10.8	15.0
										Boring Terminated at Elevation 10.8 ft Adapted from logs generated by Obrien & Gere Engineers, Inc.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/18/02

WELL LOG

CATLIN

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Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: John Brod	WELL ID: MW-07
NORTHING: 3,839,217.9		EASTING: 286,332.1	SYSTEM: UTM NAD83 (m)
BORING LOCATION: CENTRAL SECTOR - North of northern corner of loading ramp (S1007)			T.O.C. ELEV.: 27.37
DRILL MACHINE:	METHOD:	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 03/01/88	FINISH DATE: 03/01/88	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in											
												0.0	LAND SURFACE	27.7	0.0
0.0							GW					0.7	SAND and GRAVEL road fill.	27.0	- 0.3
2.0	11	7	5	5	45		SW					2.0	Light gray, fine/med. SAND w/some silt. Strong HCO and staining.	25.7	2.0
5.0												5.0		22.7	5.0
7.0	3	3	3	3	120		SW					7.0	Light gray, med./fine SAND w/little silt. Some light brown mottling. Slight HCO.	20.7	3.0
10.0												10.0		17.7	
12.0	2	5	4	3	180		SP					11.7	Mottled gray/light brown, med. SAND w/some fine sand. Wet. Strong HCO w/product.	16.0	
							SP					12.0	Black petroleum soaked SAND.	15.7	
15.0												15.0		12.7	15.0
17.0	2	2	6	7	195		SP					17.0	Mottled gray, dark gray, and light brown, med. SAND w/some fine sand. Wet. Strong HCO w/product.	10.7	15.0
													Boring Terminated at Elevation 10.7 ft Adapted from logs generated by Obrien & Gere Engineers, Inc.		

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/18/02



Portland Cement



Bentonite Pellets



Coarse Gravel Pack

WELL LOG

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Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: John Brod	WELL ID:
		DRILLER: Sanford Sweetey	MW-08
NORTHING: 3,839,182.2	EASTING: 286,285.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - North of center of loading ramp (S1007)			T.O.C. ELEV.: 26.35
DRILL MACHINE:		METHOD:	0 HOUR DTW:
START DATE: 03/01/88		FINISH DATE: 03/01/88	24 HOUR DTW:
			BORING DEPTH: 17.0
			WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	26.6	0.0
0.0							GW	0.5	0.5	SAND and GRAVEL road fill.	26.1	- 0.3
	14	11	9	9	4		SW		2.0	Dark brown w/light brown mottling, fine/med. SAND w/little silt and trace fine gravel. Wood and plant frags. Damp.	24.6	
2.0												
									5.0		21.6	5.0
5.0							SW		6.5	Black to dark gray, fine/med. SAND. Moist.	20.1	
	1	2	3	3	3		SW		7.0	Light gray, med./fine SAND w/little silt. Moist. Slight HCO.	19.6	
7.0												
									10.0		16.6	
10.0							SP		12.0	Light gray, medium SAND w/some fine sand and little silt. Wet.	14.6	
12.0												
									15.0		11.6	15.0
15.0							SP		17.0	S.A.A.	9.6	
17.0												
										Boring Terminated at Elevation 9.6 ft Adapted from logs generated by Obrien & Gere Engineers, Inc.		

CATLIN BORING LOG_201-130.GPJ CATLIN GDT_06/18/02



Portland Cement



Bentonite Pellets



Coarse Gravel Pack

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Mike Wittner	WELL ID:
		DRILLER: Sanford Sweetey	MW-09
NORTHING: 3,838,951.4	EASTING: 286,325.3	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Between Building 1105 and Hammond Road			T.O.C. ELEV.: 29.37
DRILL MACHINE:	METHOD:	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 02/25/88	FINISH DATE: 02/25/88	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL	
	6in	6in	6in	6in											
0.0											0.0	LAND SURFACE	28.8	0.6	0.0
1	2	5	5	0			SP				2.0	Tan w/some brown spots, fine SAND. Damp	26.8		2.0
2.0											5.0		23.8		3.0
5	9	11	14	0			SP				7.0	Tan and white, fine SAND. Damp.	21.8		
7.0											10.0		18.8		
10.0	2	4	9	13	0		SW				11.5	Orange-tan and dirty brown, fine SAND. Slightly damp.	17.3		
12.0							CL				12.0	Light gray w/discontinuous rusty lines, CLAY. Slightly damp.	16.8		
15.0											15.0		13.8		
2	3	5	10	0			CL				16.0	White-very light tan, SILTY CLAY. Wet.	12.8		
17.0							SP				17.0	White-very light tan, fine-med. SAND. Wet.	11.8		
												Boring Terminated at Elevation 11.8 ft Adapted from logs generated by Obrien & Gere Engineers, Inc.			

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/18/02

WELL LOG

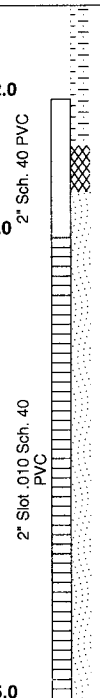
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Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID:
		DRILLER: Dave Stack	MW-10R
NORTHING: 3,839,189.9	EASTING: 286,360.8	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Site of former large AST at former fuel farm			T.O.C. ELEV.: 30.00
DRILL MACHINE:	METHOD:	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 03/30/95	FINISH DATE: 03/30/95	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	32.0	0.0
2.0									2.0		30.0	- 2.0
	G	R	A	B	12		GM		4.0	Brown, GRAVELY SILT to SILTY GRAVEL. Poorly sorted. Dry. Possible HCO.	28.0	3.0
4.0									5.0		27.0	4.0
5.0									7.0		25.0	
	HP	HP	HP	HP	44		SM		10.0	Tan brown, SILTY, very fine to medium SAND. Mod. sorted w/minor angular gravel. Moist. Strong HCO.	22.0	
7.0									12.0		20.0	
									15.0		17.0	15.0
10.0	HP	HP	HP	HP	1000+		SP		17.0	Yellow tan, fine SAND. Moderately sorted. Sheen on spoon. Wet. Very strong HCO.	15.0	
12.0												
15.0												
	HP	HP	HP	HP	1000+		SP/SC			Light gray, interbedded fine SAND and SANDY CLAY. Sheen on spoon. Wet. Very strong HCO.		
17.0												
										Boring Terminated at Elevation 15.0 ft		



CATLIN BORING LOG 201-130.GPJ CATLIN.GDI 06/13/02

WELL LOG

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Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: John Brod	WELL ID:
		DRILLER: Sanford Sweetey	MW-11
NORTHING: 3,839,223.6	EASTING: 286,259.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Northeast of intersection of Center Rd. and Ash St.			T.O.C. ELEV.: 28.74
DRILL MACHINE:		METHOD:	0 HOUR DTW:
START DATE: 03/02/88		FINISH DATE: 03/02/88	24 HOUR DTW:
			BORING DEPTH: 27.0
			WELL DEPTH: 25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	26.5	2.2
0.0	5	10	18	18	.5		GW		1.5	Light brown, SAND & GRAVEL FILL	25.0	0.0
2.0							SW		4.0	Mottled grayish brown, med.-fine SAND w/little silt. Med. dense. Moist.	22.5	4.0
5.0	2	2	2	3	0		SM		9.0	Mottled gray, med. SAND w/fine sand, little silt, and organic and wood frags. Moist.	17.5	5.0
7.0												
10.0	2	3	4	5	0		SW			Mottled gray, med. SAND w/some fine sand and little silt. Med. dense. Wet. Slight solvent odor @ 15-17' bls.		
12.0												
15.0	2	3	2	4	0							
17.0												
20.0	3	3	3	3	55		SP		24.0	Gray, med. SAND w/little f. sand. V. wet.	2.5	25.0
22.0												
25.0	WHWH	1	0		110		SP		27.0	Dark gray, med. SAND w/little f. sand. V. wet. Strong solvent odor.	-0.5	25.0
27.0												
										Boring Terminated at Elevation -0.5 ft Adapted from logs generated by Obrien & Gere Engineers, Inc.		

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/18/02

WELL LOG

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Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: John Brod	WELL ID:
NORTHING: 3,839,267.7		EASTING: 286,303.2	DRILLER: Sanford Sweetey
SYSTEM: UTM NAD83 (m)		MW-12	
BORING LOCATION: CENTRAL SECTOR - NE of corner of Center Rd. and Ash St.			T.O.C. ELEV.: 28.73
DRILL MACHINE:	METHOD:	0 HOUR DTW:	BORING DEPTH: 27.0
START DATE: 03/07/88	FINISH DATE: 03/07/88	24 HOUR DTW:	WELL DEPTH: 25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK			WELL DETAIL
	6in	6in	6in	6in					DEPTH	DESCRIPTION	ELEVATION	
												1.8
									0.0	LAND SURFACE	26.9	0.0
0.0							GW		0.5	Dark brown, SAND & GRAVEL FILL.	26.4	
	10	12	16	23	1		SW		1.8	Grayish brown, fine to med. SAND w/little silt and trace cse. sand and gravel. Med. dense. Damp.	25.1	1.5
2.0												2.5
5.0												5.0
	2	2	3	3	1							
7.0												
									8.5		18.4	
10.0												
	2	2	2	3	1							
12.0												
							SP			Gray, fine to fine/med. SAND. Some silt. Trace fine gravel at 15-17' bls w/some dark layering of dark gray med./fine sand. Soft. V. moist to wet.		
15.0												
	2	2	3	2	2							
17.0												
									18.5		8.4	
20.0							CH			Gray, CLAY w/little silt. Med. stiff w/high plasticity. Damp.		
	9	10	12	15	150				20.5		6.4	
22.0												
							SP			Light gray, medium fine SAND w/little silt. Some dark gray mottling. Strong HCO w/product present. *No HCO above CLAY unit.		
25.0												25.0
	2	2	3	1	125							
27.0									27.0		-0.1	
									Boring Terminated at Elevation -0.1 ft Adapted from logs generated by Obrien & Gere Engineers, Inc.			

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/18/02

WELL LOG

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Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: John Brod	WELL ID:
NORTHING: 3,839,309.4		EASTING: 286,419.1	SYSTEM: UTM NAD83 (m)
BORING LOCATION: CENTRAL SECTOR - ~300' NW of temporary fuel farm between RR tracks.			T.O.C. ELEV.: 30.56
DRILL MACHINE:	METHOD:	0 HOUR DTW:	BORING DEPTH: 27.0
START DATE: 03/09/88	FINISH DATE: 03/09/88	24 HOUR DTW:	WELL DEPTH: 25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	L	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in											
												0.0	LAND SURFACE	28.8	1.8
0.0	11	7	8	11	5		GW					1.0	Tan, SAND and GRAVEL FILL.	27.8	0.0
2.0															2' Sch. 40 PVC
5.0							ML						Dark brown, SILT and fine SAND w/trace med. sand. Some wood fragments, roots, and organic matter. Med. dense. Moist.		3.0
7.0	4	5	4	4	NM							7.5	*No recovery from 5-7' bls.	21.3	5.0
10.0															
12.0	2	1	2	4	1		SW						Gray, fine/med. SAND w/some silt and occasional clay stringer. Soft. Very moist.		
15.0															
17.0	5	9	14	15	2							16.0		12.8	2' Slot .020 Sch. 40 PVC
20.0															
22.0	2	2	3	4	1		SP						Gray, fine/med. to med./fine SAND w/little silt. Med. dense to loose. Wet.		
25.0															
27.0	5	7	14	15	1		ML					25.5	Dark gray, SILT w/some clay and fine sand.	3.3	25.0
							PT					26.0	Brown, Organic SILT/PEAT w/wood frags., roots, and fine sand. Moist.	2.8	
												27.0		1.8	27.0

Boring Terminated at Elevation 1.8 ft
Adapted from logs generated by Obrien & Gere Engineers, Inc.

WELL LOG

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Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: John Brod	WELL ID: MW-14	
NORTHING: 3,839,077.5	EASTING: 286,226.1	DRILLER: Sanford Sweetey	
		SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Between Buildings 1102 & 1113 on Gibb Road			T.O.C. ELEV.: 27.70
DRILL MACHINE:	METHOD:	0 HOUR DTW:	BORING DEPTH: 27.0
START DATE: 03/08/88	FINISH DATE: 03/08/88	24 HOUR DTW:	WELL DEPTH: 25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
0.0									0.0	LAND SURFACE	27.7	0.0
2.0	8	9	3	4	1		GW		4.0	Grayish brown, SAND and GRAVEL FILL. Some silt, med. dense. Dry	23.7	1.5
5.0							SW			Grayish brown w/tan mottling, fine SAND w/some silt, little med. sand. Med. dense. Moist. *Occasional chunks of wood/organic matter @ 9.0' bls.		3.0
7.0												
10.0												
12.0	3	1	1	2	1		SM		11.0	Gray, SILTY, fine SAND. Trace med. sand w/occasional clay stringer. Med. dense. Wet.	16.7	
							SW		12.5	Light gray, fine to medium SAND w/little silt. Loose. Wet.	15.2	
									14.0		13.7	
15.0	1	2	2	3	1		PT			Dark brown, ORGANIC SILT/PEAT w/wood frags. and roots. Soft. Moist. *Thin layer of organic clay in base of strata.		
17.0												
20.0	1	2	6	15	2				21.0		6.7	
22.0							SW			Light gray, fine to medium SAND. Little silt. Med. dense. Wet. Grades to dark gray and brown mottling w/HCO in bottom of strata.		
25.0	3	4	3	3	15							25.0
27.0									27.0		0.7	27.0
Boring Terminated at Elevation 0.7 ft Adapted from logs generated by Obrien & Gere Engineers, Inc.												

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/18/02

WELL LOG

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Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: John Brod	WELL ID:
NORTHING: 3,839,026.4		EASTING: 286,315.8	SYSTEM: UTM NAD83 (m)
BORING LOCATION: SE SECTOR - Corner of Ash St. & East Rd. @ Bld. 1114			T.O.C. ELEV.: 30.45
DRILL MACHINE:	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 27.0
START DATE: 03/08/88	FINISH DATE: 03/08/88	24 HOUR DTW: 5.21	WELL DEPTH: 25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in					0.0	LAND SURFACE	28.3	2.2
							SM		2.0	Brown, fine SAND, little med. sand and silt, moist, loose.	26.3	0.0
									5.0		23.3	2.0
							SM		7.0	Gray, fine SAND, some med. sand, little silt, moist, loose.	21.3	3.0
									10.0		18.3	
							SP		12.0	Grading to fine/med. SAND, little silt, wet, med. dense.	16.3	
									15.0		13.3	
							SP		17.0	S.A.A with brown mottling and discoloration, HCO odor.	11.3	
									20.0		8.3	
							SP		22.0	Gray, meduim/fine SAND with occsional clay stringer, loose. Strong HCO, material saturated with gasoline.	6.3	
									25.0		3.3	25.0
							SP		27.0	S.A.A.	1.3	25.0
Boring Terminated at Elevation 1.3 ft Adapted from logs generated by Obrien & Gere Engineers, Inc.												

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/18/02



Portland Cement



Bentonite Pellets



Coarse Gravel Pack

WELL LOG

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Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: John Brod	WELL ID: MW-16(R?)	
NORTHING: 3,839,189.9	EASTING: 286,360.8	DRILLER: Sanford Sweetey	
		SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Beside (east) of loading ramp (S-1107)			T.O.C. ELEV.: 26.47
DRILL MACHINE:	METHOD:	0 HOUR DTW:	BORING DEPTH: 27.0
START DATE: 03/10/88	FINISH DATE: 03/10/88	24 HOUR DTW:	WELL DEPTH: 25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	28.4	0.0
0.0	2	2	2	3	4		GW		0.8	Tan, SAND and GRAVEL FILL.	27.6	1.0
2.0							SP		2.0	Grayish tan w/some dark brown mottling, fine/medium SAND w/some silt. Moist. HCO.	26.4	2.5
5.0									5.0		23.4	5.0
7.0	4	5	7	7	150		SP		7.0	Gray, fine SAND w/some silt and med. sand. Wet. Petroleum product and HCO.	21.4	
10.0									10.0		18.4	
12.0	4	5	7	7	165		SW		12.0	Gray, fine/medium SAND w/silt and occasional clay stringer. Wet. Petroleum product and HCO.	16.4	
15.0									15.0		13.4	
17.0	2	2	4	4	190		SM		15.5	S.A.A. w/increasing silt.	12.9	
							ML		17.0	Light gray, SILT w/some clay and fine sand. Moist. Soft HCO.	11.4	
20.0									20.0		8.4	
	4	5	8	8	135		ML		21.0	S.A.A. w/more fine sand.	7.4	
22.0							SP		22.0	Light gray, fine/medium SAND w/little silt. Wet. Saturated w/gasoline.	6.4	
25.0									25.0		3.4	25.0
					150		SP		25.6	S.A.A.	2.8	
27.0							SP		27.0	Dark gray/black, fine/medium SAND w/some silt. Color due to petroleum discoloration. Wet.	1.4	
Boring Terminated at Elevation 1.4 ft As-built & lithology from original well log for MW-16 generated by Obrien & Gere Engineers, Inc.												

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/18/02

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: John Brod	WELL ID: MW-17
NORTHING: 3,839,129.9	EASTING: 286,377.6	DRILLER: Sanford Sweetey	
SYSTEM: UTM NAD83 (m)			
BORING LOCATION: CENTRAL SECTOR - Central portion of former fuel farm			T.O.C. ELEV.: 31.33
DRILL MACHINE:		METHOD:	0 HOUR DTW:
START DATE: 03/09/88		FINISH DATE: 03/09/88	24 HOUR DTW: 11.11
			BORING DEPTH: 27.0
			WELL DEPTH: 25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	29.5	1.8
0.0	2	5	7	7	35		SW		2.0	Mottled, grayish brown, fine to med. SAND. Some silt and trace fine gravel. HCO and staining.	27.5	0.0
2.0												4" Sch. 40 PVC
5.0									5.0		24.5	5.0
3	3	5	5	8			SW		7.0	Light gray, fine to med. SAND. Some silt. HCO.	22.5	
7.0												
10.0									10.0		19.5	
3	9	10	11	19			SP		12.0	Reddish tan, med./fine SAND. Little silt. Product present.	17.5	
12.0												
15.0									15.0		14.5	4" Slot 020 Sch. 40 PVC
3	5	5	7	10			SP		17.0	Grayish tan, S.A.A.	12.5	
17.0												
20.0									20.0		9.5	
5	7	9	11	16			SW		22.0	Grayish tan, med. SAND. Some fine sand and little silt w/trace clay stringers. Strong HCO.	7.5	
22.0												
25.0									25.0		4.5	25.0
3	5	6	6	11			SM		27.0	S.A.A. w/slightly more silt and fine sand.	2.5	25.0
27.0												
										Boring Terminated at Elevation 2.5 ft Adapted from logs generated by Obrien & Gere Engineers, Inc. Engineers, Inc.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/18/02

WELL LOG

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Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: John Brod	WELL ID: MW-18
NORTHING: 3,839,101.6	EASTING: 286,447.0	DRILLER: Sanford Sweetey	
SYSTEM: UTM NAD83 (m)			
BORING LOCATION: SE SECTOR - Between parking lot northwest of Building 1005 and looped drive			T.O.C. ELEV.: 31.97
DRILL MACHINE:	METHOD:	0 HOUR DTW:	BORING DEPTH: 27.0
START DATE: 03/11/88	FINISH DATE: 03/11/88	24 HOUR DTW:	WELL DEPTH: 25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	29.9	2.1
0.0	2	3	3	4	25		SM			Olive brown, SILTY, fine SAND. Little med. sand, trace fine gravel. Damp. Mod. HCO.		0.0
2.0									3.5		26.4	4" Sch. 40 PVC
5.0									5.0		24.9	5.0
7.0	5	6	8	11	2		SW		7.0	Mottled light gray/tan, fine to med. SAND. Little silt. Moist. Slight HCO.	22.9	
10.0									10.0		19.9	
12.0	3	6	5	3	150		SW		12.0	S.A.A. w/some silt and less tan mottling. Mod. HCO.	17.9	
15.0									15.0		14.9	4" Slot .020 Sch. 40 PVC
17.0	3	6	6	8	155		SW		17.0	S.A.A. w/occasional clay stringer. Wet. High HCO.	12.9	
20.0									20.0		9.9	
22.0	2	3	2	4	125		SP		22.0	Gray, fine SAND. Some med. sand and silt. Solvent and HCO.	7.9	
25.0									25.0		4.9	25.0
27.0	4	3	3	3	11		SP		27.0	S.A.A. w/layers of med. sand. Solvent and HCO.	2.9	25.0
										Boring Terminated at Elevation 2.9 ft Adapted from logs generated by Obrien & Gere Engineers, Inc. Engineers, Inc.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/18/02

WELL LOG

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Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: John Brod	WELL ID:
		DRILLER: Sanford Sweetey	MW-19
NORTHING: 3,839,159.3	EASTING: 286,530.5	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Grassy area southeast of temporary fuel farm tanks			T.O.C. ELEV.: 32.18
DRILL MACHINE:	METHOD:	0 HOUR DTW:	BORING DEPTH: 27.0
START DATE: 03/15/88	FINISH DATE: 03/15/88	24 HOUR DTW:	WELL DEPTH: 25.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	29.4	2.8
0.0	7	7	5	5			GW		1.0	Tan, SAND and GRAVEL FILL	28.4	0.0
2.0							SW		2.0	Light brown, fine SAND. Little silt and med. sand. Moist.	27.4	2.0
5.0									5.0		24.4	3.0
7.0	7	11	13	17			SW		7.0	Light gray, fine SAND. Little silt and med. sand. Moist.	22.4	
10.0									10.0		19.4	
12.0	2	3	6	6			SP		12.0	Light gray, fine/med. SAND. Little silt. Loose.	17.4	
15.0									15.0		14.4	
17.0	2	4	6	10			SW		17.0	Light gray, med./fine SAND. Little silt w/some layering of med. sand and tan mottling. Wet.	12.4	
20.0									20.0		9.4	
22.0	1	4	4	5			SW		22.0	Orange brown, S.A.A.	7.4	
25.0									25.0		4.4	25.0
27.0	3	3	3	3			SW		27.0	S.A.A.	2.4	25.0
Boring Terminated at Elevation 2.4 ft Adapted from logs generated by Obrien & Gere Engineers, Inc. Engineers, Inc.												

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/18/02

WELL LOG

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SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: John Brod	WELL ID:
		DRILLER: Sanford Sweetey	MW-20
NORTHING: 3,839,281.7	EASTING: 286,255.8	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - ~200' northeast of Building 1108			T.O.C. ELEV.: 31.23
DRILL MACHINE:	METHOD:	0 HOUR DTW:	BORING DEPTH: 27.0
START DATE: 03/14/88	FINISH DATE: 03/14/88	24 HOUR DTW:	WELL DEPTH: 24.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in							
0.0									0.0 LAND SURFACE	26.8	4.4" PVC
0.0	2	4	5	4	0		SP		0.5 Tan, fine SAND w/med. sand. FILL.	26.3	4" Sch. 40 PVC
2.0							ML		Dark brown, SILT and fine SAND. Little med. sand and f. gravel w/wood and organic frags. Med. dense. Moist.		2.0
									4.0	22.8	3.0
5.0									5.0	21.8	
1	1	2	2	0			SW		Grayish brown, fine SAND w/some silt and med. sand. Interbedded w/gray silty clay w/trace f. gravel. Soft. Moist.	19.8	
7.0									7.0		
10.0									10.0	16.8	
1	1	2	1	0			SW		S.A.A.		
12.0									12.0	14.8	
15.0									15.0	11.8	
4	2	3	2	0			SW		Gray, fine to med. SAND. Little silt and trace fine gravel and organic material. Wet.	9.8	4" Slot .020 Sch. 40 PVC
17.0									17.0		
20.0									20.0	6.8	
6	6	6	8	1					22.0	4.8	
22.0											
25.0									25.0	1.8	24.0
WHWHWHWH					0		SP		Dark gray, medium SAND w/some f. sand and little silt. Very loose. Wet.	-0.2	25.0
27.0											
Boring Terminated at Elevation -0.2 ft Adapted from logs generated by Obrien & Gere Engineers, Inc. Engineers, Inc.											

CATLIN BORING LOG 201-130.GPJ CATLIN.GPJ 06/18/02

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY:	WELL ID: HP-601
NORTHING:		DRILLER:	SYSTEM: N/A
EASTING:			
BORING LOCATION: From IR78-GW13			T.O.C. ELEV.: 22.00
DRILL MACHINE:	METHOD:	0 HOUR DTW: 11.3	BORING DEPTH: 195.0
START DATE:	FINISH DATE: 01/01/41	24 HOUR DTW:	WELL DEPTH: 195.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	22.0	0.0
												0.0
												8" SS
									45.0	CASING	-23.0	45.0
									60.0	GRAVEL PACK & SCREEN	-38.0	60.0
									95.0	CASING	-73.0	95.0
									100.0	GRAVEL PACK & SCREEN	-78.0	100.0
									115.0	CASING	-93.0	115.0
												8" SS
									130.0	GRAVEL PACK & SCREEN	-108.0	130.0
									175.0	CASING	-153.0	175.0
									195.0	GRAVEL PACK & SCREEN	-173.0	195.0
										Boring Terminated at Elevation -173.0 ft 0hr dtw = static & 24hr dtw = pumping		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/19/02

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY:	WELL ID: HP-603
		DRILLER:	
NORTHING: 3,838,867.8	EASTING: 285,413.6	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: Actual location from GIS			T.O.C. ELEV.: 24.80
DRILL MACHINE:	METHOD:	0 HOUR DTW:	BORING DEPTH: 195.0
START DATE:	FINISH DATE: 01/01/41	24 HOUR DTW: 51	WELL DEPTH: 195.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	24.8	0.0
									70.0		-45.2	70.0
									80.0	GRAVEL PACK & SCREEN	-55.2	80.0
									100.0	CASING	-75.2	100.0
									110.0	GRAVEL PACK & SCREEN	-85.2	110.0
									130.0	CASING	-105.2	130.0
									140.0	GRAVEL PACK & SCREEN	-115.2	140.0
									160.0	CASING	-135.2	160.0
									170.0	GRAVEL PACK & SCREEN	-145.2	170.0
									190.0	CASING	-165.2	190.0
									195.0	GRAVEL PACK & SCREEN	-170.2	195.0
										Boring Terminated at Elevation -170.2 ft 0hr dtw = static & 24hr dtw = pumping		

CATLIN BORING LOG_201-130.GPJ CATLIN.GDT_06/19/02

SHEET 1 OF 1

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH			
									0.0	LAND SURFACE	29.7	0.0
									61.5		-31.8	61.5
										GRAVEL PACK & SCREEN		
									81.5		-51.8	81.5
									91.5	CASING	-61.8	91.5
									101.5	GRAVEL PACK & SCREEN	-71.8	101.5
									121.5	CASING	-91.8	121.5
									131.5	GRAVEL PACK & SCREEN	-101.8	131.5
									151.5	CASING	-121.8	151.5
									161.5	GRAVEL PACK & SCREEN	-131.8	161.5
									Boring Terminated at Elevation -132.3 ft 0hr dtw = static & 24hr dtw = pumping			

SHEET 1 OF 1

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL	
	6in	6in	6in	6in					DEPTH				
									0.0	LAND SURFACE	26.0		0.0
									CASING			8" SS	
									62.0		-36.0	62.0	62.0
									GRAVEL PACK & SCREEN		-41.0		67.0
									CASING				
									87.0		-61.0		87.0
									GRAVEL PACK & SCREEN		-66.0		92.0
									CASING				
									107.0		-81.0		107.0
									GRAVEL PACK & SCREEN		-91.0		117.0
									CASING				
									127.0		-101.0		127.0
									GRAVEL PACK & SCREEN				
									142.0		-116.0		142.0
									CASING				
									152.0		-126.0		152.0
									GRAVEL PACK & SCREEN				
									162.0		-136.0	162.0	162.0
												176.0	
									Boring Terminated at Elevation -150.0 ft 0hr dtw = static & 24hr dtw = pumping				

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/19/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY:	WELL ID:
NORTHING:		DRILLER:	HP-634
EASTING:		SYSTEM: N/A	
BORING LOCATION: From IR78-GW25			T.O.C. ELEV.: 31.00
DRILL MACHINE:	METHOD:	0 HOUR DTW: 12.4	BORING DEPTH: 225.0
START DATE:	FINISH DATE: 01/01/59	24 HOUR DTW:	WELL DEPTH: 225.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	31.0	0.0
										CASING		8" SS
									65.0		-34.0	65.0
									70.0	GRAVEL PACK & SCREEN	-39.0	70.0
									73.0	CASING	-42.0	73.0
									78.0	GRAVEL PACK & SCREEN	-47.0	78.0
									83.0	CASING	-52.0	83.0
									88.0	GRAVEL PACK & SCREEN	-57.0	88.0
									93.0	CASING	-62.0	93.0
									98.0	GRAVEL PACK & SCREEN	-67.0	98.0
									107.0	CASING	-76.0	107.0
									117.0	GRAVEL PACK & SCREEN	-86.0	117.0
									124.0	CASING	-93.0	124.0
									129.0	GRAVEL PACK & SCREEN	-98.0	129.0
									135.0	CASING	-104.0	135.0
									140.0	GRAVEL PACK & SCREEN	-109.0	140.0
									153.0	CASING	-122.0	153.0
									163.0	GRAVEL PACK & SCREEN	-132.0	163.0
									170.0	CASING	-139.0	170.0
									175.0	GRAVEL PACK & SCREEN	-144.0	175.0
									195.0	CASING	-164.0	195.0
									200.0	GRAVEL PACK & SCREEN	-169.0	200.0
									215.0	CASING	-184.0	215.0
									225.0	GRAVEL PACK & SCREEN	-194.0	225.0
Boring Terminated at Elevation -194.0 ft 0hr dtw = static & 24hr dtw = pumping												

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY:	WELL ID:
		DRILLER:	HP-635
NORTHING: 3,840,235.6	EASTING: 286,945.8	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: Actual location from GIS			T.O.C. ELEV.: 17.00
DRILL MACHINE:	METHOD:	0 HOUR DTW: 20	BORING DEPTH: 215.0
START DATE:	FINISH DATE: 01/01/59	24 HOUR DTW: 83	WELL DEPTH: 215.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	17.0	0.0
										CASING		8" SS
									65.0		-48.0	65.0
									75.0	GRAVEL PACK & SCREEN	-58.0	75.0
										CASING		
									93.0		-76.0	93.0
										GRAVEL PACK & SCREEN		
									108.0		-91.0	108.0
										CASING		
									122.0		-105.0	122.0
									127.0	GRAVEL PACK & SCREEN	-110.0	127.0
										CASING		
									136.0		-119.0	136.0
										GRAVEL PACK & SCREEN		
									146.0		-129.0	146.0
									150.0	CASING	-133.0	150.0
									155.0	GRAVEL PACK & SCREEN	-138.0	155.0
										CASING		
									170.0		-153.0	170.0
									175.0	GRAVEL PACK & SCREEN	-158.0	175.0
										CASING		
									185.0		-168.0	185.0
									190.0	GRAVEL PACK & SCREEN	-173.0	190.0
										CASING		
									210.0		-193.0	210.0
									215.0	GRAVEL PACK & SCREEN	-198.0	215.0
										Boring Terminated at Elevation -198.0 ft 0hr dtw = static & 24hr dtw = pumping		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/19/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 4

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Bill Walsh	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-11
NORTHING: 3,839,152.9	EASTING: 286,400.8	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Within UST basin of former fuel farm			T.O.C. ELEV.: 32.28
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 110.0
START DATE: 06/26/97	FINISH DATE: 07/28/97	24 HOUR DTW: 13.65	WELL DEPTH: 110.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL	
	6in	6in	6in	6in					DEPTH				
65.0	G	R	A	B	2					S.A.A. Wet. No HCO. (continued)	65.0	-32.7	
70.0	G	R	A	B	2					S.A.A. Wet. No HCO.	70.0	-37.7	
75.0	G	R	A	B	5					S.A.A. Wet. No HCO.	75.0	-42.7	
80.0	G	R	A	B	6					S.A.A. Wet. No HCO.	80.0	-47.7	
85.0	G	R	A	B	8					S.A.A. Wet. No HCO.	85.0	-52.7	
90.0	G	R	A	B	4					S.A.A. Wet. No HCO.	90.0	-57.7	
	G	R	A	B	7					S.A.A. Wet. No HCO.			

4" Sch. 40 PVC

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 4 OF 4

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Bill Walsh	WELL ID: HPFF-11
DRILLER: Bobbie Fowler			
NORTHING: 3,839,152.9	EASTING: 286,400.8	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: SE SECTOR - Within UST basin of former fuel farm			T.O.C. ELEV.: 32.28
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 110.0
START DATE: 06/26/97	FINISH DATE: 07/28/97	24 HOUR DTW: 13.65	WELL DEPTH: 110.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U	S	C	S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL	
	6in	6in	6in	6in												
95.0												95.0	S.A.A. Wet. No HCO. (continued)	-62.7		
	G	R	A	B	7								S.A.A. Wet. No HCO.			98.0
100.0												100.0		-67.7		100.0
	G	R	A	B	4								S.A.A. Wet. No HCO.			103.0
105.0												105.0		-72.7	105.0	
	G	R	A	B	0								S.A.A. Wet. No HCO.			
110.0												110.0		-77.7	110.0	110.0
													Boring Terminated at Elevation -77.7 ft 24 hour DTW from August 16, 2001 gauging event			

2" Slot 010 Sch. 40
PVC

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 0614/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 4

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Bill Walsh	WELL ID: HPFF-12
DRILLER: Bobbie Fowler		SYSTEM: UTM NAD83 (m)	
NORTHING: 3,839,169.3	EASTING: 286,286.3	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Loading ramp (S1107) @ corner of Gibb Rd. & Ash St.			T.O.C. ELEV.: 27.12
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 110.0
START DATE: 06/27/97	FINISH DATE: 07/16/97	24 HOUR DTW: 9.27	WELL DEPTH: 110.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
0.0									0.0	LAND SURFACE	27.1	0.0
2.0	HP	HP	HP	HP	42		GW		2.0	Fill. Marl w/sand and clay. Dry. Possible HCO.	25.1	
8.0									8.0		19.1	
10.0	HP	HP	HP	HP	68		SM		10.0	Gray, SILTY, fine to med. SAND. Some clay. Wet. Strong HCO.	17.1	
13.0									13.0		14.1	
15.0	HP	HP	HP	HP	22		SM		15.0	S.A.A. Wet. Strong HCO.	12.1	
18.0									18.0		9.1	
20.0	HP	HP	HP	HP	38		SC		20.0	Brownish-gray, CLAYEY, fine to med. SAND. Wet. Strong HCO.	7.1	
23.0									23.0		4.1	
25.0	HP	HP	HP	HP	60		SW/SC		25.0	Gray, fine to cse. SAND w/clay. Wet. Strong HCO.	2.1	
28.0									28.0		-0.9	
							SP		28.5	Brown, fine to med. SAND. Wet. HCO.	-1.4	
	HP	6	12	18	160		SP			Gray, med. to cse. SAND. Wet. HCO.		
									30.0		-2.9	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02

6" Sch. 40 PVC

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 4

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Bill Walsh	WELL ID: HPFF-12
NORTHING: 3,839,169.3		EASTING: 286,286.3	SYSTEM: UTM NAD83 (m)
BORING LOCATION: CENTRAL SECTOR - Loading ramp (S1107) @ corner of Gibb Rd. & Ash St.			T.O.C. ELEV.: 27.12
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 110.0
START DATE: 06/27/97	FINISH DATE: 07/16/97	24 HOUR DTW: 9.27	WELL DEPTH: 110.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.0												
33.0									33.0		-5.9	
	6	8	8	6	62		SP			S.A.A. Wet. HCO.		
35.0									35.0		-7.9	
38.0									38.0		-10.9	
	HP	HP	7	7	65		SP			Grayish brown, fine to med. SAND. Wet. Possible HCO.		
40.0									40.0		-12.9	
	G	R	A	B	28					Gray, SHELL FRAGMENTS w/sand. Weathered Limestone. Wet. No HCO.		
42.0									42.0		-14.9	
50.0									50.0		-22.9	
	G	R	A	B	26					LIMESTONE w/shell fragments. Wet. No HCO.		
52.0									52.0		-24.9	
55.0									55.0		-27.9	
	G	R	A	B	6					S.A.A. Wet. No HCO.		
57.0									57.0		-29.9	
60.0									60.0		-32.9	
	G	R	A	B	10		SW/SM			Gray, fine to med. SAND w/SILT. Wet. No HCO.		

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/14/02

2" Sch. 40 PVC



WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 4

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Bill Walsh	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-12
NORTHING: 3,839,169.3	EASTING: 286,286.3	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Loading ramp (S1107) @ corner of Gibb Rd. & Ash St.			T.O.C. ELEV.: 27.12
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 110.0
START DATE: 06/27/97	FINISH DATE: 07/16/97	24 HOUR DTW: 9.27	WELL DEPTH: 110.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH	DESCRIPTION		
62.0									62.0		-34.9	4" Sch. 40 PVC
65.0									65.0		-37.9	
67.0	G	R	A	B	2				67.0	Gray, FOSSILIFEROUS LIMESTONE. Wet. No HCO.	-39.9	
70.0									70.0		-42.9	
72.0	G	R	A	B	8				72.0	S.A.A. w/sand. Wet. No HCO.	-44.9	
85.0									85.0		-57.9	
87.0	G	R	A	B	10				87.0	S.A.A. Wet. No HCO.	-59.9	
90.0									90.0		-62.9	
92.0	G	R	A	B	12				92.0	S.A.A. Wet. No HCO.	-64.9	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 4 OF 4

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Bill Walsh	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-12
NORTHING: 3,839,169.3	EASTING: 286,286.3	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: CENTRAL SECTOR - Loading ramp (S1107) @ corner of Gibb Rd. & Ash St.			T.O.C. ELEV.: 27.12
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 110.0
START DATE: 06/27/97	FINISH DATE: 07/16/97	24 HOUR DTW: 9.27	WELL DEPTH: 110.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL	
	6in	6in	6in	6in					DEPTH				
95.0									95.0		-67.9		
	G	R	A	B	12					S.A.A. Wet. No HCO.			
97.0									97.0		-69.9		
100.0									100.0		-72.9		
	G	R	A	B	4					S.A.A. Wet. No HCO.			
102.0									102.0		-74.9		
103.0									103.0		-75.9		
	G	R	A	B	4					S.A.A. Wet. No HCO.			
105.0									105.0		-77.9	105.0	
108.0									108.0		-80.9		
	G	R	A	B	6					S.A.A. Wet. No HCO.			
110.0									110.0		-82.9	110.0	110.0
										Boring Terminated at Elevation -82.9 ft 24 hour DTW from August 16, 2001 gauging event			

CATLIN BORING LOG 201-130.GEL CATLIN.GDT 06/14/02

 Portland Cement	 Bentonite Pellets	 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 4

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: B. Walsh/E. Chandler	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-13
NORTHING: 3,839,258.0	EASTING: 286,042.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - SW corner of grass area by Bld. 1115 along Birch St.			T.O.C. ELEV.: 26.32
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 10.0
START DATE: 07/09/97	FINISH DATE: 07/10/97	24 HOUR DTW: 9.95	WELL DEPTH: 110.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	26.3	0.0
5.0	HP	HP	HP	HP	0.0		SC		5.0	Brownish-gray, CLAYEY SAND. Dry. No HCO.	21.3	
7.0									7.0		19.3	
10.0	HP	HP	HP	HP	0.0		CL		10.0	Brownish-gray, SANDY CLAY. Dry. No HCO.	16.3	
12.0									12.0		14.3	
15.0	HP	HP	HP	HP	11		SM		15.0	Gray, SILTY, fine to med. SAND. Wet. No HCO.	11.3	
17.0									17.0		9.3	
20.0	HP	HP	HP	HP	28		SM		20.0	S.A.A. Wet. Possible HCO.	6.3	
22.0									22.0		4.3	
25.0	HP	HP	HP	HP	0.0		PT		25.0	Brownish-black PEAT w/layer of fat black clay. Wet. No HCO.	1.3	
27.0									27.0		-0.7	
									30.0		-3.7	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02

6" Sch. 40 PVC

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 4

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	B. Walsh/E. Chandler	WELL ID:
					DRILLER:	Bobbie Fowler	HPFF-13
NORTHING:	3,839,258.0	EASTING:	286,042.0	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION:	NW SECTOR - SW corner of grass area by Bld. 1115 along Birch St.						T.O.C. ELEV.: 26.32
DRILL MACHINE:	Diedrich D-50	METHOD:	HSA/MR	0 HOUR DTW:		BORING DEPTH:	110.0
START DATE:	07/09/97	FINISH DATE:	07/10/97	24 HOUR DTW:	9.95	WELL DEPTH:	110.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
30.0	HP	HP	HP	HP	3.0		SW		32.0	Gray, med. SAND w/few fines. Wet. No HCO.	-5.7	
32.0												
35.0									35.0		-8.7	
37.0	HP	HP	HP	HP	10		SW		37.0	S.A.A. Wet. No HCO.	-10.7	
40.0									40.0		-13.7	
42.0	HP	HP	HP	HP	6.0		SW		42.0	S.A.A. Wet. No HCO.	-15.7	
45.0									45.0		-18.7	
47.0	G	R	A	B	NM		CL		47.0	Dark gray/olive-green/greenish gray, SILTY SANDY CLAY. Strong HCO.	-20.7	
50.0									50.0		-23.7	
52.0	G	R	A	B	100		CL		52.0	S.A.A. Strong HCO.	-25.7	
55.0									55.0		-28.7	
57.0	G	R	A	B	100		CL		57.0	S.A.A. Strong HCO.	-30.7	
60.0									60.0		-33.7	
	G	R	A	B	8.0		CL			Olive gray, SILTY/SANDY CLAY. Low plasticity. Strong HCO.		

2" Sch. 40 PVC



CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 4

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: B. Walsh/E. Chandler	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-13
NORTHING: 3,839,258.0	EASTING: 286,042.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - SW corner of grass area by Bld. 1115 along Birch St.			T.O.C. ELEV.: 26.32
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 110.0
START DATE: 07/09/97	FINISH DATE: 07/10/97	24 HOUR DTW: 9.95	WELL DEPTH: 110.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
62.0									62.0		-35.7	4" Sch. 40 PVC
65.0									65.0		-38.7	
G	R	A	B	7.0		CL			67.0	S.A.A. Slight HCO.	-40.7	
67.0												
									70.0		-43.7	
G	R	A	B	7.0		CL			72.0	S.A.A. Slight HCO.	-45.7	
72.0												
									75.0		-48.7	
G	R	A	B	10		CL			77.0	S.A.A. Slight HCO.	-50.7	
77.0												
									80.0		-53.7	
G	R	A	B	10		CL			82.0	S.A.A. Slight HCO.	-55.7	
82.0												
									85.0		-58.7	
G	R	A	B	3.0					87.0	Fossiliferous LIMESTONE. Fragmented w/olive gray SILT and v.f. grained sand. No HCO.	-60.7	
87.0												
									90.0		-63.7	
G	R	A	B	0.0					92.0	Tan, fossiliferous LIMESTONE. No HCO.	-65.7	
92.0												

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/14/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 4 OF 4

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: B. Walsh/E. Chandler	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-13
NORTHING: 3,839,258.0	EASTING: 286,042.0	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - SW corner of grass area by Bld. 1115 along Birch St.			T.O.C. ELEV.: 26.32
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 110.0
START DATE: 07/09/97	FINISH DATE: 07/10/97	24 HOUR DTW: 9.95	WELL DEPTH: 110.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK		WELL DETAIL
	6in	6in	6in	6in					DEPTH	DESCRIPTION	
95.0									95.0	-68.7	
	G	R	A	B	0.0					Dark gray, fossiliferous LIMESTONE. No HCO.	
97.0									97.0	-70.7	
100.0									100.0	-73.7	
	G	R	A	B	0.0					Dark gray, fossiliferous LIMESTONE. Well indurated. No HCO.	
102.0									102.0	-75.7	
105.0									105.0	-78.7	
	G	R	A	B	0.0					S.A.A. No HCO.	
107.0									107.0	-80.7	2" Slot .010 Sch. 40 PVC
									108.0	-81.7	
108.0											
	G	R	A	B	0.0					S.A.A. No HCO.	
110.0									110.0	-83.7	110.0
Boring Terminated at Elevation -83.7 ft 24 hour DTW from August 16, 2001 gauging event											

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/14/02

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

WELL LOG

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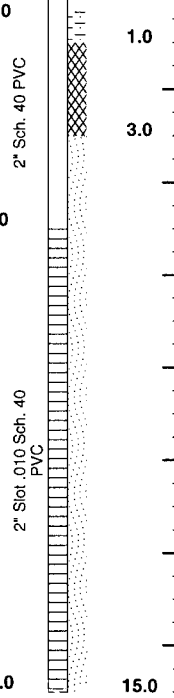
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tom Landis	WELL ID: HPFF-14
NORTHING: 3,839,172.9		EASTING: 286,289.6	SYSTEM: UTM NAD83 (m)
BORING LOCATION: CENTRAL SECTOR - Loading ramp (S1107) @ corner of Gibb Rd. & Ash St.			T.O.C. ELEV.: 27.02
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 06/25/97	FINISH DATE: 06/25/97	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
0.0									0.0	LAND SURFACE	27.0	0.0
	G	R	A	B			GW		1.5	Gravel road base. Strong HCO.	25.5	1.0
2.0							SW		2.0	Gray, loamy SAND. Strong HCO.	25.0	3.0
5.0									5.0		22.0	5.0
7.0	HP	HP	HP	HP	1000+		CL		7.0	Mottled, light-dark gray, v.f. grained SILTY CLAY, soft. Strong HCO.	20.0	
10.0									10.0		17.0	
12.0	HP	HP	HP	HP	80		SM		12.0	Light gray, v.f. grained SILTY SAND, med. density, free product sheen observed. Strong HCO.	15.0	
15.0									15.0		12.0	15.0
17.0	HP	HP	HP	HP	100		SM		17.0	Greenish-gray, v.f. grained SILTY SAND, minor clay, med. density. Strong HCO.	10.0	
										Boring Terminated at Elevation 10.0 ft		



CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/13/02

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tom Landis	WELL ID: HPFF-15
NORTHING: 3,839,109.0		EASTING: 286,354.0	SYSTEM:
BORING LOCATION: SE SECTOR - Middle of former fuel farm along Ash St.			T.O.C. ELEV.: 27.69
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 06/25/97	FINISH DATE: 06/25/97	24 HOUR DTW: 6.05	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in							
0.0									LAND SURFACE	27.7	0.0
2.0	G	R	A	B	2		SM		Dark gray, SILTY, fine SAND. Dry. Strong HCO.	25.7	0.5
5.0										22.7	2.5
7.0	HP	HP	HP	HP	NM		SC		Mottled, light and dark gray, CLAYEY, v.f. SAND. Medium stiff. Dry. Strong HCO.	20.7	5.0
10.0										17.7	
12.0	HP	HP	HP	HP	400		SM		Light gray, SILTY, v.f. SAND. Medium dense. Saturated. Strong HCO.	15.7	
15.0										12.7	15.0
17.0	HP	HP	HP	HP	1000+		SM		Dark gray, SILTY, v.f. SAND. Minor clay pockets and organics throughout. Saturated. Strong HCO.	10.7	15.0
									Boring Terminated at Elevation 10.7 ft 24 hour DTW from August 16, 2001 gauging event		

CATLIN BORING LOG_201-130.GPJ CATLIN.GDT_06/13/02

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tom Landis	WELL ID: HPFF-16
DRILLER: Jeff Stewart			
NORTHING: 3,839,228.8	EASTING: 286,183.6	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Beside Bld. 1108 between bld. and Ash St.			T.O.C. ELEV.: 27.93
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 06/25/97	FINISH DATE: 06/25/97	24 HOUR DTW: 7.05	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.9	0.0
0.0	G	R	A	B	5.0		SM		2.0	Dark gray, SILTY, fine SAND. Loose and loamy. Dry. No HCO.	25.9	1.5
2.0												3.0
5.0	HP	HP	HP	HP	10		CL		5.0	Mottled, light gray to yellowish orange, SILTY CLAY. Soft. Moist. Low HCO.	22.9	5.0
7.0									7.0		20.9	
10.0	HP	HP	HP	HP	4.0		SC		10.0	Yellowish-orange, CLAYEY, fine SAND. Soft. Saturated. No HCO.	17.9	
12.0									12.0		15.9	
15.0	HP	HP	HP	HP	200		SC/SM		15.0	Light gray, SILTY/CLAYEY, fine SAND. Saturated. Strong HCO.	12.9	15.0
17.0									17.0		10.9	15.0
										Boring Terminated at Elevation 10.9 ft 24 hour DTW from August 16, 2001 gauging event		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Tom Landis	WELL ID: HPFF-17
		DRILLER: Jeff Stewart	
NORTHING: 3,839,174.0	EASTING: 286,249.0	SYSTEM:	
BORING LOCATION: CENTRAL SECTOR - Beside Bld. 1101 between bld. and Ash St.			T.O.C. ELEV.: 27.61
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 06/26/97	FINISH DATE: 06/26/97	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK		WELL DETAIL
	6in	6in	6in	6in					DEPTH	DESCRIPTION	ELEVATION
									0.0	LAND SURFACE	27.6
0.0	G	R	A	B	10		SM		2.0	Dark gray, v.f. grained, SILTY SAND, loose and loamy. No HCO.	25.6
2.0											
5.0	HP	HP	HP	HP	0.0		SM		5.0	Dark gray, v.f. grained, SILTY SAND, med. density. No HCO.	22.6
7.0									7.0		20.6
10.0	HP	HP	HP	HP	50		SC		10.0	Mottled, yellowish orange to light gray, v.f. grained CLAYEY SAND. Slight HCO.	17.6
12.0									12.0		15.6
15.0	HP	HP	HP	HP	25		SC		15.0	Olive gray, fine grained, CLAYEY SAND, med. dense. Slight HCO.	12.6
17.0									17.0		10.6
										Boring Terminated at Elevation 10.6 ft	

CATLIN BORING LOG 201-130.GPJ CATLIN.GPJ 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Elizabeth Chandler	WELL ID: HPFF-18
NORTHING: 3,839,154.0		EASTING: 286,141.0	SYSTEM:
BORING LOCATION: CENTRAL SECTOR - Between Blds. 1108 & 1101 WELL DESTROYED			T.O.C. ELEV.: 26.06
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 07/08/97	FINISH DATE: 07/08/97	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	26.1	0.0
0.0									0.3	ASPHALT	25.8	0.0
	G	R	A	B	1.0		GW/GM		2.0	Overburden of pavement and well graded GRAVEL mixed with SILTY SAND.	24.1	1.0
2.0												3.0
5.0									5.0		21.1	5.0
	HP	HP	HP	HP	2.0		SM		7.0	Tan and light gray, v.f. to fine grained, SILTY SAND. No HCO.	19.1	
7.0												
10.0									10.0		16.1	
	HP	HP	HP	HP	3.0		SM		12.0	Yellowish-orange, SILTY SAND. No HCO.	14.1	
12.0												
15.0									15.0		11.1	15.0
	HP	HP	HP	HP	1.0		SM		17.0	Tan, fine grained, SILTY SAND. No HCO.	9.1	
17.0										Boring Terminated at Elevation 9.1 ft		

CATLIN BORING LOG_201-130.GPJ CATLIN GDI_06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

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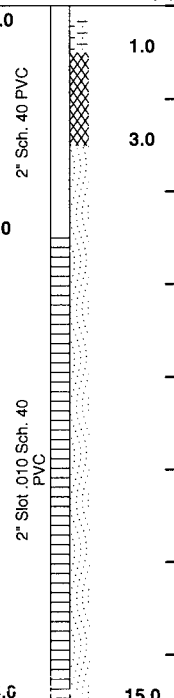
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Elizabeth Chandler	WELL ID:
		DRILLER: Jeff Stewart	HPFF-19
NORTHING: 3,839,096.0	EASTING: 286,283.0	SYSTEM:	
BORING LOCATION: SE SECTOR - In Bld. 1113 parking area @ corner of Ash St. & Gibb Rd.			T.O.C. ELEV.: 26.43
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 15.0
START DATE: 07/08/97	FINISH DATE: 07/08/97	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	26.4	0.0
0.0									0.3	ASPHALT	26.1	0.0
	G	R	A	B			GW/GM		2.0	Dark gray, well graded GRAVEL, and SILTY SAND. Strong HCO.	24.4	1.0
2.0												3.0
									5.0		21.4	5.0
5.0	HP	HP	HP	HP	1000+		SC		7.0	Yellowish-orange with high percent of light gray CLAYEY SAND, free product. Strong HCO.	19.4	
7.0									8.0		18.4	
8.0	HP	HP	HP	HP	1000+		SC		10.0	Light gray, CLAYEY SAND. Strong HCO.	16.4	
10.0												
									13.0		13.4	
13.0	HP	HP	HP	HP	1000+		SC		15.0	S.A.A. Strong HCO.	11.4	15.0
15.0										Boring Terminated at Elevation 11.4 ft		



CATLIN BORING LOG_201-130.GPJ CATLIN.GDT_06/13/02

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Elizabeth Chandler	WELL ID:
		DRILLER: Jeff Stewart	HPFF-20
NORTHING: 3,839,159.0	EASTING: 286,531.0	SYSTEM:	
BORING LOCATION: SE SECTOR - Grass area in temporary fuel farm			T.O.C. ELEV.: 28.74
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 17.0
START DATE: 07/08/97	FINISH DATE: 07/08/97	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	28.7	0.0
0.0	G	R	A	B			GW		1.0	Overburden of poorly sorted GRAVEL and grass.	27.7	0.0
2.0							SC		2.0	Yellowish orange, CLAYEY SAND. No HCO.	26.7	1.0
5.0									5.0		23.7	3.0
7.0	HP	HP	HP	HP	90		SC		7.0	Yellowish orange, CLAYEY SAND. No HCO.	21.7	5.0
10.0									10.0		18.7	
12.0	HP	HP	HP	HP	80		SW		12.0	Light gray, v.f. to fine grained SAND, with trace yellowish orange, loose, silty sand.	16.7	
15.0									15.0		13.7	15.0
17.0	HP	HP	HP	HP	600		SM		17.0	Yellowish orange, SILTY SAND.	11.7	15.0
										Boring Terminated at Elevation 11.7 ft		

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/13/02



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

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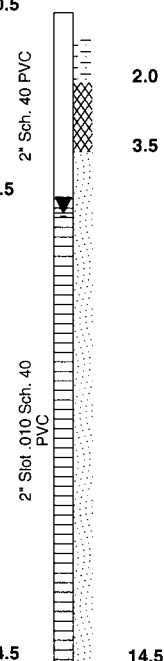
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Steven Hudson	WELL ID: HPFF-21
NORTHING: 3,839,237.0		EASTING: 286,284.0	SYSTEM:
BORING LOCATION: CENTRAL SECTOR - ~200' NW of loading ramp (S1107) between RR tracks			T.O.C. ELEV.: 27.27
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 16.0
START DATE: 01/17/01	FINISH DATE: 01/17/01	24 HOUR DTW: 4.32	WELL DEPTH: 14.5

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	27.8	0.0
1.0									1.0		26.8	- 0.5
3.0	32	15	15	7	0.0		GM		3.0	Gray to tan brown, very poorly sorted SANDY/SILTY GRAVEL. Dry. No HCO.	24.8	2.0
5.0	5	12	8	4	0.0		SC		5.0	Mottled, red tan to brown, fine to cse. SANDY CLAY. Cohesive w/med. plasticity. Moist. No HCO.	22.8	3.5
7.0	HP	HP	HP	HP	12		SC		7.0	Mottled, red tan to brown, fine to cse. SANDY CLAY. Cohesive w/med. plasticity. Trace root frags. Secondary iron staining. Moist. No HCO.	20.8	4.5
9.0	HP	HP	HP	HP	0.0		SC		9.0	Tan brown to red, CLAYEY, v.f. to med. cse. SAND. Cohesive. Wet. Slight HCO.	18.8	
14.0									14.0		13.8	
16.0	HP	HP	HP	HP	0.0		SC		16.0	Dark brown, CLAYEY, fine to med. SAND. Mod. to poorly sorted w/interbedded sand lenses. Saturated. No HCO.	11.8	14.5
										Boring Terminated at Elevation 11.8 ft 24 hour DTW from August 16, 2001 gauging event		



CATLIN BORING LOG 201-130.GPJ CATLIN.GPJ 06/13/02

Portland Cement	Bentonite Pellets	#2 Medium Sand

 Portland Cement
 Bentonite Pellets
 #2 Medium Sand

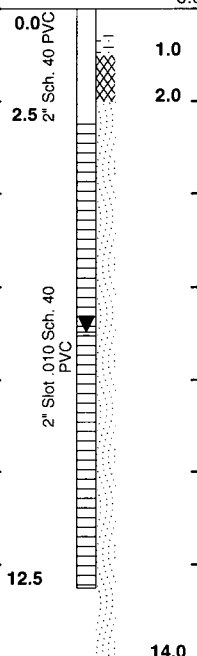
WELL LOG

CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130 STATE: NC COUNTY: Onslow LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm LOGGED BY: Nord Younggren WELL ID: HPFF-23
DRILLER: Bobbie Fowler
NORTHING: 3,839,197.0 EASTING: 286,215.0 SYSTEM:
BORING LOCATION: CENTRAL SECTOR - Between Bld. 1108&1101 @ corner of Gibb Rd. & Ash St. T.O.C. ELEV.: 26.44
DRILL MACHINE: Diedrich D-50 METHOD: HSA 0 HOUR DTW: BORING DEPTH: 14.0
START DATE: 01/19/01 FINISH DATE: 01/19/01 24 HOUR DTW: 6.97 WELL DEPTH: 12.5

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.4	0.0
0.0	G	R	A	B	NM				0.5	ASPHALT	25.9	0.0
1.0							GW		1.0	GRAVEL FILL	25.4	1.0
	6	8	8	6	550		CL			Mottled, gray, brown, and orange, v.f. to med. SANDY CLAY. Mod. sorted. Stiff w/slight plasticity. Moist. Mod. HCO.	23.4	2.0
3.0									3.0			
	8	9	9	8	480		SC			Mottled, gray, brown, and orange, CLAYEY, v.f. to med. SAND. Mod. sorted. Moist. Mod. HCO.	21.4	
5.0									5.0			
	7	8	9	10	450		SC			S.A.A. Moist. Mod. HCO.	19.4	
7.0									7.0			
	5	6	6	6	610		SW			Tan gray, v.f. to fine SAND. Mod. sorting w/mica and phosphatic fines. Wet. Mod. HCO.	17.4	
9.0									9.0			
12.0									12.0		14.4	
	4	5	6	6	1000+		CL			Gray brown, v.f. to fine, SANDY CLAY. Mod. sorted w/mica, phosphatic sand pockets. Stiff and plastic. Moist to wet. Mod. to heavy HCO.	12.4	12.5
14.0									14.0			14.0
										Boring Terminated at Elevation 12.4 ft 24 hour DTW from August 16, 2001 gauging event		



CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID: HPFF-24
DRILLER: Steven Hudson			
NORTHING: 3,839,188.0	EASTING: 286,222.0	SYSTEM:	
BORING LOCATION: CENTRAL SECTOR - In Building 1101			T.O.C. ELEV.: 31.37
DRILL MACHINE: Hand Auger	METHOD: Hand Auger	0 HOUR DTW:	BORING DEPTH: 15.3
START DATE: 01/19/00	FINISH DATE: 01/20/00	24 HOUR DTW:	WELL DEPTH: 15.3

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	31.4	0.0
									0.5	Concrete slab in Building 1101	30.9	0.0
0.0					940		SP			Brown, fine to med. fine grained, well sorted SAND with concrete fragments. Strong HCO.		1.0
0.5												3.3
4.0					1000+		SM		4.0	Brown to orange, mottled, v.f. to cse. grained, moderately sorted, SILTY SAND, slightly cohesive. Moderate HCO.	27.4	5.3
5.3					600		SW		5.3		26.1	
5.8									5.8	Tan/brown, fine grained, moderately sorted SAND, slightly cohesive. Strong HCO.	25.6	
6.9									6.9		24.5	
					1000+		SC/CL			Tan/brown, fine to med. fine grained, moderately sorted, SANDY CLAY, slightly plastic, cohesive. Moderate HCO.		
9.0									9.0		22.4	
					1000+		SC			Gray/brown, fine to med. grained, moderately sorted, CLAYEY SAND, slightly cohesive. Strong HCO.		
12.5					1000+		SC		12.5		18.9	
13.5					1000+		SM		13.5	S.A.A.	17.9	
14.8									14.8	Tan/gray, v.f. to fine grained, moderately sorted, micaceous, phosphatic, SILTY SAND, slightly cohesive. Strong HCO.	16.6	
										Boring Terminated at Elevation 16.1 ft		15.3

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID:
		DRILLER: Keith Yeoman	HPFF-25
NORTHING: 3,839,164.0	EASTING: 286,230.0	SYSTEM:	
BORING LOCATION: CENTRAL SECTOR - In Building 1101			T.O.C. ELEV.: 31.41
DRILL MACHINE: Hand Auger	METHOD: Hand Auger	0 HOUR DTW:	BORING DEPTH: 15.3
START DATE: 01/20/00	FINISH DATE: 01/20/00	24 HOUR DTW:	WELL DEPTH: 15.3

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	31.4	0.0
0.0	G	R	A	B					0.5	Concrete floor slab in Building 1101	30.9	0.0
0.5												1.0
					940		SP			Tan, v.f. to fine grained SAND. Moderate HCO.		3.3
4.0									4.0		27.4	
					400		SC/CL			Dark gray/brown, v.f. grained, CLAYEY SAND grade to SANDY CLAY, cohesive & plastic. Moderate HCO.		5.3
6.5									6.5		24.9	
					580		SC/CL			S.A.A.		
9.0									9.0		22.4	
					1000+		SC			Gray/brown, v.f. to fine grained, moderate sorted, CLAYEY SAND, slightly cohesive & plastic. Strong HCO.		
12.0									12.0		19.4	
					1000+		CL			Tan to brown, mottled, v.f. to fine grained, moderately sorted, SANDY CLAY, cohesive & slightly plastic. Strong HCO.		
15.0									15.0		16.4	15.3
										Boring Terminated at Elevation 16.1 ft		15.3

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID:
		DRILLER: Alan Melton	HPFF-26
NORTHING: 3,839,112.0	EASTING: 286,184.0	SYSTEM:	
BORING LOCATION: CENTRAL SECTOR - In Building 1101			T.O.C. ELEV.: 31.57
DRILL MACHINE: Hand Auger	METHOD: Hand Auger	0 HOUR DTW:	BORING DEPTH: 15.3
START DATE: 01/21/00	FINISH DATE: 01/21/00	24 HOUR DTW:	WELL DEPTH: 15.3

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	31.6	0.0
0.0									0.8	Concrete floor slab Building 1101	30.8	0.0
0.8					0.0		SP		2.0	Tan/brown, v.f. grained SAND, well sorted.	29.6	1.0
2.0					0.0		SP		2.5	Black, v.f. grained, well sorted SAND. No HCO.	29.1	
2.5					0.0		SM		4.5	Tan/brown, v.f. to fine grained, moderate sorted, SILTY SAND w/ mica. No HCO.	27.1	3.3
4.5					0.0		SC		6.5	Gray/tan, v.f. to fine grained, moderate sorted, CLAYEY SAND w/mica & black, phosphate SAND. No HCO.	25.1	5.3
6.5					0.0		SC/CL		10.5	Tan/gray to orange, mottled, v.f. to fine grained, moderate sorted, CLAYEY SAND w/clay pockets. No HCO.	21.1	
10.5					0.0		SC/CL		12.5	S.A.A.	19.1	
12.5					0.0		SM		15.0	Orange, v.f. to med. grained, SILTY SAND w/ mica. No HCO.	16.6	
15.0										Boring Terminated at Elevation 16.3 ft		15.3

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

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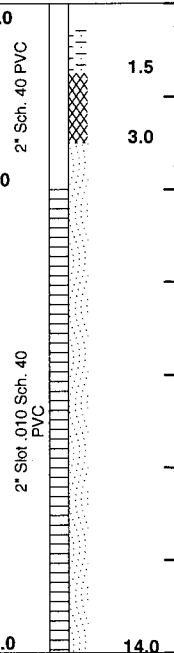
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-27
NORTHING: 3,839,224.0	EASTING: 286,167.0	SYSTEM:	
BORING LOCATION: NW SECTOR - In Building 1108			T.O.C. ELEV.: 30.54
DRILL MACHINE: Hand Auger	METHOD: Hand Auger	0 HOUR DTW:	BORING DEPTH: 14.0
START DATE: 01/28/00	FINISH DATE: 01/28/00	24 HOUR DTW:	WELL DEPTH: 14.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	30.5	0.0
0.0									0.5	Concrete floor slab in Building 1108	30.0	0.0
0.5					0.0		SM			Tan, v.f. to fine grained, moderately sorted, SILTY SAND.		1.5
4.0					0.0		SC		4.0	Tan/brown, v.f. to fine grained, moderately sorted, CLAYEY SAND with mica.	26.5	4.0
8.0					0.0		SC/CL		8.0	Tan/brown, v.f. to fine grained, moderately sorted, CLAYEY SAND which grades to a SANDY CLAY.	22.5	
10.0					0.0		CL		10.0	Tan/brown/orange, mottled, v.f. to fine grained, moderately sorted, SANDY CLAY.	20.5	
14.0					0.0				14.0		16.5	14.0
										Boring Terminated at Elevation 16.5 ft		



CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/13/02

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

WELL LOG

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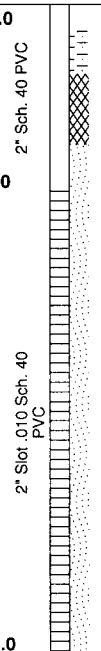
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-28
NORTHING: 3,839,131.0	EASTING: 286,270.0	SYSTEM:	
BORING LOCATION: CENTRAL SECTOR - Corner of Gib Rd. & Ash St.			T.O.C. ELEV.: 27.48
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 14.0
START DATE: 01/19/00	FINISH DATE: 01/19/00	24 HOUR DTW:	WELL DEPTH: 14.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	27.5	0.0
0.0	G	R	A	B					0.4	Asphalt Parking Lot.	27.1	0.0
0.4									1.0		26.5	
1.0	HP	HP	HP	HP			SM			Brown/tan, v.f. to fine grained, moderately sorted, SILTY SAND. Slight HCO.		1.5
3.0	HP	HP	HP	HP			CL		3.0		24.5	3.0
										Gray/tan/orange, mottled, v.f. to fine grained, moderately sorted, SANDY CLAY, stiff and slightly plastic. Slight HCO.		
5.0	HP	HP	HP	HP			CL		5.0		22.5	4.0
										Gray/tan/orange, mottled, v.f. to fine grained, moderately sorted, SANDY CLAY, stiff and slightly plastic with black, very fine, silty sand pockets. Moderate HCO.		
7.0	HP	HP	HP	HP			CL		7.0		20.5	
										Gray/tan, v.f. to fine grained, moderately sorted, SANDY CLAY, slightly plastic. Moderate strong HCO.		
9.0									9.0		18.5	
12.0	HP	HP	HP	HP			SW		12.0		15.5	
										Gray/tan, v.f. to fine grained, moderately sorted, micaceous, phosphatic SAND with quartz and plagioclase gravels to 5 mm. Strong HCO.		
14.0									14.0		13.5	14.0
										Boring Terminated at Elevation 13.5 ft		14.0



WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-29
NORTHING: 3,839,109.0	EASTING: 286,329.0	SYSTEM:	
BORING LOCATION: SE SECTOR - Between former fuel farm & Ash St.			T.O.C. ELEV.: 27.67
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 14.0
START DATE: 01/21/00	FINISH DATE: 01/21/00	24 HOUR DTW:	WELL DEPTH: 14.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	27.7	0.0
0.5	HP	HP	HP	HP	1000+		SP		0.5	Tan/brown, v.f. to fine grained, moderately sorted SAND with 1" gravel and concrete fragments (fill). Slight HCO.	27.2	0.0
2.5	HP	HP	HP	HP	1000+		SP		2.5	S.A.A.	25.2	1.5
4.5	HP	HP	HP	HP	390		SM		4.5	Brown/black, v.f., well sorted, SILTY SAND. Slight HCO.	23.2	3.0
6.5	HP	HP	HP	HP	1000+		SM		6.5	Brown/gray, v.f., well sorted, SILTY SAND, compact with marl fragments. Strong HCO.	21.2	4.0
8.5									8.5		19.2	
12.0	HP	HP	HP	HP	1000+		SC		12.0	Dark gray, v.f. to fine grained, CLAYEY SAND with 5mm to 20mm gravel, compact and slightly plastic. Strong HCO.	15.7	
14.0									14.0		13.7	14.0
										Boring Terminated at Elevation 13.7 ft		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-30
NORTHING: 3,839,078.0	EASTING: 286,326.0	SYSTEM:	
BORING LOCATION: SE SECTOR - Corner of Ash St. & East Rd. @ Bld. 1114			T.O.C. ELEV.: 26.80
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 12.0
START DATE: 01/21/00	FINISH DATE: 01/21/00	24 HOUR DTW: 4.71	WELL DEPTH: 12.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in								
									0.0 LAND SURFACE	26.8	0.0
0.5									0.5	26.3	0.0
	HP	HP	HP	HP	40		SM		Black to orange, SILTY, v.f. to med. SAND. Slight HCO.	24.3	1.0
2.5									2.5		1.5
	HP	HP	HP	HP	10		SC/ SM		Black to gray, SILTY, v.f. SAND. Moderately sorted w/pockets of gray clay. Slightly plastic. Slight HCO.	22.3	
4.5									4.5		
10.0									10.0	16.8	
	HP	HP	HP	HP	1		SC/ SM		Black to tan, SILTY, v.f. to fine SAND w/sandy clay pockets. Root and lumber frags. Slightly plastic. Slight HCO.	14.8	12.0
12.0									12.0		12.0
									Boring Terminated at Elevation 14.8 ft 24 hour DTW from August 16, 2001 gauging event		

CATLIN BORING LOG_201-130.GPJ CATLIN.GDT_06/13/02

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID: HPFF-31
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,001.0	EASTING: 286,227.0	SYSTEM:	
BORING LOCATION: SE SECTOR - Corner of Birch St. & East Rd. @ Bld. 1103			T.O.C. ELEV.: 28.45
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 14.0
START DATE: 01/21/00	FINISH DATE: 01/21/00	24 HOUR DTW:	WELL DEPTH: 14.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	28.5	0.0
0.5									0.5		28.0	0.0
	HP	HP	HP	HP	0.0		SC/CL			Black to tan, v.f. to fine grained, moderately sorted, CLAYEY SAND with clay pockets and 5 - 10 mm gravels and roots - cohesive and slightly plastic. No HCO.	26.0	1.0
2.5									2.5			2.0
	HP	HP	HP	HP	0.0		SC			Tan, v.f. to fine grained, moderately sorted, CLAYEY SAND. No HCO.	24.0	4.0
4.5									4.5			
	HP	HP	HP	HP	0.0		SC			Tan/orange, v.f. to fine grained, moderately sorted, CLAYEY SAND. No HCO.	22.0	
6.5									6.5			
	HP	HP	HP	HP	0.0		SC/CL		8.5	Tan to orange, mottled, v.f. to fine grained, moderately sorted, CLAYEY SAND with clay pockets, slightly plastic. No HCO.	20.0	
8.5												
12.0									12.0		16.5	
	HP	HP	HP	HP	0.0		SC			Tan/gray, v.f. to fine grained, moderately sorted, CLAYEY SAND with mica. No HCO.	14.5	14.0
14.0									14.0			14.0
										Boring Terminated at Elevation 14.5 ft		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID: HPFF-32
DRILLER: Bobbie Fowler			
NORTHING: 3,838,966.0	EASTING: 286,189.0	SYSTEM:	
BORING LOCATION: SE SECTOR - Corner of Birch St. & East Rd. @ Bld. 1202			T.O.C. ELEV.: 29.65
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 14.0
START DATE: 01/26/00	FINISH DATE: 01/26/00	24 HOUR DTW:	WELL DEPTH: 14.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	29.7	0.0
0.0	HP	HP	HP	HP					0.5	Black loam with grass and roots, SILTY SAND. No HCO.	29.2	0.0
0.5	HP	HP	HP	HP	0.0		SW/SM		2.5	Black, v.f., SILTY SAND. Grades to a tan, v.f. to fine grained, moderately sorted SAND, micaceous, phosphatic. No HCO.	27.2	1.0
2.5	HP	HP	HP	HP	0.0		SM		4.5	Brown/tan, v.f. to fine grained, moderately sorted, SILTY SAND. No HCO.	25.2	2.0
4.5	HP	HP	HP	HP	0.0		SW/SM		6.5	S.A.A. w/black phosphatic sand.	23.2	
6.5	HP	HP	HP	HP	0.0		SM		8.5	S.A.A. w/o black phosphatic sand.	21.2	
8.5	HP	HP	HP	HP	0.0		SC/SM		10.5	Tan/gray/orange, mottled, v.f. to med., moderately sorted, SILTY SAND with clay pockets, slightly cohesive with mica. No HCO.	19.2	
10.5									12.0		17.7	
12.0	HP	HP	HP	HP	0.0		SW/SM		14.0	Tan/gray, v.f. grained, well sorted, SILTY SAND with mica and phosphate sand - cohesive. No HCO.	15.7	
14.0										Boring Terminated at Elevation 15.7 ft		14.0

CATLIN BORING LOG_201-130.GPJ CATLIN.GDT_06/13/02

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-33
NORTHING: 3,838,924.0	EASTING: 286,134.0	SYSTEM:	
BORING LOCATION: SE SECTOR - SE corner of Building 1202 along East Rd.			T.O.C. ELEV.: 29.74
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 14.5
START DATE: 01/26/00	FINISH DATE: 01/26/00	24 HOUR DTW:	WELL DEPTH: 14.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	29.7	0.0
0.0	HP	HP	HP	HP			SM		0.5	Black, v.f., SILTY SAND with roots and grass. No HCO.	29.2	0.0
0.5	HP	HP	HP	HP	0.0		SM		2.5	Gray/brown, v.f. to fine grained, SILTY SAND with 3-10 mm gravels and organics. No HCO.	27.2	1.0
2.5	HP	HP	HP	HP	0.0		SM		4.5	Tan/brown, v.f. to fine grained, moderately sorted, SILTY SAND. No HCO.	25.2	2.0
4.5	HP	HP	HP	HP	0.0		SM		6.5	S.A.A.	23.2	4.0
6.5	HP	HP	HP	HP	0.0		SC		8.5	Tan/brown/orange, mottled, v.f., well sorted, CLAYEY SAND with mica, compact. No HCO.	21.2	
8.5	HP	HP	HP	HP	0.0		SC		10.5	S.A.A.	19.2	
10.5	HP	HP	HP	HP	0.0		SC		12.5	S.A.A.	17.2	
12.5	HP	HP	HP	HP	0.0		SC		14.5	Tan, v.f. to fine grained, moderately sorted, micaceous, CLAYEY SAND, compact and slightly plastic. No HCO.	15.2	14.0
14.5										Boring Terminated at Elevation 15.2 ft		14.0

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement	 Bentonite Pellets	 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-34
NORTHING: 3,838,986.0	EASTING: 286,082.0	SYSTEM:	
BORING LOCATION: CENTRAL SECTOR - Between Buildings 1201 & 1202 on Gibb Rd.			T.O.C. ELEV.: 26.58
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 14.0
START DATE: 01/26/00	FINISH DATE: 01/26/00	24 HOUR DTW:	WELL DEPTH: 14.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in								
									0.0 LAND SURFACE	26.6	0.0
0.0									0.3 Asphalt	26.3	0.0
0.3	HP	HP	HP	HP					Brown/tan, v.f. to fine grained, moderately sorted, CLAYEY SAND, slightly compact. No HCO.	24.6	1.0
2.0									2.0	24.6	2.0
	HP	HP	HP	HP			SW/SC		Tan/orange, v.f. to fine grained, moderately sorted, CLAYEY SAND with gravels to 10 mm, slightly compact. No HCO.	22.6	4.0
4.0							SW/SC		S.A.A. No HCO.	20.6	
	HP	HP	HP	HP			SW/SC		S.A.A. No HCO.	18.6	
6.0							SW/SC		S.A.A. No HCO.	16.6	
	HP	HP	HP	HP			SW/SM		Tan/brown, v.f. to fine grained, moderately sorted, SILTY SAND with mica and v.f., black, phosphatic SAND, compact. No HCO.	14.6	
8.0							SW/SM		S.A.A. No HCO.	12.6	
	HP	HP	HP	HP			SW/SM		S.A.A. No HCO.	12.6	14.0
10.0											
12.0											
14.0											
									Boring Terminated at Elevation 12.6 ft		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

Portland Cement	Bentonite Pellets	#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Nord Younggren	WELL ID: HPFF-35	
	DRILLER: Bobbie Fowler		
NORTHING: 3,839,034.0	EASTING: 286,141.0	SYSTEM:	
BORING LOCATION: CENTRAL SECTOR - Between Buildings 1201 & 1202 on Gibb Rd.			T.O.C. ELEV.: 26.72
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 16.0
START DATE: 01/31/00	FINISH DATE: 01/31/00	24 HOUR DTW:	WELL DEPTH: 14.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.7	0.0
									0.3	Asphalt	26.4	0.0
0.0	HP	HP	HP	HP			SC		0.3	Brown/orange, v.f. to fine grained, moderately sorted, CLAYEY SAND. No HCO.	24.7	1.0
2.0	HP	HP	HP	HP			SW/SC		2.0	Orange, v.f. to fine grained, moderately sorted, CLAYEY SAND with mica and v.f., black, phosphatic SAND. No HCO.	22.7	2.0
4.0	HP	HP	HP	HP			SW/SC		4.0	S.A.A.	20.7	4.0
6.0	HP	HP	HP	HP			SW/SC		6.0	Orange, v.f. to fine grained, moderately sorted, CLAYEY SAND with mica and v.f., black, phosphatic SAND. Grades to SAND. No HCO.	18.7	
8.0	HP	HP	HP	HP			SW/SC		8.0	Tan/orange, v.f. to fine grained, moderately sorted, CLAYEY SAND with mica and v.f., black, phosphatic SAND. No HCO.	16.7	
10.0	HP	HP	HP	HP			SW/SC		10.0	S.A.A.	14.7	
12.0	HP	HP	HP	HP			SW/SC		12.0	S.A.A.	12.7	
14.0	HP	HP	HP	HP			SW/SM		14.0	Tan, v.f. to med. grained, moderately sorted, SILTY SAND with mica and v.f., black, phosphatic SAND. No HCO.	10.7	14.0
16.0									16.0	Boring Terminated at Elevation 10.7 ft		

2" Sch. 40 PVC
2" Slot .010 Sch. 40 PVC

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-36
NORTHING: 3,839,099.0	EASTING: 286,101.0	SYSTEM:	
BORING LOCATION: CENTRAL SECTOR - Between Buildings 1200 & 1201 on Center Rd.			T.O.C. ELEV.: 26.63
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 14.0
START DATE: 02/02/00	FINISH DATE: 02/02/00	24 HOUR DTW:	WELL DEPTH: 13.9

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.6	0.0
0.0	HP	HP	HP	HP	0.0		CL		0.3	ASPHALT	26.3	0.0
2.0	HP	HP	HP	HP	0.4		CL		2.0	Gray/brown/orange, mottled, v.f. to med. grained, moderately sorted, SANDY CLAY. No HCO.	24.6	1.0
4.0	HP	HP	HP	HP	0.4		CL		4.0	Gray brown, S.A.A.	22.6	2.0
6.0	HP	HP	HP	HP	0.4		CL		6.0	S.A.A.	20.6	
8.0	HP	HP	HP	HP	0.0		SW		8.0	Tan/gray, v.f. to fine grained, moderately sorted, micaceous, phosphatic SAND. Slight HCO.	18.6	
10.0	HP	HP	HP	HP	0.0		CL		10.0	Gray/brown, v.f. to fine grained, moderately sorted, SANDY CLAY - stiff. Slight HCO.	16.6	
12.0	HP	HP	HP	HP	0.0		CL		12.0	S.A.A.	14.6	
14.0	HP	HP	HP	HP	0.0		CL		14.0	S.A.A.	12.6	
Boring Terminated at Elevation 12.6 ft												

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

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ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-37
NORTHING: 3,839,039.0	EASTING: 286,023.0	SYSTEM:	
BORING LOCATION: CENTRAL SECTOR - Between Buildings 1200 & 1201 on Center Rd.			T.O.C. ELEV.: 26.00
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 14.0
START DATE: 02/02/00	FINISH DATE: 02/02/00	24 HOUR DTW:	WELL DEPTH: 13.8

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	26.0	0.0
0.0	HP	HP	HP	HP	0.0		SC		0.3	ASPHALT	25.7	0.0
2.0	HP	HP	HP	HP	0.0		SC		2.0	Gray/brown, v.f. to med. grained, moderately sorted, CLAYEY SAND. No HCO.	24.0	1.5
4.0	HP	HP	HP	HP	0.0		SW		4.0	Brown/tan, S.A.A.. No HCO.	22.0	2.0
6.0	HP	HP	HP	HP	0.0		SW		6.0	Brown/tan, fine to med. grained, moderately sorted, phosphatic SAND. No HCO.	20.0	
8.0	HP	HP	HP	HP	0.0		CL		8.0	S.A.A.	18.0	
10.0	HP	HP	HP	HP	0.0		CL		10.0	Brown/tan/gray, v.f. to fine grained, moderately sorted, SANDY CLAY, compact. Slight HCO.	16.0	
12.0	HP	HP	HP	HP	0.0		CL		12.0	S.A.A.	14.0	
14.0	HP	HP	HP	HP	0.0		CL		14.0	S.A.A.	12.0	
										Boring Terminated at Elevation 12.0 ft		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID: HPFF-38
DRILLER: Bobbie Fowler			
NORTHING: 3,839,098.0	EASTING: 286,483.0	SYSTEM:	
BORING LOCATION: SE SECTOR - North end of parking lot by Bld. 1005			T.O.C. ELEV.: 30.31
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 14.0
START DATE: 01/31/00	FINISH DATE: 01/31/00	24 HOUR DTW:	WELL DEPTH: 14.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	30.3	0.0
0.0	HP	HP	HP	HP	0.0		CL		0.3	ASPHALT	30.0	0.0
2.0	HP	HP	HP	HP	0.0		SC		2.0	Tan/orange, v.f. to fine grained, moderately sorted, SANDY CLAY with mica, compact and plastic. No HCO.	28.3	1.5
4.0	HP	HP	HP	HP	0.0		SC		4.0	Tan/brown, v.f. to fine grained, moderately sorted, CLAYEY SAND, with mica. No HCO.	26.3	2.0
6.0	HP	HP	HP	HP	0.0		SC		6.0	S.A.A.	24.3	
8.0	HP	HP	HP	HP	0.0		SM		8.0	Tan/orange/gray, mottled, v.f. to fine grained, moderately sorted, micaceous, phosphatic, SILTY SAND. No HCO.	22.3	
10.0	HP	HP	HP	HP	0.0		SM		10.0	S.A.A.	20.3	
12.0	HP	HP	HP	HP	0.0		CL		12.0	Orange/tan, v.f. to fine grained, moderately sorted, SANDY CLAY, compact and slightly plastic. No HCO.	18.3	
14.0	HP	HP	HP	HP	0.0		CL		14.0	S.A.A.	16.3	
										Boring Terminated at Elevation 16.3 ft		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-39
NORTHING: 3,839,276.0	EASTING: 285,905.0	SYSTEM:	
BORING LOCATION: NW SECTOR - Corner of Birch St. & Holcomb Blvd. on N side of Holcomb			T.O.C. ELEV.: 24.85
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 15.0
START DATE: 02/29/00	FINISH DATE: 02/29/00	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	24.9	0.0
0.0	HP	HP	HP	HP	0.0		SM		2.0	Black, v.f. to fine grained, moderately sorted, SILTY SAND with organics. No HCO.	22.9	1.5
2.0	HP	HP	HP	HP	0.0		SC/CL		4.0	Tan/gray/orange, mottled, v.f. to fine grained, moderately sorted, CLAYEY SAND with clay pockets, mica and black, phosphatic sand, compact and plastic. Grades to brown/orange, SANDY CLAY. No HCO. S.A.A.	20.9	2.5
4.0	HP	HP	HP	HP	0.0		SC/CL		6.0	S.A.A.	18.9	5.0
6.0	HP	HP	HP	HP	0.0		SC/CL		8.0	S.A.A.	16.9	
8.0	HP	HP	HP	HP	0.0		CH		10.0	Dark gray CLAY with mica, soft, very plastic. No HCO.	14.9	
10.0	HP	HP	HP	HP	0.0		CH		12.0	S.A.A.	12.9	
12.0	HP	HP	HP	HP	0.0		CH		14.0	S.A.A.	10.9	
14.0												15.0
										Boring Terminated at Elevation 9.9 ft		15.0

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID: HPFF-41
NORTHING: 3,839,001.0		EASTING: 286,316.0	DRILLER: Bobbie Fowler
BORING LOCATION: SE SECTOR - South of Bld. 1114 between East & Hammond Rd. @ Ash St.			T.O.C. ELEV.: 29.59
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 15.0
START DATE: 03/02/00	FINISH DATE: 03/02/00	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	29.6	0.0
0.0	HP	HP	HP	HP	0.0				0.5	ASPHALT	29.1	0.0
2.0	HP	HP	HP	HP	0.0		SW		3.5	Tan/brown, v.f. to cse., poorly sorted SAND with gravel (fill). No HCO.	26.1	1.5
4.0	HP	HP	HP	HP	0.0		SC		8.0	Tan/orange, v.f. to med., moderately sorted, CLAYEY SAND, slightly compact. No HCO.	21.6	2.5
6.0	HP	HP	HP	HP	0.0							5.0
8.0	HP	HP	HP	HP	0.0							
10.0	HP	HP	HP	HP	0.0		SW		13.5	Orange/tan, v.f. to med. grained, moderately sorted, phosphatic SAND with mica. No HCO.	16.1	
12.0	HP	HP	HP	HP	0.0				15.0	Dark brown, v.f. to fine grained, moderately sorted, phosphatic, SILTY SAND. No HCO.	14.6	
14.0							SM					15.0
										Boring Terminated at Elevation 14.6 ft approx		15.0

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Nord Younggren	WELL ID: HPFF-42
NORTHING: 3,839,022.0		EASTING: 286,275.0	SYSTEM:
BORING LOCATION: SE SECTOR - On East Rd. ~300' from corner of East Rd. & Ash St.			T.O.C. ELEV.: 27.71
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 15.0
START DATE: 03/03/00	FINISH DATE: 03/03/00	24 HOUR DTW:	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH	DESCRIPTION		
									0.0	LAND SURFACE	27.7	0.0
0.0	HP	HP	HP	HP	0.0		SM		2.0	Black/brown, v.f. to med. grained, moderately sorted, SILTY SAND with organics. No HCO.	25.7	1.5
2.0	HP	HP	HP	HP	0.0		CL		4.0	Brown/tan/gray, mottled, v.f. to fine grained, micaceous, SANDY CLAY, compact and plastic. No HCO.	23.7	2.5
4.0	HP	HP	HP	HP	0.0							
6.0	HP	HP	HP	HP	0.0		SM			Tan, v.f. to fine grained, moderately sorted, micaceous, phosphatic, SILTY SAND. No HCO.		
8.0	HP	HP	HP	HP	0.0				9.0		18.7	
10.0	HP	HP	HP	HP	0.0							
12.0	HP	HP	HP	HP	0.0		SM			Black/brown, v.f. to fine grained, moderately sorted, SILTY SAND with strong organic odor. No HCO.		
14.0									15.0		12.7	15.0
										Boring Terminated at Elevation 12.7 ft approx		

CATLIN BORING LOG 201-130.GPJ CATLIN.GPJ 06/13/02

 Portland Cement	 Bentonite Pellets	 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	Charles Ray	WELL ID:
					DRILLER:	Bobbie Fowler	HPFF-43
NORTHING:	3,839,134.1	EASTING:	285,708.4	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION: NW SECTOR - Corner of Dogwood & Holcomb on N side of Holcomb							T.O.C. ELEV.: 23.01
DRILL MACHINE:	Diedrich D-50	METHOD:	HSA/MR	0 HOUR DTW:		BORING DEPTH:	80.0
START DATE:	12/22/01	FINISH DATE:	03/07/02	24 HOUR DTW:		WELL DEPTH:	80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	23.5	0.0
0.0	10	11	34	11	0.1		SM		2.0	Brown, tan, and gray, SILTY, v.f. to f. SAND. Moist. No HCO.	21.5	-0.5
2.0									4.0		19.5	
4.0	2	5	6	6	0.1		CL		6.0	Tan/orange to gray, SILTY, v.f. to f. SANDY CLAY with med. plasticity. Moist. No HCO.	17.5	
6.0									9.0		14.5	
9.0	2	3	5	6	1.5		CL		11.0	Gray, tan, SILTY CLAY with med. to high plasticity. Sat. No HCO.	12.5	
11.0									14.0		9.5	
14.0	10	16	17	20	0.1		SM		16.0	Gray/light gray, SILTY, v.f. to f. SAND wit trace med. size grains. Sat. No HCO.	7.5	
16.0									19.0		4.5	
19.0	8	10	12	12	0		SM		21.0	S.A.A.	2.5	
21.0									24.0		-0.5	
24.0	8	10	14	12	0		SP		26.0	Gray, olive gray, well sorted, v.f. to f. SAND with trace med. grains.	-2.5	
26.0									29.0		-5.5	
29.0							SM			Olive green, SILTY, v.f. to f. SAND with shell frags.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

6" Sch. 40 PVC



WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

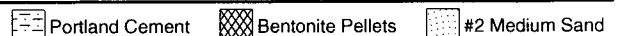
Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	Charles Ray	WELL ID:
					DRILLER:	Bobbie Fowler	HPFF-43
NORTHING:	3,839,134.1	EASTING:	285,708.4	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION: NW SECTOR - Corner of Dogwood & Holcomb on N side of Holcomb							T.O.C. ELEV.: 23.01
DRILL MACHINE:	Diedrich D-50	METHOD:	HSA/MR	0 HOUR DTW:			BORING DEPTH: 80.0
START DATE:	12/22/01	FINISH DATE:	03/07/02	24 HOUR DTW:			WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
31.0	12	15	20	25	0		SM		31.0	Weathered LS. Sat.	-7.5	2" Sch. 40 PVC
34.0									34.0		-10.5	
36.0	10	32	33	35	0		SM		36.0	V.f. to med., S.A.A.	-12.5	
39.0									39.0		-15.5	2" Sch. 40 PVC
41.0	25	26	49	45	0		SM		41.0	S.A.A.	-17.5	
43.0									43.0		-19.5	
45.0	8	14	17	20	5.3		SM		45.0	S.A.A. Sat. Slight HCO	-21.5	4" Sch. 40 PVC
48.0									48.0		-24.5	
50.0	9	14	15	20	3.4		SC		50.0	Green, SILTY/CLAYEY, v.f. to f. SAND with shell frags. Wet to sat. Slight HCO.	-26.5	
53.0									53.0		-29.5	4" Sch. 40 PVC
55.0	12	20	20	30	1.8		SM		55.0	Green, SILTY, v.f. to f. SAND with shell frags. Wet. Slight HCO.	-31.5	
58.0									58.0		-34.5	
60.0	18	28	42	50/4.5	3.7		SM		60.0	S.A.A.	-36.5	

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 05/13/02


 Portland Cement Bentonite Pellets #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-43
NORTHING: 3,839,134.1	EASTING: 285,708.4	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Corner of Dogwood & Holcomb on N side of Holcomb			T.O.C. ELEV.: 23.01
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/22/01	FINISH DATE: 03/07/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL	
	6in	6in	6in	6in					DEPTH				
63.0									63.0		-39.5		
	18	22	28	32	1.3		SP		Green, well sorted, v.f. to f. SAND. Wet. Slight HCO.				
65.0									65.0		-41.5		
68.0									68.0		-44.5		
	20	32	50/6		0.2		SP		S.A.A. Wet. No HCO.				
70.0									70.0		-46.5		
78.0									78.0		-54.5		
	20	25	30	45	0		SP		S.A.A. Wet. No HCO.				
80.0									80.0		-56.5		
									Boring Terminated at Elevation -56.5 ft				

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: William Miller	HPFF-44
NORTHING: 3,839,136.1	EASTING: 285,705.7	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Corner of Dogwood & Holcomb on N side of Holcomb			T.O.C. ELEV.: 23.00
DRILL MACHINE: CME 45B ATV	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 09/27/01	FINISH DATE: 10/08/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	23.5	0.0
0.0	10	10	22	11	0		SM			Brown, tan, and gray, SILTY, v.f. to fine SAND. Moist. No HCO.		- 0.5
2.0									2.0		21.5	
4.0									4.0		19.5	
6.0	2	6	5	6	0		CL		6.0	Tan, orange, and gray, SILTY, v.f. to fine SANDY CLAY w/med. plasticity. Moist. No HCO.	17.5	
9.0									9.0		14.5	
11.0	2	2	5	5	0		CH		11.0	Gray, tan, SILTY CLAY w/med. to high plasticity. Sat. No HCO.	12.5	
14.0									14.0		9.5	
16.0	10	16	17	20	0		SM		16.0	Gray to light gray, SILTY, v.f. to fine SAND w/ trace med. sands. Sat. No HCO.	7.5	
19.0									19.0		4.5	
21.0	8	10	12	12	0		SM		21.0	S.A.A.	2.5	
24.0									24.0		-0.5	
26.0	7	10	13	13	1.2		SW		26.0	Gray to olive green, v.f. to med. SAND. Sat.	-2.5	
									27.0		-3.5	
									27.5	Driller's Note - Hard layer encountered.	-4.0	
29.0							GW		29.0	Olive gray, SILTY, v.f. to fine SAND w/weathered	-5.5	

CATLIN BORING LOG 201-130.GPL CATLIN.GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-44
NORTHING: 3,839,136.1		EASTING: 285,705.7	SYSTEM: UTM NAD83 (m)
BORING LOCATION: NW SECTOR - Corner of Dogwood & Holcomb on N side of Holcomb			T.O.C. ELEV.: 23.00
DRILL MACHINE: CME 45B ATV	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 09/27/01	FINISH DATE: 10/08/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in							
31.0	11	16	20	25	1.8		GW		LIMESTONE and shell fragments.	-7.5	
										-8.5	
									32.5 Driller's Note - Hard layer encountered.	-9.0	
34.0										-10.5	
	10	32	33	28	0				Olive green, SILTY, v.f. to med. SAND w/shell fragments and limestone fragments. Sat.	-12.5	
36.0											
39.0										-15.5	
	23	42	50	45	0				S.A.A. Sat.	-17.5	
41.0											
										-19.5	
									43.5 Drillers Note - LIMESTONE encountered.	-20.0	
44.0										-20.5	
45.0	12	16			10				Olive green, silty, weathered, v.f. to med. SANDY LIMESTONE. Sat.	-22.5	
46.0			15	20	0						
48.0										-24.5	
	12	17	52	50/5	1.8		SC		48.5 S.A.A. Sat.	-25.0	
50.0									Olive green, CLAYEY, v.f. to med. SAND w/silt.	-26.5	
									Boring Terminated at Elevation -26.5 ft		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement  Bentonite Pellets  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune
PROJECT NAME:	Hadnot Point Fuel Farm				LOGGED BY:	Charles Ray	WELL ID:
					DRILLER:	Bobbie Fowler	HPFF-45
NORTHING:	3,839,274.5	EASTING:	285,903.5	SYSTEM:	UTM NAD83 (m)		
BORING LOCATION:	NW SECTOR - Corner of Birch St. & Holcomb Blvd. on N side of Holcomb						T.O.C. ELEV.: 24.80
DRILL MACHINE:	Diedrich D-50	METHOD:	HSA/MR	0 HOUR DTW:			BORING DEPTH: 80.0
START DATE:	12/20/01	FINISH DATE:	03/07/02	24 HOUR DTW:			WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	25.3	0.0
0.0	5	6	4	3	86		SM		2.0	Brown, SILTY, v.f. to f. SAND. Moist. No HCO.	23.3	-0.5
2.0									4.0		21.3	
4.0	1	2	1	2	5.2		CL		6.0	Tan, gray, SILTY, v.f. to f. SANDY CLAY. Moist.	19.3	
6.0									9.0		16.3	
9.0	1	1	1	1	0		CL		11.0	Gray, S.A.A.	14.3	
11.0									14.0		11.3	
14.0	WHWHWHWH				2.2		CL		16.0	S.A.A.	9.3	
16.0									19.0		6.3	
19.0	15	22	23	24	3.2		SM		21.0	Gray, SILTY, v.f. to med. SAND with wood frags.	4.3	
21.0									24.0		1.3	
24.0	1	1	2	2	4.2		SM		26.0	Light gray, SILTY, v.f. to med. SAND. Sat. No HCO.	-0.7	
26.0									29.0		-3.7	
29.0							SP			Tan, gray, well sorted, v.f. to f. SAND. Sat.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

6" Sch. 40 PVC

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-45
NORTHING: 3,839,274.5	EASTING: 285,903.5	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Corner of Birch St. & Holcomb Blvd. on N side of Holcomb			T.O.C. ELEV.: 24.80
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/20/01	FINISH DATE: 03/07/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
31.0	10	11	14	13	6.8		SP		31.0	Tan, gray, well sorted, v.f. to f. SAND. Sat. (continued)	-5.7	2" Sch. 40 PVC
34.0									34.0		-8.7	
36.0	WHWH	1	1		4.2		SM		36.0	Brown, SILTY, v.f. to f. SAND. Sat. No HCO.	-10.7	
39.0									39.0		-13.7	
41.0	1	1	0	1			SM		41.0	S.A.A with v.f. to med. Sands with trace gravels.	-15.7	
43.0									43.0		-17.7	
45.0	8	14	18	18			SM		45.0	Gray, SILTY, v.f. to med. SAND. Sat. No HCO.	-19.7	
48.0									48.0		-22.7	
50.0	7	12	16	37			CL		50.0	Gray, SANDY CLAY with little shell frags and low plasticity.	-24.7	
53.0									53.0		-27.7	
55.0	20	30	50/4				SC		55.0	Gray, v.f. to med. CLAYEY SAND with little gravel and trace shell frags.	-29.7	4" Sch. 40 PVC
58.0									58.0		-32.7	
60.0	18	50	55	50/2			SP		60.0	Gray, v.f. to med. SAND with weathered LS and shells in last 4"	-34.7	

CATLIN BORING LOG 201-130.GPJ CATLIN GDT 06/13/02


 Portland Cement Bentonite Pellets #2 Medium Sand

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray/ Chris Jolly	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-46
NORTHING: 3,839,277.0	EASTING: 285,903.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Corner of Birch St. & Holcomb Blvd. on N side of Holcomb			T.O.C. ELEV.: 24.53
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 12/21/01	FINISH DATE: 03/07/02	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	25.2	0.0
0.0	6	5	4	2	4.8		SM		2.0	Brown, SILTY, v.f. to f. SAND. Moist. No HCO	23.2	-0.7
2.0									4.0		21.2	
4.0	1	1	2	2	0.4		CL		6.0	Tan, gray, SILTY, v.f. to f. SANDY CLAY. Moist.	19.2	
6.0									9.0		16.2	
9.0	1	1	0	1	0		CL		11.0	Gray, S.A.A. w/ med. plasticity.	14.2	
11.0									14.0		11.2	
14.0	WHWHWHWH				5		CL		16.0	S.A.A.	9.2	
16.0									19.0		6.2	
19.0	14	23	24	26	100		SM		21.0	Gray, SILTY, v.f. to med. SAND with wood frags.	4.2	
21.0									24.0		1.2	
24.0	1	2	1	2	18		SM		26.0	Light gray, SILTY, v.f. to med. SAND. Sat. No HCO.	-0.8	
26.0									29.0		-3.8	
29.0							SP			Tan, gray, well sorted, v.f. to f. SAND. Sat.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GPJ 06/13/02

6" Sch. 40 PVC

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray/ Chris Jolly	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-46
NORTHING: 3,839,277.0	EASTING: 285,903.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Corner of Birch St. & Holcomb Blvd. on N side of Holcomb			T.O.C. ELEV.: 24.53
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 12/21/01	FINISH DATE: 03/07/02	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
31.0	11	14	14	10	33		SP		31.0	Tan, gray, well sorted, v.f. to f. SAND. Sat. (continued)	-5.8	
34.0									34.0		-8.8	
36.0	1	1	1	1	58		SM		36.0	Brown, SILTY, v.f. to f. SAND. Sat. No HCO.	-10.8	
39.0									39.0		-13.8	
41.0	WHWH	1	1		45		SM		41.0	S.A.A with v.f. to med. Sands with trace gravels.	-15.8	
43.0									43.0		-17.8	
45.0	8	14	18	18			SM		45.0	Gray, SILTY, v.f. to med. SAND. No HCO.	-19.8	
48.0									48.0		-22.8	
50.0	7	12	16	37			CL		50.0	Gray, SANDY CLAY with little shell frags and low plasticity.	-24.8	
53.0									53.0		-27.8	
55.0	20	30	50/4				SC		55.0	Gray, v.f. to med. CLAYEY SAND with little gravel and trace shell frags.	-29.8	
58.0									58.0		-32.8	
60.0	18	50	55	50/2			SP		60.0	Gray, v.f. to med. SAND with weathered LS and shells in last 4".	-34.8	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray/ Chris Jolly	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-46
NORTHING: 3,839,277.0	EASTING: 285,903.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Corner of Birch St. & Holcomb Blvd. on N side of Holcomb			T.O.C. ELEV.: 24.53
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 12/21/01	FINISH DATE: 03/07/02	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH			
63.0									63.0		-37.8	2" Sch. 40 PVC
19	33	39	51			SC			Gray, v.f. to med., CLAYEY SAND.		-39.8	
65.0									65.0		-39.8	
68.0									68.0		-42.8	
25	36	43	45			SC			S.A.A.		-44.8	
70.0									70.0		-44.8	
78.0									78.0		-52.8	
10	21	23	40	110		SC			Green, SILTY, v.f. to f. CLAYEY SAND with shell frags. Sat. Moderate HCO.		-54.8	
80.0									80.0		-54.8	
88.0									88.0		-62.8	
13	50/ 4.5			30		SM			Green, SILTY, v.f. to f. SAND with cemented sands throughout. Wet. Moderate HCO.		-64.8	4" Sch. 40 PVC
90.0									90.0		-64.8	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 4 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray/ Chris Jolly	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-46
NORTHING: 3,839,277.0	EASTING: 285,903.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Corner of Birch St. & Holcomb Blvd. on N side of Holcomb			T.O.C. ELEV.: 24.53
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 12/21/01	FINISH DATE: 03/07/02	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH			
98.0									98.0		-72.8	
100.0	40	50/3			6.0		SM		100.0	Light green, SILTY, v.f. to f. SAND. Wet to sat. Slight HCO.	-74.8	
108.0									108.0		-82.8	
110.0	50/6				1.5		SM		110.0	Light green, tan, S.A.A.	-84.8	
118.0									118.0		-92.8	
120.0	35	50/3			1.4		SP		120.0	Green, tan, gray, well sorted, fine SAND with trace silt and shell frags. Sat., No HCO	-94.8	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement  Bentonite Pellets  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Charles Ray	WELL ID: HPFF-47	
	DRILLER: William Miller		
NORTHING: 3,839,275.0	EASTING: 285,902.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Corner of Birch St. & Holcomb Blvd. on N side of Holcomb			T.O.C. ELEV.: 24.99
DRILL MACHINE: CME 45B ATV	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 09/26/01	FINISH DATE: 10/09/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in							
									0.0 LAND SURFACE	25.3	0.0
0.0	6	6	3	2	10		SM		Brown, SILTY, v.f. to fine SAND. Moist. No HCO.		-0.4
2.0									2.0	23.3	
									4.0	21.3	
4.5							CL		Tan gray, SILTY, v.f. to fine SANDY CLAY. Moist.		
	1	1	2	2	15				6.0	19.3	
6.5											
									9.5	15.8	
9.5	WHWHWHWH				15		CL		Gray, SILTY, v.f. to fine SANDY CLAY. Med. plasticity. Wet.		
									11.5	13.8	
14.5	WHWHWHWH				5		CL		S.A.A.		
									14.5	10.8	
16.5									16.5	8.8	
									19.5	5.8	
19.5	14	22	35	24	5		PT		WOOD FRAGMENTS		
									20.5	4.8	
21.5							SM		Gray, SILTY, v.f. to med. SAND.		
									21.5	3.8	
									24.5	0.8	
24.5	1	2	2	1	0		SM		Light gray, SILTY, v.f. to med. SAND. Sat. No HCO.		
									26.5	-1.2	
26.5											
									29.5	-4.2	
29.5									WOOD FRAGMENTS w/clayey silt to silty clay.		

CATLIN BORING LOG 201-130.GEL CATLIN.GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC



Portland Cement



Bentonite Pellets



#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: William Miller	HPFF-47
NORTHING: 3,839,275.0	EASTING: 285,902.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - Corner of Birch St. & Holcomb Blvd. on N side of Holcomb			T.O.C. ELEV.: 24.99
DRILL MACHINE: CME 45B ATV	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 09/26/01	FINISH DATE: 10/09/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
31.5	11	13	11	14	0		PT	SW	30.1	Tan gray, v.f. to fine SAND. Sat.	-4.8	
									31.5		-6.2	
34.5									34.5		-9.2	
36.5	1	1	1	1	0		SM		36.5	Brown, SILTY, v.f. to fine SAND. Sat. No HCO.	-11.2	
39.5									39.5		-14.2	
41.5	WH	1	1	1			SM		41.5	S.A.A, v.f. to med., w/trace gravel. Sat.	-16.2	
44.0									44.0		-18.7	
46.0	12	14	14	19	300		SM		46.0	Olive green, SILTY, v.f. to med. SAND w/shell fragments. Sat. HCO.	-20.7	
48.0									48.0		-22.7	
							SC		49.0	Olive green, CLAYEY, v.f. to med. SAND w/shell fragments. Sat. HCO.	-23.7	
50.0	7	10	12	24	35		MH		50.0	Olive green, v.f. to fine SANDY SILT w/shell fragments. Sat. HCO.	-24.7	
										Boring Terminated at Elevation -24.7 ft		

2" Slot .010 Sch. 40 PVC

38.5
40.0
43.0

45.0
50.0

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-48
NORTHING: 3,839,425.2	EASTING: 286,052.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - North of corner of Holcomb Blvd & Ash St. on N side of Holcomb			T.O.C. ELEV.: 23.82
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 16.0
START DATE: 09/21/01	FINISH DATE: 10/10/01	24 HOUR DTW: 7.08	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	24.3	0.0
0.0	2	4	6	6	70		SC/CL		2.0	Brown, CLAYEY, v.f. to fine SAND w/trace silt. CLAY lenses throughout. Moist. No HCO.	22.3	-0.5
2.0									4.0		20.3	1.0
4.0	2	4	4	3	1000+		CL		6.0	Gray tan, SILTY, v.f. to fine SANDY CLAY. Mod. plasticity. Moist. No HCO.	18.3	3.0
6.0									9.0		15.3	5.0
9.0	2	5	4	4	28		SP		11.0	Tan, well sorted, v.f. to fine SAND. Sat. No HCO.	13.3	
11.0									14.0		10.3	
14.0	4	5	6	6	200		SP		16.0	Light gray, S.A.A. Sat. No HCO.	8.3	15.0
16.0										Boring Terminated at Elevation 8.3 ft		16.0

CATLIN BORING LOG_201-130.GPJ CATLIN.GDT_06/13/02

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 3

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray/ Chris Jolly	WELL ID: HPFF-49
NORTHING: 3,839,425.5	EASTING: 286,049.6	DRILLER: Bobbie Fowler	
BORING LOCATION: NW SECTOR - North of corner of Holcomb Blvd & Ash St. on N side of Holcomb		SYSTEM: UTM NAD83 (m)	T.O.C. ELEV.: 23.40
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 80.0
START DATE: 12/19/01	FINISH DATE: 02/24/02	24 HOUR DTW:	WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	23.9	0.0
0.0	4	5	5	4	0		CL		2.0	Brown, SILTY, v.f. to f. SANDY CLAY. Moist. No HCO.	21.9	-0.5
2.0									4.0		19.9	
4.0	3	4	3	4	200		CL		6.0	Gray brown, S.A.A.	17.9	
6.0									9.0		14.9	
9.0	4	3	5	4	20		SM		11.0	Gray, SILTY, v.f. to f. SAND. Sat. No HCO.	12.9	
11.0									14.0		9.9	
14.0	13	18	16	16	400		SP		16.0	Gray, Brown, well sorted, v.f. to f. SAND. Sat. HCO.	7.9	
16.0									19.0		4.9	
19.0	8	9	8	10	120		SP		21.0	S.A.A. Sat. Slight HCO.	2.9	
21.0									24.0		-0.1	
24.0	5	8	9	9	160		SP		26.0	S.A.A. Sat. Slight HCO.	-2.1	
26.0									29.0		-5.1	
29.0							SP			Orange, v.f. to med., well sorted SAND.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

6" Sch. 40 PVC

 Portland Cement	 Bentonite Pellets	 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 3

PROJECT NO.: 201-130 STATE: NC COUNTY: Onslow LOCATION: Camp Lejeune
 PROJECT NAME: Hadnot Point Fuel Farm LOGGED BY: Charles Ray/ Chris Jolly WELL ID: HPFF-49
 DRILLER: Bobbie Fowler
 NORTHING: 3,839,425.5 EASTING: 286,049.6 SYSTEM: UTM NAD83 (m) T.O.C. ELEV.: 23.40
 BORING LOCATION: NW SECTOR - North of corner of Holcomb Blvd & Ash St. on N side of Holcomb
 DRILL MACHINE: Diedrich D-50 METHOD: HSA/MR 0 HOUR DTW: BORING DEPTH: 80.0
 START DATE: 12/19/01 FINISH DATE: 02/24/02 24 HOUR DTW: WELL DEPTH: 80.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
31.0	8	12	14	16	880		SP		31.0	Sat. High HCO.	-7.1	2" Sch. 40 PVC
34.0									34.0		-10.1	
36.0	8	14	16	18	60		SP		36.0	Gray, green, moderately sorted, v.f. to med. SAND. Sat. No HCO.	-12.1	
39.0									39.0		-15.1	
41.0	14	22	25	30	16		SM		41.0	Green, SILTY, v.f. to f. SAND with shell fragments. Weathered SANDY LS. Sat. No HCO.	-17.1	
42.0									42.0		-18.1	
44.0	10	12	21	27	0		SP		44.0	Gray, well sorted, v.f. to f. SAND. No HCO.	-20.1	
47.0									47.0		-23.1	
49.0	10	13	20	23	10		SM		49.0	Gray, clayey, v.f. to cse., highly weathered LS.	-25.1	
52.0									52.0		-28.1	
54.0	24	36	29	21	0		SM		54.0	Green, SILTY, v.f. to f. SAND with shell fragments. Weathered SANDY LS. Sat. No HCO.	-30.1	4" SS PVC
57.0									57.0		-33.1	
59.0	8	14	20	24	11		SP		59.0	Gray, v.f. to f. SAND with trace clay nodules and shell frags. No HCO.	-35.1	

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

 Portland Cement  Bentonite Pellets  #2 Medium Sand

WELL LOG

CATLIN
ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm	LOGGED BY: Charles Ray	WELL ID: HPFF-50	
	DRILLER: Bobbie Fowler		
NORTHING: 3,839,427.6	EASTING: 286,048.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - North of corner of Holcomb Blvd & Ash St. on N side of Holcomb			T.O.C. ELEV.: 23.51
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.5
START DATE: 09/21/01	FINISH DATE: 10/09/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	23.9	0.0
0.0	4	5	5	6	100		SC		1.0	Brown, tan, SILTY, v.f. to fine CLAYEY SAND.	22.9	-0.4
2.0							CL		2.0	Brown, SILTY, v.f. to fine, SANDY CLAY. Moist. No HCO.	21.9	
2.5									2.5		21.4	
2.5	2	3	3	3	720		CL		4.5	Gray, brown, S.A.A. Moist. No HCO.	19.4	
4.5												
									7.5		16.4	
7.5	4	4	4	3	270		SM		9.5	Gray, SILTY, v.f. to fine SAND. Sat. No HCO.	14.4	
9.5												
									12.5		11.4	
12.5	13	17	15	15	1000+		SP		14.5	Gray, brown, well sorted, v.f. to fine SAND. Sat. High HCO.	9.4	
14.5												
									17.5		6.4	
17.5	7	7	8	9	1000+		SP		19.5	Gray, S.A.A.	4.4	
19.5												
									22.5		1.4	
22.5	5	7	6	7	120		SP		24.5	S.A.A. Slight HCO.	-0.6	
24.5												
									27.5		-3.6	
27.5							SP		28.5	Gray, green, v.f. to med. SAND.	-4.6	
	5	12	14	13	80		SP		29.5	Orange, well sorted v.f. to med. SAND. Sat. High HCO.	-5.6	
29.5												

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/13/02

2" Sch. 40 PVC

6" Sch. 40 PVC

Portland Cement Bentonite Pellets

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-50
NORTHING: 3,839,427.6	EASTING: 286,048.9	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - North of corner of Holcomb Blvd & Ash St. on N side of Holcomb			T.O.C. ELEV.: 23.51
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.5
START DATE: 09/21/01	FINISH DATE: 10/09/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
32.5									32.5		-8.6	
	7	17	16	17	66		SP			Gray, green, well sorted, v.f. to med. SAND. Sat. No HCO.		
34.5									34.5		-10.6	
37.5									37.5		-13.6	
	14	30	30	36	16		SW			Green, v.f. to fine SAND w/SHELL and LIMESTONE fragments. Sat. No HCO.		
39.5									39.5		-15.6	
44.0									44.0		-20.1	
	8	13	16	19	2.4		SP			Olive green, well sorted, v.f. to med. SAND w/trace cse. shell fragments. Sat.		45.0
46.0									46.0		-22.1	
48.5									48.5		-24.6	
	16	18	15	20	4.5				49.5	Weathered SANDY LIMESTONE w/silty, v.f. to med. sand.	-25.6	
50.5							SM		50.5	Olive green, SILTY, v.f. to med. SAND w/trace limestone fragments. Sat.	-26.6	50.0
										Boring Terminated at Elevation -26.6 ft		50.5

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02



Portland Cement



Bentonite Pellets

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-51
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,413.1	EASTING: 286,151.2	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - North of car wash (S1053) in woods off of Holcomb Blvd.			T.O.C. ELEV.: 27.72
DRILL MACHINE: Diedrich D-50	METHOD: HSA	0 HOUR DTW:	BORING DEPTH: 16.0
START DATE: 09/21/01	FINISH DATE: 10/10/01	24 HOUR DTW: 10.24	WELL DEPTH: 15.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
6in	6in	6in	6in									
									0.0	LAND SURFACE	28.2	0.0
0.0	2	3	5	5	6.0		SM		2.0	Gray to brown, SILTY, v.f. to fine SAND w/root frags. from 0'-1'. Moist. No HCO.	26.2	- 0.5
2.0									4.0		24.2	1.0
4.0	4	9	9	10	4.0		SM		6.0	Gray, tan, SILTY, v.f. to fine, SAND w/clayey sand layers. Moist. No HCO.	22.2	3.0
6.0									9.0		19.2	5.0
9.0	3	3	2	3	12		CL		11.0	Orange, gray, SILTY, v.f. to fine CLAYEY SAND. Sat. No HCO.	17.2	2" Sch. 40 PVC
11.0									14.0		14.2	2" Slot .010 Sch. 40 PVC
14.0	3	9	15	20	26		SP		16.0	Gray, well sorted, v.f. to fine SAND. Sat. No HCO.	12.2	15.0
16.0										Boring Terminated at Elevation 12.2 ft		15.0

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/13/02

 Portland Cement
  Bentonite Pellets
  #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-52
NORTHING: 3,839,393.9		EASTING: 286,254.3	SYSTEM: UTM NAD83 (m)
BORING LOCATION: NW SECTOR - ~200' NE of car wash (S1053) along gravel road			T.O.C. ELEV.: 28.36
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 12/12/01	FINISH DATE: 02/24/02	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	28.9	0.0
1.0									1.0		27.9	- 0.6
	5	5	3	4	0		SM			Brown, tan, SILTY, v.f. to f. SAND. Wet. No HCO.		
3.0									3.0		25.9	
4.0									4.0		24.9	
	1	2	4	3	1.0		CH			Gray, tan, SILTY CLAY with high plasticity. Sat. No HCO.		
6.0									6.0		22.9	
9.0									9.0		19.9	
	1	2	1	2	5.2		CL			Gray, SILTY, v.f. to f. SANDY CLAY with high plasticity. Sat. No HCO		
11.0									11.0		17.9	
14.0									14.0		14.9	
	1	2	1	1	200		CL			S.A.A		
16.0									16.0		12.9	
19.0									19.0		9.9	
	WHWH	2	1		110		CL			S.A.A except v.f. SANDY CLAY.		
21.0									21.0		7.9	
24.0									24.0		4.9	
	3	4	4	5	>1000		PT			Brown, gray, SILTY, v.f. to f. SANDY CLAY with wood fragments. (PEAT?) Moist.		
26.0									26.0		2.9	
29.0							SP		29.0		-0.1	
										Gray, well sorted, v.f. to f. SAND. Wet. No HCO.		

CATLIN BORING LOG - 201-130.GPJ CATLIN.GDT 06/13/02

6" Sch. 40 PVC

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-52
NORTHING: 3,839,393.9		EASTING: 286,254.3	SYSTEM: UTM NAD83 (m)
BORING LOCATION: NW SECTOR - ~200' NE of car wash (S1053) along gravel road			T.O.C. ELEV.: 28.36
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 12/12/01	FINISH DATE: 02/24/02	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH			
31.0	23	21	22	23	>1000		SP		31.0	Gray, well sorted, v.f. to f. SAND. Wet. No HCO. (continued)	-2.1	
34.0									34.0		-5.1	
36.0	8	20	21	22	500		SP		36.0	S.A.A, v.f. to med.	-7.1	
39.0									39.0		-10.1	
41.0	8	10	14	16	200		SP		41.0	S.A.A.	-12.1	
43.0									43.0		-14.1	
45.0	12	26	14	10	220		SM		45.0	Light green, SILTY, v.f. to f. SAND with weathered LS and cemented sand. Sat. No HCO.	-16.1	
48.0									48.0		-19.1	
50.0	8	17	22	27	500		SP		50.0	Green, well sorted, v.f. SAND with trace silt. Wet.	-21.1	
53.0									53.0		-24.1	
55.0	11	21	12	18	530		SM		55.0	Light green, SILTY, v.f. to med. SAND with cemented sands.	-26.1	
									56.0		-27.1	
58.0							SM		58.0	Layers of cemented sands.	-29.1	
									58.5		-29.6	
									59.0	CORE from 58.5-63.5	-30.1	
									58.5 to 59.0	SANDY LS with shell frags.		
	5	50/3					SP			No return from core --- assumed to be SAND.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

Portland Cement
 Bentonite Pellets
 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 3 OF 5

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: Bobbie Fowler	HPFF-52
NORTHING: 3,839,393.9	EASTING: 286,254.3	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - ~200' NE of car wash (S1053) along gravel road			T.O.C. ELEV.: 28.36
DRILL MACHINE: Diedrich D-50	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 150.0
START DATE: 12/12/01	FINISH DATE: 02/24/02	24 HOUR DTW:	WELL DEPTH: 150.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK		WELL DETAIL
	6in	6in	6in	6in					DEPTH	DESCRIPTION	
63.0							SP		No return from core --- assumed to be SAND. 63.0 (continued)	-34.1	2" Sch. 40 PVC
65.0	8	27	29	25	120		SP		Green/gray, well sorted, v.f. to f. SAND with trace silt and shell frags. Wet. No HCO. 65.0	-36.1	
68.0									68.0	-39.1	
70.0	17	27	37	47	70		SP		Green, well sorted, fine SAND. Wet. No HCO. 70.0	-41.1	
78.0									78.0	-49.1	
80.0	16	26	36	41	50		SP		S.A.A with trace shell frags. Wet. No HCO. 80.0	-51.1	
88.0									88.0	-59.1	
90.0	20	35	40	45	12		SM		Green, tan, SILTY, v.f. to f. SAND with trace shell frags. Wet. No HCO. 90.0	-61.1	
							SM		93.0 Hitting thin hard cemented layers of SAND.	-64.1	
											4" Sch. 40 PVC

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

SHEET 4 OF 5

PROJECT NO.:	201-130	STATE:	NC	COUNTY:	Onslow	LOCATION:	Camp Lejeune	
PROJECT NAME:	Hadnot Point Fuel Farm	LOGGED BY:		Charles Ray		WELL ID:		
		DRILLER:		Bobbie Fowler		HPFF-52		
NORTHING:	3,839,393.9	EASTING:	286,254.3	SYSTEM:				UTM NAD83 (m)
BORING LOCATION: NW SECTOR - ~200' NE of car wash (S1053) along gravel road							T.O.C. ELEV.:	28.36
DRILL MACHINE:		Diedrich D-50		METHOD:		HSA/MR		
				0 HOUR DTW:		BORING DEPTH:		
START DATE:		12/12/01		FINISH DATE:		02/24/02		
				24 HOUR DTW:		WELL DEPTH:		
						150.0		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

#2 Medium Sand

 Portland Cement
 Bentonite Pellets
 #2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 1 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID: HPFF-53
NORTHING: 3,839,395.6		EASTING: 286,254.8	SYSTEM: UTM NAD83 (m)
BORING LOCATION: NW SECTOR - ~200' NE of car wash (S1053) along gravel road			T.O.C. ELEV.: 27.71
DRILL MACHINE: Diedrich D-25	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 09/28/01	FINISH DATE: 10/12/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
	6in	6in	6in	6in								
									0.0	LAND SURFACE	28.2	0.0
0.0	10	10	3	3	0		SM		2.0	Brown, tan, SILTY, v.f. to f. SAND. Wet. No HCO.	26.2	-0.5
2.0									4.0		24.2	
4.0	1	1	3	4	2.2		CH		6.0	Gray, tan, SILTY CLAY with high plasticity. Sat. No HCO.	22.2	
6.0									9.0		19.2	
9.0	1	1	2	2	5.4		CL		11.0	Gray, SILTY, v.f. to f. SANDY CLAY with high plasticity. Sat. No HCO.	17.2	
11.0									14.0		14.2	
14.0	1	2	0	1	200		CL		16.0	S.A.A. Sat. No HCO.	12.2	
16.0									19.0		9.2	
19.0	WHWH	1	2		120		CL		21.0	S.A.A. Sat. No HCO.	7.2	
21.0									24.0		4.2	
24.0	3	4	4	6	1000+		PT		26.0	Brown, gray, SILTY, v.f. to f. SANDY CLAY with wood frags. throughout. (PEAT?) Moist.	2.2	
26.0									29.0		-0.8	
29.0							SP			Gray, v.f. to f. well sorted SAND. Wet. No HCO.		

CATLIN BORING LOG 201-130.GPJ CATLIN.GDT 06/13/02

	Portland Cement		Bentonite Pellets		#2 Medium Sand

WELL LOG

CATLIN

ENGINEERS and SCIENTISTS

Wilmington, North Carolina

SHEET 2 OF 2

PROJECT NO.: 201-130	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: Hadnot Point Fuel Farm		LOGGED BY: Charles Ray	WELL ID:
		DRILLER: William Miller	HPFF-53
NORTHING: 3,839,395.6	EASTING: 286,254.8	SYSTEM: UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - ~200' NE of car wash (S1053) along gravel road			T.O.C. ELEV.: 27.71
DRILL MACHINE: Diedrich D-25	METHOD: HSA/MR	0 HOUR DTW:	BORING DEPTH: 50.0
START DATE: 09/28/01	FINISH DATE: 10/12/01	24 HOUR DTW:	WELL DEPTH: 50.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION		ELEVATION	WELL DETAIL
	6in	6in	6in	6in					DEPTH	DESCRIPTION		
31.0	23	24	22	26	1000+		SP		31.0	Gray, v.f. to f. well sorted SAND. Wet. No HCO. (continued)	-2.8	
34.0									34.0		-5.8	
36.0	8	18	22	23	500		SP		36.0	S.A.A. Wet.	-7.8	
39.0									39.0		-10.8	
41.0	4	11	23	33	200		SP		41.0	S.A.A.	-12.8	
42.5									42.5		-14.3	
44.5	12	15	12	16	120		SM		44.5	Green, SILTY, well sorted, fine SAND with trace limestone frags. Sat.	-16.3	
45.0									45.0		-16.8	45.0
47.0	4	7	8	19	720		SM		47.0	S.A.A. without limestone frags. Sat.	-18.8	
48.0									48.0		-19.8	
50.0	19	15	16	16	220		SP		50.0	Green, well sorted, fine SAND with trace shell frags. Wet.	-21.8	50.0
Boring Terminated at Elevation -21.8 ft												

CATLIN BORING LOG_201-130.GPJ CATLIN GDT_06/13/02



Portland Cement



Bentonite Pellets



#2 Medium Sand

 Portland Cement
 Bentonite Pellets
 #2 Medium Sand