HADNOT POINT 2002 WELL GAUGING, SAMPLING, AND ADDITIONAL WELL INSTALLATION REPORT

HADNOT POINT FUEL FARM

MARINE CORPS BASE CAMP LEJEUNE
JACKSONVILLE, NORTH CAROLINA

VOLUME I

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LIST OF ACRONYMS

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

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

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

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DECEMBER 13, 2002

EXECUTIVE SUMMARY

The focus of this investigation was the former Hadnot Point Fuel Farm (HPFF) and it's surrounding area. Numerous prior investigations conducted in the HPFF industrial area have identified petroleum and other constituents that have impacted the subsurface soils and groundwater. Additionally, anomalies were identified in the subsurface that appear to be "voids" or other such features during the installation of approximately 100 monitoring wells. A subsequent geophysical investigation substantiated the presence of these anomalies. Substantial petroleum impact has been identified in the groundwater at the site. The impacted zones extend from the shallow subsurface (+/- 15 feet) to depths in excess of 100 feet below land surface. In response to these issues, CATLIN was requested to install additional monitoring wells and complete a report to address the areas of concern and identified anomalies. These findings were to be incorporated with other recent sampling events conducted at the site.

As part of this investigation, CATLIN personnel installed and sampled the soil and groundwater from four shallow Type II, one Type I, 11-50 feet deep Type III, nine 80 feet deep Type III, and five 150 feet deep Type III monitoring wells. These wells were strategically placed as to aid in the delineation of areas of know petroleum impact in addition addressing areas of identified anomalies. Subsequent to monitoring well installation, 114 existing and newly installed monitoring wells were gauged to determine groundwater elevations and free product thickness where present. Depth to groundwater ranged from approximately four feet to 14 feet BLS in the shallow Type II wells, nine feet to 17 feet BLS in the 50 feet deep Type III wells, nine feet to 16 feet BLS in the 80 feet deep Type III wells, and 10 feet to 23 feet BLS in the 150 feet deep Type III wells.

Strict interpolation of the groundwater elevations revealed an overall trend of groundwater flow in a generalized western direction with some influence to the south and east across the subject site. Additional data that was gathered from surrounding sites indicate the HPFF site may be oriented on a groundwater divide. The shallow aquifer appears to be influenced primarily by factors including remedial efforts and drainage into the numerous creeks, ditches, and streams that intersect and surround the project site. These factors result in highly variable flow directions for the shallow zone. The 50 to 80 feet groundwater zones appear to be actively influenced by potential base flow into the New River resulting in a generalized westerly flow direction. The groundwater zones below 80 feet exhibit the same generalized westerly flow trend with some signs of influence from the ocean creating a slight

eastern influence. Hydraulic gradients and average groundwater linear flow velocities were calculated across the site through the Shallow zone, the 50 feet zone, and the 80 feet zone. Results from the calculations revealed similar characteristics between the three zones. Hydraulic gradients for the three zones (Shallow, 50 feet, and 80 feet) were as follows; 0.003, 0.002, and 0.002 respectively. Estimated average groundwater linear flow velocities for the three zones were calculated at 0.75, 0.63, and 0.55 feet per day respectively.

Geology beneath the site, to a depth of approximately 40 feet, consists primarily of undifferentiated surficial sediments and severely weathered limestone (gravelly sand) assumed to be the Belgrade Formation. The undifferentiated surficial material consists of inter-fingering lenses of sands, clayey/silty sands, silts, and clays with. A fairly consistent layer of peat/organic rich material was identified across a large portion of the subject site. Below the surficial materials, indurated material (limestone) was encountered spatially consistent across the subject site. However, the degree of induration and depth at which the material was encountered was 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. Fine grained sand and clayey/silty sand with shell fragments and inter-bedded cemented lenses were consistently encountered below the upper limestone strata at an approximate elevation of -20 feet MSL to the termination of the borings at an average approximate elevation of -130 feet MSL.

Petroleum impacted soil was identified in numerous areas across the subject site. Petroleum impacted areas identified during this investigation were consistent with those areas identified during previous investigations and are predominantly concentrated within the immediate area surrounding the former fuel farm. Isolated areas of petroleum impacted soil were identified to the northwest across Holcomb Boulevard. The source of these impacts is unknown but appear to be unrelated to the HPFF site.

Groundwater contamination in excess of GWQS and free phase product has essentially been delineated in the upper portion of the aquifer. Dissolved contamination in excess of GWQS has not been delineated in the deeper portions of the aquifer. The general trend of the geometry of the dissolved plumes has been identified in the 50 feet and 80 feet BLS zones. Much of the groundwater impact identified in deeper zones exhibit higher contaminant levels than those identified in the shallow portion of the aquifer. Groundwater contamination data gathered during this and previous investigations appear to be sufficient to generate a comprehensive corrective action plan for the site; however, additional data points and aquifer testing may be necessary.

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DECEMBER 13, 2002

1.0 INTRODUCTION AND BACKGROUND

1.1 AUTHORIZATION

CATLIN Engineers and Scientists was authorized to perform this investigation and prepare this report by the Commander of the Atlantic Division Naval Facilities Engineering Command in accordance with Order for Supplies or Services Contract Number N62470-95-D-6009, Delivery Order Number 0136 and N62470-01-D-3009, Delivery Order Number 0033.

1.2 PURPOSE OF INVESTIGATION

Although enormous amounts of information and data have been generated on this site since the 1980s, there has continued to exist areas of "data gaps" and "anomalies" concerning contaminant impact and groundwater flow characteristics. CATLIN was requested to install additional monitoring wells and complete a report to address the areas of concern and identified anomalies. These findings were to be incorporated with other recent sampling events conducted at the site. The objective of this investigation was to compile the recently acquired data to present a "snapshot" in 2002 of current site conditions.

1.3 SCOPE OF WORK

The scope of work for this investigation included.

- Installation, sampling, and laboratory analysis of soil and groundwater samples from:
  - Four Type II shallow monitoring wells.
  - One Type I monitoring well.
  - Eleven Type III monitoring wells installed to 50 feet BLS.
  - Nine Type III triple cased monitoring wells installed to 80 feet BLS.
  - Five Type III triple cased monitoring wells installed to 150 feet BLS.

- Gauging of 135 monitoring wells for presence of free product and water levels.
- Sampling and laboratory analysis of groundwater from existing monitoring wells.
- Compilation of data generated during this and recent sampling events into a comprehensive report documenting current site conditions.

1.4 AREA OF INVESTIGATION

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 additional 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.

1.5 SUMMARY OF PREVIOUS INVESTIGATIONS

1.5.1 Listing of Previous Reports

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. The various studies performed at the HPFF and Building 1115 areas have produced a number of reports including the following:

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, Building 1115, 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. Statement of Work Design. Hadnot Point Fuel Farm/Building 1115. Marine Corps Base Camp Lejeune, North Carolina. Prepared by CATLIN Engineers and Scientists, Wilmington, North Carolina. May 14, 1998.

18. Leaking Underground Storage Tank Additional Site Assessment. Hadnot Point Fuel Farm/Building 1101. Marine Corps Base Camp Lejeune, North Carolina. Prepared by CATLIN Engineers and Scientists, Wilmington, North Carolina. December 21, 2000.

19. Well Sampling Monitoring Report. Hadnot Point Fuel Farm. Marine Corps Base Camp Lejeune, North Carolina. Prepared by CATLIN Engineers and Scientists, Wilmington, North Carolina. July 20, 2001.

20. Leaking Underground Storage Tank Site Assessment - Gauging All Wells at Hadnot Point Fuel Farm, 2001 Event. Prepared by CATLIN Engineers and Scientists, Wilmington, North Carolina. January 17, 2002.

21. Geophysical Investigation at the Former Fuel Farm Facility and Surrounding Areas. Hadnot Point, MCB Camp Lejeune, NC. Prepared by Geophex, Ltd, Raleigh, North Carolina. May 2002.

22. Identification, Correlation, and Assimilation of Organic Subsurface Soils. Hadnot Point Fuel Farm. Marine Corps Base Camp Lejeune, North Carolina. Prepared by CATLIN Engineers and Scientists, Wilmington, North Carolina. June 19, 2002.

23. Characterization of Subsurface Free Product Migration Pathways. Marine Corps Base Camp Lejeune, North Carolina. Prepared by CATLIN Engineers and Scientists, Wilmington, North Carolina. August 14, 2002.

1.6 SUMMARY OF PREVIOUS FINDINGS

1.6.1 Groundwater Characteristics

Throughout the process of investigating HPFF, a number of well gauging events have been performed across the site. The most recent gauging event prior to this report occurred on August 16, 2001 when 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 water table/potentiometric contour maps in order to discern the direction of

groundwater flow, and hence contaminant movement. This data was presented in the *Gauging All Wells at the Hadnot Point Fuel Farm, 2001 Event* (CATLIN 2002).

Strict interpolation of the water table elevation data in the shallow Type II monitoring wells revealed a general flow trend to the west with variable localized flow directions. Interpolation of the potentiometric surface elevations of the deeper aquifers revealed similar generalized westerly flow directions.

1.6.2 Free Product Contamination

Measurements obtained during the August 16, 2001 gauging event identified five general areas with measurable free product accumulations. Free product was gauged in shallow monitoring wells MW-2 (0.01 ft.), MW-12 (0.06 ft.), MW-15 (0.06 ft.), MW-16R (2.21 ft.), and HPFF-15 (0.48 ft.). MW-18 contained a trace (<0.01 ft.) amount of product.

An analysis of the areal extent of free product revealed an overall trend in the reduction of the free product from the previous gauging/sampling events. The plume near Building 1115 and the plume in the area northwest of the former HPFF had been reduced in areal extent. The plume south of the former fuel farm was reduced significantly in areal extent from previous gauging events. The data additionally suggested a reduction in plume thickness. The maximum thickness of product gauged in 1997 and 1998 was 5.29 ft. and 4.24 ft. respectively. The maximum thickness gauged during the August 16, 2001 gauging event was 2.21 ft.

Additionally, free product was measured at a thickness of six feet in well 78GW-32-03 in the summer of 2000. Well 78GW-32-03 is 153 feet deep with a screened interval from 140 to 150 feet BLS. Following one aggressive fluid/vapor recovery (AFVR) performed on the well, no substantial amount of free product, with the exception of residual product, was measured in 78GW-32-03 until January 2001 when roughly two feet of free product was detected. Following an additional AFVR event, no free product has been identified in the well since that time.

1.6.3 Groundwater Contamination

Periodic sampling events have occurred at the HPFF site throughout its investigatory history. The most recent, relatively comprehensive sampling event conducted prior to this investigation occurred in November 2000. During the sampling event, a total of 100 existing monitoring wells were sampled for Purgeable Aromatics by EPA Method 602 and Polynuclear Aromatic Hydrocarbons by EPA Method 610. Results of this sampling event

as presented in a *Well Sampling Monitoring Report, Hadnot Point Fuel Farm* (CATLIN, 2002), indicated that the shallow (Type II) groundwater plume was contained within the monitoring well network with the exception of the most northern boundary of the plume near monitoring well 1115-9. A maximum concentration of benzene (23,000 µg/L) was detected in the sample from Type II monitoring well HPFF-29. With the exception of the sample collected from HPFF-06, benzene concentrations in excess of 2L GWQS were identified in groundwater samples collected from all Type III (50 ft.) monitoring wells during the sampling event. Additionally, all groundwater samples collected from Type III monitoring wells greater than 50 feet deep, with the exception of the samples collected from monitoring wells 78GW-31-02 and 78GW-31-03, exhibited benzene concentrations at or above the 2L GWQS.

2.0 SOIL INVESTIGATION

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 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 1,300 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 from drill-hole data. The Upper Eocene Castle Hayne Formation lies unconformably on the Peedee Formation. The Castle Hayne Formation consists of widespread limestone units that are

intermixed with substantial beds of calcareous sands and silty sands. Overlying the Castle Hayne Formation 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 TOPOGRAPHY

The project area is dominated by relatively flat topography with an approximate elevation of 30 feet MSL. Interviews with various persons familiar with the site indicated that the area was previously somewhat low lying and was filled in the past. The amount or extent of fill is unknown. The nearest mapped body of surface water is Beaverdam Creek, located approximately 2,000 feet to the north-northwest of the HPFF area. Surficial runoff from the site is diverted into a network of storm drains and shallow drainage ditches located across the site. The runoff is eventually channeled into the New River, which is located approximately 7,000 feet due west of the subject site.

2.3 SITE SOILS AND 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. This 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 which allowed for a thorough geologic description of the stratigraphy.

Numerous preliminary cross sections were generated to ensure proper stratigraphic sequencing. 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 consist of indurated material and those materials situated below the indurated materials. The two sections are referred to as shallow conditions and deep conditions, respectively.

2.3.1 Shallow Conditions

The shallow section of the underlying material is composed primarily of undifferentiated surficial sediments and severely weathered limestone (gravelly 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 fence diagrams in Figures 4 through 7, large amounts of permeable material appear to be prevalent across the subject site. These materials 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 varied in thickness from roughly 10 to 40 feet combined. The units displayed overall characteristics that would indicate moderate to high hydraulic conductivity.

Lenses of peat and highly organic soils, silt, clay, and sand silt/clay mixtures, were identified sporadically across the site. USCS field classifications for the sediments include PT, CH, MH, CL, ML, and to a lesser extent SC and SM. The unit is not laterally continuous and often interfingers with the sand units, indicating that the units are of the same relative age. The clay/silt unit displayed a wide range of coloring from dark green gray to mottled red, orange, and brown. The material was typically soft to very soft and contained a large amount of fines. Estimated plasticity for the unit ranged from slightly to highly plastic. 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 and the clay units 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 (1991). 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.

A clay unit was identified in boring HPFF-13 at a thickness of roughly 40 feet and extended from an elevation of –20 feet to approximately –60 feet MSL. Indurated materials were typically identified in other borings at this same

approximate elevation. 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.

2.3.2 Deep Conditions

Indurated material (limestone) was encountered spatially consistent across the subject site. However, the degree of induration and depth at which the material was encountered was 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 at an approximate elevation of -20 feet MSL to the termination of the borings at an average approximate elevation of -130 feet MSL. This material is believed to be part of the Trent Formation.

2.4 SOIL CONTAMINATION

This site has historically been subject to the soil clean up levels as established in the March 1997 Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater. These Guidelines set forth the soil cleanup levels of 10 ppm for TPH-gasoline and 40 ppm for TPH-diesel. Numerous areas of petroleum impacted soils have been identified during this and other investigations. Results of laboratory soil analysis conducted during this investigation are presented on Table 2 and depicted spatially on Figure 8. Concentrations of TPH-gasoline and TPH-diesel were identified in soil samples collected during this investigation in areas historically identified with petroleum impact. These areas are predominantly located within the immediate vicinity of the former fuel farm. Additionally, concentrations of TPH gasoline and diesel were identified in samples collected during the installation of wells located on the western side of Holcomb Boulevard. These appear to be isolated impacts from an alternative source.

3.0 GROUNDWATER INVESTIGATION

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 typically 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/d). However, this value appears to be rather high as compared to the site-specific conditions observed at the subject site.

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 portion of the Castle Hayne aquifer is 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 aboard 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	$[(ft^3/d)/ft^2]ft$
Hydraulic conductivity (K)	14 – 91 ft/d	(65 ft/day average)
Storage coefficients (S)	0.0002 – 0.001	

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

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 confining unit has an overall average thickness of roughly 14 feet. Cardinell, et al (1995) estimated the average thickness of the unit aboard Camp Lejeune to be approximately nine feet where present with an approximate vertical

hydraulic gradient of 0.0014 to 0.41 ft./d. 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. No spatially continuous clay beds were noted from the seismic records above the Castle Hayne aquifer by Cardinell, et al (1995).

3.2 SITE HYDROGEOLOGY

Due to the complex hydrogeologic characteristics of the subject site, the subsurface of the site has been investigated in four general hydrogeologic "zones". The zones include:

Shallow zone - single cased Type II wells that typically intersect the shallow water table and are screened generally from 5 to 15 feet BLS;
50 feet zone - double cased Type III monitoring wells that are typically screened from approximately 45 to 50 feet BLS;
80 feet zone - triple cased Type III monitoring wells typically screened from approximately 75 to 80 feet BLS;
150 feet zone - triple cased Type III wells typically screened from approximately 145 to 150 feet BLS.

As part of this investigation, 135 groundwater monitoring wells were gauged on July 16 and 17, 2002 for free product accumulation and depth to groundwater. Depths to groundwater from the top of casings in the shallow zone ranged from a high of 3.93 feet in well GT-01 to a low of 14.30 feet in well MW-10R. Depth to water measurements in the 50 feet zone ranged from 9.03 feet (HPFF-50) to 16.97 feet (HPFF-08) below TOCs. Measurements obtained from wells within the 80 feet zone ranged from 9.25 feet (HPFF-49) to 15.71 feet (HPFF-10) below TOCs. Depth to water below TOC measurements within the 150 feet zone ranged from 10.22 feet in well HPFF-60 to 23.29 feet in well HPFF-62. Results of the gauging event are presented on the Monitoring Well Field Gauging Worksheet in Appendix C and on Table 3.

Depth to water measurements were deducted from top of casing elevations and a water table/potentiometric surface elevation was calculated for each monitoring well. The elevations were plotted on site maps and contours were interpolated for each zone. As depicted on Figures 9 through 12, groundwater flow directions for each zone are locally variable with an overall flow trend to the west. Table 3 summarizes the calculated groundwater elevations as determined from the gauging activities.

Static water level elevations (hydraulic head) collected during the gauging event from well clusters were compared to each other to determine the vertical hydraulic gradient between those wells. As demonstrated on Table 4, a positive vertical gradient was

identified in all well clusters compared during this investigation. The positive gradient indicates a potential for downward migration of groundwater. An average value of 0.08 ft./ft. was calculated between eleven Type II/50 ft. Type III well pairs. The highest values between the Type II/50 ft. well pairs were observed in the western portion of the project site in well pairs HPFF-39/HPFF-47 (0.18) and HPFF-54/HPFF-53 (0.17). Similar conditions were noted when comparing Type II wells to wells installed to 80 feet BLS. An average vertical gradient of 0.05 was calculated between nine shallow/80 ft. well pairs. The highest vertical gradients were identified between well pairs HPFF-39/HPFF-47 (0.10) and MW-15/HPFF-66 (0.08) located in the vicinity of Building 1114. Vertical gradients calculated between Type II/150 ft. well pairs revealed rather consistent results of 0.04 (HPFF-14/HPFF-60), 0.05 (HPFF-39/HPFF-46), and 0.04 (HPFF-54/HPFF-52). Vertical gradient calculations are included on Table 4.

No direct aquifer testing was completed during this investigation. However, data from previously completed investigations conducted at the project site were utilized to estimate the groundwater linear flow velocity based on measurements obtained during the gauging event. As previously stated, the predominant groundwater flow trend is in a westerly direction. Hydraulic gradients and average groundwater linear flow velocities were calculated across the site through the Shallow zone, the 50 feet zone, and the 80 feet zone. Results from the calculations revealed similar characteristics for the three zones. Hydraulic gradients for the three zones (Shallow, 50 feet, and 80 feet) were as follows; 0.003, 0.002, and 0.002, respectively. Estimated average groundwater linear flow velocities for the three zones were calculated at 0.75, 0.63, and 0.55 feet per day, respectively. Hydraulic gradient calculations are included in Appendix E.

3.3 EXTENT OF FREE PRODUCT

Analysis of the data collected during the July 16-17, 2002 gauging event revealed an overall reduction of free product (product) as compared to historical levels. As can be seen on Figure 13, four areas of product have been identified during this investigation. These areas are located near monitoring wells MW-16R, HPFF-15, HPFF-72, and MW-18. Measurable amounts of product were identified in wells HPFF-15 (1.06 ft.), HPFF-72 (0.04 ft.), and MW-18 (0.46 ft.). Monitoring well MW-16R could not be accessed for gauging due to obstructions but is assumed to contain free product. Additional monitoring wells in areas historically identified with product were found to contain sorbent materials, which suggests the possibility of product existing in the immediate vicinity of the wells. Monitoring wells identified with sorbent materials included; MW-01, MW-02, MW-10R, MW-12, MW-15, MW-A, HPFF-28, and HPFF-72. Results of the gauging activities with measured product values are included in Appendix C.

3.4 DISSOLVED CONSTITUENTS

Groundwater samples were collected during three sampling events conducted between February and July of 2002. The events occurred in February 2002 (conducted by Shaw Environmental and Infrastructure), March 2002 (by CATLIN) following the installation of the new wells, and July 2002 (by CATLIN) during a scheduled sampling event. Results of the sampling events were compiled to provide a wide expanse of data coverage across the site. The sampling events consisted of collection of groundwater samples from the existing and recently installed monitoring wells located throughout the site. Monitoring well sampling records are included in Appendix D of this report. All groundwater samples were laboratory analyzed for Purgeable Aromatics by EPA Method 602 and Polynuclear Aromatic Hydrocarbons by EPA Method 610. The 30 newly installed monitoring wells were additionally sampled for Purgeable Halocarbons per EPA Method 601. Groundwater sampling results are presented on Tables 5 (EPA 602), 6 (EPA 610), and 7 (EPA 601). Laboratory analytical reports and chain of custody records are included in Appendix G. Well gauging, purging, and sampling was performed in accordance with procedures established in CATLIN's Standard Methods of Investigation included in Appendix F.

3.4.1 Shallow Conditions

Analysis of groundwater samples collected from the shallow monitoring wells (Type II) revealed numerous constituents from all sample parameters above 2L GWQS. Concentrations of benzene identified by EPA Method 602 analysis have been utilized as an indicator constituent to identify dissolved plume geometry and magnitude. Benzene concentrations identified during the recent sampling events were plotted on site maps and concentration isopleths were interpolated between the monitoring points. Contours were established by interpreting a "compliance boundary" based on the current 2L GWQS for benzene of 1.0 μg/L.

As presented on Figure 14, the shallow dissolved plume of EPA 602 constituents has essentially been delineated. No 602 compounds were identified at levels in excess of 2L GWQS if benzene was not identified within the same sample. The plume exhibits an east/west orientation that is parallel with the groundwater flow direction. The highest levels of benzene impact were identified in the southeast sector of the project site near the former HPFF tank basins. Groundwater sampling results for Purgeable Aromatics per EPA Method 602 are presented on Table 5. Benzene concentrations were additionally plotted on fence diagrams and an estimated vertical extent of benzene levels above 2L GWQS were plotted. The estimated vertical extent of benzene above 2L GWQS are presented on Figures 18 through 21.

Groundwater samples were analyzed per EPA Method 610 and the concentrations and estimated areal extent of naphthalene above the 2L GWQS were plotted on Figure 22. Groundwater impacted by EPA 610 constituents appears to be adequately delineated. Groundwater identified with EPA 610 constituents above 2L GWQS is limited to the immediate area around the former tank basin extending down gradient to Building 1108. Groundwater sampling results for Polynuclear Aromatic Hydrocarbons per EPA Method 610 are presented on Table 6.

Groundwater samples were collected from the five newly installed Type II monitoring wells and analyzed per EPA Method 601. Results of the sampling are presented on Figure 26. Due to the limited number of sampling points, the horizontal extent of impacted groundwater was not established. Groundwater sampling results for Purgeable Halocarbons per EPA Method 601 are presented on Table 7. Only the sample from HPFF-72 exhibited a contaminant concentration in excess of the 2L GWQS. 1,2-Dichloroethane was detected at 590 µg/L, which is above the 2L GWQS of 0.38 µg/L and the GCL of 380 µg/L.

3.4.2 50 Feet Deep Conditions

Analysis of groundwater samples collected from the 50 feet deep zone revealed similar results as those collected from the shallow zone. As presented on Figure 15, the extent of the dissolved (EPA 602 constituents) groundwater plume is delineated in the northern, western, and eastern portions of the subject site. However, the plume has not been delineated to the northwest and south of the site. The plume geometry is consistent with that noted in the shallow zone. The highest concentrations of benzene were identified in samples collected from 1115-20 (15,000 µg/L) located between building 1101 and 1108 and from samples collected from HPFF-8 (12,300 µg/L) located within the former HPFF tank basin. The groundwater sample collected from well HPFF-61, which is located within the established plume boundary, revealed no detectable levels of benzene. Groundwater sampling results for Purgeable Aromatics per EPA Method 602 are presented on Table 5.

Groundwater samples collected from the 50 feet deep Type III monitoring wells were analyzed per EPA Method 610. The concentrations of identified 610 compounds and estimated areal extent of naphthalene above the 2L GWQS were plotted on Figure 23. With the exception of naphthalene, no EPA 610 compounds were identified in the 50 feet zone above current 2L GWQS. The naphthalene plume has been delineated with the exception of the areas around HPFF-57 and HPFF-47. Groundwater sampling results for Polynuclear Aromatic Hydrocarbons per EPA Method 610 are presented on Table 6.

Groundwater samples were collected from the eleven newly installed 50 feet deep Type III monitoring wells and analyzed per EPA Method 601. Results of the sampling are presented on Figure 27. Only groundwater samples collected from wells HPFF-47, HPFF-57, and HPFF-66 contained EPA 601 analytes above 2L GWQS. Due to the limited number of sampling points, the horizontal extent of impacted groundwater was not established. Groundwater sampling results for Purgeable Halocarbons per EPA Method 601 are presented on Table 7.

3.4.3 80 Feet Deep Conditions

The geometry of the dissolved groundwater plume (per EPA Method 602) has been predominantly established during this sampling event. However, as depicted on Figure 16, the areal extent of the plume has not been delineated to the northwest and northeast of the subject site. Benzene concentrations identified in groundwater samples collected from within the 80 feet zone were generally lower than those identified within the shallow and 50 feet zone. However, benzene concentrations identified in groundwater sample collected from wells 1115-24 (2,480 μg/L) and HPFF-59 (210 μg/L) were higher than the groundwater samples collected from the 50 feet deep paired wells 1115-21 (1,920 μg/L) and HPFF-27 (24.9 μg/L). Groundwater sampling results for Purgeable Aromatics per EPA Method 602 are presented on Table 5.

Groundwater samples were collected from all 80 feet deep Type III monitoring wells and analyzed per EPA Method 610. The concentrations of identified EPA 610 compounds were plotted on Figure 24. All groundwater samples collected from within the 80 feet deep zone contained no measurable concentrations (BQL) of EPA 610 compounds. Groundwater sampling results for Polynuclear Aromatic Hydrocarbons per EPA Method 610 are presented on Table 6.

Groundwater samples were collected from the nine newly installed 80 feet deep Type III monitoring wells and analyzed per EPA Method 601. Results of the sampling are presented on Figure 28. Numerous groundwater samples analyzed per EPA 601 contained constituents above 2L GWQS. The wells located in the northern and western portions of the site exhibited the greatest impact. Groundwater sampling results for Purgeable Halocarbons per EPA Method 601 are presented on Table 7.

3.4.4 150 Feet Deep Conditions

Benzene concentrations identified from groundwater samples collected from within the 150 feet deep zone are presented on Figure 17. The estimated areal extent of the dissolved EPA 602 plume is substantially smaller in magnitude than the plumes identified above the zone. The highest concentrations of benzene within the zone was identified in the groundwater sample collected from well HPFF-60 that is located immediately west (down gradient) of the former tank basin. The dissolved EPA 602 plume is delineated to the west and south. No benzene concentrations above 2L GWQS were identified to the northwest of Center Road. Groundwater sampling results for Purgeable Aromatics per EPA Method 602 are presented on Table 5.

Groundwater samples were collected from all newly installed 150 feet deep Type III monitoring wells and analyzed per EPA Method 610. The concentrations of identified EPA 610 compounds were plotted on Figure 25. With the exception of the groundwater sample collected from well HPFF-60, all groundwater samples collected from within the 150 feet deep zone contained no measurable concentrations (BQL) of EPA 610 compounds. The groundwater sample collected from HPFF-60 contained 36 μg/L of naphthalene, which is in excess of the 2L GWQS of 21 μg/L. No other EPA 610 compounds were identified in the sample. Groundwater sampling results for Polynuclear Aromatic Hydrocarbons per EPA Method 610 are presented on Table 6.

Groundwater samples were collected from the five newly installed 150 feet deep Type III monitoring wells and analyzed per EPA Method 601. Results of the sampling are presented on Figure 29. Samples collected from monitoring wells HPFF-60 and HPFF-56 contained concentrations of EPA 601 analytes above 2L GWQS. No 601 analytes were identified in the groundwater samples collected from the additional wells. Due to the limited number of sampling points, the horizontal extent of impacted groundwater was not established. Groundwater sampling results for Purgeable Halocarbons per EPA Method 601 are presented on Table 7.

4.0 SUMMARY AND CONCLUSIONS

4.1 FREE PRODUCT

Review of free product identified during the gauging event indicates a substantial reduction in the extent and magnitude of the free product plumes compared to previous gauging events. Current remedial processes appear to be functioning as designed pertaining to the reduction and subsequent removal of free product.

4.2 DISSOLVED GROUNDWATER CONTAMINATION

As previously stated, the dissolved groundwater plume has essentially been delineated within the shallow zone. Contaminant levels appear stabilized and exhibit a general reduction in overall magnitude as compared to historical sampling events.

The extent of dissolved contamination at the 50 feet zone appears to be more extensive than the shallow plume. It is possible that the zone was impacted by the water production wells that previously "encircled" the site. The impact of the production wells on the zone may have increased the flow velocities within the zone, thus inducing both vertical and horizontal contaminant migration. Additionally, groundwater flow trends indicate the potential that the New River is influencing the hydraulics of the groundwater due to base flow into the river.

Contaminant impact within the 80 feet zone, and the 150 feet zone to a lesser extent, indicate that processes similar to those acting upon the 50 feet zone have drawn contamination downward.

5.0 REFERENCES

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TABLES

TABLE 1

SUMMARY OF SOIL HEADSPACE SCREENING

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT

Camp Lejeune, NC

SAMPLE I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
HPFF-43	0 - 2	0.1	
HPFF-43	4 - 6	0.1	HPFF-43&43D 4-6
HPFF-43	9 - 11	1.5	
HPFF-43	14 - 16	0.1	
HPFF-43	19 - 21	0	
HPFF-43	24 - 26	0	
HPFF-43	29 - 31	0	
HPFF-43	34 - 36	0	
HPFF-43	39 - 41	0	
HPFF-43	43 - 45	5.3	
HPFF-43	48 - 50	3.4	
HPFF-43	53 - 55	1.8	
HPFF-43	58 - 60	3.7	
HPFF-43	63 - 65	1.3	
HPFF-43	68 - 70	0.2	
HPFF-43	78 - 80	0	
HPFF-44	0 - 2	0	HPFF-44 0-2
HPFF-44	4 - 6	0	HPFF-44 4-6
HPFF-44	9 - 11	0	
HPFF-44	14 - 16	0	
HPFF-44	19 - 21	0	
HPFF-44	24 - 26	1.2	
HPFF-44	29 - 31	1.8	
HPFF-44	34 - 36	0	
HPFF-44	39 - 41	0	
HPFF-44	44 - 45	10	
HPFF-44	45 - 46	0	
HPFF-44	48 - 50	1.8	
HPFF-45	0 - 2	86	HPFF-45&45D 0-2
HPFF-45	4 - 6	5.2	
HPFF-45	9 - 11	0	
HPFF-45	14 - 16	2.2	
HPFF-45	19 - 21	3.2	
HPFF-45	24 - 26	4.2	
HPFF-45	29 - 31	6.8	
HPFF-45	34 - 36	4.2	
HPFF-45	39 - 41	NM	

TABLE 1

SUMMARY OF SOIL HEADSPACE SCREENING

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT

Camp Lejeune, NC

SAMPLE I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
HPFF-45	43 - 45	NM	
HPFF-45	48 - 50	NM	
HPFF-45	53 - 55	NM	
HPFF-45	58 - 60	NM	
HPFF-45	63 - 65	NM	
HPFF-45	68 - 70	NM	
HPFF-45	78 - 80	110	
HPFF-46	0 - 2	4.8	HPFF-46&46D 0-2
HPFF-46	4 - 6	0.4	
HPFF-46	9 - 11	0	
HPFF-46	14 - 16	5	
HPFF-46	19 - 21	100	
HPFF-46	24 - 26	18	
HPFF-46	29 - 31	33	
HPFF-46	34 - 36	58	
HPFF-46	39 - 41	45	
HPFF-46	43 - 45	NM	
HPFF-46	48 - 50	NM	
HPFF-46	53 - 55	NM	
HPFF-46	58 - 60	NM	
HPFF-46	63 - 65	NM	
HPFF-46	68 - 70	NM	
HPFF-46	78 - 80	110	
HPFF-46	88 - 90	30	
HPFF-46	98 - 100	6.0	
HPFF-46	108 - 110	1.5	
HPFF-46	118 - 120	1.4	
HPFF-46	128 - 130	2.0	
HPFF-46	138 - 140	3.4	
HPFF-46	148 - 150	3.0	
HPFF-47	0 - 2	10	HPFF-47 0-2
HPFF-47	4.5 - 6.5	15	HPFF-47 4.5-6.5
HPFF-47	9.5 - 11.5	15	
HPFF-47	14.5 - 16.5	5	
HPFF-47	19.5 - 21.5	5	
HPFF-47	24.5 - 26.5	0	
HPFF-47	29.5 - 31.5	0	

TABLE 1

SUMMARY OF SOIL HEADSPACE SCREENING

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT

Camp Lejeune, NC

SAMPLE I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
HPFF-47	34.5 - 36.5	0	
HPFF-47	39.5 - 41.5	NM	
HPFF-47	44 - 46	300	
HPFF-47	48 - 50	35	
HPFF-48	0 - 2	70	HPFF-48 0-2'
HPFF-48	4 - 6	1000+	HPFF-48 4-5'
HPFF-48	9 - 11	28	
HPFF-48	14 - 16	200	
HPFF-49	0 - 2	0	
HPFF-49	4 - 6	200	HPFF-49&49D 4-6
HPFF-49	9 - 11	20	
HPFF-49	14 - 16	400	
HPFF-49	19 - 21	120	
HPFF-49	24 - 26	160	
HPFF-49	29 - 31	880	
HPFF-49	34 - 36	60	
HPFF-49	39 - 41	16	
HPFF-49	42 - 44	0	
HPFF-49	47 - 49	10	
HPFF-49	52 - 54	0	
HPFF-49	57 - 59	11	
HPFF-49	62 - 64	0	
HPFF-49	67 - 69	12	
HPFF-49	78 - 80	0	
HPFF-50	0 - 2	100	HPFF-50 0-2'
HPFF-50	2.5 - 4.5	720	HPFF-50 2.5-4.5'
HPFF-50	7.5 - 9.5	270	
HPFF-50	12.5 - 14.5	1000+	
HPFF-50	17.5 - 19.5	1000+	
HPFF-50	22.5 - 24.5	120	
HPFF-50	27.5 - 29.5	80	
HPFF-50	32.5 - 34.5	66	
HPFF-50	37.5 - 39.5	16	
HPFF-50	44 - 46	2.4	
HPFF-50	48.5 - 50.5	4.5	
HPFF-51	0 - 2	6.0	HPFF-51 0-2'
HPFF-51	4 - 6	4.0	HPFF-51 4-6'

TABLE 1

SUMMARY OF SOIL HEADSPACE SCREENING

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT

Camp Lejeune, NC

SAMPLE I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
HPFF-51	9 - 11	12	
HPFF-51	14 - 16	26	
HPFF-52	1 - 3	0	HPFF-52
HPFF-52	4 - 6	1.0	
HPFF-52	9 - 11	5.2	
HPFF-52	14 - 16	200	
HPFF-52	19 - 21	110	
HPFF-52	24 - 26	>1000	
HPFF-52	29 - 31	>1000	
HPFF-52	34 - 36	500	
HPFF-52	39 - 41	200	
HPFF-52	43 - 45	220	
HPFF-52	48 - 50	500	
HPFF-52	53 - 55	530	
HPFF-52	58 - 63	NM	
HPFF-52	63 - 65	120	
HPFF-52	68 - 70	70	
HPFF-52	78 - 80	50	
HPFF-52	88 - 90	12	
HPFF-52	98 - 100	60	
HPFF-52	108 - 110	40	
HPFF-52	118 - 120	30	
HPFF-52	128 - 130	15	
HPFF-52	138 - 140	3.3	
HPFF-52	148 - 150	2.0	
HPFF-53	0 - 2	0	HPFF-53 0-2
HPFF-53	4 - 6	2.2	HPFF-53 4-6
HPFF-53	9 - 11	5.4	
HPFF-53	14 - 16	200	
HPFF-53	19 - 21	120	
HPFF-53	24 - 26	1000+	
HPFF-53	29 - 31	1000+	
HPFF-53	34 - 36	500	
HPFF-53	39 - 41	200	
HPFF-53	42.5 - 44.5	120	
HPFF-53	45 - 47	720	
HPFF-53	48 - 50	220	

TABLE 1

SUMMARY OF SOIL HEADSPACE SCREENING

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT

Camp Lejeune, NC

SAMPLE I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
HPFF-54	0 - 2	0	HPFF-54
HPFF-54	4 - 6	4	
HPFF-54	9 - 11	0	
HPFF-54	14 - 16	120	
HPFF-55	1 - 3	0	HPFF-55
HPFF-55	4 - 6	1.0	
HPFF-55	9 - 11	5.2	
HPFF-55	14 - 16	200	
HPFF-55	19 - 21	110	
HPFF-55	24 - 26	1000+	
HPFF-55	29 - 31	1000+	
HPFF-55	34 - 36	500	
HPFF-55	39 - 41	200	
HPFF-55	43 - 45	220	
HPFF-55	48 - 50	500	
HPFF-55	53 - 55	530	
HPFF-55	58 - 63	NM	
HPFF-55	63 - 65	120	
HPFF-55	68 - 70	70	
HPFF-55	78 - 80	50	
HPFF-56	0 - 2	0	
HPFF-56	3.5 - 5.5	0	HPFF-56
HPFF-56	8.5 - 10.5	0	
HPFF-56	13.5 - 15.5	15	
HPFF-56	18.5 - 20.5	64	
HPFF-56	23.5 - 25.5	40	
HPFF-56	28.5 - 30.5	12	
HPFF-56	33.5 - 35.5	1000+	
HPFF-56	38.5 - 40.5	1000+	
HPFF-56	43 - 45	78	
HPFF-56	48 - 50	220	
HPFF-56	53 - 55	1000+	
HPFF-56	58 - 60	420	
HPFF-56	63 - 65	120	
HPFF-56	68 - 70	320	
HPFF-56	73 - 75	64	
HPFF-56	78 - 80	98	

TABLE 1

SUMMARY OF SOIL HEADSPACE SCREENING

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT

Camp Lejeune, NC

SAMPLE I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
HPFF-56	88 - 90	87	
HPFF-56	98 - 100	17	
HPFF-56	108 - 110	13	
HPFF-56	118 - 120	10	
HPFF-56	128 - 130	7	
HPFF-56	138 - 140	2	
HPFF-56	148 - 150	0	
HPFF-57	1 - 3	20	HPFF-57 1-3
HPFF-57	5 - 7	8	HPFF-57 5-7
HPFF-57	9 - 11	50	
HPFF-57	14 - 16	32	
HPFF-57	19 - 21	1.2	
HPFF-57	24 - 26	0	
HPFF-57	29 - 31	0.4	
HPFF-57	34 - 36	0.2	
HPFF-57	39 - 41	0	
HPFF-57	44 - 46	7.5	
HPFF-57	48 - 50	49	
HPFF-58	3.5 - 5.5	1000+	HPFF-58
HPFF-58	8.5 - 10.5	1000+	
HPFF-58	13.5 - 15.5	90	
HPFF-58	18.5 - 20.5	400	
HPFF-58	23.5 - 25.5	420	
HPFF-58	28.5 - 30.5	1000+	
HPFF-58	33.5 - 35.5	80	
HPFF-58	38.5 - 40.5	50	
HPFF-58	42.5 - 44.5	190	
HPFF-58	47.5 - 49.5	60	
HPFF-58	52.5 - 54.5	67	
HPFF-58	57.5 - 59.5	NM	
HPFF-58	67.5 - 69.5	7.7	
HPFF-58	78 - 80	3.7	
HPFF-59	1 - 3	NM	HPFF-59 1-3
HPFF-59	5 - 7	NM	
HPFF-59	8 - 10	NM	
HPFF-59	13 - 15	NM	
HPFF-59	18 - 20	NM	

TABLE 1

SUMMARY OF SOIL HEADSPACE SCREENING

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT

Camp Lejeune, NC

SAMPLE I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
HPFF-59	23 - 25	NM	
HPFF-59	28 - 30	NM	
HPFF-59	33 - 35	NM	
HPFF-59	38 - 40	NM	
HPFF-59	42.5 - 44.5	28	
HPFF-59	47.5 - 49.5	12	
HPFF-59	52.5 - 54.5	30	
HPFF-59	57.5 - 59.5	10	
HPFF-59	62.5 - 64.5	36	
HPFF-59	67.5 - 69.5	37	
HPFF-59	73 - 75	22	
HPFF-59	78 - 80	8	
HPFF-60	0 - 1	NM	
HPFF-60	1 - 3	NM	
HPFF-60	3 - 5	NM	
HPFF-60	5 - 7	NM	
HPFF-60	7 - 9	NM	
HPFF-60	9 - 11	NM	
HPFF-60	11 - 13	NM	
HPFF-60	13 - 15	NM	
HPFF-60	15 - 17	NM	
HPFF-60	17 - 19	NM	
HPFF-60	19 - 21	NM	
HPFF-60	21 - 23	NM	
HPFF-60	23 - 25	NM	
HPFF-60	25 - 27	NM	
HPFF-60	27 - 29	NM	
HPFF-60	29 - 31	NM	
HPFF-60	31 - 33	NM	
HPFF-60	33 - 35	NM	
HPFF-60	35 - 37	NM	
HPFF-60	37 - 39	NM	
HPFF-60	39 - 41	NM	
HPFF-60	41 - 43	NM	
HPFF-60	43 - 45	NM	
HPFF-60	45 - 47	NM	
HPFF-60	47 - 49	NM	

TABLE 1

SUMMARY OF SOIL HEADSPACE SCREENING

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT

Camp Lejeune, NC

SAMPLE I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
HPFF-60	49 - 51	NM	
HPFF-60	51 - 53	NM	
HPFF-60	53 - 55	NM	
HPFF-60	55 - 57	NM	
HPFF-60	57 - 59	NM	
HPFF-60	59 - 60	NM	
HPFF-60	60 - 65	NM	
HPFF-60	65 - 70	NM	
HPFF-60	70 - 72	NM	
HPFF-60	72 - 74	NM	
HPFF-60	74 - 75	NM	
HPFF-60	76 - 77.5	NM	
HPFF-60	78 - 80	NM	
HPFF-60	80 - 82	NM	
HPFF-60	82 - 84	NM	
HPFF-60	84 - 86	NM	
HPFF-60	86 - 88	NM	
HPFF-60	88 - 89.5	NM	
HPFF-60	90 - 92	NM	
HPFF-60	92 - 94	NM	
HPFF-60	94 - 96	NM	
HPFF-60	96 - 96.5	NM	
HPFF-60	98 - 100	NM	
HPFF-60	100 - 102	NM	
HPFF-60	102 - 104	NM	
HPFF-60	104 - 106	NM	
HPFF-60	106 - 107	NM	
HPFF-60	108 - 109	NM	
HPFF-60	110 - 112	NM	
HPFF-60	112 - 113.5	NM	
HPFF-60	114 - 116	NM	
HPFF-60	116 - 118	NM	
HPFF-60	118 - 120	NM	
HPFF-60	120 - 122	NM	
HPFF-60	122 - 123.5	NM	
HPFF-60	124 - 125	NM	
HPFF-60	126 - 127	NM	

TABLE 1

SUMMARY OF SOIL HEADSPACE SCREENING

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT

Camp Lejeune, NC

SAMPLE I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
HPFF-60	128 - 130	NM	
HPFF-60	130 - 132	NM	
HPFF-60	132 - 133.5	NM	
HPFF-60	134 - 135.5	NM	
HPFF-60	136 - 137.5	NM	
HPFF-60	138 - 140	NM	
HPFF-60	140 - 142	NM	
HPFF-60	142 - 144	NM	
HPFF-60	144 - 146	NM	
HPFF-60	146 - 148	NM	
HPFF-60	148 - 150	NM	
HPFF-61	0 - 2	100	HPFF-61 0-2
HPFF-61	4 - 6	1000+	HPFF-61 4-6
HPFF-61	9 - 11	180	
HPFF-61	14 - 16	420	
HPFF-61	19 - 21	1000+	
HPFF-61	24 - 26	580	
HPFF-61	29 - 31	620	
HPFF-61	34 - 36	1000+	
HPFF-61	39 - 41	480	
HPFF-61	41 - 43	80	
HPFF-61	48 - 50	64	
HPFF-62	0 - 2	200	HPFF-62&62D 0-2
HPFF-62	3 - 5	360	HPFF-62&62D 3-5
HPFF-62	8 - 10	200	
HPFF-62	13 - 15	710	
HPFF-62	18 - 20	1000+	
HPFF-62	23 - 25	200	
HPFF-62	28 - 30	460	
HPFF-62	33 - 35	300	
HPFF-62	38 - 40	660	
HPFF-62	43 - 45	440	
HPFF-62	48 - 50	100	
HPFF-62	53 - 55	60	
HPFF-62	58 - 60	200	
HPFF-62	63 - 65	340	
HPFF-62	68 - 70	160	

TABLE 1

SUMMARY OF SOIL HEADSPACE SCREENING

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT

Camp Lejeune, NC

SAMPLE I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
HPFF-62	73 - 75	370	
HPFF-62	97 - 99	NM	
HPFF-62	106 - 108	NM	
HPFF-62	118 - 120	NM	
HPFF-62	133 - 135	NM	
HPFF-62	143 - 145	NM	
HPFF-62	153 - 155	NM	
HPFF-63	0 - 2	10	HPFF-63 0-2
HPFF-63	5 - 7	5	HPFF-63 5-7
HPFF-63	9 - 11	5	
HPFF-63	14 - 16	5	
HPFF-63	19 - 21	6	
HPFF-63	24 - 26	5	
HPFF-63	29 - 31	8	
HPFF-63	34 - 36	4	
HPFF-63	39 - 41	6	
HPFF-63	44 - 46	13	
HPFF-63	48 - 50	2	
HPFF-64	0 - 2	120	HPFF-64 0-2
HPFF-64	3.5 - 5.5	1000+	HPFF-64 3.5-5.5
HPFF-64	8.5 - 10.5	1000+	
HPFF-64	13.5 - 15.5	1000+	
HPFF-64	18.5 - 20.5	1000+	
HPFF-64	23.5 - 25.5	1000+	
HPFF-64	28.5 - 30.5	1000+	
HPFF-64	33.5 - 35.5	1000+	
HPFF-64	38.5 - 40.5	1000+	
HPFF-64	44 - 44.5	NM	
HPFF-64	49 - 51	0	
HPFF-65	0 - 2	500	HPFF-65 0-2
HPFF-65	4 - 6	1000+	
HPFF-65	9 - 11	1000+	
HPFF-65	14 - 16	1000+	
HPFF-65	19 - 21	1000+	
HPFF-65	24 - 26	1000+	
HPFF-65	29 - 31	1000+	
HPFF-65	34 - 36	1000+	

TABLE 1

SUMMARY OF SOIL HEADSPACE SCREENING

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT

Camp Lejeune, NC

SAMPLE I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
HPFF-65	39 - 41	1000+	
HPFF-65	44 - 46	4.0	
HPFF-65	49 - 51	2.5	
HPFF-65	54 - 56	1.5	
HPFF-65	59 - 61	7.0	
HPFF-65	69 - 71	22	
HPFF-65	75 - 77	22	
HPFF-66	0 - 2	0	HPFF-66 0-2
HPFF-66	4 - 6	1000+	
HPFF-66	9 - 11	500	
HPFF-66	14 - 16	10	
HPFF-66	19 - 21	1000+	
HPFF-66	24 - 26	600	
HPFF-66	29 - 31	350	
HPFF-66	34 - 36	150	
HPFF-66	39 - 41	250	
HPFF-66	42 - 44	9	
HPFF-66	44 - 46	0	
HPFF-66	48 - 50	20	
HPFF-67	0 - 2	13	HPFF-67&67D 0-2
HPFF-67	3.5 - 5.5	1000+	
HPFF-67	8.5 - 10.5	720	
HPFF-67	13.5 - 15.5	200	
HPFF-67	18.5 - 20.5	400	
HPFF-67	23.5 - 25.5	500	
HPFF-67	28.5 - 30.5	500	
HPFF-67	33.5 - 35.5	450	
HPFF-67	38.5 - 40.5	250	
HPFF-67	43 - 45	28	
HPFF-67	48 - 50	7.9	
HPFF-67	53 - 55	2.0	
HPFF-67	58 - 60	3.2	
HPFF-67	63 - 65	2.5	
HPFF-67	68 - 70	2.1	
HPFF-67	75 - 77	3.0	
HPFF-68	0 - 2	200	HPFF-68
HPFF-68	2 - 4	16	

TABLE 1

SUMMARY OF SOIL HEADSPACE SCREENING

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT

Camp Lejeune, NC

SAMPLE I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
HPFF-68	4 - 6	600	
HPFF-68	6 - 8	5.0	
HPFF-68	8 - 10	12	
HPFF-68	10 - 12	8.8	
HPFF-68	12 - 14	0.0	
HPFF-68	14 - 16	40	
HPFF-68	16 - 18	120	
HPFF-68	18 - 20	1000+	
HPFF-68	20 - 22	1000+	
HPFF-68	22 - 24	1000+	
HPFF-68	24 - 25	1000+	
HPFF-69	0 - 2	0	HPFF-69 0-2
HPFF-69	3.5 - 5.5	1000+	HPFF-69 3.5-5.5
HPFF-69	8.5 - 10.5	1000+	
HPFF-69	13.5 - 15.5	1000+	
HPFF-69	18.5 - 20.5	1000+	
HPFF-69	23.5 - 25.5	1000+	
HPFF-69	28.5 - 30.5	1000+	
HPFF-69	33.5 - 35.5	1000+	
HPFF-69	38.5 - 40.5	1000+	
HPFF-69	44 - 46	0	
HPFF-69	48 - 50	0	
HPFF-70	0 - 2	8.0	HPFF-70 0-2
HPFF-70	3.5 - 5.5	12.0	HPFF-70 3.5-5.5
HPFF-70	8.5 - 10.5	3.2	
HPFF-70	13.5 - 15.5	6.6	
HPFF-70	18.5 - 20.5	10.2	
HPFF-70	23.5 - 25.5	0.2	
HPFF-70	28.5 - 30.5	0	
HPFF-70	33.5 - 35.5	0	
HPFF-70	38.5 - 40.5	0	
HPFF-70	44 - 46	0	
HPFF-70	48 - 50	0	
HPFF-71	0 - 2	5.0	
HPFF-71	3.5 - 5.5	20	HPFF-71&71D 4-6
HPFF-71	8.5 - 10.5	2.8	
HPFF-71	13.5 - 15.5	0.6	

TABLE 1

SUMMARY OF SOIL HEADSPACE SCREENING

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT

Camp Lejeune, NC

SAMPLE I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
HPFF-71	18.5 - 20.5	0.2	
HPFF-71	23.5 - 25.5	1.0	
HPFF-71	28.5 - 30.5	0.8	
HPFF-71	33.5 - 35.5	0	
HPFF-71	38.5 - 40.5	0	
HPFF-71	43 - 45	4.2	
HPFF-71	48 - 50	0	
HPFF-71	53 - 55	2.2	
HPFF-71	58 - 60	2.2	
HPFF-71	63 - 65	0	
HPFF-71	68 - 69.5	4.3	
HPFF-71	78 - 80	9.0	
HPFF-72	0 - 2	0	
HPFF-72	2 - 4	240	
HPFF-72	4 - 6	NM	
HPFF-72	6 - 8	1000+	
HPFF-72	8 - 10	1000+	
HPFF-72	10 - 12	1000+	
HPFF-72	12 - 14	1000+	
HPFF-72	14 - 16	1000+	
HPFF-72	16 - 18	1000+	
HPFF-72	18 - 20	1000+	
HPFF-72	20 - 22	1000+	
HPFF-72	22 - 24	1000+	
HPFF-72	24 - 26	1000+	
HPFF-72	26 - 28	850	
HPFF-72	28 - 30	420	
HPFF-72	30 - 32	500	
HPFF-72	32 - 34	260	
HPFF-72	34 - 36	290	
HPFF-72	36 - 38	530	
HPFF-72	38 - 40	200	
HPFF-72	40 - 42	160	
HPFF-72	42 - 44	110	
HPFF-72	44 - 46	120	
HPFF-72	46 - 48	80	
HPFF-72	48 - 50	90	

TABLE 2 SUMMARY OF SOIL LABORATORY RESULTS

Date: Incident Number and Name: Facility ID#:

Analytical Method: 5030 + 3550

Sample ID	Contaminant of Concern →		Gasoline Range Organics	Diesel Range Organics
	Date Collected	Sample Depth (ft. BGS)		
STANDARDS (mg/Kg)			10	40
HPFF-43 4-6	1/2/2002	4-6	<7.2	<7.5
HPFF-43D 4-6	1/2/2002	4-6	<7.1	<7.0
HPFF-44 0-2	9/27/2001	0-2	<6.6	17
HPFF-44 4-6	9/27/2001	4-6	<7.2	<7.4
HPFF-45 0-2	12/20/2001	0-2	10	90
HPFF-45D 0-2	12/20/2001	0-2	26	65
HPFF-46 0-2	12/21/2001	0-2	<7.0	30
HPFF-46D 0-2	12/21/2001	0-2	<7.2	119
HPFF-47 0-2	9/27/2001	0-2	<6.6	37
HPFF-47 4.5-6.5	9/27/2001	4.5-6.5	<8.2	<12
HPFF-48 0-2'	9/21/2001	0-2	<7	16
HPFF-48 4-5'	9/21/2001	4-5	<7.2	<7.3
HPFF-49 4-6	12/19/2001	4-6	400	282
HPFF-49D 4-6	12/19/2001	4-6	89	352
HPFF-50 0-2'	9/21/2001	0-2	<7.1	<7.1
HPFF-50 2.5-4.5'	9/21/2001	2.5-4.5	<7.9	<11
HPFF-51 0-2'	9/21/2001	0-2	<7	10
HPFF-51 4-6'	9/21/2001	4-6	<6.7	<6.5
HPFF-52	12/13/2001	1-3	<6.9	<7.3
HPFF-53 4-6	9/28/2001	4-6	<7.8	<8.5
HPFF-54	9/18/2001		<6.9	<7.5
HPFF-55	12/13/2001	1-3	<6.7	<6.8
HPFF-56	12/13/2001	4-6	<7.1	<7.4
HPFF-57 1-3	10/1/2001	1-3	<6.7	<7.4
HPFF-57 5-7	10/1/2001	5-7	<7.2	<7.4
HPFF-58	12/13/2001	4-6	20	128
HPFF-59 1-3	1/3/2002	1-3	<7.2	<7.1
HPFF-61 0-2	9/27/2001	0-2	<6.9	10
HPFF-61 4-6	9/27/2001	4-6	51	103
HPFF-62 0-2	10/18/2001	0-2	<6.5	25

TABLE 2 SUMMARY OF SOIL LABORATORY RESULTS

Date: Incident Number and Name: Facility ID#:

Analytical Method: 5030 + 3550

Sample ID	Contaminant of Concern → Date Collected	Sample Depth (ft. BGS)	Gasoline Range Organics	Diesel Range Organics
STANDARDS (mg/Kg)			10	40
HPFF-62 0-2 DUP	10/18/2001	0-2	<6.5	20
HPFF-62 3-5	10/18/2001	3-5	<6.9	<7.3
HPFF-62 3-5 DUP	10/18/2001	3-5	<7.2	9
HPFF-63 0-2	9/28/2001	0-2	<7.3	<6.8
HPFF-63 0-2	10/1/2001	0-2	<6.8	30
HPFF-63 5-7	10/1/2001	5-7	<6.9	<7.6
HPFF-64 0-2	9/25/2001	0-2	<12	30
HPFF-64 3.5-5.5	9/25/2001	3.5-5.5	94	49
HPFF-65 0-2	12/17/2001	0-2	<6.5	300
HPFF-66 0-2	10/1/2001	0-2	<6.6	<6.5
HPFF-67 0-2	12/18/2001	0-2	<6.8	<6.5
HPFF-67D 0-2	12/18/2001	0-2	<6.9	10
HPFF-68	9/18/2001	0-2	<6.9	9
HPFF-69 0-2	9/26/2001	0-2	<7.5	<7.6
HPFF-69 3.5-5.5	9/26/2001	0-2	<3.2	<3.5
HPFF-70 0-2	9/26/2001	0-2	<6.6	<6.9
HPFF-70 3.5-5.5	9/26/2001	3.5-5.5	<6.1	<5.8
HPFF-71 4-6	12/18/2001	4-6	<6.8	<6.6
HPFF-71D 4-6	12/18/2001	4-6	<6.8	<6.2
D-1	10/19/2001	N/A	<7.7	<6.8
D-2	10/19/2001	N/A	16	46
D-3	10/19/2001	N/A	<7.7	<7.7
Dumpster 4	2/11/2002	N/A	<7.6	<7.9

TABLE 3
WELL CONSTRUCTION AND WATER LEVEL GAUGING INFORMATION
HADNOT POINT FUEL FARM 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT
MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

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
1101-01	UNKNOWN	07/16/02	3.0	3.0 - 13.0	13.0	27.17	8.42	NMT	18.75	-	-
1101-02	UNKNOWN	07/16/02	3.0	3.0 - 13.0	13.0	27.36	9.81	NMT	17.55	-	-
1101-03	UNKNOWN	07/16/02	3.0	3.0 - 13.0	13.0	26.82	9.33	NMT	17.49	-	-
1115-01	11/29/93	07/16/02	5.0	5.0 - 15.0	15.0	26.11	9.77	NMT	16.34	-	-
1115-02	11/29/93	07/16/02	4.0	4.0 - 14.0	14.0	25.97	9.73	NMT	16.24	-	-
1115-03	12/14/93	07/16/02	5.0	5.0 - 20.0	20.0	26.17	8.70	NMT	17.47	-	-
1115-04	11/30/93	07/16/02	5.0	5.0 - 15.0	15.0	27.31	11.78	NMT	15.53	-	-
1115-05	11/30/93	07/16/02	5.0	5.0 - 15.0	15.0	26.37	5.82	NMT	20.55	-	-
1115-06	12/16/93	07/16/02	5.0	5.0 - 20.0	20.0	28.20	10.51	NMT	17.69	-	-
1115-07	12/14/93	07/16/02	5.0	5.0 - 20.0	20.0	26.28	7.62	NMT	18.66	-	-
1115-08	12/15/93	07/16/02	5.0	5.0 - 20.0	20.0	27.89	10.45	NMT	17.44	-	-
1115-09	12/02/93	07/16/02	5.0	5.0 - 20.0	20.0	28.48	11.95	NMT	16.53	-	-
1115-10	11/29/93	07/16/02	4.0	4.0 - 14.0	14.0	25.92	6.91	NMT	19.01	-	-
1115-11	12/14/93	07/16/02	5.0	5.0 - 20.0	20.0	27.89	9.94	NMT	17.95	-	-
1115-12	11/30/93	07/16/02	5.0	5.0 - 15.0	15.0	26.17	6.41	NMT	19.76	-	-
1115-13	12/09/93	07/16/02	46.0	46.0 - 51.0	51.0	25.90	10.42	NMT	15.48	40.0	-
1115-14	12/06/93	07/16/02	46.0	46.0 - 51.0	51.0	27.96	12.49	NMT	15.47	40.0	-
1115-15	12/02/93	07/16/02	46.0	46.0 - 51.0	51.0	25.93	10.31	NMT	15.62	40.0	-
1115-17	06/01/95	07/16/02	45.0	45.0 - 50.0	50.0	26.19	11.33	NMT	14.86	40.0	-
1115-18	06/08/95	07/16/02	45.0	45.0 - 50.0	50.0	27.61	11.33	NMT	16.28	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)]

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MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

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
1115-19	06/09/95	07/16/02	45.0	45.0 - 50.0	50.0	26.11	9.57	NMT	16.54	40.0	-
1115-20	06/12/95	07/16/02	45.0	45.0 - 50.0	50.0	26.24	10.12	NMT	16.12	40.0	-
1115-21	06/07/95	07/16/02	45.0	45.0 - 50.0	50.0	25.89	10.59	NMT	15.30	40.0	-
1115-22	07/11/95	07/16/02	75.0	75.0 - 80.0	80.0	27.48	13.05	NMT	14.43	70.0	-
1115-23	07/11/95	07/16/02	75.0	75.0 - 80.0	80.0	27.90	12.35	NMT	15.55	70.0	-
1115-24	06/29/95	07/16/02	75.0	75.0 - 80.0	80.0	26.18	11.84	NMT	14.34	70.0	-
1115-25	07/05/95	07/16/02	75.0	75.0 - 80.0	80.0	26.16	11.13	NMT	15.03	70.0	-
78GW-12	11/18/86	07/16/02	5.0	5.0 - 25.0	25.0	25.11	12.26	NMT	12.85	-	-
78GW-13	11/17/86	07/16/02	5.0	5.0 - 25.0	25.0	25.79	12.72	NMT	13.07	-	-
78GW-14	11/05/86	07/16/02	5.0	5.0 - 25.0	25.0	24.51	8.73	NMT	15.78	-	-
78GW-15	11/06/86	07/16/02	5.0	5.0 - 15.0	25.0	26.93	9.91	NMT	17.02	-	-
78GW-16	UNKNOWN	07/16/02	5.0	5.0 - 25.0	25.0	32.39	13.71	NMT	18.68	-	-
78GW-17 -01	11/06/86	07/16/02	5.0	5.0 - 25.0	25.0	29.99	12.51	NMT	17.48	-	-
78GW-17 -02	UNKNOWN	07/16/02	53.0	53.0 - 73.0	UNKNOWN	32.16	15.27	NMT	16.89	-	-
78GW-19	11/06/86	07/16/02	5.0	5.0 - 25.0	25.0	29.18	9.83	NMT	19.35	-	-
78GW-21	11/19/86	07/16/02	5.0	5.0 - 25.0	25.0	33.79	11.58	NMT	22.21	-	-
78GW-22 -01	UNKNOWN	07/16/02	7.0	7.0 - 17.0	UNKNOWN	28.93	8.66	NMT	20.27	-	-
78GW-31 -03	12/17/90	07/16/02	140.0	140.0 - 150.0	158.0	25.98	11.59	NMT	14.39	-	-
78GW-32 -02	12/20/90	07/16/02	64.0	64.0 - 74.0	77.0	26.87	10.65	NMT	16.22	-	-
78GW-32 -03	12/20/90	07/16/02	140.0	140.0 - 150.0	153.0	27.11	11.08	NMT	16.03	-	-

* 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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MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

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
GT-01	06/15/93	07/16/02	5.0	5.0 - 20.0	20.0	26.75	3.93	NMT	22.82	-	-
GT-02	06/15/93	07/16/02	5.0	5.0 - 20.0	20.0	25.59	6.98	NMT	18.61	-	-
GT-03	06/15/93	07/16/02	5.0	5.0 - 20.0	20.0	26.58	6.22	NMT	20.36	-	-
GT-04	06/15/93	07/16/02	5.0	5.0 - 20.0	20.0	26.50	6.39	NMT	20.11	-	-
GT-05	06/15/93	07/16/02	5.0	5.0 - 20.0	20.0	26.51	7.81	NMT	18.70	-	-
GT-06	06/15/93	07/16/02	5.0	5.0 - 20.0	20.0	26.59	6.46	NMT	20.13	-	-
GT-07	06/15/93	07/16/02	4.0	4.0 - 19.0	19.0	26.24	5.97	NMT	20.27	-	-
GT-08	06/16/93	07/16/02	4.5	4.5 - 19.5	19.5	26.97	6.74	NMT	20.23	-	-
GT-09	06/16/93	07/16/02	5.0	5.0 - 20.0	20.0	26.48	6.32	NMT	20.16	-	-
HPFF-01	11/21/95	07/16/02	5.0	5.0 - 15.0	15.0	28.46	5.05	NMT	23.41	-	-
HPFF-02	11/21/95	07/16/02	5.0	5.0 - 15.0	15.0	29.47	7.40	NMT	22.07	-	-
HPFF-03	11/21/95	07/16/02	6.0	6.0 - 16.0	16.0	31.21	11.60	NMT	19.61	-	-
HPFF-04	11/21/95	07/16/02	5.0	5.0 - 15.0	15.0	31.02	11.01	NMT	20.01	-	-
HPFF-05	11/21/95	07/16/02	5.0	5.0 - 15.0	15.0	27.33	9.95	NMT	17.38	-	-
HPFF-06	11/08/95	07/16/02	45.0	45.0 - 50.0	50.0	30.93	12.34	NMT	18.59	40.0	-
HPFF-07	11/10/95	07/16/02	44.5	44.5 - 49.5	49.5	28.28	11.13	NMT	17.15	40.0	-
HPFF-08	11/17/95	07/16/02	44.5	44.5 - 49.5	49.5	34.90	16.97	NMT	17.93	40.0	-
HPFF-09	11/16/95	07/16/02	45.0	45.0 - 50.0	50.0	27.13	10.27	NMT	16.86	40.0	-
HPFF-10	07/17/97	07/16/02	75.0	75.0 - 80.0	80.0	32.50	15.71	NMT	16.79	70.0	40.0
HPFF-11	07/28/97	07/16/02	105.0	105.0 - 110.0	110.0	32.28	15.49	NMT	16.79	100.0	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)]

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MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

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-12	07/16/97	07/16/02	105.0	105.0 - 110.0	110.0	27.12	10.90	NMT	16.22	100.0	40.0
HPFF-13	07/10/97	07/16/02	105.0	105.0 - 110.0	110.0	26.32	11.74	NMT	14.58	100.0	40.0
HPFF-14	06/25/97	07/16/02	5.0	5.0 - 15.0	15.0	27.02	4.87	NMT	22.15	-	-
HPFF-15	06/25/97	07/16/02	5.0	5.0 - 15.0	15.0	27.69	8.64	1.06	19.87	-	-
HPFF-16	06/25/97	07/16/02	5.0	5.0 - 15.0	15.0	27.93	8.20	NMT	19.73	-	-
HPFF-17	06/26/97	07/16/02	5.0	5.0 - 15.0	15.0	27.61	7.87	NMT	19.74	-	-
HPFF-19	07/08/97	07/16/02	5.0	5.0 - 15.0	15.0	26.43	6.62	NMT	19.81	-	-
HPFF-20	07/08/97	07/16/02	5.0	5.0 - 15.0	15.0	28.74	9.01	NMT	19.73	-	-
HPFF-21	01/17/00	07/16/02	4.5	4.5 - 14.5	14.5	27.27	3.64	NMT	23.63	-	-
HPFF-23	01/19/00	07/16/02	2.5	2.5 - 12.5	12.5	26.44	7.32	NMT	19.12	-	-
HPFF-24	01/20/00	07/16/02	5.3	5.3 - 15.3	15.3	31.37	12.27	NMT	19.10	-	-
HPFF-25	01/20/00	07/16/02	5.3	5.3 - 15.3	15.3	31.41	12.78	NMT	18.63	-	-
HPFF-26	01/21/00	-	5.3	5.3 - 15.3	15.3	31.57	COULD NOT LOCATE WELL			-	-
HPFF-27	01/28/00	07/16/02	4.0	4.0 - 14.0	14.0	30.54	11.72	NMT	18.82	-	-
HPFF-28	01/19/00	07/16/02	4.0	4.0 - 14.0	14.0	27.48	7.61	SORBENT	19.87	-	-
HPFF-30	01/21/00	07/16/02	2.0	2.0 - 12.0	12.0	26.80	5.45	NMT	21.35	-	-
HPFF-31	01/21/00	07/16/02	4.0	4.0 - 14.0	14.0	28.45	10.39	NMT	18.06	-	-
HPFF-32	01/26/00	07/16/02	4.0	4.0 - 14.0	14.0	29.65	11.50	NMT	18.15	-	-
HPFF-33	01/26/00	07/16/02	4.0	4.0 - 14.0	14.0	29.74	12.00	NMT	17.74	-	-
HPFF-34	01/26/00	07/16/02	4.0	4.0 - 14.0	14.0	26.58	9.78	NMT	16.80	-	-

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

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MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

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-35	01/31/00	07/16/02	4.0	4.0 - 14.0	14.0	26.72	9.82	NMT	16.90	-	-
HPFF-36	02/02/00	07/16/02	3.9	3.9 - 13.9	13.9	26.63	9.52	NMT	17.11	-	-
HPFF-37	02/02/00	07/16/02	3.8	3.8 - 13.8	13.8	26.00	9.32	NMT	16.68	-	-
HPFF-38	01/31/00	07/16/02	4.0	4.0 - 14.0	14.0	30.31	9.19	NMT	21.12	-	-
HPFF-39	02/29/00	07/16/02	5.0	5.0 - 15.0	15.0	24.85	4.48	NMT	20.37	-	-
HPFF-40	02/09/00	07/16/02	5.0	5.0 - 15.0	15.0	27.90	7.39	NMT	20.51	-	-
HPFF-41	03/02/00	07/16/02	5.0	5.0 - 15.0	15.0	29.59	10.12	NMT	19.47	-	-
HPFF-42	03/03/00	07/16/02	5.0	5.0 - 15.0	15.0	27.71	8.07	NMT	19.64	-	-
HPFF-43	03/07/02	07/17/02	75.0	75.0 - 80.0	80.0	23.01	10.62	NMT	12.39	70.0	39.0
HPFF-44	10/08/01	07/17/02	45.0	45.0 - 50.0	50.0	23.00	10.23	NMT	12.77	40.0	-
HPFF-45	03/07/02	07/17/02	75.0	75.0 - 80.0	80.0	24.80	11.19	NMT	13.61	70.0	38.0
HPFF-46	03/07/02	07/17/02	145.0	145.0 - 150.0	150.0	24.53	11.07	NMT	13.46	140.0	40.0
HPFF-47	10/09/01	07/17/02	45.0	45.0 - 50.0	50.0	24.99	11.52	NMT	13.47	40.0	-
HPFF-48	10/10/01	07/17/02	5.0	5.0 - 15.0	15.0	23.82	8.60	NMT	15.22	-	-
HPFF-49	02/24/02	07/17/02	75.0	75.0 - 80.0	80.0	23.40	9.25	NMT	14.15	70.0	40.0
HPFF-50	10/09/01	07/17/02	45.0	45.0 - 50.0	50.0	23.51	9.03	NMT	14.48	40.0	-
HPFF-51	10/10/01	07/17/02	5.0	5.0 - 15.0	15.0	27.72	12.29	NMT	15.43	-	-
HPFF-52	02/24/02	07/17/02	145.0	145.0 - 150.0	150.0	28.36	12.07	NMT	16.29	140.0	40.0
HPFF-53	10/12/01	07/17/02	45.0	45.0 - 50.0	50.0	27.71	11.90	NMT	15.81	40.0	-
HPFF-54	10/10/01	07/17/02	2.0	2.0 - 17.0	17.0	27.41	5.34	NMT	22.07	-	-

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HPFF-55	02/24/02	07/17/02	75.0	75.0 - 80.0	80.0	27.50	10.43	NMT	17.07	70.0	40.0
HPFF-56	02/06/02	07/17/02	145.0	145.0 - 150.0	150.0	27.93	11.53	NMT	16.40	140.0	40.0
HPFF-57	10/08/01	07/17/02	45.0	45.0 - 50.0	50.0	26.05	10.73	NMT	15.32	40.0	-
HPFF-58	02/06/02	07/17/02	75.0	75.0 - 80.0	80.0	26.34	10.67	NMT	15.67	70.0	40.0
HPFF-59	02/06/02	07/17/02	75.0	75.0 - 80.0	80.0	27.94	11.20	NMT	16.74	70.0	40.0
HPFF-60	10/17/01	07/16/02	145.0	145.0 - 150.0	150.0	27.19	10.22	NMT	16.97	140.0	40.0
HPFF-61	10/17/01	07/17/02	45.0	45.0 - 50.0	50.0	27.34	11.29	NMT	16.05	40.0	-
HPFF-62	02/06/02	07/17/02	150.0	150.0 - 155.0	155.0	26.86	23.29	NMT	3.57	145.0	75.0
HPFF-63	10/09/01	07/17/02	45.0	45.0 - 50.0	50.0	29.73	15.07	NMT	14.66	40.0	-
HPFF-64	10/10/01	07/17/02	45.0	45.0 - 50.0	50.0	27.58	10.02	NMT	17.56	40.0	-
HPFF-65	02/06/02	07/17/02	75.0	75.0 - 80.0	80.0	29.79	13.25	NMT	16.54	70.0	40.0
HPFF-66	10/09/01	07/17/02	45.0	45.0 - 50.0	50.0	27.41	10.08	NMT	17.33	40.0	-
HPFF-67	02/06/02	07/17/02	75.0	75.0 - 80.0	80.0	27.40	11.12	NMT	16.28	70.0	38.0
HPFF-68	10/11/01	07/17/02	5.0	5.0 - 25.0	25.0	27.37	7.87	NMT	19.50	-	-
HPFF-69	10/03/01	07/17/02	45.0	45.0 - 50.0	50.0	29.87	13.14	NMT	16.73	40.0	-
HPFF-70	10/03/01	07/17/02	45.0	45.0 - 50.0	50.0	30.76	12.42	NMT	18.34	40.0	-
HPFF-71	02/06/02	07/17/02	75.0	75.0 - 80.0	80.0	30.74	13.79	NMT	16.95	69.0	40.0
HPFF-72	03/06/02	07/16/02	18.0	18.0 - 30.0	30.0	27.84	10.27	0.04	17.60	-	-
MW-01	02/24/88	07/16/02	7.0	7.0 - 17.0	17.0	30.18	10.36	SORBENT	19.82	-	-
MW-02	02/24/88	07/16/02	7.0	7.0 - 17.0	17.0	31.86	12.68	SORBENT	19.18	-	-

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HADNOT POINT FUEL FARM 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT
MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

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
MW-03	02/25/88	07/16/02	5.0	5.0 - 15.0	15.0	29.22	9.30	NMT	19.92	-	-
MW-04	02/25/88	07/16/02	5.0	5.0 - 15.0	15.0	31.22	11.43	NMT	19.79	-	-
MW-05	02/25/88	07/16/02	5.0	5.0 - 15.0	15.0	28.17	4.75	NMT	23.42	-	-
MW-06	03/01/88	07/16/02	5.0	5.0 - 15.0	15.0	30.10	9.31	NMT	20.79	-	-
MW-09	02/25/88	07/16/02	5.0	5.0 - 15.0	15.0	29.37	11.51	NMT	17.86	-	-
MW-10R	03/30/95	07/16/02	5.0	5.0 - 15.0	15.0	33.96	14.30	SORBENT	19.66	-	-
MW-11	03/02/88	07/16/02	5.0	5.0 - 25.0	25.0	28.74	7.20	NMT	21.54	-	-
MW-12	03/07/88	07/16/02	5.0	5.0 - 25.0	25.0	28.73	9.07	NMT	19.66	-	-
MW-15	03/08/88	07/16/02	5.0	5.0 - 25.0	25.0	30.45	9.25	SORBENT	21.20	-	-
MW-17	03/09/88	07/16/02	5.0	5.0 - 25.0	25.0	31.33	12.50	NMT	18.83	-	-
MW-18	03/11/88	07/16/02	5.0	5.0 - 25.0	25.0	31.97	13.40	0.46	18.92	-	-
MW-19	03/15/88	07/16/02	5.0	5.0 - 25.0	25.0	32.18	13.18	NMT	19.00	-	-
MW-20	03/14/88	07/16/02	4.0	4.0 - 24.0	24.0	31.23	8.18	NMT	23.05	-	-
MW-21	UNKNOWN	07/16/02	4.0	4.0 - 19.0	UNKNOWN	26.69	5.40	NMT	21.29	-	-
MW-A	UNKNOWN	07/16/02	4.0	4.0 - 14.0	UNKNOWN	28.61	8.35	SORBENT	20.26	-	-

* 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 SORBENT = Sorbent in well - data not utilized for contouring

NMT = No Measurable Thickness

TABLE 4

SUMMARY OF VERTICAL HYDRAULIC GRADIENT ESTIMATES AS OF JULY 16-17, 2002

HADNOT POINT 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

	WELL PAIRS			
	SHALLOW	50 ft.	SHALLOW	80 ft.
	HPFF-04	HPFF-70	HPFF-04	HPFF-71
Top of Casing Elevation (ft.)	31.02	30.76	31.02	30.74
Depth to Water (ft.)	11.01	12.42	11.01	13.79
Approx. Mid-Screen Depth (ft.)	10.0	47.5	10.0	77.5
Approx. Mid-Screen Elevation (ft.)	21.0	-16.7	21.0	-46.8
Static Water Level Elevation (ft.)	20.01	18.34	20.01	16.95
Difference in Static Water Level Elevation (ft.)	1.67		3.06	
Difference in Mid-Screen Elevation (ft.)	37.76		67.78	
Vertical Gradient	0.04		0.05	

NOTES:

* = Depth to water and water table elevation adjusted for free product.

POSITIVE GRADIENT INDICATES POTENTIAL DOWNWARD MOVEMENT

TABLE 4

SUMMARY OF VERTICAL HYDRAULIC GRADIENT ESTIMATES AS OF JULY 16-17, 2002

HADNOT POINT 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

	WELL PAIRS			
	SHALLOW	50 ft.	SHALLOW	80 ft.
	MW-15	HPFF-66	MW-15	HPFF-67
Top of Casing Elevation (ft.)	30.45	27.41	30.45	27.40
Depth to Water (ft.)	9.25	10.08	9.25	11.12
Approx. Mid-Screen Depth (ft.)	15.0	47.5	15.0	77.5
Approx. Mid-Screen Elevation (ft.)	15.5	-20.1	15.5	-50.1
Static Water Level Elevation (ft.)	21.20	17.33	21.20	16.28
Difference in Static Water Level Elevation (ft.)	3.87		4.92	
Difference in Mid-Screen Elevation (ft.)	35.54		65.55	
Vertical Gradient	0.11		0.08	

NOTES:

* = Depth to water and water table elevation adjusted for free product.

POSITIVE GRADIENT INDICATES POTENTIAL DOWNWARD MOVEMENT

TABLE 4

SUMMARY OF VERTICAL HYDRAULIC GRADIENT ESTIMATES AS OF JULY 16-17, 2002

HADNOT POINT 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

	WELL PAIRS			
	SHALLOW	50 ft.	SHALLOW	50 ft.
	HPFF-15*	HPFF-64	HPFF-14	HPFF-61
Top of Casing Elevation (ft.)	27.69	27.58	27.02	27.34
Depth to Water (ft.)	7.82	10.02	4.87	11.29
Approx. Mid-Screen Depth (ft.)	10.0	47.5	10.0	47.5
Approx. Mid-Screen Elevation (ft.)	17.7	-19.9	17.0	-20.2
Static Water Level Elevation (ft.)	19.87	17.56	22.15	16.05
Difference in Static Water Level Elevation (ft.)	2.31		6.10	
Difference in Mid-Screen Elevation (ft.)	37.61		37.18	
Vertical Gradient	0.06		0.16	

NOTES:

* = Depth to water and water table elevation adjusted for free product.

POSITIVE GRADIENT INDICATES POTENTIAL DOWNWARD MOVEMENT

TABLE 4

SUMMARY OF VERTICAL HYDRAULIC GRADIENT ESTIMATES AS OF JULY 16-17, 2002

HADNOT POINT 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

	WELL PAIRS			
	SHALLOW	110 ft.	SHALLOW	150 ft.
	HPFF-14	HPFF-12	HPFF-14	HPFF-60
Top of Casing Elevation (ft.)	27.02	27.12	27.02	27.19
Depth to Water (ft.)	4.87	10.90	4.87	10.22
Approx. Mid-Screen Depth (ft.)	10.0	107.5	10.0	147.5
Approx. Mid-Screen Elevation (ft.)	17.0	-80.4	17.0	-120.3
Static Water Level Elevation (ft.)	22.15	16.22	22.15	16.97
Difference in Static Water Level Elevation (ft.)	5.93		5.18	
Difference in Mid-Screen Elevation (ft.)	97.40		137.33	
Vertical Gradient	**0.06**		**0.04**	

NOTES:

* = Depth to water and water table elevation adjusted for free product.

POSITIVE GRADIENT INDICATES POTENTIAL DOWNWARD MOVEMENT

TABLE 4

SUMMARY OF VERTICAL HYDRAULIC GRADIENT ESTIMATES AS OF JULY 16-17, 2002

HADNOT POINT 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

	WELL PAIRS			
	SHALLOW	50 ft.	SHALLOW	80 ft.
	1115-07	1115-19	1115-07	HPFF-58
Top of Casing Elevation (ft.)	26.28	26.11	26.28	26.34
Depth to Water (ft.)	7.62	9.57	7.62	10.67
Approx. Mid-Screen Depth (ft.)	12.5	47.5	12.5	77.5
Approx. Mid-Screen Elevation (ft.)	13.8	-21.4	13.8	-51.2
Static Water Level Elevation (ft.)	18.66	16.54	18.66	15.67
Difference in Static Water Level Elevation (ft.)	2.12		2.99	
Difference in Mid-Screen Elevation (ft.)	35.17		64.94	
Vertical Gradient	**0.06**		**0.05**	

NOTES:

* = Depth to water and water table elevation adjusted for free product.

POSITIVE GRADIENT INDICATES POTENTIAL DOWNWARD MOVEMENT

TABLE 4

SUMMARY OF VERTICAL HYDRAULIC GRADIENT ESTIMATES AS OF JULY 16-17, 2002

HADNOT POINT 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

	WELL PAIRS			
	SHALLOW	50 ft.	SHALLOW	50 ft.
	1115-10	1115-13	1115-10	1115-25
Top of Casing Elevation (ft.)	25.92	25.90	25.92	26.16
Depth to Water (ft.)	6.91	10.42	6.91	11.13
Approx. Mid-Screen Depth (ft.)	9.0	48.5	9.0	77.5
Approx. Mid-Screen Elevation (ft.)	16.9	-22.6	16.9	-51.3
Static Water Level Elevation (ft.)	19.01	15.48	19.01	15.03
Difference in Static Water Level Elevation (ft.)	3.53		3.98	
Difference in Mid-Screen Elevation (ft.)	39.52		68.26	
Vertical Gradient	0.09		0.06	

NOTES:

* = Depth to water and water table elevation adjusted for free product.

POSITIVE GRADIENT INDICATES POTENTIAL DOWNWARD MOVEMENT

TABLE 4

SUMMARY OF VERTICAL HYDRAULIC GRADIENT ESTIMATES AS OF JULY 16-17, 2002

HADNOT POINT 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

	WELL PAIRS			
	SHALLOW	50 ft.	SHALLOW	80 ft.
	HPFF-39	HPFF-47	HPFF-39	HPFF-45
Top of Casing Elevation (ft.)	24.85	24.99	24.85	24.80
Depth to Water (ft.)	4.48	11.52	4.48	11.19
Approx. Mid-Screen Depth (ft.)	10.0	47.5	10.0	77.5
Approx. Mid-Screen Elevation (ft.)	14.9	-22.5	14.9	-52.7
Static Water Level Elevation (ft.)	20.37	13.47	20.37	13.61
Difference in Static Water Level Elevation (ft.)	6.90		6.76	
Difference in Mid-Screen Elevation (ft.)	37.36		67.55	
Vertical Gradient	0.18		0.10	

NOTES:

* = Depth to water and water table elevation adjusted for free product.

POSITIVE GRADIENT INDICATES POTENTIAL DOWNWARD MOVEMENT

TABLE 4

SUMMARY OF VERTICAL HYDRAULIC GRADIENT ESTIMATES AS OF JULY 16-17, 2002

HADNOT POINT 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

	WELL PAIRS			
	SHALLOW	150 ft	SHALLOW	50 ft.
	HPFF-39	HPFF-46	1115-02	1115-21
Top of Casing Elevation (ft.)	24.85	24.53	25.97	25.89
Depth to Water (ft.)	4.48	11.07	9.73	10.59
Approx. Mid-Screen Depth (ft.)	10.0	147.5	9.0	47.5
Approx. Mid-Screen Elevation (ft.)	14.9	-123.0	17.0	-21.6
Static Water Level Elevation (ft.)	20.37	13.46	16.24	15.30
Difference in Static Water Level Elevation (ft.)	6.91		0.94	
Difference in Mid-Screen Elevation (ft.)	137.82		38.58	
Vertical Gradient	0.05		0.02	

NOTES:

* = Depth to water and water table elevation adjusted for free product.

POSITIVE GRADIENT INDICATES POTENTIAL DOWNWARD MOVEMENT

TABLE 4

SUMMARY OF VERTICAL HYDRAULIC GRADIENT ESTIMATES AS OF JULY 16-17, 2002

HADNOT POINT 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

	WELL PAIRS			
	SHALLOW	80 ft.	SHALLOW	50 ft.
	1115-02	1115-24	HPFF-54	HPFF-53
Top of Casing Elevation (ft.)	25.97	26.18	27.41	27.71
Depth to Water (ft.)	9.73	11.84	5.34	11.90
Approx. Mid-Screen Depth (ft.)	9.0	77.5	9.5	47.5
Approx. Mid-Screen Elevation (ft.)	17.0	-51.3	17.9	-19.8
Static Water Level Elevation (ft.)	16.24	14.34	22.07	15.81
Difference in Static Water Level Elevation (ft.)	1.90		6.26	
Difference in Mid-Screen Elevation (ft.)	68.29		37.70	
Vertical Gradient	0.03		0.17	

NOTES:

* = Depth to water and water table elevation adjusted for free product.

POSITIVE GRADIENT INDICATES POTENTIAL DOWNWARD MOVEMENT

TABLE 4

SUMMARY OF VERTICAL HYDRAULIC GRADIENT ESTIMATES AS OF JULY 16-17, 2002

HADNOT POINT 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

	WELL PAIRS			
	SHALLOW	80 ft.	SHALLOW	150 ft.
	HPFF-54	HPFF-55	HPFF-54	HPFF-52
Top of Casing Elevation (ft.)	27.41	27.50	27.41	28.36
Depth to Water (ft.)	5.34	10.43	5.34	12.07
Approx. Mid-Screen Depth (ft.)	9.5	77.5	9.5	147.5
Approx. Mid-Screen Elevation (ft.)	17.9	-50.0	17.9	-119.1
Static Water Level Elevation (ft.)	22.07	17.07	22.07	16.29
Difference in Static Water Level Elevation (ft.)	5.00		5.78	
Difference in Mid-Screen Elevation (ft.)	67.91		137.05	
Vertical Gradient	0.07		0.04	

NOTES:

* = Depth to water and water table elevation adjusted for free product.

POSITIVE GRADIENT INDICATES POTENTIAL DOWNWARD MOVEMENT

TABLE 4

SUMMARY OF VERTICAL HYDRAULIC GRADIENT ESTIMATES AS OF JULY 16-17, 2002

HADNOT POINT 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

	WELL PAIRS			
	SHALLOW	50 ft.	SHALLOW	80 ft.
	78GW-13	HPFF-44	78GW-13	HPFF-43
Top of Casing Elevation (ft.)	25.79	23.00	25.79	23.01
Depth to Water (ft.)	12.72	10.23	12.72	10.62
Approx. Mid-Screen Depth (ft.)	15.0	47.5	15.0	77.5
Approx. Mid-Screen Elevation (ft.)	10.8	-24.5	10.8	-54.5
Static Water Level Elevation (ft.)	13.07	12.77	13.07	12.39
Difference in Static Water Level Elevation (ft.)	0.30		0.68	
Difference in Mid-Screen Elevation (ft.)	35.29		65.28	
Vertical Gradient	0.01		0.01	

NOTES:

* = Depth to water and water table elevation adjusted for free product.

POSITIVE GRADIENT INDICATES POTENTIAL DOWNWARD MOVEMENT

TABLE 4

SUMMARY OF VERTICAL HYDRAULIC GRADIENT ESTIMATES AS OF JULY 16-17, 2002

HADNOT POINT 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

	WELL PAIRS			
	SHALLOW	50 ft.	SHALLOW	80 ft.
	HPFF-48	HPFF-50	HPFF-48	HPFF-49
Top of Casing Elevation (ft.)	23.82	23.51	23.82	23.40
Depth to Water (ft.)	8.60	9.03	8.60	9.25
Approx. Mid-Screen Depth (ft.)	10.0	47.5	10.0	77.5
Approx. Mid-Screen Elevation (ft.)	13.8	-24.0	13.8	-54.1
Static Water Level Elevation (ft.)	15.22	14.48	15.22	14.15
Difference in Static Water Level Elevation (ft.)	0.74		1.07	
Difference in Mid-Screen Elevation (ft.)	37.81		67.92	
Vertical Gradient	0.02		0.02	

NOTES:

* = Depth to water and water table elevation adjusted for free product.

POSITIVE GRADIENT INDICATES POTENTIAL DOWNWARD MOVEMENT

TABLE 5 SUMMARY OF GROUNDWATER LABORATORY RESULTS

Date: July 2002 | Incident Number and Name: Hadnot PointFuel Farm, MCB Camp Lejeune | Facility ID#: N/A

Analytical Method: EPA Method 602

Well ID	Contaminant of Concern →		Benzene	Diisopropyl ether	Ethylbenzene	Methyl-tert-butyl ether	Toluene	Total Xylenes
	Sample ID	Date Collected						
GCL (µg/L)			**5,000**	**70,000**	**29,000**	**200,000**	**257,500**	**87,500**
2L GWQS (µg/L)			**1**	**70**	**29**	**200**	**1,000**	**530**
1101-01	1101-01	7/17/02	<1	<1	<1	<2	<1	<2
1101-03	1101-03	7/18/02	<1	<1	<1	<2	<1	<2
1115-07	1115-07	7/17/02	6000	<500*	2200	<1000*	16000	7300
1115-09	1115-09	7/18/02	140	<8	<8	<16	<8	<16
1115-9 DUP	1115-9 DUP	7/18/02	150	<8	<8	<16	<8	<16
1115-14	1115-14	7/18/02	6600	790	390	<400*	<200	450
1115-14 DUP	1115-14 DUP	7/18/02	6700	810	390	<400*	<200	450
1115-15	1115-15	7/18/02	2300	1100	280	<160	<80	<160
1115-19	1115-19	7/17/02	2400	1500	200	<200	<100	250
1115-20	1115-20	7/18/02	15000	7700	1500	<1600*	16000	5300
78GW-17-02	78GW-17-02	7/18/02	2	3	<1	<2	<1	<2
78GW-22-2+	F12222-12	2/2/02	22.8	ND	<1	ND	<1	<3
78GW31-02	78GW31-02	8/28/02	<1	<1	<1	<2	<1	<2
78GW31-03	78GW31-03	8/28/02	<1	<1	<1	<2	<1	<2
GT-08	GT-08	7/18/02	<1	<1	<1	<2	<1	<2
GW-32-2+	F12292-10	2/9/02	228	ND	<10	ND	95.2	984
GW-32-3+	F12292-9	2/9/02	2.7	ND	<1	ND	2.2	4.1
HPFF-01	HPFF-01	7/17/02	<1	<1	<1	<2	<1	<2
HPFF-02	HPFF-02	7/18/02	<1	<1	<1	<2	<1	<2
HPFF-03	HPFF-03	7/18/02	<1	<1	<1	<2	<1	<2
HPFF-05	HPFF-05	7/17/02	3	11	<1	3	<1	<2
HPFF-06	HPFF-06	7/18/02	<1	<1	<1	<2	<1	<2
HPFF-7+	F12292-1	2/9/02	24.9	ND	15.5	ND	36.4	15
HPFF-09	HPFF-09	7/17/02	8100	1300	400	<400*	<200	<400
HPFF-8+	F12292-3	2/9/02	12300	ND	714	ND	725	882
HPFF-10	HPFF-10	7/17/02	580	<40	<40*	<80	<40	<80
HPFF-11	HPFF-11	7/17/02	370	<10	<10	<20	<10	<20
HPFF-12	HPFF-12	7/17/02	3000	<100*	<100*	<200	240	<100

TABLE 5 SUMMARY OF GROUNDWATER LABORATORY RESULTS

Date: July 2002 | Incident Number and Name: Hadnot PointFuel Farm, MCB Camp Lejeune | Facility ID#: N/A

Analytical Method: EPA Method 602

Well ID	Contaminant of Concern → Sample ID	Date Collected	Benzene	Diisopropyl ether	Ethylbenzene	Methyl-tert-butyl ether	Toluene	Total Xylenes
GCL (µg/L)			5,000	70,000	29,000	200,000	257,500	87,500
2L GWQS (µg/L)			1	70	29	200	1,000	530
HPFF-13	HPFF-13	7/18/02	160	<10	<10	<20	<10	<20
HPFF-13 DUP	HPFF-13 DUP	7/18/02	160	<10	<10	<20	<10	<20
HPFF-19+	F12292-8	2/9/02	1500	ND	1780	ND	20300	9300
HPFF-20+	F12292-5	2/9/02	3070	ND	656	ND	11400	4570
HPFF-31	HPFF-31	7/18/02	<1	<1	<1	<2	<1	<2
HPFF-38	HPFF-38	7/17/02	<1	<1	<1	<2	1	<2
HPFF-39	HPFF-39	7/18/02	<1	<1	<1	<2	<1	<2
HPFF-43	HPFF-43	3/26/02	<1	1	<1	<2	<1	<2
HPFF-44	HPFF-44	3/26/02	<1	<1	<1	<2	<1	<2
HPFF-45	HPFF-45	3/26/02	710	38	<8	<16	<8	<16
HPFF-46	HPFF-46	3/26/02	<1	<1	<1	<2	<1	<2
HPFF-47	HPFF-47	3/26/02	1300	120	<20	<40	<20	<40
HPFF-48	HPFF-48	3/26/02	<1	<1	<1	<2	<1	<2
HPFF-49	HPFF-49	3/26/02	<1	<1	<1	<2	<1	<2
HPFF-50	HPFF-50	3/26/02	28	<1	3	<2	5	3
HPFF-51	HPFF-51	3/25/02	<1	<1	<1	<2	<1	<2
HPFF-52	HPFF-52	3/26/02	<1	<1	<1	<2	<1	<2
HPFF-53	HPFF-53	3/26/02	1	<1	<1	<2	<1	<2
HPFF-54	HPFF-54	3/26/02	<1	<1	<1	<2	<1	<2
HPFF-55	HPFF-55	3/26/02	<1	<1	<1	<2	<1	<2
HPFF-56	HPFF-56	3/26/02	<1	<1	<1	<2	<1	<2
HPFF-57	HPFF-57	3/26/02	3100	250	<40*	<80	<40	<80
HPFF-58	HPFF-58	3/26/02	7	<1	<1	<2	<1	<2
HPFF-59	HPFF-59	3/27/02	210	<8	21	<16	8	<16
HPFF-60	HPFF-60	3/27/02	3000	100	75	<80	<40	<80
HPFF-60	HPFF-60	7/17/02	2700	110	<80*	<160	<80	<160
HPFF-61	HPFF-61	3/27/02	<1	<1	<1	<2	1	<2
HPFF-61D	HPFF-61D	3/27/02	<1	<1	<1	<2	1	<2

TABLE 5 SUMMARY OF GROUNDWATER LABORATORY RESULTS

Date: July 2002 | Incident Number and Name: Hadnot PointFuel Farm, MCB Camp Lejeune | Facility ID#: N/A

Analytical Method: EPA Method 602

Well ID	Contaminant of Concern → Sample ID	Date Collected	Benzene	Diisopropyl ether	Ethylbenzene	Methyl-tert-butyl ether	Toluene	Total Xylenes
GCL (µg/L) 2L GWQS (µg/L)			**5,000 1**	**70,000 70**	**29,000 29**	**200,000 200**	**257,500 1,000**	**87,500 530**
HPFF-62	HPFF-62	3/26/02	1	<1	<1	<2	1	<2
HPFF-63	HPFF-63	3/26/02	6	<1	<1	<2	<1	<2
HPFF-64	HPFF-64	3/27/02	46	1	9	<2	1	15
HPFF-65	HPFF-65	3/27/02	21	<1	<1	<2	<1	<2
HPFF-66	HPFF-66	3/27/02	3000	910	96	<80	52	<80
HPFF-66D	HPFF-66D	3/27/02	3100	920	99	<80	53	<80
HPFF-67	HPFF-67	3/27/02	<1	<1	<1	<2	<1	<2
HPFF-68	HPFF-68	3/25/02	30	3	19	<2	33	71
HPFF-69	HPFF-69	3/27/02	1	1	<1	<2	<1	<2
HPFF-70	HPFF-70	3/27/02	<1	<1	<1	<2	<1	<2
HPFF-71	HPFF-71	3/27/02	<1	<1	<1	<2	<1	<2
HPFF-72	HPFF-72	3/25/02	15000	2100	2600	<4000*	33000	7000
HPFF-72	HPFF-72	7/18/02	21000	2200	2800	<2000*	33000	10900
MW-1+	F12292-4	2/9/02	3280	ND	1460	ND	14100	7370
MW-03	MW-03	7/17/02	<1	<1	<1	<2	<1	<2
MW-06	MW-06	7/17/02	<10*	<10	29	<20	22	59
MW-09	MW-09	7/17/02	<1	<1	<1	<2	<1	<2
MW-10R+	F12292-2	2/9/02	4410	ND	1120	ND	5530	6040
MW-11+	F12292-11	2/9/02	64.4	ND	11	ND	71	31
MW-17+	F12292-6	2/9/02	12200	ND	675	ND	14000	4100
MW-18+	F12292-7	2/9/02	18900	ND	1830	ND	36100	10700
MW-19	MW-19	7/18/02	210	56	18	<32	250	48
MW-20	MW-20	7/18/02	4	<1	1	<2	12	3
MW-1115-01+	F12222-6	2/2/02	6	ND	<1	ND	<1	<3
MW-1115-02+	F12222-5	2/2/02	11.9	ND	0.6	ND	<1	<3
MW-1115-04+	F12222-15	2/2/02	22.6	ND	2.1	ND	<1	1.7J
MW-1115-13+	12222-10	2/2/02	298	ND	40.9	ND	2.7	16.5
MW-1115-17+	F12222-14	2/2/02	8670	ND	973	ND	<100	1050

TABLE 5 SUMMARY OF GROUNDWATER LABORATORY RESULTS

Date: July 2002 | Incident Number and Name: Hadnot PointFuel Farm, MCB Camp Lejeune | Facility ID#: N/A

Analytical Method: EPA Method 602

Well ID	Sample ID	Date Collected	Benzene	Diisopropyl ether	Ethylbenzene	Methyl-tert-butyl ether	Toluene	Total Xylenes
Contaminant of Concern →								
GCL (µg/L)			**5,000**	**70,000**	**29,000**	**200,000**	**257,500**	**87,500**
2L GWQS (µg/L)			**1**	**70**	**29**	**200**	**1,000**	**530**
MW-1115-18+	F12222-7	2/2/02	30.2	ND	1.3	ND	1.2	<3
MW-1115-21+	F12222-4	2/2/02	1920	ND	<5	ND	<5	<15
MW-1115-22+	F12222-13	2/2/02	1250	ND	3.4	ND	3.5	<3
MW-1115-23+	F12222-9	2/2/02	22	ND	<5	ND	<5	<15
MW-1115-24+	F12222-3	2/2/02	2480	ND	5.2	ND	<5	<15
MW-1115-25+	F12222-1	2/2/02	3.1	ND	0.57J	ND	<1	<3
MW-GT-1+	F12222-2	2/2/02	4	ND	3	ND	<1	<3

All results in µg/L

* Laboratory practical quantitation limit is higher than the 2L GWQS.

Shading indicates detected concentration greater than 2L GWQS.

+ Wells sampled by Shaw Environmental & Infrastructure.

ND = No Data

J = Estimated

TABLE 6 SUMMARY OF GROUNDWATER LABORATORY RESULTS

Date: July 2002 | Incident Number and Name: Hadnot Point Fuel Farm, MCB Camp Lejeune | Facility ID#: N/A

Analytical Method: EPA Method 610

Well ID	Contaminant of Concern → Sample ID	Date Collected	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	All Other Analytes **
GCL (µg/L)			**NE**	**12,500**	**15,500**	**Varies**
2L GWQS (µg/L)			**NE**	**28**	**21**	**Varies**
1101-01	1101-01	7/17/2002	<10	<10	<10	BQL
1101-03	1101-03	7/18/2002	<10	<10	<10	BQL
1115-07	1115-07	7/17/2002	44	92	350	BQL
1115-09	1115-09	7/18/2002	<10	<10	<10	BQL
1115-9 DUP	1115-9 DUP	7/18/2002	<10	<10	<10	BQL
1115-14	1115-14	7/18/2002	<10	13	20	BQL
1115-15	1115-15	7/18/2002	<10	11	59	BQL
1115-19	1115-19	7/17/2002	<10	<10	29	BQL
1115-20	1115-20	7/18/2002	<10	13	200	BQL
78GW-17-02	78GW-17-02	7/18/2002	<10	<10	<10	BQL
78GW-22-2+	F12222-12	2/2/2002	ND	ND	<5	ND
78GW-31-02	78GW-31-02	8/28/2002	<10	<10	<10	BQL
78GW-31-03	78GW-31-03	8/28/2002	<10	<10	<10	BQL
GT-08	GT-08	7/18/2002	<10	<10	<10	BQL
GW-32-2+	F12292-10	2/9/2002	ND	ND	16	ND
GW-32-3+	F12292-9	2/9/2002	ND	ND	<5	ND
HPFF-01	HPFF-01	7/17/2002	<10	<10	<10	BQL
HPFF-02	HPFF-02	7/18/2002	<10	<10	<10	BQL
HPFF-03	HPFF-03	7/18/2002	<10	<10	<10	BQL
HPFF-05	HPFF-05	7/17/2002	<10	<10	<10	BQL
HPFF-06	HPFF-06	7/18/2002	<10	<10	<10	BQL
HPFF-7+	F12292-11	2/9/2002	ND	ND	<5	ND
HPFF-8+	F12292-3	2/9/2002	ND	ND	10	ND
HPFF-09	HPFF-09	7/17/2002	<10	<10	25	BQL
HPFF-10	HPFF-10	7/17/2002	<10	<10	<10	BQL
HPFF-11	HPFF-11	7/17/2002	<10	<10	<10	BQL
HPFF-12	HPFF-12	7/17/2002	<10	<10	<10	BQL

TABLE 6 SUMMARY OF GROUNDWATER LABORATORY RESULTS

Date: July 2002 Incident Number and Name: Facility ID#: N/A

Hadnot Point Fuel Farm, MCB Camp Lejeune

Analytical Method: EPA Method 610

Well ID	Contaminant of Concern → Sample ID	Date Collected	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	All Other Analytes **
GCL (µg/L)			NE	12,500	15,500	Varies
2L GWQS (µg/L)			NE	28	21	Varies
HPFF-13	HPFF-13	7/18/2002	<10	<10	<10	BQL
HPFF-19+	F12292-8	2/9/2002	ND	ND	326	ND
HPFF-20+	F12292-5	2/9/2002	ND	ND	207	ND
HPFF-31	HPFF-31	7/18/2002	<10	<10	<10	BQL
HPFF-38	HPFF-38	7/17/2002	<10	<10	<10	BQL
HPFF-39	HPFF-39	7/18/2002	<10	<10	<10	BQL
HPFF-43	HPFF-43	3/26/2002	<10	<10	<10	BQL
HPFF-44	HPFF-44	3/26/2002	<10	<10	<10	BQL
HPFF-45	HPFF-45	3/26/2002	<10	<10	<10	BQL
HPFF-46	HPFF-46	3/26/2002	<10	<10	<10	BQL
HPFF-47	HPFF-47	3/26/2002	<10	<10	27	BQL
HPFF-48	HPFF-48	3/26/2002	<10	<10	<10	BQL
HPFF-49	HPFF-49	3/26/2002	<10	<10	<10	BQL
HPFF-50	HPFF-50	3/26/2002	<10	<10	<10	BQL
HPFF-51	HPFF-51	3/25/2002	<10	<10	<10	BQL
HPFF-52	HPFF-52	3/26/2002	<10	<10	<10	BQL
HPFF-53	HPFF-53	3/26/2002	<10	<10	<10	BQL
HPFF-54	HPFF-54	3/26/2002	<10	<10	<10	BQL
HPFF-55	HPFF-55	3/26/2002	<10	<10	<10	BQL
HPFF-56	HPFF-56	3/26/2002	<10	<10	<10	BQL
HPFF-57	HPFF-57	3/26/2002	<10	<10	33	BQL
HPFF-58	HPFF-58	3/26/2002	<10	<10	<10	BQL
HPFF-59	HPFF-59	3/27/2002	<10	<10	<10	BQL
HPFF-60	HPFF-60	3/27/2002	<10	<10	36	BQL
HPFF-60	HPFF-60	7/17/2002	<10	<10	36	BQL
HPFF-61	HPFF-61	3/27/2002	<10	<10	<10	BQL
HPFF-61D	HPFF-61D	3/27/2002	<10	<10	<10	BQL

TABLE 6 SUMMARY OF GROUNDWATER LABORATORY RESULTS

Date: July 2002 Incident Number and Name: Facility ID#: N/A

Hadnot Point Fuel Farm, MCB Camp Lejeune

Analytical Method: EPA Method 610

Well ID	Contaminant of Concern →		1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	All Other Analytes **
	Sample ID	Date Collected				
GCL (µg/L)			NE	12,500	15,500	Varies
2L GWQS (µg/L)			NE	28	21	Varies
HPFF-62	HPFF-62	3/26/2002	<10	<10	<10	BQL
HPFF-63	HPFF-63	3/26/2002	<10	<10	<10	BQL
HPFF-64	HPFF-64	3/27/2002	<10	<10	<10	BQL
HPFF-65	HPFF-65	3/27/2002	<10	<10	<10	BQL
HPFF-66	HPFF-66	3/27/2002	<10	<10	<10	BQL
HPFF-66D	HPFF-66D	3/27/2002	<10	<10	<10	BQL
HPFF-67	HPFF-67	3/27/2002	<10	<10	<10	BQL
HPFF-68	HPFF-68	3/25/2002	<10	<10	<10	BQL
HPFF-69	HPFF-69	3/27/2002	<10	<10	<10	BQL
HPFF-70	HPFF-70	3/27/2002	<10	<10	<10	BQL
HPFF-71	HPFF-71	3/27/2002	<10	<10	<10	BQL
HPFF-72	HPFF-72	3/25/2002	49	100	500	BQL
HPFF-72	HPFF-72	7/18/2002	39	81	450	BQL
MW-1+	F12292-4	2/9/2002	ND	ND	584	ND
MW-03	MW-03	7/17/2002	<10	<10	<10	BQL
MW-06	MW-06	7/17/2002	21	55	<10	BQL
MW-09	MW-09	7/17/2002	<10	<10	<10	BQL
MW-10R+	F12292-2	2/9/2002	ND	ND	286	ND
MW-11+	F12292-11	2/9/2002	ND	ND	<5	ND
MW-18+	F12292-7	2/2/2002	ND	ND	685	ND
MW-19	MW-19	7/18/2002	<10	<10	<10	BQL
MW-20	MW-20	7/18/2002	<10	<10	<10	BQL
MW-1115-01+	F12222-6	2/2/2002	ND	ND	<5	ND
MW-1115-02+	F12222-5	2/2/2002	ND	ND	<5	ND
MW-1115-04+	F12222-15	2/2/2002	ND	ND	<5.5	ND
MW-1115-13+	F12222-10	2/2/2002	ND	ND	79.4	ND
MW-1115-17+	F12222-14	2/2/2002	ND	ND	31.2	ND

TABLE 6 SUMMARY OF GROUNDWATER LABORATORY RESULTS

Date: July 2002 | Incident Number and Name: Hadnot Point Fuel Farm, MCB Camp Lejeune | Facility ID#: N/A

Analytical Method: EPA Method 610

Well ID	Contaminant of Concern →		1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	All Other Analytes **
	Sample ID	Date Collected				
GCL (µg/L)			**NE**	**12,500**	**15,500**	**Varies**
2L GWQS (µg/L)			**NE**	**28**	**21**	**Varies**
MW-1115-18+	F12222-7	2/2/2002	ND	ND	<5	ND
MW-1115-21+	F12222-4	2/2/2002	ND	ND	8.1	ND
MW-1115-22+	F12222-13	2/2/2002	ND	ND	<5	ND
MW-1115-23+	F12222-9	2/2/2002	ND	ND	<5.5	ND
MW-1115-24+	F12222-3	2/2/2002	ND	ND	<5	ND
MW-1115-25+	F12222-1	2/2/2002	ND	ND	<5	ND
MW-GT-1+	F12222-2	2/2/2002	ND	ND	<5	ND

All results in µg/L

* Laboratory practical quantitation limit is higher than the 2L GWQS.

+ Wells sampled by Shaw Environmental & Infrastructure.

Shading indicates concentration greater than 2L GWQS.

ND = No Data

** See laboratory reports for a list of individual compounds and quantitation limits.

BQL = Below Quantitation Limits

TABLE 7 SUMMARY OF GROUNDWATER LABORATORY RESULTS

Date: August 2002

Incident Number and Name:
Hadnot Point Fuel Farm, MCB Camp Lejeune

Facility ID#: N/A

Analytical Method: EPA Method 601

Well ID	Sample ID	Date Collected	Chloroform	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,2-Dichloropropane	Trichloroethene	All Other Analytes **
Contaminant of Concern →									
GCL (µg/L)			**190**	**380**	**7,000**	**70,000**	**560**	**2,800**	**Varies**
2L GWQS (µg/L)			**0.19**	**0.38**	**7**	**70**	**0.56**	**2.8**	**Varies**
HPFF-43	HPFF-43	3/26/2002	<1	<1	<1	1	<1	<1	BQL
HPFF-44	HPFF-44	3/26/2002	<1	<1	<1	4	<1	<1	BQL
HPFF-45	HPFF-45	3/26/2002	<5	<5	<5	40	<5	110	BQL
HPFF-46	HPFF-46	3/26/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-47	HPFF-47	3/26/2002	<25	<25	<25	170	<25	330	BQL
HPFF-48	HPFF-48	3/26/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-49	HPFF-49	3/26/2002	<8	<8	<8	130	<8	<8	BQL
HPFF-50	HPFF-50	3/26/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-51	HPFF-51	3/25/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-52	HPFF-52	3/26/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-53	HPFF-53	3/26/2002	<1	<1	<1	2	<1	<1	BQL
HPFF-54	HPFF-54	3/26/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-55	HPFF-55	3/26/2002	13	<1	<1	<1	<1	<1	BQL
HPFF-56	HPFF-56	3/26/2002	3	<1	<1	<1	<1	<1	BQL
HPFF-57	HPFF-57	3/26/2002	<1	<1	<1	1	4	4	BQL
HPFF-58	HPFF-58	3/26/2002	<1	1	<1	<1	<1	<1	BQL
HPFF-59	HPFF-59	3/27/2002	<1	<1	<1	2	<1	<1	BQL
HPFF-60	HPFF-60	3/27/2002	<1	25	<1	<1	<1	<1	BQL
HPFF-61	HPFF-61	3/27/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-61D	HPFF-61D	3/27/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-62	HPFF-62	3/26/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-63	HPFF-63	3/26/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-64	HPFF-64	3/27/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-65	HPFF-65	3/27/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-66	HPFF-66	3/27/2002	<4	59	<4	<4	<4	<4	BQL
HPFF-66D	HPFF-66D	3/27/2002	<4	48	<4	<4	<4	<4	BQL
HPFF-67	HPFF-67	3/27/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-68	HPFF-68	3/25/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-69	HPFF-69	3/27/2002	<1	<1	<1	3	<1	<1	BQL
HPFF-70	HPFF-70	3/27/2002	<1	<1	<1	3	<1	<1	BQL
HPFF-71	HPFF-71	3/27/2002	<1	<1	<1	<1	<1	<1	BQL
HPFF-72	HPFF-72	3/25/2002	<160	590	<160	<160	<160	<160	BQL

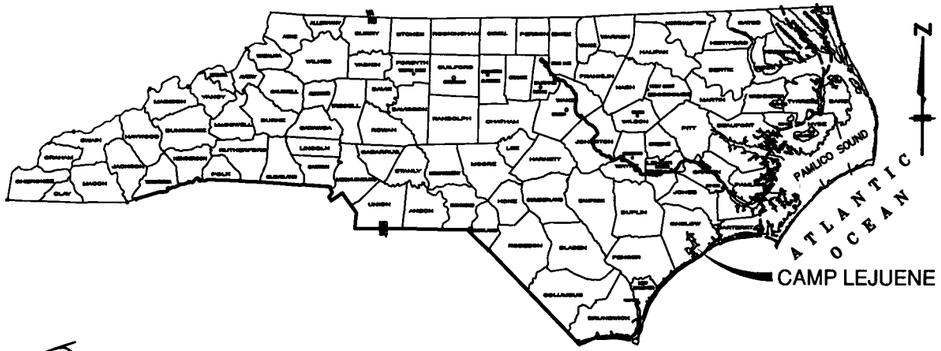
All results in µg/L

BQL = Below Quantitation Limits

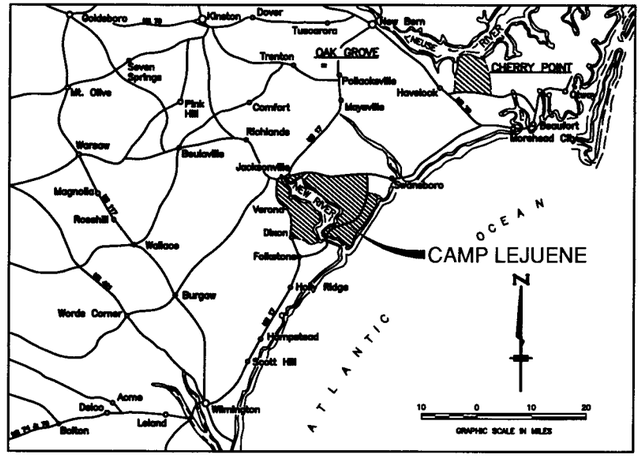
Shading indicates concentration greater than 2L GWQS.

** See laboratory reports for a list of individual compounds and quantitation limits.

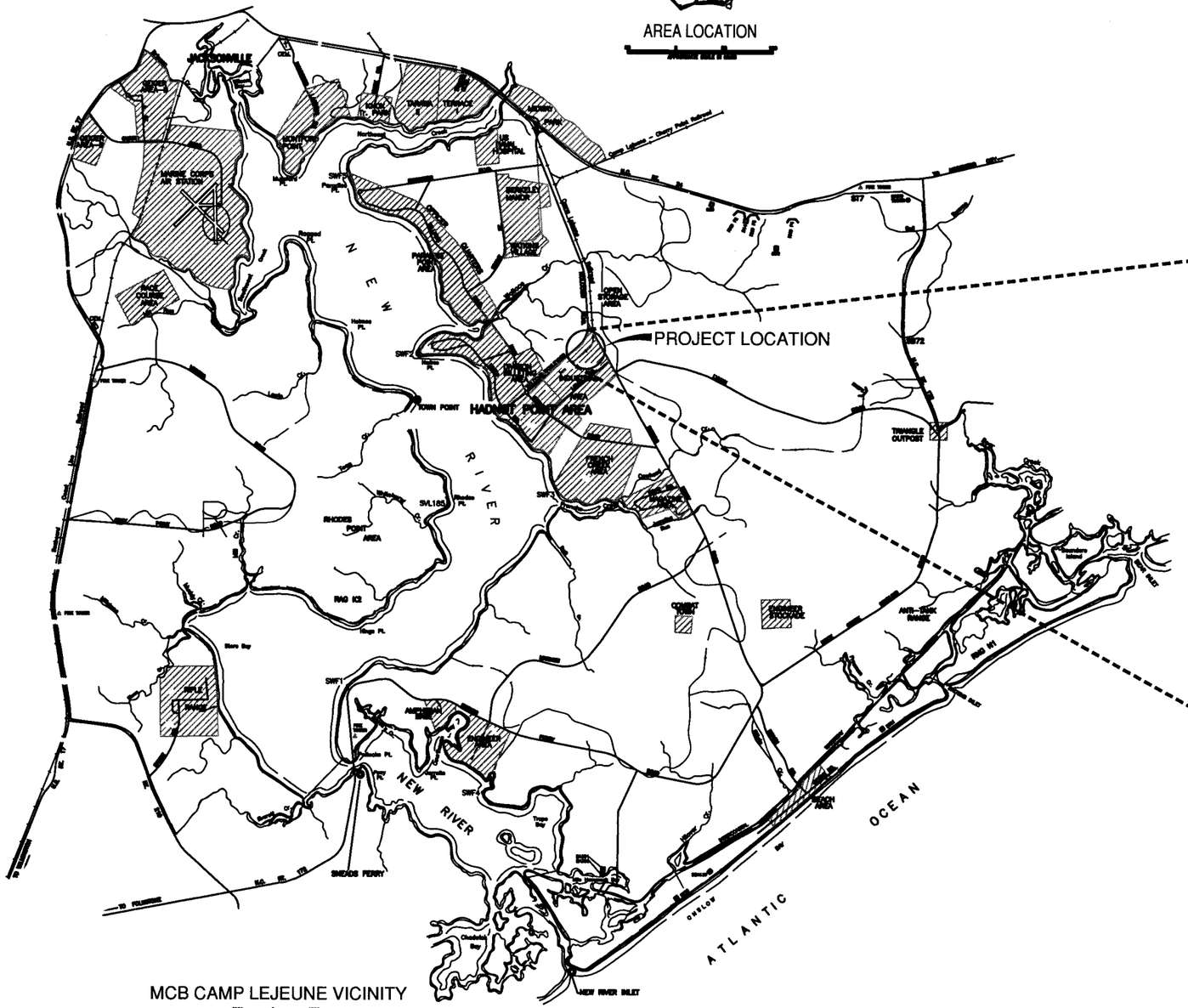
FIGURES



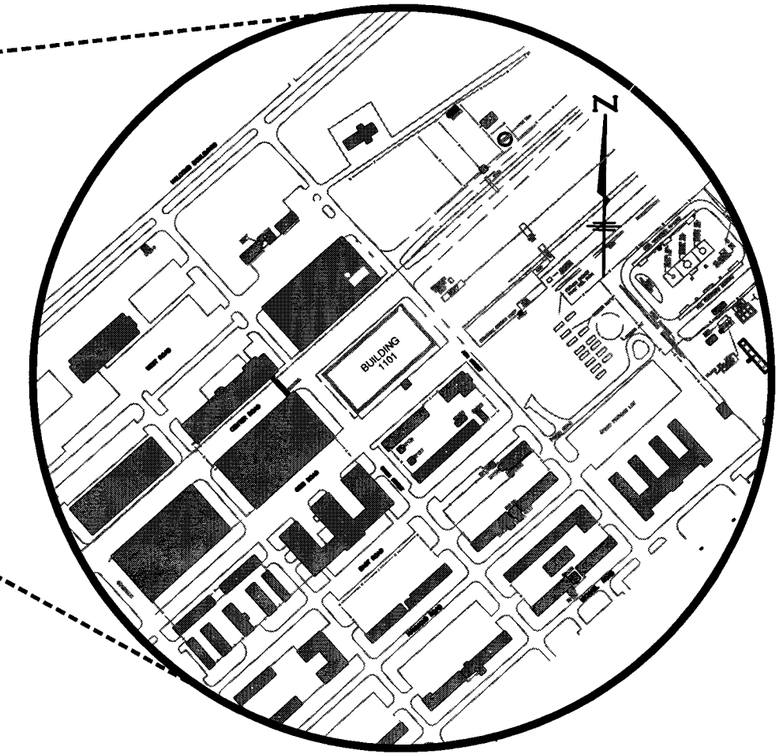
AREA LOCATION



MCB CAMP LEJEUNE AREA LOCATION



MCB CAMP LEJEUNE VICINITY



HADNOT POINT FUEL FARM BUILDING 1101 AREA
NOT TO SCALE

202027-40-01

FIGURE 1

TITLE: PROJECT LOCATION

SCALE: AS SHOWN | DRAWN BY: WHW | CHECKED BY: SVH

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

JOB NO. 202027-40 | DATE: DEC 2002

CALIN Engineers and Scientists
WILMINGTON, NORTH CAROLINA

HPFF-44
HPFF-43
78GW13
HPFF-47
HPFF-46
HPFF-45
HPFF-39
HPFF-50
HPFF-49
HPFF-48
78GW20
(DESTROYED)
HOLCOMB BOULEVARD
S1214
1115-4
1115-17
1115-22
1115-8
HPFF-51
1115-9
HPFF-13
1115-6
HPFF-56
78GW19
GT-5
GT-4
GT-3
1111
1100
1115
GT-6
1115-14
1115-16
GT-2
1115-11
1115-10
GT-1
1115-15
1115-13
1115-25
1115-12
1220
400
1115-2
1115-21
1115-24
78GW14
WEST ROAD
NW SECTOR
1115-1
1115-5
GT-7
HPFF-54
HPFF-53
HPFF-55
HPFF-52
S1053
GT-8
1401
1300
1200
1108
GT-9
78GW22-2
1115-18
1115-23
HPFF-27
HPFF-16
MW-20
MW-22
(DESTROYED)
S1000
WATER TANK
1013
GT-10
(DESTROYED)
1022
CENTER ROAD
1115-3
1115-20
HPFF-18
(DESTROYED)
HPFF-58
1115-19
1115-7
HPFF-23
HPFF-57
HPFF-37
HPFF-36
S1200A
MW-21
MW-11
HPFF-21
MW-12
1101-3
HPFF-24
CONCRETE LOADING RAMP
RW-4
HPFF-59
HPFF-7
HPFF-1
S1017
MW-A
CONC. PAD
1402
1301
1201
BUILDING 1101
HPFF-25
HPFF-26
HPFF-17
MW-8
MW-7
MW-13
DOGWOOD
1101-2
HPFF-60
HPFF-61
HPFF-14
HPFE-12
HPFF-22
RAMP
CONC.
HPFF-2
CENTRAL SECTOR
78GW31-3
78GW31-2
78GW15
GIBB ROAD
HPFF-34
HPFF-35
1101-1
HPFF-5
HPFF-9
HPFF-28
CONCRETE LOADING RAMP
WASH STAND
OIL/WATER SEPARATOR
MW-5
RW-1
S1067
MW-16R
PITCH
MW-6
1419
1303
1302
78GW17-1
1102
MW-14
1113
S1131
S1417
1403
1307
1306
1315
1305
1304
1202
HPFF-62
78GW32-2
S1122
HPFF-19
S1127
78GW32-3
S1123
BIRCH STREET
1103
HPFF-30
HPFF-31
HPFF-33
HPFF-63
HPFF-32
SE SECTOR
HPFF-29
HPFF-65
78GW22-1
(DESTROYED)
FORMER HADNOT POINT FUEL FARM
HPFF-10
HPFF-11
FORMER UST'S
HPFF-64
MW-17
HPFF-8
HPFF-15
MW-10R
FORMER AST
FUEL UNLOADING STATIONS
CONCRETE SLAB
RETENTION POND
10,000 GAL. JP8 AST
20,000 GAL. DIESEL AST
50,000 GAL. MOGAS AST
HPFF-6
VEHICLE READY FUEL STORAGE
OIL/WATER SEPARATOR
HPFF-20
HPFF-3
TVSN CMPLX
EAST ROAD
HPFF-67
MW-15
78GW17-2
HPFF-42
HPFF-68
HPFF-40
S1129
1114
S1130
HPFF-41
1413
1311
1308
1405
78GW12
1312
S1126
1105
1104
S1133
1127
78GW16
MW-9
PAVED ROAD
HPFF-69
MW-18
RW-3
MW-19
MW-1
PAVED PARKING LOT
HPFF-38
MW-2
CONCRETE DITCH
WASH STAND
D=DIESEL
ND=HIGH SULPHUR DIESEL AST
HAMMOND ROAD
MW-3
MW-4
15,000 GAL. ASTS
U=UNLEADED
D=DIESEL
DISPENSER ISLANDS
1120
1124
HPFF-70
HPFF-71
HPFF-4
S1125
1107
1106
1005
TEMPORARY FUEL FARM
S1416
S1313
S1322
S1221
S1217
S1128
OIL/WATER SEPARATOR
926
WASH STAND
78GW-21

FORMER HADNOT POINT FUEL FARM

L E G E N D

EXISTING	NEW	DESCRIPTION
▨		BUILDING
———		RAILROAD TRACKS
—x—x—		CHAIN LINK FENCE
	◐	TYPE I WELL
⊕	◒	TYPE II WELL
⊕		TYPE III WELL (50' DEEP)
⊗		TYPE III WELL (70'-90' DEEP)
⊛		TYPE III WELL (GREATER THAN 90' DEEP)
▣		PUMPING WELL

N

100 50 0' 100 200
SCALE IN FEET

202027-40-2

FIGURE 2

TITLE: SITE PLAN WITH MONITORING WELL LOCATIONS

CHECKED BY: SVH
DRAWN BY: HCS
SCALE: 1"=200'
DATE: DEC 2002
JOB NO. 202027-40

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

CAGLIN Engineers and Scientists
WILMINGTON, NORTH CAROLINA

202027-40-3

FIGURE 3

TITLE: FENCE DIAGRAMS PLAN VIEW

DRAWN BY: HCS | CHECKED BY: SVH

SCALE: 1"=200' | DATE: DEC 2002

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

JOB NO. 202027-40

CALIN ENGINEERS and SCIENTISTS WILMINGTON, NORTH CAROLINA

A

A'

B

B'

C

C'

D

D'

HPFF-44 HPFF-43 HPFF-47 HPFF-46 HPFF-45 HPFF-39 HPFF-50 HPFF-48 HPFF-51 HPFF-13 HPFF-55 HPFF-54 HPFF-53 HPFF-57 HPFF-36 HPFF-18 (DESTROYED) HPFF-23 HPFF-24 HPFF-27 HPFF-26 HPFF-25 HPFF-34 HPFF-35 HPFF-5 HPFF-9 HPFF-28 HPFF-60 HPFF-61 HPFF-14 HPFF-12 HPFF-22 HPFF-2 HPFF-59 HPFF-7 HPFF-1 HPFF-21 HPFF-33 HPFF-63 HPFF-32 HPFF-31 HPFF-30 HPFF-29 HPFF-65 HPFF-64 HPFF-15 HPFF-17 HPFF-10 HPFF-8 HPFF-6 HPFF-20 HPFF-3 HPFF-67 HPFF-42 HPFF-66 HPFF-68 HPFF-40 HPFF-72 HPFF-41 HPFF-69 HPFF-38 HPFF-70 HPFF-71 HPFF-4

78GW13 78GW20 (DESTROYED) 78GW14 78GW19 78GW22-1 (DESTROYED) 78GW22-2 78GW31-3 78GW31-2 78GW15 78GW17-1 78GW32-2 78GW32-3 78GW17-2 78GW12 78GW16 78GW-21

S1214 S1053 S1017 S1200A S1100 S1111 S1115 S1131 S1127 S1122 S1123 S1130 S1126 S1216 S1218 S1133 S1127 S1125 S1128 S1221 S1217 S1313 S1322 S1416 S1417 S1007 S1000

1115-4 1115-17 1115-22 1115-8 1115-6 1115-14 1115-16 1115-10 1115-11 1115-13 1115-25 1115-2 1115-21 1115-24 1115-15 1115-12 1115-5 1115-1 1115-3 1115-20 1115-7 1115-19 1101-3 1101-2 1101-1 1115-9 1115-18 1115-23 1115-26 1115-27

1100 1111 1115 1108 1013 1022 1005 926

GT-1 GT-2 GT-3 GT-4 GT-5 GT-6 GT-7 GT-8 GT-9 GT-10 (DESTROYED)

MW-1 MW-2 MW-3 MW-4 MW-5 MW-6 MW-7 MW-8 MW-9 MW-10R MW-11 MW-12 MW-13 MW-14 MW-16R MW-17 MW-18 MW-19 MW-20 MW-21 MW-22 (DESTROYED)

RW-1 RW-2 RW-3 RW-4

1220 1400 1401 1300 1200 1402 1301 1201 1403 1303 1302 1306 1315 1305 1304 1202 1413 1311 1308 1405 1312 1419 1102 1113 1103 1108 1114 1105 1104 1120 1124 1125 1107 1106

HOLCOMB BOULEVARD WEST ROAD CENTER ROAD DOGWOOD GIBB ROAD BIRCH STREET EAST ROAD HAMMOND ROAD ASH STREET CONCRETE DITCH PAVED ROAD PAVED PARKING LOT

NW SECTOR CENTRAL SECTOR SE SECTOR

BUILDING 1101

CONCRETE LOADING RAMP WASH STAND OIL/WATER SEPARATOR CONC. PAD RAMP DITCH

FORMER HADNOT POINT FUEL FARM

FORMER UST'S FUEL UNLOADING STATIONS CONCRETE SLAB VEHICLE READY FUEL STORAGE TWIN CRIB

40,000 GAL. (GRD) AST 30,000 GAL. DIESEL AST 50,000 GAL. (MOGAS) AST

WATER TANK

TEMPORARY FUEL FARM

15,000 GAL. ASTS U=UNLEADED D=DIESEL

DISPENSER ISLANDS

D=DIESEL HD=HIGH SULPHUR DIESEL AST

WASH STAND

HAZMAT BLDG

CONCRETE LOADING RAMP

S1017

HPFF-19 HPFF-62 HPFF-63 HPFF-64 HPFF-65 HPFF-66 HPFF-67 HPFF-68 HPFF-69 HPFF-70 HPFF-71

LEGEND

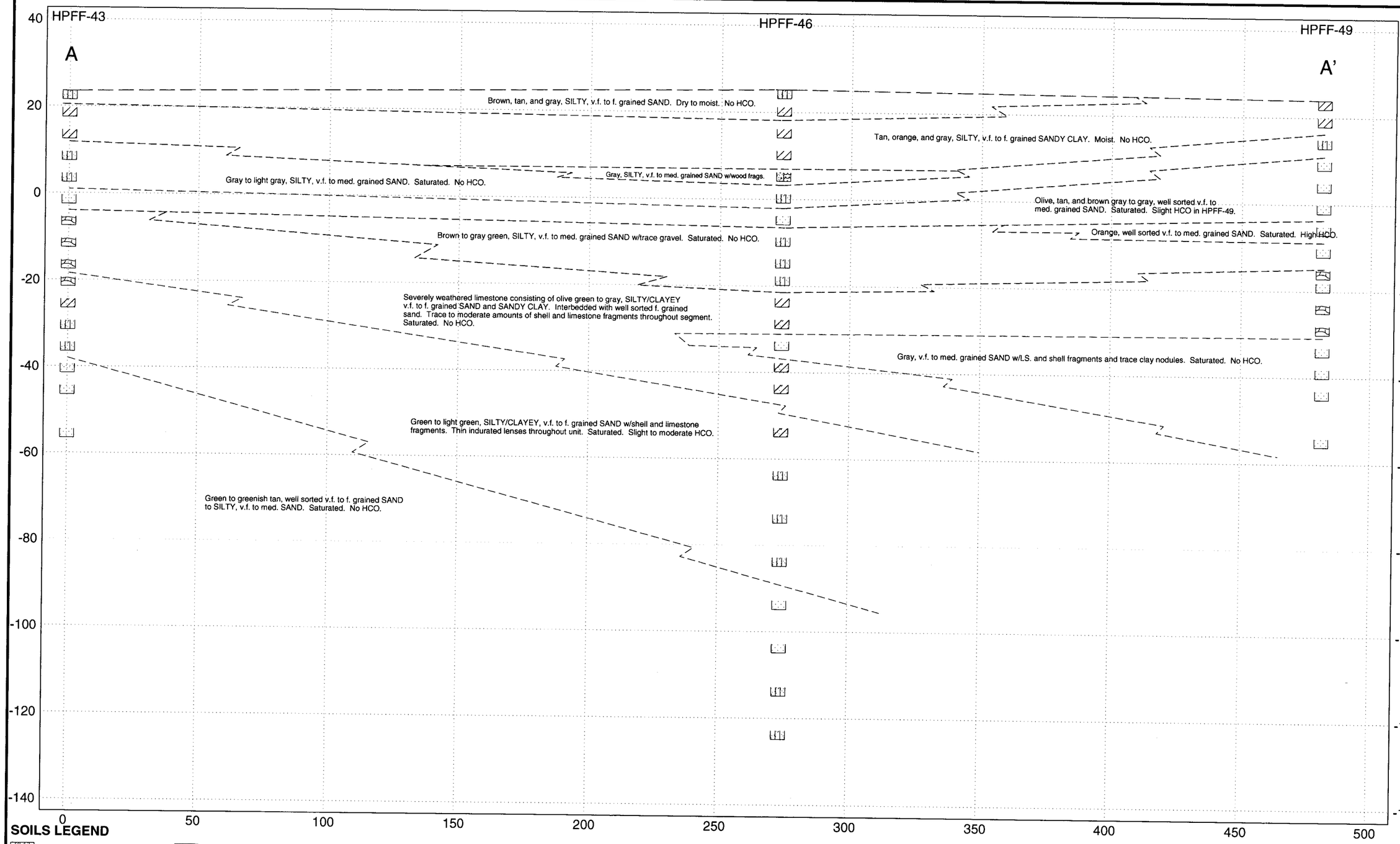
EXISTING	NEW	DESCRIPTION
		BUILDING
		RAILROAD TRACKS
		CHAIN LINK FENCE
		TYPE I WELL
		TYPE II WELL
		TYPE III WELL (50' DEEP)
		TYPE III WELL (70'-90' DEEP)
		TYPE III WELL (GREATER THAN 90' DEEP)
		PUMPING WELL

100 50 0' 100 200

SCALE IN FEET

FORMER HADNOT POINT FUEL FARM

NEW WELLS SURVEYED BY:
CHARLES F. RIGGS AND ASSOCIATES, INC.
JACKSONVILLE, N.C.



SOILS LEGEND

- (SM) Silty Sand
- (SC) Clayey Sand
- (CL) Low to Med. Plasticity Inorganic Clay
- (SW/PT) - Sand with wood fragments or organics
- (SP) Poorly-graded Sand
- Weathered Limestone

FIGURE 4

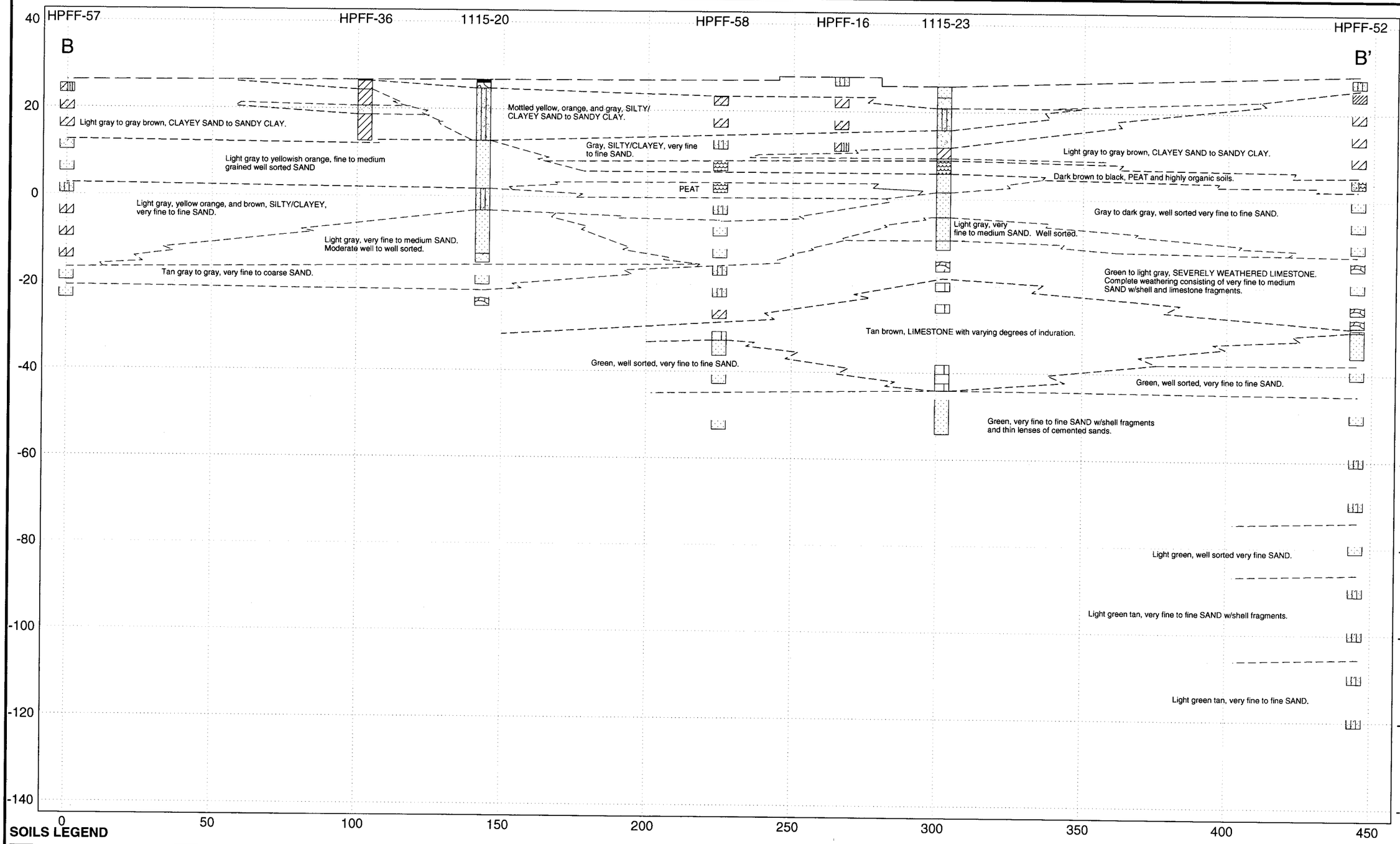
TITLE: FENCE DIAGRAM A - A'

SCALE: AS SHOWN | DRAWN BY: SVH | CHECKED BY: MEM

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

JOB NO. 202-027 | DATE: DEC. 2002

CAMLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina



SOILS LEGEND

- Asphalt
- (GW) Well-graded Gravel
- (SM) Silty Sand
- (SP) Poorly-graded Sand
- (SW) Well-graded Sand
- Weathered Limestone
- (CL) Low to Med. Plasticity Inorganic Clay
- (PT) Peat or Highly Organic Soils
- Limestone
- (SC) Clayey Sand
- (SC-SM) Clayey/Silty Sand
- (CH) High Plasticity Clay
- (SC-CL) Clayey Sand to Sandy Clay

FIGURE 5

TITLE: FENCE DIAGRAM B - B'

DRAWN BY: SVH | CHECKED BY: MEM

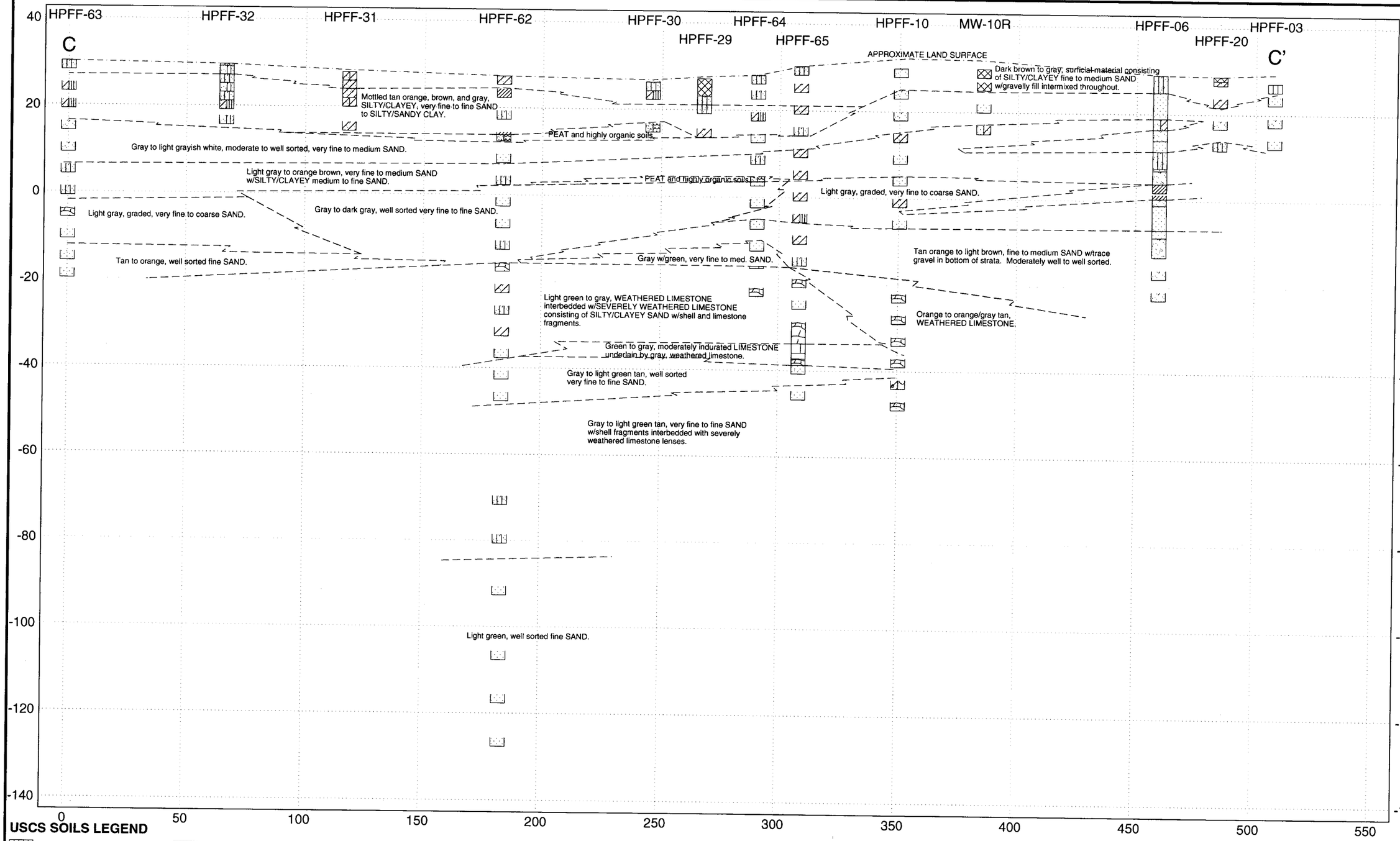
SCALE: AS SHOWN

DATE: DEC. 2002

JOB NO. 202-027

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

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina



USCS SOILS LEGEND

- (ML) Inorganic Silt and v.f. Sands
- (SP) Poorly-graded Sand
- (SW) Well-graded Sand
- (SM) Silty Sand
- (SW/SC) Well-graded Sand to Sandy Clay
- (CH) High Plasticity Clay
- (SC) Clayey Sand
- Limestone
- Fill (made ground)
- (SC/SM) Clayey/Silty Sand
- (SC/CL) Clayey Sand to Sandy Clay
- (SW/SM) Well-graded Sand to Silty Sand
- (SW/PT) - Sand with wood fragments or organics
- Weathered Limestone
- (CL) Low to Med. Plasticity Inorganic Clay
- (SP/SC) Poorly-graded Sand with Clay

FIGURE 6

TITLE: FENCE DIAGRAM C - C'

DRAWN BY: SVH | CHECKED BY: MEM

SCALE: AS SHOWN

DATE: DEC. 2002

JOB NO. 202-027

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

CAMLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

HPFF-46 | 1115-08 | HPFF-56 | 1115-25 | 1115-05 | HPFF-58 | HPFF-60 | HPFF-65 | HPFF-69 | HPFF-71

D

D'

APPROXIMATE LAND SURFACE

Dark brown, gray, to orange, surficial material consisting of SILTY/CLAYEY fine to medium SAND w/gravelly fill intermixed throughout.

Light greenish gray to tan, very fine to medium SANDY SILT/CLAY.

PEAT and highly organic soils.

Light gray, graded, very fine to coarse SAND.

Brown, SILTY, very fine to fine SAND.

Gray to dark gray, SEVERELY WEATHERED LIMESTONE interbedded w/SILTY/CLAYEY SAND w/shell and limestone fragments and soft zones/voids.

Green to light green, fine grained SAND.

Gray, well sorted, very fine to medium SAND.

PEAT

Brown to gray, SILTY, very fine to fine SAND.

Tan gray to gray, moderately to well indurated LIMESTONE.

Green to light green, well sorted, very fine to fine SAND w/shell fragments.

Green to light green, SILTY/CLAYEY, very fine to fine SAND w/shell fragments.

Light green to green, very fine to medium SAND w/limestone fragments and cemented sand lenses.

Green to light green, SILTY/CLAYEY, very fine to fine SAND w/shell fragments and interbedded cemented sand lenses.

Green to light green, SILTY, fine grained SAND.

Green to light green, SILTY/CLAYEY, very fine to fine SAND w/shell fragments and interbedded cemented sand lenses.

Green to light green, SILTY, fine grained SAND.

Light gray to dark brown, SILTY/CLAYEY, very fine to fine SAND.

PEAT and highly organic soils.

Gray to dark gray, well sorted, very fine to fine SAND.

Light green to gray, WEATHERED LIMESTONE interbedded w/SEVERELY WEATHERED LIMESTONE consisting of SILTY/CLAYEY SAND w/shell and limestone fragments.

Green to light green, fine grained SAND.

Tan orange to light brown, fine to medium SAND w/trace gravel in bottom of strata. Moderately well to well sorted.

Light gray, well sorted, very fine to fine SAND.

Light gray, graded, very fine to coarse SAND.

40 20 0 -20 -40 -60 -80 -100 -120 -140

0 50 100 150 200 250 300 350 400 450 500 550 600 650

SOILS LEGEND

- (SM) Silty Sand
- (GM) Silty Gravel
- (PT) Peat or Highly Organic Soils
- Limestone
- - Potential solution cavity or void
- (ML) Inorganic Silt and v.f. Sands
- (CL) Low to Med. Plasticity Inorganic Clay
- (OH) High Plasticity Organic Silt or Clay
- (SC) Clayey Sand
- (GW) Well-graded Gravel
- (SW) Well-graded Sand
- (MH) Elastic Inorganic Silt
- Weathered Limestone
- (SC-SM) Clayey/Silty Sand
- Asphalt
- (CL/CH) Low to high plasticity CLAY
- (SP) Poorly-graded Sand
- (SP-SC) Poorly-graded Sand with Clay
- (SW/PT) - Sand with wood fragments or organics
- (SC-CL) Clayey Sand to Sandy Clay

FIGURE 7

TITLE: FENCE DIAGRAM D - D'

SCALE: AS SHOWN | DRAWN BY: SVH | CHECKED BY: MEM | DATE: DEC. 2002

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

JOB NO. 202-027

CAMLIN ENGINEERS and SCIENTISTS Wilmington, North Carolina

202027-40-8

FIGURE 8

TITLE: TPH CONCENTRATIONS (SOIL)

CHECKED BY: SVH | DRAWN BY: HCS | SCALE: 1"=200' | DATE: DEC 2002

PROJECT: HADNOT POINT FUEL FARM, MARINE CORPS BASE, CAMP LEJEUNE, N.C. | JOB NO. 202027-40

CAGLIN ENGINEERING and CONSULTING, WILMINGTON, NORTH CAROLINA

FORMER HADNOT POINT FUEL FARM

HPFF-44

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	9/27/01	<6.6	17
4–6'	9/27/01	<7.2	<7.4

HPFF-43

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	1/02/02	<7.2	<7.5
0–2'D	1/02/02	<7.1	<7.6

HPFF-47

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	9/27/01	<6.6	37
4.5–6.5	9/27/01	<8.2	<12

HPFF-46

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	12/21/01	<7.0	30
0–2'D	12/21/01	<7.2	119

HPFF-45

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	12/20/01	10	90
0–2'D	12/20/01	26	65

HPFF-50

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	9/21/01	<7.1	<7.1
2.5–4.5	9/21/01	<7.9	<11

HPFF-48

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	9/21/01	<7	16
4–5'	9/21/01	<7.2	<7.3

HPFF-49

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
4–6'	12/19/01	400	282
4–6'D	12/19/01	89	352

HPFF-51

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	9/21/01	<7	10
4–6'	9/21/01	<6.7	<6.5

HPFF-56

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
3.5–5.5	12/13/01	<7.1	<7.4

HPFF-54

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	9/18/01	<6.9	<7.5

HPFF-53

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	9/28/01	<7.3	<6.8
4–6'	9/28/01	<7.8	<8.5

HPFF-52

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
1–3'	12/13/01	<6.9	<7.3

HPFF-55

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
1–3	12/13/01	<6.7	<6.8

HPFF-58

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
5.5–5.5	12/13/01	20	128

HPFF-57

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
1–3'	10/1/01	<6.7	<7.4
5–7'	10/1/01	<7.2	<7.4

HPFF-59

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
1–3'	01/3/02	<7.2	<8.1

HPFF-61

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	9/27/01	<6.9	10
4–6'	9/27/01	51	103

HPFF-65

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	12/17/01	<6.5	300

HPFF-62

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	10/18/01	<6.5	25
3–5'	10/18/01	<6.9	<7.3

HPFF-64

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	9/25/01	<12	30
5.5–5.5	9/05/2001	94	49

HPFF-63

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	9/28/01	<7.3	<6.8
0–2'	10/1/01	<6.8	30
5–7'	10/1/01	<6.9	<7.6

HPFF-67

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	12/18/01	<6.8	<6.5
0–2'D	12/18/01	<6.9	10

HPFF-66

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	10/1/01	<6.6	<6.5

HPFF-68

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	9/18/01	<6.9	9

HPFF-69

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	9/26/01	<7.5	<7.6
3.5–5.5	9/26/01	<3.2	<3.5

HPFF-70

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
0–2'	9/26/01	<6.6	<6.9
3.5–5.5	9/26/01	<6.1	<5.8

HPFF-71

SAMPLE DEPTH IN FEET	DATE COLLECTED	RESULTS TPH GASOLINE	RESULTS TPH DIESEL
4–6'	12/18/01	<6.6	<6.6
4–6'D	12/18/01	<6.8	<6.2

GENERAL AREA OF SOIL CONCENTRATIONS ABOVE NCDNR ACTION LIMITS

HOLCOMB BOULEVARD | WEST ROAD | CENTER ROAD | EAST ROAD | GIBB ROAD | HAMMOND ROAD | BIRCH STREET | ASH STREET | DOGWOOD

NW SECTOR | CENTRAL SECTOR | SE SECTOR

BUILDING 1101 | BUILDING 1200 | BUILDING 1201 | BUILDING 1202 | BUILDING 1300 | BUILDING 1301 | BUILDING 1303 | BUILDING 1302 | BUILDING 1304 | BUILDING 1305 | BUILDING 1315 | BUILDING 1308 | BUILDING 1309 | BUILDING 1307 | BUILDING 1311 | BUILDING 1312 | BUILDING 1313 | BUILDING 1322 | BUILDING 1221 | BUILDING 1217 | BUILDING 1218 | BUILDING 1216 | BUILDING 1220 | BUILDING 1401 | BUILDING 1402 | BUILDING 1403 | BUILDING 1405 | BUILDING 1413 | BUILDING 1416 | BUILDING 1419 | BUILDING 1417 | BUILDING 1400 | BUILDING 1102 | BUILDING 1103 | BUILDING 1104 | BUILDING 1105 | BUILDING 1106 | BUILDING 1107 | BUILDING 1120 | BUILDING 1124 | BUILDING 1125 | BUILDING 1128 | BUILDING 1005 | BUILDING 1108 | BUILDING 1111 | BUILDING 1100 | BUILDING 1115 | BUILDING 1113 | BUILDING 1114 | BUILDING 1131 | BUILDING 1127 | BUILDING 1130 | BUILDING 1133 | BUILDING 1126 | BUILDING 1127 | BUILDING 1022 | BUILDING 1013 | BUILDING 1017 | BUILDING 1007 | BUILDING 926

S1214 | S1200A | S1053 | S1000 WATER TANK | S1017 CONCRETE LOADING RAMP | S1007 CONCRETE LOADING RAMP WASH STAND | S1131 | S1127 | S1130 | S1126 | S1133 | S1125 | S1128 | S1127

78GW13 | 78GW14 | 78GW31-3 | 78GW31-2 | 78GW15 | 78GW17 | 78GW32-2 | 78GW32-3 | 78GW19 | 78GW20 (DESTROYED) | 78GW22-2 | 78GW12 | 78GW16 | 78GW21

MW-1 | MW-2 | MW-3 | MW-4 | MW-5 | MW-6 | MW-7 | MW-8 | MW-9 | MW-10R | MW-11 | MW-12 | MW-13 | MW-14 | MW-15 | MW-16R | MW-17 | MW-18 | MW-19 | MW-20 | MW-21 | MW-22 (DESTROYED) | MW-A | RW-1 | RW-2 | RW-3

HPFF-1 | HPFF-2 | HPFF-3 | HPFF-4 | HPFF-5 | HPFF-6 | HPFF-7 | HPFF-8 | HPFF-9 | HPFF-10 | HPFF-11 | HPFF-12 | HPFF-13 | HPFF-14 | HPFF-15 | HPFF-16 | HPFF-17 | HPFF-18 (DESTROYED) | HPFF-19 | HPFF-20 | HPFF-21 | HPFF-22 | HPFF-23 | HPFF-24 | HPFF-25 | HPFF-26 | HPFF-27 | HPFF-28 | HPFF-29 | HPFF-30 | HPFF-31 | HPFF-32 | HPFF-33 | HPFF-34 | HPFF-35 | HPFF-36 | HPFF-37 | HPFF-38 | HPFF-39 | HPFF-40 | HPFF-41 | HPFF-42 | HPFF-43 | HPFF-44 | HPFF-45 | HPFF-46 | HPFF-47 | HPFF-48 | HPFF-49 | HPFF-50 | HPFF-51 | HPFF-52 | HPFF-53 | HPFF-54 | HPFF-55 | HPFF-56 | HPFF-57 | HPFF-58 | HPFF-59 | HPFF-60 | HPFF-61 | HPFF-62 | HPFF-63 | HPFF-64 | HPFF-65 | HPFF-66 | HPFF-67 | HPFF-68 | HPFF-69 | HPFF-70 | HPFF-71

1115-1 | 1115-2 | 1115-3 | 1115-4 | 1115-5 | 1115-6 | 1115-7 | 1115-8 | 1115-9 | 1115-10 | 1115-11 | 1115-12 | 1115-13 | 1115-14 | 1115-15 | 1115-16 | 1115-17 | 1115-18 | 1115-19 | 1115-20 | 1115-21 | 1115-22 | 1115-23 | 1115-24 | 1115-25 | 1101-1 | 1101-2 | 1101-3

GT-1 | GT-2 | GT-3 | GT-4 | GT-6 | GT-7 | GT-8 | GT-9 | GT-10 (DESTROYED)

FORMER AST | FORMER UST'S | PAVED ROAD RW-2 | PAVED PARKING LOT | CONCRETE DITCH | TWIN CMP's | RETENTION POND | CONCRETE SLAB | VEHICLE READY FUEL STORAGE | OIL/WATER SEPARATOR | FUEL UNLOADING STATIONS | 10,000 GAL. KEROSENE AST | 50,000 GAL. DIESEL AST | 40,000 GAL. MOGAS AST | 15,000 GAL. ASTS U=UNLEADED D=DIESEL | D=DIESEL HD=HIGH SULPHUR DIESEL AST | DISPENSER ISLANDS | TEMPORARY FUEL FARM | CONC. PAD | SIDING | WASH STAND | OIL/WATER SEPARATOR

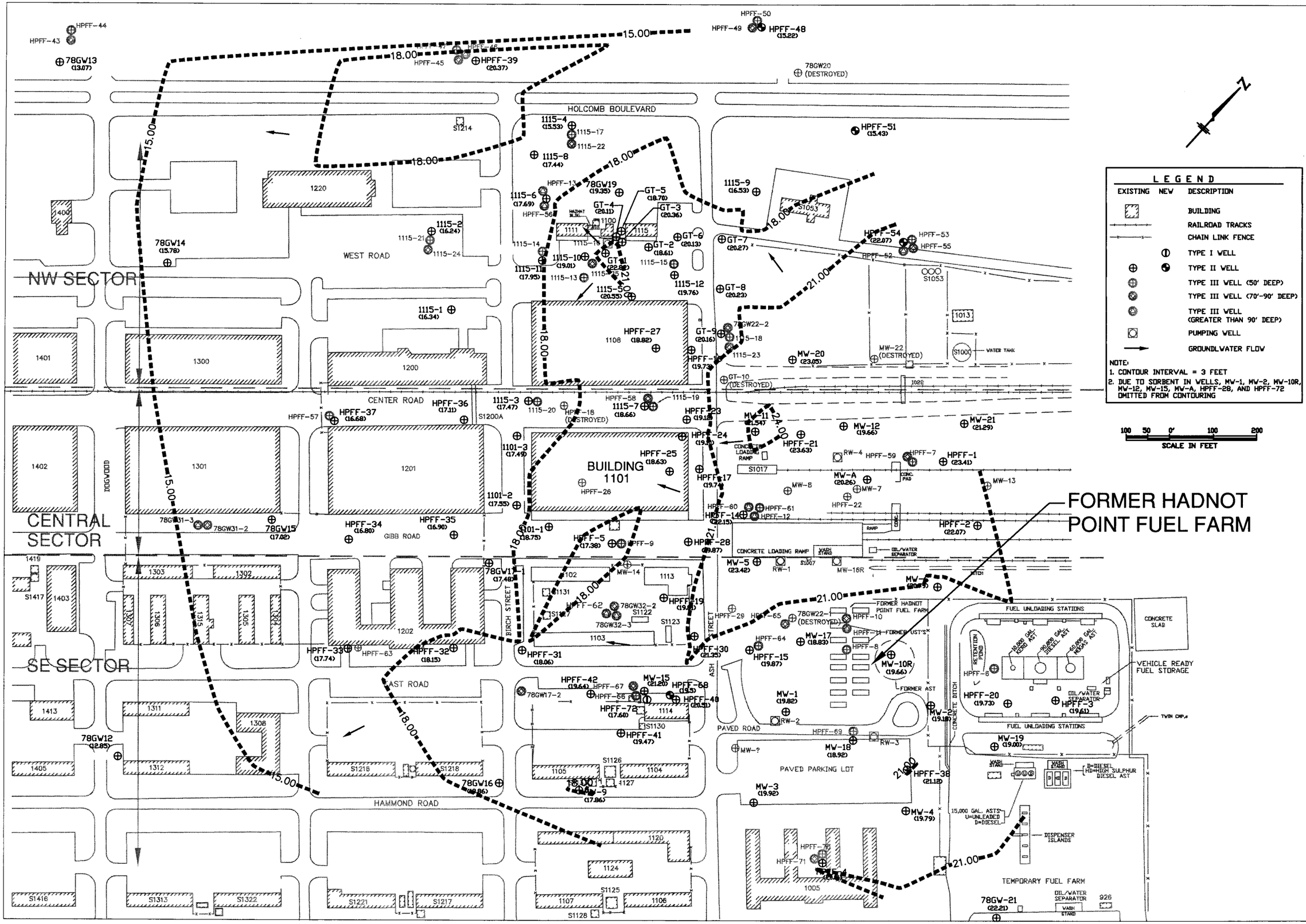
LEGEND

EXISTING	NEW	DESCRIPTION
▨		BUILDING
———		RAILROAD TRACKS
—x—x—		CHAIN LINK FENCE
	◐	TYPE I WELL
⊕	◒	TYPE II WELL
⊕	◒	TYPE III WELL (50' DEEP)
⊕	●	TYPE III WELL (70'-90' DEEP)
⊕	●	TYPE III WELL (GREATER THAN 90' DEEP)
▨		PUMPING WELL

NOTE:
1. ALL RESULTS IN mg/Kg
2. SHADED CONCENTRATIONS EXCEED NCDNR ACTION LEVELS OF 10 mg/Kg FOR GASOLINE AND 40 mg/Kg FOR DIESEL
3. PLUME BOUNDARIES BASED ONLY ON DATA AQUIRED DURING THIS INVESTIGATION

100 50 0' 100 200
SCALE IN FEET

NEW WELLS SURVEYED BY:
CHARLES F. RIGGS AND ASSOCIATES, INC.
JACKSONVILLE, N.C.



FORMER HADNOT POINT FUEL FARM

LEGEND

EXISTING	NEW	DESCRIPTION
		BUILDING
		RAILROAD TRACKS
		CHAIN LINK FENCE
		TYPE I WELL
		TYPE II WELL
		TYPE III WELL (50' DEEP)
		TYPE III WELL (70'-90' DEEP)
		TYPE III WELL (GREATER THAN 90' DEEP)
		PUMPING WELL
		GROUNDLWATER FLOW

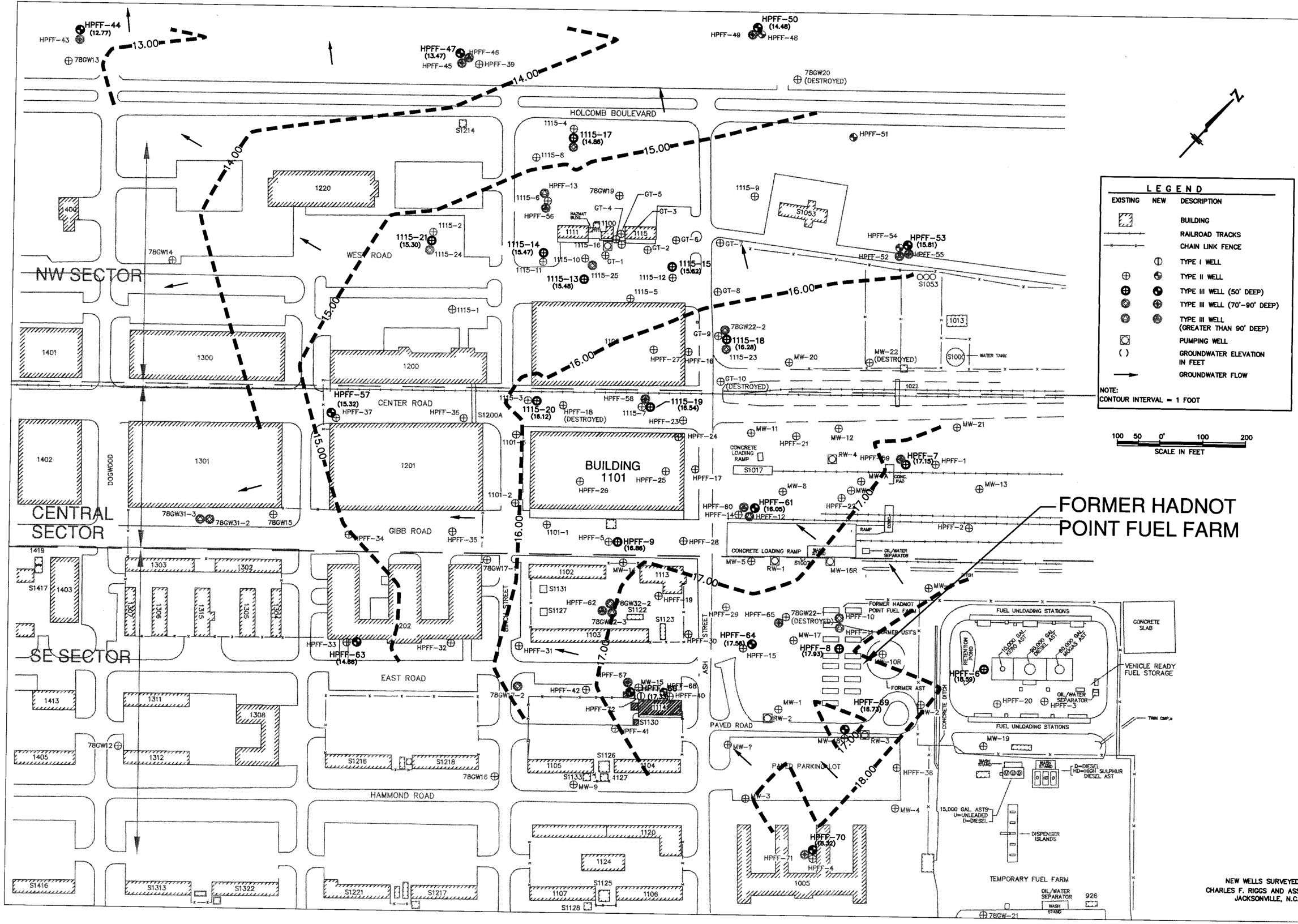
NOTE:
1. CONTOUR INTERVAL = 3 FEET
2. DUE TO SORBENT IN WELLS, MW-1, MW-2, MW-10R, MW-12, MW-15, MW-A, HPFF-28, AND HPFF-72 OMITTED FROM CONTOURING

100 50 0' 100 200
SCALE IN FEET

CAMP LEJEUNE
ENGINEERS and SCIENTISTS
WILMINGTON, NORTH CAROLINA

FIGURE	9
TITLE	TYPE II WATER TABLE CONTOURS AS OF JULY 16-17, 2002
PROJECT	HADNOT POINT FUEL FARM MARINE CORPS BASE CAMP LEJEUNE, N.C.
JOB NO.	202027
DATE	DEC 2002
SCALE	1"=200'
DRAWN BY	JCW
CHECKED BY	SVH

202027-40-9


HPFF-44 (12.77)
HPFF-43
78GW13
13.00
HPFF-47 (13.47)
HPFF-46
HPFF-45
HPFF-39
14.00
HPFF-50 (14.48)
HPFF-49
HPFF-48
78GW20 (DESTROYED)
HOLCOMB BOULEVARD
S1214
1115-4
1115-17 (14.86)
1115-8
HPFF-51
15.00
HPFF-13
78GW19
GT-5
GT-4
GT-3
1115-6
HPFF-56
HAZMAT BLDG
1100
1111
1115
1115-9
S1053
1220
1400
1115-2
1115-21 (15.30)
1115-24
78GW14
WEST ROAD
1115-14 (15.47)
1115-16
GT-2
GT-6
GT-1
1115-10
1115-11
1115-15 (15.62)
1115-13 (15.48)
1115-25
1115-12
HPFF-54
HPFF-53 (15.81)
HPFF-55
HPFF-52
GT-7
S1053
NW SECTOR
1115-5
1115-1
GT-8
16.00
1401
1300
1200
78GW22-2
1115-18 (16.28)
1115-23
GT-9
1013
MW-20
MW-22 (DESTROYED)
S1000
WATER TANK
GT-10 (DESTROYED)
1022
HPFF-57 (15.32)
HPFF-37
CENTER ROAD
HPFF-36
S1200A
1115-3
1115-20 (16.12)
HPFF-18 (DESTROYED)
HPFF-58
1115-19 (16.54)
1115-7
HPFF-23
HPFF-24
MW-11
HPFF-21
MW-12
MW-21
1402
1301
1201
BUILDING 1101
HPFF-25
HPFF-26
CONCRETE LOADING RAMP
S1017
RW-4
HPFF-59
HPFF-7 (17.15)
HPFF-1
MW-A
CONC. PAD
HPFF-17
MW-8
MW-13
DOGWOOD
1101-2
1101-1
HPFF-60
HPFF-61 (16.05)
HPFF-14
HPFF-12
HPFF-22
17.00
CENTRAL SECTOR
78GW31-3
78GW31-2
78GW15
GIBB ROAD
HPFF-34
HPFF-35
HPFF-5
HPFF-9 (16.86)
HPFF-28
RAMP
HPFF-2
CONCRETE LOADING RAMP
OIL/WATER SEPARATOR
MW-5
RW-1
S1001
MW-16R
1419
1303
1302
1102
1113
MW-14
S1131
S1417
1403
1307
1306
1315
1305
1304
202
HPFF-62
78GW32-2
S1122
HPFF-19
S1127
78GW32-3
S1123
1103
HPFF-29
HPFF-65
78GW22-1 (DESTROYED)
FORMER HADNOT POINT FUEL FARM
HPFF-10
FORMER UST'S
MW-17
HPFF-64 (17.56)
HPFF-8 (17.93)
HPFF-15
MW-10R
HPFF-33
HPFF-63 (14.88)
HPFF-32
HPFF-31
HPFF-30
SE SECTOR
EAST ROAD
ASH STREET
HPFF-67
MW-15
HPFF-66 (17.33)
HPFF-68
HPFF-40
78GW17-2
HPFF-42
1114
HPFF-22
S1130
HPFF-41
PAVED ROAD
MW-1
RW-2
HPFF-69 (16.73)
MW-2
FORMER AST
CONCRETE DITCH
FUEL UNLOADING STATIONS
CONCRETE SLAB
RETENTION POND
10,000 GAL. KERO AST
20,000 GAL. DIESEL AST
40,000 GAL. MOGAS AST
HPFF-6 (18.59)
VEHICLE READY FUEL STORAGE
OIL/WATER SEPARATOR
HPFF-20
HPFF-3
TWIN CMP
1413
1311
1308
78GW12
1405
1312
S1216
S1218
78GW16
S1126
1105
1104
S1133
1127
MW-9
PAVED PARKING LOT
MW-19
WASH STAND
D=DIESEL HD=HIGH SULPHUR DIESEL AST
HPFF-38
18.00
MW-3
MW-4
15,000 GAL. ASTS U=UNLEADED D=DIESEL
DISPENSER ISLANDS
HPFF-70 (18.32)
HPFF-71
HPFF-4
1005
TEMPORARY FUEL FARM
OIL/WATER SEPARATOR
926
WASH STAND
78GW-21
HAMMOND ROAD
1120
1124
S1125
S1416
S1313
S1322
S1221
S1217
1107
1106
S1128
FORMER HADNOT POINT FUEL FARM
LEGEND
EXISTING NEW DESCRIPTION
BUILDING
RAILROAD TRACKS
CHAIN LINK FENCE
TYPE I WELL
TYPE II WELL
TYPE III WELL (50' DEEP)
TYPE III WELL (70'-90' DEEP)
TYPE III WELL (GREATER THAN 90' DEEP)
PUMPING WELL
( ) GROUNDWATER ELEVATION IN FEET
GROUNDWATER FLOW
NOTE:
CONTOUR INTERVAL = 1 FOOT
100 50 0' 100 200
SCALE IN FEET
N
NEW WELLS SURVEYED BY:
CHARLES F. RIGGS AND ASSOCIATES, INC.
JACKSONVILLE, N.C.
CALLIN
ENGINEERING and SCIENTIFIC SERVICES
WILMINGTON, NORTH CAROLINA
PROJECT
HADNOT POINT FUEL FARM
MARINE CORPS BASE
CAMP LEJEUNE, N.C.
JOB NO. 202027-40
DATE: DEC 2002
TITLE
POTENTIOMETRIC SURFACE
CONTOURS AS OF JULY 16-17, 2002
WELLS 50FT DEEP
SCALE: 1"=200'
DRAWN BY: HCS
CHECKED BY: SVH
FIGURE 10
202027-40-10

POTENTIOMETRIC SURFACE CONTOURS AS OF JULY 16-17, 2002 WELLS 80FT DEEP

FIGURE 11

202027-40-11

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

JOB NO. 202027-40 | DATE: DEC 2002 | SCALE: 1"=200' | DRAWN BY: HCS | CHECKED BY: SVH

TITLE

CAGLE Engineers and Scientists
WILMINGTON, NORTH CAROLINA

LEGEND

EXISTING	NEW	DESCRIPTION
		BUILDING
		RAILROAD TRACKS
		CHAIN LINK FENCE
		TYPE I WELL
		TYPE II WELL
		TYPE III WELL (50' DEEP)
		TYPE III WELL (70'-90' DEEP)
		TYPE III WELL (GREATER THAN 90' DEEP)
		PUMPING WELL
( )		GROUNDWATER ELEVATION IN FEET
		GROUNDWATER FLOW

NOTE:
CONTOUR INTERVAL = 0.5 FOOT

N

100 50 0' 100 200
SCALE IN FEET

FORMER HADNOT POINT FUEL FARM

NW SECTOR
CENTRAL SECTOR
SE SECTOR

HOLCOMB BOULEVARD
WEST ROAD
CENTER ROAD
DOGWOOD
GIBB ROAD
BIRCH STREET
ASH STREET
EAST ROAD
HAMMOND ROAD
PAVED ROAD
PAVED PARKING LOT
CONCRETE LOADING RAMP
CONCRETE SLAB
CONCRETE DITCH
FUEL UNLOADING STATIONS
VEHICLE READY FUEL STORAGE
TEMPORARY FUEL FARM
BUILDING 1101
HAZMAT BLDG
WATER TANK
RETENTION POND
DISPENSER ISLANDS
CONC. PAD
WASH STAND
OIL/WATER SEPARATOR

78GW13 78GW14 78GW15 78GW16 78GW17-1 78GW17-2 78GW19 78GW20 (DESTROYED) 78GW21 78GW22-2 78GW31-2 78GW31-3 78GW32-2 (16.22) 78GW32-3

HPFF-43 (12.39) HPFF-44 HPFF-45 (13.61) HPFF-46 HPFF-47 HPFF-48 HPFF-49 (14.15) HPFF-50 HPFF-51 HPFF-52 HPFF-53 HPFF-54 HPFF-55 (17.07) HPFF-56 HPFF-57 HPFF-58 (15.62) HPFF-59 (16.74) HPFF-60 HPFF-61 HPFF-62 HPFF-63 HPFF-64 HPFF-65 (15.64) HPFF-67 (16.28) HPFF-68 HPFF-69 HPFF-70 HPFF-71 (15.95) HPFF-72

1115-1 1115-2 1115-3 1115-4 1115-5 1115-7 1115-8 1115-10 1115-11 1115-12 1115-14 1115-15 1115-16 1115-17 1115-18 1115-19 1115-20 1115-21 1115-22 (14.43) 1115-23 (15.55) 1115-24 (14.34) 1115-25 (15.03)

1101-1 1101-2 1101-3 1102 1105 1106 1107 1108 1111 1113 1115 1120 1124 1125 1126 1127 1128 1200 1200A 1201 1202 1220 1300 1301 1302 1303 1305 1307 1309 1311 1312 1313 1315 1322 1400 1401 1402 1403 1404 1405 1413 1417 1419 1420 1422 1005 1013 926

S1053 S1100 S1111 S1114 S1115 S1122 S1123 S1127 S1130 S1131 S1133 S1214 S1216 S1217 S1218 S1221 S1313 S1416 S1417 S1000 WATER TANK S1017 S1007

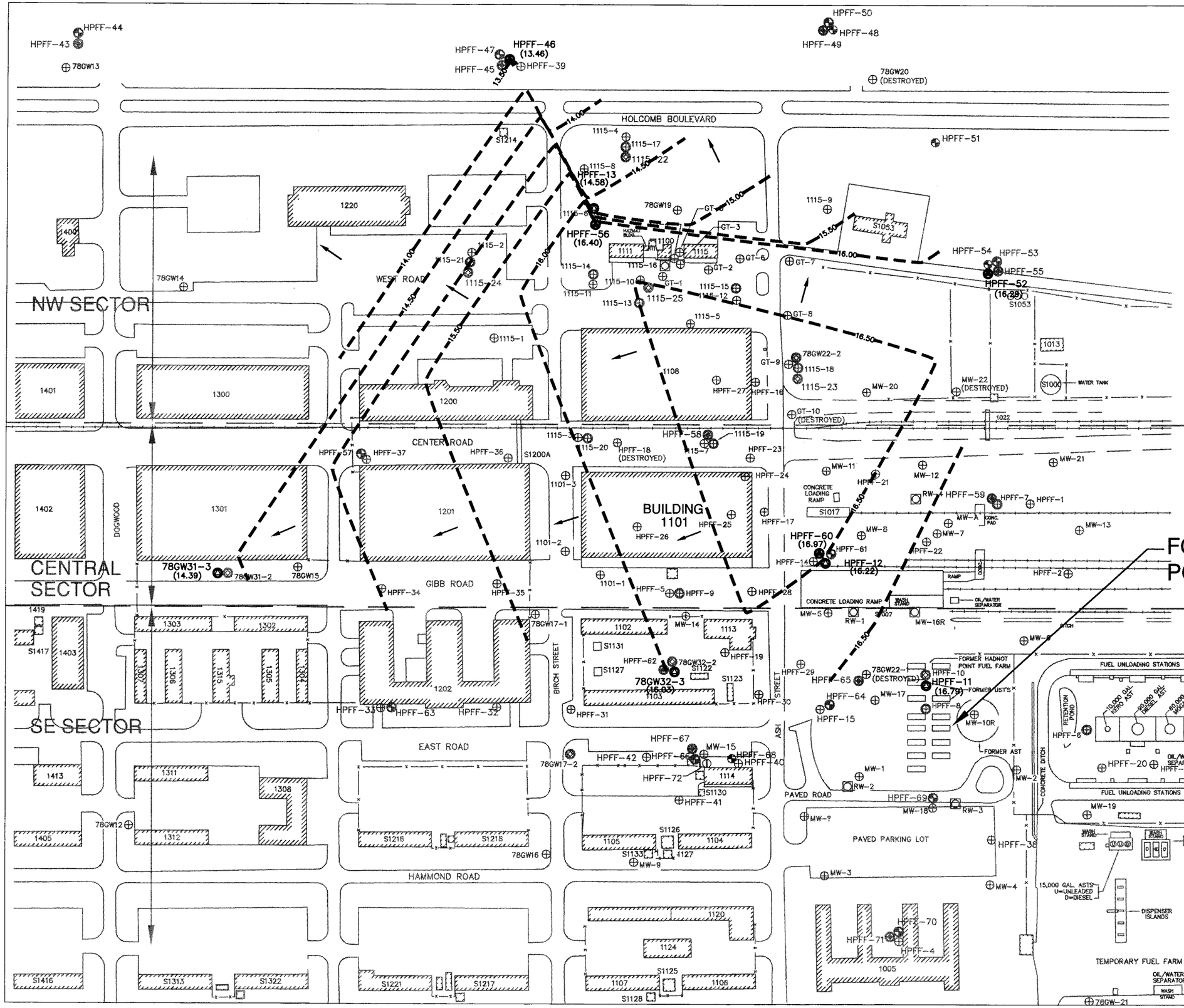
MW-1 MW-2 MW-3 MW-4 MW-5 MW-7 MW-8 MW-9 MW-10R MW-11 MW-12 MW-13 MW-14 MW-16R MW-17 MW-18 MW-19 MW-20 MW-21 MW-22 (DESTROYED) RW-1 RW-2 RW-3 RW-4 MW-A

GT-1 GT-2 GT-3 GT-4 GT-5 GT-7 GT-8 GT-9 GT-10 (DESTROYED)

HPFF-1 HPFF-2 HPFF-3 HPFF-4 HPFF-5 HPFF-6 HPFF-7 HPFF-8 HPFF-9 HPFF-10 (16.79) HPFF-11 FORMER UST'S HPFF-12 HPFF-13 HPFF-14 HPFF-15 HPFF-16 HPFF-17 HPFF-18 HPFF-19 HPFF-20 HPFF-21 HPFF-22 HPFF-23 HPFF-24 HPFF-25 HPFF-26 HPFF-27 HPFF-28 HPFF-29 HPFF-30 HPFF-31 HPFF-32 HPFF-33 HPFF-34 HPFF-35 HPFF-36 HPFF-37 HPFF-38 HPFF-39 HPFF-40 HPFF-41 HPFF-42

D=DIESEL ND=HIGH SULPHUR DIESEL AST
10,000 GAL KERO AST
50,000 GAL DIESEL AST
50,000 GAL MOGAS AST
15,000 GAL ASTS U=UNLEADED D=DIESEL
TWIN CMP.s

NEW WELLS SURVEYED BY:
CHARLES F. RIGGS AND ASSOCIATES, INC.
JACKSONVILLE, N.C.



202027-40-12

FIGURE 12

TITLE: POTENTIOMETRIC SURFACE CONTOURS AS OF JULY 16-17, 2002 WELLS 150FT DEEP

SCALE: 1"=200' | DRAWN BY: HCS | CHECKED BY: SVH

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

JOB NO. 202027-40 | DATE: DEC 2002

CAGLIN ENGINEERS and SCIENTISTS WILMINGTON, NORTH CAROLINA

NEW WELLS SURVEYED BY:
CHARLES F. RIGGS AND ASSOCIATES, INC.
JACKSONVILLE, N.C.

FREE PRODUCT SPATIAL EXTENT AS OF JULY 16, 2002

FIGURE 13

201027-40-13

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

JOB NO. 202027-40 | DATE: DEC 2002 | SCALE: 1"=200' | DRAWN BY: WHW | CHECKED BY: SVH

CAGLE Engineering and Scientists
WILMINGTON, NORTH CAROLINA

LEGEND

EXISTING	NEW	DESCRIPTION
		BUILDING
		RAILROAD TRACKS
		CHAIN LINK FENCE
		TYPE I WELL
		TYPE II WELL
		TYPE III WELL (50' DEEP)
		TYPE III WELL (70'-90' DEEP)
		TYPE III WELL (GREATER THAN 90' DEEP)
		PUMPING WELL

N

100 50 0' 100 200
SCALE IN FEET

FORMER HADNOT POINT FUEL FARM

ESTIMATED EXTENT OF FREE PRODUCT PLUME AS OF JULY 16, 2002

NEW WELLS SURVEYED BY:
CHARLES F. RIGGS AND ASSOCIATES, INC.
JACKSONVILLE, N.C.

HPFF-44
HPFF-43
78GW13
HPFF-47
HPFF-46
HPFF-45
HPFF-39 (<1)
HPFF-50
HPFF-49
HPFF-48 (<1)
78GW20 (DESTROYED)
HOLCOMB BOULEVARD
S1214
1115-4 (22.6)
1115-17
1115-22
1115-8
HPFF-51 (<1)
ESTIMATED AREAL EXTENT OF BENZENE ABOVE NCAC T15A:02L STANDARD OF 1 ug/L
1115-9 (140/150)
S1053
1220
1402
1115-2 (11.9)
1115-21
1115-24
78GW14
WEST ROAD
NW SECTOR
HPFF-13
78GW19
GT-5
GT-4
GT-3
1115-6
HPFF-56
HAZMAT
1100
1111
1115
1115-14
1115-16
GT-2
GT-6
GT-7
HPFF-54 (<1)
HPFF-53
HPFF-55
HPFF-52
1115-10
GT-1 (4.0)
1115-11
1115-13
1115-25
1115-15
1115-12
1115-5
S1053
GT-8 (<1)
1115-1 (6.0)
1401
1300
1200
1108
HPFF-27
GT-9
78GW22-2
1115-18
1115-23
1013
MW-20 (4)
MW-22 (DESTROYED)
S1000
WATER TANK
1,000 PPB
GT-10 (DESTROYED)
1022
1115-3
1115-20
HPFF-18 (DESTROYED)
HPFF-58
1115-19
1115-7 (6,000)
5,000 PPB
HPFF-57
HPFF-37
HPFF-36
S1200A
HPFF-23
MW-11 (64.9)
MW-12
MW-21
HPFF-24
HPFF-21
CONCRETE LOADING RAMP
S1017
RW-4
HPFF-59
HPFF-7
HPFF-1 (<1)
1101-3 (<1)
BUILDING 1101
HPFF-25
HPFF-17
MW-A
MW-8
MW-7
MW-13
HPFF-26
1402
1301
1201
DOGWOOD
1101-2
HPFF-60
HPFF-61
HPFF-14
HPFF-12
HPFF-22
78GW31-3
78GW31-2
78GW15
HPFF-34
GIBB ROAD
HPFF-35
1101-1 (<1)
HPFF-5 (3)
HPFF-9
5,000 PPB
HPFF-28
HPFF-2 (<1)
CONCRETE LOADING RAMP
WASH STAND
OIL/WATER SEPARATOR
MW-5
RW-1
1007
MW-16R
MW-6 (<1)
1419
1303
1302
1102
RW-7
1113
78GW17-1
BIRCH STREET
S1417
1403
1304
1305
1315
1306
1307
1202
1202
S1131
HPFF-62
78GW22-2
S1122
HPFF-19 (15,000)
10,000 PPB
S1127
78GW22-3
1123
HPFF-30
HPFF-29
HPFF-65
78GW22-1 (DESTROYED)
HPFF-10
FORMER HADNOT POINT FUEL FARM
FUEL UNLOADING STATIONS
CONCRETE SLAB
HPFF-33
HPFF-63
HPFF-32
1103
HPFF-64
HPFF-15
MW-17 (12,200)
MW-10R (4,410)
HPFF-14
FORMER USTs
HPFF-8
HPFF-6
RELOCATED
10,000 GAL. KERO AST
20,000 GAL. DIESEL AST
40,000 GAL. MOGAS AST
VEHICLE READY FUEL STORAGE
HPFF-31 (<1)
SE SECTOR
EAST ROAD
HPFF-66
HPFF-67
HPFF-68 (30)
MW-15
15,000 PPB
5,000 PPB
1,000 PPB
1114
S1130
HPFF-41
HPFF-40
HPFF-20 (3,070)
OIL/WATER SEPARATOR
HPFF-3 (<1)
TWIN CRPLS
1413
1311
1308
1312
1405
78GW12
S1216
S1218
78GW16
1105
S1126
S1133
1104
1127
MW-9 (<1)
PAVED ROAD
PAVED PARKING LOT
MW-19 (210)
MW-18 (18,000)
MW-3 (<1)
HPFF-38 (<1)
WASH STAND
D=DIESEL
HD=HIGH SULPHUR DIESEL AST
HAMMOND ROAD
MW-4
15,000 GAL. ASTS U=UNLEADED D=DIESEL
DISPENSER ISLANDS
1120
1124
HPFF-70
HPFF-71
HPFF-4
1005
TEMPORARY FUEL FARM
S1125
1107
1106
S1128
OIL/WATER SEPARATOR
926
78GW-21
S1416
S1313
S1322
S1221
S1217

N

LEGEND

EXISTING	NEW	DESCRIPTION
		BUILDING
		RAILROAD TRACKS
		CHAIN LINK FENCE
	⊖	TYPE I WELL
⊕	⊕	TYPE II WELL
⊕	⊕	TYPE III WELL (50' DEEP)
⊕	⊕	TYPE III WELL (70'-90' DEEP)
⊕	⊕	TYPE III WELL (GREATER THAN 90' DEEP)
	⊠	PUMPING WELL
( )		BENZENE CONCENTRATIONS
(/)		BENZ. CONC./DUPLICATE CONC. (IF APPLICABLE)

NOTE:
1. ALL RESULTS IN µg/L
2. ALL VALUES CORRECTED FOR DILUTION

100 50 0' 100 200
SCALE IN FEET

FORMER HADNOT POINT FUEL FARM

202027-40-14

FIGURE 14

TITLE: BENZENE CONCENTRATIONS (GROUNDWATER) ISOPLETH - TYPE II WELLS ONLY

CHECKED BY: SVH
DRAWN BY: HCS
SCALE: 1"=200'
DATE: DEC 2002
JOB NO. 202027-40

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

CAGLE ENGINEERS and ECONOMISTS
WILMINGTON, NORTH CAROLINA

FORMER HADNOT POINT FUEL FARM

ESTIMATED AREAL EXTENT OF BENZENE ABOVE NCAC T15A:02L STANDARD OF 1 ug/L

1,000 PPB
5,000 PPB
10,000 PPB

HOLCOMB BOULEVARD
WEST ROAD
CENTER ROAD
GIBB ROAD
EAST ROAD
HAMMOND ROAD
BIRCH STREET
DOGWOOD
ASH STREET
CONCRETE LOADING RAMP
PAVED ROAD
PAVED PARKING LOT
FUEL UNLOADING STATIONS
CONCRETE SLAB
VEHICLE READY FUEL STORAGE
TEMPORARY FUEL FARM
CONCRETE DITCH
RETENTION POND
WATER TANK
BUILDING 1101

NW SECTOR
CENTRAL SECTOR
SE SECTOR

LEGEND

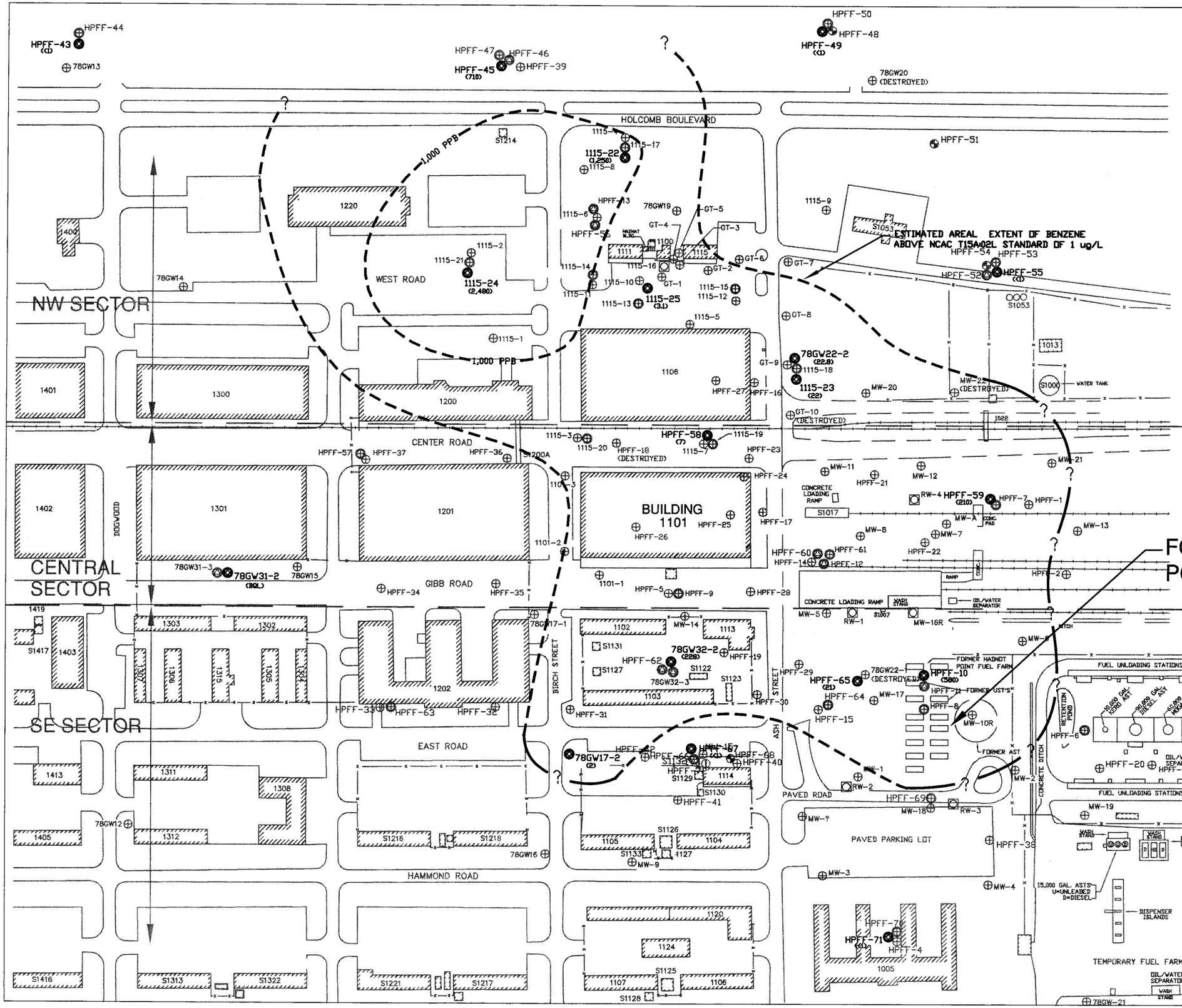
EXISTING	NEW	DESCRIPTION
		BUILDING
		RAILROAD TRACKS
		CHAIN LINK FENCE
	⊕	TYPE I WELL
	⊕	TYPE II WELL
	⊕	TYPE III WELL (50' DEEP)
	⊕	TYPE III WELL (70'-90' DEEP)
	⊕	TYPE III WELL (GREATER THAN 90' DEEP)
	⊠	PUMPING WELL
( )		BENZENE CONCENTRATIONS
(/)		BENZ. CONC./DUPLICATE CONC. (IF APPLICABLE)

NOTE:
1. ALL RESULTS IN ug/L
2. ALL VALUES CORRECTED FOR DILUTION

100 50 0' 100 200
SCALE IN FEET

202027-40-15
FIGURE 15
TITLE: BENZENE CONCENTRATIONS (GROUNDWATER) ISOPLETH - WELLS 50 FT DEEP
CHECKED BY: SVH
DRAWN BY: JCW
SCALE: 1"=200'
DATE: DEC 2002
JOB NO. 202027-40
PROJECT: HADNOT POINT FUEL FARM MARINE CORPS BASE CAMP LEJEUNE, N.C.

CAGLE ENGINEERING and OCEANOGRAPHY
WILMINGTON, NORTH CAROLINA



202027-40-16

FIGURE 16

TITLE: BENZENE CONCENTRATIONS (GROUNDWATER) ISOPLETH - WELLS 70FT - 90FT DEEP

CHECKED BY: SVH

DRAWN BY: JCW

SCALE: 1"=200'

DATE: DEC 2002

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

JOB NO. 202027-40

CAGLE Engineers and Scientists WILMINGTON, NORTH CAROLINA

HPFF-44
HPFF-43
78GW13
HPFF-47
HPFF-46
(<1)
HPFF-45
HPFF-39
HPFF-50
HPFF-48
HPFF-49
78GW20
(DESTROYED)
HOLCOMB BOULEVARD
S1214
1115-4
1115-17
1115-22
1115-8
HPFF-51
1115-9
1220
400
HPFF-13
1115-6
78GW19
GT-5
GT-4
GT-3
HPFF-56
(<1)
HAZMAT BLDG.
1100
1111
1115
1115-16
GT-2
GT-6
1115-14
1115-10
GT-1
1115-15
1115-12
1115-11
1115-13
1115-25
1115-2
1115-21
1115-24
78GW14
WEST ROAD
NW SECTOR
1115-5
1115-1
GT-7
HPFF-54
HPFF-53
HPFF-55
HPFF-52
(<1)
S1053
GT-8
1401
1300
1200
1108
GT-9
78GW22-2
1115-18
1115-23
1013
HPFF-27
HPFF-16
MW-20
MW-22
(DESTROYED)
ESTIMATED AREAL EXTENT OF BENZENE
ABOVE NCAC 15A:02L STANDARD OF 1 ug/L
GT-10
(DESTROYED)
1022
1115-3
1115-20
HPFF-18
(DESTROYED)
HPFF-58
1115-19
1115-7
HPFF-23
MW-21
CENTER ROAD
HPFF-57
HPFF-37
HPFF-36
S1200A
1402
1301
1201
DOGWOOD
MW-11
MW-12
HPFF-24
1101-3
1,000 PPB
HPFF-21
CONCRETE LOADING RAMP
S1017
RW-4
HPFF-59
HPFF-7
HPFF-1
BUILDING 1101
HPFF-26
HPFF-25
HPFF-17
MW-A
CONC. PAD
MW-8
MW-7
MW-13
HPFF-60
(2,700)
HPFF-61
HPFF-22
HPFF-14
HPFF-12
1101-2
RAMP
HPFF-2
CONCRETE LOADING RAMP
WASH STAND
OIL/WATER SEPARATOR
MW-5
RW-5
S1007
MW-16R
DITCH
1,000 PPB
CENTRAL SECTOR
78GW31-3
(BQL)
78GW31-2
78GW15
GIBB ROAD
HPFF-34
HPFF-35
1101-1
HPFF-5
HPFF-9
HPFF-28
1419
1303
1302
78GW17-1
1102
MW-14
1113
S1417
1403
S1131
HPFF-62
(1)
78GW32-2
S1122
HPFF-19
1307
1306
1315
1305
1304
S1123
78GW32-3
(2.7)
1103
HPFF-30
1202
HPFF-33
HPFF-63
HPFF-32
HPFF-31
BIRCH STREET
ASH STREET
HPFF-29
HPFF-65
78GW22-
(DESTROYED)
FORMER HADNOT POINT FUEL FARM
HPFF-10
HPFF-11
(370)
FORMER UST'S
HPFF-64
MW-17
HPFF-8
HPFF-15
MW-10R
SE SECTOR
HPFF-67
MW-15
EAST ROAD
78GW17-2
HPFF-42
HPFF-66
HPFF-65
HPFF-40
1413
1311
1308
1114
HPFF-72
S1130
HPFF-41
PAVED ROAD
HPFF-69
MW-18
RW-3
MW-2
CONCRETE DITCH
FUEL UNLOADING STATIONS
CONCRETE SLAB
VEHICLE READY FUEL STORAGE
RETENTION POND
HPFF-6
130,000 GAL HESO AST
80,000 GAL DIESEL AST
80,000 GAL MOGAS AST
HPFF-20
OIL/WATER SEPARATOR
HPFF-3
TWIN CMP
1405
1312
78GW12
S1216
S1218
78GW16
S1126
1105
1104
S1133
1127
MW-9
MW-19
WASH STAND
WASH STAND
D=DIESEL
HD=HIGH SULPHUR DIESEL AST
PAVED PARKING LOT
HPFF-38
MW-3
MW-4
15,000 GAL ASTS
U=UNLEADED
D=DIESEL
DISPENSER ISLANDS
HAMMOND ROAD
1120
1124
HPFF-70
HPFF-71
HPFF-4
1005
TEMPORARY FUEL FARM
S1125
S1416
S1313
S1322
S1221
S1217
1107
1106
S1128
OIL/WATER SEPARATOR
926
WASH STAND
78GW-21

N

100 50 0' 100 200
SCALE IN FEET

FORMER HADNOT POINT FUEL FARM

LEGEND

EXISTING	NEW	DESCRIPTION
		BUILDING
		RAILROAD TRACKS
		CHAIN LINK FENCE
⊕	◐	TYPE I WELL
⊕	◕	TYPE II WELL
⊕	◕	TYPE III WELL (50' DEEP)
⊕	◕	TYPE III WELL (70'-90' DEEP)
⊕	●	TYPE III WELL (GREATER THAN 90' DEEP)
		PUMPING WELL
( )		BENZENE CONCENTRATIONS
BQL		BELOW QUANTITATION LIMIT

NOTE:
1. ALL RESULTS IN ug/L
2. ALL VALUES CORRECTED FOR DILUTION

202027-40-17

FIGURE 17

TITLE: BENZENE CONCENTRATIONS (GROUNDWATER)
ISOPLETH - WELLS 150FT DEEP

CHECKED BY: SVH
DRAWN BY: JCW
SCALE: 1"=200'
DATE: DEC 2002
JOB NO. 202027-40

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

CAMP DRESSER & MCKEE
ENGINEERS and SCIENTISTS
WILMINGTON, NORTH CAROLINA

78GW-13
HPFF-44
HPFF-43

HPFF-39
HPFF47
HPFF-45
HPFF-46

HPFF-48
HPFF-50
HPFF-49

A

A'

SHALLOW WATER TABLE AS OF JULY 16, 2002

(NS)

(<1)

(<1)

(<1)

(<1)

ESTIMATED EXTENT OF BENZENE ABOVE 2L GWQS

(1,300)

(710)

(28)

(<1)

(<1)

40
20
0
-20
-40
-60
-80
-100
-120
-140

0
50
100
150
200
250
300
350
400
450
500

SOILS LEGEND

- (SM) Silty Sand
- (SC) Clayey Sand
- NS Not Sampled
- (CL) Low to Med. Plasticity Inorganic Clay
- (SW/PT) - Sand with wood fragments or organics
- (SP) Poorly-graded Sand
- ( ) Benzene Concentrations (µg/L)
- Weathered Limestone
- Screened Interval

FIGURE 18

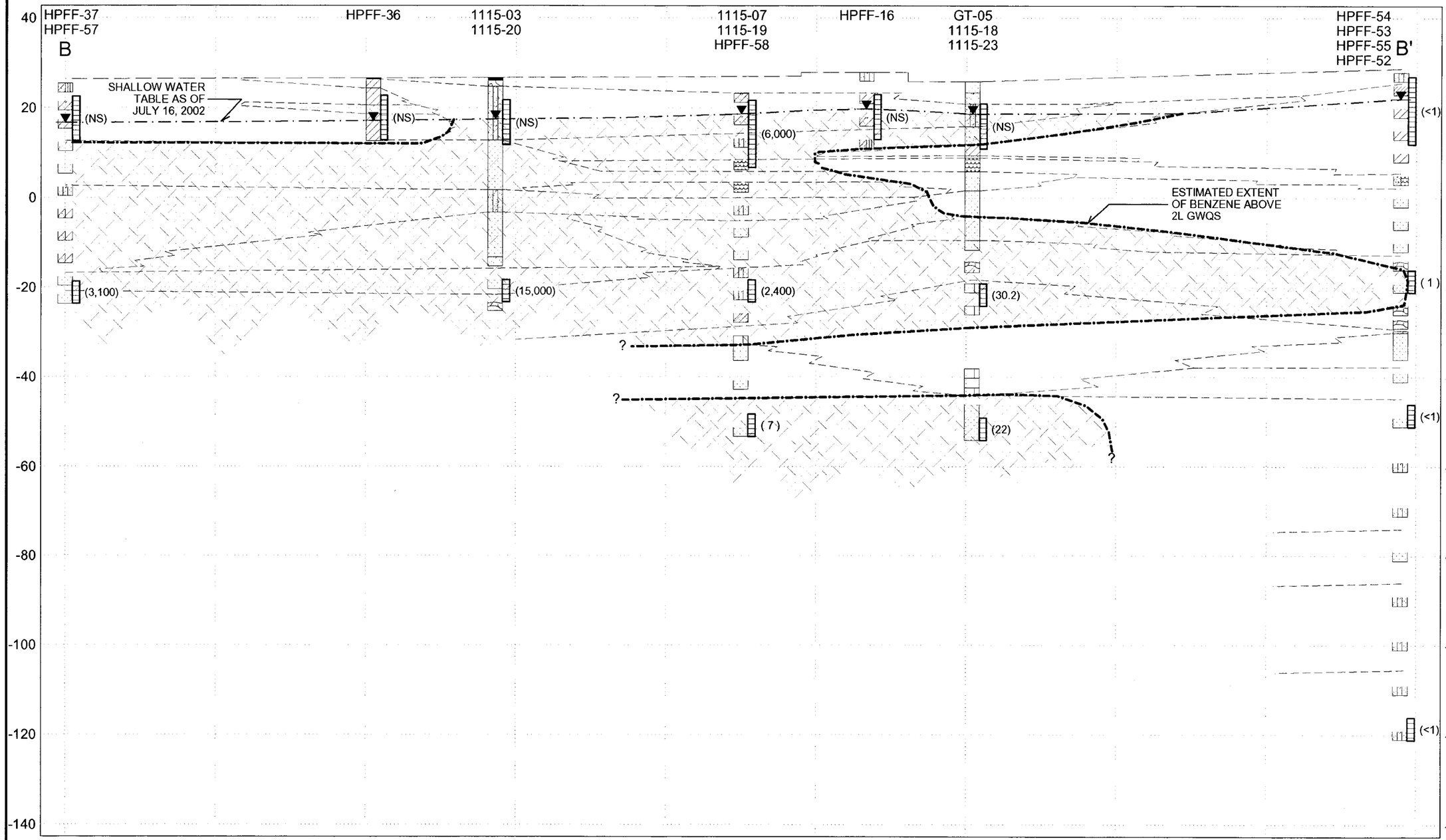
TITLE
ESTIMATED VERTICAL EXTENT OF BENZENE CONCENTRATIONS (GROUNDWATER) ABOVE 2L GWQS - A-A'

SCALE: AS SHOWN
DRAWN BY: SVH
CHECKED BY: MEM

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

JOB NO. 202-027
DATE: DEC. 2002

CAMLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina



SOILS LEGEND

- Asphalt
- (GW) Well-graded Gravel
- (SM) Silty Sand
- (SP) Poorly-graded Sand
- (SW) Well-graded Sand
- Weathered Limestone
- (CL) Low to Med. Plasticity Inorganic Clay
- (PT) Peat or Highly Organic Soils
- Limestone
- (SC) Clayey Sand
- (SC-SM) Clayey/Silty Sand
- (CH) High Plasticity Clay
- (SC-CL) Clayey Sand to Sandy Clay
- ( ) Benzene Concentrations (µg/L)
- Screened Interval
- NS Not Sampled

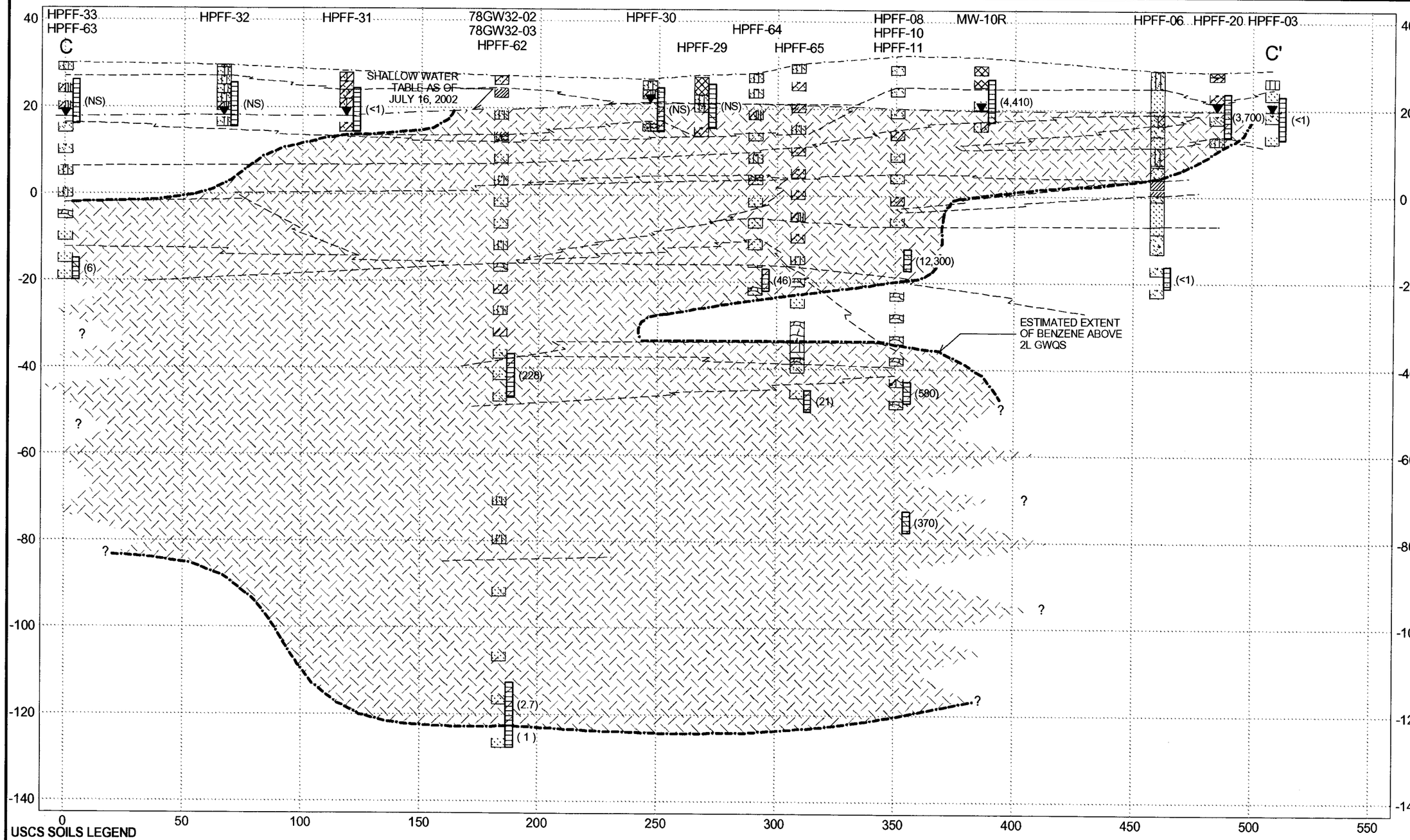
FIGURE 19

TITLE: ESTIMATED VERTICAL EXTENT OF BENZENE CONCENTRATIONS (GROUNDWATER) ABOVE 2L GWQS - B-B'

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

JOB NO: 202-027 | DATE: DEC. 2002 | SCALE: AS SHOWN | DRAWN BY: SVH | CHECKED BY: MEM

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina



USCS SOILS LEGEND

- (ML) Inorganic Silt and v.f. Sands
- (SP) Poorly-graded Sand
- (SW) Well-graded Sand
- (SM) Silty Sand
- (SW/SC) Well-graded Sand to Sandy Clay
- (CH) High Plasticity Clay
- (SC) Clayey Sand
- Limestone
- Fill (made ground)
- (SC/SM) Clayey/Silty Sand
- (SC/CL) Clayey Sand to Sandy Clay
- (SW/SM) Well-graded Sand to Silty Sand
- (SW/PT) - Sand with wood fragments or organics
- Weathered Limestone
- (CL) Low to Med. Plasticity Inorganic Clay
- (SP/SC) Poorly-graded Sand with Clay
- ( ) Benzene Concentrations (g/L)
- Screened Interval
- NS Not Sampled

FIGURE 20

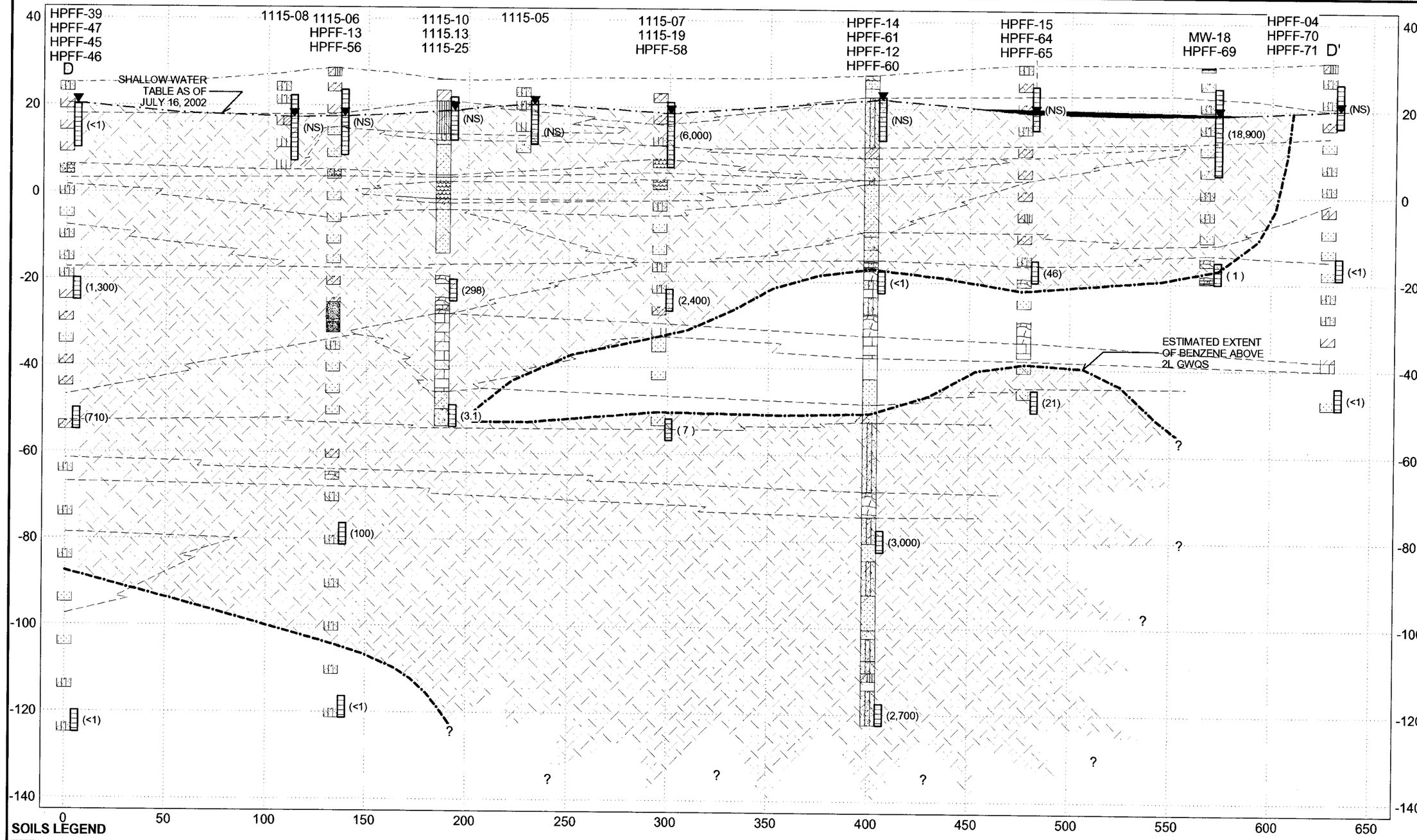
TITLE: ESTIMATED VERTICAL EXTENT OF BENZENE CONCENTRATIONS (GROUNDWATER) ABOVE 2L GWQS - C-C'

DRAWN BY: MEM | CHECKED BY: SVH | SCALE: AS SHOWN | DATE: DEC. 2002

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

JOB NO. 202-027

CAULIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina



SOILS LEGEND

- (SM) Silty Sand
- (GM) Silty Gravel
- (PT) Peat or Highly Organic Soils
- Limestone
- - Potential solution cavity or void
- ( ) Benzene Concentrations (µg/L)
- (ML) Inorganic Silt and v.f. Sands
- (CL) Low to Med. Plasticity Inorganic Clay
- (OH) High Plasticity Organic Silt or Clay
- (SC) Clayey Sand
- (GW) Well-graded Gravel
- Screened Interval
- (SW) Well-graded Sand
- (MH) Elastic Inorganic Silt
- Weathered Limestone
- (SC-SM) Clayey/Silty Sand
- Asphalt
- NS Not Sampled
- (CL/CH) Low to high plasticity CLAY
- (SP) Poorly-graded Sand
- (SP-SC) Poorly-graded Sand with Clay
- (SW/PT) - Sand with wood fragments or organics
- (SC-CL) Clayey Sand to Sandy Clay

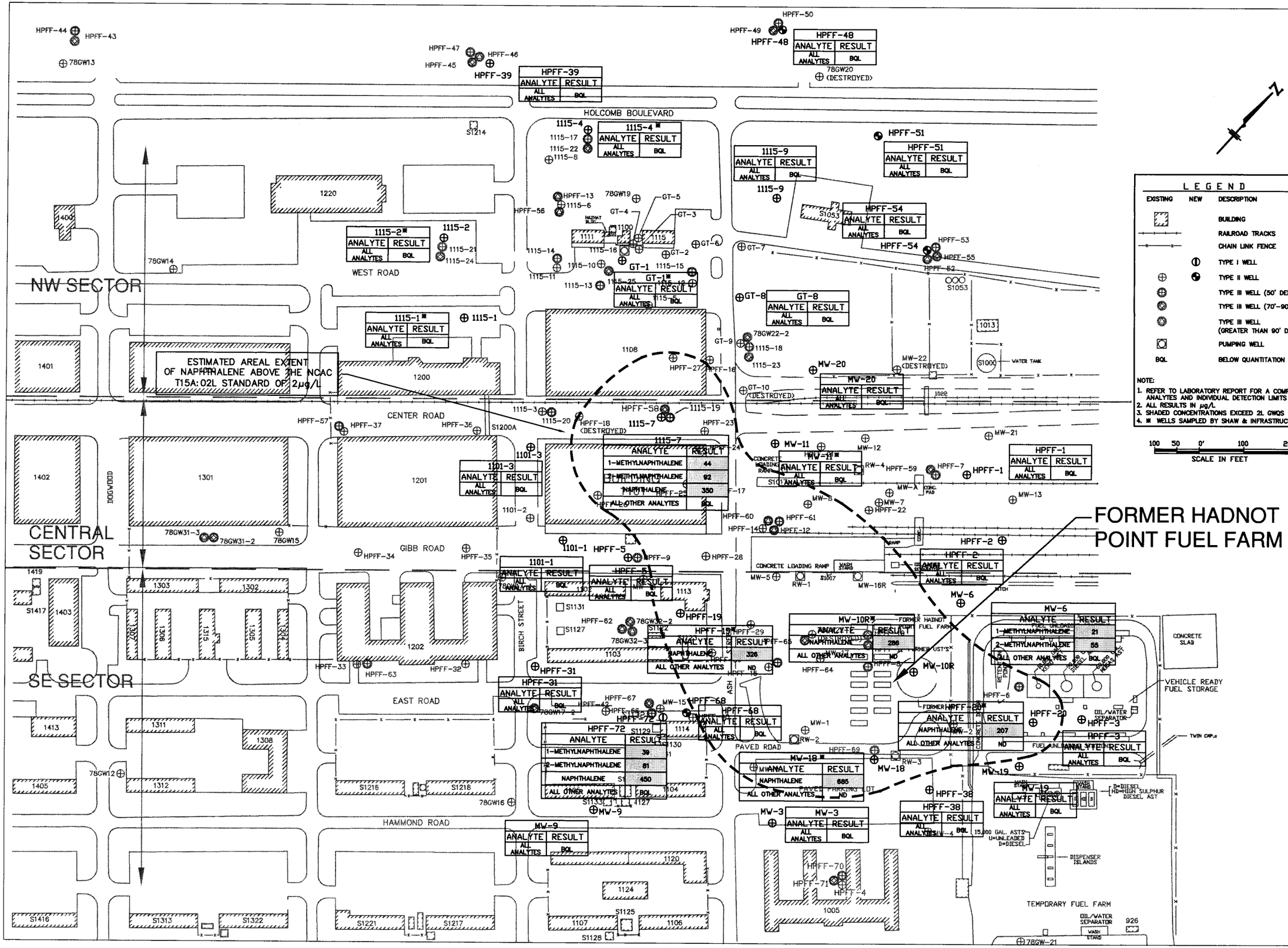
FIGURE 21

TITLE: ESTIMATED VERTICAL EXTENT OF BENZENE CONCENTRATIONS (GROUNDWATER) ABOVE 2L GWQS - D-D'

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

JOB NO. 202-027 | DATE: DEC. 2002 | SCALE: AS SHOWN | DRAWN BY: SVH | CHECKED BY: MEM

CAMLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina



202027-40-22

FIGURE 22

TITLE: TOTAL EPA METHOD 610 CONCENTRATIONS (GROUNDWATER) ISOPLETHS – TYPE II WELLS

SCALE: 1"=200' | DRAWN BY: HCS | CHECKED BY: SVH

DATE: DEC 2002

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

JOB NO. 202027-40

CAGLE ENGINEERING and GEOLOGY WILMINGTON, NORTH CAROLINA

202027-40-23

ESTIMATED AREAL EXTENT OF NAPHTHALENE ABOVE THE NCAC T15A:02L STANDARD OF 2µg/L

HPFF-44	
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-47	
ANALYTE	RESULT
NAPHTHALENE	27
ALL OTHER ANALYTES	BQL

HPFF-50	
ANALYTE	RESULT
ALL ANALYTES	BQL

1115-17 ※	
ANALYTE	RESULT
NAPHTHALENE	31.2
ALL OTHER ANALYTES	ND

1115-21 ※	
ANALYTE	RESULT
NAPHTHALENE	8.1
ALL OTHER ANALYTES	ND

1115-14	
ANALYTE	RESULT
2-METHYLNAPHTHALENE	13
NAPHTHALENE	20
ALL OTHER ANALYTES	BQL

1115-13 ※	
ANALYTE	RESULT
NAPHTHALENE	79.4
ALL OTHER ANALYTES	ND

1115-15	
ANALYTE	RESULT
2-METHYLNAPHTHALENE	11
NAPHTHALENE	59
ALL OTHER ANALYTES	BQL

HPFF-53	
ANALYTE	RESULT
ALL ANALYTES	BQL

1115-18 ※	
ANALYTE	RESULT
NAPHTHALENE	BQL
ALL OTHER ANALYTES	ND

1115-19	
ANALYTE	RESULT
NAPHTHALENE	29
ALL OTHER ANALYTES	BQL

HPFF-57	
ANALYTE	RESULT
NAPHTHALENE	33
ALL OTHER ANALYTES	BQL

1115-20	
ANALYTE	RESULT
2-METHYLNAPHTHALENE	13
NAPHTHALENE	200
ALL OTHER ANALYTES	BQL

HPFF-9	
ANALYTE	RESULT
NAPHTHALENE	25
ALL OTHER ANALYTES	BQL

HPFF-63	
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-66	
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-7 ※	
ANALYTE	RESULT
NAPHTHALENE	BQL
ALL OTHER ANALYTES	ND

HPFF-61	
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-8 ※	
ANALYTE	RESULT
NAPHTHALENE	10
ALL OTHER ANALYTES	ND

HPFF-64	
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-69	
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-6	
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-70	
ANALYTE	RESULT
ALL ANALYTES	BQL

NW SECTOR

CENTRAL SECTOR

SE SECTOR

HOLCOMB BOULEVARD

WEST ROAD

CENTER ROAD

SIBB ROAD

HAMMOND ROAD

BIRCH STREET

ASH STREET

DOGWOOD

PAVED ROAD

BUILDING 1101

FORMER HADNOT POINT FUEL FARM

TEMPORARY FUEL FARM

FUEL UNLOADING STATIONS

VEHICLE READY FUEL STORAGE

CONCRETE SLAB

WATER TANK

CONCRETE LOADING RAMP

PARKING LOT

RETENTION POND

78GW20 (DESTROYED)

78GW22-2

78GW32-2

78GW32-3

HPFF-18 (DESTROYED)

GT-10 (DESTROYED)

MW-22 (DESTROYED)

LEGEND

EXISTING	NEW	DESCRIPTION
		BUILDING
		RAILROAD TRACKS
		CHAIN LINK FENCE
		TYPE I WELL
		TYPE II WELL
		TYPE III WELL (50' DEEP)
		TYPE III WELL (70'-90' DEEP)
		TYPE III WELL (GREATER THAN 90' DEEP)
		PUMPING WELL
BQL		BELOW QUANTITATION LIMIT

NOTE:
1. REFER TO LABORATORY REPORT FOR A COMPLETE LIST OF ANALYTES AND INDIVIDUAL DETECTION LIMITS
2. ALL RESULTS IN µg/L
3. SHADED CONCENTRATIONS EXCEED 2L GWQS
4. ※ WELLS SAMPLED BY SHAW & INFRASTRUCTURE

100 50 0 100 200
SCALE IN FEET

FIGURE 23

TITLE: TOTAL EPA METHOD 610 CONCENTRATIONS (GROUNDWATER) ISOPLETHS – WELLS 50FT DEEP

SCALE: 1"=200' | DRAWN BY: HCS | CHECKED BY: SVH

DATE: DEC 2002

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

JOB NO. 202027-40

CAGLE ENGINEERING and PLANNING WILMINGTON, NORTH CAROLINA

202027-40-24

FIGURE 24

TITLE: TOTAL EPA METHOD 610 CONCENTRATIONS (GROUNDWATER) ISOPLETHS – WELLS 70 – 90 FT DEEP

SCALE: 1"=200' | DRAWN BY: HCS | CHECKED BY: SVH

DATE: DEC 2002

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

JOB NO. 202027-40

CAGLIN ENGINEERING and CONSULTING WILMINGTON, NORTH CAROLINA

FORMER HADNOT POINT FUEL FARM

LEGEND

EXISTING	NEW	DESCRIPTION
		BUILDING
		RAILROAD TRACKS
		CHAIN LINK FENCE
		TYPE I WELL
		TYPE II WELL
		TYPE III WELL (50' DEEP)
		TYPE III WELL (70'-90' DEEP)
		TYPE III WELL (GREATER THAN 90' DEEP)
		PUMPING WELL
BQL		BELOW QUANTITATION LIMIT

NOTE:
1. REFER TO LABORATORY REPORT FOR A COMPLETE LIST OF ANALYTES AND INDIVIDUAL DETECTION LIMITS
2. ALL RESULTS IN µg/L
3. SHADED CONCENTRATIONS EXCEED 2L GWQS
4. ※ WELLS SAMPLED BY SHAW & INFRASTRUCTURE

100 50 0' 100 200
SCALE IN FEET

N

NW SECTOR
CENTRAL SECTOR
SE SECTOR

HOLCOMB BOULEVARD
WEST ROAD
CENTER ROAD
GIBB ROAD
EAST ROAD
HAMMOND ROAD
DOGWOOD
BIRCH STREET
PAVED ROAD
PAVED PARKING LOT
CONCRETE LOADING RAMP
FUEL UNLOADING STATIONS
TEMPORARY FUEL FARM
CONCRETE SLAB
VEHICLE READY FUEL STORAGE
CONCRETE DITCH
RETENTION POND
WATER TANK
BUILDING 1101

HPFF-43
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-45
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-49
ANALYTE	RESULT
ALL ANALYTES	BQL

1115-22 ※
ANALYTE	RESULT
NAPHTHALENE	BQL
ALL OTHER ANALYTES	ND

1115-24 ※
ANALYTE	RESULT
NAPHTHALENE	BQL
ALL OTHER ANALYTES	ND

1115-25 ※
ANALYTE	RESULT
NAPHTHALENE	BQL
ALL OTHER ANALYTES	ND

1115-23 ※
ANALYTE	RESULT
NAPHTHALENE	BQL
ALL OTHER ANALYTES	ND

HPFF-59
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-55
ANALYTE	RESULT
STODDARD ANALYTES	BQL

HPFF-58
ANALYTE	RESULT
ALL ANALYTES	BQL

78GW31-2
ANALYTE	RESULT
ALL ANALYTES	BQL

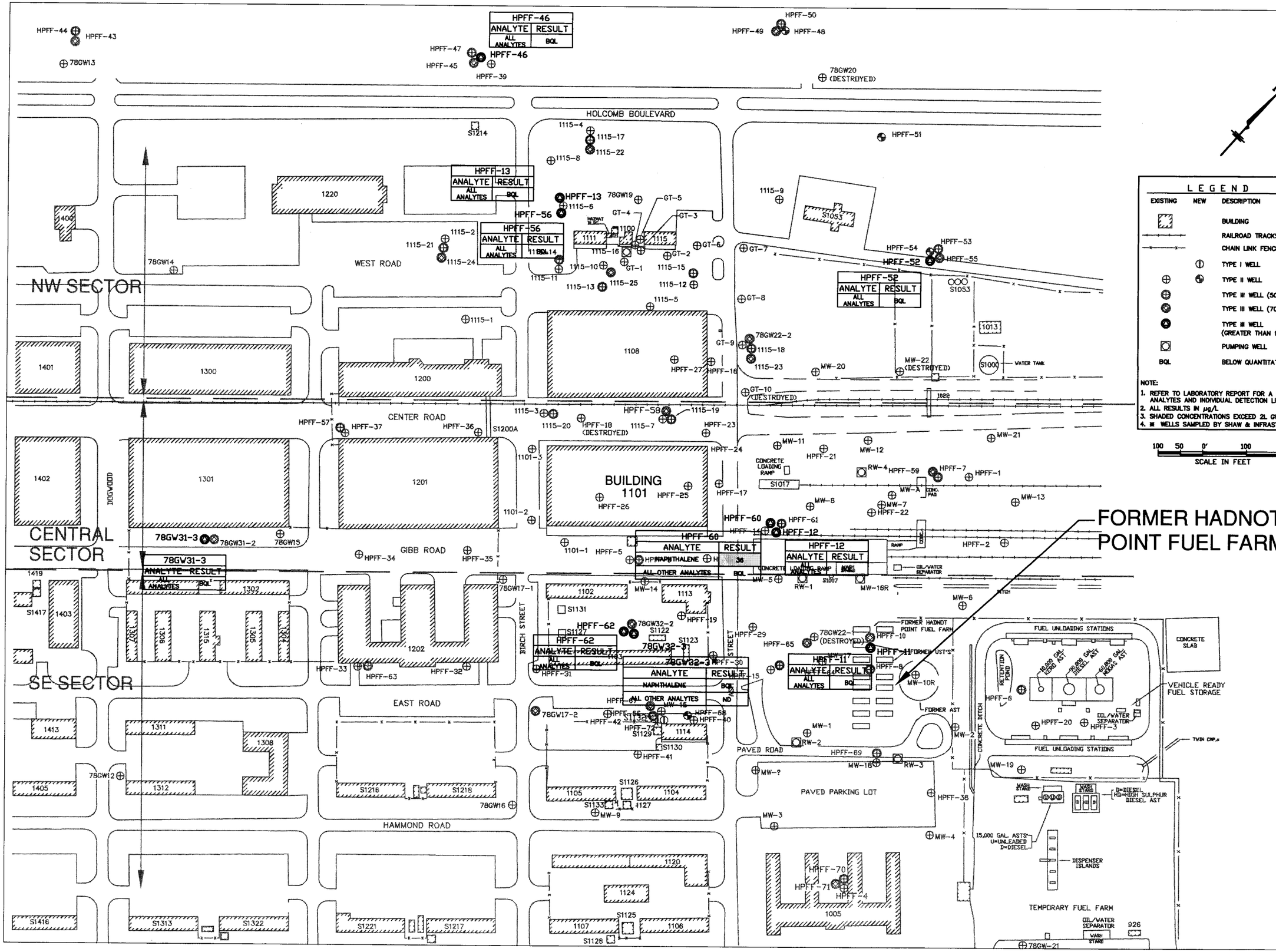
78GW17-2
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-67
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-10
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-65
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-71
ANALYTE	RESULT
ALL ANALYTES	BQL



202027-40-25

FIGURE 25

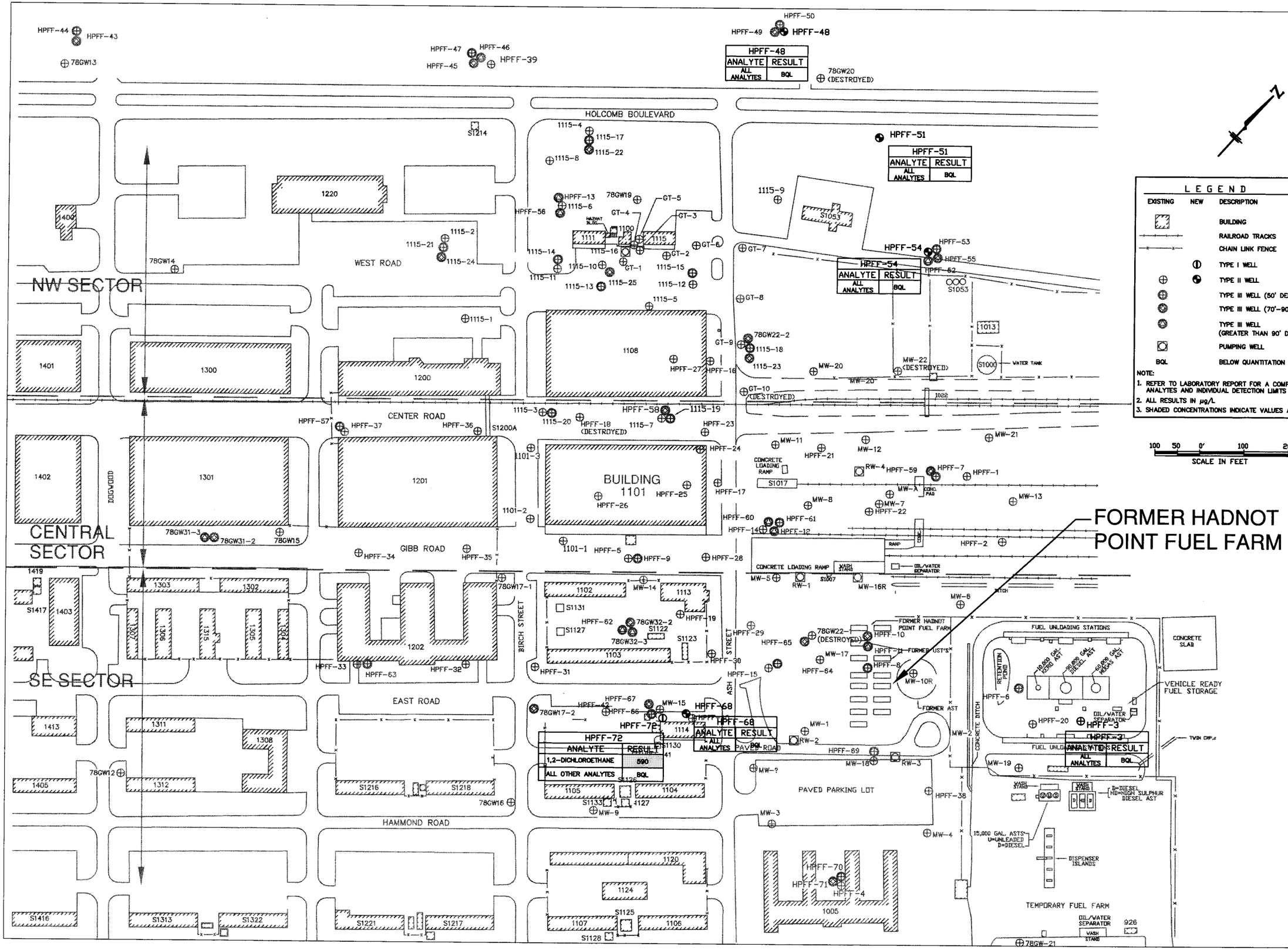
TITLE: TOTAL EPA METHOD 610 CONCENTRATIONS (GROUNDWATER) ISOPLETHS – WELLS 150 FT DEEP

SCALE: 1"=200' | DRAWN BY: HCS | CHECKED BY: SVH

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

JOB NO. 202027-40 | DATE: DEC 2002

CAGLE ENGINEERS and CONSULTANTS WILMINGTON, NORTH CAROLINA



LEGEND

EXISTING	NEW	DESCRIPTION
		BUILDING
		RAILROAD TRACKS
		CHAIN LINK FENCE
		TYPE I WELL
		TYPE II WELL
		TYPE III WELL (50' DEEP)
		TYPE III WELL (70'-90' DEEP)
		TYPE III WELL (GREATER THAN 90' DEEP)
		PUMPING WELL
BQL		BELOW QUANTITATION LIMIT

NOTE:
1. REFER TO LABORATORY REPORT FOR A COMPLETE LIST OF ANALYTES AND INDIVIDUAL DETECTION LIMITS
2. ALL RESULTS IN µg/L
3. SHADED CONCENTRATIONS INDICATE VALUES ABOVE 2L GWQS

FORMER HADNOT POINT FUEL FARM

202027-40-26

FIGURE 26

TITLE: TOTAL EPA METHOD 601 CONCENTRATIONS (GROUNDWATER) ISOPLETHS - TYPE II WELLS

SCALE: 1"=200' | DRAWN BY: HCS | CHECKED BY: SVH

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

JOB NO. 202027-40 | DATE: DEC 2002

CAGLE ENGINEERS and SCIENTISTS WILMINGTON, NORTH CAROLINA

HPFF-44	
ANALYTE	RESULT
CIS-1,2-DICHLOROETHENE	4
ALL OTHER ANALYTES	BQL

HPFF-47	
ANALYTE	RESULT
CIS-1,2-DICHLOROETHENE	170
TRICHLOROETHENE	330
ALL OTHER ANALYTES	BQL

HPFF-50	
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-53	
ANALYTE	RESULT
CIS-1,2-DICHLOROETHENE	2
ALL OTHER ANALYTES	BQL

HPFF-57	
ANALYTE	RESULT
CIS-1,2-DICHLOROETHENE	1
1,2-DICHLOROPROPANE	4
TRICHLOROETHENE	4
ALL OTHER ANALYTES	BQL

HPFF-61	
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-63	
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-64	
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-66	
ANALYTE	RESULT
1,2-DICHLOROETHANE	59
ALL OTHER ANALYTES	BQL

HPFF-69	
ANALYTE	RESULT
CIS-1,2-DICHLOROETHENE	3
ALL OTHER ANALYTES	BQL

HPFF-70	
ANALYTE	RESULT
CIS-1,2-DICHLOROETHENE	3
ALL OTHER ANALYTES	BQL

HOLCOMB BOULEVARD
WEST ROAD
CENTER ROAD
GIBB ROAD
HAMMOND ROAD
EAST ROAD
BIRCH STREET
ASH STREET
PAVED ROAD
CONCRETE DITCH
NW SECTOR
CENTRAL SECTOR
SE SECTOR
BUILDING 1101
FORMER HADNOT POINT FUEL FARM
TEMPORARY FUEL FARM
FUEL UNLOADING STATIONS
CONCRETE SLAB
VEHICLE READY FUEL STORAGE
CONCRETE LOADING RAMP
WATER TANK
RETENTION POND
DISPENSER ISLANDS
FORMER AST
FORMER USTS
PAVED PARKING LOT
TVGN DRUM

LEGEND

EXISTING	NEW	DESCRIPTION
		BUILDING
		RAILROAD TRACKS
		CHAIN LINK FENCE
		TYPE I WELL
		TYPE II WELL
		TYPE III WELL (50' DEEP)
		TYPE III WELL (70'-90' DEEP)
		TYPE III WELL (GREATER THAN 90' DEEP)
		PUMPING WELL
BQL		BELOW QUANTITATION LIMIT

NOTE:
1. REFER TO LABORATORY REPORT FOR A COMPLETE LIST OF ANALYTES AND INDIVIDUAL DETECTION LIMITS
2. ALL RESULTS IN µg/L
3. SHADED CONCENTRATIONS INDICATE VALUES ABOVE 2L GWQS

100 50 0' 100 200
SCALE IN FEET

202027-40-27

FIGURE 27

TITLE: TOTAL EPA METHOD 601 CONCENTRATIONS (GROUNDWATER) ISOPLETHS - WELLS 50FT DEEP

CHECKED BY: SVH | DRAWN BY: HCS | SCALE: 1"=200' | DATE: DEC 2002

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

JOB NO. 202027-40

CALIB ENGINEERS and SCIENTISTS WILMINGTON, NORTH CAROLINA

HPFF-43	
ANALYTE	RESULT
CIS-1,2-DICHLOROETHENE	1
ALL OTHER ANALYTES	BQL

HPFF-45	
ANALYTE	RESULT
CIS-1,2-DICHLOROETHENE	40
TRICHLOROETHENE	110
ALL OTHER ANALYTES	BQL

HPFF-49	
ANALYTE	RESULT
CIS-1,2-DICHLOROETHENE	130
ALL OTHER ANALYTES	BQL

HPFF-55	
ANALYTE	RESULT
CHLOROFORM	13
ALL OTHER ANALYTES	BQL

HPFF-58	
ANALYTE	RESULT
1,2-DICHLOROETHANE	1
ALL OTHER ANALYTES	BQL

HPFF-59	
ANALYTE	RESULT
CIS-1,2-DICHLOROETHENE	2
ALL OTHER ANALYTES	BQL

HPFF-65	
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-67	
ANALYTE	RESULT
ALL ANALYTES	BQL

HPFF-71	
ANALYTE	RESULT
ALL ANALYTES	BQL

LEGEND

EXISTING	NEW	DESCRIPTION
		BUILDING
		RAILROAD TRACKS
		CHAIN LINK FENCE
		TYPE I WELL
		TYPE II WELL
		TYPE III WELL (50' DEEP)
		TYPE III WELL (70'-90' DEEP)
		TYPE III WELL (GREATER THAN 90' DEEP)
		PUMPING WELL
BQL		BELOW QUANTITATION LIMIT

NOTE:
1. REFER TO LABORATORY REPORT FOR A COMPLETE LIST OF ANALYTES AND INDIVIDUAL DETECTION LIMITS
2. ALL RESULTS IN µg/L
3. SHADED CONCENTRATIONS INDICATE VALUES ABOVE 2L GWQS

100 50 0' 100 200
SCALE IN FEET

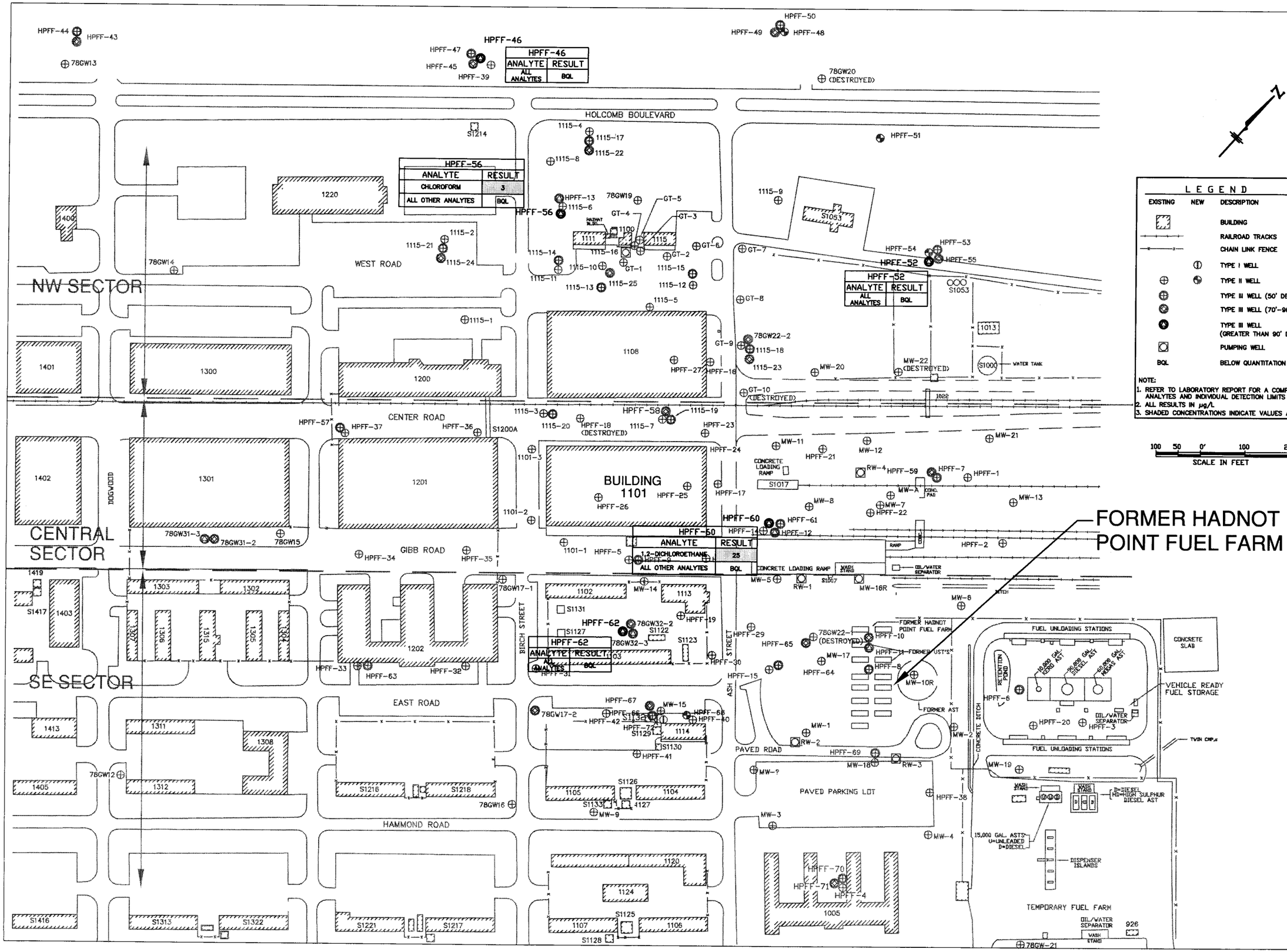
FORMER HADNOT POINT FUEL FARM

NW SECTOR
CENTRAL SECTOR
SE SECTOR
HOLCOMB BOULEVARD
WEST ROAD
CENTER ROAD
GIBB ROAD
EAST ROAD
HAMMOND ROAD
BIRCH STREET
PAVED ROAD
PAVED PARKING LOT
BUILDING 1101
FUEL UNLOADING STATIONS
TEMPORARY FUEL FARM
VEHICLE READY FUEL STORAGE
CONCRETE SLAB
CONCRETE LOADING RAMP
WATER TANK

FIGURE	28
TITLE	TOTAL EPA METHOD 601 CONCENTRATIONS (GROUNDWATER) ISOPLETHS – WELLS 70 – 90 FT DEEP
SCALE:	1"=200'
DRAWN BY:	HCS
CHECKED BY:	SVH
DATE:	DEC 2002
JOB NO.	202027-40
PROJECT	HADNOT POINT FUEL FARM MARINE CORPS BASE CAMP LEJEUNE, N.C.

202027-40-28

CAGLIN ENGINEERS and SCIENTISTS
WILMINGTON, NORTH CAROLINA



202027-40-29

FIGURE 29

TITLE: TOTAL EPA METHOD 601 CONCENTRATIONS (GROUNDWATER) ISOPLETHS – WELLS 150 FT DEEP

SCALE: 1"=200' DRAWN BY: HCS CHECKED BY: SVH

DATE: DEC 2002

JOB NO. 202027-40

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

CAGLIN ENGINEERS and SCIENTISTS WILMINGTON, NORTH CAROLINA

HADNOT POINT 2002 WELL GAUGING, SAMPLING, AND ADDITIONAL WELL INSTALLATION REPORT

HADNOT POINT FUEL FARM

MARINE CORPS BASE CAMP LEJEUNE
JACKSONVILLE, NORTH CAROLINA

VOLUME II

DECEMBER 13, 2002

PREPARED FOR:

CONTRACT NO. N62470-95-D-6009
DELIVERY ORDER NO. 0136
and
CONTRACT NO. N62470-01-D-3009
DELIVERY ORDER NO. 0033
CATLIN PROJECT NO. 202-027



PREPARED BY:

CATLIN ENGINEERS AND SCIENTISTS
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(910) 452-5861

APPENDIX A

SOIL TEST BORING RECORDS AND MONITORING WELL DETAILS

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 10.62	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	23.5	0.0
									LAND SURFACE			
0.0	10	11	34	11	0.1		SM		Brown, tan, and gray, SILTY, v.f. to f. SAND. Moist. No HCO.	2.0	21.5	- 0.5
4.0										4.0	19.5	
6.0	2	5	6	6	0.1	HPFF-43 4-6 & HPFF-43D 4-6	CL		Tan/orange to gray, SILTY, v.f. to f. SANDY CLAY with med. plasticity. Moist. No HCO.	6.0	17.5	
9.0										9.0	14.5	
11.0	2	3	5	6	1.5		CL		Gray, tan, SILTY CLAY with med. to high plasticity. Sat. No HCO.	11.0	12.5	
14.0										14.0	9.5	
16.0	10	16	17	20	0.1		SM		Gray/light gray, SILTY, v.f. to f. SAND wit trace med. size grains. Sat. No HCO.	16.0	7.5	
19.0										19.0	4.5	
21.0	8	10	12	12	0		SM		S.A.A.	21.0	2.5	
24.0										24.0	-0.5	
26.0	8	10	14	12	0		SP		Gray, olive gray, well sorted, v.f. to f. SAND with trace med. grains.	26.0	-2.5	
29.0										29.0	-5.5	
							SM		Olive green, SILTY, v.f. to f. SAND with shell frags.			6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		LOGGED BY: Charles Ray	WELL ID: HPFF-43
		DRILLER: Bobbie Fowler	
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	DTW(7/17/2002): 10.62	WELL DEPTH: 80.0

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

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray	**WELL ID:** HPFF-43
		DRILLER: Bobbie Fowler	
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	**DTW(7/17/2002):** 10.62	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
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	-41.5	
65.0												
68.0										68.0	-44.5	
	20	32	50/6		0.2		SP		S.A.A. Wet. No HCO.	70.0	-46.5	70.0
70.0												71.0
												73.0
												75.0
78.0										78.0	-54.5	2" Slot .010 Sch. 40 PVC
	20	25	30	45	0		SP		S.A.A. Wet. No HCO.	80.0	-56.5	80.0
80.0									Boring Terminated at Elevation -56.5 ft			80.0

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray	**WELL ID:** HPFF-44
		DRILLER: William Miller	
NORTHING: 3,839,145.6	**EASTING:** 285,720.0	**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	**DTW(7/17/2002):** 10.23	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	23.5	0.0
0.0	10	10	22	11	0	HPFF-44 0-2	SM		Brown, tan, and gray, SILTY, v.f. to fine SAND. Moist. No HCO.	2.0	21.5	-0.5
2.0												
4.0	2	6	5	6	0	HPFF-44 4-6	CL		Tan, orange, and gray, SILTY, v.f. to fine SANDY CLAY w/med. plasticity. Moist. No HCO.	4.0	19.5	
6.0										6.0	17.5	
9.0	2	2	5	5	0		CH		Gray, tan, SILTY CLAY w/med. to high plasticity. Sat. No HCO.	9.0	14.5	
11.0										11.0	12.5	
14.0	10	16	17	20	0		SM		Gray to light gray, SILTY, v.f. to fine SAND w/ trace med. sands. Sat. No HCO.	14.0	9.5	
16.0										16.0	7.5	
19.0	8	10	12	12	0		SM		S.A.A.	19.0	4.5	
21.0										21.0	2.5	
24.0	7	10	13	13	1.2		SW		Gray to olive green, v.f. to med. SAND. Sat.	24.0	-0.5	
26.0										26.0	-2.5	
										27.0	-3.5	
									Driller's Note - Hard layer encountered.	27.5	-4.0	
29.0										29.0	-5.5	
							GW		Olive gray, SILTY, v.f. to fine SAND w/weathered			

2" Sch. 40 PVC

6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray	**WELL ID:** HPFF-44
		DRILLER: William Miller	
NORTHING: 3,839,145.6	**EASTING:** 285,720.0	**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	**DTW(7/17/2002):** 10.23	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
31.0	11	16	20	25	1.8		GW		LIMESTONE and shell fragments.	31.0	-7.5	
										32.0	-8.5	
									Driller's Note - Hard layer encountered.	32.5	-9.0	
34.0										34.0	-10.5	
36.0	10	32	33	28	0				Olive green, SILTY, v.f. to med. SAND w/shell fragments and limestone fragments. Sat.	36.0	-12.5	
39.0										39.0	-15.5	38.0
41.0	23	42	50	45	0				S.A.A. Sat.	41.0	-17.5	40.0
										43.0	-19.5	43.0
									Drillers Note - LIMESTONE encountered.	43.5	-20.0	
44.0										44.0	-20.5	
45.0	12	16			10				Olive green, silty, weathered, v.f. to med. SANDY LIMESTONE. Sat.	45.0		45.0
46.0			15	20	0					46.0	-22.5	
48.0										48.0	-24.5	
									S.A.A. Sat.	48.5	-25.0	
50.0	12	17	52	50/5	1.8		SC		Olive green, CLAYEY, v.f. to med. SAND w/silt.	50.0	-26.5	50.0
									Boring Terminated at Elevation -26.5 ft			50.0

2" Slot .010 Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 11.19	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	25.3	0.0
0.0	5	6	4	3	86	HPFF-45 0-2 & HPFF-45D 0-2	SM		Brown, SILTY, v.f. to f. SAND. Moist. No HCO.	2.0	23.3	- 0.5
2.0										4.0	21.3	
4.0	1	2	1	2	5.2		CL		Tan, gray, SILTY, v.f. to f. SANDY CLAY. Moist.	6.0	19.3	
6.0										9.0	16.3	
9.0	1	1	1	1	0		CL		Gray, S.A.A.	11.0	14.3	
11.0										14.0	11.3	
14.0	WH	WH	WH	WH	2.2		CL		S.A.A.	16.0	9.3	
16.0										19.0	6.3	
19.0	15	22	23	24	3.2		SM		Gray, SILTY, v.f. to med. SAND with wood frags.	21.0	4.3	
21.0										24.0	1.3	
24.0	1	1	2	2	4.2		SM		Light gray, SILTY, v.f. to med. SAND. Sat. No HCO.	26.0	-0.7	
26.0										29.0	-3.7	
29.0							SP		Tan, gray, well sorted, v.f. to f. SAND. Sat.			6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 11.19	**WELL DEPTH:** 80.0

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

2" Sch. 40 PVC

38.0

4" Sch. 40 PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 11.19	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION — DEPTH	ELEVATION	WELL DETAIL
63.0									63.0	-37.7	
	19	33	39	51			SC		Gray, v.f. to med., CLAYEY SAND. Wet.		
65.0									65.0	-39.7	
68.0									68.0	-42.7	
	25	36	43	55			SC		S.A.A		
70.0									70.0	-44.7	70.0
											72.0
											75.0
78.0									78.0	-52.7	2" Slot .010 Sch. 40 PVC
	10	21	23	40	110		SC		Green, SILTY, v.f. to f., CLAYEY SAND with shell frags. Sat. Moderate HCO.		
80.0									80.0	-54.7	80.0
									Boring Terminated at Elevation -54.7 ft		

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray/ Chris Jolly **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 11.07	**WELL DEPTH:** 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION — DEPTH	ELEVATION	WELL DETAIL
									0.0 LAND SURFACE	25.2	0.0
0.0	6	5	4	2	4.8	HPFF-46 0-2 & HPFF-46D 0-2	SM		Brown, SILTY, v.f. to f. SAND. Moist. No HCO		- 0.7
2.0									2.0	23.2	
4.0									4.0	21.2	
	1	1	2	2	0.4		CL		Tan, gray, SILTY, v.f. to f. SANDY CLAY. Moist.		
6.0									6.0	19.2	
9.0									9.0	16.2	
	1	1	0	1	0		CL		Gray, S.A.A. w/ med. plasticity.		
11.0									11.0	14.2	
14.0									14.0	11.2	
	WH	WH	WH	WH	5		CL		S.A.A.		
16.0									16.0	9.2	
19.0									19.0	6.2	
	14	23	24	26	100		SM		Gray, SILTY, v.f. to med. SAND with wood frags.		
21.0									21.0	4.2	
24.0									24.0	1.2	
	1	2	1	2	18		SM		Light gray, SILTY, v.f. to med. SAND. Sat. No HCO.		
26.0									26.0	-0.8	
29.0									29.0	-3.8	
							SP		Tan, gray, well sorted, v.f. to f. SAND. Sat.		6" Sch. 40 PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray/ Chris Jolly **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 11.07	**WELL DEPTH:** 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
31.0	11	14	14	10	33		SP		Tan, gray, well sorted, v.f. to f. SAND. Sat. *(continued)*	31.0	-5.8	
34.0										34.0	-8.8	
36.0	1	1	1	1	58		SM		Brown, SILTY, v.f. to f. SAND. Sat. No HCO.	36.0	-10.8	
39.0										39.0	-13.8	
41.0	WH	WH	1	1	45		SM		S.A.A with v.f. to med. Sands with trace gravels.	41.0	-15.8	40.0
43.0										43.0	-17.8	
45.0	8	14	18	18			SM		Gray, SILTY, v.f. to med. SAND. No HCO.	45.0	-19.8	
48.0										48.0	-22.8	
50.0	7	12	16	37			CL		Gray, SANDY CLAY with little shell frags and low plasticity.	50.0	-24.8	
53.0										53.0	-27.8	
55.0	20	30	50/4				SC		Gray, v.f. to med. CLAYEY SAND with little gravel and trace shell frags.	55.0	-29.8	
58.0										58.0	-32.8	
60.0	18	50	55	50/2			SP		Gray, v.f. to med. SAND with weathered LS and shells in last 4".	60.0	-34.8	

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow		**LOCATION:** Camp Lejeune	
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray/ Chris Jolly		**WELL ID:** HPFF-46	
		DRILLER: Bobbie Fowler			
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		**DTW(7/17/2002):** 11.07	**WELL DEPTH:** 150.0	

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
63.0										63.0	-37.8	
	19	33	39	51			SC		Gray, v.f. to med., CLAYEY SAND.			
65.0										65.0	-39.8	
68.0										68.0	-42.8	
	25	36	43	45			SC		S.A.A.			
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.			
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.			
90.0										90.0	-64.8	

2" Sch. 40 PVC

4" Sch. 40 PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray/ Chris Jolly **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 11.07	**WELL DEPTH:** 150.0

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

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray/ Chris Jolly **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 11.07	**WELL DEPTH:** 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										128.0	-102.8	
128.0	35	45	50/3		2.0		SP		S.A.A.			
130.0										130.0	-104.8	
138.0										138.0	-112.8	
	18	41	50/4		3.4		SM		Green, tan, SILTY, v.f to med. SAND. Sat. No HCO.			
140.0										140.0	-114.8	140.0
												141.0
												143.0
												145.0
												2" Slot .010 Sch. 40 PVC
148.0										148.0	-122.8	
	20	35	50/4		3.0		SM		S.A.A.			
150.0										150.0	-124.8	150.0
									Boring Terminated at Elevation -124.8 ft			

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray	**WELL ID:** HPFF-47
		DRILLER: William Miller	
NORTHING: 3,839,286.2	**EASTING:** 285,923.4	**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	**DTW(7/17/2002):** 11.52	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	25.3	0.0
0.0	6	6	3	2	10	HPFF-47 0-2	SM		Brown, SILTY, v.f. to fine SAND. Moist. No HCO.	2.0	23.3	- 0.4
4.5	1	1	2	2	15	HPFF-47 4.5-6.5	CL		Tan gray, SILTY, v.f. to fine SANDY CLAY. Moist.	6.5	18.8	
9.5	WH	WH	WH	WH	15		CL		Gray, SILTY, v.f. to fine SANDY CLAY. Med. plasticity. Wet.	11.5	13.8	
14.5	WH	WH	WH	WH	5		CL		S.A.A.	16.5	8.8	
19.5	14	22	35	24	5		PT		WOOD FRAGMENTS	20.5	4.8	
							SM		Gray, SILTY, v.f. to med. SAND.	21.5	3.8	
24.5	1	2	2	1	0		SM		Light gray, SILTY, v.f. to med. SAND. Sat. No HCO.	26.5	-1.2	
29.5									WOOD FRAGMENTS w/clayey silt to silty clay.	29.5	-4.2	

2" Sch. 40 PVC
6" Sch. 40 PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** William Miller	**WELL ID:** HPFF-47
NORTHING: 3,839,286.2	**EASTING:** 285,923.4	**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	**DTW(7/17/2002):** 11.52	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
31.5	11	13	11	14	0		PT/SW		Tan gray, v.f. to fine SAND. Sat.	30.1	-4.8	
										31.5	-6.2	
34.5										34.5	-9.2	
36.5	1	1	1	1	0		SM		Brown, SILTY, v.f. to fine SAND. Sat. No HCO.	36.5	-11.2	
39.5										39.5	-14.2	38.5
41.5	WH	1	1	1			SM		S.A.A, v.f. to med., w/trace gravel. Sat.	41.5	-16.2	40.0
44.0										44.0	-18.7	43.0
46.0	12	14	14	19	300		SM		Olive green, SILTY, v.f. to med. SAND w/shell fragments. Sat. HCO.	46.0	-20.7	45.0
48.0										48.0	-22.7	2" Slot .010 Sch. 40 PVC
50.0	7	10	12	24	35		SC		Olive green, CLAYEY, v.f. to med. SAND w/shell fragments. Sat. HCO.	49.0	-23.7	
							MH		Olive green, v.f. to fine SANDY SILT w/shell fragments. Sat. HCO.	50.0	-24.7	50.0
									Boring Terminated at Elevation -24.7 ft			

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow		**LOCATION:** Camp Lejeune	
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray		**WELL ID:** HPFF-48	
		DRILLER: Bobbie Fowler			
NORTHING: 3,839,445.5	**EASTING:** 286,078.5	**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		**DTW(7/17/2002):** 8.60	**WELL DEPTH:** 15.0	

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
									LAND SURFACE	0.0	24.3	0.0
0.0	2	4	6	6	70	HPFF-48 0-2'	SC/CL		Brown, CLAYEY, v.f. to fine SAND w/trace silt. CLAY lenses throughout. Moist. No HCO.	2.0	22.3	-0.5
2.0										4.0	20.3	1.0
4.0	2	4	4	3	1000+	HPFF-48 4-5'	CL		Gray tan, SILTY, v.f. to fine SANDY CLAY. Mod. plasticity. Moist. No HCO.	6.0	18.3	3.0
6.0										9.0	15.3	5.0
9.0	2	5	4	4	28		SP		Tan, well sorted, v.f. to fine SAND. Sat. No HCO.	11.0	13.3	
11.0										14.0	10.3	
14.0	4	5	6	6	200		SP		Light gray, S.A.A. Sat. No HCO.	16.0	8.3	15.0
16.0									Boring Terminated at Elevation 8.3 ft			16.0

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

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		LOGGED BY: Charles Ray/ Chris Jolly DRILLER: Bobbie Fowler	WELL ID: **HPFF-49**
NORTHING: 3,839,425.5	EASTING: 286,049.6	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.: 23.40
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	DTW(7/17/2002): 9.25	WELL DEPTH: 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION DEPTH	ELEVATION	WELL DETAIL
									0.0 LAND SURFACE	23.9	0.0
0.0	4	5	5	4	0		CL		Brown, SILTY, v.f. to f. SANDY CLAY. Moist. No HCO.		- 0.5
2.0									2.0	21.9	
4.0									4.0	19.9	
	3	4	3	4	200	HPFF-49 4-6 & HPFF-49D 4-6	CL		Gray brown, S.A.A.		
6.0									6.0	17.9	
9.0									9.0	14.9	
	4	3	5	4	20		SM		Gray, SILTY, v.f. to f. SAND. Sat. No HCO.		
11.0									11.0	12.9	
14.0									14.0	9.9	
	13	18	16	16	400		SP		Gray, Brown, well sorted, v.f. to f. SAND. Sat. HCO.		
16.0									16.0	7.9	
19.0									19.0	4.9	
	8	9	8	10	120		SP		S.A.A. Sat. Slight HCO.		
21.0									21.0	2.9	
24.0									24.0	-0.1	
	5	8	9	9	160		SP		S.A.A Sat. Slight HCO.		
26.0									26.0	-2.1	
29.0									29.0	-5.1	
							SP		Orange, v.f. to med., well sorted SAND.		6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		LOGGED BY: Charles Ray/ Chris Jolly DRILLER: Bobbie Fowler	WELL ID: HPFF-49
NORTHING: 3,839,425.5	EASTING: 286,049.6	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.: 23.40
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	DTW(7/17/2002): 9.25	WELL DEPTH: 80.0

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

WELL DETAIL: 2" Sch. 40 PVC; 40.0; 4" SS PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray/ Chris Jolly **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-49
NORTHING: 3,839,425.5	**EASTING:** 286,049.6	**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.:** 23.40
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	**DTW(7/17/2002):** 9.25	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION DEPTH	ELEVATION	WELL DETAIL
62.0									62.0	-38.1	
	17	42	50/4		0		SP		S.A.A.		
64.0									64.0	-40.1	
67.0									67.0	-43.1	
	15	35	50	50	12		SP		S.A.A.		
69.0									69.0	-45.1	
78.0									78.0	-54.1	
	20	25	35	45	0		SP		S.A.A.		
80.0									80.0	-56.1	
									Boring Terminated at Elevation -56.1 ft		

WELL DETAIL: 70.0 · 72.0 · 75.0 · 2" Slot .010 Sch. 40 PVC · 80.0 · 80.0

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement · Bentonite Pellets · #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-50
NORTHING: 3,839,430.7	**EASTING:** 286,180.1	**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	**DTW(7/17/2002):** 9.03	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION DEPTH	ELEVATION	WELL DETAIL
									0.0 LAND SURFACE	23.9	0.0
0.0	4	5	5	6	100	HPFF-50 0-2'	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	3	3	3	720	HPFF-50 2.5-4.5'	CL		2.5 Gray, brown, S.A.A. Moist. No HCO.	21.4	
4.5									4.5	19.4	
7.5									7.5	16.4	
	4	4	4	3	270		SM		9.5 Gray, SILTY, v.f. to fine SAND. Sat. No HCO.	14.4	
12.5									12.5	11.4	
	13	17	15	15	1000+		SP		14.5 Gray, brown, well sorted, v.f. to fine SAND. Sat. High HCO.	9.4	
17.5									17.5	6.4	
	7	7	8	9	1000+		SP		19.5 Gray, S.A.A.	4.4	
22.5									22.5	1.4	
	5	7	6	7	120		SP		24.5 S.A.A. Slight HCO.	-0.6	
27.5									27.5	-3.6	
	5	12	14	13	80		SP		28.5 Gray, green, v.f. to med. SAND.	-4.6	
29.5							SP		29.5 Orange, well sorted v.f. to med. SAND. Sat. High HCO.	-5.6	

2" Sch. 40 PVC
6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement Bentonite Pellets

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-50
NORTHING: 3,839,430.7	**EASTING:** 286,180.1	**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	**DTW(7/17/2002):** 9.03	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION — DEPTH	ELEVATION	WELL DETAIL
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.		38.0
39.5									39.5	-15.6	40.0
											43.0
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				Weathered SANDY LIMESTONE w/silty, v.f. to med. sand.		
							SM		49.5	-25.6	50.0
50.5									Olive green, SILTY, v.f. to med. SAND w/trace limestone fragments. Sat. 50.5	-26.6	50.5
									Boring Terminated at Elevation -26.6 ft		

2" Slot .010 Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement Bentonite Pellets

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray	**WELL ID:** HPFF-51
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,430.7	**EASTING:** 286,180.1	**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	**DTW(7/17/2002):** 12.29	**WELL DEPTH:** 15.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	LAND SURFACE 28.2	0.0
0.0	2	3	5	5	6.0	HPFF-51 0-2'	SM		Gray to brown, SILTY, v.f. to fine SAND w/root frags. from 0'-1'. Moist. No HCO.	2.0	26.2	- 0.5
2.0												1.0
4.0	4	9	9	10	4.0	HPFF-51 4-6'	SM		Gray, tan, SILTY, v.f. to fine, SAND w/clayey sand layers. Moist. No HCO.	4.0	24.2	3.0
6.0										6.0	22.2	5.0
9.0	3	3	2	3	12		CL		Orange, gray, SILTY, v.f. to fine CLAYEY SAND. Sat. No HCO.	9.0	19.2	
11.0										11.0	17.2	
14.0	3	9	15	20	26		SP		Gray, well sorted, v.f. to fine SAND. Sat. No HCO.	14.0	14.2	
16.0										16.0	12.2	15.0
									Boring Terminated at Elevation 12.2 ft			15.0

2" Sch. 40 PVC

2" Slot .010 Sch. 40 PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**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	**DTW(7/17/2002):** 12.07	**WELL DEPTH:** 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
									LAND SURFACE	0.0	28.9	0.0
1.0										1.0	27.9	- 0.6
3.0	5	5	3	4	0	HPFF-52	SM		Brown, tan, SILTY, v.f. to f. SAND. Wet. No HCO.	3.0	25.9	
4.0										4.0	24.9	
6.0	1	2	4	3	1.0		CH		Gray, tan, SILTY CLAY with high plasticity. Sat. No HCO.	6.0	22.9	
9.0										9.0	19.9	
11.0	1	2	1	2	5.2		CL		Gray,SILTY, v.f. to f. SANDY CLAY with high plasticity. Sat. No HCO	11.0	17.9	
14.0										14.0	14.9	
16.0	1	2	1	1	200		CL		S.A.A.	16.0	12.9	
19.0										19.0	9.9	
21.0	WH	WH	2	1	110		CL		S.A.A except v.f. SANDY CLAY.	21.0	7.9	
24.0										24.0	4.9	
26.0	3	4	4	5	>1000		PT		Brown, gray, SILTY, v.f. to f. SANDY CLAY with wood fragments. (PEAT?) Moist.	26.0	2.9	
29.0										29.0	-0.1	6" Sch. 40 PVC
							SP		Gray,well sorted, v.f. to f. SAND. Wet. No HCO.			

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**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	**DTW(7/17/2002):** 12.07	**WELL DEPTH:** 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
31.0	23	21	22	23	>1000		SP		Gray,well sorted, v.f. to f. SAND. Wet. No HCO. *(continued)*	-2.1	
34.0										-5.1	
36.0	8	20	21	22	500		SP		S.A.A, v.f. to med.	-7.1	
39.0										-10.1	
41.0	8	10	14	16	200		SP		S.A.A.	-12.1	40.0
43.0										-14.1	
45.0	12	26	14	10	220		SM		Light green, SILTY, v.f. to f. SAND with weathered LS and cemented sand. Sat. No HCO.	-16.1	
48.0										-19.1	
50.0	8	17	22	27	500		SP		Green, well sorted, v.f. SAND with trace silt. Wet.	-21.1	
53.0										-24.1	
55.0	11	21	12	18	530		SM		Light green, SILTY, v.f. to med. SAND with cemented sands.	-26.1	
58.0										-27.1	
							SM		Layers of cemented sands.	-29.1	
										-29.6	
									CORE from 58.5-63.5	-30.1	
	5	50/3					SP		58.5 to 59.0 SANDY LS with shell frags. No return from core --- assumed to be SAND.		

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.:	202-027	**STATE:**	NC	**COUNTY:**	Onslow	**LOCATION:**	Camp Lejeune
PROJECT NAME:	HADNOT POINT FUEL FARM 2002 SAMPLING EVENT			**LOGGED BY:**	Charles Ray	**WELL ID:**	HPFF-52
				DRILLER:	Bobbie Fowler		
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	**DTW(7/17/2002):**	12.07	**WELL DEPTH:**	150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	ELEVATION	WELL DETAIL
							SP		No return from core --- assumed to be SAND.		
63.0									63.0 *(continued)*	-34.1	
	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									65.0	-36.1	
68.0									68.0	-39.1	
	17	27	37	47	70		SP		Green, well sorted, fine SAND. Wet. No HCO.		
70.0									70.0	-41.1	
78.0									78.0	-49.1	
	16	26	36	41	50		SP		S.A.A with trace shell frags. Wet. No HCO.		
80.0									80.0	-51.1	
88.0									88.0	-59.1	
	20	35	40	45	12		SM		Green, tan, SILTY, v.f. to f. SAND with trace shell frags. Wet. No HCO.		
90.0									90.0	-61.1	
							SM		93.0 Hitting thin hard cemented layers of SAND.	-64.1	

2" Sch. 40 PVC

4" Sch. 40 PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT	LOGGED BY: Charles Ray		WELL ID: HPFF-52
	DRILLER: Bobbie Fowler		
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	DTW(7/17/2002): 12.07	WELL DEPTH: 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										98.0	-69.1	
98.0	21	40	37	40	60		SM		Light green, SILTY, v.f. to med. SAND with cemented SANDS. Sat. No HCO.	100.0	-71.1	
100.0												
108.0	25	35	45	50/4	40		SP		Light green, well sorted, fine SAND. Wet.	110.0	-81.1	
110.0												
118.0	23	36	50/6		30		SM		Light green, tan, moderately sorted, v.f. to f. SAND with shell frags. Sat. Slight HCO.	120.0	-91.1	
120.0												

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**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	**DTW(7/17/2002):** 12.07	**WELL DEPTH:** 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
128.0										128.0	-99.1	
	25	36	45	50/4	15		SM		S.A.A without shell frags. Wet. Slight HCO.	130.0	-101.1	
130.0												
138.0										138.0	-109.1	
	22	35	50/6		3.3		SM		S.A.A. Sat.	140.0	-111.1	
140.0												140.0
												141.5
												143.0
												145.0
												2" Slot .010 Sch. 40 PVC
148.0										148.0	-119.1	
	25	35	45	50/4	2.0		SM		S.A.A.	150.0	-121.1	150.0
150.0									Boring Terminated at Elevation -121.1 ft			150.0

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** William Miller	**WELL ID:** HPFF-53
NORTHING: 3,839,393.0	**EASTING:** 286,259.5	**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	**DTW(7/17/2002):** 11.90	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
									LAND SURFACE	0.0	28.2	0.0
0.0	10	10	3	3	0	HPFF-53 0-2	SM		Brown, tan, SILTY, v.f. to f. SAND. Wet. No HCO.	2.0	26.2	- 0.5
4.0	1	1	3	4	2.2	HPFF-53 4-6	CH		Gray, tan, SILTY CLAY with high plasticity. Sat. No HCO.	6.0	22.2	
9.0										9.0	19.2	
11.0	1	1	2	2	5.4		CL		Gray, SILTY, v.f. to f. SANDY CLAY with high plasticity. Sat. No HCO.	11.0	17.2	
14.0										14.0	14.2	
16.0	1	2	0	1	200		CL		S.A.A. Sat. No HCO.	16.0	12.2	
19.0										19.0	9.2	
21.0	WH	WH	1	2	120		CL		S.A.A. Sat. No HCO.	21.0	7.2	
24.0										24.0	4.2	
26.0	3	4	4	6	1000+		PT		Brown, gray, SILTY, v.f. to f. SANDY CLAY with wood frags. throughout. (PEAT?) Moist.	26.0	2.2	
29.0										29.0	-0.8	
							SP		Gray, v.f. to f. well sorted SAND. Wet. No HCO.			

2" Sch. 40 PVC
6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** William Miller	**WELL ID:** HPFF-53
NORTHING: 3,839,393.0	**EASTING:** 286,259.5	**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	**DTW(7/17/2002):** 11.90	**WELL DEPTH:** 50.0

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

38.0
40.0
43.0
2" Slot .010 Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray	**WELL ID:** HPFF-54
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,391.9	**EASTING:** 286,257.2	**SYSTEM:** UTM NAD83 (m)	
BORING LOCATION: NW SECTOR - ~200' NE of car wash (S1053) along gravel road			**T.O.C. ELEV.:** 27.41
DRILL MACHINE: Diedrich D-50	**METHOD:** HSA	**0 HOUR DTW:**	**BORING DEPTH:** 17.0
START DATE: 09/18/01	**FINISH DATE:** 10/10/01	**DTW(7/17/2002):** 5.34	**WELL DEPTH:** 17.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	28.2	0.0
0.0									LAND SURFACE			
2.0	2	3	3	3	0	HPFF-54	SC		Tan, brown, SILTY, v.f. to. f., CLAYEY SAND with grass and roots from 0-.5 ft. Moist. No HCO.	3.0	25.2	
4.0	DP	DP	DP	DP	4		CH		Tan, gray, SILTY, v.f. to f. SANDY CLAY with high plasticity. Wet. No HCO.	8.0	20.2	
9.0	DP	DP	DP	DP	0		CH		Gray, S.A.A. Sat. No HCO.	12.0	16.2	
14.0	DP	DP	DP	DP	120		CH		Gray, fat CLAY. Sat. No HCO.	17.0	11.2	
16.0									Boring Terminated at Elevation 11.2 ft			

WELL DETAIL: -0.8 to 2.0 2" Sch. 40 PVC; 1.0 to 1.5; 2" Slot .010 Sch. 40 PVC; 17.0; 17.0

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 10.43	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
									LAND SURFACE	0.0	28.4	0.0
1.0										1.0	27.4	- 0.9
	5	6	4	4	0	HPFF-55	SM		Brown, tan, SILTY, v.f. to f. SAND. Wet. No HCO.	3.0	25.4	
3.0										4.0	24.4	
4.0	1	2	4	4	1.0		CH		Gray, tan, SILTY, CLAY with high plasticity. Sat. No HCO.	6.0	22.4	
6.0										9.0	19.4	
9.0	1	2	1	2	5.2		CL		Gray,SILTY, v.f. to f. SANDY CLAY with med. plasticity. Sat. No HCO.	11.0	17.4	
11.0										14.0	14.4	
14.0	1	1	2	2	200		CL		S.A.A.	16.0	12.4	
16.0										19.0	9.4	
19.0	1	1	1	1	110		CL		S.A.A except v.f. SANDY CLAY.	21.0	7.4	
21.0										24.0	4.4	
24.0	3	4	5	6	1000+		PT		Brown, gray, SILTY, v.f. to f. SANDY CLAY with wood fragments. (PEAT?). Moist.	26.0	2.4	
26.0										29.0	-0.6	
29.0							SP		Gray,well sorted, v.f. to f. SAND. Wet. No HCO.			6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 10.43	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION
31.0	21	22	23	24	1000+		SP		Gray,well sorted, v.f. to f. SAND. Wet. No HCO. *(continued)*	31.0	-2.7
34.0										34.0	-5.7
36.0	10	20	22	20	500		SP		S.A.A, v.f. to med.	36.0	-7.7
39.0										39.0	-10.7
41.0	8	12	16	16	200		SP		S.A.A.	41.0	-12.7
43.0										43.0	-14.7
45.0	12	26	14	10	220		SM		Light green, SILTY, v.f. to f. SAND with weathered LS and cemented sand. Sat. No HCO.	45.0	-16.7
48.0										48.0	-19.7
50.0	8	17	22	27	500		SP		Green, well sorted, v.f. SAND with trace silt. Wet. Slight HCO.	50.0	-21.7
53.0										53.0	-24.7
55.0	11	21	12	18	530		SM		Light green, SILTY, v.f. to med. SAND with cemented sands.	55.0	-26.7
58.0										56.0	-27.7
							SM		Layers of cemented sands.	58.0	-29.7
										58.5	-30.2
									CORE RUN FROM 58-63	59.0	-30.7
	5	50/3					SP		58-59 SANDY LS with shell frags. No return from 59-63, assumed to be sand.		

WELL DETAIL: 2" Sch. 40 PVC; 40.0; 4" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

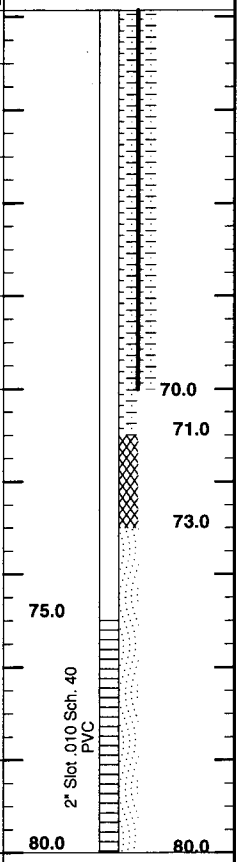
WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 10.43	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION
63.0							SP		No return from 59-63, assumed to be sand. *(continued)*	63.0	-34.7
	8	27	29	25	120		SP		58.5 to 59.0 SANDY LS with shell frags. 59.0 to 63.5 SAND. 58.5 to 59.0 SANDY LS with shell frags.	63.0	
65.0							SP		59.0 to 63.5 SAND. *(continued)*	65.0	-36.7
									Green/gray, well sorted, v.f. to f. SAND with trace silt and shell frags. Wet. No HCO.		
68.0										68.0	-39.7
	17	27	37	47	70		SP		Green, well sorted, fine SAND. Wet. No HCO.	70.0	-41.7
70.0											
78.0										78.0	-49.7
	16	26	36	41	50		SP		S.A.A with trace shell frags. Wet. No HCO.	80.0	-51.7
80.0									Boring Terminated at Elevation -51.7 ft		

WELL DETAIL



HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 11.53	**WELL DEPTH:** 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	28.7	0.0
0.0									LAND SURFACE			
	6	10	6	8	0		SC/SM		0-.5 Brown, moderately sorted, SILTY, v.f. to f. SAND. .5-2.0 Tan, SILTY, v.f. to f. CLAYEY SAND. Moist. NO HCO	2.0	26.7	- 0.8
2.0										3.5	25.2	
3.5	4	6	7	6	0	HPFF-56	SC		Tan, gray, orange, SILTY, v.f. to f. CLAYEY SAND. Moist. No HCO	5.5	23.2	
5.5										8.5	20.2	
8.5	1	2	1	2	0		CL		Tan, gray, orange, v. soft, SILTY, v.f. to f. SANDY CLAY. Wet. No HCO.	10.5	18.2	
10.5										13.5	15.2	
13.5	4	8	8	13	15		SP		Gray, well sorted, fine SAND. Sat. No HCO.	15.5	13.2	
15.5										18.5	10.2	
18.5	7	7	4	4	64		SP		S.A.A. with some silt.	20.5	8.2	
20.5										23.5	5.2	
23.5	4	4	10	15	40		SW		Brown, gray, well sorted, fine SAND with wood fragments.	25.0	3.7	
							SP			25.5	3.2	
25.5									Gray, well sorted, fine SAND. Wet. No HCO.			
28.5										28.5	0.2	
	7	10	10	9	12		SP		Gray, well sorted, v.f. to f. SAND. Sat. No HCO.			6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 11.53	**WELL DEPTH:** 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
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.	35.5	-6.8	
38.5										38.5	-9.8	
40.5	6	7	7	6	1000+		SP		S.A.A. Sat. Moderate HCO.	40.5	-11.8	40.0
43.0										43.0	-14.3	
45.0	4	3	3	4	78		SP		Gray, well sorted, fine SAND. Sat. High HCO.	45.0	-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.	50.0	-21.3	
53.0										53.0	-24.3	
55.0	2	1	WH	WH	1000+		SC		S.A.A. Sat. High HCO. Rods fell from 54' to 58' bls. Possible very loose clayey sand/void.	54.0 58.0	-25.3 -29.3	
58.0	2	WH	WH	WH	420		SC		58.5 S.A.A. with less clay. Rods fell from 58.5' to 61' bls. Possible very loose clayey sand/void.	58.5 61.0	-29.8 -32.3	
60.0												

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 11.53	**WELL DEPTH:** 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
63.0										63.0	-34.3	
	4	5	5	7	120		SM		Light green, SILTY, v.f. to f. SAND. Sat. High HCO.	65.0	-36.3	
65.0												
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	-41.3	
70.0												
73.0										73.0	-44.3	
	8	9	10	11	64		SP		S.A.A. Sat. Moderate HCO.	75.0	-46.3	
75.0												
78.0										78.0	-49.3	
	8	10	9	7	98		SP		S.A.A. Wet. Moderate HCO.	80.0	-51.3	
80.0												
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	-61.3	
90.0												
										93.0	-64.3	

2" Sch. 40 PVC

4" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 11.53	**WELL DEPTH:** 150.0

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

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 11.53	**WELL DEPTH:** 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										128.0	-99.3	
128.0	20	31	32	35	7		SM		S.A.A with trace shell fragments. Wet. Slight HCO.	130.0	-101.3	
130.0										138.0	-109.3	138.0
138.0	16	30	50/4		2		SM		S.A.A. Wet to sat. No HCO.	140.0	-111.3	140.0
140.0												143.0
												145.0
												2" Slot .010 Sch. 40 PVC
148.0	20	31	50/4		0		SM		S.A.A. Wet to sat. No HCO.	148.0	-119.3	
150.0									Boring Terminated at Elevation -121.3 ft	150.0	-121.3	150.0

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** CWR, TWL, TS	**WELL ID:** HPFF-57
		DRILLER: William Miller	
NORTHING: 3,839,041.8	**EASTING:** 286,026.5	**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	**DTW(7/17/2002):** 10.73	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION DEPTH	ELEVATION	WELL DETAIL
									0.0 LAND SURFACE	26.4	0.0
1.0									1.0	25.4	- 0.3
	G	R	A	B	20	HPFF-57 1-3	SC/ SM		Light brown, CLAYEY/SILTY, fine SAND. Dry. No HCO.		
3.0									3.0	23.4	
5.0									5.0	21.4	
	3	4	5	5	8	HPFF-57 5-7	SC		Light gray, CLAYEY, v.f. SAND. Wet. No HCO.		
7.0									7.0	19.4	
9.0									9.0	17.4	
	8	8	7	7	50		SC		S.A.A.		
11.0									11.0	15.4	
14.0									14.0	12.4	
	16	18	18	18	32		SW		Light gray, v.f. SAND w/ some clay and silt. No HCO.		
16.0									16.0	10.4	
19.0									19.0	7.4	
	8	8	9	6	1.2		SP		Light gray, v.f. SAND. Trace silt and clay. No HCO.		
21.0									21.0	5.4	
24.0									24.0	2.4	
	4	3	3	9	0		SM		Light gray to tan, SILTY, fine SAND. No HCO.		
26.0									26.0	0.4	
29.0									29.0	-2.6	
							SC/		Orange- tan, poorly sorted, CLAYEY SAND w/sandy		

2" Sch. 40 PVC
6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT	LOGGED BY: CWR, TWL, TS		WELL ID: HPFF-57
	DRILLER: William Miller		
NORTHING: 3,839,041.8	EASTING: 286,026.5	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	DTW(7/17/2002): 10.73	WELL DEPTH: 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
31.0	2	3	3	6	0.4		CL		clay layers. No HCO.	31.0	-4.6	
34.0										34.0	-7.6	
36.0	5	3	5	9	0.2		SC/ CL		S.A.A.	36.0	-9.6	
39.0										39.0	-12.6	38.5
41.0	12	16	25	23	0		SC/ CL		S.A.A. with reddish orange layering up to 2cm. in thickness.	41.0	-14.6	40.0
44.0										44.0	-17.6	43.0
46.0	8	12	14	27	7.5		SP		Tan gray, fine SAND w/trace cse. sands. Saturated, Slight HCO.	46.0	-19.6	45.0
48.0										48.0	-21.6	2" Slot .010 Sch. 40 PVC
50.0	2	1	2	2	49		SP		Green, v.f. to med. SAND. Well sorted. Saturated, HCO.	50.0	-23.6	50.0
									Boring Terminated at Elevation -23.6 ft			51.0

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 10.67	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
									LAND SURFACE	0.0	26.7	0.0
3.5										3.5	23.2	- 0.4
5.5	6	7	7	6	1000+	HPFF-58	SC		Gray, tan, orange, SILTY, v.f. to f. CLAYEY SAND. Moist. Moderate HCO.	5.5	21.2	
8.5										8.5	18.2	
10.5	2	1	2	4	1000+		SC		S.A.A with more silt content. Sat. Moderate HCO.	10.5	16.2	
13.5										13.5	13.2	
15.5	7	6	8	10	90		SM		Gray, SILTY, v.f. to f. SAND. Sat. Moderate HCO.	15.5	11.2	
18.5										18.5	8.2	
20.5	2	2	4	5	400		PT		PEAT- Brown, SILTY, v.f. to f. SANDY CLAY with wood fragments. Moist. Moderate HCO.	20.5	6.2	
23.5										23.5	3.2	
25.5	2	4	9	5	420		PT		S.A.A. w/more SAND. Moist. Moderate HCO.	25.5	1.2	
28.5										28.5	-1.8	
	2	2	1	2	1000+		SM		Brown, gray, SILTY, v.f. to f. SAND. Sat. High HCO.			6" Sch. 40 PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 10.67	**WELL DEPTH:** 80.0

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

2" Sch. 40 PVC
40.0
4" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		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	DTW(7/17/2002): 10.67	WELL DEPTH: 80.0

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

2" Slot .010 Sch. 40 PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**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	**DTW(7/17/2002):** 11.20	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
									LAND SURFACE	0.0	28.4	0.0
1.0										1.0	27.4	-0.4
3.0	9	6	5	6		HPFF-59 1-3	SM		Brown, moderately sorted, SILTY, v.f. to f. SAND. Dry. No HCO.	3.0	25.4	
5.0										5.0	23.4	
7.0	2	2	3	3			CL		Tan, gray, orange, SILTY, v.f., SANDY CLAY. Sat. No HCO.	7.0	21.4	
8.0										8.0	20.4	
10.0	3	2	2	2			SM		Gray, SILTY, v.f. SAND. Sat. Moderate HCO.	10.0	18.4	
13.0										13.0	15.4	
15.0	3	3	4	5			SM		S.A.A. Sat. Slight HCO.	15.0	13.4	
18.0										18.0	10.4	
20.0	4	5	5	4			SP		Brown/gray, well sorted, v.f. to f. SAND with trace silt. Sat. Slight HCO.	20.0	8.4	
23.0										23.0	5.4	
25.0	2	2	3	4			PT		PEAT-Brown, SILTY, v.f. to f. CLAYEY SAND with wood fragments. Moist. Moderate HCO.	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	

6" Sch. 40 PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**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	**DTW(7/17/2002):** 11.20	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION — DEPTH	ELEVATION	WELL DETAIL
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		Dark green/gray, S.A.A. w/trace cse. size grains. Sat. HCO.		
40.0									40.0	-11.7	
42.5									42.5	-14.2	
	2	2	2	2	28		SP		Dark green, well sorted, fine SAND with trace silt and gravels. Sat. Slight HCO.		
44.5									44.5	-16.2	
									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		Light green, well sorted, v.f. to f. SAND with trace med. sand size shell frags. Moist. Moderate HCO.		
49.5									49.5	-21.2	
									Drilled through thin layers of cemented sand throughout the 5' run.		
52.5									52.5	-24.2	
	10	16	19	33	30		SM		Green, moderately sorted, SILTY, v.f. to f. SAND with med. size shell fragments. Wet. Moderate HCO.		
54.5									54.5	-26.2	
57.5									57.5	-29.2	
	24	29	38	42	10		GM		58.5 WEATHERED LIMESTONE. Sat. moderate HCO.	-30.2	
									59.0 SANDY LIMESTONE. Mod. HCO.	-30.7	
59.5									59.5 SEVERELY WEATHERED LIMESTONE. Mod. HCO.	-31.2	

2" Sch. 40 PVC
40.0
4" Sch. 40 PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.:	202-027	**STATE:**	NC	**COUNTY:**	Onslow	**LOCATION:**	Camp Lejeune
PROJECT NAME:	HADNOT POINT FUEL FARM 2002 SAMPLING EVENT			**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	**DTW(7/17/2002):**	11.20	**WELL DEPTH:**	80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
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.	64.5	-36.2	
64.5												66.0
67.5										67.5	-39.2	
	18	38	43	40	37		SP		Light green, well sorted, fine SAND. Wet. HCO.	69.5	-41.2	
69.5												70.0
												71.0
73.0										73.0	-44.7	
	25	40	50/5		22		SP		Green, S.A.A.	75.0	-46.7	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.	80.0	-51.7	80.0
80.0									Boring Terminated at Elevation -51.7 ft			80.0

2" Slot .010 Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

SHEET 1 OF 5

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray	**WELL ID:** HPFF-60
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,178.6	**EASTING:** 286,296.5	**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	**DTW(7/16/2002):** 10.22	**WELL DEPTH:** 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	27.7	0.0
0.0	G	R	A	B			GW		GRAVEL w/v.f. to med. sand.	1.0	26.7	- 0.5
1.0	12	18	9	6			SP		Tan/brown, well sorted, v.f. to med. SAND. Moist.	3.0	24.7	
3.0	3	4	4	5					NO RETURN	5.0	22.7	
5.0	1	1	1	2			SM		Gray, SILTY, v.f. to fine SAND. Saturated. Strong HCO.	7.0	20.7	
7.0	2	1	2	3			SM		S.A.A. Sat. Strong HCO.	9.0	18.7	
9.0	4	2	2	7			SM		S.A.A. Sat. Strong HCO.	11.0	16.7	
11.0	5	6	7	7			SM		S.A.A. Sat. Strong HCO.	13.0	14.7	
13.0	6	7	8	9			SM		S.A.A. Sat. Strong HCO.	15.0	12.7	
15.0	4	6	4	4			SM		S.A.A. Sat. Strong HCO.	16.5	11.2	
17.0							SC		Gray, SILTY/CLAYEY, v.f. to fine SAND. Saturated, High HCO.	17.0	10.7	
	1	2	4	4			SC		S.A.A. Sat. High HCO.	19.0	8.7	
19.0	4	9	13	12			SP		Gray, well sorted, v.f. to fine SAND. Moist. High HCO.	21.0	6.7	
21.0	7	12	17	25			SW		Gray, mod. sorted, v.f. to med. SAND. Some brown staining. Wet. High HCO.	23.0	4.7	
23.0	11	10	3	10			SW		S.A.A. Wet. High HCO.	24.0	3.7	
							SM		Gray, SILTY, v.f. to fine SAND. Wet. High HCO.	25.0	2.7	
25.0	7	9	11	11			SP		Gray, well sorted, fine SAND. Moist to wet, High HCO.	27.0	0.7	
27.0	4	7	6	5			SP		S.A.A. Moist to wet, High HCO.	29.0	-1.3	
29.0							SP		Gray, green, S.A.A. Saturated, High HCO.			6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-60
NORTHING: 3,839,178.6	**EASTING:** 286,296.5	**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	**DTW(7/16/2002):** 10.22	**WELL DEPTH:** 150.0

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

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-60
NORTHING: 3,839,178.6	**EASTING:** 286,296.5	**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	**DTW(7/16/2002):** 10.22	**WELL DEPTH:** 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
65.0	C	O	R	E					Gray, FOSSILIFEROUS, SANDY LIMESTONE. 4' of recovery from 5' of core. *(continued)*	65.0	-37.3	
70.0	C	O	R	E					NO RETURN. Assumed to be Green, well sorted, fine SAND.	70.0	-42.3	
72.0	13	32	48	50/4			SP		Green, well sorted, fine SAND. Saturated. No HCO.	72.0	-44.3	2" Sch. 40 PVC
74.0	19	23	40	50/4			SP		S.A.A. Saturated. No HCO.	74.0	-46.3	
75.0	20	50/5					SP		S.A.A. Saturated. No HCO.	76.0	-48.3	
77.5	25	40	50/5				SP		S.A.A. w/trace cse. SHELL fragments. Saturated. No HCO.	78.0	-50.3	
80.0	28	43	44	50			SP		S.A.A w/trace cse. SHELL fragments Saturated **HCO.**	80.0	-52.3	
82.0	25	33	35	46			SM		Green, SILTY, v.f. to fine SAND w/trace med. SHELL fragments. Saturated. HCO.	82.0	-54.3	
84.0	13	22	24	42			SM		S.A.A. w/increasing SILT. Saturated. HCO.	84.0	-56.3	
86.0	10	12	26	45			SM		S.A.A. Saturated. HCO.	86.0	-58.3	
88.0	5	18	42	50/3			SM		S.A.A. Saturated. HCO.	88.0	-60.3	
89.5	40	49	50/5				SM		Light green, SILTY, v.f. to fine SAND w/SHELL fragments. Wet. HCO.	90.0	-62.3	
92.0	21	32	48	50/3			SM		Green, S.A.A. HCO	92.0	-64.3	4" Sch. 40 PVC
	25	22	30	35			SM		S.A.A. Saturated. HCO.			

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT	LOGGED BY: Charles Ray	DRILLER: Bobbie Fowler	WELL ID: HPFF-60
NORTHING: 3,839,178.6	EASTING: 286,296.5	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	DTW(7/16/2002): 10.22	WELL DEPTH: 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
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	
107.0	27	50/4					SM		S.A.A.			
108.0										108.0	-80.3	
109.0	28	50/4					SP		Light green, well sorted, fine SAND w/SHELL fragments. No HCO.			
110.0										110.0	-82.3	
	20	40	49	50/4			SP		S.A.A. w/o shell fragments. No HCO.			
112.0										112.0	-84.3	
	22	48	50/4				SM		Light green/tan, SILTY, v.f. to fine SAND. Saturated. No HCO.			
113.5										114.0	-86.3	
114.0	33	48	45	50/4			SM		S.A.A. w/less silt.			
116.0										116.0	-88.3	
	21	35	49	50/3			SM		S.A.A. w/trace SHELL fragments.			
118.0										118.0	-90.3	
	17	43	50	50/4			SM		S.A.A.			
120.0										120.0	-92.3	
	14	33	50	50/2			SP		Light green/tan, well sorted, fine SAND. Saturated. No HCO.			
122.0										122.0	-94.3	
	17	50	50/3				SP		S.A.A.			
123.5										124.0	-96.3	
124.0	35	50/3					SP		S.A.A. w/increasing green color.			
125.0												

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-60
NORTHING: 3,839,178.6	**EASTING:** 286,296.5	**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	**DTW(7/16/2002):** 10.22	**WELL DEPTH:** 150.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
126.0										126.0	-98.3	
	33	50/3					SP		S.A.A.			
127.0												
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												
134.0										134.0	-106.3	
	26	41	50/4				SM		S.A.A.	135.0	-107.3	
135.5							SC-SM		S.A.A. w/thin clay lenses.	135.2	-107.5	
136.0							SM		Green/tan, SILTY, fine SAND w/trace SHELL fragments.	136.0	-108.3	
	16	32	50/4				SM		S.A.A.			
137.5												
138.0										138.0	-110.3	
	19	26	27	42			SC/SM		S.A.A. w/interbedded clay lenses.			139.0
140.0										140.0	-112.3	140.0
	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			143.0
144.0									142.4 ft. Sat. No HCO..	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			145.0
146.0									144.7 ft.	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	150.0
									Boring Terminated at Elevation -122.3 ft			

2" Slot .010 Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray	**WELL ID:** HPFF-61
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,177.1	**EASTING:** 286,294.2	**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	**DTW(7/17/2002):** 11.29	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
									LAND SURFACE	0.0	27.8	0.0
0.0		15	16	11	100	HPFF-61 0-2	SM		Brown, SILTY, v.f. to f. SAND with some clay layers. Moist. High HCO.	2.0	25.8	- 0.5
4.0	2	1	2	2	1000+	HPFF-61 4-6	SM		S.A.A. Moist. High HCO.	5.5	22.3	
6.0							CH		Gray fat CLAY.	6.0	21.8	
9.0	5	3	6	8	180		SM		Gray, SILTY, v.f. to f. SAND with some clayey layers. Sat. High HCO.	11.0	16.8	
14.0	6	8	9	10	420		SM		S.A.A. Sat. High HCO.	16.0	11.8	
19.0	4	8	17	17	1000+		SM		S.A.A. Sat. High HCO.	21.0	6.8	
24.0	3	4	10	10	580		CH		Gray, SILTY, v.f. to f., SANDY CLAY. Sat. High HCO.	25.0	2.8	
26.0							SP		Tan, well sorted, v.f. to med. SAND. Sat. High HCO.	26.0	1.8	
29.0							SP		Green, S.A.A. Sat. High HCO.	29.0	-1.2	

2" Sch. 40 PVC
6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray	**WELL ID:** HPFF-61
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,177.1	**EASTING:** 286,294.2	**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	**DTW(7/17/2002):** 11.29	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
31.0	3	4	8	13	620		SP		Green, S.A.A. Sat. High HCO. *(continued)*	31.0	-3.2	
34.0										34.0	-6.2	
36.0	8	10	11	11	1000+		SP		Tan/Brown, S.A.A. Sat. High HCO.	36.0	-8.2	
39.0										39.0	-11.2	39.0
41.0	13	14	26	35	480		SP		Tan, S.A.A. Sat. High HCO.	41.0	-13.2	40.0
43.0	6	13	17	26	80		SM		Gray, SILTY, v.f. to f. SAND. Wet. Slight HCO.	43.0	-15.2	43.0
48.0										48.0	-20.2	45.0
50.0	2	9	16	19	64		SM		Gray, SILTY, v.f. to med. SAND w/trace cse. sand and shell fragments. Sat. Slight HCO.	50.0	-22.2	50.0
									Boring Terminated at Elevation -22.2 ft			

2" Slot .010 Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-62
NORTHING: 3,839,058.4	**EASTING:** 286,265.0	**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	**DTW(7/17/2002):** 23.29	**WELL DEPTH:** 155.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
									LAND SURFACE	0.0	27.4	0.0
0.0	17	34	17	50	200	HPFF-62 0-2 & HPFF-62D 0-2	SC		Tan, black, SILTY, v.f. to f., CLAYEY SAND. Dry. Moderate HCO.	2.0	25.4	- 0.5
3.0	2	3	3	4	360	HPFF-62 3-5 & HPFF-62D 3-5	CH		Brown, SILTY, v.f. to f., SANDY CLAY. Low to med. plasticity. Moist. Moderate HCO.	5.0	22.4	
8.0	2	3	3	7	200		SM		Gray, SILTY, v.f. to f. SAND. Sat. Moderate HCO.	10.0	17.4	
13.0	6	1	2	3	710		CH		Gray, SILTY CLAY. (FAT CLAY). Moist. No HCO.	13.5	13.9	
							PT		Brown, SILTY, v.f., SANDY CLAY with wood fragments. (PEAT?). Moist. No HCO.	15.0	12.4	
18.0	15	23	25	20	1000+		SP		Gray, well sorted, v.f. to f. SAND. Wet. High HCO.	20.0	7.4	
23.0	5	6	8	7	200		SM		Gray, SILTY, fine SAND with CLAYEY layers. Sat. High HCO.	25.0	2.4	
28.0	4	4	3	2	460		SP		Gray/Dark gray, well sorted, fine SAND. Sat. High HCO.	30.0	-2.6	

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-62
NORTHING: 3,839,058.4	**EASTING:** 286,265.0	**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	**DTW(7/17/2002):** 23.29	**WELL DEPTH:** 155.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
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

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-62
NORTHING: 3,839,058.4	**EASTING:** 286,265.0	**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	**DTW(7/17/2002):** 23.29	**WELL DEPTH:** 155.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
63.0										63.0	-35.6	
	21	29	34	48	340		SP		Green, well sorted, v.f. to f. SAND with trace shell fragments. Wet. Moderate HCO.	65.0	-37.6	
65.0												
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.	70.0	-42.6	
70.0												
73.0										73.0	-45.6	
	17	41	50/5		370		SP		S.A.A.	75.0	-47.6	
75.0												75.0

2" Sch. 40 PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-62
NORTHING: 3,839,058.4	**EASTING:** 286,265.0	**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	**DTW(7/17/2002):** 23.29	**WELL DEPTH:** 155.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										97.0	-69.6	
97.0	14	24	34	34			SM		Green, moderately sorted, SILTY, v.f. to f. SAND with shell fragments. Wet. Slight HCO.	99.0	-71.6	
99.0										106.0	-78.6	
106.0							SM		S.A.A.	108.0	-80.6	
108.0										118.0	-90.6	4" Sch. 40 PVC
118.0	17	50/6					SP		Light green, well sorted, fine SAND. Wet. slight HCO.	120.0	-92.6	
120.0												

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-62
NORTHING: 3,839,058.4	**EASTING:** 286,265.0	**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	**DTW(7/17/2002):** 23.29	**WELL DEPTH:** 155.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										133.0	-105.6	
133.0	21	30	41	50/3			SP		S.A.A.			
135.0										135.0	-107.6	
143.0										143.0	-115.6	143.0
	19	34	43	50/5			SP		S.A.A.			
145.0										145.0	-117.6	145.0
												148.0
												150.0
												2" Slot .010 Sch. 40 PVC
153.0										153.0	-125.6	
	25	35	45	50/5			SP		S.A.A.			
155.0										155.0	-127.6	155.0 155.0
									Boring Terminated at Elevation -127.6 ft			

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Tom Stetler	**WELL ID:** HPFF-63
		DRILLER: William Miller	
NORTHING: 3,838,927.3	**EASTING:** 286,139.4	**SYSTEM:** UTM NAD83 (m)	
BORING LOCATION: SE 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	**DTW(7/17/2002):** 15.07	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	30.2	0.0
0.0									LAND SURFACE			
	1	2	1	1	10	HPFF-63 0-2	SM		Dark brown to tan, SILTY SAND. Dry. No HCO.	2.0	28.2	- 0.5
2.0												
5.0										5.0	25.2	
	4	4	5	6	5	HPFF-63 5-7	SC/ SM		Interbedded, light tan to orange/tan, SILTY/CLAYEY, fine SAND. Dry. Slight HCO.	7.0	23.2	
7.0												
9.0										9.0	21.2	
	4	4	2	2	5		SC		S.A.A.	11.0	19.2	
11.0												
14.0										14.0	16.2	
	3	7	5	7	5		SW		Light gray, med. to fine SAND. Wet to sat. No HCO.	16.0	14.2	
16.0												
19.0										19.0	11.2	
	5	3	6	6	6		SW		S.A.A. w/thin lenses of clayey sand. No HCO.	21.0	9.2	
21.0												
24.0										24.0	6.2	
	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	
26.0												
29.0										29.0	1.2	
							SM		S.A.A.			

2" Sch. 40 PVC
6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Tom Stetler **DRILLER:** William Miller	**WELL ID:** HPFF-63
NORTHING: 3,838,927.3	**EASTING:** 286,139.4	**SYSTEM:** UTM NAD83 (m)	
BORING LOCATION: SE 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	**DTW(7/17/2002):** 15.07	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
31.0	13	11	18	20	8		SM		S.A.A. *(continued)*	31.0	-0.8	
34.0										34.0	-3.8	
36.0	3	3	8	5	4		SM		Light gray, SILTY, fine to cse. SAND. Interbedded w/poorly sorted lenses (3" thick) of sand and FOSSIL FRAGMENTS and clay rich sands.	36.0	-5.8	
39.0										39.0	-8.8	38.2
41.0	7	11	15	15	6		SP		Light gray, fine SAND w/fine phosphatic sands throughout.	41.0	-10.8	40.0
44.0										44.0	-13.8	43.0
46.0	7	8	11	16	13		SP		Orange, well sorted, fine SAND. Saturated, Slight HCO.	46.0	-15.8	45.0
48.0										48.0	-17.8	
50.0	9	10	17	17	2		SP		Tan, orange, well sorted, fine SAND. Wet.	50.0	-19.8	50.0
									Boring Terminated at Elevation -19.8 ft			51.0

2" Slot .010 Sch. 40 PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-64
NORTHING: 3,839,105.8	**EASTING:** 286,353.5	**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	**DTW(7/17/2002):** 10.02	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
									LAND SURFACE	0.0	28.1	0.0
0.0	10	11	12	10	120	HPFF-64 0-2	SM		Tan to dark gray, SILTY, v.f. to fine SAND. Moist. Strong HCO.	2.0	26.1	- 0.5
2.0										3.5	24.6	
3.5	4	5	6	6	1000+	HPFF-64 3.5-5.5	SM		Dark gray to gray, S.A.A. Moist. Strong HCO.	5.5	22.6	
5.5										8.5	19.6	
8.5	3	3	5	5	1000+		SC/SM		Tan, gray, SILTY, v.f. to fine SAND w/CLAYEY SAND throughout. Sat. Strong HCO.	10.5	17.6	
10.5										13.5	14.6	
13.5	6	11	11	8	1000+		SP		Gray, well sorted, v.f. to med. SAND. Sat. strong HCO.	15.5	12.6	
15.5										18.5	9.6	
18.5	7	8	9	11	1000+		SM		Brown, gray, SILTY, v.f. to fine SAND. Sat. Strong HCO.	20.5	7.6	
20.5										23.5	4.6	
23.5	3	10	10	11	1000+		OH		Gray, SILTY CLAY w/WOOD FRAGMENTS. Sat. Mod. to high plasticity. Strong HCO.	24.5	3.6	
							SP		Gray, well sorted, v.f. to med. SAND. Sat. Strong HCO.	25.5	2.6	
25.5										28.5	-0.4	
28.5	6	11	13	16	1000+		SP		S.A.A. Sat. Strong HCO.			

2" Sch. 40 PVC
6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray	**WELL ID:** HPFF-64
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,105.8	**EASTING:** 286,353.5	**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	**DTW(7/17/2002):** 10.02	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
30.5										30.5	-2.4	
33.5	5	11	12	14	1000+		SP		Tan/orange to gray, S.A.A. Sat. Strong HCO.	33.5	-5.4	
35.5										35.5	-7.4	
38.5	5	11	12	11	1000+		SP		Gray w/some green, S.A.A. Sat. HCO.	38.5	-10.4	38.0
40.5										40.5	-12.4	40.0
44.0										44.0	-15.9	43.0
44.5	50/5								No Return. Spoon broke after 50 blows through 6". Assumed to be limestone.	44.5	-16.4	45.0
49.0	HP	HP	HP	HP	0				Gray, v.f. to fine SAND w/high amount of LIMESTONE and SHELL Fragments. Sat.	49.0	-20.9	50.0
51.0									Boring Terminated at Elevation -22.9 ft	51.0	-22.9	50.0

2" Slot .010 Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**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)	
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	**DTW(7/17/2002):** 13.25	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
									LAND SURFACE	0.0	30.3	0.0
0.0	7	8	9	11	500	HPFF-65 0-2	SM		Dark brown to gray, v.f. to f., SILTY SAND. No HCO.	2.0	28.3	- 0.5
2.0										4.0	26.3	
4.0	WH	WH	4	2	1000+		SC		Brown, v.f. to f., CLAYEY SAND. HCO.	6.0	24.3	
6.0										9.0	21.3	
9.0	3	4	4	4	1000+		SC		Gray, S.A.A with low plasticity. HCO.	11.0	19.3	
11.0										14.0	16.3	
14.0	6	11	13	14	1000+		SM		Gray to dark brown, SILTY, f. to med. SAND. Staining from 15 to 16'. Strong HCO.	16.0	14.3	
16.0										19.0	11.3	
19.0	WH	6	7	8	1000+		SC		Gray, fine to med. grained, CLAYEY SAND with no plasticity grading to a more dense, CLAYEY SAND with low plasticity. HCO.	21.0	9.3	
21.0										24.0	6.3	
24.0	6	9	9	9	1000+		SC		Brown, med. grained, CLAYEY SAND. Moderate HCO.	26.0	4.3	
26.0										29.0	1.3	
29.0							SC		Light gray, fine to med. grained, CLAYEY SAND.			6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**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)	
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	**DTW(7/17/2002):** 13.25	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
31.0	6	10	11	11	1000+		SC		HCO.	31.0	-0.8	
34.0	6	10	10	9	1000+		SC/ SM		Light gray, CLAYEY, med. to cse. SAND. Grading to a SILTY SAND. HCO.	34.0 36.0	-3.8 -5.8	
39.0	6	6	7	8	1000+		SC		Tan, fine to med., CLAYEY SAND. HCO.	39.0 41.0	-8.8 -10.8	2" Sch. 40 PVC
44.0	1	3	9	12	4.0		SM		Tan/orange, moderately sorted, SILTY, v.f.to f., SAND with trace gravels. Sat. HCO.	44.0 46.0	-13.8 -15.8	40.0
49.0	15	20	21	20	2.5		SC		Light green/green, SILTY/CLAYEY, v.f. to f. SANDY, WEATHERED LS. Sat. Slight HCO.	49.0 51.0	-18.8 -20.8	
54.0	12	26	33	50/ 6	1.5		SP		Light green/green, well sorted, v.f. to f. SAND with trace cse. shell frags. and silt. Sat. Slight HCO.	54.0 56.0	-23.8 -25.8	4" Sch. 40 PVC
59.0	18	24	17	33	7.0		SC		Green, SILTY, v.f. to med., SANDY CLAY with weathered LS frags and shells. Wet. Slight to moderate HCO.	59.0 61.0	-28.8 -30.8	
									Cemented sand layers throughout this 5' run.			

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

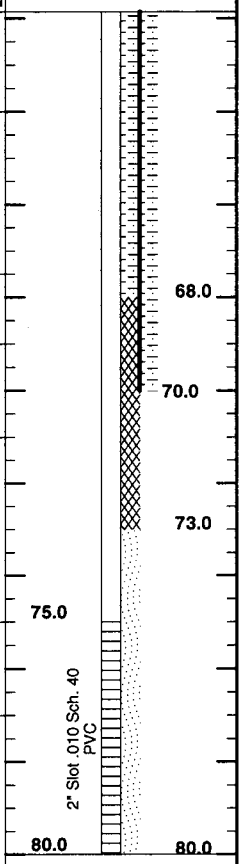
WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	STATE: NC	COUNTY: Onslow	LOCATION: Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		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)	
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	DTW(7/17/2002): 13.25	WELL DEPTH: 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION
									Cemented sand layers throughout this 5' run. *(continued)*	64.0	-33.8
									SANDY LIMESTONE. 5ft. core run. 3.5' recovered. Last 4" was sandy/clayey weathered LS	67.5	-37.3
							GM		SANDY and CLAYEY WEATHERED LS.	69.0	-38.8
69.0	11	20	23	29	22		SP		Light green, tan, well sorted, fine SAND. Wet. Slight HCO	71.0	-40.8
71.0											
75.0										75.0	-44.8
	21	50/6			22		SP		Light green/gray, S.A.A with trace silt and shell frags. Sat. Slight HCO.	77.0	-46.8
77.0									Boring Terminated at Elevation -49.8 ft		

WELL DETAIL



HP = Hydraulic Push NM = Not Measured

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CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** CWR, TWL, TS **DRILLER:** William Miller	**WELL ID:** HPFF-66
NORTHING: 3,839,027.0	**EASTING:** 286,312.7	**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	**DTW(7/17/2002):** 10.08	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
									LAND SURFACE	0.0	27.9	0.0
0.0	3	4	3	3	0	HPFF-66 0-2	SC		Reddish tan, CLAYEY SAND. Dry. No HCO.	2.0	25.9	- 0.5
2.0										4.0	23.9	
4.0	2	2	1	1	1000+		SC		Tan, CLAYEY, fine SAND. Wet to saturated. Slight HCO.	6.0	21.9	
6.0										9.0	18.9	
9.0	4	5	8	10	500		SP		Grayish tan, fine to med. SAND. Strong HCO.	11.0	16.9	
11.0										14.0	13.9	
14.0	9	12	14	20	10		SP		Gray, brown, fine SAND. Slight HCO.	16.0	11.9	
16.0										19.0	8.9	
19.0	9	9	13	14	1000+		SP/SC		Light gray, fine SAND w/interbedded SANDY CLAY lenses (1" to 2" thick). Strong HCO.	21.0	6.9	
21.0										24.0	3.9	
24.0	9	5	13	14	600		SP/SC		S.A.A. w/CLAYEY SAND (4" thick) interbedded.	26.0	1.9	
26.0										29.0	-1.1	
29.0							SM		Dark gray, fine SAND w/SILT. Strong HCO.			

2" Sch. 40 PVC
6" Sch. 40 PVC

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CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** CWR, TWL, TS	**WELL ID:** HPFF-66
		DRILLER: William Miller	
NORTHING: 3,839,027.0	**EASTING:** 286,312.7	**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	**DTW(7/17/2002):** 10.08	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
31.0	5	5	7	7	350		SM		Dark gray, fine SAND w/SILT. Strong HCO. *(continued)*	31.0	-3.1	
34.0										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.	36.0	-8.1	
39.0										39.0	-11.1	37.2
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.	41.0	-13.1	40.0
42.0										42.0	-14.1	
44.0	10	18	29	25	9				Olive green, fine to med. SAND w/SHELL and LIMESTONE fragments. Wet.	44.0	-16.1	43.0
46.0	13	26	17	18	0				S.A.A.	46.0	-18.1	45.0
48.0										48.0	-20.1	2" Slot .010 Sch. 40 PVC
50.0	26	22	24	25	20				S.A.A. w/silt.	50.0	-22.1	50.0
									Boring Terminated at Elevation -22.1 ft			50.0

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**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	**DTW(7/17/2002):** 11.12	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
									LAND SURFACE	0.0	27.8	0.0
0.0					13	HPFF-67 0-2 & HPFF-67D 0-2	SC		ASPHALT	0.4	27.4	- 0.4
							SC		Tan, SILTY, fine, CLAYEY SAND. Moist. No HCO.	2.0	25.8	
2.0										3.5	24.3	
3.5	2	2	1	2	1000+		SC		Tan, SILTY, v.f. to f., CLAYEY SAND. Wet. HCO.	5.5	22.3	
5.5										8.5	19.3	
8.5	4	5	9	9	720		SP		Gray, tan, well sorted, fine to med. SAND. Sat. HCO.	10.5	17.3	
10.5										13.5	14.3	
13.5	10	11	16	18	200		SP		Gray, brown, well sorted, fine SAND. Sat. Slight HCO.	15.5	12.3	
15.5										18.5	9.3	
18.5	7	11	12	15	400		SC		Light gray, well sorted SAND with clay layers. Sat. Moderate HCO.	20.5	7.3	
20.5										23.5	4.3	
23.5	8	6	14	13	500		SC		S.A.A.	25.5	2.3	
25.5										28.5	-0.7	
28.5	5	5	7	8	500		SM		Gray, SILTY, v.f. to f. SAND. Sat. Moderate HCO.			6" Sch. 40 PVC

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**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	**DTW(7/17/2002):** 11.12	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
30.5										30.5	-2.7	
33.5	3	5	7	14	450		SM		Light gray, S.A.A with shell frags. Moderate HCO.	33.5	-5.7	
35.5										35.5	-7.7	
38.5	16	21	25	23	250		SM		S.A.A.	38.5	-10.7	2" Sch. 40 PVC
40.5										40.5	-12.7	38.0
43.0	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.	43.0	-15.2	
45.0										45.0	-17.2	
48.0	1	1	11	14	7.9		SM		Weathered, SANDY LS. Sat. High HCO.	48.0	-20.2	
50.0							SP		Green, SILTY, v.f. to f. SAND. Sat. High HCO.	49.0 / 50.0	-21.2 / -22.2	
53.0	2	8	11	22	2.0		SM		Green, moderately sorted, SILTY, v.f. to f. SAND. Sat. High HCO.	53.0 / 55.0	-25.2 / -27.2	
58.0	14	20	19	22	3.2		SM		S.A.A with trace shell frags. and cemented sands.	58.0 / 60.0	-30.2 / -32.2	4" Sch. 40 PVC
60.0												

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**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	**DTW(7/17/2002):** 11.12	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
63.0										63.0	-35.2	
	20	33	28	28	2.5				Green, SILTY, weathered, SANDY LS. 2" layer of LS. Sat. Slight HCO.	65.0	-37.2	
65.0												
68.0										68.0	-40.2	
	7	22	22	18	2.1		GW/GM		Light green, SILTY, v.f. to med. SAND with trace shell frags and cemented sands. Sat. Slight HCO.	70.0	-42.2	69.0 / 70.0
70.0												73.0
75.0										75.0	-47.2	75.0
	20	31	37	45	3.0		SP		Light gray/green, well sorted, fine SAND. Wet. No HCO.	77.0	-49.2	2" Slot .010 Sch. 40 PVC
77.0												80.0 / 80.0
									Boring Terminated at Elevation -52.2 ft			

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

SHEET 1 OF 1

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Tom Landis	**WELL ID:** HPFF-68
		DRILLER: William Miller	
NORTHING: 3,839,042.3	**EASTING:** 286,330.8	**SYSTEM:** UTM NAD83 (m)	
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	**DTW(7/17/2002):** 7.87	**WELL DEPTH:** 25.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	27.7	0.0
0.0	5	6	6	10	200	HPFF-68	SM		Yellowish orange to dark gray, SILTY, fine SAND. Loose. Dry. No HCO.	2.0	25.7	- 0.3
2.0	7	7	11	8	16		SM		S.A.A. Moist. No HCO.	4.0	23.7	1.5
4.0	3	2	2	3	600				Mottled, yellowish orange to light gray, S.A.A. Wet. Mod. HCO.	5.5	22.2	3.0
6.0							CL		Mottled, gray and black, v.f. SANDY CLAY. Soft. Wet. Mod. HCO.	6.0	21.7	5.0
8.0	1	2	2	6	5.0		SM		Olive gray, SILTY, v.f. to fine SAND w/ trace shell frags. throughout. Sat. No HCO.	8.0	19.7	
10.0	6	6	6	8	12		SM		S.A.A.	10.0	17.7	
12.0	6	10	12	17	8.8		SM		Light gray, SILTY, v.f. to fine SAND w/minor clay lenses throughout. No shell frags. Sat. No HCO.	12.0	15.7	
14.0	7	17	22	17	0.0		SM		S.A.A. w/o clay lenses. Sat. No HCO.	14.0	13.7	
16.0	7	9	10	14	40		SM		Brown, SILTY, v.f. to fine SAND. Med. dense. Sat. Slight HCO.	16.0	11.7	
18.0	7	4	4	9	120		SM		S.A.A.	17.0	10.7	
							CL		Light gray CLAY w/trace v.f. sands. Stiff. Sat. Mod. HCO.	17.5	10.2	
							SM		Brown, SILTY, v.f. to fine SAND. Med. dense. Sat. Slight HCO.	18.0	9.7	
20.0	6	7	10	14	1000+		SM		S.A.A.	20.0	7.7	
22.0	6	7	10	14	1000+		SM		S.A.A.	21.0	6.7	
							PT		WOOD FRAGMENTS	21.3	6.4	
	7	8	11	22	1000+		SM		S.A.A. Sat. Slight HCO.	22.0	5.7	
24.0							SM		Brown, SILTY, v.f. to fine SAND. Med. dense. Sat. Slight HCO.	24.0	3.7	
25.0	6	9			1000+		SP		Light gray, v.f. SAND w/trace silt. Loose to med. dense. Sat. Strong HCO.	24.6	3.1	
									Boring Terminated at Elevation 2.7 ft	25.0	2.7	25.0

2" Sch. 40 PVC

2" Slot .010 Sch. 40 PVC

25.0

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray	**WELL ID:** HPFF-69
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,104.0	**EASTING:** 286,446.9	**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	**DTW(7/17/2002):** 13.14	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	LAND SURFACE 30.2	0.0
0.0	13	5	5	7	0	HPFF-69 0-2	SP		0.4 ASPHALT	0.4	29.8	-0.3
									Tan, well sorted, fine to med. SAND.	1.0	29.2	
2.0												
3.5										3.5	26.7	
	5	11	13	14	1000+	HPFF-69 3.5-5.5	SW		Tan, orange, well sorted, v.f. to med. SAND w/some silt. Moist. HCO.	5.5	24.7	
5.5												
8.5										8.5	21.7	
	12	17	10	10	1000+		SM		Light gray to tan, SILTY, v.f. to fine SAND. Wet. Strong HCO.	10.5	19.7	
10.5												
13.5										13.5	16.7	
	2	7	3	9	1000+		SM		S.A.A. w/clay lenses. Wet. Strong HCO.	15.5	14.7	
15.5												
18.5										18.5	11.7	
	8	6	9	6	1000+		SP		Light gray, v.f. to fine SAND. Sat. Strong HCO.	20.5	9.7	
20.5												
23.5										23.5	6.7	
	3	2	3	7	1000+		SW		Light gray, poorly sorted, fine to cse. SAND. Sat. HCO.	25.5	4.7	
25.5												
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

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-69
NORTHING: 3,839,104.0	**EASTING:** 286,446.9	**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	**DTW(7/17/2002):** 13.14	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
30.5										30.5	-0.4	
33.5	3	6	11	11	1000+		SM		S.A.A. w/o clay lenses. Sat. HCO.	33.5	-3.4	
35.5										35.5	-5.4	
38.5	9	22	23	25	1000+		SP		Light gray, v.f. to fine SAND. Sat. HCO.	38.5	-8.4	38.0
40.5										40.5	-10.4	40.0
44.0	11	12	13	19	0				Olive green/gray, SILTY, v.f. to med. SAND w/LIMESTONE fragments. Sat. No HCO.	44.0	-13.9	43.0
46.0										46.0	-15.9	45.0
48.0	17	22	20	18	0		SM		S.A.A.	48.0	-17.9	2" Slot .010 Sch. 40 PVC
50.0									Olive gray, SILTY, v.f. to med. SAND w/shell frags. Olive green, SILTY SAND w/LS. No HCO.	48.8 49.5 50.0	-18.7 -19.4 -19.9	50.0
									Boring Terminated at Elevation -19.9 ft			

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray	**WELL ID:** HPFF-70
		DRILLER: Bobbie Fowler	
NORTHING: 3,839,021.2	**EASTING:** 286,483.8	**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	**DTW(7/17/2002):** 12.42	**WELL DEPTH:** 50.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	31.2	0.0
0.0	2	6	7	5	8.0	HPFF-70 0-2	SC		Light gray to tan,SILTY/CLAYEY, v.f. to fine SAND.	2.0	29.2	- 0.4
2.0										3.5	27.7	
3.5	6	10	9	11	12.0	HPFF-70 3.5-5.5	SM		Mottled, tan, gray, and orange, SILTY, v.f. to fine SAND. Moist. No HCO.	5.5	25.7	
5.5										8.5	22.7	
8.5	4	3	5	5	3.2		SM		S.A.A. w/increasing silt content. Wet.	10.5	20.7	
10.5										13.5	17.7	
13.5	3	4	6	4	6.6		SC		Light gray, SILTY/CLAYEY, v.f. to fine SAND. Sat. No HCO.	15.5	15.7	
15.5										18.5	12.7	
18.5	7	8	8	8	10.2		SP		Light gray, v.f. to fine SAND. Sat. No HCO.	20.5	10.7	
20.5										23.5	7.7	
23.5	2	2	5	4	0.2		SM		Light gray, SILTY, v.f. to fine SAND. Sat. No HCO.	25.5	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.			

2" Sch. 40 PVC
6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** HPFF-70
NORTHING: 3,839,021.2	**EASTING:** 286,483.8	**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	**DTW(7/17/2002):** 12.42	**WELL DEPTH:** 50.0

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

WELL DETAIL

38.0
40.0
43.0
45.0
2" Slot .010 Sch. 40 PVC
50.0
51.0

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 13.79	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										0.0	31.2	0.0
0.0	2	6	7	6	5.0		SC/SM		0-0.5 Topsoil, brown, SILTY, v.f. to f. SAND with roots. 0.5-2.0 Tan, SILTY, v.f. to f. CLAYEY SAND. Moist. No HCO	2.0	29.2	- 0.4
2.0										3.5	27.7	
3.5	5	11	12	12	20	HPFF-71 4-6 & HPFF-71D 4-6	SM		Tan, gray, orange, SILTY, v.f. to f. SAND. Moist. No HCO.	5.5	25.7	
5.5										8.5	22.7	
8.5	4	3	5	6	2.8		SM		S.A.A with increasing silt. Wet.	10.5	20.7	
10.5										13.5	17.7	
13.5	3	5	5	4	0.6		SC		Light gray, SILTY, v.f. to f. CLAYEY SAND. Sat. No HCO.	15.5	15.7	
15.5										18.5	12.7	
18.5	8	7	9	7	0.2		SP		Light gray, well sorted, v.f. to f. SAND. Sat. No HCO.	20.5	10.7	
20.5										23.5	7.7	
23.5	2	3	5	4	1.0		SM		Light gray, SILTY, v.f. to f. SAND. Sat. No HCO.	25.5	5.7	
25.5										28.5	2.7	
28.5	8	13	12	14	0.8		SM		S.A.A with clay layers. Sat. No HCO.			6" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT	**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	**DTW(7/17/2002):** 13.79	**WELL DEPTH:** 80.0

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

2" Sch. 40 PVC
40.0
4" Sch. 40 PVC

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**WELL ID:** 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	**DTW(7/17/2002):** 13.79	**WELL DEPTH:** 80.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION	WELL DETAIL
										63.0	-31.8	
63.0	6	8	10	36	0		CL		Green, SILTY, v.f., SANDY CLAY with trace shell frags. with med. plasticity. Wet. No HCO.	65.0	-33.8	
65.0												
68.0										68.0	-36.8	68.0
	30	42	50/6		4.3		CL		S.A.A.	69.0	-37.8	69.0
69.5	C	O	R	E					Core run from 69.5'-74.5' BLS Approximately 2' layer of LS recovered.	71.0	-39.8	
							SP		No return from core. Assumed to be v. fine SAND w/trace shell frags.	74.5	-43.3	73.0
73.5												75.0
78.0										78.0	-46.8	2" Slot .010 Sch. 40 PVC
	15	42	50/6		9.0		SP		Light green, well sorted, v. fine SAND with trace shell frags. Sat. Slight HCO.	80.0	-48.8	80.0
80.0									Boring Terminated at Elevation -48.8 ft			

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**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	**DTW(7/16/2002):** 10.27	**WELL DEPTH:** 30.0

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

2" Sch. 40 PVC

2" Slot .010 Sch. 40 PVC

30.0

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

WELL LOG

CATLIN ENGINEERS and SCIENTISTS
Wilmington, North Carolina

PROJECT NO.: 202-027	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: HADNOT POINT FUEL FARM 2002 SAMPLING EVENT		**LOGGED BY:** Charles Ray **DRILLER:** Bobbie Fowler	**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	**DTW(7/16/2002):** 10.27	**WELL DEPTH:** 30.0

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

HP = Hydraulic Push NM = Not Measured

Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 202-027.GPJ CATLIN.GDT 12/03/02

APPENDIX B

NORTH CAROLINA WELL CONSTRUCTION RECORDS

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 — ASSOCIATED WQ PERMIT # (if applicable) N/A

HPFF-43

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) | NC (State) | 28542-0004 (Zip Code)
   _____ (Area code - Phone number)
4. DATE DRILLED: 3/7/2002
5. TOTAL DEPTH: 80
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 10.62 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.51 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

Depth From	To	ft.	Diameter	in.	Wall Thickness or Weight/Ft.	Material
0.51	75		2"		Sch. 40	PVC
0	70		4"		Sch. 40	PVC
0	39		6"		Sch. 40	PVC

14. GROUT:

Depth From	To	ft.	Material	Method
0	71		Portland Cement	Tremie
71	73		Bent. Pellets	Surface Pour

15. SCREEN:

Depth From	To	ft.	Diameter	in.	Slot Size	in.	Material
75	80		2		Slot .010		PVC

16. SAND/GRAVEL PACK:

Depth From	To	ft.	Size	Material
73	80		#2 Medium	Torpedo Sand

17. REMARKS: _____

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

Northing/Easting of well location
3839134.1/285708.4
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

(#2161) for Bobbie Fowler — 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

WELL CONTRACTOR (INDIVIDUAL) NAME (print) William Miller — CERTIFICATION # 2927

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

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

HPFF-44

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) | NC (State) | 28542-0004 (Zip Code)
   _____ Area code - Phone number
4. DATE DRILLED: 10/8/2001
5. TOTAL DEPTH: 50
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 10.23 FT. (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.48 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

Depth From	To	Diameter	Wall Thickness or Weight/Ft.	Material
0.48	45 ft.	2" in.	Sch. 40	PVC
0	40 ft.	6" in.	Sch. 40	PVC
	ft.	in.		

14. GROUT:

Depth From	To	Material	Method
0.5	38 ft.	Portland Cement	Tremie
38	43 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

Depth From	To	Diameter	Slot Size	Material
45	50 ft.	2 in.	Slot .010 in.	PVC
	ft.	in.	in.	

16. SAND/GRAVEL PACK:

Depth From	To	Size	Material
43	50 ft.	#2 Medium	Torpedo Sand
	ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839136.1/285705.7
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

(#2161) for Bobbie Fowler — 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 **ASSOCIATED WQ PERMIT #** (if applicable) N/A

HPFF-45

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____ (Area code - Phone number)
4. DATE DRILLED: 3/7/2002
5. TOTAL DEPTH: 80
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 11.19 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.5 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

Depth From	To	ft.	Diameter	in.	Wall Thickness or Weight/Ft.	Material
0.5	75		2"		Sch. 40	PVC
0	70		4"		Sch. 40	PVC
0	38		6"		Sch. 40	PVC

14. GROUT:

Depth From	To	ft.	Material	Method
0	70		Portland Cement	Tremie
70	72		Bent. Pellets	Surface Pour

15. SCREEN:

Depth From	To	ft.	Diameter	in.	Slot Size	in.	Material
75	80		2		Slot .010		PVC

16. SAND/GRAVEL PACK:

Depth From	To	ft.	Size	Material
72	80		#2 Medium	Torpedo Sand

17. REMARKS: _____

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

Northing/Easting of well location
3839274.5/285903.5
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

(#2161) for Bobbie Fowler — 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 **ASSOCIATED WQ PERMIT #** (if applicable) N/A

HPFF-46

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____ (Area code - Phone number)
4. DATE DRILLED: 3/7/2002
5. TOTAL DEPTH: 150
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 11.67 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.66 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

Depth From	To	Diameter	Wall Thickness or Weight/Ft.	Material
0.66	145 ft.	2" in.	Sch. 40	PVC
0	140 ft.	4" in.	Sch. 40	PVC
0	40 ft.	6" in.	Sch. 40	PVC

14. GROUT:

Depth From	To	Material	Method
0	141 ft.	Portland Cement	Tremie
141	143 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

Depth From	To	Diameter	Slot Size	Material
145	150 ft.	2 in.	Slot .010 in.	PVC
	ft.	in.	in.	

16. SAND/GRAVEL PACK:

Depth From	To	Size	Material
143	150 ft.	#2 Medium	Torpedo Sand
	ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839277/285903.9
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

S. Catlin (#2161) for Bobbie Fowler — 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

WELL CONTRACTOR (INDIVIDUAL) NAME (print) William Miller **CERTIFICATION #** 2927

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

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

HPFF-47

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____ Area code - Phone number

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

Northing/Easting of well location
3839275/285902.2
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

4. DATE DRILLED: 10/9/2001
5. TOTAL DEPTH: 50
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 11.52 FT. (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.35 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From	0.35 To 45 ft.	2" in.	Sch. 40	PVC
From	0 To 40 ft.	6" in.	Sch. 40	PVC
From	To ft.	in.		

14. GROUT:

	Depth	Material	Method
From	0.5 To 38.5 ft.	Portland Cement	Tremie
From	38.5 To 43 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth	Diameter	Slot Size	Material
From	45 To 50 ft.	2 in.	Slot .010 in.	PVC
From	To ft.	in.	in.	

16. SAND/GRAVEL PACK:

	Depth	Size	Material
From	43 To 50 ft.	#2 Medium	Torpedo Sand
From	To ft.		

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

SEE ATTACHED

17. REMARKS: _____

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

(#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

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

HPFF-48

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

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

   Northing/Easting of well location
   3839425.2/286052.2
   UTM NAD83 (m)

   Latitude/longitude source: ☒ GPS ☐ Topo. map
   (check box)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number

DEPTH From	To	DRILLING LOG Formation Description
		SEE ATTACHED

4. DATE DRILLED: 10/10/2001
5. TOTAL DEPTH: 15
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 7.08 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.49 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From	0.49 To 5 ft.	2" in.	Sch. 40	PVC
From	To ft.	in.		
From	To ft.	in.		

14. GROUT:

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

15. SCREEN:

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

16. SAND/GRAVEL PACK:

	Depth	Size	Material
From	3 To 16 ft.	#2 Medium	Torpedo Sand
From	To ft.		

LOCATION SKETCH

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

SEE ATTACHED

17. REMARKS: _____

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

S L Nolan (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 **ASSOCIATED WQ PERMIT #** (if applicable) N/A

HPFF-49

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____ Area code - Phone number
4. DATE DRILLED: 2/24/2002
5. TOTAL DEPTH: 80
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 9.25 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.53 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

Depth From	To	ft.	Diameter	in.	Wall Thickness or Weight/Ft.	Material
0.53	75		2"		Sch. 40	PVC
0	70		4"		SS	PVC
0	40		6"		Sch. 40	PVC

14. GROUT:

Depth From	To	ft.	Material	Method
0	70		Portland Cement	Tremie
70	72		Bent. Pellets	Surface Pour

15. SCREEN:

Depth From	To	ft.	Diameter	in.	Slot Size	in.	Material
75	80		2		Slot .010		PVC

16. SAND/GRAVEL PACK:

Depth From	To	ft.	Size	Material
72	80		#2 Medium	Torpedo Sand

17. REMARKS: _____

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

Northing/Easting of well location
3839425.5/286049.6
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

S. Wilson (#2161) For Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

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

HPFF-50

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number
4. DATE DRILLED: 10/9/2001
5. TOTAL DEPTH: 50
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 9.03 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.39 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From	0.39	To 45 ft.	2" in.	Sch. 40	PVC
From	0	To 40 ft.	6" in.	Sch. 40	PVC
From		To ft.	in.		

14. GROUT:

	Depth		Material	Method
From	0.5	To 38 ft.	Portland Cement	Tremie
From	38	To 43 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth		Diameter	Slot Size	Material
From	45	To 50 ft.	2 in.	Slot .010 in.	PVC
From		To ft.	in.	in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From		To ft.		
From		To ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839427.6/286048.9
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

SEW Jr (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

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

HPFF-51

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number
4. DATE DRILLED: 10/10/2001
5. TOTAL DEPTH: 15
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 10.24 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.45 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From	0.45 To 5 ft.	2" in.	Sch. 40	PVC
From	To ft.	in.		
From	To ft.	in.		

14. GROUT:

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

15. SCREEN:

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

16. SAND/GRAVEL PACK:

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

17. REMARKS: _____

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

Northing/Easting of well location
3839413.1/286151.2
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

S. Wilson (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 **ASSOCIATED WQ PERMIT #** (if applicable) N/A

HPFF-52

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number
4. DATE DRILLED: 2/24/2002
5. TOTAL DEPTH: 150
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 12.07 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.58 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

Depth From	To	Diameter	Wall Thickness or Weight/Ft.	Material
0.58	145 ft.	2" in.	Sch. 40	PVC
0	140 ft.	4" in.	Sch. 40	PVC
0	40 ft.	6" in.	Sch. 40	PVC

14. GROUT:

Depth From	To	Material	Method
0	141.5 ft.	Portland Cement	Tremie
141.5	143 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

Depth From	To	Diameter	Slot Size	Material
145	150 ft.	2 in.	Slot .010 in.	PVC
	ft.	in.	in.	

16. SAND/GRAVEL PACK:

Depth From	To	Size	Material
143	150 ft.	#2 Medium	Torpedo Sand
	ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839393.9/286254.3
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

S. L. Fowler (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

WELL CONTRACTOR (INDIVIDUAL) NAME (print) William Miller **CERTIFICATION #** 2927

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

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

HPFF-53

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

   Topographic/Land Setting
   ☐Ridge ☐Slope ☐Valley ☒Flat
   (check appropriate box)
   Northing/Easting of well location
   3839395.6/286254.8
   UTM NAD83 (m)
   Latitude/longitude source: ☒GPS ☐Topo. map
   (check box)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number
4. DATE DRILLED: 10/12/2001
5. TOTAL DEPTH: 50
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 11.90 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.49 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth		Diameter		Wall Thickness or Weight/Ft.	Material
From	0.49	To 45 ft.	2"	in.	Sch. 40	PVC
From	0	To 40 ft.	6"	in.	Sch. 40	PVC
From		To ft.		in.		

14. GROUT:

	Depth		Material	Method
From	0.5	To 38 ft.	Portland Cement	Tremie
From	38	To 43 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth		Diameter		Slot Size		Material
From	45	To 50 ft.	2	in.	Slot .010	in.	PVC
From		To ft.		in.		in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From	43	To 50 ft.	#2 Medium	Torpedo Sand
From		To ft.		

17. REMARKS: _____

DEPTH From	To	DRILLING LOG Formation Description
		SEE ATTACHED

LOCATION SKETCH

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

SEE ATTACHED

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

S. C. Williams (#2161) for Bobbie Foster 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

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

HPFF-54

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number
4. DATE DRILLED: 10/10/2001
5. TOTAL DEPTH: 17
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 4.03 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.75 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From	0.75 To 2 ft.	2" in.	Sch. 40	PVC
From	To ft.	in.		
From	To ft.	in.		

14. GROUT:

	Depth	Material	Method
From	0 To 1 ft.	Portland Cement	Surface Pour
From	0.5 To 1 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth	Diameter	Slot Size	Material
From	2 To 17 ft.	2 in.	Slot .010 in.	PVC
From	To ft.	in.	in.	

16. SAND/GRAVEL PACK:

	Depth	Size	Material
From	1.5 To 17 ft.	#2 Medium	Torpedo Sand
From	To ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839394.3/286252.4
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

S. D. Williams (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 **ASSOCIATED WQ PERMIT #** (if applicable) N/A

HPFF-55

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____ Area code - Phone number
4. DATE DRILLED: 2/24/2002
5. TOTAL DEPTH: 80
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 10.43 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.85 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth		Diameter		Wall Thickness or Weight/Ft.	Material
From	0.85	To 75 ft.	2"	in.	Sch. 40	PVC
From	0	To 70 ft.	4"	in.	Sch. 40	PVC
From	0	To 40 ft.	6"	in.	Sch. 40	PVC

14. GROUT:

	Depth		Material	Method
From	0	To 71 ft.	Portland Cement	Tremie
From	71	To 73 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth		Diameter		Slot Size		Material
From	75	To 80 ft.	2	in.	Slot .010	in.	PVC
From		To ____ ft.		in.		in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From	73	To 80 ft.	#2 Medium	Torpedo Sand
From		To ____ ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839394.9/286256.3
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

S. Wilson (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 **ASSOCIATED WQ PERMIT #** (if applicable) N/A

HPFF-56

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number
4. DATE DRILLED: 2/6/2002
5. TOTAL DEPTH: 150
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 11.53 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.77 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

Depth From	To	ft.	Diameter	in.	Wall Thickness or Weight/Ft.	Material
0.77	145		2"		Sch. 40	PVC
0	140		4"		Sch. 40	PVC
0	40		6"		Sch. 40	PVC

14. GROUT:

Depth From	To	ft.	Material	Method
0	138		Concrete	Tremie
138	143		Bent. Pellets	Surface Pour

15. SCREEN:

Depth From	To	ft.	Diameter	in.	Slot Size	in.	Material
145	150		2		Slot .010		PVC

16. SAND/GRAVEL PACK:

Depth From	To	ft.	Size	Material
143	150		#2 Medium	Torpedo Sand

17. REMARKS: _____

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

Northing/Easting of well location
3839256.8/286039.4
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

SIGNATURE OF PERSON CONSTRUCTING THE WELL (#2160) for Bobbie Fowler — DATE 9-16-02

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

WELL CONTRACTOR (INDIVIDUAL) NAME (print) William Miller **CERTIFICATION #** 2927

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

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

HPFF-57

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

   Topographic/Land Setting
   ☐Ridge ☐Slope ☐Valley ☒Flat
   (check appropriate box)
   Northing/Easting of well location
   3839033.9/286020.4
   UTM NAD83 (m)
   Latitude/longitude source: ☒GPS ☐Topo. map
   (check box)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number

DEPTH From	DEPTH To	DRILLING LOG Formation Description
		SEE ATTACHED

4. DATE DRILLED: 10/8/2001
5. TOTAL DEPTH: 50
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 16.73 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.31 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth		Diameter		Wall Thickness or Weight/Ft.	Material
From	0.31 To 45	ft.	2"	in.	Sch. 40	PVC
From	0 To 40	ft.	6"	in.	Sch. 40	PVC
From	To	ft.		in.		

14. GROUT:

	Depth		Material	Method
From	0.5 To 38.5	ft.	Portland Cement	Tremie
From	38.5 To 43	ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth		Diameter		Slot Size		Material
From	45 To 50	ft.	2	in.	Slot .010	in.	PVC
From	To	ft.		in.		in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From	43 To 51	ft.	#2 Medium	Torpedo Sand
From	To	ft.		

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

SEE ATTACHED

17. REMARKS: _____

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

Steve Allen (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 **ASSOCIATED WQ PERMIT #** (if applicable) N/A

HPFF-58

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____ Area code - Phone number
4. DATE DRILLED: 2/6/2002
5. TOTAL DEPTH: 80
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 10.67 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.38 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth		Diameter		Wall Thickness or Weight/Ft.	Material
From	0.38	To 75 ft.	2"	in.	Sch. 40	PVC
From	0	To 70 ft.	4"	in.	Sch. 40	PVC
From	0	To 40 ft.	6"	in.	Sch. 40	PVC

14. GROUT:

	Depth		Material	Method
From	0	To 68.5 ft.	Portland Cement	Tremie
From	68.5	To 73 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth		Diameter		Slot Size		Material
From	75	To 80 ft.	2	in.	Slot .010	in.	PVC
From		To ____ ft.		in.		in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From	73	To 80 ft.	#2 Medium	Torpedo Sand
From		To ____ ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839186.1/286185.8
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

SIGNATURE OF PERSON CONSTRUCTING THE WELL (#2161) for Bobbie Fowler — DATE 9-16-02

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 **ASSOCIATED WQ PERMIT #** (if applicable) N/A

HPFF-59

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

   Topographic/Land Setting
   ☐Ridge ☐Slope ☐Valley ☒Flat
   (check appropriate box)
   Northing/Easting of well location
   3839280.3/286349.4
   UTM NAD83 (m)
   Latitude/longitude source: ☒GPS ☐Topo. map
   (check box)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number
4. DATE DRILLED: 2/6/2002
5. TOTAL DEPTH: 80
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☐
7. STATIC WATER LEVEL Below Top of Casing 11.20 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.41 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

Depth From	To	Diameter	Wall Thickness or Weight/Ft.	Material
0.41	75 ft.	2" in.	Sch. 40	PVC
0	70 ft.	4" in.	Sch. 40	PVC
0	40 ft.	6" in.	Sch. 40	PVC

14. GROUT:

Depth From	To	Material	Method
0	66 ft.	Portland Cement	Tremie
66	71 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

Depth From	To	Diameter	Slot Size	Material
75	80 ft.	2 in.	Slot .010 in.	PVC
____	____ ft.	____ in.	____ in.	____

16. SAND/GRAVEL PACK:

Depth From	To	Size	Material
71	80 ft.	#2 Medium	Torpedo Sand
____	____ ft.	____	____

17. REMARKS: _____

Topography/Land Setting	DEPTH From	To	DRILLING LOG Formation Description
			SEE ATTACHED

LOCATION SKETCH

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

SEE ATTACHED

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

Scott Wm (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

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

HPFF-60

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____ Area code - Phone number
4. DATE DRILLED: 10/17/2001
5. TOTAL DEPTH: 150
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 10.22 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.47 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth		Diameter		Wall Thickness or Weight/Ft.	Material
From	0.47	To 145 ft.	2"	in.	Sch. 40	PVC
From	0	To 140 ft.	4"	in.	Sch. 40	PVC
From	0	To 40 ft.	6"	in.	Sch. 40	PVC

14. GROUT:

	Depth		Material	Method
From	0.5	To 139 ft.	Portland Cement	Tremie
From	139	To 143 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth		Diameter		Slot Size		Material
From	145	To 150 ft.	2	in.	Slot .010	in.	PVC
From		To ft.		in.		in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From	143	To 150 ft.	#2 Medium	Torpedo Sand
From		To ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839178.6/286296.7
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

SLV Wm (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

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

HPFF-61

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) | NC (State) | 28542-0004 (Zip Code)
   _____ (Area code - Phone number)
4. DATE DRILLED: 10/17/2001
5. TOTAL DEPTH: 50
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 11.29 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.45 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From	0.45	To 45 ft.	2" in.	Sch. 40	PVC
From	0	To 40 ft.	6" in.	Sch. 40	PVC
From		To ft.	in.		

14. GROUT:

	Depth		Material	Method
From	0.5	To 39 ft.	Portland Cement	Tremie
From	39	To 43 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth		Diameter	Slot Size	Material
From	45	To 50 ft.	2 in.	Slot .010 in.	PVC
From		To ft.	in.	in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From	43	To 50 ft.	#2 Medium	Torpedo Sand
From		To ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839175.7/286294.1
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 **ASSOCIATED WQ PERMIT #** (if applicable) N/A

HPFF-62

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number
4. DATE DRILLED: 2/6/2002
5. TOTAL DEPTH: 155
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 23.29 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.5 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From 0.5 To 150 ft.	2" in.	Sch. 40	PVC
From 0 To 145 ft.	4" in.	Sch. 40	PVC
From 0 To 75 ft.	6" in.	Sch. 40	PVC

14. GROUT:

Depth	Material	Method
From 0 To 143 ft.	Portland Cement	Tremie
From 143 To 148 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

Depth	Diameter	Slot Size	Material
From 150 To 155 ft.	2 in.	Slot .010 in.	PVC
From ____ To ____ ft.	____ in.	____ in.	____

16. SAND/GRAVEL PACK:

Depth	Size	Material
From 145 To 155 ft.	#2 Medium	Torpedo Sand
From ____ To ____ ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839056.8/286263.1
UTM NAD83 (m)

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

DEPTH From To / DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

SIGNATURE OF PERSON CONSTRUCTING THE WELL (#2161) for Bobbie Fowler DATE 9-16-02

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

WELL CONTRACTOR (INDIVIDUAL) NAME (print) William Miller **CERTIFICATION #** 2927

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

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

HPFF-63

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number
4. DATE DRILLED: 10/9/2001
5. TOTAL DEPTH: 50
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 15.67 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.45 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth		Diameter		Wall Thickness or Weight/Ft.	Material
From	0.45	To 45 ft.	2"	in.	Sch. 40	PVC
From	0	To 40 ft.	6"	in.	Sch. 40	PVC
From		To ft.		in.		

14. GROUT:

	Depth		Material	Method
From	0.5	To 38.2 ft.	Portland Cement	Tremie
From	38.2	To 43 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth		Diameter		Slot Size		Material
From	45	To 50 ft.	2	in.	Slot .010	in.	PVC
From		To ft.		in.		in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From	43	To 51 ft.	#2 Medium	Torpedo Sand
From		To ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3838923/286137.3
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

SLV Van (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

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

HPFF-64

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number
4. DATE DRILLED: 10/10/2001
5. TOTAL DEPTH: 50
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 10.02 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.52 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From	0.52	To 45 ft.	2" in.	Sch. 40	PVC
From	0	To 40 ft.	6" in.	Sch. 40	PVC
From		To ft.	in.		

14. GROUT:

	Depth		Material	Method
From	0.5	To 38 ft.	Portland Cement	Tremie
From	38	To 43 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth		Diameter	Slot Size	Material
From	45	To 50 ft.	2 in.	Slot .010 in.	PVC
From		To ft.	in.	in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From	43	To 50 ft.	#2 Medium	Torpedo Sand
From		To ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839111.6/286356.1
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

S Catlin (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 **ASSOCIATED WQ PERMIT #** (if applicable) N/A

HPFF-65

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number
4. DATE DRILLED: 2/6/2002
5. TOTAL DEPTH: 80
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 13.25 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.46 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth		Diameter		Wall Thickness or Weight/Ft.	Material
From	0.46	To 75 ft.	2"	in.	Sch. 40	PVC
From	0	To 70 ft.	4"	in.	Sch. 40	PVC
From	0	To 40 ft.	6"	in.	Sch. 40	PVC

14. GROUT:

	Depth		Material	Method
From	0	To 68 ft.	Portland Cement	Tremie
From	68	To 73 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth		Diameter		Slot Size		Material
From	75	To 80 ft.	2	in.	Slot .010	in.	PVC
From		To ft.		in.		in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From	73	To 80 ft.	#2 Medium	Torpedo Sand
From		To ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839134.3/286361.2
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

S. Wallin (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

WELL CONTRACTOR (INDIVIDUAL) NAME (print) William Miller **CERTIFICATION #** 2927

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

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

HPFF-66

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____ Area code - Phone number
4. DATE DRILLED: 10/9/2001
5. TOTAL DEPTH: 50
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 10.08 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.47 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From	0.47	To 45 ft.	2" in.	Sch. 40	PVC
From	0	To 40 ft.	6" in.	Sch. 40	PVC
From		To ft.	in.		

14. GROUT:

	Depth		Material	Method
From	0.5	To 37.2 ft.	Portland Cement	Tremie
From	37.2	To 43 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth		Diameter	Slot Size	Material
From	45	To 50 ft.	2 in.	Slot .010 in.	PVC
From		To ft.	in.	in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From	43	To 50 ft.	#2 Medium	Torpedo Sand
From		To ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839025.2/286313
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

Steven (#2161) for Bobbie Foster 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 **ASSOCIATED WQ PERMIT #** (if applicable) N/A

HPFF-67

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

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

Northing/Easting of well location
3839026.7/286312.9
UTM NAD83 (m)

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

3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number

DEPTH From To — DRILLING LOG Formation Description

4. DATE DRILLED: 2/6/2002
5. TOTAL DEPTH: 80
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 11.12 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.4 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118

SEE ATTACHED

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

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From 0.4 To 75 ft.	2" in.	Sch. 40	PVC
From 0 To 70 ft.	4" in.	Sch. 40	PVC
From 0 To 38 ft.	6" in.	Sch. 40	PVC

14. GROUT:

Depth	Material	Method
From 0 To 69 ft.	Portland Cement	Tremie
From 69 To 73 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

Depth	Diameter	Slot Size	Material
From 75 To 80 ft.	2 in.	Slot .010 in.	PVC
From ____ To ____ ft.	____ in.	____ in.	____

16. SAND/GRAVEL PACK:

Depth	Size	Material
From 73 To 80 ft.	#2 Medium	Torpedo Sand
From ____ To ____ ft.	____	____

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

SEE ATTACHED

17. REMARKS: _____

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

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE: 9-16-02

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

WELL CONTRACTOR (INDIVIDUAL) NAME (print) William Miller — CERTIFICATION # 2927

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

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

HPFF-68

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) | NC (State) | 28542-0004 (Zip Code)
   _____ Area code - Phone number
4. DATE DRILLED: 10/11/2001
5. TOTAL DEPTH: 25
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 5.21 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.3 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From	0.3 To 5 ft.	2" in.	Sch. 40	PVC
From	To ft.	in.		
From	To ft.	in.		

14. GROUT:

	Depth	Material	Method
From	0.5 To 1.5 ft.	Portland Cement	Surface Pour
From	1.5 To 3 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth	Diameter	Slot Size	Material
From	5 To 25 ft.	2 in.	Slot .010 in.	PVC
From	To ft.	in.	in.	

16. SAND/GRAVEL PACK:

	Depth	Size	Material
From	3 To 25 ft.	#2 Medium	Torpedo Sand
From	To ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839025.2/286351.1
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

Steven Lam (#2161) for Bobbie Fowler — 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

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

HPFF-69

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____ (Area code - Phone number)
4. DATE DRILLED: 10/3/2001
5. TOTAL DEPTH: 50
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 13.14 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.28 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From	0.28 To 45 ft.	2" in.	Sch. 40	PVC
From	0 To 40 ft.	6" in.	Sch. 40	PVC
From	To ft.	in.		

14. GROUT:

	Depth	Material	Method
From	0.5 To 38 ft.	Portland Cement	Tremie
From	38 To 43 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth	Diameter	Slot Size	Material
From	45 To 50 ft.	2 in.	Slot .010 in.	PVC
From	To ft.	in.	in.	

16. SAND/GRAVEL PACK:

	Depth	Size	Material
From	43 To 50 ft.	#2 Medium	Torpedo Sand
From	To ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839102.6/286446.2
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

[signature] (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

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

HPFF-70

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

2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)

3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number

4. DATE DRILLED: 10/3/2001
5. TOTAL DEPTH: 50
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 12.42 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.42 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth		Diameter		Wall Thickness or Weight/Ft.	Material
From	0.42	To 45 ft.	2"	in.	Sch. 40	PVC
From	0	To 40 ft.	6"	in.	Sch. 40	PVC
From		To ft.		in.		

14. GROUT:

	Depth		Material	Method
From	0.5	To 38 ft.	Portland Cement	Tremie
From	38	To 43 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth		Diameter		Slot Size		Material
From	45	To 50 ft.	2	in.	Slot .010	in.	PVC
From		To ft.		in.		in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From	43	To 51 ft.	#2 Medium	Torpedo Sand
From		To ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839024.4/286481.2
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

S L N Ray (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 **ASSOCIATED WQ PERMIT #** (if applicable) N/A

HPFF-71

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

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

Northing/Easting of well location
3839021.7/286478.5
UTM NAD83 (m)

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

3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number
4. DATE DRILLED: 2/6/2002
5. TOTAL DEPTH: 80
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 13.79 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.44 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A

DEPTH From	To	DRILLING LOG Formation Description
		SEE ATTACHED

13. CASING:

Depth From	To	Diameter	Wall Thickness or Weight/Ft.	Material
0.44	75 ft.	2" in.	Sch. 40	PVC
0	69 ft.	4" in.	Sch. 40	PVC
0	40 ft.	6" in.	Sch. 40	PVC

14. GROUT:

Depth From	To	Material	Method
0	68 ft.	Portland Cement	Tremie
68	73 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

Depth From	To	Diameter	Slot Size	Material
75	80 ft.	2 in.	Slot .010 in.	PVC
	ft.	in.	in.	

16. SAND/GRAVEL PACK:

Depth From	To	Size	Material
73	80 ft.	#2 Medium	Torpedo Sand
	ft.		

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

SEE ATTACHED

17. REMARKS: _____

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

SIGNATURE OF PERSON CONSTRUCTING THE WELL (#2161) for Bobbie Fowler DATE 9-16-02

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

WELL CONSTRUCTION RECORD

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

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

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

STATE WELL CONSTRUCTION PERMIT # (if applicable) 2869 **ASSOCIATED WQ PERMIT #** (if applicable) N/A

HPFF-72

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
   Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____
2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Camp Lejeune County: Onslow
   Camp Lejeune
   (Road Name and Numbers, Community, Subdivision, Lot No., Zip Code)
3. OWNER: LANTDIV NAVFACENGCOM Commanding General
   Address: AC/S EMD/Marine Corps Base/PSC Box 20004
   (Street or Route No.)
   Camp Lejeune (City or Town) NC (State) 28542-0004 (Zip Code)
   _____
   Area code - Phone number
4. DATE DRILLED: 3/6/2002
5. TOTAL DEPTH: 30
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing 10.27 FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS -0.52 FT. Above Land Surface*
   * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
9. YIELD (gpm): N/A METHOD OF TEST N/A
10. WATER ZONES (depth): Surficial Aquifer
12. DISINFECTION: Type N/A Amount N/A
13. CASING:

	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From	0.52 To 18 ft.	2" in.	Sch. 40	PVC
From	To ft.	in.		
From	To ft.	in.		

14. GROUT:

	Depth	Material	Method
From	0 To 8 ft.	Portland Cement	Surface Pour
From	8 To 16 ft.	Bent. Pellets	Surface Pour

15. SCREEN:

	Depth	Diameter	Slot Size	Material
From	18 To 30 ft.	2 in.	Slot .010 in.	PVC
From	To ft.	in.	in.	

16. SAND/GRAVEL PACK:

	Depth	Size	Material
From	16 To 30 ft.	#2 Medium	Torpedo Sand
From	To ft.		

17. REMARKS: _____

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

Northing/Easting of well location
3839024.9/286316.1
UTM NAD83 (m)

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

DEPTH From To — DRILLING LOG Formation Description

SEE ATTACHED

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

SEE ATTACHED

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

S. Vann (#2161) for Bobbie Fowler 9-16-02

SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

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

Modified from: GW-1 REV.07/2001

NC WELL CONSTRUCTION RECORD 202-027.GPJ CATLIN.GDT 09/16/02

APPENDIX C

MONITORING WELL FIELD GAUGING WORKSHEETS

CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

APPENDIX C
MONITORING WELL FIELD GAUGING WORKSHEET

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT
USMCB Camp Lejeune, NC
PROJECT NUMBER: 202-027

WELL IDENTIFICATION	DATE	DEPTH TO WATER	PRODUCT THICKNESS	OBSERVATIONS/COMMENTS (bubbling, damaged, etc.)
1101-01	7/16/2002	8.42		
1101-02	7/16/2002	9.81		
1101-03	7/16/2002	9.33		Needs cap & lock
1115-01	7/16/2002	9.77		Needs bolts
1115-02	7/16/2002	9.73		
1115-03	7/16/2002	8.70		Needs cap & lock
1115-04	7/16/2002	1.78		
1115-05	7/16/2002	5.82		Needs lock
1115-06	7/16/2002	10.51		
1115-07	7/16/2002	7.62		Needs lock
1115-08	7/16/2002	10.45		
1115-09	7/16/2002	11.95		
1115-10	7/16/2002	6.91		
1115-11	7/16/2002	9.94		
1115-12	7/16/2002	6.41		Replaced cap-needs lock
1115-13	7/16/2002	10.42		
1115-14	7/16/2002	12.49		DUP. TAKEN
1115-15	7/16/2002	10.31		
1115-17	7/16/2002	11.33		
1115-18	7/16/2002	11.33		
1115-19	7/16/2002	9.57		Needs cap & lock
1115-20	7/16/2002	10.12		Needs lock
1115-21	7/16/2002	10.59		
1115-22	7/16/2002	13.05		
1115-23	7/16/2002	12.35		
1115-24	7/16/2002	11.84		
1115-25	7/16/2002	11.13		
78GW-12	7/16/2002	12.26		Needs lock
78GW-13	7/16/2002	12.72		Needs lock
78GW-14	7/16/2002	8.73		Needs bolts
78GW-15	7/16/2002	9.91		Needs lock
78GW-16	7/16/2002	13.71		Needs lock
78GW-17 -01	7/16/2002	12.51		
78GW-17 -02	7/16/2002	15.27		Replaced cap
78GW-19	7/16/2002	9.83		
78GW-21	7/16/2002	11.58		
78GW-22 -01	7/16/2002	8.66		

FINAL-FIELD GAUGING WORKSHEET 202-027.GPJ CATLIN.GDT 09/09/02

CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

APPENDIX C
MONITORING WELL FIELD GAUGING WORKSHEET

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT
USMCB Camp Lejeune, NC
PROJECT NUMBER: 202-027

WELL IDENTIFICATION	DATE	DEPTH TO WATER	PRODUCT THICKNESS	OBSERVATIONS/COMMENTS (bubbling, damaged, etc.)
78GW-31 -03	7/16/2002	11.59		
78GW-32 -02	7/16/2002	10.65		
78GW-32 -03	7/16/2002	11.08		
GT-01	7/16/2002	3.93		
GT-02	7/16/2002	6.98		
GT-03	7/16/2002	6.22		
GT-04	7/16/2002	6.39		
GT-05	7/16/2002	7.81		
GT-06	7/16/2002	6.46		
GT-07	7/16/2002	5.97		
GT-08	7/16/2002	6.74		Replaced cap
GT-09	7/16/2002	6.32		
HPFF-01	7/16/2002	5.05		Needs shield, lock, & bolts
HPFF-02	7/16/2002	7.40		Needs bolts
HPFF-03	7/16/2002	11.60		
HPFF-04	7/16/2002	11.01		
HPFF-05	7/16/2002	9.95		Shield broken
HPFF-06	7/16/2002	12.34		
HPFF-07	7/16/2002	11.13		Needs bolts
HPFF-08	7/16/2002	16.97		
HPFF-09	7/16/2002	10.27		
HPFF-10	7/16/2002	15.71		Needs bolts & lock
HPFF-11	7/16/2002	15.49		Needs lock
HPFF-12	7/16/2002	10.9		Needs bolts
HPFF-13	7/16/2002	11.74		Needs bolts & lock
HPFF-14	7/16/2002	4.87		Needs bolts
HPFF-15	7/16/2002	8.64	1.06	Needs lock
HPFF-16	7/16/2002	8.20		Needs lock
HPFF-17	7/16/2002	7.87		Tagged as HPFF-16
HPFF-19	7/16/2002	6.62		Needs shield, cap, & lock
HPFF-20	7/16/2002	9.01		Needs bolts & lock
HPFF-21	7/16/2002	3.64		
HPFF-23	7/16/2002	7.32		Needs lock
HPFF-24	7/16/2002	12.27		Needs lock
HPFF-25	7/16/2002	12.78		BAILED DRY-Needs lock
HPFF-26	7/16/2002			Could not find
HPFF-27	7/16/2002	11.72		Needs lock & tag

FINAL-FIELD GAUGING WORKSHEET 202-027.GPJ CATLIN.GDT 09/09/02

CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

APPENDIX C
MONITORING WELL FIELD GAUGING WORKSHEET

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT
USMCB Camp Lejeune, NC
PROJECT NUMBER: 202-027

WELL IDENTIFICATION	DATE	DEPTH TO WATER	PRODUCT THICKNESS	OBSERVATIONS/COMMENTS (bubbling, damaged, etc.)
HPFF-28	7/16/2002	7.61		Sorbent in well-shield broken
HPFF-30	7/16/2002	5.45		Needs bolts
HPFF-31	7/16/2002	10.39		
HPFF-32	7/16/2002	11.50		
HPFF-33	7/16/2002	12.00		Needs lock & cap
HPFF-34	7/16/2002	9.78		
HPFF-35	7/16/2002	9.82		Needs lock
HPFF-36	7/16/2002	9.52		Needs cap & lock
HPFF-37	7/16/2002	9.32		Needs cap & lock
HPFF-38	7/16/2002	9.19		Bailed Dry-needs lock
HPFF-39	7/16/2002	4.48		Needs bolts & lock
HPFF-40	7/16/2002	7.39		
HPFF-41	7/16/2002	10.12		Needs lock
HPFF-42	7/16/2002	8.07		Replaced cap-needs lock
HPFF-43	7/17/2002	10.62		
HPFF-44	7/17/2002	10.23		
HPFF-45	7/17/2002	11.19		
HPFF-46	7/17/2002	11.07		
HPFF-47	7/17/2002	11.52		
HPFF-48	7/17/2002	8.60		
HPFF-49	7/17/2002	9.25		
HPFF-50	7/17/2002	9.03		
HPFF-51	7/17/2002	12.29		
HPFF-52	7/17/2002	12.07		
HPFF-53	7/17/2002	11.90		
HPFF-54	7/17/2002	5.34		
HPFF-55	7/17/2002	10.43		
HPFF-56	7/17/2002	11.53		
HPFF-57	7/17/2002	10.73		
HPFF-58	7/17/2002	10.67		
HPFF-59	7/17/2002	11.20		
HPFF-60	7/16/2002	10.22		
HPFF-61	7/17/2002	11.29		
HPFF-62	7/17/2002	23.29		
HPFF-63	7/17/2002	15.07		
HPFF-64	7/17/2002	10.02		
HPFF-65	7/17/2002	13.25		

FINAL-FIELD GAUGING WORKSHEET 202-027.GPJ CATLIN.GDT 09/09/02

CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

APPENDIX C
MONITORING WELL FIELD GAUGING WORKSHEET

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT
USMCB Camp Lejeune, NC
PROJECT NUMBER: 202-027

WELL IDENTIFICATION	DATE	DEPTH TO WATER	PRODUCT THICKNESS	OBSERVATIONS/COMMENTS (bubbling, damaged, etc.)
HPFF-66	7/17/2002	10.08		
HPFF-67	7/17/2002	11.12		
HPFF-68	7/17/2002	7.87		
HPFF-69	7/17/2002	13.14		
HPFF-70	7/17/2002	12.42		
HPFF-71	7/17/2002	13.79		
HPFF-72	7/16/2002	10.27	0.04	
MW-01	7/16/2002	10.36		Sorbent in well
MW-02	7/16/2002	12.68		Sorbent in well
MW-03	7/16/2002	9.30		Well head broken
MW-04	7/16/2002	11.43		
MW-05	7/16/2002	4.75		Needs bolts
MW-06	7/16/2002	9.31		
MW-09	7/16/2002	11.51		
MW-10R	7/16/2002	14.30		Sorbent in well
MW-11	7/16/2002	7.20		Needs shield cover
MW-12	7/16/2002	9.07		Sorbent in well
MW-15	7/16/2002	9.25		Sorbent in well
MW-17	7/16/2002	12.50		Needs tag & lock
MW-18	7/16/2002	13.40	0.46	
MW-19	7/16/2002	13.18		
MW-20	7/16/2002	8.18		
MW-21	7/16/2002	5.40		
MW-A	7/16/2002	8.35		Sorbent in well

FINAL-FIELD GAUGING WORKSHEET 202-027.GPJ CATLIN.GDT 09/09/02

APPENDIX D

MONITORING WELL SAMPLING RECORDS

CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

APPENDIX D
MONITORING WELL SAMPLING RECORD

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT
USMCB Camp Lejeune, NC
202-027

WELL IDENTIFICATION	1101-01	1101-03	1115-07	1115-09	1115-14
DATE SAMPLED	7/17/2002	7/18/2002	7/17/2002	7/18/2002	7/18/2002
TIME SAMPLED	15:10	10:25	16:00	09:30	09:50
SAMPLED BY	CWR	WJM	CWR	WJM	CWR
WELL DIAMETER	2"	2"	2"	2"	2"
WELL DEPTH - (A)	13'	13'	20'	20'	51'
DEPTH TO WATER - (B)	8.42'	9.33'	7.62'	11.95'	12.49'
(A-B) FT. WATER IN WELL - (C)	4.58'	3.67'	12.38'	8.05'	38.51'
GALLONS PER FT. - (D)	0.174	0.174	0.174	0.174	0.174
(CxD) ONE VOLUME - (E)	0.80 gal.	0.64 gal.	2.15 gal.	1.40 gal.	6.70 gal.
(3 x E) THREE VOLUMES - (F)	2.40 gal.	1.92 gal.	6.45 gal.	4.20 gal.	20.10 gal.
BAILER VOLUME* - (G)	0.24 gal.	0.24 gal.	0.24 gal.	0.24 gal.	PUMP
(F/G) BAILS REQUIRED*	10	8	27	18	NA
AMOUNT REMOVED	10 bails	8 bails	27 bails	17 bails	21 gal.
TURBIDITY (clear, slight, moderate, high)	MODERATE	HIGH	SLIGHT	MODERATE	CLEAR
ANALYSIS &/or COMMENTS	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY
	610	610	610	610	610
				DUPLICATE TAKEN	DUPLICATE TAKEN

WELL VOLUMES gal/ft
1" WELL = 0.045
2" WELL = 0.174
4" WELL = 0.661
6" WELL = 1.501

BAILER VOLUMES gal/bail
3' x 1.5" = 0.24
4' x 1.5" = 0.37

* - An entry of "PUMP" indicates that bailers were not used to develop/purge the well and that a pump was used to remove the volume indicated.

CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

APPENDIX D
MONITORING WELL SAMPLING RECORD

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT
USMCB Camp Lejeune, NC
202-027

WELL IDENTIFICATION	1115-15	1115-19	1115-20	78GW-17 -02	78GW-31 -02
DATE SAMPLED	7/18/2002	7/17/2002	7/18/2002	7/18/2002	8/28/2002
TIME SAMPLED	10:30	16:25	11:00	11:35	13:30
SAMPLED BY	CWR	CWR	CWR	CWR	JAC
WELL DIAMETER	2"	2"	2"	2"	4"
WELL DEPTH - (A)	51'	50'	50'	73'	75'
DEPTH TO WATER - (B)	10.31'	9.57'	10.12'	15.27'	11.41'
(A-B) FT. WATER IN WELL - (C)	40.69'	40.43'	39.88'	57.73'	63.59'
GALLONS PER FT. - (D)	0.174	0.174	0.174	0.174	0.661
(CxD) ONE VOLUME - (E)	7.08 gal.	7.03 gal.	6.94 gal.	10.05 gal.	42.03 gal.
(3 x E) THREE VOLUMES - (F)	21.24 gal.	21.09 gal.	20.82 gal.	30.15 gal.	126.09 gal.
BAILER VOLUME* - (G)	PUMP	PUMP	PUMP	PUMP	PUMP
(F/G) BAILS REQUIRED*	NA	NA	NA	NA	NA
AMOUNT REMOVED	22 gal.	22 gal.	21 gal.	31 gal.	130 gal.
TURBIDITY (clear, slight, moderate, high)	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
ANALYSIS &/or COMMENTS	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY
	610	610	610	610	610

WELL VOLUMES gal/ft
1" WELL = 0.045
2" WELL = 0.174
4" WELL = 0.661
6" WELL = 1.501

BAILER VOLUMES gal/bail
3' x 1.5" = 0.24
4' x 1.5" = 0.37

* - An entry of "PUMP" indicates that bailers were not used to develop/purge the well and that a pump was used to remove the volume indicated.

CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

APPENDIX D
MONITORING WELL SAMPLING RECORD

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT
USMCB Camp Lejeune, NC
202-027

WELL IDENTIFICATION	78GW-31 -03	GT-08	HPFF-01	HPFF-02	HPFF-03
DATE SAMPLED	8/28/2002	7/18/2002	7/17/2002	7/17/2002	7/18/2002
TIME SAMPLED	12:00	09:50	17:00	14:00	11:00
SAMPLED BY	JAC	WJM	CWR	CWR	WJM
WELL DIAMETER	4"	2"	2"	2"	2"
WELL DEPTH - (A)	150'	19.5'	15'	15'	16'
DEPTH TO WATER - (B)	11.59'	6.74'	5.05'	7.40'	11.60'
(A-B) FT. WATER IN WELL - (C)	138.41'	12.76'	9.95'	7.6'	4.4'
GALLONS PER FT. - (D)	0.661	0.174	0.174	0.174	0.174
(CxD) ONE VOLUME - (E)	91.49 gal.	2.22 gal.	1.73 gal.	1.32 gal.	0.77 gal.
(3 x E) THREE VOLUMES - (F)	274.47 gal.	6.66 gal.	5.19 gal.	3.96 gal.	2.31 gal.
BAILER VOLUME* - (G)	PUMP	0.24 gal.	0.24 gal.	0.24 gal.	0.24 gal.
(F/G) BAILS REQUIRED*	NA	28	22	17	10
AMOUNT REMOVED	285 gal.	28 bails	22 bails	17 bails	10 bails
TURBIDITY (clear, slight, moderate, high)	CLEAR	SLIGHT	MODERATE	HIGH	HIGH
ANALYSIS &/or COMMENTS	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY
	610	610	610	610	610

WELL VOLUMES gal/ft
1" WELL = 0.045
2" WELL = 0.174
4" WELL = 0.661
6" WELL = 1.501

BAILER VOLUMES gal/bail
3' x 1.5" = 0.24
4' x 1.5" = 0.37

* - An entry of "PUMP" indicates that bailers were not used to develop/purge the well and that a pump was used to remove the volume indicated.

CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

APPENDIX D
MONITORING WELL SAMPLING RECORD

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT
USMCB Camp Lejeune, NC
202-027

WELL IDENTIFICATION	HPFF-05	HPFF-06	HPFF-09	HPFF-10	HPFF-11
DATE SAMPLED	7/17/2002	7/18/2002	7/17/2002	7/17/2002	7/17/2002
TIME SAMPLED	14:26	14:10	15:23	13:15	13:15
SAMPLED BY	CWR	CWR	CWR	CWR	CWR
WELL DIAMETER	2"	2"	2"	2"	2"
WELL DEPTH - (A)	15'	50'	50'	80'	110'
DEPTH TO WATER - (B)	9.95'	12.34'	10.27'	15.71'	15.49'
(A-B) FT. WATER IN WELL - (C)	5.05'	37.66'	39.73'	64.29'	94.51'
GALLONS PER FT. - (D)	0.174	0.174	0.174	0.174	0.174
(CxD) ONE VOLUME - (E)	0.88 gal.	6.55 gal.	6.91 gal.	11.19 gal.	16.44 gal.
(3 x E) THREE VOLUMES - (F)	2.64 gal.	19.65 gal.	20.73 gal.	33.57 gal.	49.32 gal.
BAILER VOLUME* - (G)	0.24 gal.	PUMP	PUMP	PUMP	PUMP
(F/G) BAILS REQUIRED*	11	NA	NA	NA	NA
AMOUNT REMOVED	11 bails	20 gal.	21 gal.	35 gal.	50 gal.
TURBIDITY (clear, slight, moderate, high)	HIGH	CLEAR	CLEAR	SLIGHT	CLEAR
ANALYSIS &/or COMMENTS	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY
	610	610	610	610	610

WELL VOLUMES gal/ft
1" WELL = 0.045
2" WELL = 0.174
4" WELL = 0.661
6" WELL = 1.501

BAILER VOLUMES gal/bail
3' x 1.5" = 0.24
4' x 1.5" = 0.37

* - An entry of "PUMP" indicates that bailers were not used to develop/purge the well and that a pump was used to remove the volume indicated.

CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

APPENDIX D
MONITORING WELL SAMPLING RECORD

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT
USMCB Camp Lejeune, NC
202-027

WELL IDENTIFICATION	HPFF-12	HPFF-13	HPFF-25	HPFF-31	HPFF-38
DATE SAMPLED	7/17/2002	7/18/2002		7/18/2002	7/17/2002
TIME SAMPLED	15:40	11:25		10:45	16:33
SAMPLED BY	JCW	JCW		WJM	JCW
WELL DIAMETER	2"	2"	2"	2"	2"
WELL DEPTH - (A)	110'	110'	15.3'	14'	14'
DEPTH TO WATER - (B)	10.9'	11.74'	12.78'	10.39'	9.19'
(A-B) FT. WATER IN WELL - (C)	99.1'	98.26'	2.52'	3.61'	4.81'
GALLONS PER FT. - (D)	0.174	0.174	0.174	0.174	0.174
(CxD) ONE VOLUME - (E)	17.24 gal.	17.10 gal.	0.44 gal.	0.63 gal.	0.84 gal.
(3 x E) THREE VOLUMES - (F)	51.72 gal.	51.30 gal.	1.32 gal.	1.89 gal.	2.52 gal.
BAILER VOLUME* - (G)	PUMP	PUMP	0.24 gal.	0.24 gal.	0.24 gal.
(F/G) BAILS REQUIRED*	NA	NA	6	8	11
AMOUNT REMOVED	55 gal.	50 gal.	--	8 bails	4 bails
TURBIDITY (clear, slight, moderate, high)	CLEAR	CLEAR	--	HIGH	--
ANALYSIS &/or COMMENTS	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY
	610	610	610	610	610
			NOT SAMPLED		
		DUPLICATE TAKEN	BAILED DRY		

WELL VOLUMES gal/ft
1" WELL = 0.045
2" WELL = 0.174
4" WELL = 0.661
6" WELL = 1.501

BAILER VOLUMES gal/bail
3' x 1.5" = 0.24
4' x 1.5" = 0.37

* - An entry of "PUMP" indicates that bailers were not used to develop/purge the well and that a pump was used to remove the volume indicated.

CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

APPENDIX D
MONITORING WELL SAMPLING RECORD

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT
USMCB Camp Lejeune, NC
202-027

WELL IDENTIFICATION	HPFF-39	HPFF-60	HPFF-72	MW-03	MW-06
DATE SAMPLED	7/18/2002	7/17/2002	7/18/2002	7/17/2002	7/17/2002
TIME SAMPLED	10:15	14:10	09:45	16:48	16:05
SAMPLED BY	WJM	JCW	JCW	JCW	JCW
WELL DIAMETER	2"	2"	2"	2"	2"
WELL DEPTH - (A)	15'	150'	30'	15'	15'
DEPTH TO WATER - (B)	4.48'	10.22'	10.27'	9.30'	9.31'
(A-B) FT. WATER IN WELL - (C)	10.52'	139.78'	19.73'	5.7'	5.69'
GALLONS PER FT. - (D)	0.174	0.174	0.174	0.174	0.174
(CxD) ONE VOLUME - (E)	1.83 gal.	24.32 gal.	3.43 gal.	0.99 gal.	0.99 gal.
(3 x E) THREE VOLUMES - (F)	5.49 gal.	72.96 gal.	10.29 gal.	2.97 gal.	2.97 gal.
BAILER VOLUME* - (G)	0.24 gal.	PUMP	PUMP	0.24 gal.	0.24 gal.
(F/G) BAILS REQUIRED*	23	NA	NA	12	12
AMOUNT REMOVED	23 bails	150 gal.	13 gal.	12 bails	13 bails
TURBIDITY (clear, slight, moderate, high)	SLIGHT	CLEAR	MODERATE	MODERATE	MODERATE
ANALYSIS &/or COMMENTS	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY
	610	610	610	610	610

WELL VOLUMES gal/ft
1" WELL = 0.045
2" WELL = 0.174
4" WELL = 0.661
6" WELL = 1.501

BAILER VOLUMES gal/bail
3' x 1.5" = 0.24
4' x 1.5" = 0.37

* - An entry of "PUMP" indicates that bailers were not used to develop/purge the well and that a pump was used to remove the volume indicated.

CATLIN
ENGINEERS and SCIENTISTS
Wilmington, North Carolina

APPENDIX D
MONITORING WELL SAMPLING RECORD

HADNOT POINT FUEL FARM 2002 SAMPLING EVENT
USMCB Camp Lejeune, NC
202-027

WELL IDENTIFICATION	MW-09	MW-19	MW-20		
DATE SAMPLED	7/17/2002	7/18/2002	7/18/2002		
TIME SAMPLED	17:14	10:25	13:30		
SAMPLED BY	JCW	JCW	JCW		
WELL DIAMETER	4"	4"	4"		
WELL DEPTH - (A)	15'	25'	24'		
DEPTH TO WATER - (B)	11.51'	13.18'	8.18'		
(A-B) FT. WATER IN WELL - (C)	3.49'	11.82'	15.82'		
GALLONS PER FT. - (D)	0.661	0.661	0.661		
(CxD) ONE VOLUME - (E)	2.31 gal.	7.81 gal.	10.46 gal.		
(3 x E) THREE VOLUMES - (F)	6.93 gal.	23.43 gal.	31.38 gal.		
BAILER VOLUME* - (G)	0.24 gal.	PUMP	PUMP		
(F/G) BAILS REQUIRED*	29	NA	NA		
AMOUNT REMOVED	29 bails	25 gal.	35 gal.		
TURBIDITY (clear, slight, moderate, high)	MODERATE	SLIGHT	SLIGHT		
ANALYSIS &/or COMMENTS	602 MTBE+XY	602 MTBE+XY	602 MTBE+XY		
	610	610	610		

WELL VOLUMES gal/ft
1" WELL = 0.045
2" WELL = 0.174
4" WELL = 0.661
6" WELL = 1.501

BAILER VOLUMES gal/bail
3' x 1.5" = 0.24
4' x 1.5" = 0.37

* - An entry of "PUMP" indicates that bailers were not used to develop/purge the well and that a pump was used to remove the volume indicated.

APPENDIX E

AVERAGE GROUNDWATER LINEAR FLOW VELOCITY CALCULATIONS

APPENDIX E
AVERAGE GROUNDWATER LINEAR FLOW VELOCITY CALCULATIONS
(SHALLOW WELLS)

HADNOT POINT FUEL FARM 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE
JACKSONVILLE, NORTH CAROLINA

$$V_{AVG} = (K_{AVG}/Ne)\ (dh/dl)$$

Where:

V_{AVG} = Average Groundwater Linear Flow Velocity (ft/day)

K_{AVG} = Average Hydraulic Conductivity in ft/day from Hadnot Point Comprehensive Site Assessment data (CATLIN, 1997)

dh = Change in Hydraulic Head (ft) between wells

MW-17 and 78GW-13 = 18.83 - 13.08

= 5.75

dl = Horizontal Distance (ft) between wells

MW-17 and 78GW-13 = 2164

Ne = Effective Porosity = Average for SAND from Table 2.2 of *Practical Aspects of Ground Water Modeling* , W.C. Walton 1984, 2nd Edition, p.21.

Using:

K_{AVG} = 70.10 ft/day

$dh/dl = \frac{5.75}{2164} = 0.003$ $V_{AVG} = \frac{70.10}{0.25} \times 0.003$

Ne = 0.25

V_{AVG} = 0.75 ft/day TO THE WEST

COMPUTED BY: Steve Hudson CHECKED BY:

DATE: 9/11/2002 DATE:

APPENDIX E
AVERAGE GROUNDWATER LINEAR FLOW VELOCITY CALCULATIONS
(50ft. TYPE IIIs)

HADNOT POINT FUEL FARM 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE
JACKSONVILLE, NORTH CAROLINA

$$V_{AVG} = (K_{AVG}/Ne)\ (dh/dl)$$

Where:

V_{AVG} = Average Groundwater Linear Flow Velocity (ft/day)

K_{AVG} = Average Hydraulic Conductivity in ft/day from Hadnot Point Comprehensive Site Assessment data (CATLIN, 1997)

dh = Change in Hydraulic Head (ft) between wells
HPFF-08 and HPFF-44 = 17.93 - 12.77
= 5.16

dl = Horizontal Distance (ft) between wells
HPFF-08 and HPFF-44 = 2284

Ne = Effective Porosity = Average for SAND from Table 2.2 of *Practical Aspects of Ground Water Modeling* , W.C. Walton 1984, 2nd Edition, p.21.

Using:

K_{AVG} = 70.10 ft/day

$dh/dl = \frac{5.16}{2284} = 0.002$ $V_{AVG} = \frac{70.10}{0.25} \times 0.002$

Ne = 0.25

V_{AVG} = 0.63 ft/day TO THE WEST

COMPUTED BY: Steve Hudson CHECKED BY:
DATE: 9/11/2002 DATE:

APPENDIX E
AVERAGE GROUNDWATER LINEAR FLOW VELOCITY CALCULATIONS
(80ft. TYPE IIIs)

HADNOT POINT FUEL FARM 2002 WELL GAUGING, SAMPLING, and ADDITIONAL WELL INSTALLATION REPORT

MARINE CORPS BASE CAMP LEJEUNE
JACKSONVILLE, NORTH CAROLINA

$$V_{AVG} = (K_{AVG}/Ne)\ (dh/dl)$$

Where:

V_{AVG} = Average Groundwater Linear Flow Velocity (ft/day)

K_{AVG} = Average Hydraulic Conductivity in ft/day from Hadnot Point Comprehensive Site Assessment data (CATLIN, 1997)

dh = Change in Hydraulic Head (ft) between wells
HPFF-10 and HPFF-43 = 16.79 - 12.39
= 4.40

dl = Horizontal Distance (ft) between wells
HPFF-10 and HPFF-43 = 2227

Ne = Effective Porosity = Average for SAND from Table 2.2 of *Practical Aspects of Ground Water Modeling* , W.C. Walton 1984, 2nd Edition, p.21.

Using:

K_{AVG} = 70.10 ft/day

$dh/dl = \frac{4.40}{2227} = 0.002$ $V_{AVG} = \frac{70.10}{0.25} \times 0.002$

Ne = 0.25

V_{AVG} = 0.55 ft/day TO THE WEST

COMPUTED BY: Steve Hudson CHECKED BY:
DATE: 9/11/2002 DATE:

APPENDIX F

CATLIN STANDARD METHODS OF INVESTIGATION

APPENDIX F

CATLIN STANDARD METHODS OF INVESTIGATION

(REVISED APRIL 2002)

1.0 DATA COLLECTION

1.1 BACKGROUND DATA

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

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

1.2 SURVEYS AND POTENTIAL RECEPTOR DATA

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

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

1.2.1 Horizontal Survey

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

1.2.2 Vertical Survey

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

APPENDIX F

1.3 DRILLING AND MONITORING WELL/PIEZOMETER INSTALLATION

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

1.3.1 Drilling Methods and Subsurface Data Collection

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

Auger Drilling

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

Hand Augering

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

Direct Push

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

Other Methods

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

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

1.3.2 Hydropunch Installation

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

1.3.3 Well Installation

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

1.3.4 Well Development

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

1.4 HYDROGEOLOGIC DATA COLLECTION

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

APPENDIX F

1.4.1 Regional Geology

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

1.4.2 Site Geology

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

1.4.3 Groundwater Occurrence and Characteristics

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

Well Water Levels

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

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

Aquifer Testing

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

Other Methods

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

APPENDIX F

1.5 PETROLEUM HYDROCARBON DATA COLLECTION

1.5.1 Collection Methods

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

Field Analysis

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

Laboratory Analysis

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

1.5.2 Field Sampling

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

Product Samples

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

Vapor Samples

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

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

APPENDIX F

Soil Samples

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

Groundwater Samples

Groundwater samples are collected in accordance with the following procedures:

- Creeks/Lakes/Etc.

  Grab samples are obtained.

- Domestic Wells

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

- Monitoring Wells

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

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

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

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

Sampling records are field prepared.

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

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

APPENDIX F

2.0 DATA EVALUATION

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

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

APPENDIX G

LABORATORY ANALYTICAL REPORTS/ CHAIN OF CUSTODY RECORDS

FILE COPY

Rec 4/15/02
mr

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

April 15, 2002

Mr. Tom Landis
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

Report Number: G128-899

Client Project ID: HPFF

Dear Mr. Landis,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
J. Patrick Weaver

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-64
Client Project ID: HPFF
Lab Sample ID: 40559
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	1	1	BQL
Bromoform	4/9/02	1	2	BQL
Bromomethane	4/9/02	1	2	BQL
Carbon tetrachloride	4/9/02	1	1	BQL
Chlorobenzene	4/9/02	1	1	BQL
Chloroethane	4/9/02	1	1	BQL
Chloroform	4/9/02	1	1	BQL
Chloromethane	4/9/02	1	1	BQL
Dibromochloromethane	4/9/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL
1,2-Dichlorobenzene	4/9/02	1	1	BQL
1,3-Dichlorobenzene	4/9/02	1	1	BQL
1,4-Dichlorobenzene	4/9/02	1	1	BQL
1,1-Dichloroethane	4/9/02	1	1	BQL
1,2-Dichloroethane	4/9/02	1	1	BQL
1,1-Dichloroethene	4/9/02	1	1	BQL
cis-1,2-Dichloroethene	4/9/02	1	1	BQL
trans-1,2-Dichloroethene	4/9/02	1	1	BQL
1,2-Dichloropropane	4/9/02	1	1	BQL
cis-1,3-Dichloropropene	4/9/02	1	1	BQL
trans-1,3-Dichloropropene	4/9/02	1	1	BQL
Methylene Chloride	4/9/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL
Tetrachloroethene	4/9/02	1	1	BQL
1,1,1-Trichloroethane	4/9/02	1	1	BQL
1,1,2-Trichloroethane	4/9/02	1	1	BQL
Trichloroethene	4/9/02	1	1	BQL
Trichlorofluoromethane	4/9/02	1	1	BQL
Vinyl Chloride	4/9/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-65
Client Project ID: HPFF
Lab Sample ID: 40560
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	1	1	BQL
Bromoform	4/9/02	1	2	BQL
Bromomethane	4/9/02	1	2	BQL
Carbon tetrachloride	4/9/02	1	1	BQL
Chlorobenzene	4/9/02	1	1	BQL
Chloroethane	4/9/02	1	1	BQL
Chloroform	4/9/02	1	1	BQL
Chloromethane	4/9/02	1	1	BQL
Dibromochloromethane	4/9/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL
1,2-Dichlorobenzene	4/9/02	1	1	BQL
1,3-Dichlorobenzene	4/9/02	1	1	BQL
1,4-Dichlorobenzene	4/9/02	1	1	BQL
1,1-Dichloroethane	4/9/02	1	1	BQL
1,2-Dichloroethane	4/9/02	1	1	BQL
1,1-Dichloroethene	4/9/02	1	1	BQL
cis-1,2-Dichloroethene	4/9/02	1	1	BQL
trans-1,2-Dichloroethene	4/9/02	1	1	BQL
1,2-Dichloropropane	4/9/02	1	1	BQL
cis-1,3-Dichloropropene	4/9/02	1	1	BQL
trans-1,3-Dichloropropene	4/9/02	1	1	BQL
Methylene Chloride	4/9/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL
Tetrachloroethene	4/9/02	1	1	BQL
1,1,1-Trichloroethane	4/9/02	1	1	BQL
1,1,2-Trichloroethane	4/9/02	1	1	BQL
Trichloroethene	4/9/02	1	1	BQL
Trichlorofluoromethane	4/9/02	1	1	BQL
Vinyl Chloride	4/9/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	39	98

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-61
Client Project ID: HPFF
Lab Sample ID: 40561
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	1	1	BQL
Bromoform	4/9/02	1	2	BQL
Bromomethane	4/9/02	1	2	BQL
Carbon tetrachloride	4/9/02	1	1	BQL
Chlorobenzene	4/9/02	1	1	BQL
Chloroethane	4/9/02	1	1	BQL
Chloroform	4/9/02	1	1	BQL
Chloromethane	4/9/02	1	1	BQL
Dibromochloromethane	4/9/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL
1,2-Dichlorobenzene	4/9/02	1	1	BQL
1,3-Dichlorobenzene	4/9/02	1	1	BQL
1,4-Dichlorobenzene	4/9/02	1	1	BQL
1,1-Dichloroethane	4/9/02	1	1	BQL
1,2-Dichloroethane	4/9/02	1	1	BQL
1,1-Dichloroethene	4/9/02	1	1	BQL
cis-1,2-Dichloroethene	4/9/02	1	1	BQL
trans-1,2-Dichloroethene	4/9/02	1	1	BQL
1,2-Dichloropropane	4/9/02	1	1	BQL
cis-1,3-Dichloropropene	4/9/02	1	1	BQL
trans-1,3-Dichloropropene	4/9/02	1	1	BQL
Methylene Chloride	4/9/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL
Tetrachloroethene	4/9/02	1	1	BQL
1,1,1-Trichloroethane	4/9/02	1	1	BQL
1,1,2-Trichloroethane	4/9/02	1	1	BQL
Trichloroethene	4/9/02	1	1	BQL
Trichlorofluoromethane	4/9/02	1	1	BQL
Vinyl Chloride	4/9/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-61D
Client Project ID: HPFF
Lab Sample ID: 40562
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	1	1	BQL
Bromoform	4/9/02	1	2	BQL
Bromomethane	4/9/02	1	2	BQL
Carbon tetrachloride	4/9/02	1	1	BQL
Chlorobenzene	4/9/02	1	1	BQL
Chloroethane	4/9/02	1	1	BQL
Chloroform	4/9/02	1	1	BQL
Chloromethane	4/9/02	1	1	BQL
Dibromochloromethane	4/9/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL
1,2-Dichlorobenzene	4/9/02	1	1	BQL
1,3-Dichlorobenzene	4/9/02	1	1	BQL
1,4-Dichlorobenzene	4/9/02	1	1	BQL
1,1-Dichloroethane	4/9/02	1	1	BQL
1,2-Dichloroethane	4/9/02	1	1	BQL
1,1-Dichloroethene	4/9/02	1	1	BQL
cis-1,2-Dichloroethene	4/9/02	1	1	BQL
trans-1,2-Dichloroethene	4/9/02	1	1	BQL
1,2-Dichloropropane	4/9/02	1	1	BQL
cis-1,3-Dichloropropene	4/9/02	1	1	BQL
trans-1,3-Dichloropropene	4/9/02	1	1	BQL
Methylene Chloride	4/9/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL
Tetrachloroethene	4/9/02	1	1	BQL
1,1,1-Trichloroethane	4/9/02	1	1	BQL
1,1,2-Trichloroethane	4/9/02	1	1	BQL
Trichloroethene	4/9/02	1	1	BQL
Trichlorofluoromethane	4/9/02	1	1	BQL
Vinyl Chloride	4/9/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	40	99

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By: _____

N.C. Certification #248 S.C. Certification #99029

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-60
Client Project ID: HPFF
Lab Sample ID: 40563
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	1	1	BQL
Bromoform	4/9/02	1	2	BQL
Bromomethane	4/9/02	1	2	BQL
Carbon tetrachloride	4/9/02	1	1	BQL
Chlorobenzene	4/9/02	1	1	BQL
Chloroethane	4/9/02	1	1	BQL
Chloroform	4/9/02	1	1	BQL
Chloromethane	4/9/02	1	1	BQL
Dibromochloromethane	4/9/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL
1,2-Dichlorobenzene	4/9/02	1	1	BQL
1,3-Dichlorobenzene	4/9/02	1	1	BQL
1,4-Dichlorobenzene	4/9/02	1	1	BQL
1,1-Dichloroethane	4/9/02	1	1	BQL
1,2-Dichloroethane	4/9/02	1	1	25
1,1-Dichloroethene	4/9/02	1	1	BQL
cis-1,2-Dichloroethene	4/9/02	1	1	BQL
trans-1,2-Dichloroethene	4/9/02	1	1	BQL
1,2-Dichloropropane	4/9/02	1	1	BQL
cis-1,3-Dichloropropene	4/9/02	1	1	BQL
trans-1,3-Dichloropropene	4/9/02	1	1	BQL
Methylene Chloride	4/9/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL
Tetrachloroethene	4/9/02	1	1	BQL
1,1,1-Trichloroethane	4/9/02	1	1	BQL
1,1,2-Trichloroethane	4/9/02	1	1	BQL
Trichloroethene	4/9/02	1	1	BQL
Trichlorofluoromethane	4/9/02	1	1	BQL
Vinyl Chloride	4/9/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-59
Client Project ID: HPFF
Lab Sample ID: 40564
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	1	1	BQL
Bromoform	4/9/02	1	2	BQL
Bromomethane	4/9/02	1	2	BQL
Carbon tetrachloride	4/9/02	1	1	BQL
Chlorobenzene	4/9/02	1	1	BQL
Chloroethane	4/9/02	1	1	BQL
Chloroform	4/9/02	1	1	BQL
Chloromethane	4/9/02	1	1	BQL
Dibromochloromethane	4/9/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL
1,2-Dichlorobenzene	4/9/02	1	1	BQL
1,3-Dichlorobenzene	4/9/02	1	1	BQL
1,4-Dichlorobenzene	4/9/02	1	1	BQL
1,1-Dichloroethane	4/9/02	1	1	BQL
1,2-Dichloroethane	4/9/02	1	1	BQL
1,1-Dichloroethene	4/9/02	1	1	BQL
cis-1,2-Dichloroethene	4/9/02	1	1	2
trans-1,2-Dichloroethene	4/9/02	1	1	BQL
1,2-Dichloropropane	4/9/02	1	1	BQL
cis-1,3-Dichloropropene	4/9/02	1	1	BQL
trans-1,3-Dichloropropene	4/9/02	1	1	BQL
Methylene Chloride	4/9/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL
Tetrachloroethene	4/9/02	1	1	BQL
1,1,1-Trichloroethane	4/9/02	1	1	BQL
1,1,2-Trichloroethane	4/9/02	1	1	BQL
Trichloroethene	4/9/02	1	1	BQL
Trichlorofluoromethane	4/9/02	1	1	BQL
Vinyl Chloride	4/9/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-66
Client Project ID: HPFF
Lab Sample ID: 40565
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/10/02	4	4	BQL
Bromoform	4/10/02	4	8	BQL
Bromomethane	4/10/02	4	8	BQL
Carbon tetrachloride	4/10/02	4	4	BQL
Chlorobenzene	4/10/02	4	4	BQL
Chloroethane	4/10/02	4	4	BQL
Chloroform	4/10/02	4	4	BQL
Chloromethane	4/10/02	4	4	BQL
Dibromochloromethane	4/10/02	4	4	BQL
1,2-Dibromoethane (EDB)	4/10/02	4	4	BQL
1,2-Dichlorobenzene	4/10/02	4	4	BQL
1,3-Dichlorobenzene	4/10/02	4	4	BQL
1,4-Dichlorobenzene	4/10/02	4	4	BQL
1,1-Dichloroethane	4/10/02	4	4	BQL
1,2-Dichloroethane	4/10/02	4	4	59
1,1-Dichloroethene	4/10/02	4	4	BQL
cis-1,2-Dichloroethene	4/10/02	4	4	BQL
trans-1,2-Dichloroethene	4/10/02	4	4	BQL
1,2-Dichloropropane	4/10/02	4	4	BQL
cis-1,3-Dichloropropene	4/10/02	4	4	BQL
trans-1,3-Dichloropropene	4/10/02	4	4	BQL
Methylene Chloride	4/10/02	4	20	BQL
1,1,2,2-Tetrachloroethane	4/10/02	4	4	BQL
Tetrachloroethene	4/10/02	4	4	BQL
1,1,1-Trichloroethane	4/10/02	4	4	BQL
1,1,2-Trichloroethane	4/10/02	4	4	BQL
Trichloroethene	4/10/02	4	4	BQL
Trichlorofluoromethane	4/10/02	4	4	BQL
Vinyl Chloride	4/10/02	4	4	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-66D
Client Project ID: HPFF
Lab Sample ID: 40566
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/10/02	4	4	BQL
Bromoform	4/10/02	4	8	BQL
Bromomethane	4/10/02	4	8	BQL
Carbon tetrachloride	4/10/02	4	4	BQL
Chlorobenzene	4/10/02	4	4	BQL
Chloroethane	4/10/02	4	4	BQL
Chloroform	4/10/02	4	4	BQL
Chloromethane	4/10/02	4	4	BQL
Dibromochloromethane	4/10/02	4	4	BQL
1,2-Dibromoethane (EDB)	4/10/02	4	4	BQL
1,2-Dichlorobenzene	4/10/02	4	4	BQL
1,3-Dichlorobenzene	4/10/02	4	4	BQL
1,4-Dichlorobenzene	4/10/02	4	4	BQL
1,1-Dichloroethane	4/10/02	4	4	BQL
1,2-Dichloroethane	4/10/02	4	4	**48**
1,1-Dichloroethene	4/10/02	4	4	BQL
cis-1,2-Dichloroethene	4/10/02	4	4	BQL
trans-1,2-Dichloroethene	4/10/02	4	4	BQL
1,2-Dichloropropane	4/10/02	4	4	BQL
cis-1,3-Dichloropropene	4/10/02	4	4	BQL
trans-1,3-Dichloropropene	4/10/02	4	4	BQL
Methylene Chloride	4/10/02	4	20	BQL
1,1,2,2-Tetrachloroethane	4/10/02	4	4	BQL
Tetrachloroethene	4/10/02	4	4	BQL
1,1,1-Trichloroethane	4/10/02	4	4	BQL
1,1,2-Trichloroethane	4/10/02	4	4	BQL
Trichloroethene	4/10/02	4	4	BQL
Trichlorofluoromethane	4/10/02	4	4	BQL
Vinyl Chloride	4/10/02	4	4	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	39	98

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-67
Client Project ID: HPFF
Lab Sample ID: 40567
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/10/02	1	1	BQL
Bromoform	4/10/02	1	2	BQL
Bromomethane	4/10/02	1	2	BQL
Carbon tetrachloride	4/10/02	1	1	BQL
Chlorobenzene	4/10/02	1	1	BQL
Chloroethane	4/10/02	1	1	BQL
Chloroform	4/10/02	1	1	BQL
Chloromethane	4/10/02	1	1	BQL
Dibromochloromethane	4/10/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/10/02	1	1	BQL
1,2-Dichlorobenzene	4/10/02	1	1	BQL
1,3-Dichlorobenzene	4/10/02	1	1	BQL
1,4-Dichlorobenzene	4/10/02	1	1	BQL
1,1-Dichloroethane	4/10/02	1	1	BQL
1,2-Dichloroethane	4/10/02	1	1	BQL
1,1-Dichloroethene	4/10/02	1	1	BQL
cis-1,2-Dichloroethene	4/10/02	1	1	BQL
trans-1,2-Dichloroethene	4/10/02	1	1	BQL
1,2-Dichloropropane	4/10/02	1	1	BQL
cis-1,3-Dichloropropene	4/10/02	1	1	BQL
trans-1,3-Dichloropropene	4/10/02	1	1	BQL
Methylene Chloride	4/10/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/10/02	1	1	BQL
Tetrachloroethene	4/10/02	1	1	BQL
1,1,1-Trichloroethane	4/10/02	1	1	BQL
1,1,2-Trichloroethane	4/10/02	1	1	BQL
Trichloroethene	4/10/02	1	1	BQL
Trichlorofluoromethane	4/10/02	1	1	BQL
Vinyl Chloride	4/10/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	39	96

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-70
Client Project ID: HPFF
Lab Sample ID: 40568
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)	
Bromodichloromethane	4/10/02	1	1	BQL	
Bromoform	4/10/02	1	2	BQL	
Bromomethane	4/10/02	1	2	BQL	
Carbon tetrachloride	4/10/02	1	1	BQL	
Chlorobenzene	4/10/02	1	1	BQL	
Chloroethane	4/10/02	1	1	BQL	
Chloroform	4/10/02	1	1	BQL	
Chloromethane	4/10/02	1	1	BQL	
Dibromochloromethane	4/10/02	1	1	BQL	
1,2-Dibromoethane (EDB)	4/10/02	1	1	BQL	
1,2-Dichlorobenzene	4/10/02	1	1	BQL	
1,3-Dichlorobenzene	4/10/02	1	1	BQL	
1,4-Dichlorobenzene	4/10/02	1	1	BQL	
1,1-Dichloroethane	4/10/02	1	1	BQL	
1,2-Dichloroethane	4/10/02	1	1	BQL	
1,1-Dichloroethene	4/10/02	1	1	BQL	
cis-1,2-Dichloroethene	4/10/02	1	1		3
trans-1,2-Dichloroethene	4/10/02	1	1	BQL	
1,2-Dichloropropane	4/10/02	1	1	BQL	
cis-1,3-Dichloropropene	4/10/02	1	1	BQL	
trans-1,3-Dichloropropene	4/10/02	1	1	BQL	
Methylene Chloride	4/10/02	1	5	BQL	
1,1,2,2-Tetrachloroethane	4/10/02	1	1	BQL	
Tetrachloroethene	4/10/02	1	1	BQL	
1,1,1-Trichloroethane	4/10/02	1	1	BQL	
1,1,2-Trichloroethane	4/10/02	1	1	BQL	
Trichloroethene	4/10/02	1	1	BQL	
Trichlorofluoromethane	4/10/02	1	1	BQL	
Vinyl Chloride	4/10/02	1	1	BQL	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	38	96

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-71
Client Project ID: HPFF
Lab Sample ID: 40569
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/10/02	1	1	BQL
Bromoform	4/10/02	1	2	BQL
Bromomethane	4/10/02	1	2	BQL
Carbon tetrachloride	4/10/02	1	1	BQL
Chlorobenzene	4/10/02	1	1	BQL
Chloroethane	4/10/02	1	1	BQL
Chloroform	4/10/02	1	1	BQL
Chloromethane	4/10/02	1	1	BQL
Dibromochloromethane	4/10/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/10/02	1	1	BQL
1,2-Dichlorobenzene	4/10/02	1	1	BQL
1,3-Dichlorobenzene	4/10/02	1	1	BQL
1,4-Dichlorobenzene	4/10/02	1	1	BQL
1,1-Dichloroethane	4/10/02	1	1	BQL
1,2-Dichloroethane	4/10/02	1	1	BQL
1,1-Dichloroethene	4/10/02	1	1	BQL
cis-1,2-Dichloroethene	4/10/02	1	1	BQL
trans-1,2-Dichloroethene	4/10/02	1	1	BQL
1,2-Dichloropropane	4/10/02	1	1	BQL
cis-1,3-Dichloropropene	4/10/02	1	1	BQL
trans-1,3-Dichloropropene	4/10/02	1	1	BQL
Methylene Chloride	4/10/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/10/02	1	1	BQL
Tetrachloroethene	4/10/02	1	1	BQL
1,1,1-Trichloroethane	4/10/02	1	1	BQL
1,1,2-Trichloroethane	4/10/02	1	1	BQL
Trichloroethene	4/10/02	1	1	BQL
Trichlorofluoromethane	4/10/02	1	1	BQL
Vinyl Chloride	4/10/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	39	98

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-69
Client Project ID: HPFF
Lab Sample ID: 40570
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)	
Bromodichloromethane	4/10/02	1	1	BQL	
Bromoform	4/10/02	1	2	BQL	
Bromomethane	4/10/02	1	2	BQL	
Carbon tetrachloride	4/10/02	1	1	BQL	
Chlorobenzene	4/10/02	1	1	BQL	
Chloroethane	4/10/02	1	1	BQL	
Chloroform	4/10/02	1	1	BQL	
Chloromethane	4/10/02	1	1	BQL	
Dibromochloromethane	4/10/02	1	1	BQL	
1,2-Dibromoethane (EDB)	4/10/02	1	1	BQL	
1,2-Dichlorobenzene	4/10/02	1	1	BQL	
1,3-Dichlorobenzene	4/10/02	1	1	BQL	
1,4-Dichlorobenzene	4/10/02	1	1	BQL	
1,1-Dichloroethane	4/10/02	1	1	BQL	
1,2-Dichloroethane	4/10/02	1	1	BQL	
1,1-Dichloroethene	4/10/02	1	1	BQL	
cis-1,2-Dichloroethene	4/10/02	1	1		3
trans-1,2-Dichloroethene	4/10/02	1	1	BQL	
1,2-Dichloropropane	4/10/02	1	1	BQL	
cis-1,3-Dichloropropene	4/10/02	1	1	BQL	
trans-1,3-Dichloropropene	4/10/02	1	1	BQL	
Methylene Chloride	4/10/02	1	5	BQL	
1,1,2,2-Tetrachloroethane	4/10/02	1	1	BQL	
Tetrachloroethene	4/10/02	1	1	BQL	
1,1,1-Trichloroethane	4/10/02	1	1	BQL	
1,1,2-Trichloroethane	4/10/02	1	1	BQL	
Trichloroethene	4/10/02	1	1	BQL	
Trichlorofluoromethane	4/10/02	1	1	BQL	
Vinyl Chloride	4/10/02	1	1	BQL	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	44	109

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: Trip Blank
Client Project ID: HPFF
Lab Sample ID: 40571
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/10/02	1	1	BQL
Bromoform	4/10/02	1	2	BQL
Bromomethane	4/10/02	1	2	BQL
Carbon tetrachloride	4/10/02	1	1	BQL
Chlorobenzene	4/10/02	1	1	BQL
Chloroethane	4/10/02	1	1	BQL
Chloroform	4/10/02	1	1	BQL
Chloromethane	4/10/02	1	1	BQL
Dibromochloromethane	4/10/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/10/02	1	1	BQL
1,2-Dichlorobenzene	4/10/02	1	1	BQL
1,3-Dichlorobenzene	4/10/02	1	1	BQL
1,4-Dichlorobenzene	4/10/02	1	1	BQL
1,1-Dichloroethane	4/10/02	1	1	BQL
1,2-Dichloroethane	4/10/02	1	1	BQL
1,1-Dichloroethene	4/10/02	1	1	BQL
cis-1,2-Dichloroethene	4/10/02	1	1	BQL
trans-1,2-Dichloroethene	4/10/02	1	1	BQL
1,2-Dichloropropane	4/10/02	1	1	BQL
cis-1,3-Dichloropropene	4/10/02	1	1	BQL
trans-1,3-Dichloropropene	4/10/02	1	1	BQL
Methylene Chloride	4/10/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/10/02	1	1	BQL
Tetrachloroethene	4/10/02	1	1	BQL
1,1,1-Trichloroethane	4/10/02	1	1	BQL
1,1,2-Trichloroethane	4/10/02	1	1	BQL
Trichloroethene	4/10/02	1	1	BQL
Trichlorofluoromethane	4/10/02	1	1	BQL
Vinyl Chloride	4/10/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	36	91

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-64
Client Project ID: HPFF
Lab Sample ID: 40559
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/9/02	1	1	**46**
Diisopropyl ether (DIPE)	4/9/02	1	1	**1**
Ethylbenzene	4/9/02	1	1	**9**
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	BQL
Toluene	4/9/02	1	1	**1**
m/p-Xylene	4/9/02	1	2	**10**
o-Xylene	4/9/02	1	2	**5**

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	38	96

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-65
Client Project ID: HPFF
Lab Sample ID: 40560
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/9/02	1	1	**21**
Diisopropyl ether (DIPE)	4/9/02	1	1	BQL
Ethylbenzene	4/9/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	BQL
Toluene	4/9/02	1	1	BQL
m/p-Xylene	4/9/02	1	2	BQL
o-Xylene	4/9/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	38	94

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-61
Client Project ID: HPFF
Lab Sample ID: 40561
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/9/02	1	1	BQL
Diisopropyl ether (DIPE)	4/9/02	1	1	BQL
Ethylbenzene	4/9/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	BQL
Toluene	4/9/02	1	1	1
m/p-Xylene	4/9/02	1	2	BQL
o-Xylene	4/9/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-61D
Client Project ID: HPFF
Lab Sample ID: 40562
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/9/02	1	1	BQL
Diisopropyl ether (DIPE)	4/9/02	1	1	BQL
Ethylbenzene	4/9/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	BQL
Toluene	4/9/02	1	1	1
m/p-Xylene	4/9/02	1	2	BQL
o-Xylene	4/9/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	38	94

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-60
Client Project ID: HPFF
Lab Sample ID: 40563
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	40	40	**3000**
Diisopropyl ether (DIPE)	4/8/02	40	40	**100**
Ethylbenzene	4/8/02	40	40	**75**
Methyl-tert-butyl ether (MTBE)	4/8/02	40	80	BQL
Toluene	4/8/02	40	40	BQL
m/p-Xylene	4/8/02	40	80	BQL
o-Xylene	4/8/02	40	80	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-59
Client Project ID: HPFF
Lab Sample ID: 40564
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	8	8	**210**
Diisopropyl ether (DIPE)	4/8/02	8	8	BQL
Ethylbenzene	4/8/02	8	8	**21**
Methyl-tert-butyl ether (MTBE)	4/8/02	8	16	BQL
Toluene	4/8/02	8	8	**8**
m/p-Xylene	4/8/02	8	16	BQL
o-Xylene	4/8/02	8	16	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-66
Client Project ID: HPFF
Lab Sample ID: 40565
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	40	40	**3000**
Diisopropyl ether (DIPE)	4/8/02	40	40	**910**
Ethylbenzene	4/8/02	40	40	**96**
Methyl-tert-butyl ether (MTBE)	4/8/02	40	80	BQL
Toluene	4/8/02	40	40	**52**
m/p-Xylene	4/8/02	40	80	BQL
o-Xylene	4/8/02	40	80	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-66D
Client Project ID: HPFF
Lab Sample ID: 40566
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	40	40	**3100**
Diisopropyl ether (DIPE)	4/8/02	40	40	**920**
Ethylbenzene	4/8/02	40	40	**99**
Methyl-tert-butyl ether (MTBE)	4/8/02	40	80	BQL
Toluene	4/8/02	40	40	**53**
m/p-Xylene	4/8/02	40	80	BQL
o-Xylene	4/8/02	40	80	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-67
Client Project ID: HPFF
Lab Sample ID: 40567
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/10/02	1	1	BQL
Diisopropyl ether (DIPE)	4/10/02	1	1	BQL
Ethylbenzene	4/10/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/10/02	1	2	BQL
Toluene	4/10/02	1	1	BQL
m/p-Xylene	4/10/02	1	2	BQL
o-Xylene	4/10/02	1	2	BQL

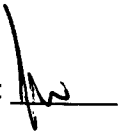
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	42	104

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-70
Client Project ID: HPFF
Lab Sample ID: 40568
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/10/02	1	1	BQL
Diisopropyl ether (DIPE)	4/10/02	1	1	BQL
Ethylbenzene	4/10/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/10/02	1	2	BQL
Toluene	4/10/02	1	1	BQL
m/p-Xylene	4/10/02	1	2	BQL
o-Xylene	4/10/02	1	2	BQL

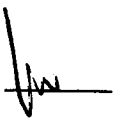
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	103

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-71
Client Project ID: HPFF
Lab Sample ID: 40569
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/10/02	1	1	BQL
Diisopropyl ether (DIPE)	4/10/02	1	1	BQL
Ethylbenzene	4/10/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/10/02	1	2	BQL
Toluene	4/10/02	1	1	BQL
m/p-Xylene	4/10/02	1	2	BQL
o-Xylene	4/10/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	44	109

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-69
Client Project ID: HPFF
Lab Sample ID: 40570
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/10/02	1	1	1
Diisopropyl ether (DIPE)	4/10/02	1	1	1
Ethylbenzene	4/10/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/10/02	1	2	BQL
Toluene	4/10/02	1	1	BQL
m/p-Xylene	4/10/02	1	2	BQL
o-Xylene	4/10/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	97

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: Trip Blank
Client Project ID: HPFF
Lab Sample ID: 40571
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/10/02	1	1	BQL
Diisopropyl ether (DIPE)	4/10/02	1	1	BQL
Ethylbenzene	4/10/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/10/02	1	2	BQL
Toluene	4/10/02	1	1	BQL
m/p-Xylene	4/10/02	1	2	BQL
o-Xylene	4/10/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	103

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-64
Client Project ID: HPFF
Lab Sample ID: 40559
Lab Project ID: G128-899
Matrix: Water

Date Collected: 3/27/2002
Date Received: 3/28/2002
Date Analyzed: 4/4/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.0	80
Nitrobenzene-d5	10	8.6	86
4-Terphenyl-d14	10	8.9	89

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-65
Client Project ID: HPFF
Lab Sample ID: 40560
Lab Project ID: G128-899
Matrix: Water

Date Collected: 3/27/2002
Date Received: 3/28/2002
Date Analyzed: 4/4/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.3	83
Nitrobenzene-d5	10	8.4	84
4-Terphenyl-d14	10	8.9	89

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-61
Client Project ID: HPFF
Lab Sample ID: 40561
Lab Project ID: G128-899
Matrix: Water

Date Collected: 3/27/2002
Date Received: 3/28/2002
Date Analyzed: 4/4/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.7	77
Nitrobenzene-d5	10	7.6	76
4-Terphenyl-d14	10	7.6	76

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-61D
Client Project ID: HPFF
Lab Sample ID: 40562
Lab Project ID: G128-899
Matrix: Water

Date Collected: 3/27/2002
Date Received: 3/28/2002
Date Analyzed: 4/4/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.5	85
Nitrobenzene-d5	10	9.3	93
4-Terphenyl-d14	10	7.7	77

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons
EPA 610 by GCMS 625

Client Sample ID: HPFF-60
Client Project ID: HPFF
Lab Sample ID: 40563
Lab Project ID: G128-899
Matrix: Water

Date Collected: 3/27/2002
Date Received: 3/28/2002
Date Analyzed: 4/4/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	**36**
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.1	81
Nitrobenzene-d5	10	8.9	89
4-Terphenyl-d14	10	9.5	95

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons
EPA 610 by GCMS 625

Client Sample ID: HPFF-59
Client Project ID: HPFF
Lab Sample ID: 40564
Lab Project ID: G128-899
Matrix: Water

Date Collected: 3/27/2002
Date Received: 3/28/2002
Date Analyzed: 4/4/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.1	81
Nitrobenzene-d5	10	8.6	86
4-Terphenyl-d14	10	8.5	85

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-66
Client Project ID: HPFF
Lab Sample ID: 40565
Lab Project ID: G128-899
Matrix: Water

Date Collected: 3/27/2002
Date Received: 3/28/2002
Date Analyzed: 4/4/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.6	76
Nitrobenzene-d5	10	8.0	80
4-Terphenyl-d14	10	9.0	90

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-66D
Client Project ID: HPFF
Lab Sample ID: 40566
Lab Project ID: G128-899
Matrix: Water

Date Collected: 3/27/2002
Date Received: 3/28/2002
Date Analyzed: 4/4/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.4	74
Nitrobenzene-d5	10	7.7	77
4-Terphenyl-d14	10	8.3	83

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-67
Client Project ID: HPFF
Lab Sample ID: 40567
Lab Project ID: G128-899
Matrix: Water

Date Collected: 3/27/2002
Date Received: 3/28/2002
Date Analyzed: 4/4/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.5	75
Nitrobenzene-d5	10	7.7	77
4-Terphenyl-d14	10	9.1	91

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-70
Client Project ID: HPFF
Lab Sample ID: 40568
Lab Project ID: G128-899
Matrix: Water

Date Collected: 3/27/2002
Date Received: 3/28/2002
Date Analyzed: 4/9/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.5	85
Nitrobenzene-d5	10	8.5	85
4-Terphenyl-d14	10	9.3	93

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-71
Client Project ID: HPFF
Lab Sample ID: 40569
Lab Project ID: G128-899
Matrix: Water

Date Collected: 3/27/2002
Date Received: 3/28/2002
Date Analyzed: 4/4/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.4	74
Nitrobenzene-d5	10	8.3	83
4-Terphenyl-d14	10	10.0	100

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-69
Client Project ID: HPFF
Lab Sample ID: 40570
Lab Project ID: G128-899
Matrix: Water

Date Collected: 3/27/2002
Date Received: 3/28/2002
Date Analyzed: 4/4/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.5	75
Nitrobenzene-d5	10	7.4	74
4-Terphenyl-d14	10	9.9	99

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

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

Chain-of Custody Record & Analytical Request

COC# 30522
Page 1 of 2

Client: Catlin
Address: 220 Old Dairy Rd
Address: Wilmington NC 28405
Quote #: 1488

Project ID: HPFF
Contact: Tom Landis
Phone: 452-5861
Fax:

Date: 3-28-02
Turnaround: Standard
Job Number: 201-022
P.O. Number: 220328-2

Report To: Tom Landis
Invoice To: Sheila

Sample ID	Date	Time	Matrix	Preservatives: HCL				Analyses: 601/602	610									Comments: Please specify any special reporting requirements
																		G128-899
HPFF-64	3/27/02	11:37	W	✓				✓	✓									Summary EDD Format
HPFF-65		12:15		✓				✓	✓									
HPFF-61		12:55		✓				✓	✓									
HPFF-61D		12:55		✓				✓	✓									
HPFF-60		1350		✓				✓	✓									
HPFF-59		1423		✓				✓	✓									
HPFF-66		12:30		✓				✓	✓									
HPFF-66D		1200		✓				✓	✓									
HPFF-67		1230		✓				✓	✓									
HPFF-70	↓	1:00	↓	✓				✓	✓									

Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
[signature]	3/28	0922	[signature]	3/28/02	0922	on ice 6.0, 5.8	NC ____ SC ____ Other ____
							SEE REVERSE FOR TERMS AND CONDITIONS

ORIGINAL

PARADIGM ANALYTICAL LABORATORIES, INC.
1627 Northchase Parkway SE, Wilmington, NC 28405
Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 30523

Page 2 of 2

Client: Catlin
Address: 220 Old Dairy Rd
Address: Wilmington NC 28405
Quote #: 1489

Project ID: HPFF
Contact: Tom Landis
Phone: 452-5861
Fax:

Date: 3-28-02
Turnaround: Standard
Job Number: 201-022
P.O. Number: 220328-2

Report To: Tom Landis
Invoice To: Sheila

Sample ID	Date	Time	Matrix	Preservatives: NaOH				Analyses: 601/602	610								Comments: Please specify any special reporting requirements
																	G128-899
HPFF-71	3/27/02	1:00	W	✓				✓	✓								Summary EDD Format
HPFF-69	↓	2:00	↓	✓				✓	✓								
Trip Blank	3/25/02		↓	✓				✓									

Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
[signature]	3/28	0922	[signature]	3/28/02	0922	9.1@ 6.0,5.8	NC ____ SC ____ Other ____

SEE REVERSE FOR TERMS AND CONDITIONS

ORIGINAL

201-022

FILE COPY

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Tom Landis
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

October 2, 2001

Report Number: G128-802

Client Project ID: HPFF

Dear Mr. Landis,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
Mark Randall

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Tom Landis
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

October 15, 2001

Report Number: G128-805

Client Project ID: HPFF

Dear Mr. Landis,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
Mark Randall

FILE COPY

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Tom Landis
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

October 17, 2001

Report Number: G128-812

Client Project ID: HPFF

Dear Mr. Landis,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
Mark Randall

FILE COPY

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Tom Landis
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

October 31, 2001

Report Number: G128-817

Client Project ID: HPFF

Dear Mr. Landis,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
Mark Randall

201-022

FILE COPY

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Tom Landis
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

October 31, 2001

Report Number: G128-816

Client Project ID: HPFF

Dear Mr. Landis,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
Mark Randall

FILE COPY

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Tom Landis
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

December 26, 2001

Report Number: G128-856

Client Project ID: HPFF

Dear Mr. Landis,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
Mark Randall

201-022

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Tom Landis
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

January 3, 2002

Report Number: G128-859

Client Project ID: HPFF

Dear Mr. Landis,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
Mark Randall

201-022

FILE COPY

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Tom Landis
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

January 17, 2002

Report Number: G128-864

Client Project ID: HPFF

Dear Mr. Landis,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
Mark Randall

201-022

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Tom Landis
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

February 21, 2002

Report Number: G128-877

Client Project ID: HPFF

Dear Mr. Landis,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
J. Patrick Weaver

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-43 4-6'	Date Collected:	1/2/02
Client Project ID:	HPFF	Date Received:	1/7/02
Lab Sample ID:	35210	Analyzed By:	BMS
Lab Project ID:	G128-864	%Solids:	83.4
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.2	5030/8015B	1.0	1/8/02
Diesel Range Organics	BQL	7.5	3550/8015B	1.0	1/8/02

Comments:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-43D 4-6'	Date Collected:	1/2/02
Client Project ID:	HPFF	Date Received:	1/7/02
Lab Sample ID:	35211	Analyzed By:	BMS
Lab Project ID:	G128-864	%Solids:	84.3
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.1	5030/8015B	1.0	1/8/02
Diesel Range Organics	BQL	7.0	3550/8015B	1.0	1/8/02

Comments:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-44 0-2	Date Collected:	9/27/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28560	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	91.2
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.6	5030/8015B	1.0	10/3/01
Diesel Range Organics	**17**	6.8	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-44 4-6	Date Collected:	9/27/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28561	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	83.6
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.2	5030/8015B	1.0	10/3/01
Diesel Range Organics	BQL	7.4	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-45 0-2'	Date Collected:	12/20/01
Client Project ID:	HPFF	Date Received:	12/21/01
Lab Sample ID:	34856	Analyzed By:	BMS
Lab Project ID:	G128-859	%Solids:	86.9
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	**10**	6.9	5030/8015B	1.0	12/24/01
Diesel Range Organics	**90**	7.2	3550/8015B	1.0	12/31/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-45D 0-2'	Date Collected:	12/20/01
Client Project ID:	HPFF	Date Received:	12/21/01
Lab Sample ID:	34857	Analyzed By:	BMS
Lab Project ID:	G128-859	%Solids:	86.8
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	**26**	6.9	5030/8015B	1.0	12/28/01
Diesel Range Organics	**65**	7.0	3550/8015B	1.0	1/2/02

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-46 0-2'	Date Collected:	12/21/01
Client Project ID:	HPFF	Date Received:	12/21/01
Lab Sample ID:	34858	Analyzed By:	BMS
Lab Project ID:	G128-859	%Solids:	85.9
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.0	5030/8015B	1.0	12/28/01
Diesel Range Organics	**30**	6.8	3550/8015B	1.0	12/31/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-46D 0-2'	Date Collected:	12/21/01
Client Project ID:	HPFF	Date Received:	12/21/01
Lab Sample ID:	34859	Analyzed By:	BMS
Lab Project ID:	G128-859	%Solids:	83.8
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.2	5030/8015B	1.0	12/28/01
Diesel Range Organics	**119**	7.6	3550/8015B	1.0	12/31/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-47 0-2	Date Collected:	9/27/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28562	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	90.7
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.6	5030/8015B	1.0	10/3/01
Diesel Range Organics	**37**	6.7	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-47 4.5-6.5	Date Collected:	9/27/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28563	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	73.3
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	8.2	5030/8015B	1.0	10/3/01
Diesel Range Organics	BQL	12	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-48 0-2'	Date Collected:	9/21/01
Client Project ID:	HPFF	Date Received:	9/21/01
Lab Sample ID:	28172	Analyzed By:	BMS
Lab Project ID:	G128-802	%Solids:	86.3
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.0	5030/8015B	1.0	9/24/01
Diesel Range Organics	**16**	7.4	3550/8015B	1.0	9/27/01

Comments:

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

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-48 4-5'	Date Collected:	9/21/01
Client Project ID:	HPFF	Date Received:	9/21/01
Lab Sample ID:	28173	Analyzed By:	BMS
Lab Project ID:	G128-802	%Solids:	82.9
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.2	5030/8015B	1.0	9/24/01
Diesel Range Organics	BQL	7.3	3550/8015B	1.0	9/27/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-49 4-6'	Date Collected:	12/19/01
Client Project ID:	HPFF	Date Received:	12/21/01
Lab Sample ID:	34851	Analyzed By:	BMS
Lab Project ID:	G128-859	%Solids:	79.0
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	**400**	38	5030/8015B	5.0	1/2/02
Diesel Range Organics	**282**	43	3550/8015B	5.0	12/31/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-49D 4-6'	Date Collected:	12/19/01
Client Project ID:	HPFF	Date Received:	12/21/01
Lab Sample ID:	34850	Analyzed By:	BMS
Lab Project ID:	G128-859	%Solids:	75.5
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	**89**	7.9	5030/8015B	1.0	12/24/01
Diesel Range Organics	**352**	9.7	3550/8015B	1.0	12/31/01

Comments:

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

Reviewed By: JN

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-50 0-2'	Date Collected:	9/21/01
Client Project ID:	HPFF	Date Received:	9/21/01
Lab Sample ID:	28176	Analyzed By:	BMS
Lab Project ID:	G128-802	%Solids:	84.6
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.1	5030/8015B	1.0	9/24/01
Diesel Range Organics	BQL	7.1	3550/8015B	1.0	9/27/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

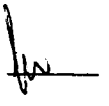
Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-50 2.5-4.5'	Date Collected:	9/21/01
Client Project ID:	HPFF	Date Received:	9/21/01
Lab Sample ID:	28177	Analyzed By:	BMS
Lab Project ID:	G128-802	%Solids:	76.1
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.9	5030/8015B	1.0	9/24/01
Diesel Range Organics	BQL	11	3550/8015B	1.0	9/27/01

Comments:

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

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-51 0-2'	Date Collected:	9/21/01
Client Project ID:	HPFF	Date Received:	9/21/01
Lab Sample ID:	28174	Analyzed By:	BMS
Lab Project ID:	G128-802	%Solids:	85.6
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.0	5030/8015B	1.0	9/24/01
Diesel Range Organics	**10**	7.5	3550/8015B	1.0	9/27/01

Comments:

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

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-51 4-6'	Date Collected:	9/21/01
Client Project ID:	HPFF	Date Received:	9/21/01
Lab Sample ID:	28175	Analyzed By:	BMS
Lab Project ID:	G128-802	%Solids:	89.7
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.7	5030/8015B	1.0	9/24/01
Diesel Range Organics	BQL	6.5	3550/8015B	1.0	9/27/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-53 0-2	Date Collected:	9/28/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28566	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	82.1
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.3	5030/8015B	1.0	10/2/01
Diesel Range Organics	BQL	6.8	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-53 4-6	Date Collected:	9/28/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28567	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	76.4
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.8	5030/8015B	1.0	10/2/01
Diesel Range Organics	BQL	8.5	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-54	Date Collected:	9/18/01
Client Project ID:	HPFF	Date Received:	9/21/01
Lab Sample ID:	28171	Analyzed By:	BMS
Lab Project ID:	G128-802	%Solids:	86.5
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.9	5030/8015B	1.0	9/24/01
Diesel Range Organics	BQL	7.5	3550/8015B	1.0	9/27/01

Comments:

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

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-55	Date Collected:	12/11/01
Client Project ID:	HPFF	Date Received:	12/14/01
Lab Sample ID:	34337	Analyzed By:	BMS
Lab Project ID:	G128-856	%Solids:	89.6
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.7	5030/8015B	1.0	12/20/01
Diesel Range Organics	BQL	6.8	3550/8015B	1.0	12/17/01

Comments:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-56	Date Collected:	12/13/01
Client Project ID:	HPFF	Date Received:	12/14/01
Lab Sample ID:	34338	Analyzed By:	BMS
Lab Project ID:	G128-856	%Solids:	84.1
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.1	5030/8015B	1.0	12/20/01
Diesel Range Organics	BQL	7.4	3550/8015B	1.0	12/17/01

Comments:

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

Reviewed By: MS

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-57 1-3	Date Collected:	10/1/01
Client Project ID:	HPFF	Date Received:	10/5/01
Lab Sample ID:	28966	Analyzed By:	BMS
Lab Project ID:	G128-812	%Solids:	89.9
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.7	5030/8015B	1.0	10/13/01
Diesel Range Organics	BQL	7.4	3550/8015B	1.0	10/10/01

Comments:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-57 5-7	Date Collected:	10/1/01
Client Project ID:	HPFF	Date Received:	10/5/01
Lab Sample ID:	28967	Analyzed By:	BMS
Lab Project ID:	G128-812	%Solids:	83.6
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.2	5030/8015B	1.0	10/13/01
Diesel Range Organics	BQL	7.4	3550/8015B	1.0	10/10/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-58	Date Collected:	12/13/01
Client Project ID:	HPFF	Date Received:	12/14/01
Lab Sample ID:	34335	Analyzed By:	BMS
Lab Project ID:	G128-856	%Solids:	83.7
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	**20**	7.2	5030/8015B	1.0	12/20/01
Diesel Range Organics	**128**	7.2	3550/8015B	1.0	12/17/01

Comments:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-59 1-3'	Date Collected:	1/3/02
Client Project ID:	HPFF	Date Received:	1/7/02
Lab Sample ID:	35212	Analyzed By:	BMS
Lab Project ID:	G128-864	%Solids:	83.8
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.2	5030/8015B	1.0	1/8/02
Diesel Range Organics	BQL	7.1	3550/8015B	1.0	1/8/02

Comments:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-61 0-2	Date Collected:	9/27/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28564	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	86.4
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.9	5030/8015B	1.0	10/3/01
Diesel Range Organics	**10**	7.0	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-61 4-6	Date Collected:	9/27/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28565	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	76.3
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	**51**	7.9	5030/8015B	1.0	10/3/01
Diesel Range Organics	**103**	8.2	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-62 0-2'	Date Collected:	10/18/01
Client Project ID:	HPFF	Date Received:	10/19/01
Lab Sample ID:	30072	Analyzed By:	BMS
Lab Project ID:	G128-816	%Solids:	91.8
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.5	5030/8015B	1.0	10/22/01
Diesel Range Organics	**25**	6.6	3550/8015B	1.0	10/26/01

Comments:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-62 0-2' Dup	Date Collected:	10/18/01
Client Project ID:	HPFF	Date Received:	10/19/01
Lab Sample ID:	30074	Analyzed By:	BMS
Lab Project ID:	G128-816	%Solids:	92.5
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.5	5030/8015B	1.0	10/22/01
Diesel Range Organics	**20**	6.3	3550/8015B	1.0	10/26/01

Comments:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-62 3-5'	Date Collected:	10/18/01
Client Project ID:	HPFF	Date Received:	10/19/01
Lab Sample ID:	30073	Analyzed By:	BMS
Lab Project ID:	G128-816	%Solids:	86.9
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.9	5030/8015B	1.0	10/22/01
Diesel Range Organics	BQL	7.3	3550/8015B	1.0	10/26/01

Comments:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-62 3-5' Dup	Date Collected:	10/18/01
Client Project ID:	HPFF	Date Received:	10/19/01
Lab Sample ID:	30075	Analyzed By:	BMS
Lab Project ID:	G128-816	%Solids:	82.8
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.2	5030/8015B	1.0	10/22/01
Diesel Range Organics	9	8.2	3550/8015B	1.0	10/26/01

Comments:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-63 0-2	Date Collected:	10/1/01
Client Project ID:	HPFF	Date Received:	10/5/01
Lab Sample ID:	28964	Analyzed By:	BMS
Lab Project ID:	G128-812	%Solids:	87.6
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.8	5030/8015B	1.0	10/13/01
Diesel Range Organics	**30**	6.7	3550/8015B	1.0	10/10/01

Comments:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-63 5-7	Date Collected:	10/1/01
Client Project ID:	HPFF	Date Received:	10/5/01
Lab Sample ID:	28965	Analyzed By:	BMS
Lab Project ID:	G128-812	%Solids:	86.7
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.9	5030/8015B	1.0	10/13/01
Diesel Range Organics	BQL	7.6	3550/8015B	1.0	10/10/01

Comments:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

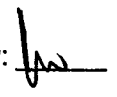
Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-64 0-2	Date Collected:	9/25/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28558	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	49.9
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	12	5030/8015B	1.0	10/3/01
Diesel Range Organics	**30**	12	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-64 3.5-5.5	Date Collected:	9/25/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28559	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	81.5
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	**94**	7.4	5030/8015B	1.0	10/3/01
Diesel Range Organics	**49**	7.4	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-65 0-2'	Date Collected:	12/17/01
Client Project ID:	HPFF	Date Received:	12/21/01
Lab Sample ID:	34860	Analyzed By:	BMS
Lab Project ID:	G128-859	%Solids:	91.8
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.5	5030/8015B	1.0	12/24/01
Diesel Range Organics	**300**	34	3550/8015B	5.0	1/2/02

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-66 0-2	Date Collected:	10/1/01
Client Project ID:	HPFF	Date Received:	10/5/01
Lab Sample ID:	28968	Analyzed By:	BMS
Lab Project ID:	G128-812	%Solids:	90.4
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.6	5030/8015B	1.0	10/13/01
Diesel Range Organics	BQL	6.5	3550/8015B	1.0	10/10/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-67 0-2'	Date Collected:	12/18/01
Client Project ID:	HPFF	Date Received:	12/21/01
Lab Sample ID:	34852	Analyzed By:	BMS
Lab Project ID:	G128-859	%Solids:	88.7
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.8	5030/8015B	1.0	12/28/01
Diesel Range Organics	BQL	6.5	3550/8015B	1.0	12/31/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-67D 0-2'	Date Collected:	12/18/01
Client Project ID:	HPFF	Date Received:	12/21/01
Lab Sample ID:	34853	Analyzed By:	BMS
Lab Project ID:	G128-859	%Solids:	87.4
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.9	5030/8015B	1.0	12/24/01
Diesel Range Organics	**10**	6.8	3550/8015B	1.0	12/31/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-68	Date Collected:	9/18/01
Client Project ID:	HPFF	Date Received:	9/21/01
Lab Sample ID:	28170	Analyzed By:	BMS
Lab Project ID:	G128-802	%Solids:	87.4
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.9	5030/8015B	1.0	9/24/01
Diesel Range Organics	9	6.6	3550/8015B	1.0	9/27/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons by GC 8015B

Client Sample ID:	HPFF-69 0-2	Date Collected:	9/26/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28556	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	80.3
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.5	5030/8015B	1.0	10/3/01
Diesel Range Organics	BQL	7.6	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-69 3.5-5.5	Date Collected:	9/26/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28557	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	184.4
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	3.2	5030/8015B	1.0	10/3/01
Diesel Range Organics	BQL	3.5	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-70 0-2	Date Collected:	9/26/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28554	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	90.5
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.6	5030/8015B	1.0	10/3/01
Diesel Range Organics	BQL	6.9	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-70 3.5-5.5	Date Collected:	9/26/01
Client Project ID:	HPFF	Date Received:	9/28/01
Lab Sample ID:	28555	Analyzed By:	BMS
Lab Project ID:	G128-805	%Solids:	98.5
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.1	5030/8015B	1.0	10/3/01
Diesel Range Organics	BQL	5.8	3550/8015B	1.0	10/2/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-71 4-6'	Date Collected:	12/18/01
Client Project ID:	HPFF	Date Received:	12/21/01
Lab Sample ID:	34854	Analyzed By:	BMS
Lab Project ID:	G128-859	%Solids:	87.8
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.8	5030/8015B	1.0	12/24/01
Diesel Range Organics	BQL	6.6	3550/8015B	1.0	12/31/01

Comments:

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

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	HPFF-71D 4-6'	Date Collected:	12/18/01
Client Project ID:	HPFF	Date Received:	12/21/01
Lab Sample ID:	34855	Analyzed By:	BMS
Lab Project ID:	G128-859	%Solids:	87.8
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.8	5030/8015B	1.0	12/24/01
Diesel Range Organics	BQL	6.2	3550/8015B	1.0	1/2/02

Comments:

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

Reviewed By:

ARADIGM ANALYTICAL LABORATORIES, INC.
527 Northchase Parkway SE, Wilmington, NC 28405
hone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# [illegible]

Page 1 of 1

ient: CatTin
ddress: 220 Dairy Rd
ddress: Wilmington, NC 28403
uote #: 14881

Project ID: HPFF
Contact: Tom Landis
Phone: 452-5861
Fax:

Date: 9-21-01
Turnaround: Standard
Job Number: 201-022
P.O. Number: 210921-1

Report To: Tom Landis
Invoice To: Sheila

Sample ID	Date	Time	Matrix	Preservatives: Ice				Analyses: 5030/8260										Comments: Please specify any special reporting requirements
																		G128-802
HPFF-68	9/18	11:15	S	✓				✓										~~EAD Format~~
HPFF-54	9/18	13:15	S	✓				✓										EDD
HPFF-48 0-2'	9/21	10:00	S	✓				✓										
HPFF-48 4-5'	9/21	10:00	S	✓				✓										
HPFF-51 0-2'	9/21	11:30	S	✓				✓										
HPFF-51 4-6'	9/21	11:30	S	✓				✓										
HPFF-56 0-2	9/21	14:00	S	✓				✓										
HPFF-58 2.5-4.5'	9/21	14:00	S	✓				✓										
Trip Blank	9/21	14:00	S	✓				✓										

Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
[signature]	9/21	4:41	[signature]	9/24/01	4:41	ambient	NC ____ SC ____ Other ____
							SEE REVERSE FOR TERMS AND CONDITIONS

ARADIGM ANALYTICAL LABORATORIES, INC.
527 Northchase Parkway SE, Wilmington, NC 28405
hone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 26791
Page 1 of 2

lient: Catlin Engineers & Scientist
ddress: 220 Old Dairy Rd
ddress: Wilmington, NC 28403
uote #: 1448

Project ID: HPFF
Contact: Tom Landis
Phone: 910-452-5861
Fax:

Date: 9-28-01
Turnaround: Standard
Job Number: 201-022
P.O. Number: 210928-2

Report To: Tom Landis
Invoice To: Sheila

Sample ID	Date	Time	Matrix	Preservatives: Ice	Analyses: 8015/8020	Comments: Please specify any special reporting requirements
						G128-805
HPFF-70 0-2	9/26/01	11:30	S	✓	✓	EDD Format
HPFF-70 3.5-5.5	9/26/01	11:30		✓	✓	
HPFF-69 0-2	9/26/01	10:00		✓	✓	
HPFF-69 3.5-5.5	9/26/01	10:00		✓	✓	
HPFF-64 0-2	9/25/01	10:00		✓	✓	
HPFF-64 7.5-5.5	9/25/01	10:00		✓	✓	
HPFF-44 0-2	9/22/01	10:00		✓	✓	
HPFF-44 4-6	9/22/01	10:00		✓	✓	
HPFF-47 0-2	9/22/01	1340		✓	✓	
HPFF-47 4.5-6.5	9/22/01	1420		✓	✓	

Relinquished By	Date	Time	Received By	Date	Time	Temperature
	9-28	2:15		9/28	2:15	
	9/28	3:40		9/28/01	340	on ice

State Certification Requested

NC ____ SC ____ Other ____

SEE REVERSE FOR TERMS AND CONDITIONS

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

Chain-of Custody Record & Analytical Request

COC# 26792
Page 2 of 2

Client: Catlin Engineers & Scientist | Project ID: HPFF | Date: 9-28-01 | Report To: Tom Landis
Address: 220 Old Dairy Rd | Contact: Tom Landis | Turnaround: Standard
Address: Wilmington, NC 28403 | Phone: 910-452-5861 | Job Number: 201-022
Quote #: 1449 | Fax: | P.O. Number: 210928-2 | Invoice To: Shasta

Sample ID	Date	Time	Matrix	Preservatives: Ice	Analyses: 5030/8260	Comments: Please specify any special reporting requirements
						G128-805
HPFF-61 0-2	9/27/01	1400	S	✓	✓	EDD Format
HPFF-61 4-6	9/27/01	1400	S	✓	✓	
HPFF-53 0-2	9/28/01	1300	S	✓	✓	
HPFF-53 4-6	9/28/01	1300	S	✓	✓	
Trip Blank	9/28/01	1300	S	✓	✓	

Relinquished By	Date	Time	Received By	Date	Time	Temperature
	9-28	2:15		9/28	2:15	
	9/28	3:40	Julie Johnson	9/28/01	3:10	on ice

State Certification Requested
NC ____ SC ____ Other ____

SEE REVERSE FOR TERMS AND CONDITIONS

ARADIGM ANALYTICAL LABORATORIES, INC.
527 Northchase Parkway SE, Wilmington, NC 28405
hone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 26793
Page 1 of 1

lient: Catlin Engineers & Scientist
ddress: 220 Dairy Rd.
ddress: Wilmington, NC 28403
uote #: 1489

Project ID: HPFF
Contact: Tom Landis
Phone: 452-5861
Fax:

Date: 10-5-01
Turnaround: Standard
Job Number: 201-022
P.O. Number: 211005-3

Report To: Tom Landis
Invoice To: Sheila

Sample ID	Date	Time	Matrix	Preservatives: Ice				Analyses: 8020/8260										Comments: Please specify any special reporting requirements
HPFF-63 0-2	10/1	1300	S	✓				✓										EDD Format
HPFF-63 5-7	10/1	1300	S	✓				✓										
HPFF-57 1-3	10/1	1530	S	✓				✓										G128-812
HPFF-57 5-7	10/1	1530	S	✓				✓										
HPFF-66 0-2	10/1	10:00	S	✓				✓										
Trip Blanks	10/1	1300	S	✓				—										

Relinquished By	Date	Time	Received By	Date	Time	Temperature
Chad Cosby	10/5	11:37	Julie Johnson	10/5/01	1137	on ice

State Certification Requested
NC ____ SC ____ Other ____

SEE REVERSE FOR TERMS AND CONDITIONS

ARADIGM ANALYTICAL LABORATORIES, INC.
627 Northchase Parkway SE, Wilmington, NC 28405
hone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 26795

Page 1 of 1

lient: Catlin Engineers & Scientist
ddress: 220 Dairy Rd.
ddress: Wilmington NC 28403
uote #: 1489

Project ID: HPFF
Contact: Tom Landis
Phone: 452-5861
Fax:

Date: 10-19-01
Turnaround: Standard
Job Number: 201-022
P.O. Number: 211019-3

Report To: Tom Landis
Invoice To: Sheila

Sample ID	Date	Time	Matrix	Preservatives				Analyses										Comments: Please specify any special reporting requirements
				~~Unpres~~	Ice			5030/5110										GR8-816
HPFF-62 0-2'	10/18	8:00	S		✓			✓										EDD Format
HPFF-62 3-5'	10/18	8:00	S		✓			✓										
HPFF-62 0-2 Dup	10/18	9:00	S		✓			✓										
HPFF-62 3-5 Dup	10/18	9:00	S		✓			✓										
Trip Blank	10/18	9:00	S		✓			✓										

Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
[signature]	10/19	1:32	Julie Johnson	10/19/01	1:32	on ice	NC ____ SC ____ Other ____
							SEE REVERSE FOR TERMS AND CONDITIONS

ARADIGM ANALYTICAL LABORATORIES, INC.
527 Northchase Parkway SE, Wilmington, NC 28405
hone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 26796

Page 1 of 1

lient: Catlin Engineers & Scientist
ddress: 220 Old Dairy Rd
ddress: Wilmington NC 28403
uote #: 1489

Project ID: HPFF
Contact: Tom Landis
Phone: 452-5861
Fax:

Date: 10-19-01
Turnaround: 5 day
Job Number: 201-022
P.O. Number: 211019-4

Report To: Tom Landis
Invoice To: Sheila

Sample ID	Date	Time	Matrix	Preservatives: Ice	Analyses: 8270/625	Comments: Please specify any special reporting requirements
						G128-817
D-1	10/19	11:00	S	✓	✓	EDD Format
D-2	10/19	11:00	S	✓	✓	- Talk to Tom Landis
D-3	10/19	11:00	S	✓	✓	about Price for testing
						(5 day turnaround)

Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
[signature]	10/19	1:32	[signature]	10/19/01	1:32	ice	NC ____ SC ____ Other ____
							SEE REVERSE FOR TERMS AND CONDITIONS

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

Chain-of Custody Record & Analytical Request

COC# 26798

Page 1 of 1

Client: Cattin Engineers & Scientist | Project ID: HPFF | Date: 12-14-01 | Report To: Tom Landis
Address: 220 Old Dairy Rd. | Contact: Tom Landis | Turnaround: Standard
Address: Wilmington, NC 28405 | Phone: 452-5861 | Job Number: 201-022
Quote #: 1489 | Fax: | P.O. Number: 21214-4 | Invoice To: Sheila @ Cattin

Sample ID	Date	Time	Matrix	Preservatives	Analyses: 8260/8270	Comments: Please specify any special reporting requirements
						G128-856
HPFF-58	12/13	1100	S		1	
HPFF-52	12/12	1030	S		1	Summary EDD
HPFF-55	12/11	1108	S		1	
HPFF-[redacted]56	12/13	1100	S		1	

Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
[signature]	12/14	3:50	[signature]	12/14/01	1550	on ice 6.0°C	NC ____ SC ____ Other ____

SEE REVERSE FOR TERMS AND CONDITIONS

2627 Northchase Parkway SE, Wilmington, NC 28405
Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 26800

Page 1 of 2

Client: Catlin Engineers & Scientist
Address: 220 Old Dairy Rd.
Address: Wilmington NC 28405
Quote #: 1489

Project ID: HPFF
Contact: Tom Landis
Phone: 452-5861
Fax:

Date: 12-21-01
Turnaround: Standard
Job Number: 201-022
P.O. Number: 211221-10

Report To: Tom Landis

Invoice To: Sheila @ Catlin

Sample ID	Date	Time	Matrix	Preservatives				Analyses: 5030/3550	Comments: Please specify any special reporting requirements
HPFF-49D 4-6'	12/19	1150	S					✓	G128-859
HPFF-49 4-6'	12/19	1130	S					✓	Summary EDD
HPFF-67 0-2'	12/18	1300	S					✓	
HPFF-67D 0-2'	12/18	1300	S					✓	
HPFF-71 4-6'	12/18	1030	S					✓	
HPFF-71D 4-6'	12/18	1030	S					✓	
HPFF-45 0-2'	12/20	1100	S					✓	
HPFF-45D 0-2'	12/20	1100	S					✓	
HPFF-46 0-2'	12/21	1000	S					✓	
HPFF-46D 0-2'	12/21	1000	S					✓	

Relinquished By	Date	Time	Received By	Date	Time	Temperature
[signature]	12/21	3:40	Julie Johnson	12/21/01	3:48	on ice 6.0°C

State Certification Requested

NC ____ SC ____ Other ____

SEE REVERSE FOR TERMS AND CONDITIONS

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

Chain-of Custody Record & Analytical Request

COC# 26799

Page 2 of 2

Client: Catlin Engineers & Scientists | Project ID: HPFF | Date: 12-21-01 | Report To: Tom Landis
Address: 220 Old Dairy Rd. | Contact: Tom Landis | Turnaround: Standard
Address: Wilmington NC 28405 | Phone: 452-5861 | Job Number: 201-022
Quote #: 1489 | Fax: | P.O. Number: 011221-10 | Invoice To: Sheila @ Catlin

Sample ID	Date	Time	Matrix	Preservatives				Analyses: 5030/3550									Comments: Please specify any special reporting requirements
																	G128-859
HPFF-65 0-2'	12/17	1200	S					✓									Summary EDD

Relinquished By	Date	Time	Received By	Date	Time	Temperature
[signature]	12/21	3:48	Julie Johnson	12/21/01	3:48	on ice

State Certification Requested

NC ____ SC ____ Other ____

SEE REVERSE FOR TERMS AND CONDITIONS

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

Chain-of Custody Record & Analytical Request

COC# 28750

Page 1 of 1

Client: Catlin Engineers & Scientists | Project ID: HPFF | Date: 1-7-02 | Report To: Tom Landis
Address: 220 Old Dairy Rd | Contact: Tom Landis | Turnaround: Standard
Address: Wilmington, NC 28405 | Phone: 452-5861 | Job Number: 201-022
Quote #: 1489 | Fax: | P.O. Number: 220107-8 | Invoice To: Sheila @ Catlin

Sample ID	Date	Time	Matrix	Preservatives	Analyses: 5030/5550	Comments: Please specify any special reporting requirements
						G128-864
HPFF-43 4-6'	1-2	1030	S		1	Summary EDD
HPFF-43D 4-6'	1-2	1030	S		1	
HPFF-59 2-3'	1-3	1100	S		1	

Relinquished By	Date	Time	Received By	Date	Time	Temperature
	1/3/02	1430		1/7/02	1430	1C - 6.9C WALKIN

State Certification Requested
NC ____ SC ____ Other ____

SEE REVERSE FOR TERMS AND CONDITIONS

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

Chain-of Custody Record & Analytical Request

COC#

Page 1 of 1

Client: Catlin Engineers & Scientists | Project ID: HAFF | Date: 2-15-02 | Report To: Tom Lanlis
Address: 220 Old Dairy Rd | Contact: Tom Lanlis | Turnaround: Standard
Address: Wilmington NC 28405 | Phone: 452-5861 | Job Number: 201-022
Quote #: 1489 | Fax: | P.O. Number: 220215-1 | Invoice To: Sheila

Sample ID	Date	Time	Matrix	Preservatives	Analyses: 5030/8550	Comments: Please specify any special reporting requirements
						G126-877
Dumpster 4	2/11	1000	S		✓	EDD Summary Format

Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
[signature]	2/15	9:18	[signature]	2/15/02	9:18	on ice 5.8°C	NC ____ SC ____ Other ____

SEE REVERSE FOR TERMS AND CONDITIONS

202-021

FILE COPY

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Steve Hudson
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

September 9, 2002

Report Number: G128-992

Client Project ID: Hadnot Point

Dear Mr. Hudson,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
J. Patrick Weaver

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: 78GW31-03
Client Project ID: Hadnot Point
Lab Sample ID: 51650
Lab Project ID: G128-992
Matrix: Water

Date Collected: 8/28/2002
Date Received: 8/28/2002
Date Analyzed: 9/5/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.6	66
Nitrobenzene-d5	10	6.9	69
4-Terphenyl-d14	10	12.3	123

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: 78GW31-02
Client Project ID: Hadnot Point
Lab Sample ID: 51651
Lab Project ID: G128-992
Matrix: Water

Date Collected: 8/28/2002
Date Received: 8/28/2002
Date Analyzed: 9/5/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.2	72
Nitrobenzene-d5	10	6.8	68
4-Terphenyl-d14	10	12.7	127

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 78GW31-03
Client Project ID: Hadnot Point
Lab Sample ID: 51650
Lab Project ID: G128-992

Analyzed By: DCS/CKC
Date Collected: 8/28/02
Date Received: 8/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/30/02	1	1	BQL
Diisopropyl ether (DIPE)	8/30/02	1	1	BQL
Ethylbenzene	8/30/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/30/02	1	2	BQL
Toluene	8/30/02	1	1	BQL
m/p-Xylene	8/30/02	1	2	BQL
o-Xylene	8/30/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 78GW31-02
Client Project ID: Hadnot Point
Lab Sample ID: 51651
Lab Project ID: G128-992

Analyzed By: DCS/CKC
Date Collected: 8/28/02
Date Received: 8/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/30/02	1	1	BQL
Diisopropyl ether (DIPE)	8/30/02	1	1	BQL
Ethylbenzene	8/30/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/30/02	1	2	BQL
Toluene	8/30/02	1	1	BQL
m/p-Xylene	8/30/02	1	2	BQL
o-Xylene	8/30/02	1	2	BQL

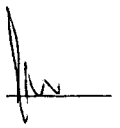
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

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

Chain-of Custody Record & Analytical Request

COC#

Page 1 of 1

Client: CATLIN Engineers & Scientist | Project ID: HADNOT POINT | Date: 8/28/02 | Report To: Steve Hudson @ CATLIN

Address: 2202 Doug Road | Contact: Steve Hudson | Turnaround: STANDARD

Address: Wilmington, NC 28405 | Phone: 452-5861 | Job Number: 202-027

Quote #: DOD #101 | Fax: 452-7563 | P.O. Number: 220828-4 | Invoice To: Sheila @ CATLIN

Sample ID	Date	Time	Matrix	Preservatives: ICE	Preservatives: HCL	Preservatives	Preservatives	Analyses: 610	Analyses: 602+MTBE+xylenes	Analyses	Analyses	Analyses	Analyses	Analyses	Analyses	Comments: Please specify any special reporting requirements
																Camp Lejeune EDD Format Summary EDD Format
78GW31-03	8/28/02	1200	GW	+	+			+	+							
78GW31-02	8/28/02	1330	GW	+	+			+	+							~~GS15-2~~

Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
John Cascalle	8/28/02	1500				ON ICE	NC X SC ____ Other ____
			John Catlin	8/28/02	1500	6.0°C	SEE REVERSE FOR TERMS AND CONDITIONS

FILE COPY

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Steve Hudson
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

August 6, 2002

Report Number: G128-949

Client Project ID: HPFF

Dear Mr. Hudson,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
J. Patrick Weaver

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 1101-01
Client Project ID: HPFF
Lab Sample ID: 49213
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/30/02	1	1	BQL
Diisopropyl ether (DIPE)	7/30/02	1	1	BQL
Ethylbenzene	7/30/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/30/02	1	2	BQL
Toluene	7/30/02	1	1	BQL
m/p-Xylene	7/30/02	1	2	BQL
o-Xylene	7/30/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	99

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: 1101-03
Client Project ID: HPFF
Lab Sample ID: 49214
Lab Project ID: G128-949

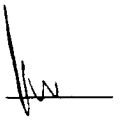
Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	1	1	BQL
Diisopropyl ether (DIPE)	7/31/02	1	1	BQL
Ethylbenzene	7/31/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	1	2	BQL
Toluene	7/31/02	1	1	BQL
m/p-Xylene	7/31/02	1	2	BQL
o-Xylene	7/31/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	99

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 1115-07
Client Project ID: HPFF
Lab Sample ID: 49215
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/30/02	500	500	**6000**
Diisopropyl ether (DIPE)	7/30/02	500	500	BQL
Ethylbenzene	7/30/02	500	500	**2200**
Methyl-tert-butyl ether (MTBE)	7/30/02	500	1000	BQL
Toluene	7/30/02	500	500	**16000**
m/p-Xylene	7/30/02	500	1000	**4800**
o-Xylene	7/30/02	500	1000	**2500**

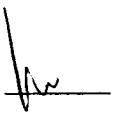
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	99

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: 1115-09
Client Project ID: HPFF
Lab Sample ID: 49216
Lab Project ID: G128-949

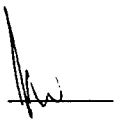
Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	8	8	**140**
Diisopropyl ether (DIPE)	7/31/02	8	8	BQL
Ethylbenzene	7/31/02	8	8	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	8	16	BQL
Toluene	7/31/02	8	8	BQL
m/p-Xylene	7/31/02	8	16	BQL
o-Xylene	7/31/02	8	16	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	99

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: 1115-14
Client Project ID: HPFF
Lab Sample ID: 49217
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	200	200	**6600**
Diisopropyl ether (DIPE)	7/31/02	200	200	**790**
Ethylbenzene	7/31/02	200	200	**390**
Methyl-tert-butyl ether (MTBE)	7/31/02	200	400	BQL
Toluene	7/31/02	200	200	BQL
m/p-Xylene	7/31/02	200	400	BQL
o-Xylene	7/31/02	200	400	**450**

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	98

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 1115-15
Client Project ID: HPFF
Lab Sample ID: 49218
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	80	80	**2300**
Diisopropyl ether (DIPE)	7/31/02	80	80	**1100**
Ethylbenzene	7/31/02	80	80	**280**
Methyl-tert-butyl ether (MTBE)	7/31/02	80	160	BQL
Toluene	7/31/02	80	80	BQL
m/p-Xylene	7/31/02	80	160	BQL
o-Xylene	7/31/02	80	160	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 1115-19
Client Project ID: HPFF
Lab Sample ID: 49219
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/30/02	100	100	**2400**
Diisopropyl ether (DIPE)	7/30/02	100	100	**1500**
Ethylbenzene	7/30/02	100	100	**200**
Methyl-tert-butyl ether (MTBE)	7/30/02	100	200	BQL
Toluene	7/30/02	100	100	BQL
m/p-Xylene	7/30/02	100	200	**250**
o-Xylene	7/30/02	100	200	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 1115-20
Client Project ID: HPFF
Lab Sample ID: 49220
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	800	800	**15000**
Diisopropyl ether (DIPE)	7/31/02	800	800	**7700**
Ethylbenzene	7/31/02	800	800	**1500**
Methyl-tert-butyl ether (MTBE)	7/31/02	800	1600	BQL
Toluene	7/31/02	800	800	**16000**
m/p-Xylene	7/31/02	800	1600	**3600**
o-Xylene	7/31/02	800	1600	**1700**

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	98

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: 78GW-17-02
Client Project ID: HPFF
Lab Sample ID: 49221
Lab Project ID: G128-949

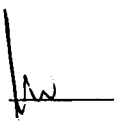
Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	1	1	**2**
Diisopropyl ether (DIPE)	7/31/02	1	1	**3**
Ethylbenzene	7/31/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	1	2	BQL
Toluene	7/31/02	1	1	BQL
m/p-Xylene	7/31/02	1	2	BQL
o-Xylene	7/31/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: GT-08
Client Project ID: HPFF
Lab Sample ID: 49222
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	1	1	BQL
Diisopropyl ether (DIPE)	7/31/02	1	1	BQL
Ethylbenzene	7/31/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	1	2	BQL
Toluene	7/31/02	1	1	BQL
m/p-Xylene	7/31/02	1	2	BQL
o-Xylene	7/31/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: HPFF-01
Client Project ID: HPFF
Lab Sample ID: 49223
Lab Project ID: G128-949

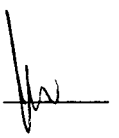
Analyzed By: JTF
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/30/02	1	1	BQL
Diisopropyl ether (DIPE)	7/30/02	1	1	BQL
Ethylbenzene	7/30/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/30/02	1	2	BQL
Toluene	7/30/02	1	1	BQL
m/p-Xylene	7/30/02	1	2	BQL
o-Xylene	7/30/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: HPFF-02
Client Project ID: HPFF
Lab Sample ID: 49224
Lab Project ID: G128-949

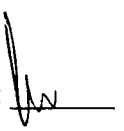
Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	1	1	BQL
Diisopropyl ether (DIPE)	7/31/02	1	1	BQL
Ethylbenzene	7/31/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	1	2	BQL
Toluene	7/31/02	1	1	BQL
m/p-Xylene	7/31/02	1	2	BQL
o-Xylene	7/31/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	98

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-03
Client Project ID: HPFF
Lab Sample ID: 49225
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	1	1	BQL
Diisopropyl ether (DIPE)	7/31/02	1	1	BQL
Ethylbenzene	7/31/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	1	2	BQL
Toluene	7/31/02	1	1	BQL
m/p-Xylene	7/31/02	1	2	BQL
o-Xylene	7/31/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: HPFF-05
Client Project ID: HPFF
Lab Sample ID: 49226
Lab Project ID: G128-949

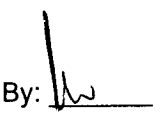
Analyzed By: JTF
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/30/02	1	1	**3**
Diisopropyl ether (DIPE)	7/30/02	1	1	**11**
Ethylbenzene	7/30/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/30/02	1	2	**3**
Toluene	7/30/02	1	1	BQL
m/p-Xylene	7/30/02	1	2	BQL
o-Xylene	7/30/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	101

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-06
Client Project ID: HPFF
Lab Sample ID: 49227
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	1	1	BQL
Diisopropyl ether (DIPE)	7/31/02	1	1	BQL
Ethylbenzene	7/31/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	1	2	BQL
Toluene	7/31/02	1	1	BQL
m/p-Xylene	7/31/02	1	2	BQL
o-Xylene	7/31/02	1	2	BQL

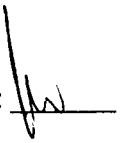
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: HPFF-09
Client Project ID: HPFF
Lab Sample ID: 49228
Lab Project ID: G128-949

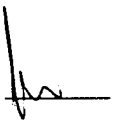
Analyzed By: JTF
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	200	200	**8100**
Diisopropyl ether (DIPE)	7/31/02	200	200	**1300**
Ethylbenzene	7/31/02	200	200	**400**
Methyl-tert-butyl ether (MTBE)	7/31/02	200	400	BQL
Toluene	7/31/02	200	200	BQL
m/p-Xylene	7/31/02	200	400	BQL
o-Xylene	7/31/02	200	400	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-10
Client Project ID: HPFF
Lab Sample ID: 49229
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/30/02	40	40	**580**
Diisopropyl ether (DIPE)	7/30/02	40	40	BQL
Ethylbenzene	7/30/02	40	40	BQL
Methyl-tert-butyl ether (MTBE)	7/30/02	40	80	BQL
Toluene	7/30/02	40	40	BQL
m/p-Xylene	7/30/02	40	80	BQL
o-Xylene	7/30/02	40	80	BQL

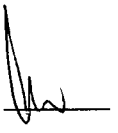
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	99

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: HPFF-11
Client Project ID: HPFF
Lab Sample ID: 49230
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	10	10	**370**
Diisopropyl ether (DIPE)	7/31/02	10	10	BQL
Ethylbenzene	7/31/02	10	10	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	10	20	BQL
Toluene	7/31/02	10	10	BQL
m/p-Xylene	7/31/02	10	20	BQL
o-Xylene	7/31/02	10	20	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	101

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: HPFF-12
Client Project ID: HPFF
Lab Sample ID: 49231
Lab Project ID: G128-949

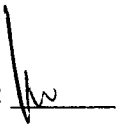
Analyzed By: JTF
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	100	100	**3000**
Diisopropyl ether (DIPE)	7/31/02	100	100	BQL
Ethylbenzene	7/31/02	100	100	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	100	200	BQL
Toluene	7/31/02	100	100	**240**
m/p-Xylene	7/31/02	100	200	BQL
o-Xylene	7/31/02	100	200	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-13
Client Project ID: HPFF
Lab Sample ID: 49232
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	10	10	**160**
Diisopropyl ether (DIPE)	7/31/02	10	10	BQL
Ethylbenzene	7/31/02	10	10	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	10	20	BQL
Toluene	7/31/02	10	10	BQL
m/p-Xylene	7/31/02	10	20	BQL
o-Xylene	7/31/02	10	20	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	99

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: HPFF-31
Client Project ID: HPFF
Lab Sample ID: 49233
Lab Project ID: G128-949

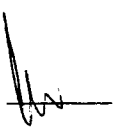
Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	1	1	BQL
Diisopropyl ether (DIPE)	7/31/02	1	1	BQL
Ethylbenzene	7/31/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	1	2	BQL
Toluene	7/31/02	1	1	BQL
m/p-Xylene	7/31/02	1	2	BQL
o-Xylene	7/31/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: HPFF-38
Client Project ID: HPFF
Lab Sample ID: 49234
Lab Project ID: G128-949

Analyzed By: EKR
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	1	1	BQL
Diisopropyl ether (DIPE)	7/31/02	1	1	BQL
Ethylbenzene	7/31/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	1	2	BQL
Toluene	7/31/02	1	1	1
m/p-Xylene	7/31/02	1	2	BQL
o-Xylene	7/31/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-39
Client Project ID: HPFF
Lab Sample ID: 49235
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	1	1	BQL
Diisopropyl ether (DIPE)	7/31/02	1	1	BQL
Ethylbenzene	7/31/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	1	2	BQL
Toluene	7/31/02	1	1	BQL
m/p-Xylene	7/31/02	1	2	BQL
o-Xylene	7/31/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: HPFF-60
Client Project ID: HPFF
Lab Sample ID: 49236
Lab Project ID: G128-949

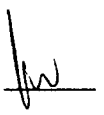
Analyzed By: EKR
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	80	80	**2700**
Diisopropyl ether (DIPE)	7/31/02	80	80	**110**
Ethylbenzene	7/31/02	80	80	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	80	160	BQL
Toluene	7/31/02	80	80	BQL
m/p-Xylene	7/31/02	80	160	BQL
o-Xylene	7/31/02	80	160	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	101

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: HPFF-72
Client Project ID: HPFF
Lab Sample ID: 49237
Lab Project ID: G128-949

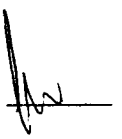
Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/1/02	1000	1000	**21000**
Diisopropyl ether (DIPE)	8/1/02	1000	1000	**2200**
Ethylbenzene	8/1/02	1000	1000	**2800**
Methyl-tert-butyl ether (MTBE)	8/1/02	1000	2000	BQL
Toluene	8/1/02	1000	1000	**33000**
m/p-Xylene	8/1/02	1000	2000	**7600**
o-Xylene	8/1/02	1000	2000	**3300**

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	104

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: MW-03
Client Project ID: HPFF
Lab Sample ID: 49238
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	1	1	BQL
Diisopropyl ether (DIPE)	7/31/02	1	1	BQL
Ethylbenzene	7/31/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	1	2	BQL
Toluene	7/31/02	1	1	BQL
m/p-Xylene	7/31/02	1	2	BQL
o-Xylene	7/31/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	98

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-06
Client Project ID: HPFF
Lab Sample ID: 49239
Lab Project ID: G128-949

Analyzed By: EKR
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	10	10	BQL
Diisopropyl ether (DIPE)	7/31/02	10	10	BQL
Ethylbenzene	7/31/02	10	10	**29**
Methyl-tert-butyl ether (MTBE)	7/31/02	10	20	BQL
Toluene	7/31/02	10	10	**22**
m/p-Xylene	7/31/02	10	20	**59**
o-Xylene	7/31/02	10	20	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	42	104

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: MW-09
Client Project ID: HPFF
Lab Sample ID: 49240
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/17/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	7/31/02	1	1	BQL
Diisopropyl ether (DIPE)	7/31/02	1	1	BQL
Ethylbenzene	7/31/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	7/31/02	1	2	BQL
Toluene	7/31/02	1	1	BQL
m/p-Xylene	7/31/02	1	2	BQL
o-Xylene	7/31/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-19
Client Project ID: HPFF
Lab Sample ID: 49241
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/1/02	16	16	**210**
Diisopropyl ether (DIPE)	8/1/02	16	16	**56**
Ethylbenzene	8/1/02	16	16	**18**
Methyl-tert-butyl ether (MTBE)	8/1/02	16	32	BQL
Toluene	8/1/02	16	16	**250**
m/p-Xylene	8/1/02	16	32	**48**
o-Xylene	8/1/02	16	32	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	99

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-20
Client Project ID: HPFF
Lab Sample ID: 49242
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/1/02	1	1	**4**
Diisopropyl ether (DIPE)	8/1/02	1	1	BQL
Ethylbenzene	8/1/02	1	1	**1**
Methyl-tert-butyl ether (MTBE)	8/1/02	1	2	BQL
Toluene	8/1/02	1	1	**12**
m/p-Xylene	8/1/02	1	2	**3**
o-Xylene	8/1/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: 1115-14 DUP
Client Project ID: HPFF
Lab Sample ID: 49243
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/1/02	200	200	**6700**
Diisopropyl ether (DIPE)	8/1/02	200	200	**810**
Ethylbenzene	8/1/02	200	200	**390**
Methyl-tert-butyl ether (MTBE)	8/1/02	200	400	BQL
Toluene	8/1/02	200	200	BQL
m/p-Xylene	8/1/02	200	400	BQL
o-Xylene	8/1/02	200	400	**450**

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: HPFF-13 DUP
Client Project ID: HPFF
Lab Sample ID: 49244
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/1/02	10	10	**160**
Diisopropyl ether (DIPE)	8/1/02	10	10	BQL
Ethylbenzene	8/1/02	10	10	BQL
Methyl-tert-butyl ether (MTBE)	8/1/02	10	20	BQL
Toluene	8/1/02	10	10	BQL
m/p-Xylene	8/1/02	10	20	BQL
o-Xylene	8/1/02	10	20	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	99

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: 1115-9 DUP
Client Project ID: HPFF
Lab Sample ID: 49245
Lab Project ID: G128-949

Analyzed By: JTF
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/1/02	8	8	**150**
Diisopropyl ether (DIPE)	8/1/02	8	8	BQL
Ethylbenzene	8/1/02	8	8	BQL
Methyl-tert-butyl ether (MTBE)	8/1/02	8	16	BQL
Toluene	8/1/02	8	8	BQL
m/p-Xylene	8/1/02	8	16	BQL
o-Xylene	8/1/02	8	16	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	99

Comments:
All values corrected for dilution.

Flags:
BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: TRIP BLANK
Client Project ID: HPFF
Lab Sample ID: 49246
Lab Project ID: G128-949

Analyzed By: EKR
Date Collected: 7/18/02
Date Received: 7/22/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/1/02	1	1	BQL
Diisopropyl ether (DIPE)	8/1/02	1	1	BQL
Ethylbenzene	8/1/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/1/02	1	2	BQL
Toluene	8/1/02	1	1	BQL
m/p-Xylene	8/1/02	1	2	BQL
o-Xylene	8/1/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	42	104

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: 1101-01
Client Project ID: HPFF
Lab Sample ID: 49213
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/26/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.8	68
Nitrobenzene-d5	10	7.2	72
4-Terphenyl-d14	10	9.8	98

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: 1101-03
Client Project ID: HPFF
Lab Sample ID: 49214
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/26/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

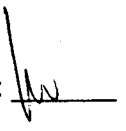
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.0	70
Nitrobenzene-d5	10	7.4	74
4-Terphenyl-d14	10	5.7	57

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons
EPA 610 by GCMS 625

Client Sample ID: 1115-07
Client Project ID: HPFF
Lab Sample ID: 49215
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/26/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	**44**
2-Methylnaphthalene	10	**92**
Naphthalene	10	**350**
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.0	70
Nitrobenzene-d5	10	9.2	92
4-Terphenyl-d14	10	9.4	94

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: 1115-09
Client Project ID: HPFF
Lab Sample ID: 49216
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/26/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

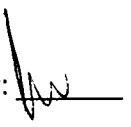
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.6	66
Nitrobenzene-d5	10	7.7	77
4-Terphenyl-d14	10	7.1	71

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: 1115-14
Client Project ID: HPFF
Lab Sample ID: 49217
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/26/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	**13**
Naphthalene	10	**20**
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.5	75
Nitrobenzene-d5	10	8.4	84
4-Terphenyl-d14	10	11.2	112

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: 1115-15
Client Project ID: HPFF
Lab Sample ID: 49218
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/26/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	**11**
Naphthalene	10	**59**
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.4	64
Nitrobenzene-d5	10	6.5	65
4-Terphenyl-d14	10	10.4	104

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: 1115-19
Client Project ID: HPFF
Lab Sample ID: 49219
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/26/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	**29**
Phenanthrene	10	BQL
Pyrene	10	BQL

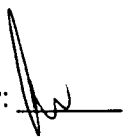
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.7	67
Nitrobenzene-d5	10	7.4	74
4-Terphenyl-d14	10	9.6	96

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: 1115-20
Client Project ID: HPFF
Lab Sample ID: 49220
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/26/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	**13**
Naphthalene	10	**200**
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.8	68
Nitrobenzene-d5	10	8.0	80
4-Terphenyl-d14	10	9.8	98

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: 78GW-17-02
Client Project ID: HPFF
Lab Sample ID: 49221
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/26/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

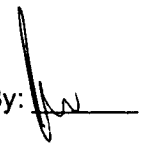
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.1	71
Nitrobenzene-d5	10	7.8	78
4-Terphenyl-d14	10	11.0	110

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: GT-08
Client Project ID: HPFF
Lab Sample ID: 49222
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/26/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

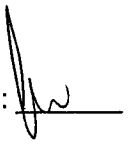
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.0	70
Nitrobenzene-d5	10	7.2	72
4-Terphenyl-d14	10	9.0	90

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-01
Client Project ID: HPFF
Lab Sample ID: 49223
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/29/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

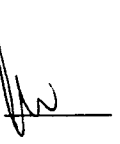
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.1	71
Nitrobenzene-d5	10	7.9	79
4-Terphenyl-d14	10	7.4	74

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-02
Client Project ID: HPFF
Lab Sample ID: 49224
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/29/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.6	66
Nitrobenzene-d5	10	8.1	81
4-Terphenyl-d14	10	4.5	45

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons
EPA 610 by GCMS 625

Client Sample ID: HPFF-03
Client Project ID: HPFF
Lab Sample ID: 49225
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/29/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.4	64
Nitrobenzene-d5	10	7.0	70
4-Terphenyl-d14	10	3.2	32

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons
EPA 610 by GCMS 625

Client Sample ID: HPFF-05
Client Project ID: HPFF
Lab Sample ID: 49226
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/29/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	5.3	53
Nitrobenzene-d5	10	7.4	74
4-Terphenyl-d14	10	2.0	20#

Comments:

Results are corrected for %solids and dilution where applicable.
Surrogate recoveries were confirmed by duplicate analysis.

Flags:

BQL = Below Quantitation Limit.
= Surrogate recovery outside In-House statistical limits.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-06
Client Project ID: HPFF
Lab Sample ID: 49227
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/29/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.0	70
Nitrobenzene-d5	10	8.0	80
4-Terphenyl-d14	10	9.6	96

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-09
Client Project ID: HPFF
Lab Sample ID: 49228
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	**25**
Phenanthrene	10	BQL
Pyrene	10	BQL

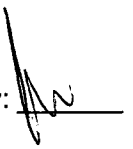
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.8	68
Nitrobenzene-d5	10	8.0	80
4-Terphenyl-d14	10	7.7	77

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-10
Client Project ID: HPFF
Lab Sample ID: 49229
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.2	72
Nitrobenzene-d5	10	8.4	84
4-Terphenyl-d14	10	9.8	98

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-11
Client Project ID: HPFF
Lab Sample ID: 49230
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

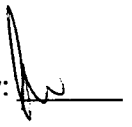
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.1	71
Nitrobenzene-d5	10	8.0	80
4-Terphenyl-d14	10	9.4	94

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-12
Client Project ID: HPFF
Lab Sample ID: 49231
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.9	69
Nitrobenzene-d5	10	7.9	79
4-Terphenyl-d14	10	9.1	91

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-13
Client Project ID: HPFF
Lab Sample ID: 49232
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

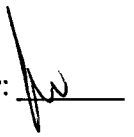
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.8	68
Nitrobenzene-d5	10	8.0	80
4-Terphenyl-d14	10	6.9	69

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons
EPA 610 by GCMS 625

Client Sample ID: HPFF-31
Client Project ID: HPFF
Lab Sample ID: 49233
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.8	68
Nitrobenzene-d5	10	7.8	78
4-Terphenyl-d14	10	6.7	67

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons
EPA 610 by GCMS 625

Client Sample ID: HPFF-38
Client Project ID: HPFF
Lab Sample ID: 49234
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

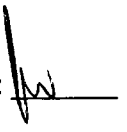
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.3	63
Nitrobenzene-d5	10	7.9	79
4-Terphenyl-d14	10	4.5	45

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons
EPA 610 by GCMS 625

Client Sample ID: HPFF-39
Client Project ID: HPFF
Lab Sample ID: 49235
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.1	71
Nitrobenzene-d5	10	8.4	84
4-Terphenyl-d14	10	6.0	60

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-60
Client Project ID: HPFF
Lab Sample ID: 49236
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	**36**
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.2	72
Nitrobenzene-d5	10	8.1	81
4-Terphenyl-d14	10	9.8	98

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-72
Client Project ID: HPFF
Lab Sample ID: 49237
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	**39**
2-Methylnaphthalene	10	**81**
Naphthalene	10	**450**
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.8	68
Nitrobenzene-d5	10	9.7	97
4-Terphenyl-d14	10	8.5	85

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-03
Client Project ID: HPFF
Lab Sample ID: 49238
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.1	71
Nitrobenzene-d5	10	8.0	80
4-Terphenyl-d14	10	7.0	70

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-06
Client Project ID: HPFF
Lab Sample ID: 49239
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	**21**
2-Methylnaphthalene	10	**55**
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.6	66
Nitrobenzene-d5	10	9.4	94
4-Terphenyl-d14	10	8.3	83

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-09
Client Project ID: HPFF
Lab Sample ID: 49240
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/17/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.1	71
Nitrobenzene-d5	10	8.3	83
4-Terphenyl-d14	10	9.8	98

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-19
Client Project ID: HPFF
Lab Sample ID: 49241
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.6	66
Nitrobenzene-d5	10	7.1	71
4-Terphenyl-d14	10	6.4	64

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-20
Client Project ID: HPFF
Lab Sample ID: 49242
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.1	71
Nitrobenzene-d5	10	7.8	78
4-Terphenyl-d14	10	9.2	92

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: 1115-9 DUP
Client Project ID: HPFF
Lab Sample ID: 49245
Lab Project ID: G128-949
Matrix: Water

Date Collected: 7/18/2002
Date Received: 7/22/2002
Date Analyzed: 7/30/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.7	67
Nitrobenzene-d5	10	8.3	83
4-Terphenyl-d14	10	4.6	46

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

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

Chain-of-Custody Record & Analytical Request

Client: CATLIN
Company: CATLIN Engineers & Scientists
Address: P.O. Box 10279, Wilmington, NC 28404-0279

Project ID: HPFF
P.O. Number: 220719-3
Contact: Steve Hudson
Phone: (910) 452-5861

Date: 7/19/02
Turnaround: Standard
Job Number: 202-027
Page 1 **of** 3

Sample ID	Date	Time	Matrix	Preservatives: HCL/ICE		Analyses: 602+MTB+XYLENES	610							Comments:
1101-01	7/17/02	1510	Water	X		X	X							G128-949 SUMMARY EDD & LEJEUNE EDD Quote # DOD101
1101-03	7/18/02	1025	Water	X		X	X							
1115-07	7/17/02	1600	Water	X		X	X							
1115-09	7/18/02	930	Water	X		X	X							
1115-14	7/18/02	950	Water	X		X	X							
1115-15	7/18/02	1030	Water	X		X	X							
1115-19	7/17/02	1625	Water	X		X	X							
1115-20	7/18/02	1100	Water	X		X	X							
78GW-17-02	7/18/02	1135	Water	X		X	X							
JC ~~78GW-31-02~~	~~7/ /02~~	~~——~~	~~Water~~	~~X~~		~~X~~	~~X~~	No Sample Taken						
JC ~~78GW-31-03~~	~~7/ /02~~	~~——~~	~~Water~~	~~X~~		~~X~~	~~X~~	No Sample Taken						
GT-08	7/18/02	950	Water	X		X	X							
HPFF-01	7/17/02	1700	Water	X		X	X							

	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
Gabriel Cascella	7/19/02	1200		7/19/02	1200	on ice	NC _X_ SC ____ Other ____
	7/22/02	8:05		7/22/02	805	on ice 6 coolers below 5.8 @ 6.0°C	

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

Chain-of-Custody Record & Analytical Request

Client: CATLIN
Company: CATLIN Engineers & Scientists
Address: P.O. Box 10279
Wilmington, NC 28404-0279

Project ID: HPFF
P.O. Number: 220719-3
Contact: Steve Hudson
Phone: (910) 452-5861

Date: 7/19/02
Turnaround: Standard
Job Number: 202-027
Page 2 **of** 3

Sample ID	Date	Time	Matrix	Preservatives: HCL/ICE	Preservatives:	Analyses: 602+MTB+ XYLENES	Analyses: 610	Analyses:	Analyses:	Analyses:	Analyses:	Analyses:	Analyses:	Analyses:	Comments:
															G128-949 SUMMARY EDD & LEJEUNE EDD
HPFF-02	7/18/02	1400	Water	X		X	X								Quote # DOD104
HPFF-03	7/18/02	1100	Water	X		X	X								
HPFF-05	7/17/02	1426	Water	X		X	X								
HPFF-06	7/18/02	1210	Water	X		X	X								
HPFF-09	7/17/02	1523	Water	X		X	X								
HPFF-10	7/17/02	1315	Water	X		X	X								
HPFF-11	7/17/02	1315	Water	X		X	X								
HPFF-12	7/17/02	1540	Water	X		X	X								
HPFF-13	7/18/02	1125	Water	X		X	X								
JC ~~HPFF-22~~	~~7/18/02~~	~~—~~	~~Water~~	~~X~~		~~X~~	~~X~~	No Sample Taken							
JC ~~HPFF-25~~	~~7/18/02~~	~~—~~	~~Water~~	~~X~~		~~X~~	~~X~~	No Sample Taken							
HPFF-31	7/18/02	1045	Water	X		X	X								
HPFF-38	7/17/02	1633	Water	X		X	X								

Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
John Cassella	7/19/02	1200					NC _X_ SC ____ Other ____
	7/22/02	8:05		7/23/02	0805	ON ICE 6 coolers Between 5-8 deg C	

PARADIGM ANALYTICAL LABORATORIES
2627 Northchase Parkway SE, Wilmington, NC 28405
Chain-of-Custody Record & Analytical Request

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

Client:	CATLIN	**Project ID:**	HPFF	**Date:**	7/19/02
Company:	CATLIN Engineers & Scientists	**P.O. Number:**	220719-3	**Turnaround:**	Standard
Address:	P.O. Box 10279	**Contact:**	Steve Hudson	**Job Number:**	202-027
	Wilmington, NC 28404-0279	**Phone:**	(910) 452-5861	**Page**	3 of 3

Sample ID	Date	Time	Matrix	Preservatives: HCL/ICE	Preservatives:	Analyses: 602+MTB+ XYLENES	Analyses: 610	Analyses:	Analyses:	Analyses:	Analyses:	Analyses:	Analyses:	Analyses:	Comments:
															G128-949 SUMMARY EDD & LEJEUNE EDD
HPFF-39	7/18/02	1015	Water	X		X	X								Quote # DOD 101
HPFF-60	7/17/02	1410	Water	X		X	X								
HPFF-72	7/18/02	945	Water	X		X	X								
MW-03	7/17/02	1648	Water	X		X	X								
MW-06	7/17/02	1605	Water	X		X	X								
MW-09	7/17/02	1714	Water	X		X	X								
MW-19	7/18/02	1025	Water	X		X	X								
* MW-20	7/18/02	1330	Water	X		X	X								
1115-14 DUP	7/18/02	950	Water	X		X									
HPFF13 DUP	7/18/02	1125	Water	X		X									
1115-9 DUP	7/18/02	930	Water	X		X									
1115-9 DUP	7/18/02	930	Water	X			X								
TRIP BLANK	7/18/02	—	Water	X		X									

	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
Robert Cascalle	7/19/02	1200				ON ICE	NC _X_ SC ____ Other ____
	7/22/02	8:05		7/22/02	0805	6 coolers Between 5.8 & 6.0°	

FILE COPY 201-088

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Tom Landis
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

May 24, 2002

Report Number: G128-898

Client Project ID: HPFF

RE: Additional data

Dear Mr. Landis,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
J. Patrick Weaver

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-49
Client Project ID: HPFF
Lab Sample ID: 40436
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	1	1	BQL
Bromoform	4/9/02	1	2	BQL
Bromomethane	4/9/02	1	2	BQL
Carbon tetrachloride	4/9/02	1	1	BQL
Chlorobenzene	4/9/02	1	1	BQL
Chloroethane	4/9/02	1	1	BQL
Chloroform	4/9/02	1	1	BQL
Chloromethane	4/9/02	1	1	BQL
Dibromochloromethane	4/9/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL
1,2-Dichlorobenzene	4/9/02	1	1	BQL
1,3-Dichlorobenzene	4/9/02	1	1	BQL
1,4-Dichlorobenzene	4/9/02	1	1	BQL
1,1-Dichloroethane	4/9/02	1	1	BQL
1,2-Dichloroethane	4/9/02	1	1	BQL
1,1-Dichloroethene	4/9/02	1	1	BQL
cis-1,2-Dichloroethene	4/9/02	1	1	see 8:1 run
trans-1,2-Dichloroethene	4/9/02	1	1	BQL
1,2-Dichloropropane	4/9/02	1	1	BQL
cis-1,3-Dichloropropene	4/9/02	1	1	BQL
trans-1,3-Dichloropropene	4/9/02	1	1	BQL
Methylene Chloride	4/9/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL
Tetrachloroethene	4/9/02	1	1	BQL
1,1,1-Trichloroethane	4/9/02	1	1	BQL
1,1,2-Trichloroethane	4/9/02	1	1	BQL
Trichloroethene	4/9/02	1	1	BQL
Trichlorofluoromethane	4/9/02	1	1	BQL
Vinyl Chloride	4/9/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	35	87

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-49
Client Project ID: HPFF
Lab Sample ID: 40436
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
cis-1,2-Dichloroethene	4/9/02	8	8	**130**

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	39	97

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC/MS Screening

Client Sample ID: HPFF-45
Client Project ID: HPFF
Lab Sample ID: 40437
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

The following data was generated from a GC/MS screening run, not a certified method. The data, while qualitatively correct, provides only estimated concentrations.

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)	
Bromodichloromethane	3/27/02	1	1		1
Bromoform	3/27/02	1	2	BQL	
Bromomethane	3/27/02	1	2	BQL	
Carbon tetrachloride	3/27/02	1	1	BQL	
Chlorobenzene	3/27/02	1	1	BQL	
Chloroethane	3/27/02	1	1	BQL	
Chloroform	3/27/02	1	1		9
Chloromethane	3/27/02	1	1	BQL	
Dibromochloromethane	3/27/02	1	1	BQL	
1,2-Dibromoethane (EDB)	3/27/02	1	1	BQL	
1,2-Dichlorobenzene	3/27/02	1	1	BQL	
1,3-Dichlorobenzene	3/27/02	1	1	BQL	
1,4-Dichlorobenzene	3/27/02	1	1	BQL	
1,1-Dichloroethane	3/27/02	1	1	BQL	
1,2-Dichloroethane	3/27/02	1	1	BQL	
1,1-Dichloroethene	3/27/02	1	1	BQL	
trans-1,2-Dichloroethene	3/27/02	1	1	BQL	
1,2-Dichloropropane	3/27/02	1	1	BQL	
cis-1,3-Dichloropropene	3/27/02	1	1	BQL	
trans-1,3-Dichloropropene	3/27/02	1	1	BQL	
Methylene Chloride	3/27/02	1	5	BQL	
1,1,2,2-Tetrachloroethane	3/27/02	1	1	BQL	
Tetrachloroethene	3/27/02	1	1	BQL	
1,1,1-Trichloroethane	3/27/02	1	1	BQL	
1,1,2-Trichloroethane	3/27/02	1	1	BQL	
Trichlorofluoromethane	3/27/02	1	1	BQL	
Vinyl Chloride	3/27/02	1	1	BQL	

Flags:

BQL = Below quantitation limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC/MS Screening

Client Sample ID: HPFF-45
Client Project ID: HPFF
Lab Sample ID: 40437
Lab Project ID: G128-898

Analyzed By: EES
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

The following data was generated from a GC/MS screening run, not a certified method. The data, while qualitatively correct, provides only estimated concentrations.

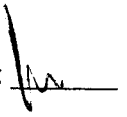
Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Ethylbenzene	3/27/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	3/27/02	1	2	BQL
Toluene	3/27/02	1	1	BQL
m/p-Xylene	3/27/02	1	2	BQL
o-Xylene	3/27/02	1	1	BQL

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC/MS Screening

Client Sample ID: HPFF-47
Client Project ID: HPFF
Lab Sample ID: 40439
Lab Project ID: G128-898

Analyzed By: EES
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

The following data was generated from a GC/MS screening run, not a certified method. The data, while qualitatively correct, provides only estimated concentrations.

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Ethylbenzene	3/27/02	1	1	4
Methyl-tert-butyl ether (MTBE)	3/27/02	1	2	BQL
Toluene	3/27/02	1	1	2
m/p-Xylene	3/27/02	1	2	BQL
o-Xylene	3/27/02	1	1	BQL

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC/MS Screening

Client Sample ID: HPFF-47
Client Project ID: HPFF
Lab Sample ID: 40439
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

The following data was generated from a GC/MS screening run, not a certified method. The data, while qualitatively correct, provides only estimated concentrations.

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	3/27/02	1	1	BQL
Bromoform	3/27/02	1	2	BQL
Bromomethane	3/27/02	1	2	BQL
Carbon tetrachloride	3/27/02	1	1	BQL
Chlorobenzene	3/27/02	1	1	BQL
Chloroethane	3/27/02	1	1	BQL
Chloroform	3/27/02	1	1	BQL
Chloromethane	3/27/02	1	1	BQL
Dibromochloromethane	3/27/02	1	1	BQL
1,2-Dibromoethane (EDB)	3/27/02	1	1	BQL
1,2-Dichlorobenzene	3/27/02	1	1	BQL
1,3-Dichlorobenzene	3/27/02	1	1	BQL
1,4-Dichlorobenzene	3/27/02	1	1	BQL
1,1-Dichloroethane	3/27/02	1	1	BQL
1,2-Dichloroethane	3/27/02	1	1	**90**
1,1-Dichloroethene	3/27/02	1	1	**3**
trans-1,2-Dichloroethene	3/27/02	1	1	**7**
1,2-Dichloropropane	3/27/02	1	1	**12**
cis-1,3-Dichloropropene	3/27/02	1	1	BQL
trans-1,3-Dichloropropene	3/27/02	1	1	BQL
Methylene Chloride	3/27/02	1	5	BQL
1,1,2,2-Tetrachloroethane	3/27/02	1	1	BQL
Tetrachloroethene	3/27/02	1	1	BQL
1,1,1-Trichloroethane	3/27/02	1	1	BQL
1,1,2-Trichloroethane	3/27/02	1	1	BQL
Trichlorofluoromethane	3/27/02	1	1	BQL
Vinyl Chloride	3/27/02	1	1	BQL

Flags:

BQL = Below quantitation limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC/MS Screening

Client Sample ID: HPFF-72
Client Project ID: HPFF
Lab Sample ID: 40441
Lab Project ID: G128-898

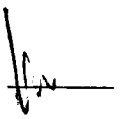
Analyzed By: EKR
Date Collected: 03/25/02
Date Received: 03/27/02
Matrix: Water

The following data was generated from a GC/MS screening run, not a certified method. The data, while qualitatively correct, provides only estimated concentrations.

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	3/27/02	1	1	BQL
Bromoform	3/27/02	1	2	BQL
Bromomethane	3/27/02	1	2	BQL
Carbon tetrachloride	3/27/02	1	1	BQL
Chlorobenzene	3/27/02	1	1	BQL
Chloroethane	3/27/02	1	1	BQL
Chloroform	3/27/02	1	1	BQL
Chloromethane	3/27/02	1	1	BQL
Dibromochloromethane	3/27/02	1	1	BQL
1,2-Dibromoethane (EDB)	3/27/02	1	1	BQL
1,2-Dichlorobenzene	3/27/02	1	1	BQL
1,3-Dichlorobenzene	3/27/02	1	1	BQL
1,4-Dichlorobenzene	3/27/02	1	1	BQL
1,1-Dichloroethane	3/27/02	1	1	BQL
1,1-Dichloroethene	3/27/02	1	1	BQL
cis-1,2-Dichloroethene	3/27/02	1	1	BQL
trans-1,2-Dichloroethene	3/27/02	1	1	BQL
1,2-Dichloropropane	3/27/02	1	1	BQL
cis-1,3-Dichloropropene	3/27/02	1	1	BQL
trans-1,3-Dichloropropene	3/27/02	1	1	BQL
Methylene Chloride	3/27/02	1	5	BQL
1,1,2,2-Tetrachloroethane	3/27/02	1	1	BQL
Tetrachloroethene	3/27/02	1	1	BQL
1,1,1-Trichloroethane	3/27/02	1	1	BQL
1,1,2-Trichloroethane	3/27/02	1	1	BQL
Trichloroethene	3/27/02	1	1	BQL
Trichlorofluoromethane	3/27/02	1	1	BQL
Vinyl Chloride	3/27/02	1	1	BQL

Flags:

BQL = Below quantitation limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC/MS Screening

Client Sample ID: HPFF-72
Client Project ID: HPFF
Lab Sample ID: 40441
Lab Project ID: G128-898

Analyzed By: EES
Date Collected: 3/25/02
Date Received: 3/27/02
Matrix: Water

The following data was generated from a GC/MS screening run, not a certified method. The data, while qualitatively correct, provides only estimated concentrations.

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Methyl-tert-butyl ether (MTBE)	3/27/02	1	2	BQL
o-Xylene	3/27/02	1	1	**1300**

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-57
Client Project ID: HPFF
Lab Sample ID: 40450
Lab Project ID: G128-898

Analyzed By: CKC
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/9/02	1	1	see 40:1 run
Diisopropyl ether (DIPE)	4/9/02	1	1	see 40:1 run
Ethylbenzene	4/9/02	1	1	**21**
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	**9**
Toluene	4/9/02	1	1	BQL
m/p-Xylene	4/9/02	1	2	**2**
o-Xylene	4/9/02	1	2	BQL

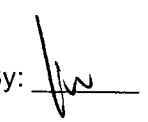
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	46	114

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-57
Client Project ID: HPFF
Lab Sample ID: 40450
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	40	40	**3100**
Diisopropyl ether (DIPE)	4/8/02	40	40	**250**

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

201-022

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PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Tom Landis
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

May 24, 2002

Report Number: G128-899

Client Project ID: HPFF

RE: Additional data

Dear Mr. Landis,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
J. Patrick Weaver

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-60
Client Project ID: HPFF
Lab Sample ID: 40563
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	40	40	**3000**
Diisopropyl ether (DIPE)	4/8/02	40	40	**100**
Ethylbenzene	4/8/02	40	40	**75**

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-60
Client Project ID: HPFF
Lab Sample ID: 40563
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	**9**
Toluene	4/9/02	1	1	BQL
m/p-Xylene	4/9/02	1	2	**10**
o-Xylene	4/9/02	1	2	**2**

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	43	108

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-59
Client Project ID: HPFF
Lab Sample ID: 40564
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/9/02	1	1	see 8:1 run
Diisopropyl ether (DIPE)	4/9/02	1	1	3
Ethylbenzene	4/9/02	1	1	see 8:1 run
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	BQL
Toluene	4/9/02	1	1	see 8:1 run
m/p-Xylene	4/9/02	1	2	3
o-Xylene	4/9/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-59
Client Project ID: HPFF
Lab Sample ID: 40564
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	8	8	**210**
Ethylbenzene	4/8/02	8	8	**21**
Toluene	4/8/02	8	8	**8**

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC/MS Screening

Client Sample ID: HPFF-66
Client Project ID: HPFF
Lab Sample ID: 40565
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

The following data was generated from a GC/MS screening run, not a certified method. The data, while qualitatively correct, provides only estimated concentrations.

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	3/31/02	1	1	BQL
Bromoform	3/31/02	1	2	BQL
Bromomethane	3/31/02	1	2	BQL
Carbon tetrachloride	3/31/02	1	1	BQL
Chlorobenzene	3/31/02	1	1	BQL
Chloroethane	3/31/02	1	1	BQL
Chloroform	3/31/02	1	1	BQL
Chloromethane	3/31/02	1	1	BQL
Dibromochloromethane	3/31/02	1	1	BQL
1,2-Dibromoethane (EDB)	3/31/02	1	1	BQL
1,2-Dichlorobenzene	3/31/02	1	1	BQL
1,3-Dichlorobenzene	3/31/02	1	1	BQL
1,4-Dichlorobenzene	3/31/02	1	1	BQL
1,1-Dichloroethane	3/31/02	1	1	BQL
1,1-Dichloroethene	3/31/02	1	1	BQL
cis-1,2-Dichloroethene	3/31/02	1	1	BQL
trans-1,2-Dichloroethene	3/31/02	1	1	BQL
1,2-Dichloropropane	3/31/02	1	1	2
cis-1,3-Dichloropropene	3/31/02	1	1	BQL
trans-1,3-Dichloropropene	3/31/02	1	1	BQL
Methylene Chloride	3/31/02	1	5	BQL
1,1,2,2-Tetrachloroethane	3/31/02	1	1	BQL
Tetrachloroethene	3/31/02	1	1	1
1,1,1-Trichloroethane	3/31/02	1	1	BQL
1,1,2-Trichloroethane	3/31/02	1	1	BQL
Trichloroethene	3/31/02	1	1	2
Trichlorofluoromethane	3/31/02	1	1	BQL
Vinyl Chloride	3/31/02	1	1	BQL

Flags:

BQL = Below quantitation limit.

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC/MS Screening

Client Sample ID: HPFF-66
Client Project ID: HPFF
Lab Sample ID: 40565
Lab Project ID: G128-899

Analyzed By: EES
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

The following data was generated from a GC/MS screening run, not a certified method. The data, while qualitatively correct, provides only estimated concentrations.

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Methyl-tert-butyl ether (MTBE)	3/31/02	1	2	BQL
m/p-Xylene	3/31/02	1	2	**4**
o-Xylene	3/31/02	1	1	**2**

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC/MS Screening

Client Sample ID: HPFF-66D
Client Project ID: HPFF
Lab Sample ID: 40566
Lab Project ID: G128-899

Analyzed By: EKR
Date Collected: 03/27/02
Date Received: 03/28/02
Matrix: Water

The following data was generated from a GC/MS screening run, not a certified method. The data, while qualitatively correct, provides only estimated concentrations.

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)	
Bromodichloromethane	3/31/02	1	1	BQL	
Bromoform	3/31/02	1	2	BQL	
Bromomethane	3/31/02	1	2	BQL	
Carbon tetrachloride	3/31/02	1	1	BQL	
Chlorobenzene	3/31/02	1	1	BQL	
Chloroethane	3/31/02	1	1	BQL	
Chloroform	3/31/02	1	1	BQL	
Chloromethane	3/31/02	1	1	BQL	
Dibromochloromethane	3/31/02	1	1	BQL	
1,2-Dibromoethane (EDB)	3/31/02	1	1	BQL	
1,2-Dichlorobenzene	3/31/02	1	1	BQL	
1,3-Dichlorobenzene	3/31/02	1	1	BQL	
1,4-Dichlorobenzene	3/31/02	1	1	BQL	
1,1-Dichloroethane	3/31/02	1	1	BQL	
1,1-Dichloroethene	3/31/02	1	1	BQL	
cis-1,2-Dichloroethene	3/31/02	1	1	BQL	
trans-1,2-Dichloroethene	3/31/02	1	1	BQL	
1,2-Dichloropropane	3/31/02	1	1		2
cis-1,3-Dichloropropene	3/31/02	1	1	BQL	
trans-1,3-Dichloropropene	3/31/02	1	1	BQL	
Methylene Chloride	3/31/02	1	5	BQL	
1,1,2,2-Tetrachloroethane	3/31/02	1	1	BQL	
Tetrachloroethene	3/31/02	1	1		1
1,1,1-Trichloroethane	3/31/02	1	1	BQL	
1,1,2-Trichloroethane	3/31/02	1	1	BQL	
Trichloroethene	3/31/02	1	1		2
Trichlorofluoromethane	3/31/02	1	1	BQL	
Vinyl Chloride	3/31/02	1	1	BQL	

Flags:

BQL = Below quantitation limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC/MS Screening

Client Sample ID: HPFF-66D
Client Project ID: HPFF
Lab Sample ID: 40566
Lab Project ID: G128-899

Analyzed By: EES
Date Collected: 3/27/02
Date Received: 3/28/02
Matrix: Water

The following data was generated from a GC/MS screening run, not a certified method. The data, while qualitatively correct, provides only estimated concentrations.

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Methyl-tert-butyl ether (MTBE)	3/31/02	1	2	BQL
m/p-Xylene	3/31/02	1	2	**4**
o-Xylene	3/31/02	1	1	**2**

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

FILE COPY

Rc 4/15/02
MF

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Tom Landis
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

April 15, 2002

Report Number: G128-898

Client Project ID: HPFF

Dear Mr. Landis,

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

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
J. Patrick Weaver

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-43
Client Project ID: HPFF
Lab Sample ID: 40434
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/8/02	1	1	BQL
Bromoform	4/8/02	1	2	BQL
Bromomethane	4/8/02	1	2	BQL
Carbon tetrachloride	4/8/02	1	1	BQL
Chlorobenzene	4/8/02	1	1	BQL
Chloroethane	4/8/02	1	1	BQL
Chloroform	4/8/02	1	1	BQL
Chloromethane	4/8/02	1	1	BQL
Dibromochloromethane	4/8/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/8/02	1	1	BQL
1,2-Dichlorobenzene	4/8/02	1	1	BQL
1,3-Dichlorobenzene	4/8/02	1	1	BQL
1,4-Dichlorobenzene	4/8/02	1	1	BQL
1,1-Dichloroethane	4/8/02	1	1	BQL
1,2-Dichloroethane	4/8/02	1	1	BQL
1,1-Dichloroethene	4/8/02	1	1	BQL
cis-1,2-Dichloroethene	4/8/02	1	1	1
trans-1,2-Dichloroethene	4/8/02	1	1	BQL
1,2-Dichloropropane	4/8/02	1	1	BQL
cis-1,3-Dichloropropene	4/8/02	1	1	BQL
trans-1,3-Dichloropropene	4/8/02	1	1	BQL
Methylene Chloride	4/8/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/8/02	1	1	BQL
Tetrachloroethene	4/8/02	1	1	BQL
1,1,1-Trichloroethane	4/8/02	1	1	BQL
1,1,2-Trichloroethane	4/8/02	1	1	BQL
Trichloroethene	4/8/02	1	1	BQL
Trichlorofluoromethane	4/8/02	1	1	BQL
Vinyl Chloride	4/8/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	23	59

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-44
Client Project ID: HPFF
Lab Sample ID: 40435
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/8/02	1	1	BQL
Bromoform	4/8/02	1	2	BQL
Bromomethane	4/8/02	1	2	BQL
Carbon tetrachloride	4/8/02	1	1	BQL
Chlorobenzene	4/8/02	1	1	BQL
Chloroethane	4/8/02	1	1	BQL
Chloroform	4/8/02	1	1	BQL
Chloromethane	4/8/02	1	1	BQL
Dibromochloromethane	4/8/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/8/02	1	1	BQL
1,2-Dichlorobenzene	4/8/02	1	1	BQL
1,3-Dichlorobenzene	4/8/02	1	1	BQL
1,4-Dichlorobenzene	4/8/02	1	1	BQL
1,1-Dichloroethane	4/8/02	1	1	BQL
1,2-Dichloroethane	4/8/02	1	1	BQL
1,1-Dichloroethene	4/8/02	1	1	BQL
cis-1,2-Dichloroethene	4/8/02	1	1	4
trans-1,2-Dichloroethene	4/8/02	1	1	BQL
1,2-Dichloropropane	4/8/02	1	1	BQL
cis-1,3-Dichloropropene	4/8/02	1	1	BQL
trans-1,3-Dichloropropene	4/8/02	1	1	BQL
Methylene Chloride	4/8/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/8/02	1	1	BQL
Tetrachloroethene	4/8/02	1	1	BQL
1,1,1-Trichloroethane	4/8/02	1	1	BQL
1,1,2-Trichloroethane	4/8/02	1	1	BQL
Trichloroethene	4/8/02	1	1	BQL
Trichlorofluoromethane	4/8/02	1	1	BQL
Vinyl Chloride	4/8/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	44	111

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-49
Client Project ID: HPFF
Lab Sample ID: 40436
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	8	8	BQL
Bromoform	4/9/02	8	16	BQL
Bromomethane	4/9/02	8	16	BQL
Carbon tetrachloride	4/9/02	8	8	BQL
Chlorobenzene	4/9/02	8	8	BQL
Chloroethane	4/9/02	8	8	BQL
Chloroform	4/9/02	8	8	BQL
Chloromethane	4/9/02	8	8	BQL
Dibromochloromethane	4/9/02	8	8	BQL
1,2-Dibromoethane (EDB)	4/9/02	8	8	BQL
1,2-Dichlorobenzene	4/9/02	8	8	BQL
1,3-Dichlorobenzene	4/9/02	8	8	BQL
1,4-Dichlorobenzene	4/9/02	8	8	BQL
1,1-Dichloroethane	4/9/02	8	8	BQL
1,2-Dichloroethane	4/9/02	8	8	BQL
1,1-Dichloroethene	4/9/02	8	8	BQL
cis-1,2-Dichloroethene	4/9/02	8	8	**130**
trans-1,2-Dichloroethene	4/9/02	8	8	BQL
1,2-Dichloropropane	4/9/02	8	8	BQL
cis-1,3-Dichloropropene	4/9/02	8	8	BQL
trans-1,3-Dichloropropene	4/9/02	8	8	BQL
Methylene Chloride	4/9/02	8	40	BQL
1,1,2,2-Tetrachloroethane	4/9/02	8	8	BQL
Tetrachloroethene	4/9/02	8	8	BQL
1,1,1-Trichloroethane	4/9/02	8	8	BQL
1,1,2-Trichloroethane	4/9/02	8	8	BQL
Trichloroethene	4/9/02	8	8	BQL
Trichlorofluoromethane	4/9/02	8	8	BQL
Vinyl Chloride	4/9/02	8	8	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	39	97

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-45
Client Project ID: HPFF
Lab Sample ID: 40437
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	5	5	BQL
Bromoform	4/9/02	5	10	BQL
Bromomethane	4/9/02	5	10	BQL
Carbon tetrachloride	4/9/02	5	5	BQL
Chlorobenzene	4/9/02	5	5	BQL
Chloroethane	4/9/02	5	5	BQL
Chloroform	4/9/02	5	5	BQL
Chloromethane	4/9/02	5	5	BQL
Dibromochloromethane	4/9/02	5	5	BQL
1,2-Dibromoethane (EDB)	4/9/02	5	5	BQL
1,2-Dichlorobenzene	4/9/02	5	5	BQL
1,3-Dichlorobenzene	4/9/02	5	5	BQL
1,4-Dichlorobenzene	4/9/02	5	5	BQL
1,1-Dichloroethane	4/9/02	5	5	BQL
1,2-Dichloroethane	4/9/02	5	5	BQL
1,1-Dichloroethene	4/9/02	5	5	BQL
cis-1,2-Dichloroethene	4/9/02	5	5	**40**
trans-1,2-Dichloroethene	4/9/02	5	5	BQL
1,2-Dichloropropane	4/9/02	5	5	BQL
cis-1,3-Dichloropropene	4/9/02	5	5	BQL
trans-1,3-Dichloropropene	4/9/02	5	5	BQL
Methylene Chloride	4/9/02	5	25	BQL
1,1,2,2-Tetrachloroethane	4/9/02	5	5	BQL
Tetrachloroethene	4/9/02	5	5	BQL
1,1,1-Trichloroethane	4/9/02	5	5	BQL
1,1,2-Trichloroethane	4/9/02	5	5	BQL
Trichloroethene	4/9/02	5	5	**110**
Trichlorofluoromethane	4/9/02	5	5	BQL
Vinyl Chloride	4/9/02	5	5	BQL

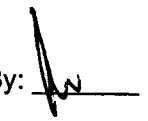
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	37	93

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-46
Client Project ID: HPFF
Lab Sample ID: 40438
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/8/02	1	1	BQL
Bromoform	4/8/02	1	2	BQL
Bromomethane	4/8/02	1	2	BQL
Carbon tetrachloride	4/8/02	1	1	BQL
Chlorobenzene	4/8/02	1	1	BQL
Chloroethane	4/8/02	1	1	BQL
Chloroform	4/8/02	1	1	BQL
Chloromethane	4/8/02	1	1	BQL
Dibromochloromethane	4/8/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/8/02	1	1	BQL
1,2-Dichlorobenzene	4/8/02	1	1	BQL
1,3-Dichlorobenzene	4/8/02	1	1	BQL
1,4-Dichlorobenzene	4/8/02	1	1	BQL
1,1-Dichloroethane	4/8/02	1	1	BQL
1,2-Dichloroethane	4/8/02	1	1	BQL
1,1-Dichloroethene	4/8/02	1	1	BQL
cis-1,2-Dichloroethene	4/8/02	1	1	BQL
trans-1,2-Dichloroethene	4/8/02	1	1	BQL
1,2-Dichloropropane	4/8/02	1	1	BQL
cis-1,3-Dichloropropene	4/8/02	1	1	BQL
trans-1,3-Dichloropropene	4/8/02	1	1	BQL
Methylene Chloride	4/8/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/8/02	1	1	BQL
Tetrachloroethene	4/8/02	1	1	BQL
1,1,1-Trichloroethane	4/8/02	1	1	BQL
1,1,2-Trichloroethane	4/8/02	1	1	BQL
Trichloroethene	4/8/02	1	1	BQL
Trichlorofluoromethane	4/8/02	1	1	BQL
Vinyl Chloride	4/8/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	44	109

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-47
Client Project ID: HPFF
Lab Sample ID: 40439
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	25	25	BQL
Bromoform	4/9/02	25	50	BQL
Bromomethane	4/9/02	25	50	BQL
Carbon tetrachloride	4/9/02	25	25	BQL
Chlorobenzene	4/9/02	25	25	BQL
Chloroethane	4/9/02	25	25	BQL
Chloroform	4/9/02	25	25	BQL
Chloromethane	4/9/02	25	25	BQL
Dibromochloromethane	4/9/02	25	25	BQL
1,2-Dibromoethane (EDB)	4/9/02	25	25	BQL
1,2-Dichlorobenzene	4/9/02	25	25	BQL
1,3-Dichlorobenzene	4/9/02	25	25	BQL
1,4-Dichlorobenzene	4/9/02	25	25	BQL
1,1-Dichloroethane	4/9/02	25	25	BQL
1,2-Dichloroethane	4/9/02	25	25	BQL
1,1-Dichloroethene	4/9/02	25	25	BQL
cis-1,2-Dichloroethene	4/9/02	25	25	**170**
trans-1,2-Dichloroethene	4/9/02	25	25	BQL
1,2-Dichloropropane	4/9/02	25	25	BQL
cis-1,3-Dichloropropene	4/9/02	25	25	BQL
trans-1,3-Dichloropropene	4/9/02	25	25	BQL
Methylene Chloride	4/9/02	25	125	BQL
1,1,2,2-Tetrachloroethane	4/9/02	25	25	BQL
Tetrachloroethene	4/9/02	25	25	BQL
1,1,1-Trichloroethane	4/9/02	25	25	BQL
1,1,2-Trichloroethane	4/9/02	25	25	BQL
Trichloroethene	4/9/02	25	25	**330**
Trichlorofluoromethane	4/9/02	25	25	BQL
Vinyl Chloride	4/9/02	25	25	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	39	97

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-68
Client Project ID: HPFF
Lab Sample ID: 40440
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/25/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/6/02	1	1	BQL
Bromoform	4/6/02	1	2	BQL
Bromomethane	4/6/02	1	2	BQL
Carbon tetrachloride	4/6/02	1	1	BQL
Chlorobenzene	4/6/02	1	1	BQL
Chloroethane	4/6/02	1	1	BQL
Chloroform	4/6/02	1	1	BQL
Chloromethane	4/6/02	1	1	BQL
Dibromochloromethane	4/6/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/6/02	1	1	BQL
1,2-Dichlorobenzene	4/6/02	1	1	BQL
1,3-Dichlorobenzene	4/6/02	1	1	BQL
1,4-Dichlorobenzene	4/6/02	1	1	BQL
1,1-Dichloroethane	4/6/02	1	1	BQL
1,2-Dichloroethane	4/6/02	1	1	BQL
1,1-Dichloroethene	4/6/02	1	1	BQL
cis-1,2-Dichloroethene	4/6/02	1	1	BQL
trans-1,2-Dichloroethene	4/6/02	1	1	BQL
1,2-Dichloropropane	4/6/02	1	1	BQL
cis-1,3-Dichloropropene	4/6/02	1	1	BQL
trans-1,3-Dichloropropene	4/6/02	1	1	BQL
Methylene Chloride	4/6/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/6/02	1	1	BQL
Tetrachloroethene	4/6/02	1	1	BQL
1,1,1-Trichloroethane	4/6/02	1	1	BQL
1,1,2-Trichloroethane	4/6/02	1	1	BQL
Trichloroethene	4/6/02	1	1	BQL
Trichlorofluoromethane	4/6/02	1	1	BQL
Vinyl Chloride	4/6/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	44	109

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-72
Client Project ID: HPFF
Lab Sample ID: 40441
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/25/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/8/02	160	160	BQL
Bromoform	4/8/02	160	320	BQL
Bromomethane	4/8/02	160	320	BQL
Carbon tetrachloride	4/8/02	160	160	BQL
Chlorobenzene	4/8/02	160	160	BQL
Chloroethane	4/8/02	160	160	BQL
Chloroform	4/8/02	160	160	BQL
Chloromethane	4/8/02	160	160	BQL
Dibromochloromethane	4/8/02	160	160	BQL
1,2-Dibromoethane (EDB)	4/8/02	160	160	BQL
1,2-Dichlorobenzene	4/8/02	160	160	BQL
1,3-Dichlorobenzene	4/8/02	160	160	BQL
1,4-Dichlorobenzene	4/8/02	160	160	BQL
1,1-Dichloroethane	4/8/02	160	160	BQL
1,2-Dichloroethane	4/8/02	160	160	**590**
1,1-Dichloroethene	4/8/02	160	160	BQL
cis-1,2-Dichloroethene	4/8/02	160	160	BQL
trans-1,2-Dichloroethene	4/8/02	160	160	BQL
1,2-Dichloropropane	4/8/02	160	160	BQL
cis-1,3-Dichloropropene	4/8/02	160	160	BQL
trans-1,3-Dichloropropene	4/8/02	160	160	BQL
Methylene Chloride	4/8/02	160	800	BQL
1,1,2,2-Tetrachloroethane	4/8/02	160	160	BQL
Tetrachloroethene	4/8/02	160	160	BQL
1,1,1-Trichloroethane	4/8/02	160	160	BQL
1,1,2-Trichloroethane	4/8/02	160	160	BQL
Trichloroethene	4/8/02	160	160	BQL
Trichlorofluoromethane	4/8/02	160	160	BQL
Vinyl Chloride	4/8/02	160	160	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

N.C. Certification #248 S.C. Certification #99029

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-51
Client Project ID: HPFF
Lab Sample ID: 40442
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/25/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/7/02	1	1	BQL
Bromoform	4/7/02	1	2	BQL
Bromomethane	4/7/02	1	2	BQL
Carbon tetrachloride	4/7/02	1	1	BQL
Chlorobenzene	4/7/02	1	1	BQL
Chloroethane	4/7/02	1	1	BQL
Chloroform	4/7/02	1	1	BQL
Chloromethane	4/7/02	1	1	BQL
Dibromochloromethane	4/7/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/7/02	1	1	BQL
1,2-Dichlorobenzene	4/7/02	1	1	BQL
1,3-Dichlorobenzene	4/7/02	1	1	BQL
1,4-Dichlorobenzene	4/7/02	1	1	BQL
1,1-Dichloroethane	4/7/02	1	1	BQL
1,2-Dichloroethane	4/7/02	1	1	BQL
1,1-Dichloroethene	4/7/02	1	1	BQL
cis-1,2-Dichloroethene	4/7/02	1	1	BQL
trans-1,2-Dichloroethene	4/7/02	1	1	BQL
1,2-Dichloropropane	4/7/02	1	1	BQL
cis-1,3-Dichloropropene	4/7/02	1	1	BQL
trans-1,3-Dichloropropene	4/7/02	1	1	BQL
Methylene Chloride	4/7/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/7/02	1	1	BQL
Tetrachloroethene	4/7/02	1	1	BQL
1,1,1-Trichloroethane	4/7/02	1	1	BQL
1,1,2-Trichloroethane	4/7/02	1	1	BQL
Trichloroethene	4/7/02	1	1	BQL
Trichlorofluoromethane	4/7/02	1	1	BQL
Vinyl Chloride	4/7/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	44	110

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-48
Client Project ID: HPFF
Lab Sample ID: 40443
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/8/02	1	1	BQL
Bromoform	4/8/02	1	2	BQL
Bromomethane	4/8/02	1	2	BQL
Carbon tetrachloride	4/8/02	1	1	BQL
Chlorobenzene	4/8/02	1	1	BQL
Chloroethane	4/8/02	1	1	BQL
Chloroform	4/8/02	1	1	BQL
Chloromethane	4/8/02	1	1	BQL
Dibromochloromethane	4/8/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/8/02	1	1	BQL
1,2-Dichlorobenzene	4/8/02	1	1	BQL
1,3-Dichlorobenzene	4/8/02	1	1	BQL
1,4-Dichlorobenzene	4/8/02	1	1	BQL
1,1-Dichloroethane	4/8/02	1	1	BQL
1,2-Dichloroethane	4/8/02	1	1	BQL
1,1-Dichloroethene	4/8/02	1	1	BQL
cis-1,2-Dichloroethene	4/8/02	1	1	BQL
trans-1,2-Dichloroethene	4/8/02	1	1	BQL
1,2-Dichloropropane	4/8/02	1	1	BQL
cis-1,3-Dichloropropene	4/8/02	1	1	BQL
trans-1,3-Dichloropropene	4/8/02	1	1	BQL
Methylene Chloride	4/8/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/8/02	1	1	BQL
Tetrachloroethene	4/8/02	1	1	BQL
1,1,1-Trichloroethane	4/8/02	1	1	BQL
1,1,2-Trichloroethane	4/8/02	1	1	BQL
Trichloroethene	4/8/02	1	1	BQL
Trichlorofluoromethane	4/8/02	1	1	BQL
Vinyl Chloride	4/8/02	1	1	BQL

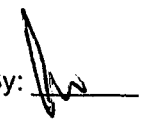
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-50
Client Project ID: HPFF
Lab Sample ID: 40444
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	1	1	BQL
Bromoform	4/9/02	1	2	BQL
Bromomethane	4/9/02	1	2	BQL
Carbon tetrachloride	4/9/02	1	1	BQL
Chlorobenzene	4/9/02	1	1	BQL
Chloroethane	4/9/02	1	1	BQL
Chloroform	4/9/02	1	1	BQL
Chloromethane	4/9/02	1	1	BQL
Dibromochloromethane	4/9/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL
1,2-Dichlorobenzene	4/9/02	1	1	BQL
1,3-Dichlorobenzene	4/9/02	1	1	BQL
1,4-Dichlorobenzene	4/9/02	1	1	BQL
1,1-Dichloroethane	4/9/02	1	1	BQL
1,2-Dichloroethane	4/9/02	1	1	BQL
1,1-Dichloroethene	4/9/02	1	1	BQL
cis-1,2-Dichloroethene	4/9/02	1	1	BQL
trans-1,2-Dichloroethene	4/9/02	1	1	BQL
1,2-Dichloropropane	4/9/02	1	1	BQL
cis-1,3-Dichloropropene	4/9/02	1	1	BQL
trans-1,3-Dichloropropene	4/9/02	1	1	BQL
Methylene Chloride	4/9/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL
Tetrachloroethene	4/9/02	1	1	BQL
1,1,1-Trichloroethane	4/9/02	1	1	BQL
1,1,2-Trichloroethane	4/9/02	1	1	BQL
Trichloroethene	4/9/02	1	1	BQL
Trichlorofluoromethane	4/9/02	1	1	BQL
Vinyl Chloride	4/9/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	23	57

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-52
Client Project ID: HPFF
Lab Sample ID: 40445
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/8/02	1	1	BQL
Bromoform	4/8/02	1	2	BQL
Bromomethane	4/8/02	1	2	BQL
Carbon tetrachloride	4/8/02	1	1	BQL
Chlorobenzene	4/8/02	1	1	BQL
Chloroethane	4/8/02	1	1	BQL
Chloroform	4/8/02	1	1	BQL
Chloromethane	4/8/02	1	1	BQL
Dibromochloromethane	4/8/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/8/02	1	1	BQL
1,2-Dichlorobenzene	4/8/02	1	1	BQL
1,3-Dichlorobenzene	4/8/02	1	1	BQL
1,4-Dichlorobenzene	4/8/02	1	1	BQL
1,1-Dichloroethane	4/8/02	1	1	BQL
1,2-Dichloroethane	4/8/02	1	1	BQL
1,1-Dichloroethene	4/8/02	1	1	BQL
cis-1,2-Dichloroethene	4/8/02	1	1	BQL
trans-1,2-Dichloroethene	4/8/02	1	1	BQL
1,2-Dichloropropane	4/8/02	1	1	BQL
cis-1,3-Dichloropropene	4/8/02	1	1	BQL
trans-1,3-Dichloropropene	4/8/02	1	1	BQL
Methylene Chloride	4/8/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/8/02	1	1	BQL
Tetrachloroethene	4/8/02	1	1	BQL
1,1,1-Trichloroethane	4/8/02	1	1	BQL
1,1,2-Trichloroethane	4/8/02	1	1	BQL
Trichloroethene	4/8/02	1	1	BQL
Trichlorofluoromethane	4/8/02	1	1	BQL
Vinyl Chloride	4/8/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	45	112

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-54
Client Project ID: HPFF
Lab Sample ID: 40446
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/8/02	1	1	BQL
Bromoform	4/8/02	1	2	BQL
Bromomethane	4/8/02	1	2	BQL
Carbon tetrachloride	4/8/02	1	1	BQL
Chlorobenzene	4/8/02	1	1	BQL
Chloroethane	4/8/02	1	1	BQL
Chloroform	4/8/02	1	1	BQL
Chloromethane	4/8/02	1	1	BQL
Dibromochloromethane	4/8/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/8/02	1	1	BQL
1,2-Dichlorobenzene	4/8/02	1	1	BQL
1,3-Dichlorobenzene	4/8/02	1	1	BQL
1,4-Dichlorobenzene	4/8/02	1	1	BQL
1,1-Dichloroethane	4/8/02	1	1	BQL
1,2-Dichloroethane	4/8/02	1	1	BQL
1,1-Dichloroethene	4/8/02	1	1	BQL
cis-1,2-Dichloroethene	4/8/02	1	1	BQL
trans-1,2-Dichloroethene	4/8/02	1	1	BQL
1,2-Dichloropropane	4/8/02	1	1	BQL
cis-1,3-Dichloropropene	4/8/02	1	1	BQL
trans-1,3-Dichloropropene	4/8/02	1	1	BQL
Methylene Chloride	4/8/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/8/02	1	1	BQL
Tetrachloroethene	4/8/02	1	1	BQL
1,1,1-Trichloroethane	4/8/02	1	1	BQL
1,1,2-Trichloroethane	4/8/02	1	1	BQL
Trichloroethene	4/8/02	1	1	BQL
Trichlorofluoromethane	4/8/02	1	1	BQL
Vinyl Chloride	4/8/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	46	114

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-53
Client Project ID: HPFF
Lab Sample ID: 40447
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/8/02	1	1	BQL
Bromoform	4/8/02	1	2	BQL
Bromomethane	4/8/02	1	2	BQL
Carbon tetrachloride	4/8/02	1	1	BQL
Chlorobenzene	4/8/02	1	1	BQL
Chloroethane	4/8/02	1	1	BQL
Chloroform	4/8/02	1	1	BQL
Chloromethane	4/8/02	1	1	BQL
Dibromochloromethane	4/8/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/8/02	1	1	BQL
1,2-Dichlorobenzene	4/8/02	1	1	BQL
1,3-Dichlorobenzene	4/8/02	1	1	BQL
1,4-Dichlorobenzene	4/8/02	1	1	BQL
1,1-Dichloroethane	4/8/02	1	1	BQL
1,2-Dichloroethane	4/8/02	1	1	BQL
1,1-Dichloroethene	4/8/02	1	1	BQL
cis-1,2-Dichloroethene	4/8/02	1	1	2
trans-1,2-Dichloroethene	4/8/02	1	1	BQL
1,2-Dichloropropane	4/8/02	1	1	BQL
cis-1,3-Dichloropropene	4/8/02	1	1	BQL
trans-1,3-Dichloropropene	4/8/02	1	1	BQL
Methylene Chloride	4/8/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/8/02	1	1	BQL
Tetrachloroethene	4/8/02	1	1	BQL
1,1,1-Trichloroethane	4/8/02	1	1	BQL
1,1,2-Trichloroethane	4/8/02	1	1	BQL
Trichloroethene	4/8/02	1	1	BQL
Trichlorofluoromethane	4/8/02	1	1	BQL
Vinyl Chloride	4/8/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	39	99

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-55
Client Project ID: HPFF
Lab Sample ID: 40448
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	1	1	BQL
Bromoform	4/9/02	1	2	BQL
Bromomethane	4/9/02	1	2	BQL
Carbon tetrachloride	4/9/02	1	1	BQL
Chlorobenzene	4/9/02	1	1	BQL
Chloroethane	4/9/02	1	1	BQL
Chloroform	4/9/02	1	1	13
Chloromethane	4/9/02	1	1	BQL
Dibromochloromethane	4/9/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL
1,2-Dichlorobenzene	4/9/02	1	1	BQL
1,3-Dichlorobenzene	4/9/02	1	1	BQL
1,4-Dichlorobenzene	4/9/02	1	1	BQL
1,1-Dichloroethane	4/9/02	1	1	BQL
1,2-Dichloroethane	4/9/02	1	1	BQL
1,1-Dichloroethene	4/9/02	1	1	BQL
cis-1,2-Dichloroethene	4/9/02	1	1	BQL
trans-1,2-Dichloroethene	4/9/02	1	1	BQL
1,2-Dichloropropane	4/9/02	1	1	BQL
cis-1,3-Dichloropropene	4/9/02	1	1	BQL
trans-1,3-Dichloropropene	4/9/02	1	1	BQL
Methylene Chloride	4/9/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL
Tetrachloroethene	4/9/02	1	1	BQL
1,1,1-Trichloroethane	4/9/02	1	1	BQL
1,1,2-Trichloroethane	4/9/02	1	1	BQL
Trichloroethene	4/9/02	1	1	BQL
Trichlorofluoromethane	4/9/02	1	1	BQL
Vinyl Chloride	4/9/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	39	98

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

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

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-56
Client Project ID: HPFF
Lab Sample ID: 40449
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)	
Bromodichloromethane	4/9/02	1	1	BQL	
Bromoform	4/9/02	1	2	BQL	
Bromomethane	4/9/02	1	2	BQL	
Carbon tetrachloride	4/9/02	1	1	BQL	
Chlorobenzene	4/9/02	1	1	BQL	
Chloroethane	4/9/02	1	1	BQL	
Chloroform	4/9/02	1	1		3
Chloromethane	4/9/02	1	1	BQL	
Dibromochloromethane	4/9/02	1	1	BQL	
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL	
1,2-Dichlorobenzene	4/9/02	1	1	BQL	
1,3-Dichlorobenzene	4/9/02	1	1	BQL	
1,4-Dichlorobenzene	4/9/02	1	1	BQL	
1,1-Dichloroethane	4/9/02	1	1	BQL	
1,2-Dichloroethane	4/9/02	1	1	BQL	
1,1-Dichloroethene	4/9/02	1	1	BQL	
cis-1,2-Dichloroethene	4/9/02	1	1	BQL	
trans-1,2-Dichloroethene	4/9/02	1	1	BQL	
1,2-Dichloropropane	4/9/02	1	1	BQL	
cis-1,3-Dichloropropene	4/9/02	1	1	BQL	
trans-1,3-Dichloropropene	4/9/02	1	1	BQL	
Methylene Chloride	4/9/02	1	5	BQL	
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL	
Tetrachloroethene	4/9/02	1	1	BQL	
1,1,1-Trichloroethane	4/9/02	1	1	BQL	
1,1,2-Trichloroethane	4/9/02	1	1	BQL	
Trichloroethene	4/9/02	1	1	BQL	
Trichlorofluoromethane	4/9/02	1	1	BQL	
Vinyl Chloride	4/9/02	1	1	BQL	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	46	114

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-57
Client Project ID: HPFF
Lab Sample ID: 40450
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)	
Bromodichloromethane	4/9/02	1	1	BQL	
Bromoform	4/9/02	1	2	BQL	
Bromomethane	4/9/02	1	2	BQL	
Carbon tetrachloride	4/9/02	1	1	BQL	
Chlorobenzene	4/9/02	1	1	BQL	
Chloroethane	4/9/02	1	1	BQL	
Chloroform	4/9/02	1	1	BQL	
Chloromethane	4/9/02	1	1	BQL	
Dibromochloromethane	4/9/02	1	1	BQL	
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL	
1,2-Dichlorobenzene	4/9/02	1	1	BQL	
1,3-Dichlorobenzene	4/9/02	1	1	BQL	
1,4-Dichlorobenzene	4/9/02	1	1	BQL	
1,1-Dichloroethane	4/9/02	1	1	BQL	
1,2-Dichloroethane	4/9/02	1	1	BQL	
1,1-Dichloroethene	4/9/02	1	1	BQL	
cis-1,2-Dichloroethene	4/9/02	1	1	1	
trans-1,2-Dichloroethene	4/9/02	1	1	BQL	
1,2-Dichloropropane	4/9/02	1	1	4	
cis-1,3-Dichloropropene	4/9/02	1	1	BQL	
trans-1,3-Dichloropropene	4/9/02	1	1	BQL	
Methylene Chloride	4/9/02	1	5	BQL	
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL	
Tetrachloroethene	4/9/02	1	1	BQL	
1,1,1-Trichloroethane	4/9/02	1	1	BQL	
1,1,2-Trichloroethane	4/9/02	1	1	BQL	
Trichloroethene	4/9/02	1	1	4	
Trichlorofluoromethane	4/9/02	1	1	BQL	
Vinyl Chloride	4/9/02	1	1	BQL	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	39	97

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-58
Client Project ID: HPFF
Lab Sample ID: 40451
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	1	1	BQL
Bromoform	4/9/02	1	2	BQL
Bromomethane	4/9/02	1	2	BQL
Carbon tetrachloride	4/9/02	1	1	BQL
Chlorobenzene	4/9/02	1	1	BQL
Chloroethane	4/9/02	1	1	BQL
Chloroform	4/9/02	1	1	BQL
Chloromethane	4/9/02	1	1	BQL
Dibromochloromethane	4/9/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL
1,2-Dichlorobenzene	4/9/02	1	1	BQL
1,3-Dichlorobenzene	4/9/02	1	1	BQL
1,4-Dichlorobenzene	4/9/02	1	1	BQL
1,1-Dichloroethane	4/9/02	1	1	BQL
1,2-Dichloroethane	4/9/02	1	1	1
1,1-Dichloroethene	4/9/02	1	1	BQL
cis-1,2-Dichloroethene	4/9/02	1	1	BQL
trans-1,2-Dichloroethene	4/9/02	1	1	BQL
1,2-Dichloropropane	4/9/02	1	1	BQL
cis-1,3-Dichloropropene	4/9/02	1	1	BQL
trans-1,3-Dichloropropene	4/9/02	1	1	BQL
Methylene Chloride	4/9/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL
Tetrachloroethene	4/9/02	1	1	BQL
1,1,1-Trichloroethane	4/9/02	1	1	BQL
1,1,2-Trichloroethane	4/9/02	1	1	BQL
Trichloroethene	4/9/02	1	1	BQL
Trichlorofluoromethane	4/9/02	1	1	BQL
Vinyl Chloride	4/9/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	39	99

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-63
Client Project ID: HPFF
Lab Sample ID: 40452
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	1	1	BQL
Bromoform	4/9/02	1	2	BQL
Bromomethane	4/9/02	1	2	BQL
Carbon tetrachloride	4/9/02	1	1	BQL
Chlorobenzene	4/9/02	1	1	BQL
Chloroethane	4/9/02	1	1	BQL
Chloroform	4/9/02	1	1	BQL
Chloromethane	4/9/02	1	1	BQL
Dibromochloromethane	4/9/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL
1,2-Dichlorobenzene	4/9/02	1	1	BQL
1,3-Dichlorobenzene	4/9/02	1	1	BQL
1,4-Dichlorobenzene	4/9/02	1	1	BQL
1,1-Dichloroethane	4/9/02	1	1	BQL
1,2-Dichloroethane	4/9/02	1	1	BQL
1,1-Dichloroethene	4/9/02	1	1	BQL
cis-1,2-Dichloroethene	4/9/02	1	1	BQL
trans-1,2-Dichloroethene	4/9/02	1	1	BQL
1,2-Dichloropropane	4/9/02	1	1	BQL
cis-1,3-Dichloropropene	4/9/02	1	1	BQL
trans-1,3-Dichloropropene	4/9/02	1	1	BQL
Methylene Chloride	4/9/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL
Tetrachloroethene	4/9/02	1	1	BQL
1,1,1-Trichloroethane	4/9/02	1	1	BQL
1,1,2-Trichloroethane	4/9/02	1	1	BQL
Trichloroethene	4/9/02	1	1	BQL
Trichlorofluoromethane	4/9/02	1	1	BQL
Vinyl Chloride	4/9/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	44	111

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: HPFF-62
Client Project ID: HPFF
Lab Sample ID: 40453
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/26/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/9/02	1	1	BQL
Bromoform	4/9/02	1	2	BQL
Bromomethane	4/9/02	1	2	BQL
Carbon tetrachloride	4/9/02	1	1	BQL
Chlorobenzene	4/9/02	1	1	BQL
Chloroethane	4/9/02	1	1	BQL
Chloroform	4/9/02	1	1	BQL
Chloromethane	4/9/02	1	1	BQL
Dibromochloromethane	4/9/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/9/02	1	1	BQL
1,2-Dichlorobenzene	4/9/02	1	1	BQL
1,3-Dichlorobenzene	4/9/02	1	1	BQL
1,4-Dichlorobenzene	4/9/02	1	1	BQL
1,1-Dichloroethane	4/9/02	1	1	BQL
1,2-Dichloroethane	4/9/02	1	1	BQL
1,1-Dichloroethene	4/9/02	1	1	BQL
cis-1,2-Dichloroethene	4/9/02	1	1	BQL
trans-1,2-Dichloroethene	4/9/02	1	1	BQL
1,2-Dichloropropane	4/9/02	1	1	BQL
cis-1,3-Dichloropropene	4/9/02	1	1	BQL
trans-1,3-Dichloropropene	4/9/02	1	1	BQL
Methylene Chloride	4/9/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/9/02	1	1	BQL
Tetrachloroethene	4/9/02	1	1	BQL
1,1,1-Trichloroethane	4/9/02	1	1	BQL
1,1,2-Trichloroethane	4/9/02	1	1	BQL
Trichloroethene	4/9/02	1	1	BQL
Trichlorofluoromethane	4/9/02	1	1	BQL
Vinyl Chloride	4/9/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	39	98

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 601

Client Sample ID: Trip Blank
Client Project ID: HPFF
Lab Sample ID: 40454
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 03/25/02
Date Received: 03/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Bromodichloromethane	4/7/02	1	1	BQL
Bromoform	4/7/02	1	2	BQL
Bromomethane	4/7/02	1	2	BQL
Carbon tetrachloride	4/7/02	1	1	BQL
Chlorobenzene	4/7/02	1	1	BQL
Chloroethane	4/7/02	1	1	BQL
Chloroform	4/7/02	1	1	BQL
Chloromethane	4/7/02	1	1	BQL
Dibromochloromethane	4/7/02	1	1	BQL
1,2-Dibromoethane (EDB)	4/7/02	1	1	BQL
1,2-Dichlorobenzene	4/7/02	1	1	BQL
1,3-Dichlorobenzene	4/7/02	1	1	BQL
1,4-Dichlorobenzene	4/7/02	1	1	BQL
1,1-Dichloroethane	4/7/02	1	1	BQL
1,2-Dichloroethane	4/7/02	1	1	BQL
1,1-Dichloroethene	4/7/02	1	1	BQL
cis-1,2-Dichloroethene	4/7/02	1	1	BQL
trans-1,2-Dichloroethene	4/7/02	1	1	BQL
1,2-Dichloropropane	4/7/02	1	1	BQL
cis-1,3-Dichloropropene	4/7/02	1	1	BQL
trans-1,3-Dichloropropene	4/7/02	1	1	BQL
Methylene Chloride	4/7/02	1	5	BQL
1,1,2,2-Tetrachloroethane	4/7/02	1	1	BQL
Tetrachloroethene	4/7/02	1	1	BQL
1,1,1-Trichloroethane	4/7/02	1	1	BQL
1,1,2-Trichloroethane	4/7/02	1	1	BQL
Trichloroethene	4/7/02	1	1	BQL
Trichlorofluoromethane	4/7/02	1	1	BQL
Vinyl Chloride	4/7/02	1	1	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
1,4-Dichlorobutane	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-43
Client Project ID: HPFF
Lab Sample ID: 40434
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	1	1	BQL
Diisopropyl ether (DIPE)	4/8/02	1	1	1
Ethylbenzene	4/8/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/8/02	1	2	BQL
Toluene	4/8/02	1	1	BQL
m/p-Xylene	4/8/02	1	2	BQL
o-Xylene	4/8/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	44	109

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-44
Client Project ID: HPFF
Lab Sample ID: 40435
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	1	1	BQL
Diisopropyl ether (DIPE)	4/8/02	1	1	BQL
Ethylbenzene	4/8/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/8/02	1	2	BQL
Toluene	4/8/02	1	1	BQL
m/p-Xylene	4/8/02	1	2	BQL
o-Xylene	4/8/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	46	114

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-49
Client Project ID: HPFF
Lab Sample ID: 40436
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/9/02	1	1	BQL
Diisopropyl ether (DIPE)	4/9/02	1	1	BQL
Ethylbenzene	4/9/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	BQL
Toluene	4/9/02	1	1	BQL
m/p-Xylene	4/9/02	1	2	BQL
o-Xylene	4/9/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	97

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-45
Client Project ID: HPFF
Lab Sample ID: 40437
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	8	8	**710**
Diisopropyl ether (DIPE)	4/8/02	8	8	**38**
Ethylbenzene	4/8/02	8	8	BQL
Methyl-tert-butyl ether (MTBE)	4/8/02	8	16	BQL
Toluene	4/8/02	8	8	BQL
m/p-Xylene	4/8/02	8	16	BQL
o-Xylene	4/8/02	8	16	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-46
Client Project ID: HPFF
Lab Sample ID: 40438
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	1	1	BQL
Diisopropyl ether (DIPE)	4/8/02	1	1	BQL
Ethylbenzene	4/8/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/8/02	1	2	BQL
Toluene	4/8/02	1	1	BQL
m/p-Xylene	4/8/02	1	2	BQL
o-Xylene	4/8/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	46	115

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-47
Client Project ID: HPFF
Lab Sample ID: 40439
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	20	20	**1300**
Diisopropyl ether (DIPE)	4/8/02	20	20	**120**
Ethylbenzene	4/8/02	20	20	BQL
Methyl-tert-butyl ether (MTBE)	4/8/02	20	40	BQL
Toluene	4/8/02	20	20	BQL
m/p-Xylene	4/8/02	20	40	BQL
o-Xylene	4/8/02	20	40	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-68
Client Project ID: HPFF
Lab Sample ID: 40440
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/25/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/6/02	1	1	**30**
Diisopropyl ether (DIPE)	4/6/02	1	1	**3**
Ethylbenzene	4/6/02	1	1	**19**
Methyl-tert-butyl ether (MTBE)	4/6/02	1	2	BQL
Toluene	4/6/02	1	1	**33**
m/p-Xylene	4/6/02	1	2	**50**
o-Xylene	4/6/02	1	2	**21**

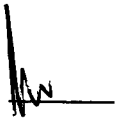
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	46	115

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-72
Client Project ID: HPFF
Lab Sample ID: 40441
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/25/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	2000	2000	**15000**
Diisopropyl ether (DIPE)	4/8/02	2000	2000	**2100**
Ethylbenzene	4/8/02	2000	2000	**2600**
Methyl-tert-butyl ether (MTBE)	4/8/02	2000	4000	BQL
Toluene	4/8/02	2000	2000	**33000**
m/p-Xylene	4/8/02	2000	4000	**7000**
o-Xylene	4/8/02	2000	4000	BQL

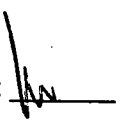
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-51
Client Project ID: HPFF
Lab Sample ID: 40442
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/25/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/7/02	1	1	BQL
Diisopropyl ether (DIPE)	4/7/02	1	1	BQL
Ethylbenzene	4/7/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/7/02	1	2	BQL
Toluene	4/7/02	1	1	BQL
m/p-Xylene	4/7/02	1	2	BQL
o-Xylene	4/7/02	1	2	BQL

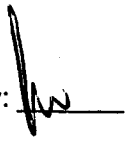
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-48
Client Project ID: HPFF
Lab Sample ID: 40443
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	1	1	BQL
Diisopropyl ether (DIPE)	4/8/02	1	1	BQL
Ethylbenzene	4/8/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/8/02	1	2	BQL
Toluene	4/8/02	1	1	BQL
m/p-Xylene	4/8/02	1	2	BQL
o-Xylene	4/8/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	34	84

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-50
Client Project ID: HPFF
Lab Sample ID: 40444
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/9/02	1	1	**28**
Diisopropyl ether (DIPE)	4/9/02	1	1	BQL
Ethylbenzene	4/9/02	1	1	**3**
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	BQL
Toluene	4/9/02	1	1	**5**
m/p-Xylene	4/9/02	1	2	**3**
o-Xylene	4/9/02	1	2	BQL

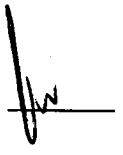
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	35	87

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-52
Client Project ID: HPFF
Lab Sample ID: 40445
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	1	1	BQL
Diisopropyl ether (DIPE)	4/8/02	1	1	BQL
Ethylbenzene	4/8/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/8/02	1	2	BQL
Toluene	4/8/02	1	1	BQL
m/p-Xylene	4/8/02	1	2	BQL
o-Xylene	4/8/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	44	110

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-54
Client Project ID: HPFF
Lab Sample ID: 40446
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	1	1	BQL
Diisopropyl ether (DIPE)	4/8/02	1	1	BQL
Ethylbenzene	4/8/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/8/02	1	2	BQL
Toluene	4/8/02	1	1	BQL
m/p-Xylene	4/8/02	1	2	BQL
o-Xylene	4/8/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-53
Client Project ID: HPFF
Lab Sample ID: 40447
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	1	1	1
Diisopropyl ether (DIPE)	4/8/02	1	1	BQL
Ethylbenzene	4/8/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/8/02	1	2	BQL
Toluene	4/8/02	1	1	BQL
m/p-Xylene	4/8/02	1	2	BQL
o-Xylene	4/8/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	46	115

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-55
Client Project ID: HPFF
Lab Sample ID: 40448
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/9/02	1	1	BQL
Diisopropyl ether (DIPE)	4/9/02	1	1	BQL
Ethylbenzene	4/9/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	BQL
Toluene	4/9/02	1	1	BQL
m/p-Xylene	4/9/02	1	2	BQL
o-Xylene	4/9/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-56
Client Project ID: HPFF
Lab Sample ID: 40449
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/9/02	1	1	BQL
Diisopropyl ether (DIPE)	4/9/02	1	1	BQL
Ethylbenzene	4/9/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	BQL
Toluene	4/9/02	1	1	BQL
m/p-Xylene	4/9/02	1	2	BQL
o-Xylene	4/9/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	46	115

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-57
Client Project ID: HPFF
Lab Sample ID: 40450
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/8/02	40	40	**3100**
Diisopropyl ether (DIPE)	4/8/02	40	40	**250**
Ethylbenzene	4/8/02	40	40	BQL
Methyl-tert-butyl ether (MTBE)	4/8/02	40	80	BQL
Toluene	4/8/02	40	40	BQL
m/p-Xylene	4/8/02	40	80	BQL
o-Xylene	4/8/02	40	80	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-58
Client Project ID: HPFF
Lab Sample ID: 40451
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/9/02	1	1	7
Diisopropyl ether (DIPE)	4/9/02	1	1	BQL
Ethylbenzene	4/9/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	BQL
Toluene	4/9/02	1	1	BQL
m/p-Xylene	4/9/02	1	2	BQL
o-Xylene	4/9/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	33	82

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-63
Client Project ID: HPFF
Lab Sample ID: 40452
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/9/02	1	1	6
Diisopropyl ether (DIPE)	4/9/02	1	1	BQL
Ethylbenzene	4/9/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	BQL
Toluene	4/9/02	1	1	BQL
m/p-Xylene	4/9/02	1	2	BQL
o-Xylene	4/9/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	45	113

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: HPFF-62
Client Project ID: HPFF
Lab Sample ID: 40453
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/26/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/9/02	1	1	1
Diisopropyl ether (DIPE)	4/9/02	1	1	BQL
Ethylbenzene	4/9/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/9/02	1	2	BQL
Toluene	4/9/02	1	1	1
m/p-Xylene	4/9/02	1	2	BQL
o-Xylene	4/9/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	45	114

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: Trip Blank
Client Project ID: HPFF
Lab Sample ID: 40454
Lab Project ID: G128-898

Analyzed By: EKR
Date Collected: 3/25/02
Date Received: 3/27/02
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	4/7/02	1	1	BQL
Diisopropyl ether (DIPE)	4/7/02	1	1	BQL
Ethylbenzene	4/7/02	1	1	BQL
Methyl-tert-butyl ether (MTBE)	4/7/02	1	2	BQL
Toluene	4/7/02	1	1	BQL
m/p-Xylene	4/7/02	1	2	BQL
o-Xylene	4/7/02	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons
EPA 610 by GCMS 625

Client Sample ID: HPFF-43
Client Project ID: HPFF
Lab Sample ID: 40434
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 3/29/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	11.9	119
Nitrobenzene-d5	10	11.2	112
4-Terphenyl-d14	10	12.1	121

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons
EPA 610 by GCMS 625

Client Sample ID: HPFF-44
Client Project ID: HPFF
Lab Sample ID: 40435
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 3/29/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	12.7	127
Nitrobenzene-d5	10	11.3	113
4-Terphenyl-d14	10	12.0	120

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-49
Client Project ID: HPFF
Lab Sample ID: 40436
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/2/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	11.6	116
Nitrobenzene-d5	10	10.0	100
4-Terphenyl-d14	10	13.9	139

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-45
Client Project ID: HPFF
Lab Sample ID: 40437
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/2/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.5	95
Nitrobenzene-d5	10	6.1	61
4-Terphenyl-d14	10	11.6	116

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons
EPA 610 by GCMS 625

Client Sample ID: HPFF-46
Client Project ID: HPFF
Lab Sample ID: 40438
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/2/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	11.0	110
Nitrobenzene-d5	10	9.8	98
4-Terphenyl-d14	10	13.2	132

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-47
Client Project ID: HPFF
Lab Sample ID: 40439
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/2/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	**27**
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	10.7	107
Nitrobenzene-d5	10	9.0	90
4-Terphenyl-d14	10	12.3	123

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-68
Client Project ID: HPFF
Lab Sample ID: 40440
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/25/2002
Date Received: 3/27/2002
Date Analyzed: 3/29/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.7	97
Nitrobenzene-d5	10	10.2	102
4-Terphenyl-d14	10	2.6	26

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-72
Client Project ID: HPFF
Lab Sample ID: 40441
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/25/2002
Date Received: 3/27/2002
Date Analyzed: 4/2/2002
Analyzed By: MRC
Dilution: 2

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	20	BQL
Acenaphthylene	20	BQL
Anthracene	20	BQL
Benzo[a]anthracene	20	BQL
Benzo[a]pyrene	20	BQL
Benzo[b]fluoranthene	20	BQL
Benzo[g,h,i]perylene	20	BQL
Benzo[k]fluoranthene	20	BQL
Chrysene	20	BQL
Dibenzo[a,h]anthracene	20	BQL
Fluoranthene	20	BQL
Fluorene	20	BQL
Indeno(1,2,3-c,d)pyrene	20	BQL
1-Methylnaphthalene	20	**49**
2-Methylnaphthalene	20	**100**
Naphthalene	20	**500**
Phenanthrene	20	BQL
Pyrene	20	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	5.0	100
Nitrobenzene-d5	10	4.5	90
4-Terphenyl-d14	10	3.1	62

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-51
Client Project ID: HPFF
Lab Sample ID: 40442
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/25/2002
Date Received: 3/27/2002
Date Analyzed: 3/29/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	13.1	131
Nitrobenzene-d5	10	11.3	113
4-Terphenyl-d14	10	5.8	58

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-48
Client Project ID: HPFF
Lab Sample ID: 40443
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/2/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	11.2	112
Nitrobenzene-d5	10	10.5	105
4-Terphenyl-d14	10	7.5	75

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-50
Client Project ID: HPFF
Lab Sample ID: 40444
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/2/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	10.8	108
Nitrobenzene-d5	10	10.7	107
4-Terphenyl-d14	10	12.6	126

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons
EPA 610 by GCMS 625

Client Sample ID: HPFF-52
Client Project ID: HPFF
Lab Sample ID: 40445
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/2/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.8	68
Nitrobenzene-d5	10	6.0	60
4-Terphenyl-d14	10	9.6	96

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-54
Client Project ID: HPFF
Lab Sample ID: 40446
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/2/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	11.4	114
Nitrobenzene-d5	10	10.4	104
4-Terphenyl-d14	10	6.3	63

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-53
Client Project ID: HPFF
Lab Sample ID: 40447
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/3/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	10.7	107
Nitrobenzene-d5	10	8.5	85
4-Terphenyl-d14	10	12.7	127

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-55
Client Project ID: HPFF
Lab Sample ID: 40448
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/3/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	11.3	113
Nitrobenzene-d5	10	9.6	96
4-Terphenyl-d14	10	12.1	121

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-56
Client Project ID: HPFF
Lab Sample ID: 40449
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/3/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

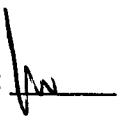
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	11.5	115
Nitrobenzene-d5	10	11.2	112
4-Terphenyl-d14	10	12.7	127

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-57
Client Project ID: HPFF
Lab Sample ID: 40450
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/3/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	**33**
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.8	98
Nitrobenzene-d5	10	8.2	82
4-Terphenyl-d14	10	12.9	129

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-58
Client Project ID: HPFF
Lab Sample ID: 40451
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/3/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	11.2	112
Nitrobenzene-d5	10	9.4	94
4-Terphenyl-d14	10	12.5	125

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons
EPA 610 by GCMS 625

Client Sample ID: HPFF-63
Client Project ID: HPFF
Lab Sample ID: 40452
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/3/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	12.0	120
Nitrobenzene-d5	10	11.3	113
4-Terphenyl-d14	10	12.7	127

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: HPFF-62
Client Project ID: HPFF
Lab Sample ID: 40453
Lab Project ID: G128-898
Matrix: Water

Date Collected: 3/26/2002
Date Received: 3/27/2002
Date Analyzed: 4/3/2002
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	11.6	116
Nitrobenzene-d5	10	10.0	100
4-Terphenyl-d14	10	13.1	131

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: [signature]

ARADIGM ANALYTICAL LABORATORIES, INC.
527 Northchase Parkway SE, Wilmington, NC 28405
hone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 30524
Page 1 of 3

lient: Catlin Engineers + Scientist
ddress: 220 Old Dairy Rd
ddress: Wilmington, NC 28405
uote #: 1489

Project ID: HPFF
Contact: Tom Landis
Phone: 452-5861
Fax:

Date: 3-27-02
Turnaround: Standard
Job Number: 201-022
P.O. Number: 220327-1

Report To: Tom Landis

Invoice To: Sheila @ Catlin

Sample ID	Date	Time	Matrix	Preservatives: HCl	Analyses: 601/602	Analyses: 610	Comments: Please specify any special reporting requirements
							G128-898
HPFF-43	3/26/02	3:00	W	✓	✓	✓	Summary EDD Format
HPFF-44	3/26/02	3:00		✓	✓	✓	
HPFF-49		11:00		✓	-	-	
HPFF-45		2:00		✓	✓	-	* Give Tom Landis verbal
HPFF-46		2:30		✓	✓	✓	on results for HPFF-43
HPFF-47		1:15		✓	✓	✓	through HPFF-50
HPFF-68	3/25/02	3:00		✓	-	✓	
HPFF-72	3/25/02	3:30		✓	✓	✓	
HPFF-51	3/25/02	4:00		✓	✓	✓	
HPFF-48	3/26/02	10:30		✓	-	✓	

Relinquished By	Date	Time	Received By	Date	Time	Temperature
[signature]	3/27	0945	[signature]	3/27/02	0945	on ice 5.8, 5.8, 6.0

State Certification Requested
NC ____ SC ____ Other ____

SEE REVERSE FOR TERMS AND CONDITIONS

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

Chain-of Custody Record & Analytical Request

COC# 30520

Page 2 of 3

Client: Catlin
Address: 220 Old Dairy Rd
Address: Wilmington NC 28405
Quote #: 1482

Project ID: HPFF
Contact: Tom Landis
Phone: 452-5861
Fax:

Date: 3-27-02
Turnaround: Standard
Job Number: 201-022
P.O. Number: 220327-1

Report To: Tom Landis
Invoice To: Sheila

Sample ID	Date	Time	Matrix	Preservatives: HCl				Analyses: 624/8260	610									Comments: Please specify any special reporting requirements
																		G128-898
HPFF-50	3/26/02	11:30	W	✓				✓	✓									
HPFF-52		11:00		✓				✓	✓									
HPFF-54		11:28		✓				✓	✓									
HPFF-53		11:50		✓				✓	✓									
HPFF-55		1:30		✓				✓	✓									
~~HPFF-48~~		2:20		✓				✓	✓									
HPFF-56		9:54		✓				✓	✓									
HPFF-57		1:20		✓				✓	✓									
HPFF-58		12:30		✓				✓	✓									
HPFF-63	↓	1:58	↓	✓				✓	✓									

Relinquished By	Date	Time	Received By	Date	Time	Temperature
[signature]	3/27	0945	Julie Johnson	3/27/02	0945	cold
						5.8, 5.8, 6.0

State Certification Requested

NC ____ SC ____ Other ____

SEE REVERSE FOR TERMS AND CONDITIONS

ORIGINAL

ARADIGM ANALYTICAL LABORATORIES, INC.
527 Northchase Parkway SE, Wilmington, NC 28405
hone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 30521

Page 3 of 3

ient: Catlin
ldress: 220 Old Dairy Rd
ldress: Wilmington NC 28405
uote #: 1489

Project ID: HPFF
Contact: Tom Landis
Phone: 452-5867
Fax:

Date: 3-27-02
Turnaround: Standard
Job Number: 201-022
P.O. Number: 220327-1

Report To: Tom Landis
Invoice To: Sheila

Sample ID	Date	Time	Matrix	Preservatives: HCl				Analyses: 601/602	610									Comments: Please specify any special reporting requirements
																		G128-898
HPFF-62	3/26/02	3:34	W	✓				✓	✓									Summary EDD Format
Trip Blank	3/25/02		W	✓				✓										

Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested
[signature]	3/27	0945	[signature]	3/27/02	0945	on ice	NC ____ SC ____ Other ____
						5.6, 5.8, 6.0	SEE REVERSE FOR TERMS AND CONDITIONS

ORIGINAL