

**ANNUAL GROUNDWATER MONITORING REPORT 2005-2006
SITE H-28
MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA**

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We hereby certify that the Report shown and marked in this submittal is proposed to be incorporated into Contract Number N62470-04-D-1753, is in compliance with the contract drawings and specifications, can be installed in the allocated spaces, and is submitted for Government approval.



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LIST OF ACRONYMS/ABBREVIATIONS

AVOC	Aromatic Volatile Organic Compound
Baker	Baker Environmental, Inc.
bgs	below ground surface
CAP	Corrective Action Plan
DI	Deionized Water
DWM	Division of Waste Management
EEI	Engineering and Environment, Inc.
GCL	Gross Contamination Level
Jones	J.A. Jones Environmental Services Company
L	Liter
Law	Law Engineering and Environmental Services, Inc.
MADEP EPH	Massachusetts Department of Environmental Protection Extractable Petroleum Hydrocarbons
MADEP VPH	Massachusetts Department of Environmental Protection Volatile Petroleum Hydrocarbons
MCB	Marine Corps Base
mg/kg	milligrams per kilogram
msl	mean sea level
MW	Monitoring Well
NAVFACENGCOM	Navy Atlantic Division, Naval Facilities Engineering Command
NCAC	North Carolina Administrative Code
NCDENR	North Carolina Department of Environment and Natural Resources
NCGS	North Carolina Geological Survey
NCGWQS	North Carolina Groundwater Quality Standard
ND	Not Detected
QC	Quality Control
SVOC	Semi-Volatile Organic Compound
TIC	Tentatively Identified Compound
TPH	Total Petroleum Hydrocarbons
ug/L	micrograms per liter
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank

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EXECUTIVE SUMMARY

On behalf of the Department of the Navy, Atlantic Division, Naval Facilities Engineering Command, Engineering and Environment, Inc. has prepared this annual groundwater monitoring report for Site H-28, Marine Corps Base Camp Lejeune, North Carolina. The report presents the findings of groundwater monitoring activities conducted from June 2005 through January 2006.

Building H-28 is a single family house located in a residential area of Marine Corps Base Camp Lejeune, North Carolina. In May 1990, a 550-gallon Number 2 fuel oil Underground Storage Tank (UST) was excavated and removed from site. A soil sample collected at the time the UST was removed indicated petroleum constituents were present in soil above State action levels in effect at that time. Monitoring wells subsequently installed in 1991 indicated free product was not present, although petroleum constituents were detected in groundwater at concentrations slightly above North Carolina Groundwater Quality Standards (NCGWQS).

Additional site characterization and site monitoring activities were conducted, including preparation of a Corrective Action Plan (CAP), a risk characterization assessment, and various well gauging and groundwater sampling programs. The CAP identified one area of soil where petroleum constituents were present above soil rehabilitation goals developed in the CAP and recommended excavation of the soils as the remedial response. However, soil excavation later conducted in the area did not reveal evidence of impacted soil, and the excavated soil was used to backfill the excavation. Soil borings later advanced in the immediate vicinity of the former UST indicated soil concentrations were below Maximum Soil Contaminant Concentrations.

The CAP identified NCGWQSs as groundwater rehabilitation goals and recommended monitored natural attenuation to address petroleum impacted groundwater. Several monitoring programs and a risk characterization assessment were conducted from 1998 to 2003. The monitoring programs conducted from 1998 to 2001 identified some petroleum constituents present at concentrations above NCGWQSs but below Gross Contaminant Levels (GCLs) at wells located near the former UST. Concentrations of these constituents generally were observed to decrease over time.

Free product was detected at one well (MW-11) installed in 1999; the well is located close to the former UST. Product recovery efforts including hand bailing and use of sorbent socks were conducted at the well. Gauging data from 1999 to 2001 indicated the product thickness at well MW-11 was decreasing over time. A risk characterization assessment conducted in 1999 concluded that although the expose risk was considered low, the presence of free product indicated the site should be classified as in Intermediate Risk based on North Carolina Department of Environment and Natural Resources guidance.

Gauging data conducted in 2002 and 2003 at well MW-11 indicated free product was no longer present. However, for some of the events, sorbent socks that had been removed in advance of the gauging event had been reinstalled by an unknown party, and the gauging data for those events were compromised. The remaining 2003 gauging events indicating measurable free product was not present were considered valid without qualification.

In June 2004, the current groundwater monitoring program was initiated. During the first year of monitoring, well gauging was conducted quarterly at all 10 existing site monitoring wells and semi-annual groundwater sampling was conducted at wells MW-6, MW-8, and MW-9. Measurable free product was present at well MW-8 during the first three quarters, and well MW-11 exhibited measurable free product during the second quarterly event. (No measurable free product was observed at well MW-11 during the first quarterly event; however, a sorbent sock was present in the well immediately prior to gauging, and the data were considered compromised.) No measurable free product was observed at any site well during the fourth quarterly gauging event. Groundwater quality data from the first semi-annual event indicated no target analytes were present in wells MW-6 and MW-9. (Well MW-8 was not sampled as measurable free product was present in the well during the event.) During the second semi-annual sampling event, samples were collected from wells MW-6, MW-8, MW-9, and MW-11. Three target analytes (ethylbenzene, naphthalene, and the C₉-C₂₂ Aromatics) were detected above NCGWQSs in well MW-11 only, and the concentrations were substantially below GCLs. It was recommended to continue monitoring at the site.

The current monitoring period included quarterly gauging at all 10 site wells, with events conducted in June 2005, September 2005, December 2005, and January 2006. Semi-annual groundwater sampling was conducted at wells MW-6, MW-8, MW-9, and MW-11, with sampling events conducted in June and December 2005.

Of the four quarterly gauging events, measurable free product was observed only at well MW-7, at a minor thickness of 0.01 foot during the December 2005 event only. Measurable free product was not detected at this well during the subsequent (January 2006) event, and had not been detected during any previous gauging event. No other site wells exhibited measurable free product during any gauging event conducted during the current monitoring period, and, for the most recent gauging event (January 2006), no free product was observed in any site well. The quarterly well gauging data indicate groundwater flow velocities are low and flow directions vary over time, resulting in limited net groundwater movement across the site.

In June and December 2005 three target analytes (ethylbenzene, naphthalene, and the C₉-C₂₂ Aromatics) were detected above NCGWQSs in well MW-11; the concentrations were substantially below GCLs. At well MW-8, the only target analyte detected above NCGWQSs was the C₉-C₂₂ Aromatics fraction, reported slightly above the NCGWQS only during the June 2005 event. No other analytes were detected above NCGWQSs in any other site well during either the June or December 2005 event. Groundwater quality data from the current and previous monitoring programs indicate dissolved-phase petroleum constituent concentrations have decreased over time; constituents present at concentrations above NCGWQSs during the current monitoring program have been detected only at wells MW-8 and MW-11, both located close to the former UST. The potential for migration of dissolved-phase constituents away from the former UST is extremely low given groundwater flow conditions present at the site.

It is recommended to continue groundwater monitoring over the next year, to include quarterly gauging at all site wells, semi-annual groundwater sampling at wells MW-7, MW-8, MW-9, and MW-11, and annual reporting. The site should be accessed in advance of field events to remove sorbent socks, if present; the socks should be reinstalled as needed following the events.

SECTION 1 INTRODUCTION

On behalf of the Department of the Navy, Atlantic Division, Naval Facilities Engineering Command (NAVFACENGCOM), Engineering and Environment, Inc. (EEI) has prepared this annual groundwater monitoring report for Site H-28, Marine Corps Base (MCB) Camp Lejeune. The report presents the findings of groundwater monitoring activities conducted from June 2005 through January 2006. This report and the methods used to acquire the data in support of this report have been prepared in accordance with the North Carolina Department of Environmental Resources (NCDENR), Division of Waste Management (DWM), Underground Storage Tank (UST) Section guidelines (NCDENR, 2001 and 2003) and the site specific work prepared for this site by EEI (EEI, 2004).

The site has been assigned incident number 23333 by NCDENR. Previous site investigations have indicated the site meets criteria associated with NCDENR's Intermediate Risk classification (Law, 2000a).

1.1 Site Description

The site is located on MCB Camp Lejeune in Onslow County, North Carolina (N34 degrees, 40.636 minutes, W77 degrees, 22.151 minutes) (Law, 2000a) (Figure 1-1). Within Camp Lejeune, the site is located on Julian C. Smith Drive in a residential area of the base and includes Building H-28 (Figure 1-2). Building H-28 is a detached, single family officer's residence.

The nearest mapped body of water is Wallace Creek. The creek is located approximately 200 feet north of the site. No potable water supply wells are located within 1,500 feet of the site (Law, 2000a).

1.2 Site History

In May 1990, a 550-gallon UST was excavated and removed from the site (Baker, 1994). The installation date of the former UST is not known. The former UST had been located immediately south of Building H-28 and had been used to store Number 2 fuel oil for heating (Figure 1-3). A soil sample collected from below the UST at the time of removal indicated Total Petroleum Hydrocarbons (TPH) – high boiling point range were present at a concentration of 18,000 milligrams per kilogram (mg/kg), above the 10 mg/kg State action level in effect at that time (Baker, 1994). Three monitoring wells (now identified as MW-8, MW-9, and MW-10) were installed in September 1991. Soil samples collected during well installation indicated TPH was not present at detectable levels. Following installation, gauging of the wells indicated no measurable free product was present in any of the wells. However, analysis of groundwater samples collected from the wells indicated two wells, MW-9 and MW-10, exhibited benzene concentrations of 10 micrograms per liter (ug/L) and 19 ug/L, above the North Carolina Groundwater Quality Standard (NCGWQS) for benzene of 1 ug/L (Baker, 1994).

Additional site characterization activities were conducted and, in 1994, a corrective action plan (CAP) was prepared (Baker, 1994). The CAP included the results of the site characterization

program and presented a remediation strategy to address petroleum constituents in soil and groundwater. The characterization data indicated one area south of the former UST where soil TPH concentrations (medium-to-high boiling point range) exceeded the site rehabilitation goal of 240 mg/kg (developed in the CAP using State guidance in effect at that time). Groundwater impacts appeared to be limited to low concentrations of aromatic volatile organic compounds (AVOCs) and semi-volatile organic compounds (SVOCs) detected primarily near the former UST. The CAP identified NCGWQSs as site rehabilitation goals for groundwater, with respect to which benzene was the only compound present above NCGWQS. The SVOCs detected in groundwater did not have NCGWQSs established at that time. The recommended remediation approach for soil was excavation of the affected soils south of the former UST. For groundwater, the CAP recommended remediation by monitored natural attenuation (Baker, 1994).

Soil excavation in the area south of the former UST was conducted in November 1995 (Jones, 1996) (Figure 1-3). Soil vapor analyses conducted during the excavation indicated the soil was not impacted with petroleum hydrocarbons, and the excavated soils were used to backfill the excavation while on site. Laboratory analyses of the soil confirmed that only low concentrations (less than 1 mg/kg) of TPH were present (Jones, 1996).

Groundwater monitoring activities were conducted in 1998. Activities included one site-wide well gauging event in January 1998, gauging wells MW-6 and MW-7 in April and July 1998, and collecting groundwater samples for AVOC and SVOC analyses from wells MW-6 and MW-7 in January, April, and July 1998 (Law, 1998a, b, c). No free product was detected during any of the gauging events, and no AVOCs or SVOCs were detected for the January and April events. For the July 1998 event, some AVOCs and SVOCs were detected in well MW-6 only, with naphthalene reported at a concentration above NCGWQSs but lower than observed during the CAP (Law 1998c).

A risk characterization assessment was conducted in 1999 (Law, 2000a). As part of the assessment, three soil borings were advanced in the immediate vicinity of the former UST (approximately five feet or less from the former UST), and one monitoring well (MW-11) was installed approximately five feet from the former UST. Unsaturated (vadose zone) soil samples collected during the advancement of the borings indicated petroleum constituent concentrations were below the most restrictive Maximum Soil Contaminant Concentrations (MSCCs) established by NCDENR. Groundwater samples were collected from wells MW-6, MW-7, MW-9, and MW-11. Analysis of these samples indicated no detectable petroleum constituents were present in wells MW-7 and MW-9. However, NCGWQSs were exceeded for the C₉-C₂₂ Aromatic Hydrocarbon fraction, the C₉ – C₁₈ Aliphatic Hydrocarbon fraction, and/or naphthalene at wells MW-6 and MW-11, although concentrations were below NCDENR Gross Contaminant Levels (GCLs) for those constituents with established GCLs. Additionally, measurable free product was identified at well MW-11 in two of three gauging events (maximum product thickness of 0.85 foot). The assessment concluded that, although vadose zone soils were below MSCCs and surficial aquifer groundwater posed little exposure risk to surface water or drinking water aquifers, due to the presence of free product at well MW-11, the site should be considered as Intermediate Risk under NCDENR guidance (Law, 2000a).

Groundwater monitoring activities were resumed in 2000 and continued into 2001 (Law, 2000b, Law, 2001). The monitoring program included quarterly well gauging at all site wells (excluding well MW-4, which had not been located since at least January 1998), product recovery by hand bailing at wells exhibiting measurable free product, and semi-annual groundwater sampling at wells MW-6, MW-8, and MW-9. The gauging data identified the presence of free product only in well MW-11, and indicated the product thickness was decreasing over time at the well, with only 0.02 foot of product present at well MW-11 during the program's final gauging event in April 2001. Groundwater sample data indicated few compounds were present at concentrations above NCGWQSs (none above established GCLs), and concentrations of detected constituents generally were decreasing over time. However, the site was considered to remain an Intermediate Risk due to the minor thickness of free product at well MW-11.

A program of quarterly gauging of well MW-11 was initiated in October 2002 and was completed in August 2003 (EEI, 2003a, b, c, d). The program included accessing the well in advance of the gauging event to remove a previously installed sorbent (product recovery) sock. No measurable free product was observed during four quarters of gauging. However, on two occasions, when the well was re-accessed for gauging, the sorbent sock had been reinstalled into the well by an unknown party. The product thickness data for these two events was considered compromised. Data for the remaining events indicating measurable free product was not present were considered valid without qualification.

In June 2004, the current groundwater monitoring program was initiated. During the first year of monitoring, well gauging was conducted quarterly at all 10 existing site monitoring wells and semi-annual groundwater sampling was conducted at wells MW-6, MW-8, and MW-9. Measurable free product was present at well MW-8 during the first three quarters, and well MW-11 exhibited measurable free product during the second quarterly event. (No measurable free product was observed at well MW-11 during the first quarterly event; however, a sorbent sock was present in the well immediately prior to gauging, and the data were considered compromised.) No measurable free product was observed at any site well during the fourth quarterly gauging event. Groundwater quality data from the first semi-annual event indicated no target analytes were present in wells MW-6 and MW-9. (Well MW-8 was not sampled as measurable free product was present in the well during the event.) During the second semi-annual sampling event, samples were collected from wells MW-6, MW-8, MW-9, and MW-11. Three target analytes (ethylbenzene, naphthalene, and the C₉-C₂₂ Aromatics) were detected above NCGWQSs in well MW-11 only, and the concentrations were substantially below GCLs. It was recommended to continue monitoring at the site (EEI, 2005).

The current monitoring period extended from June 2005 through January 2006, and included quarterly gauging at all 10 site wells, with events conducted in June 2005, September 2005, December 2005, and January 2006. Semi-annual groundwater sampling was conducted at wells MW-6, MW-8, MW-9, and MW-11, with sampling events conducted in June and December 2005.

Data for the current monitoring period are discussed in the following sections. Section 2 describes field methods used at the site. Section 3 discusses hydrogeologic characteristics of the site. Section 4 presents laboratory analytical results and their significance. Section 5 provides

conclusions and recommendations based on review of the data. References cited in the report are listed in Section 6. Figures and tables are organized after the text. Supporting documentation (field records and laboratory analytical reports for each event) are contained in Appendices A and B.

SECTION 2

FIELD PROGRAM

Field methods employed during the groundwater monitoring program are discussed briefly below. Activities were conducted in accordance with NCDENR guidance (NCDENR, 2001 and 2003) and as per the work plan (EEI, 2004), which details the field methods.

2.1 Well Gauging

Well gauging was conducted quarterly on 3 June, 8 September, and 13 December 2005, and 3 January 2006. For each gauging event, 10 site monitoring wells (MW-1 through MW-3, and MW-5 through MW-11) were gauged. Well gauging was conducted using an electronic interface probe to measure the depth to water and depth to product (if present). Data were recorded to the nearest 0.01 foot and referenced to the surveyed top of casing. Field data recording sheets from each event are presented in Appendix A.

During the monitoring period, measurable free product was observed only during the December 2005 event, with well MW-7 exhibiting 0.01 foot of free product. Product recovery was not conducted, as the final gauging event was scheduled for the following month (January 2006), and recovery activities would have compromised the gauging data.

2.2 Groundwater Sampling

Groundwater samples were collected on 3 June and 13 December 2005 from monitoring wells MW-6, MW-8, MW-9, and MW-11. A duplicate sample was collected at well MW-11 during the June 2005 event. Field data recording sheets from each event are presented in Appendix A.

Monitoring well groundwater samples were collected using low-flow purging techniques. A Grundfos Redi-Flo II stainless steel submersible pump discharging through polyethylene tubing was used to purge and sample the wells. The water level in the well was periodically measured and recorded; if necessary, the pumping rate was decreased to limit drawdown. Additionally, the pump intake height was adjusted as necessary. Water quality indicator parameters (pH, temperature, conductivity, oxidation-reduction potential, dissolved oxygen, and turbidity) were measured and recorded repeatedly during the purge. Purging was continued until water quality indicator parameters had stabilized or until a maximum of five well casing volumes had been purged. If a well purged to dryness, the well was allowed to recharge, and a sample then was collected; however, no wells were purged dry during either sampling event. Samples were collected immediately upon completion of the purge by filling the laboratory-prepared sample bottles directly from the discharge tubing. Samples were kept in an iced cooler from the time of collection until received by the laboratory.

Groundwater samples collected during the sampling events (June and September 2005) were analyzed for the following parameters:

- AVOCs, EPA Method 602 with xylenes (3x40 milliliter [ml] vials),
- Massachusetts Department of Environmental Protection (MADEP) - Volatile Petroleum Hydrocarbons (VPH) (3 x 40 ml vials)
- SVOCs, EPA Method 625 + 10 largest non-target peaks (i.e., Tentatively Identified Compounds [TICs]) (2 x 1 liter [L])
- MADEP - Extractable Petroleum Hydrocarbons (EPH) (2 x 1 L)

Samples were submitted under chain-of-custody to Paradigm Analytical Laboratories in Wilmington, North Carolina. Samples were delivered to the laboratory via overnight commercial courier service.

2.3 Equipment Decontamination and Waste Handling Procedures

The pump was decontaminated before first use and after each use by pumping a mixture of Alconox or Liquinox soap and potable water through the pump. The pump then was rinsed by pumping potable water through it, and final rinsed with deionized (DI) water. New polyethylene tubing was used at each well.

Water quality meter flow-through cells and down-hole gauging equipment were decontaminated after each use by washing with an Alconox/DI water mixture, followed by a DI water rinse. The water quality probe was decontaminated with a DI rinse.

Well purge water and equipment decontamination water generated during the sampling event were contained in a portable holding tank. The water was processed through a groundwater treatment system located at Lot 203 on MCB Camp Lejeune. Used tubing and other miscellaneous material were collected and bagged as they were generated. This material was treated as normal solid waste and placed in EEI's refuse container.

2.4 Well Maintenance

During each monitoring event, any brush, debris, and/or liter in the vicinity of the well heads were cleared. The well heads, casing risers, well pads, bollards, well caps, locks, etc. were inspected for damage or deterioration. All wells appeared to be undamaged and in serviceable condition.

SECTION 3 HYDROGEOLOGY

The hydrogeologic characteristics of the subsurface substantially control the movement of groundwater, which strongly influences contaminant movement. The regional geologic setting provides a framework for understanding and interpreting the site-specific hydrogeology. Knowledge of the latter allows for evaluating groundwater flow at a scale relevant to the monitoring program.

3.1 Regional Hydrogeology

The site is located in the eastern portion of the Coastal Plain Physiographic Province of North Carolina. The Coastal Plain consists of nearly flat to gently dipping sedimentary strata of varying composition that overlie a crystalline basement complex. Approximately 80 miles northwest of the site, the Coastal Plain pinches out where it contacts the Piedmont Physiographic Province along the Fall Line. East of the Fall Line, the sediments gradually thicken, reaching a maximum thickness of approximately 10,000 feet at Cape Hatteras, North Carolina. In the vicinity of the site, the sedimentary sequence is estimated to be approximately 2,000 feet thick (NCGS, 1988).

Surficial deposits of Quaternary age are present in and around the area of the site, typically at thicknesses ranging from about 25 to 80 feet. The uppermost mapped unit in the area of the site is identified as the River Bend Formation of Tertiary age, described as a calcareous limestone interlaced with indurated sandy, molluscan limestone (NCGS, 1985). The River Bend Formation overlies the Castle Hayne Formation, also of Tertiary age. The Castle Hayne Formation is described as gray to cream colored, fine grained to fossiliferous calcareous limestone with minor amounts of fine quartz, glauconite, and phosphate (NCGS, 1988). The thickness of the Castle Hayne Formation in the vicinity of the site is estimated at approximately 300 feet. The Castle Hayne aquifer is a primary source of potable water for the area.

3.2 Site Hydrogeology

The topography of the site is predominantly flat. A drainage ditch is located on the north side of the site along Julian C. Smith Drive. No permanent surface water bodies are present. Wallace Creek is the nearest mapped surface water body, located approximately 200 feet north of the site.

Shallow soil at the site is described as a sandy silt to silty sand. This material grades to a fine sand encountered at approximately six to eight feet below ground surface (bgs). The fine sand extends to a depth of at least 17 feet bgs. Infrequent clay lenses of about 0.5 foot in thickness were reported in the fine sand. First saturated soils of the surficial aquifer were encountered in the fine sand at depths of approximately 10 feet bgs (Baker, 1994).

All of the monitoring wells installed at the site are shallow wells (total depths of approximately 17 feet bgs for most wells) screened in the saturated shallow fine sands of the surficial aquifer. Using the top-of-casing elevations and gauging data recorded during the quarterly events, groundwater elevations for the site monitoring wells were calculated. Table 3-1 presents the

groundwater gauging data for the four quarterly gauging events conducted during the monitoring period. For wells exhibiting measurable free product, the groundwater elevation was corrected by adding 80 percent of the product thickness to the calculated groundwater elevation. (The product thickness was multiplied by 80 percent as the specific gravity of the product is assumed to be 0.8.).

The elevation data for the shallow wells were used to construct surficial aquifer groundwater elevation maps for each gauging event. From the maps, groundwater flow direction can be estimated. Figures 3-1 through 3-4 respectively present groundwater elevation maps for the June 2005, September 2005, December 2005, and January 2006 quarterly gauging events.

From the maps, surficial aquifer groundwater flows appears to be variable over time. For the June 2005 event, groundwater generally flows to the west across the site, with a small area of slightly elevated groundwater observed in the central portion of the site near well MW-11 (Figure 3-1). During the September 2005 event, groundwater flow generally was to the east (Figure 3-2). In December 2005 and January 2006, groundwater flow was to the northwest (Figures 3-3 and 3-4). During each event, groundwater elevations exhibited very little difference (typically less than 0.15 foot, although the September 2005 data exhibited approximately 0.5 foot of elevation difference).

Data from the first year of the monitoring program also indicated variable flow patterns (EEI, 2005). Additionally, previous investigations indicated some variability in flow direction (Baker, 1994; Law, 1998; Law, 2000b; Law, 2001). Given the limited topographic relief at the site and the absence of nearby surface water bodies, groundwater flow directions would be expected to be readily influenced by relatively minor changes in conditions at the site, such as seasonal variations in the water table elevation and transient local recharge associated with precipitation.

The horizontal gradient i is calculated using the standard equation $i = \Delta h / \Delta L$, where Δh is the change in head measured along the direction of groundwater flow, and ΔL is the straight-line distance between the measurement locations. For each of the quarterly gauging events, the horizontal gradient has been calculated using data from a well pair that is closely aligned with the groundwater flow direction for the gauging event, as summarized below:

<u>Event</u>	<u>Well/ GW Elev</u>	<u>Well / GW Elev</u>	<u>Direction</u>	<u>Δh</u>	<u>ΔL</u>	<u>i</u>
June 2005	MW-9 / 2.97	MW-6 / 2.93	E	0.04	36	0.0011
September 2005	MW-6 / 2.73	MW-2 / 2.34	W	0.39	100	0.0039
December 2005	MW-11 / 3.06	MW-7 / 2.90	NW	0.16	42	0.0038
January 2006	MW-11 / 3.25	MW-6 / 3.16	NW	0.09	26	0.0035

Notes:

GW Elev: Groundwater Elevation, expressed in feet above/below mean sea level

Δh : head differential, expressed in feet

ΔL : horizontal separation

i : horizontal gradient, unitless

From the above, horizontal gradients (direction and magnitude) vary somewhat over time. However, all of the gradients are low, as is graphically illustrated by the limited groundwater elevation relief expressed in Figures 3-1 through 3-4.

The groundwater linear flow velocity V is calculated using the standard equation $V = (Ki) / n_e$, where i is the horizontal gradient (discussed above), K is the hydraulic conductivity, and n_e is the effective porosity. Previous investigations have provided estimates of K and n_e based on aquifer testing and examination of subsurface soil samples, respectively. The investigations identified a K of 2.24 feet/day and a n_e of 0.30 (dimensionless) for the site (Baker, 1994). Using these values and the horizontal gradients calculated above, linear flow velocities for each of the gauging events have been calculated, as summarized below:

<u>Event</u>	<u>i</u>	<u>V</u>	<u>Direction</u>
June 2005	0.0011	3.0 feet/year	E
September 2005	0.0039	11 feet/year	W
December 2005	0.0038	10 feet/year	NW
January 2006	0.0035	9.5 feet/year	NW

Notes:

i : horizontal gradient, unitless

V : linear flow velocity, feet per year

From the above, the groundwater linear flow velocities vary over time, due to the variation in gradient, as discussed above. All of the calculated velocities are low, and do not account for tortuosity (a parameter describing the deviation from a straight line flow path as groundwater moves around and between grains of soil). Consequently, at scales comparable to the size of the site, the linear velocity will overestimate the effective distance groundwater will travel for a given period of time. Lastly, given the variability in the direction of flow over time, the net movement of groundwater across the site over the course of the year will be further reduced.

SECTION 4

LABORATORY ANALYTICAL RESULTS

Groundwater samples were collected in June and December 2005 from site monitoring wells MW-6, MW-8, MW-9 and MW-11. A duplicate groundwater sample was collected from well MW-11 during the June 2005 event. Groundwater samples were analyzed by Paradigm Analytical Laboratories for AVOCs (EPA Method 602), SVOCs (EPA Method 625), MADEP VPH, and MADEP EPH. Appendix B presents the laboratory analytical reports for both sampling events.

4.1 Groundwater Analytical Results

Tables 4-1 and 4-2 summarize the analytical results for the June and December 2005 events, respectively. Only compounds detected at one or more locations during the current monitoring program or in previous sampling events and that were quantitated during the current program are listed.

From Tables 4-1 and 4-2, no analytes were detected at well MW-6 during the June or December 2005 events. At well MW-9, no analytes were detected during the June 2005 event. Some AVOCs (ethylbenzene, toluene, and xylenes) were detected at low concentrations at well MW-9 during the December event; concentrations of the detected analytes were two to three orders of magnitude below NCGWQSs.

At well MW-8, no AVOCs were detected at concentrations above NCGWQSs, and no target analyte SVOCs were detected above NCGWQSs during the June or December 2005 events. Various tentatively identified compounds (TICs) were reported for the June and December 2005 samples collected at well MW-8. (TICs are compounds not on the target compound list, and not all TICs are identified and quantitated using individual standards. All TIC quantitations are estimated.) Of the TICs, only one was identified as a specific compound: 1-methylnaphthalene was reported at an estimated concentration of 5.7 micrograms per liter (ug/L) for the sample collected in June 2005. A NCGWQS is not available for 1-methylnaphthalene, and therefore the standard is set at the detection limit; consequently, any detection of the compound is by definition above the standard. A GCL has not been established for 1-methylnaphthalene. Given the uncertainties associated with TIC identification and quantitation, the significance of the data is limited. The C₉-C₂₂ Aromatics fraction (presented in Tables 4-1 and 4-2 as the sum of the individually quantitated C₉-C₁₀ Aromatics and C₁₁-C₂₂ Aromatics) was reported at well MW-8 in June 2005 at a concentration of 220 ug/L, slightly above the NCGWQS of 210 ug/L. A GCL has not been established for the C₉-C₂₂ Aromatics. The C₉-C₂₂ Aromatics fraction was not detected in the December 2005 event. The C₉-C₁₈ Aliphatics fraction (presented in Tables 4-1 and 4-2 as the sum of the individually quantitated C₉-C₁₂ Aliphatics and C₉-C₁₈ Aliphatics) and the C₉-C₃₆ Aliphatics were detected only in the December 2005 sample collected from well MW-8, both at concentrations substantially below the NCGWQSs. A GCL has not been established for either of these hydrocarbon fractions.

At well MW-11, ethylbenzene was the only AVOCs reported at concentrations above the NCGWQS. For the June 2005 event, ethylbenzene was reported in the duplicate sample at a

concentration of 29.7 ug/L, slightly above the NCGWQS of 29 ug/L. (Ethylbenzene was reported in the primary sample at a concentration of 29.0 ug/L, equal to the NCGWQS.) For the December 2005 event, ethylbenzene was reported at a concentration of 35.4 ug/L, slightly above the NCGWQS. The ethylbenzene concentrations are substantially below the GCL of 29,000 ug/L. The only target analyte SVOC detected above NCGWQSs was naphthalene, reported in the June 2005 primary and duplicate samples at concentrations of 112 ug/L and 109 ug/L, respectively, and in the December 2005 sample at 142 ug/L. These concentrations are somewhat above the NCGWQS of 21 ug/L, but are substantially below the GCL of 15,500 ug/L. Of the TICs reported for the samples collected from well MW-11, only two were identified as discrete compounds. 1-Methylnaphthalene was reported at estimated concentrations ranging from 99.6 ug/L (June 2005 duplicate sample) to 113 ug/L (December 2005 sample). As indicated above, a NCGWQS is not available for 1-methylnaphthalene. 2-Methylnaphthalene was reported at estimated concentrations ranging from 132 ug/L (June 2005 duplicate sample) to 142 ug/L (December 2005 sample). These concentrations are somewhat above the NCGWQS of 14 ug/L, but are substantially below the GCL of 12,500 ug/L. As previously discussed, given the uncertainties associated with TICs, the significance of the data is limited. The C₉-C₂₂ Aromatics fraction was reported at well MW-11 in June 2005 at concentrations of 1,640 ug/L (primary sample) and 1,540 ug/L (duplicate sample), and at a somewhat lower concentration of 1,310 ug/L in the December 2005 sample. These concentrations are somewhat above the NCGWQS of 210 ug/L. A GCL has not been established for the C₉-C₂₂ Aromatics.

Figures 4-1 through 4-6 respectively present maps of the June and December 2005 ethylbenzene, naphthalene, and the C₉-C₂₂ Aromatics concentrations in groundwater. From the maps, concentrations of these constituents are limited to the immediate vicinity of wells MW-11 and/or MW-8, both located near the former UST.

Laboratory analytical data for groundwater samples collected over time at the site are summarized in Table 4-3. In general, constituent concentrations are decreasing over time across the site. At well MW-6, no target analytes have been detected since the current monitoring program was initiated in June 2004, and no target analytes have been detected at concentrations above NCGWQSs since October 2000. At well MW-9, no target analytes have been detected at concentrations above NCGWQSs since the current monitoring program was initiated in June 2004, and no petroleum-related constituents have been detected at concentrations above NCGWQSs during any previous sampling event. (Chloroform is the only constituent detected above the NCGWQS at well MW-9, reported at low concentrations during sampling events conducted in October 2000 and April 2001). At well MW-8, concentrations have decreased over time such that no target analytes were present above NCGWQSs during the most recent (December 2005) sampling event. At well MW-11, ethylbenzene and naphthalene concentrations have exhibited limited variation; concentrations of the C₉-C₂₂ Aromatics have decreased by more than a factor of two between an initial (August 1999) sampling event (C₉-C₂₂ Aromatics concentration of approximately 3,000 ug/L) and the most recent (December 2005) sampling event (C₉-C₂₂ Aromatics concentration of approximately 1,300 ug/L).

During the current monitoring period, site wells were gauged quarterly from June 2005 to January 2006. Table 4-4 summarizes the product thickness data over time, and include data from the current and previous investigations.

During the current monitoring period, measurable free product was detected only at well MW-7, recorded at a thickness of 0.01 foot during the December 2005 gauging event. Measurable free product was not detected at this well during the subsequent (January 2006) event, and had not been detected during any previous gauging event. No other site wells exhibited measurable free product during any gauging event conducted during the current monitoring period. Figure 4-7 illustrates the estimated extent of free product for December 2005. The map illustrates the limited lateral extent of free product.

Product thickness data from previous gauging events indicate that measurable free product has been detected at various times at wells MW-8 and MW-11 (Table 4-4). At well MW-8, measurable free product was detected at thicknesses of 0.05, 0.01 foot, and 0.01 foot during gauging events conducted in June, September, and December 2004, respectively. Measurable free product has not been detected at this well during the subsequent five quarterly gauging events and was not detected in gauging events conducted prior to June 2004.

At well MW-11, measurable free product has been detected at thicknesses ranging from 0.85 foot (October 1999) to 0.02 foot (April 2001). Measurable free product was last detected at this well in September 2004 (thickness of 0.10 foot) and has not been detected in the well in the subsequent six gauging events.

In summary, the occurrence and thickness of measurable free product has decreased over time, with no measurable free product detected during the most recent gauging event. The current and historical groundwater quality data indicate concentrations of dissolved-phase petroleum constituents also have decreased over time.

4.2 Quality Assurance/Quality Control and Data Verification

Quality control (QC) sampling included collection of a field duplicate sample from well MW-11 for the December 2005 event. The primary and QC samples were submitted to Paradigm Analytical Laboratories for the same analyses. Results for the two samples were consistent (Table 4-1).

Data verification was performed by EEI on the complete set of the primary investigative samples, and included a review of the following:

- Holding times
- Blanks
- Laboratory control spikes
- Surrogate recoveries
- Internal standards
- Calibrations

An assessment of the results indicated the data are usable for project purposes.

SECTION 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations have been developed based on a review of current and historical site data. Each is discussed below.

5.1 Conclusions

The following conclusions have been drawn based on site data:

- Surficial aquifer groundwater flow directions are variable over time; in conjunction with low groundwater velocities, net movement of groundwater across the site appears to be very limited.
- A previous investigation indicated constituent concentrations in soil are below NCDENR Soil-to-Groundwater Maximum Contaminant Concentrations.
- Gauging data suggest that the occurrence and thickness of free product, when detected, has decreased over time, with no measurable free product present during the most recent gauging event.
- Few target analytes were present at detectable concentrations during the current monitoring period; only three target analytes were detected above NCGWQSs; all were substantially below GCLs and were detected primarily at well MW-11.
- Historical groundwater quality data indicate few constituents have been present above NCGWQSs, and all constituents have been substantially below GCLs.
- Historical and current groundwater quality data indicate dissolved-phase petroleum constituent concentrations have decreased over time; constituents present at concentrations above NCGWQSs during the current monitoring program have been detected only at wells MW-8 and MW-11, both located close to the former UST; the potential for migration of dissolved-phase constituents is extremely low given groundwater flow conditions present at the site.

5.2 Recommendations

The following recommendations are made based on site data:

- Over the next year, quarterly groundwater gauging should be conducted at all site monitoring wells. Semi-annual groundwater sampling should continue to be conducted at wells MW-8, MW-9, and MW-11, provided no measurable free product is present during the sampling events. Well MW-7 should be included in the semi-annual sampling events (provided measurable free product is not detected during the sampling event), as a minor thickness of free product was observed at during one gauging event. Sampling at well MW-6 should be discontinued, as this well has not exhibited constituents at concentrations above NCGWQSs since October 2000. Field protocols and the laboratory analytic suite as specified for the current monitoring program should continue to be followed.

- Sorbent socks, if present, should be removed from site monitoring wells approximately two weeks prior to each scheduled monitoring event, and socks should be reinstalled as needed following each event.
- Findings should be reported annually after completion of the fourth quarter monitoring event.

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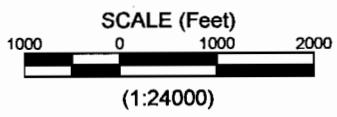
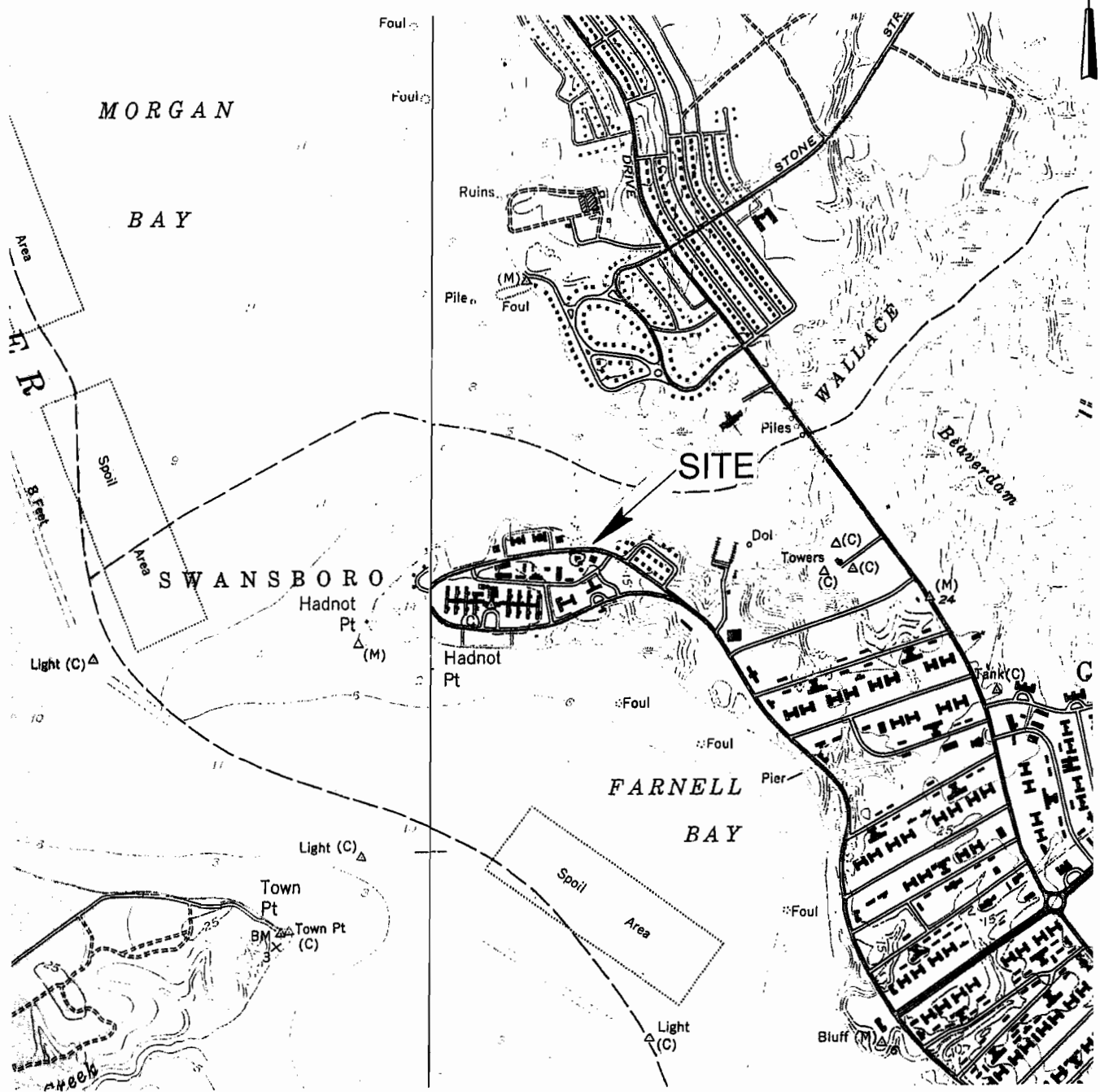
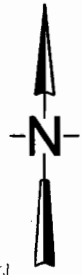
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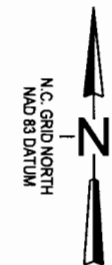
FIGURES



U.S.G.S TOPOGRAPHIC MAPS:
JACKSONVILLE SOUTH, N.C.
1952
PHOTOINSPECTED 1988
and
CAMP LEJEUNE SOUTH, N.C.
1952
PHOTOREVISED 1971

(Map adapted from Law, 2000a)

 Engineering & Environment, Inc.	FIGURE	1-1	SITE LOCATION
	DATE	4/29/04	
	REVISION	0	
	DRAWN BY	WCM	
	FILE	H28 TOPO	
			SITEH-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC



LEGEND

- SHALLOW MONITORING WELL

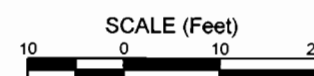
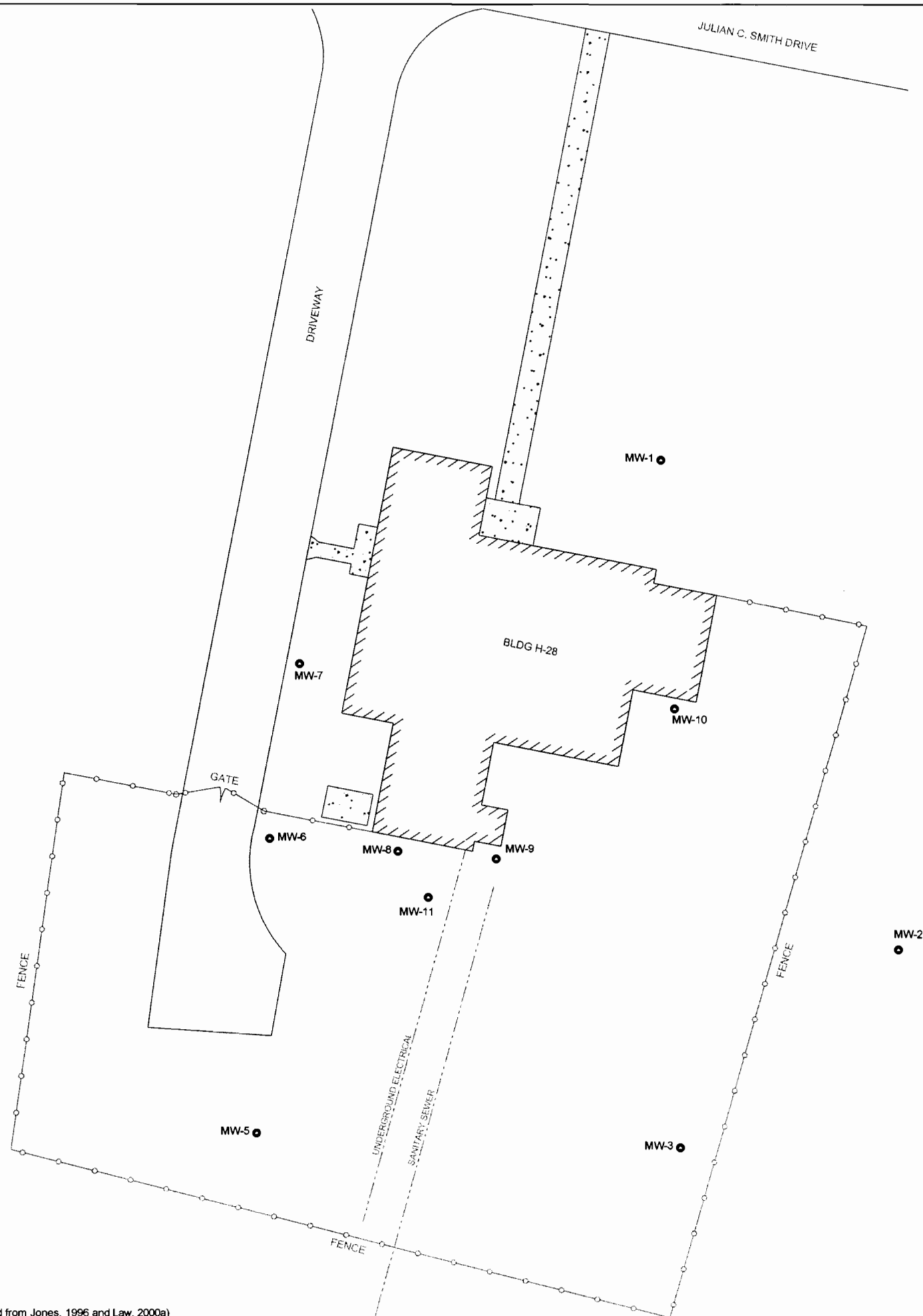
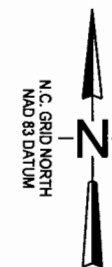


	FIGURE	1-2	SITE LAYOUT AND WELL LOCATIONS SITE H-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
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	REVISION	0	
	DRAWN BY	WCM	
	FILE	H28_MAP	



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- SHALLOW MONITORING WELL

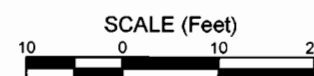
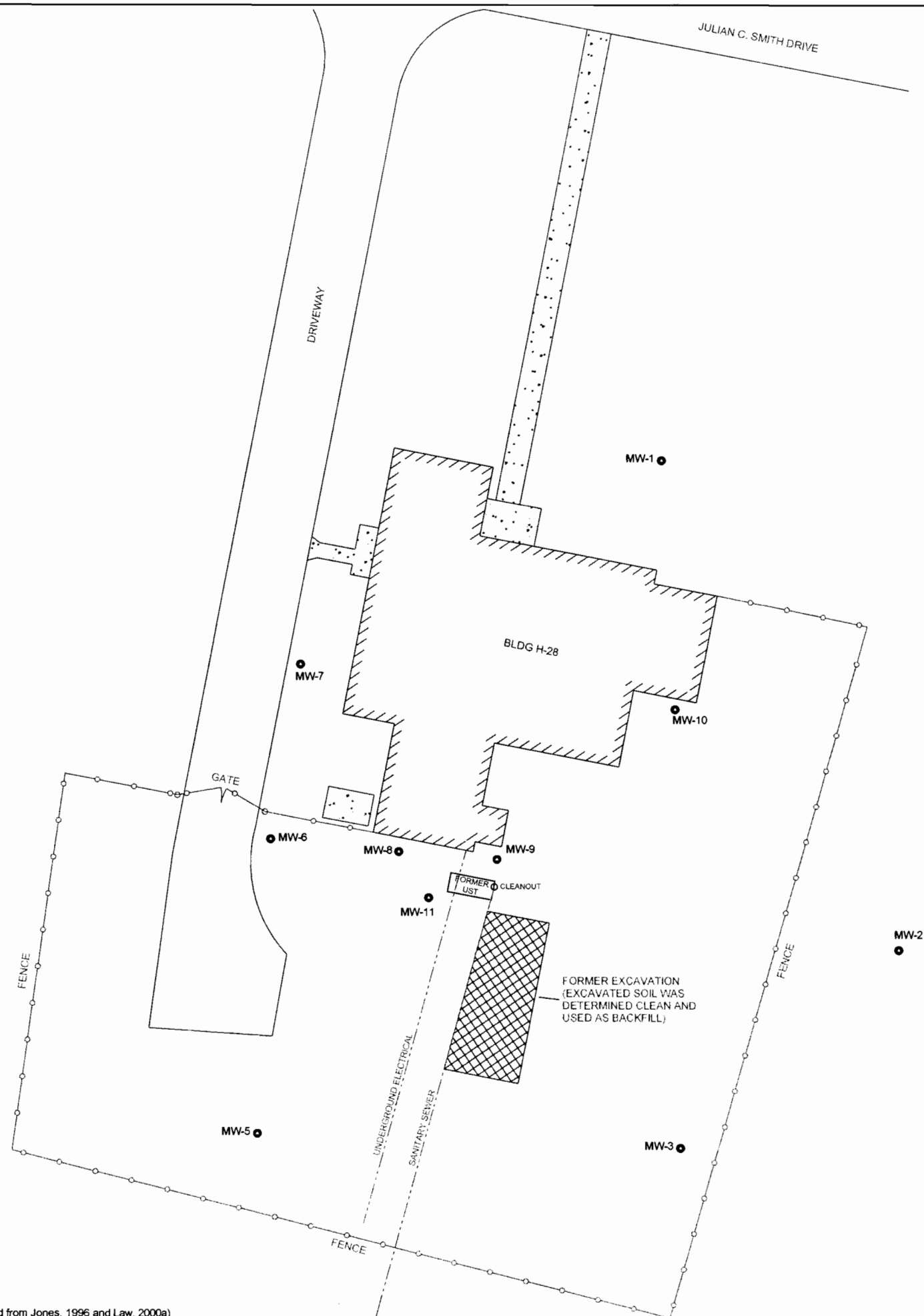


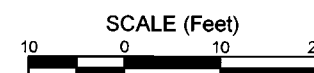
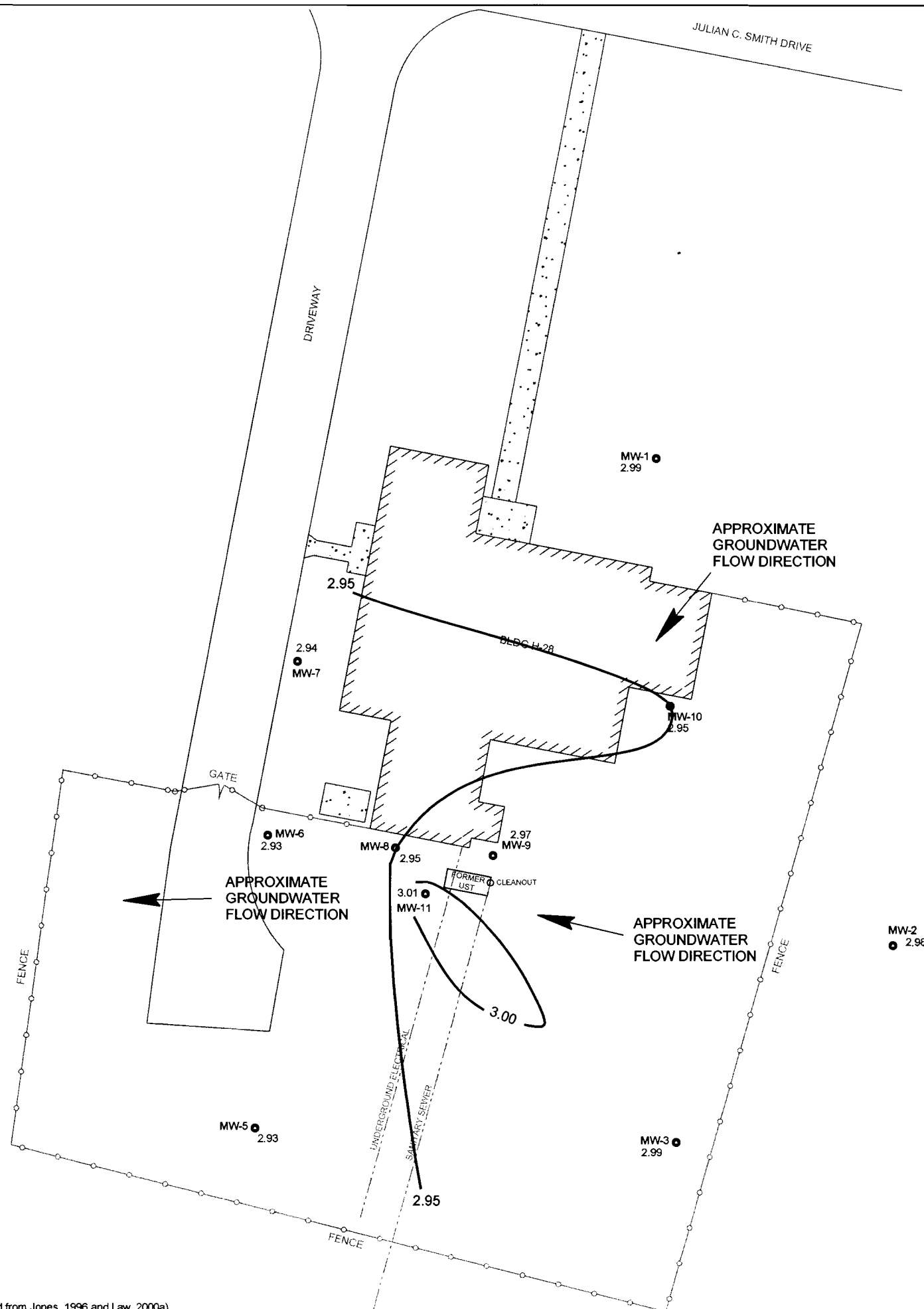
	FIGURE	1-3	LOCATION OF FORMER UST AND PREVIOUS EXCAVATION SITE H-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
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	REVISION	0	
	DRAWN BY	WCM	
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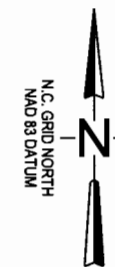
LEGEND

- SHALLOW MONITORING WELL
- 1.51 ● SURFICIAL AQUIFER GROUNDWATER ELEVATION
- 3.0 — SURFICIAL AQUIFER GROUNDWATER ELEVATION CONTOUR

(GROUNDWATER ELEVATIONS EXPRESSED IN FEET ABOVE/BELOW MEAN SEA LEVEL)



Engineering & Environmental, Inc.	FIGURE	3-1	SURFICIAL AQUIFER GROUNDWATER ELEVATIONS FOR 3 JUNE 2005 SITE H-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	12/28/05	
	REVISION	0	
	DRAWN BY	WCM	
	FILE	H28_MAP	



LEGEND

- SHALLOW MONITORING WELL
- 1.51 ● SURFICIAL AQUIFER GROUNDWATER ELEVATION
- 3.0 — SURFICIAL AQUIFER GROUNDWATER ELEVATION CONTOUR

(GROUNDWATER ELEVATIONS EXPRESSED IN FEET ABOVE/BELOW MEAN SEA LEVEL)

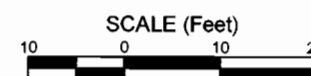
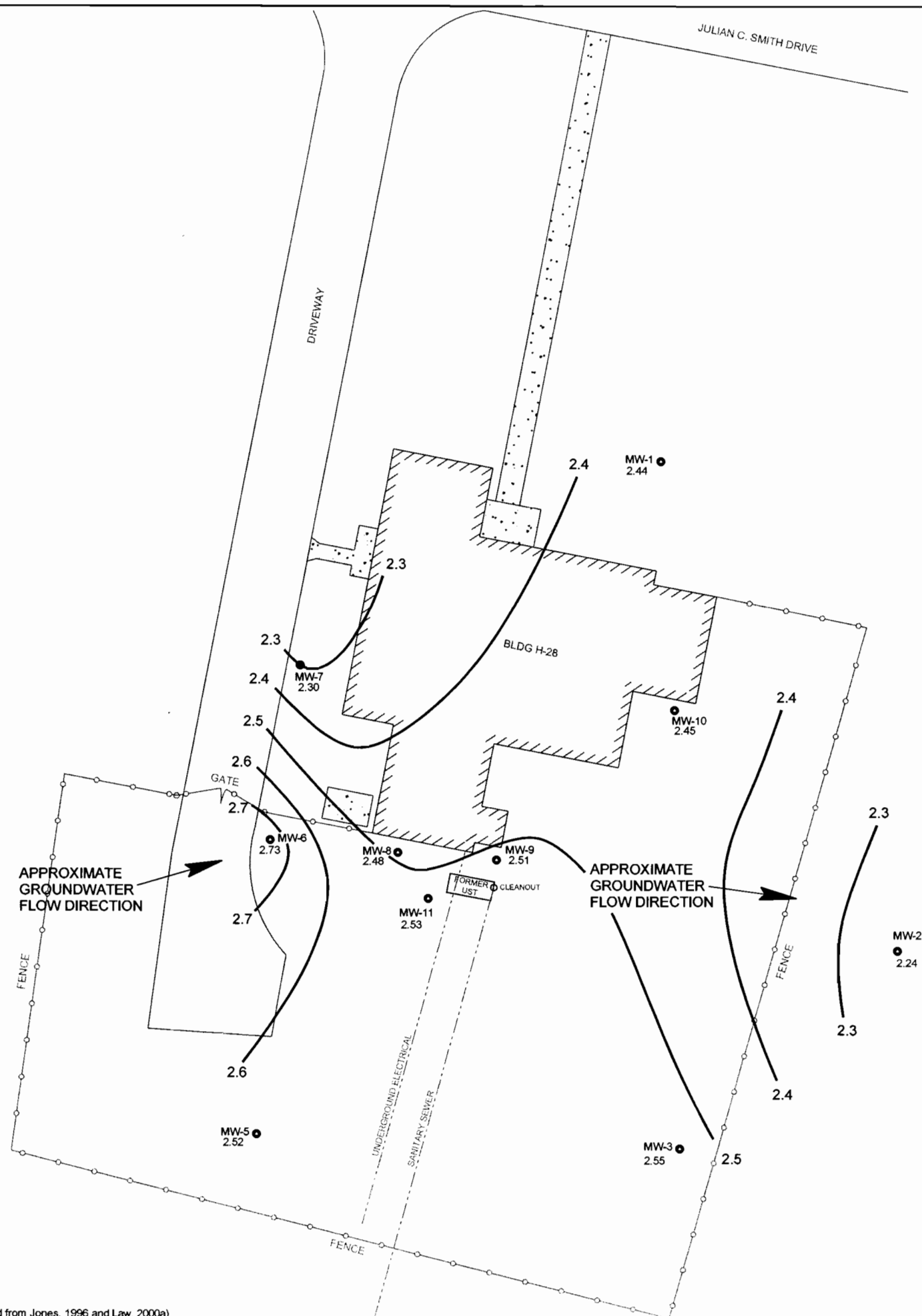


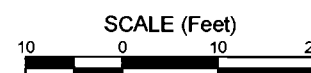
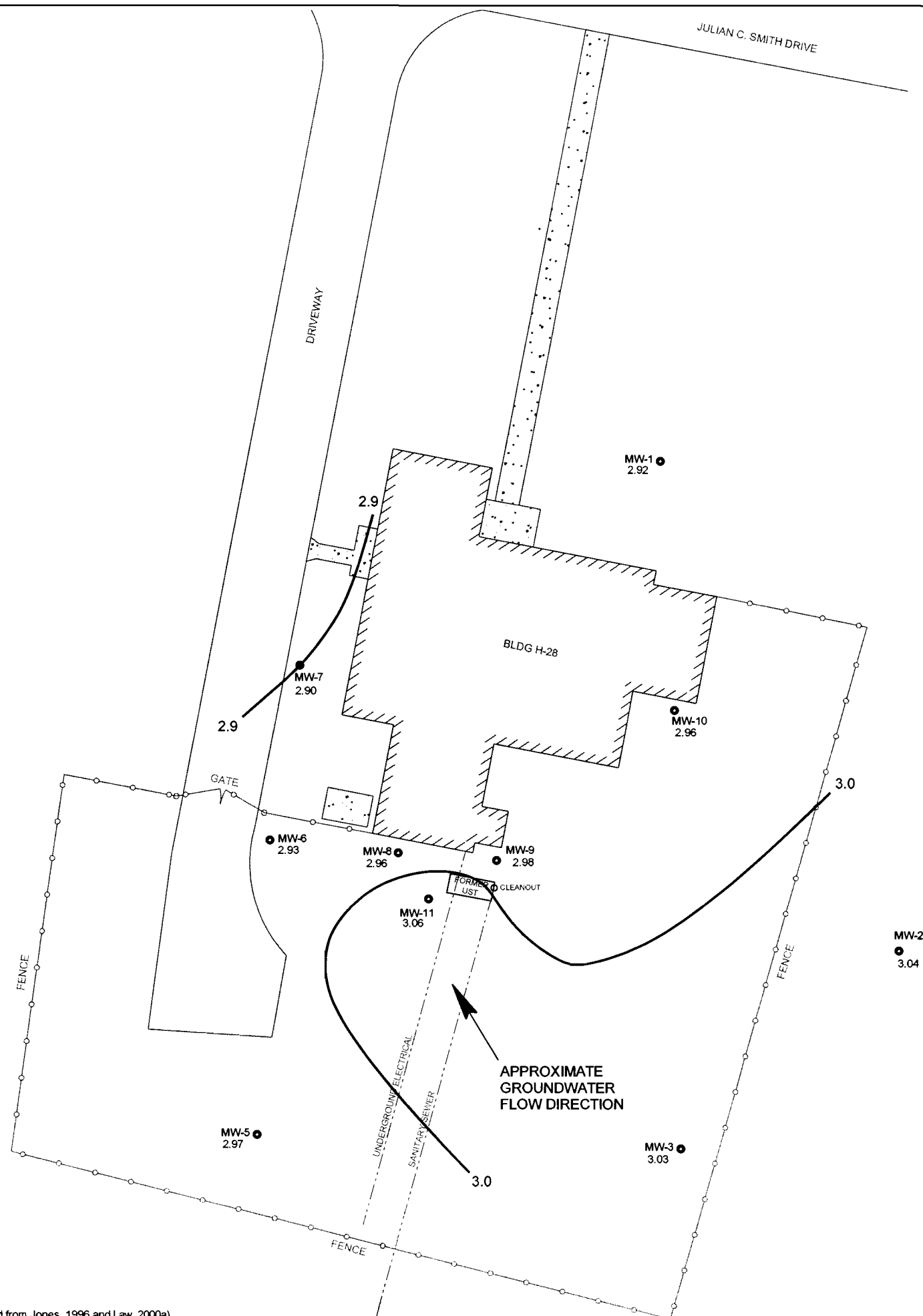
	FIGURE	3-2	SURFICIAL AQUIFER GROUNDWATER ELEVATIONS FOR 8 SEPTEMBER 2005 SITE H-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	12/28/05	
	REVISION	0	
	DRAWN BY	WCM	
	FILE	H28_MAP	



LEGEND

- SHALLOW MONITORING WELL
- 1.51 ● SURFICIAL AQUIFER GROUNDWATER ELEVATION
- 3.0 — SURFICIAL AQUIFER GROUNDWATER ELEVATION CONTOUR

(GROUNDWATER ELEVATIONS EXPRESSED IN FEET ABOVE/BELOW MEAN SEA LEVEL)



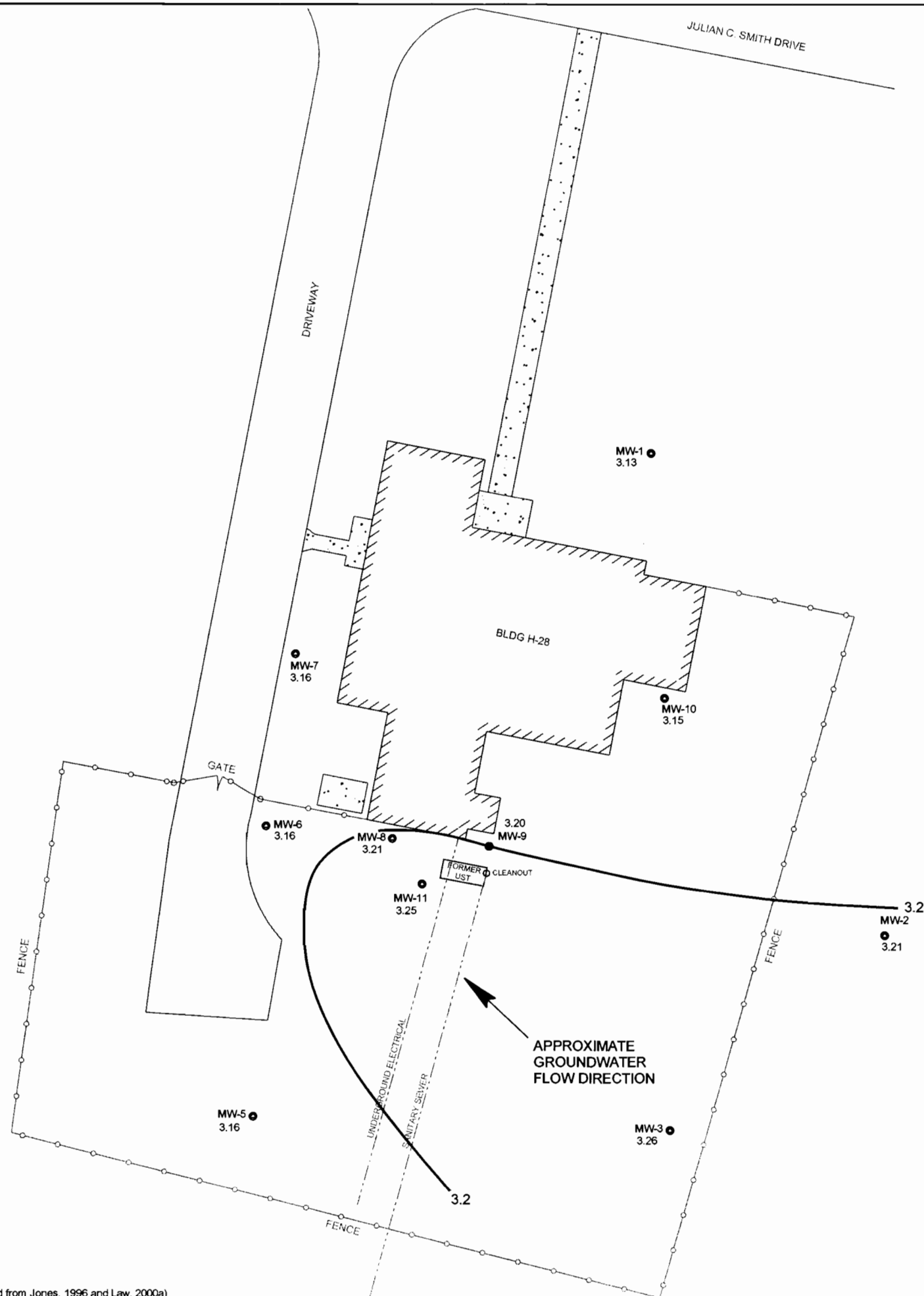
 Engineering & Environment, Inc.	FIGURE	3-3	SURFICIAL AQUIFER GROUNDWATER ELEVATIONS FOR 13 DECEMBER 2005 SITE H-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	12/28/05	
	REVISION	0	
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LEGEND

- SHALLOW MONITORING WELL
- 1.51 ● SURFICIAL AQUIFER GROUNDWATER ELEVATION
- 3.0 — SURFICIAL AQUIFER GROUNDWATER ELEVATION CONTOUR

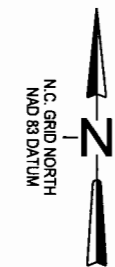
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(Base map adapted from Jones, 1996 and Law, 2000a)

SCALE (Feet)
10 0 10 20

	FIGURE	3-4	SURFICIAL AQUIFER GROUNDWATER ELEVATIONS 3 JANUARY 2006 SITE H-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	12/28/05	
	REVISION	0	
	DRAWN BY	WCM	
	FILE	H28_MAP	



LEGEND

- SHALLOW MONITORING WELL
- 165 ● SURFICIAL AQUIFER ETHYLBENZENE CONCENTRATION
- 29- SURFICIAL AQUIFER ETHYLBENZENE ISOCONCENTRATION CONTOUR

(CONCENTRATIONS EXPRESSED IN MICROGRAMS PER LITER)
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(THE NORTH CAROLINA GROUNDWATER QUALITY STANDARD FOR
ETHYLBENZENE IS 29 MICROGRAMS PER LITER)

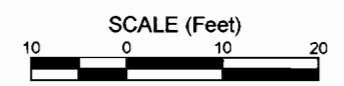
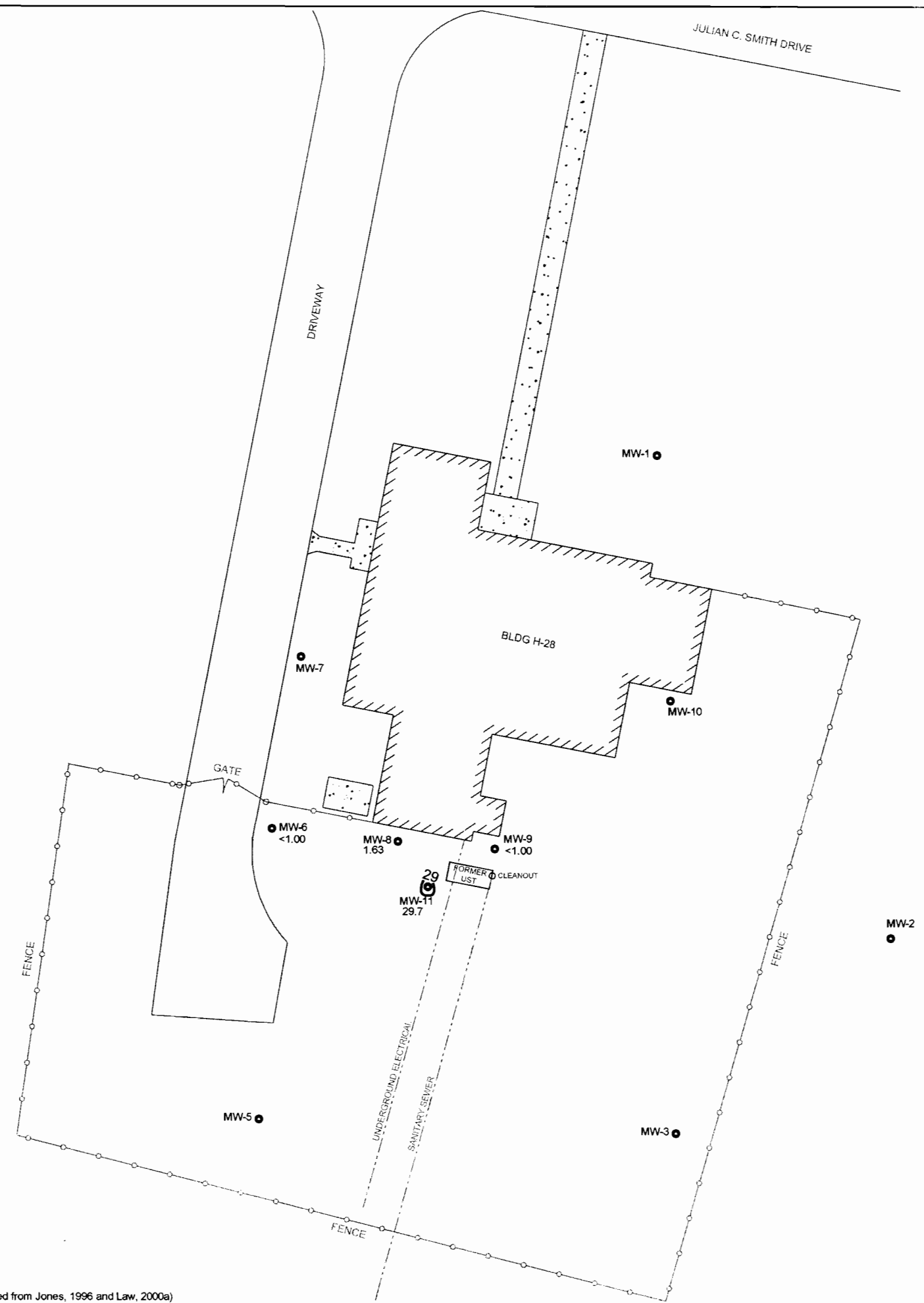


	FIGURE	4-1	SURFICIAL AQUIFER ETHYLBENZENE CONCENTRATIONS FOR JUNE 2005 SITE H-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
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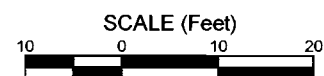
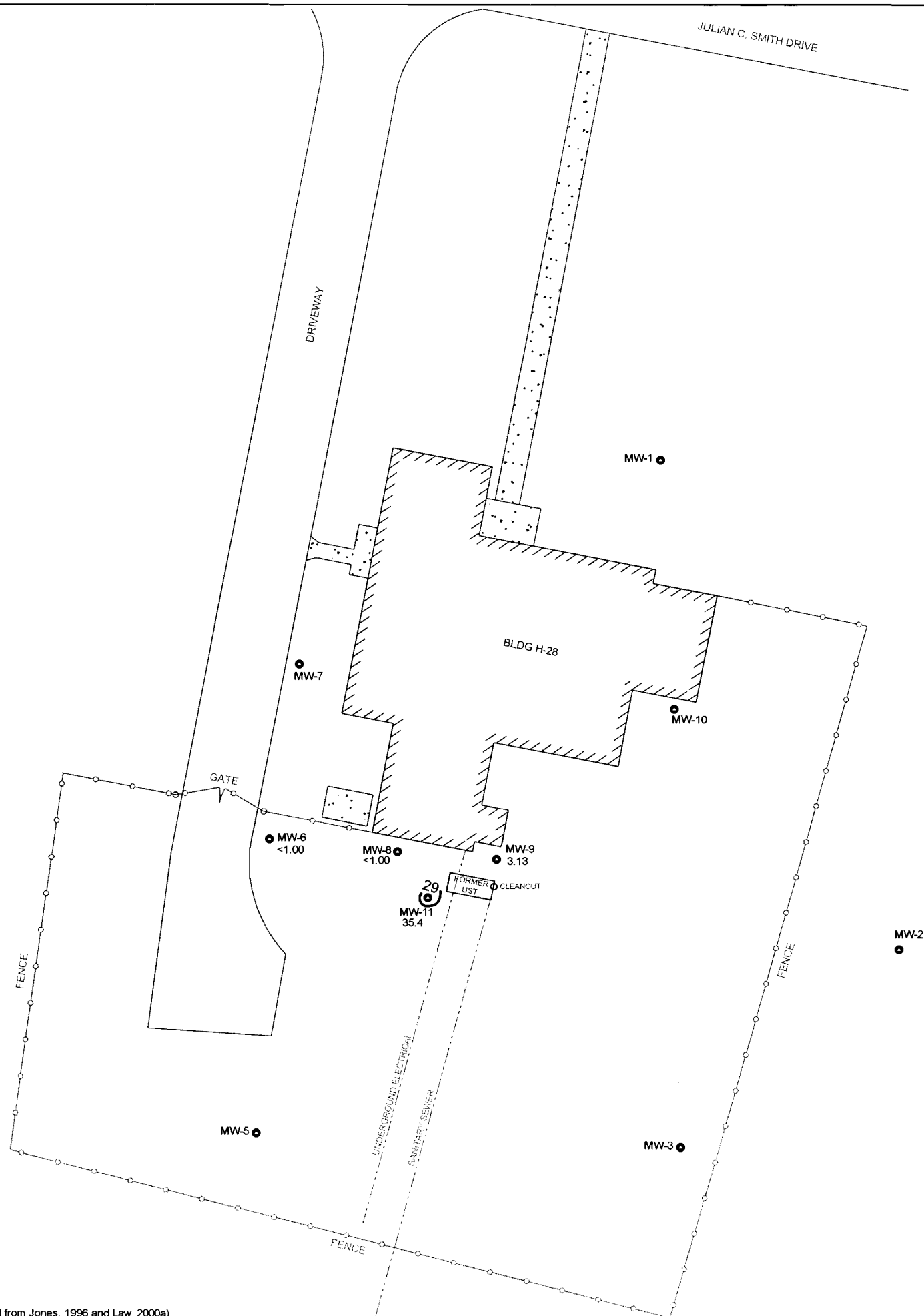
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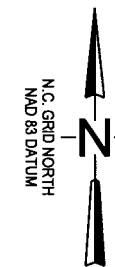
- SHALLOW MONITORING WELL
- 165 ● SURFICIAL AQUIFER ETHYLBENZENE CONCENTRATION
- 29— SURFICIAL AQUIFER ETHYLBENZENE ISOCONCENTRATION CONTOUR

(CONCENTRATIONS EXPRESSED IN MICROGRAMS PER LITER)
(<# DENOTES NOT DETECTED AT THE INDICATED REPORTING LIMIT)
(THE NORTH CAROLINA GROUNDWATER QUALITY STANDARD FOR ETHYLBENZENE IS 29 MICROGRAMS PER LITER)



(Base map adapted from Jones, 1996 and Law, 2000a)

	FIGURE	4-2	SURFICIAL AQUIFER ETHYLBENZENE CONCENTRATIONS FOR DECEMBER 2005 SITE H-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	12/28/05	
	REVISION	0	
	DRAWN BY	WCM	
	FILE	H28_MAP	



LEGEND

- SHALLOW MONITORING WELL
- 96.5 ● SURFICIAL AQUIFER NAPHTHALENE CONCENTRATION
- 21- SURFICIAL AQUIFER NAPHTHALENE ISOCONCENTRATION CONTOUR

(CONCENTRATIONS EXPRESSED IN MICROGRAMS PER LITER)
(<# DENOTES NOT DETECTED AT THE INDICATED REPORTING LIMIT)
("J" DENOTES ESTIMATED CONCENTRATION BELOW THE REPORTING LIMIT)
(THE NORTH CAROLINA GROUNDWATER QUALITY STANDARD FOR
NAPHTHALENE IS 21 MICROGRAMS PER LITER)

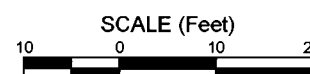
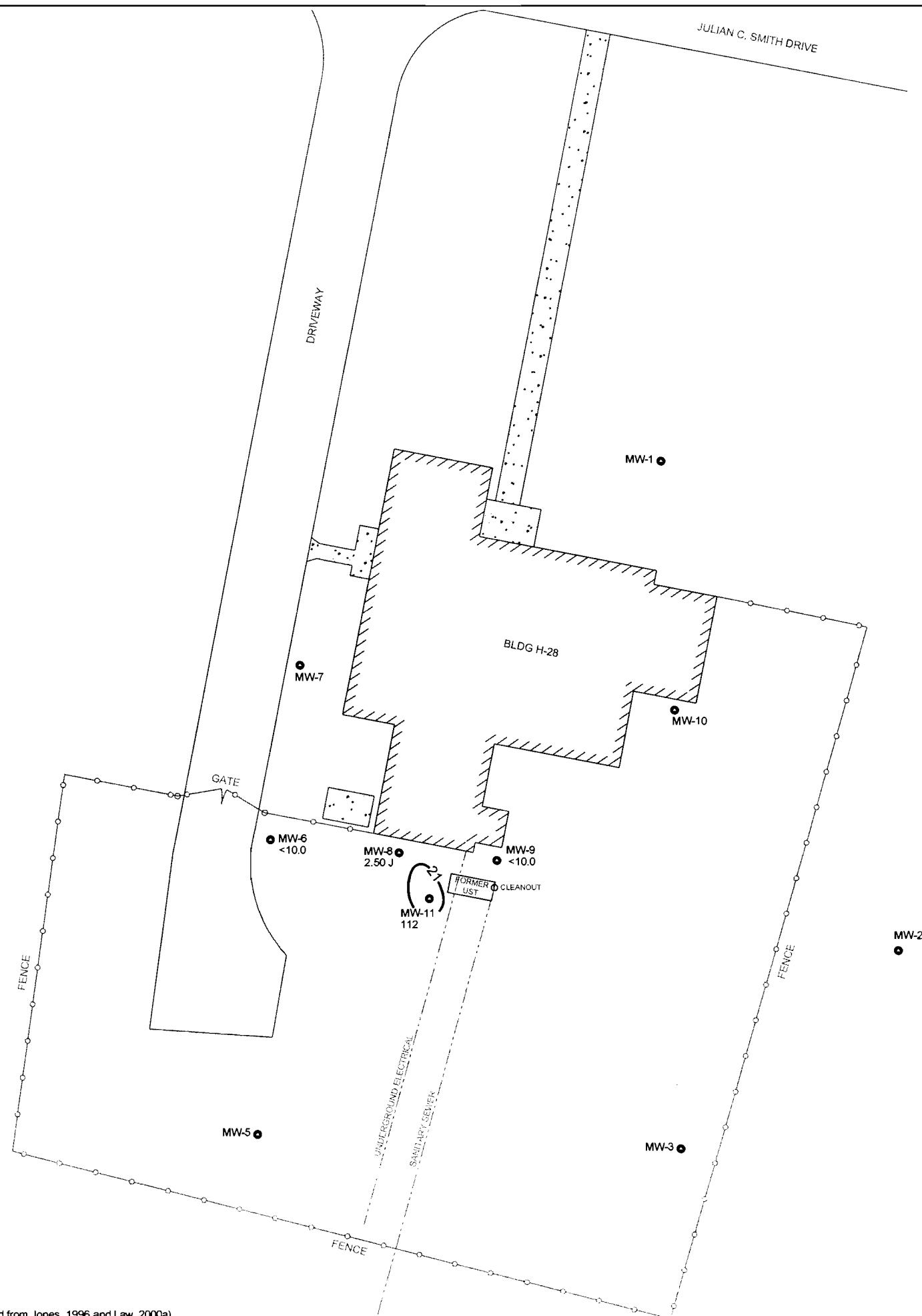
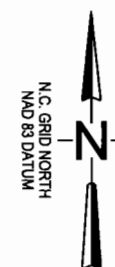


	FIGURE	4-3	SURFICIAL AQUIFER NAPHTHALENE CONCENTRATIONS FOR JUNE 2005 SITE H-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	12/28/05	
	REVISION	0	
	DRAWN BY	WCM	
	FILE	H28_MAP	



LEGEND

- SHALLOW MONITORING WELL
- 96.5 ● SURFICIAL AQUIFER NAPHTHALENE CONCENTRATION
- 21- SURFICIAL AQUIFER NAPHTHALENE ISOCONCENTRATION CONTOUR

(CONCENTRATIONS EXPRESSED IN MICROGRAMS PER LITER)
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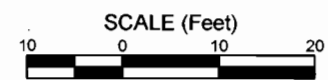
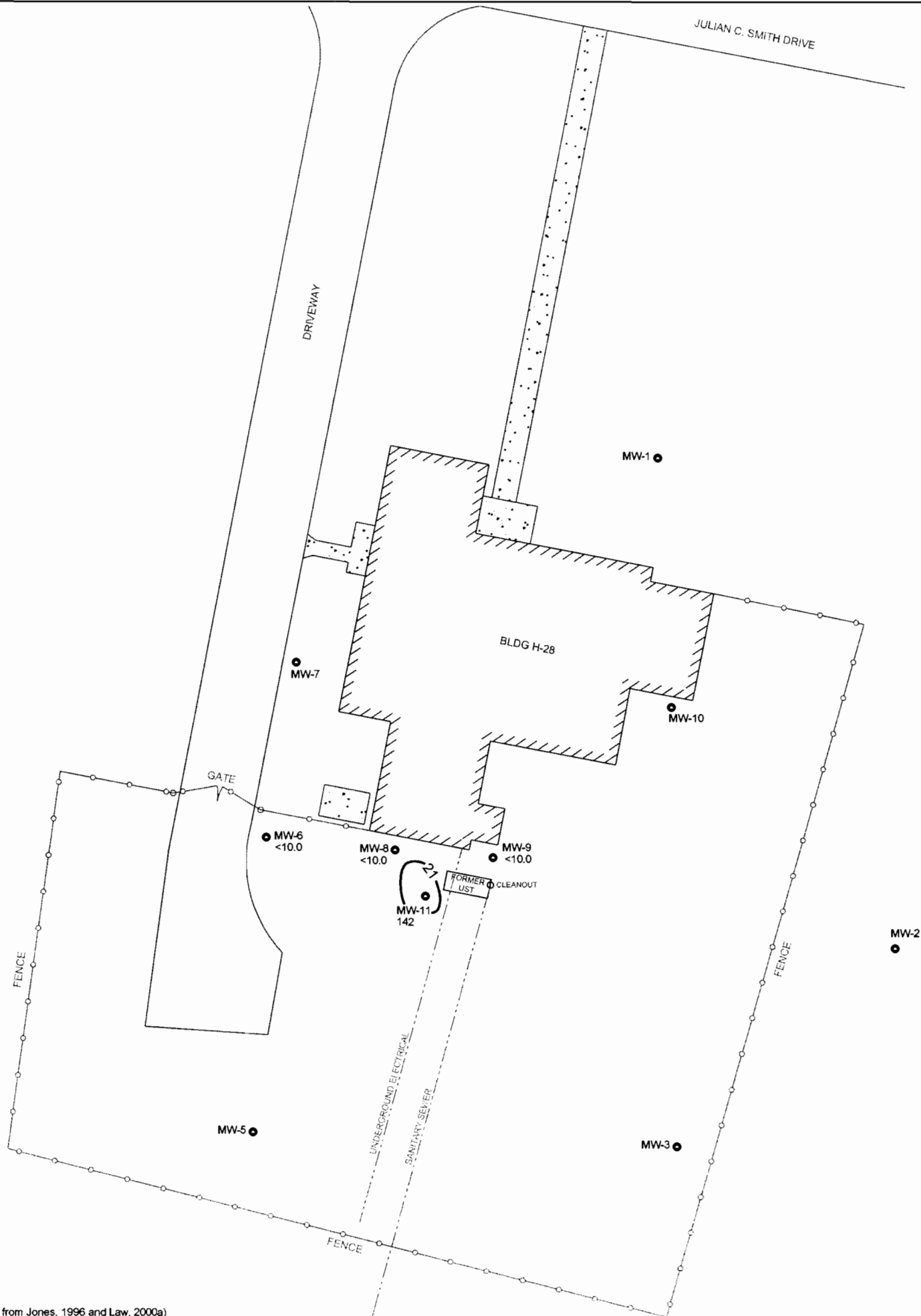
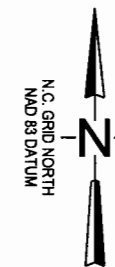


	FIGURE	4-4	SURFICIAL AQUIFER NAPHTHALENE CONCENTRATIONS FOR DECEMBER 2005 SITE H-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
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	REVISION	0	
	DRAWN BY	WCM	
	FILE	H28_MAP	

(Base map adapted from Jones, 1996 and Law, 2000a)



LEGEND

- SHALLOW MONITORING WELL
 - 1140 ● SURFICIAL AQUIFER C9-C22 AROMATICS CONCENTRATION
 - 210- SURFICIAL AQUIFER C9-C22 AROMATICS ISOCONCENTRATION CONTOUR
- (CONCENTRATIONS EXPRESSED IN MICROGRAMS PER LITER)
(<# DENOTES NOT DETECTED AT THE INDICATED REPORTING LIMIT)
(THE NORTH CAROLINA GROUNDWATER QUALITY STANDARD FOR C9-C22 AROMATICS IS 210 MICROGRAMS PER LITER)

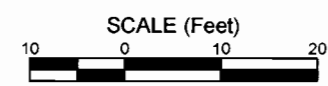
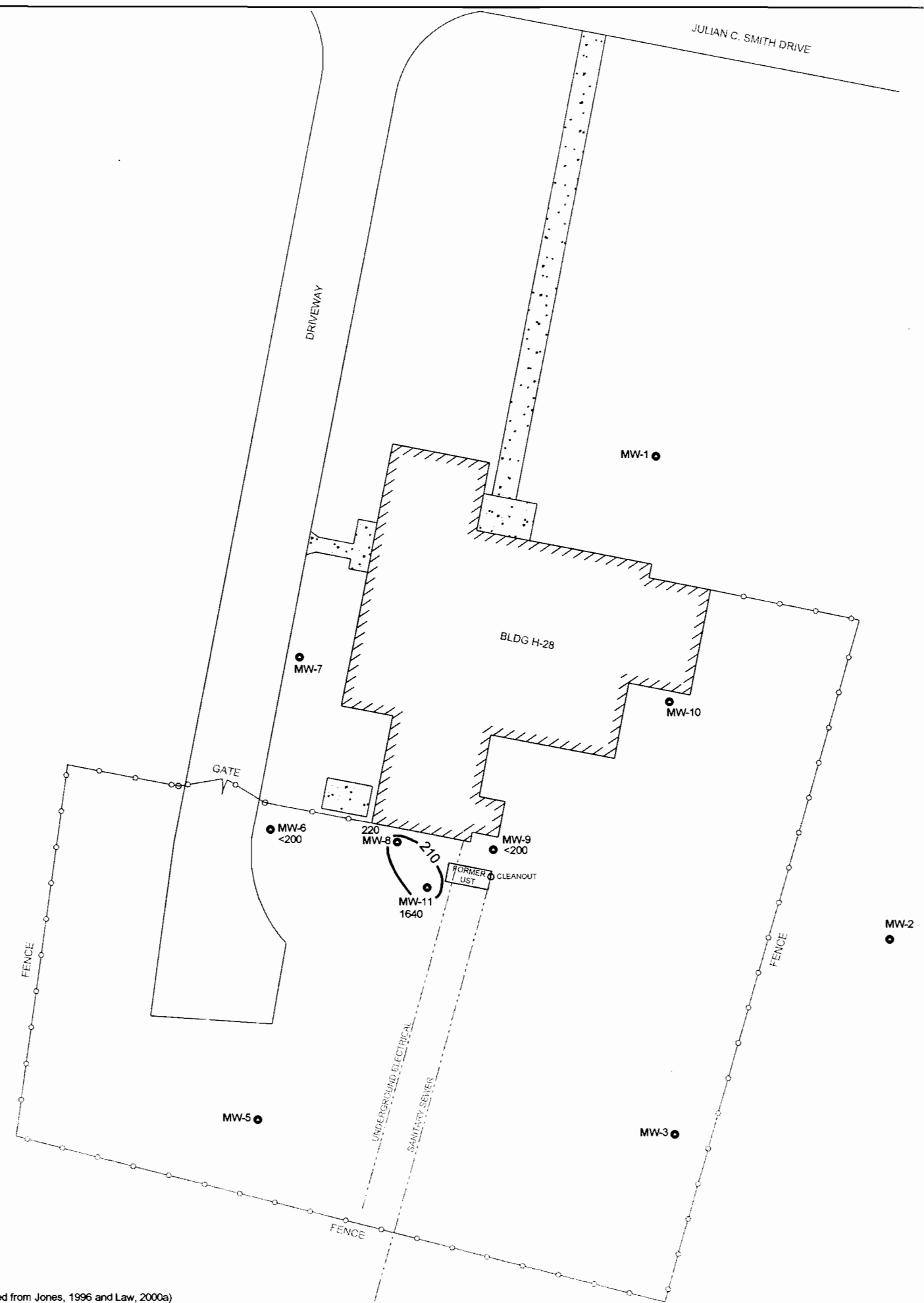


	FIGURE	4-5	SURFICIAL AQUIFER C9-C22 AROMATICS CONCENTRATIONS FOR JUNE 2005 SITE H-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	12/28/05	
	REVISION	0	
	DRAWN BY	WCM	
	FILE	H28_MAP	

(Base map adapted from Jones, 1996 and Law, 2000a)



LEGEND

- SHALLOW MONITORING WELL
- 1140 ● SURFICIAL AQUIFER C9-C22 AROMATICS CONCENTRATION
- 210— SURFICIAL AQUIFER C9-C22 AROMATICS ISOCONCENTRATION CONTOUR

(CONCENTRATIONS EXPRESSED IN MICROGRAMS PER LITER)
(<# DENOTES NOT DETECTED AT THE INDICATED REPORTING LIMIT)
(THE NORTH CAROLINA GROUNDWATER QUALITY STANDARD FOR
C9-C22 AROMATICS IS 210 MICROGRAMS PER LITER)

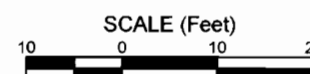
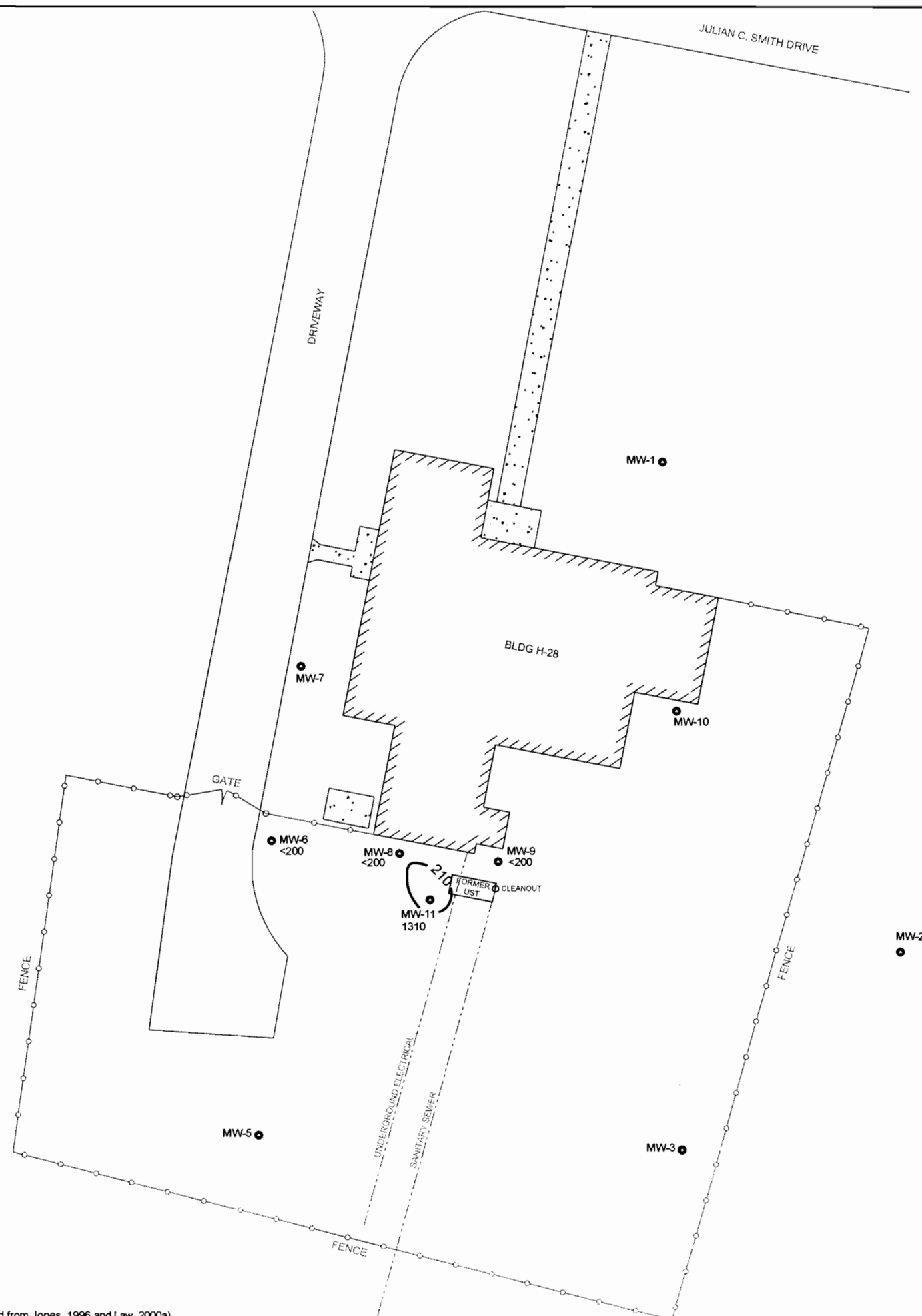
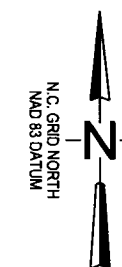


	FIGURE	4-6	SURFICIAL AQUIFER C9-C22 AROMATICS CONCENTRATIONS FOR DECEMBER 2005 SITE H-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	12/28/05	
	REVISION	0	
	DRAWN BY	WCM	
	FILE	H28_MAP	



LEGEND

- SHALLOW MONITORING WELL
 - 0.05 ● FREE PRODUCT THICKNESS
 - ESTIMATED EXTENT OF FREE PRODUCT
- (THICKNESS EXPRESSED IN FEET)
(NP: MEASURABLE FREE PRODUCT NOT PRESENT)

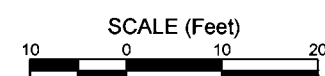
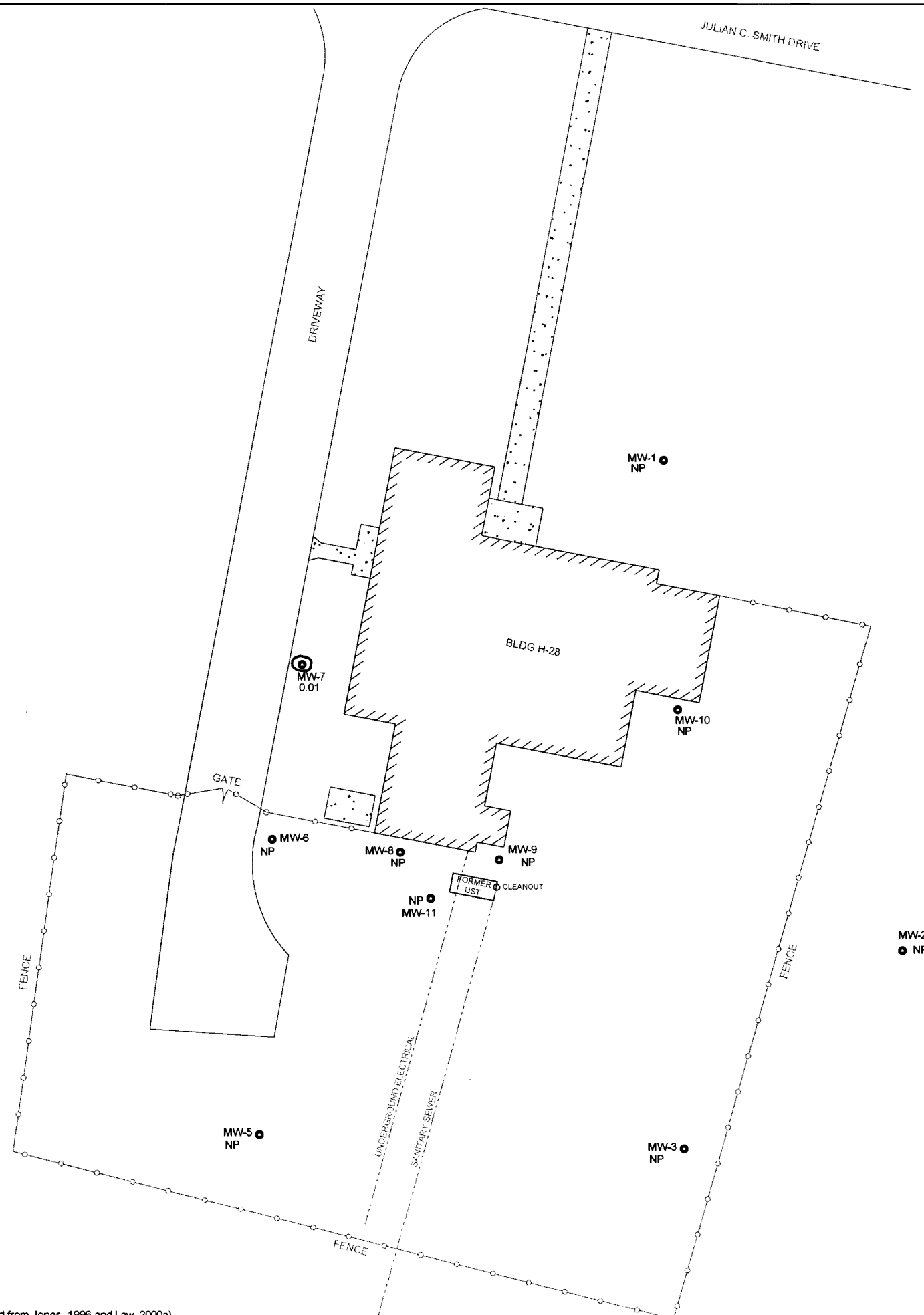


	FIGURE	4-7	ESTIMATED EXTENT OF FREE PRODUCT FOR DECEMBER 2005 SITE H-28 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	12/28/05	
	REVISION	0	
	DRAWN BY	WCM	
	FILE	H28_MAP	

TABLES

Table 3-1
Quarterly Gauging Data from June 2005 to January 2006
Site H-28

Location	Top of Casing Elevation (feet msl)	Depth to Water (feet btoc)			
		06/03/05	09/08/05	12/13/05	01/03/06
MW-1	11.72	8.73	9.28	8.80	8.59
MW-2	12.00	9.02	9.76	8.96	8.79
MW-3	12.18	9.19	9.63	9.15	8.92
MW-5	12.31	9.38	9.79	9.34	9.15
MW-6	11.96	9.03	9.23	9.03	8.80
MW-7	11.62	8.68	9.32	8.73	8.46
MW-8	12.07	9.12	9.59	9.11	8.86
MW-9	12.20	8.23	9.69	9.22	9.00
MW-10	11.57	8.62	9.12	8.61	8.42
MW-11	12.21	9.20	9.68	9.15	8.96
		Depth To Product (feet btoc)			
		06/03/05	09/08/05	12/13/05	01/03/06
MW-1	11.72	NP	NP	NP	NP
MW-2	12.00	NP	NP	NP	NP
MW-3	12.18	NP	NP	NP	NP
MW-5	12.31	NP	NP	NP	NP
MW-6	11.96	NP	NP	NP	NP
MW-7	11.62	NP	NP	8.72	NP
MW-8	12.07	NP	NP	NP	NP
MW-9	12.20	NP	NP	NP	NP
MW-10	11.57	NP	NP	NP	NP
MW-11	12.21	NP	NP	NP	NP
		Product Thickness (feet)			
		06/03/05	09/08/05	12/13/05	01/03/06
MW-1	11.72	NP	NP	NP	NP
MW-2	12.00	NP	NP	NP	NP
MW-3	12.18	NP	NP	NP	NP
MW-5	12.31	NP	NP	NP	NP
MW-6	11.96	NP	NP	NP	NP
MW-7	11.62	NP	NP	0.01	NP
MW-8	12.07	NP	NP	NP	NP
MW-9	12.20	NP	NP	NP	NP
MW-10	11.57	NP	NP	NP	NP
MW-11	12.21	NP	NP	NP	NP
		Corrected Groundwater Elevation ⁽¹⁾ (feet msl)			
		06/03/05	09/08/05	12/13/05	01/03/06
MW-1	11.72	2.99	2.44	2.92	3.13
MW-2	12.00	2.98	2.24	3.04	3.21
MW-3	12.18	2.99	2.55	3.03	3.26
MW-5	12.31	2.93	2.52	2.97	3.16
MW-6	11.96	2.93	2.73	2.93	3.16
MW-7	11.62	2.94	2.30	2.90	3.16
MW-8	12.07	2.95	2.48	2.96	3.21
MW-9	12.20	3.97	2.51	2.98	3.20
MW-10	11.57	2.95	2.45	2.96	3.15
MW-11	12.21	3.01	2.53	3.06	3.25

⁽¹⁾ Corrected Groundwater Elevation = Top of Casing Elevation - Depth to Water + 0.8 x Product Thickness

Note: Well MW-4 could not be located and is assumed abandoned

feet msl - feet above/below mean sea level

feet btoc - feet below top of casing

NP - Not Present - no measurable product detected

Table 4-1
Summary of Groundwater Quality Analytical Data for June 2005
Site H-28

EPA Method 602 (ug/L)	NCGWQS	GCL	MW-6	MW-8	MW-9	MW-11	DUP ⁽¹⁾
			03 June 2005	03 June 2005	03 June 2005	03 June 2005	03 June 2005
Benzene	1	5000	<1.00	<1.00	<1.00	<1.00	<1.00
Ethylbenzene	29	29,000	<1.00	1.63	<1.00	29.0	29.7
Toluene	1000	257,500	<1.00	<1.00	<1.00	1.66	1.82
m,p-Xylene ⁽²⁾			<2.00	0.908 J	<2.00	59.6	61.0
o-Xylene ⁽²⁾			<2.00	<2.00	<2.00	58.5	58.9
Total Xylenes ⁽²⁾	530	87,500	<4.00	0.908 J	<4.00	118.1	119.9
EPA Method 625 (ug/L)							
Acenaphthene	80	2120	<10.0	2.40 J	<10.0	5.20 J	4.80 J
Benzo[a]anthracene	0.0479	22	<10.0	<10.0	<10.0	<10.0	<10.0
Benzyl butyl phthalate	100	NE	<10.0	<10.0	<10.0	<10.0	<10.0
Bis(2-ethylhexyl)phthalate	3	3000	<10.0	<10.0	<10.0	<10.0	<10.0
Di-n-octylphthalate	140	NE	<10.0	<10.0	<10.0	<10.0	<10.0
Fluorene	280	950	<10.0	3.60 J	<10.0	7.50 J	7.10 J
N-Nitrosodi-n-propylamine	0.0007	NE	<10.0	<10.0	<10.0	<10.0	<10.0
Naphthalene	21	15,500	<10.0	2.50 J	<10.0	112	109
Phenanthrene	210	410	<10.0	1.40 J	<10.0	6.80 J	6.80 J
TICs (total)			NR	98.26 J ⁽³⁾	NR	730.2 J ⁽⁴⁾	729.1 J ⁽⁵⁾
MADEP VPH (ug/L)							
C ₅ -C ₈ Aliphatics	420	NE	<100	<100	<100	<100	<100
C ₉ -C ₁₂ Aliphatics ⁽⁶⁾			<100	<100	<100	400	410
C ₉ -C ₁₀ Aromatics ⁽⁶⁾			<100	<100	<100	540	540
MADEP EPH (ug/L)							
C ₉ -C ₁₈ Aliphatics ⁽⁶⁾			<100	<100	<100	<100	<100
C ₁₉ -C ₃₆ Aliphatics	42,000	NE	<100	<100	<100	<100	<100
C ₁₁ -C ₂₂ Aromatics ⁽⁶⁾			<100	220	<100	1100	1000
MADEP VPH + EPH (ug/L)							
C ₉ -C ₁₂ + C ₉ -C ₁₈ Aliphatics ⁽⁶⁾	4200	NE	<200	<200	<200	400	410
C ₉ -C ₁₀ + C ₁₁ -C ₂₂ Aromatics ⁽⁶⁾	210	NE	<200	220	<200	1640	1540

⁽¹⁾ DUP is a duplicate sample collected from well MW-11

⁽²⁾ Laboratory quantitation is performed on the m,p-xylene isomers and on the o-xylene isomer; the NCGWQS is based on the sum of the m-, p-, and o-xylene isomers; the sum of the m,p-xylene isomers and the o-xylene isomer is presented as Total Xylenes

⁽³⁾ One TIC was identified as a specific compound: 1-Methylnaphthalene was reported at 5.7 J ug/L (NCGWQS not established, therefore NCGWQS is the reporting limit; GCL not established)

⁽⁴⁾ Two TICs were identified as specific compounds: 1-Methylnaphthalene was reported at 102 J ug/L (NCGWQS not established, therefore NCGWQS is the reporting limit; GCL not established); 2-Methylnaphthalene was reported at 135 J ug/L (NCGWQS of 14 ug/L; GCL of 12,500 ug/L)

⁽⁵⁾ Two TICs were identified as specific compounds: 1-Methylnaphthalene was reported at 99.6 J ug/L (NCGWQS not established, therefore NCGWQS is the reporting limit; GCL not established); 2-Methylnaphthalene was reported at 132 J ug/L (NCGWQS of 14 ug/L; GCL of 12,500 ug/L)

⁽⁶⁾ Laboratory quantitation is performed on each of the indicated hydrocarbon fractions; NCGWQSs are based on the sum of the indicated fractions; the sums for the indicated fractions are presented as MADEP VPH + EPH

J: Estimated concentration below reporting limits or estimated concentration for TIC quantitations

NR: None Reported; no TICs were identified in the sample

NS: Not Sampled; measurable free product detected

GCL: Gross Contamination Level

NE: Not Established; a GCL has not been established for the analyte

NCGWQS: North Carolina Groundwater Quality Standard

TICs (total): Tentatively Identified Compound; sum of all TICs; all TIC concentrations are estimated

ug/L: micrograms per liter

Bold type indicates analyte detection

Shaded area in bold indicates analyte detection at a concentration above the NCGWQS

Shaded area in bold italics indicates analyte detection at a concentration above the GCL

Table 4-2
Summary of Groundwater Quality Analytical Data for December 2005
Site H-28

EPA Method 602 (ug/L)	NCGWQS	GCL	MW-6	MW-8	MW-9	MW-11
			13 December 2005	13 December 2005	13 December 2005	13 December 2005
Benzene	1	5000	<1.00	<1.00	<1.00	<1.00
Ethylbenzene	29	29,000	<1.00	<1.00	3.13	35.4
Toluene	1000	257,500	<1.00	<1.00	1.37	2.00
m,p-Xylene ⁽¹⁾			<2.00	<2.00	2.41	87.8
o-Xylene ⁽¹⁾			<2.00	<2.00	1.25 J	77.9
Total Xylenes ⁽¹⁾	530	87,500	<4.00	<4.00	3.66 J	165.7
EPA Method 625 (ug/L)						
Acenaphthene	80	2120	<10.0	<10.0	<10.0	5.90 J
Benzo[a]anthracene	0.0479	22	<10.0	<10.0	<10.0	<10.0
Benzyl butyl phthalate	100	NE	<10.0	<10.0	<10.0	<10.0
BIs(2-ethylhexyl)phthalate	3	3000	<10.0	<10.0	<10.0	<10.0
Di-n-octylphthalate	140	NE	<10.0	<10.0	<10.0	<10.0
Fluorene	280	950	<10.0	1.40 J	<10.0	8.60 J
N-Nltrosodi-n-propylamine	0.0007	NE	<10.0	<10.0	<10.0	<10.0
Naphthalene	21	15,500	<10.0	<10.0	<10.0	142
Phenanthrene	210	410	<10.0	<10.0	<10.0	7.40 J
TICs (total)			NR	154.7 J	NR	797.9 J ⁽²⁾
MADEP VPH (ug/L)						
C ₅ -C ₈ Aliphatics	420	NE	<100	<100	<100	<100
C ₉ -C ₁₂ Aliphatics ⁽³⁾			<100	<100	<100	840
C ₉ -C ₁₀ Aromatics ⁽³⁾			<100	<100	<100	640
MADEP EPH (ug/L)						
C ₉ -C ₁₈ Aliphatics ⁽³⁾			<100	970	<100	<100
C ₁₉ -C ₃₆ Aliphatics	42,000	NE	<100	330	<100	<100
C ₁₁ -C ₂₂ Aromatics ⁽³⁾			<100	<100	<100	670
MADEP VPH + EPH (ug/L)						
C ₉ -C ₁₂ + C ₉ -C ₁₈ Aliphatics ⁽³⁾	4200	NE	<200	970	<200	840
C ₉ -C ₁₀ + C ₁₁ -C ₂₂ Aromatics ⁽³⁾	210	NE	<200	<200	<200	1310

⁽¹⁾ Laboratory quantitation is performed on the m,p-xylene isomers and on the o-xylene isomer; the NCGWQS is based on the sum of the m-, p-, and o-xylene isomers; the sum of the m,p-xylene isomers and the o-xylene isomer is presented as Total Xylenes

⁽²⁾ Two TICs were identified as specific compounds: 1-Methylnaphthalene was reported at 113 J ug/L (NCGWQS not established, therefore NCGWQS is the reporting limit; GCL not established); 2-Methylnaphthalene was reported at 142 J ug/L (NCGWQS of 14 ug/L; GCL of 12,500 ug/L)

⁽³⁾ Laboratory quantitation is performed on each of the indicated hydrocarbon fractions; NCGWQSs are based on the sum of the indicated fractions; the sums for the indicated fractions are presented as MADEP VPH + EPH

J: Estimated concentration below reporting limits or estimated concentration for TIC quantitations

NR: None Reported; no TICs were identified in the sample

GCL: Gross Contamination Level

NE: Not Established; a GCL has not been established for the analyte

NCGWQS: North Carolina Groundwater Quality Standard

TICs (total): Tentatively Identified Compound; sum of all TICs; all TIC concentrations are estimated

ug/L: micrograms per liter

Bold type indicates analyte detection

Shaded area in bold indicates analyte detection at a concentration above the NCGWQS

Shaded area in bold italics indicates analyte detection at a concentration above the GCL

Table 4-3 (Page 1 of 2)
Groundwater Quality Analytical Data Over Time
Site H-28

EPA Method 602 or 6210D (ug/L)	NCGWQS	GCL	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6											MW-7					
			May 1992	May 1992	May 1992	May 1992	May 1992	May 1992	January 1998	April 1998	July 1998	August 1999	October 2000	April 2001	June 2004	December 2004 Primary	Dup	June 2005	December 2005	May 1992	January 1998	April 1998	July 1998	August 1999
Benzene	1	5000	ND	ND	ND	ND	ND	8.0	ND	ND	ND	ND	ND	ND	<1.00	<1.00	<1.00	<1.00	<1.00	ND	ND	ND	ND	ND
n-Butylbenzene	70	6900	nr	nr	nr	nr	nr	nr	nr	nr	nr	na	ND	ND	na	na	na	na	na	nr	nr	nr	nr	nr
sec-Butylbenzene	70	8500	nr	nr	nr	nr	nr	nr	nr	nr	nr	na	ND	ND	na	na	na	na	na	nr	nr	nr	nr	nr
Chloroform	0.19	190	nr	nr	nr	nr	nr	nr	nr	nr	nr	na	ND	ND	na	na	na	na	na	nr	nr	nr	nr	nr
Ethylbenzene	29	29,000	8.0	ND	ND	5.0	8.0	18.0	ND	ND	4.99	3	9	3	<1.00	<1.00	<1.00	<1.00	<1.00	8.0	ND	ND	ND	ND
Isopropylbenzene	70	25,000	nr	nr	nr	nr	nr	nr	nr	nr	nr	na	ND	0.8	na	na	na	na	na	nr	nr	nr	nr	nr
4-Isopropyltoluene	RL	NE	nr	nr	nr	nr	nr	nr	nr	nr	nr	na	ND	ND	na	na	na	na	na	nr	nr	nr	nr	nr
Naphthalene	21	15,500	nr	nr	nr	nr	nr	nr	nr	nr	nr	na	42	16	na	na	na	na	na	nr	nr	nr	nr	nr
n-Propyl benzene	70	30,000	nr	nr	nr	nr	nr	nr	nr	nr	nr	na	3	1	na	na	na	na	na	nr	nr	nr	nr	nr
Toluene	1000	257,500	7.0	ND	ND	ND	ND	5.0	ND	ND	ND	ND	ND	ND	<1.00	<1.00	<1.00	<1.00	<1.00	6.0	ND	ND	ND	ND
1,2,4-Trimethylbenzene	350	28,500	nr	nr	nr	nr	nr	nr	nr	nr	nr	na	ND	2	na	na	na	na	na	nr	nr	nr	nr	nr
1,3,5-Trimethylbenzene	350	25,000	nr	nr	nr	nr	nr	nr	nr	nr	nr	na	ND	0.8	na	na	na	na	na	nr	nr	nr	nr	nr
Total Xylenes	530	87,500	nr	nr	nr	nr	nr	nr	ND	ND	3.26	4	ND	ND	<4.00	<4.00	<4.00	<4.00	<4.00	nr	ND	ND	ND	ND
TCLP Full Scan (ug/L)																								
1,2-Dichloroethane	0.38	380	na	na	na	na	na	11.0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
EPA Method 625 (ug/L)																								
Acenaphthene	80	2120	na	na	na	nr	na	nr	nr	ND	1.38	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	nr	ND	ND	nr
Benzo[a]anthracene	0.0479	22	na	na	na	10.9	na	ND	nr	nr	nr	nr	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	nr	nr	nr	nr
Benzyl butyl phthalate	100	NE	na	na	na	7.2	na	4.3	ND	ND	ND	nr	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ND	ND	ND	nr
Bis(2-ethylhexyl)phthalate	3	3000	na	na	na	34.2	na	24.2	ND	ND	ND	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ND	ND	ND	nr
Di-n-octylphthalate	140	NE	na	na	na	374	na	12.4	ND	ND	ND	nr	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ND	ND	ND	nr
Fluorene	280	950	na	na	na	ND	na	2.9	ND	ND	2.17	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ND	ND	ND	nr
N-Nitrosodi-n-propylamine	0.0007	NE	na	na	na	ND	na	3.2	ND	ND	ND	nr	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ND	ND	ND	nr
Naphthalene	21	15,500	na	na	na	ND	na	48	ND	ND	31.7	72	40	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ND	ND	ND	ND
Phenanthrene	210	410	na	na	na	nr	nr	nr	nr	ND	1.23	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	nr	ND	ND	ND
TICs (total)			na	na	na	nr	na	nr	nr	nr	nr	305 J	176 J	41.9 J	17 J	None	None	None	None	na	nr	nr	nr	nr
MADEP VPH + EPH (ug/L)																								
C ₉ -C ₁₈ Aliphatics	4200	NE	na	na	na	na	na	na	nr	nr	nr	2770	190	140	<200	<200	<200	<200	<200	na	nr	nr	nr	ND
C ₉ -C ₂₂ Aromatics	210	NE	na	na	na	na	na	na	nr	nr	nr	2500	230	ND	<200	<200	<200	<200	<200	na	nr	nr	nr	ND

J: Estimated concentration below reporting limits or estimated concentration for TIC quantitations

na: Not Analyzed; compound not quantitated in the analytic suite specified for the sample

nr: Not Reported; compound not reported in source document summary table (either not analyzed or not detected)

ns: Not Sampled

ND: Not Detected; compound quantitated and not detected; detection limit not specified in source document summary table

<#: Not detected at the indicated detection limit

None: TIC analysis conducted, no TICs detected

GCL: Gross Contamination Level

NE: Not Established; a GCL has not been established for the analyte

NCGWQS: North Carolina Groundwater Quality Standard

TICs (total): Tentatively Identified Compound; sum of all TICs; all TIC concentrations are estimated

ug/L: micrograms per liter

Bold type indicates analyte detection

Shaded area in bold indicates analyte detection at a concentration above the NCGWQS

Shaded area in bold italics indicates analyte detection at a concentration above the GCL

Table 4-3 (Page 2 of 2)
Groundwater Quality Analytical Data Over Time
Site H-28

EPA Method 602 or 6210D (ug/L)	NCGWQS	GCL	MW-8					MW-9								MW-10	MW-11					
			May 1992	October 2000	April 2001	June 2005	December 2005	May 1992	October 1999	October 2000	April 2001	June 2004		December 2004	June 2005	December 2005	May 1992	August 1999 ⁽¹⁾	December 2004	June 2005		December 2005
												Primary	Dup							Primary	Dup	
Benzene	1	5000	ND	ND	ND	<1.00	<1.00	ND	ND	ND	ND	<1.00	<1.00	<1.00	<1.00	<1.00	ND	ns	<1.00	<1.00	<1.00	<1.00
n-Butylbenzene	70	6900	nr	1	2	na	na	nr	na	ND	ND	na	na	na	na	na	nr	ns	na	na	na	na
sec-Butylbenzene	70	8500	nr	1	ND	na	na	nr	na	ND	ND	na	na	na	na	na	nr	ns	na	na	na	na
Chloroform	0.19	190	nr	ND	ND	na	na	nr	na	0.6	0.6	na	na	na	na	na	nr	ns	na	na	na	na
Ethylbenzene	29	29,000	22.0	2	1	1.63	<1.00	ND	ND	ND	ND	<1.00	<1.00	<1.00	<1.00	3.13	ND	ns	35.6	29.0	29.7	35.4
Isopropylbenzene	70	25,000	nr	1	3	na	na	nr	na	ND	ND	na	na	na	na	na	nr	ns	na	na	na	na
4-Isopropyltoluene	RL	NE	nr	1	ND	na	na	nr	na	ND	ND	na	na	na	na	na	nr	ns	na	na	na	na
Naphthalene	21	15,500	nr	19	20	na	na	nr	na	ND	ND	na	na	na	na	na	nr	ns	na	na	na	na
n-Propyl benzene	70	30,000	nr	2	5	na	na	nr	na	ND	ND	na	na	na	na	na	nr	ns	na	na	na	na
Toluene	1000	257,500	14.0	ND	ND	<1.00	<1.00	ND	ND	ND	ND	<1.00	<1.00	0.349 J	<1.00	1.37	ND	ns	1.54	1.66	1.82	2.00
1,2,4-Trimethylbenzene	350	28,500	nr	19	12	na	na	nr	na	ND	ND	na	na	na	na	na	nr	ns	na	na	na	na
1,3,5-Trimethylbenzene	350	25,000	nr	ND	3	na	na	nr	na	ND	ND	na	na	na	na	na	nr	ns	na	na	na	na
Total Xylenes	530	87,500	nr	2.7	2	0.908 J	<4.00	nr	ND	ND	ND	<4.00	<4.00	<4.00	<4.00	3.66 J	nr	ns	120.2	118.1	119.9	165.7
TCLP Full Scan (ug/L)																						
1,2-Dichloroethane	0.38	380	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ns	na	na	na	na
EPA Method 625 (ug/L)																						
Acenaphthene	80	2120	na	ND	ND	2.40 J	<10.0	na	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ns	4.00 J	5.20 J	4.80 J	5.90 J
Benzo[a]anthracene	0.0479	22	na	ND	ND	<10.0	<10.0	na	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ns	<10.0	<10.0	<10.0	<10.0
Benzyl butyl phthalate	100	NE	na	ND	ND	<10.0	<10.0	na	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ns	<10.0	<10.0	<10.0	<10.0
Bis(2-ethylhexyl)phthalate	3	3000	na	ND	ND	<10.0	<10.0	na	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ns	<10.0	<10.0	<10.0	<10.0
Di-n-octylphthalate	140	NE	na	ND	ND	<10.0	<10.0	na	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ns	<10.0	<10.0	<10.0	<10.0
Fluorene	280	950	na	ND	ND	3.60 J	1.40 J	na	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ns	5.90 J	7.50 J	7.10 J	8.60 J
N-Nltrosodi-n-propylamine	0.0007	NE	na	ND	ND	<10.0	<10.0	na	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ns	<10.0	<10.0	<10.0	<10.0
Naphthalene	21	15,500	na	15	12	2.50 J	<10.0	na	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ns	114	112	109	142
Phenanthrene	210	410	na	ND	ND	1.40 J	<10.0	na	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	<10.0	na	ns	6.20 J	6.80 J	6.80 J	7.40 J
TICs (total)			na	108 J	179.2 J	98.26 J	154.7 J	na	76 J	ND	ND	None	None	None	None	None	na	ns	727.1 J	730.2 J	729.1 J	797.9 J
MADEP VPH + EPH (ug/L)																						
C ₉ -C ₁₈ Aliphatics	4200	NE	na	350	590	<200	970	na	ND	ND	ND	<200	<200	<200	<200	<200	na	4680	460.2	400	410	840
C ₉ -C ₂₂ Aromatics	210	NE	na	220	350	350	<200	na	ND	ND	ND	<200	<200	<200	<200	<200	na	3020	2032	1640	1540	1310

J: Estimated concentration below reporting limits or estimated concentration for TIC quantitations
na: Not Analyzed; compound not quantitated in the analytic suite specified for the sample
nr: Not Reported; compound not reported in source document summary table (either not analyzed or not detected)
ns: Not Sampled
ND: Not Detected; compound quantitated and not detected; detection limit not specified in source document summary table
<#: Not detected at the indicated detection limit
None: TIC analysis conducted, no TICs detected

GCL: Gross Contamination Level
NE: Not Established; a GCL has not been established for the analyte
NCGWQS: North Carolina Groundwater Quality Standard
TICs (total): Tentatively Identified Compound; sum of all TICs; all TIC concentrations are estimated
ug/L: micrograms per liter

Bold type indicates analyte detection
Shaded area in bold indicates analyte detection at a concentration above the NCGWQS
Shaded area in bold italics indicates analyte detection at a concentration above the GCL

Table 4-4
Product Thickness Data Over Time
Site H-28

Date	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11
12 May 1992	ni	ni	ni	ni	ni	ni	ni	NP	NP	NP	ni
20 May 1992	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	ni
29 January 1998	NP	NP	NP	nl	NP	NP	NP	nm	NP	nl	ni
3 April 1998	nm	nm	nm	nl	nm	NP	NP	nm	nm	nm	ni
7 July 1998	nm	nm	nm	nl	nm	NP	NP	nm	nm	nm	ni
13 August 1999	nm	nm	nm	nl	nm	NP	NP	nm	NP	nm	NP
20 August 1999	nm	nm	nm	nl	nm	NP	NP	nm	NP	nm	0.27
22 October 1999	nm	nm	nm	nl	nm	nm	nm	nm	NP	nm	0.85
20 July 2000	NP	NP	NP	nl	NP	NP	NP	NP	NP	NP	0.30
17 October 2000	NP	NP	NP	nl	NP	NP	NP	NP	NP	NP	0.33
16 January 2001	NP	NP	NP	nl	NP	NP	NP	NP	NP	NP	0.02
12 April 2001	NP	NP	NP	nl	NP	NP	NP	NP	NP	NP	0.02
21 October 2002	nm	nm	nm	nl	nm	nm	nm	nm	nm	nm	NP ⁽¹⁾
30 January 2003	nm	nm	nm	nl	nm	nm	nm	nm	nm	nm	NP
30 April 2003	nm	nm	nm	nl	nm	nm	nm	nm	nm	nm	NP ⁽¹⁾
21 August 2003	nm	nm	nm	nl	nm	nm	nm	nm	nm	nm	NP
15 June 2004	NP	NP	NP	nl	NP	NP	NP	0.05	NP	NP	NP ⁽¹⁾
30 September 2004	NP	NP	NP	nl	NP	NP	NP	0.01	NP	NP	0.10
17 December 2004	NP	NP	NP	nl	NP	NP	NP	0.01	NP	NP	NP
18 March 2005	NP	NP	NP	nl	NP	NP	NP	NP	NP	NP	NP
3 June 2005	NP	NP	NP	nl	NP	NP	NP	NP	NP	NP	NP
8 September 2005	NP	NP	NP	nl	NP	NP	NP	NP	NP	NP	NP
13 December 2005	NP	NP	NP	nl	NP	NP	0.01	NP	NP	NP	NP
3 January 2006	NP	NP	NP	nl	NP	NP	NP	NP	NP	NP	

⁽¹⁾ Sorbent sock present in well immediately prior to gauging; product thickness data is considered compromised

Product thickness data expressed in feet

ni: Not Installed; well not installed at the time gauging was conducted

nl: Not Located; well could not be located

nm: Not Measured; well not measured during the gauging event

NP: Not Present; no measurable thickness of free product present in the well

APPENDIX A
FIELD DATA SHEETS

June 2005



**ENGINEERING AND
ENVIRONMENT, INC.**

BLD. H-28 Water Levels

Date: 6/3/2005

Well ID	MW01	Depth to Bottom		Depth to Product		Depth to Water	8.83
Well ID	MW02	Depth to Bottom		Depth to Product		Depth to Water	9.02
Well ID	MW03	Depth to Bottom		Depth to Product		Depth to Water	9.19
Well ID	MW04	Depth to Bottom		Depth to Product		Depth to Water	N/A
Well ID	MW05	Depth to Bottom		Depth to Product		Depth to Water	9.38
Well ID	MW06	Depth to Bottom	15.8	Depth to Product		Depth to Water	9.03
Well ID	MW07	Depth to Bottom		Depth to Product		Depth to Water	8.68
Well ID	MW08	Depth to Bottom		Depth to Product		Depth to Water	9.12
Well ID	MW09	Depth to Bottom	12.0	Depth to Product		Depth to Water	8.23
Well ID	MW10	Depth to Bottom		Depth to Product		Depth to Water	8.62
Well ID	MW11	Depth to Bottom	14.0	Depth to Product		Depth to Water	9.20



ENGINEERING AND ENVIRONMENT, INC.

H28 Field Data

Project #LD04-004

Date Time Weather

Sampler Well/Sample #

Depth To Bottom (ft) Depth To Water (ft) Water Depth (ft)

Well Vol. Purge Vol. Vol. Purged

Sampling Device (pump/Bailer)

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	11:07	11:09	11:11	11:13	11:15		N/A
Temperature	18.14	18.13	18.09	18.07	18.10		°C
Spec. Conductivity	0.164	0.165	0.163	0.163	0.164		(m s/m)
Dissolved Oxygen	2.59	2.00	1.73	1.56	1.38		ms/L
PH	7.40	6.38	6.06	5.87	5.82		STD
ORP	-195.7	-157.1	-150.7	-145.5	-143.9		(G/L)
Turbidity	103.0	24.7	14.6	12.4	7.98		(NTU)

Analyte	Size	Preserv.
VOC 602	3 X 40 ml	HCl
SVOC 625	2 X 1L	None

Comments:	

2" well vol.=water depth X 0.1632 4" well vol.=water depth x 0.6528

Pid	0.0					
Time	11:05	11:07	11:10	11:12		
SWL	9.30	9.45	9.46	9.48		
Pump Depth	1.5	1.5	1.5	1.5		



ENGINEERING AND ENVIRONMENT, INC.

H28 Field Data

Project #LD04-004

Date Time Weather

Sampler Well/Sample #

Depth To Bottom (ft) Depth To Water (ft) Water Depth (ft)

Well Vol. Purge Vol. Vol. Purged

Sampling Device (pump/Bailer)

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	12:18	12:22	12:25	12:28			N/A
Temperature	18.39	18.52	18.49	18.43			°C
Spec. Conductivity	0.112	0.103	0.099	0.097			(m s/m)
Dissolved Oxygen	1.27	0.93	0.77	0.62			ms/L
PH	5.85	5.73	5.70	5.63			STD
ORP	-163.4	-154.9	-150.5	-146.2			(G/L)
Turbidity	39.0	17.9	11.6	5.83			(NTU)

Analyte	Size	Preserv.
VOC 602	3 X 40 ml	HCl
SVOC 625	2 X 1L	None

Comments:	

2" well vol.=water depth X 0.1632 4" well vol.=water depth x 0.6528

Pid	0.0					
Time	12:13	12:21	12:24	12:26		
SWL	9.02	10.02	10.02	10.02		
Pump Depth	1.5	1.5	1.5	1.5		

**ENGINEERING AND
ENVIRONMENT, INC.****H28 Field Data**

Project #LD04-004

Date Time Weather Sampler Well/Sample # Depth To Bottom (ft) Depth To Water (ft) Water Depth (ft) Well Vol. Purge Vol. Vol. Purged Sampling Device (pump/Bailer)

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	12:53	12:56	12:59	13:02	13:05		N/A
Temperature	18.36	18.56	18.61	18.71	18.74		°C
Spec. Conductivity	0.130	0.133	0.135	0.137	0.138		(m s/m)
Dissolved Oxygen	2.65	2.60	2.52	2.50	2.42		ms/L
PH	5.98	5.93	5.92	5.89	5.83		STD
ORP	-4.9	-3.7	-4.1	-3.5	-2.8		(G/L)
Turbidity	154.0	66.9	39.4	33.9	15.10		(NTU)

Analyte	Size	Preserv.
VOC 602	3 X 40 ml	HCl
SVOC 625	2 X 1L	None

Comments:	

2" well vol.=water depth X 0.1632 4" well vol.=water depth x 0.6528

Pid	0.0						
Time	12:45	12:53	12:58				
SWL	9.20	9.65	9.70				
Pump Depth	1.0	1.0	1.0				



ENGINEERING AND ENVIRONMENT, INC.

H28 Field Data

Project #LD04-004

Date Time Weather

Sampler Well/Sample #

Depth To Bottom (ft) Depth To Water (ft) Water Depth (ft)

Well Vol. Purge Vol. Vol. Purged

Sampling Device (pump/Bailer)

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	11:38	11:42	11:45	11:48	11:51		N/A
Temperature	18.12	18.42	18.45	18.48	18.42		°C
Spec. Conductivity	0.073	0.760	0.077	0.075	0.083		(m s/m)
Dissolved Oxygen	1.95	1.43	1.18	1.04	0.84		ms/L
PH	5.39	5.31	5.31	5.32	5.32		STD
ORP	-164.4	-165.8	-165.9	-169.2	-169.7		(G/L)
Turbidity	39.7	19.4	13.7	13.0	10.10		(NTU)

Analyte	Size	Preserv.
VOC 602	3 X 40 ml	HCl
SVOC 625	2 X 1L	None

Comments:	DUP; heavy sheen on water

2" well vol.=water depth X 0.1632 4" well vol.=water depth x 0.6528

Pid	0.0						
Time	11:33	11:36	11:40	11:43	11:46		
SWL	9.18	9.76	9.64	9.60	9.62		
Pump Depth	1.5	1.5	1.5	1.5	1.5		

September 2005

**ENGINEERING AND
ENVIRONMENT, INC.**

BLD. H-28 Water Levels

Date: 9/8/2005

Well ID	MW01	Depth to Bottom		Depth to Product		Depth to Water	9.28
Well ID	MW02	Depth to Bottom		Depth to Product		Depth to Water	9.76
Well ID	MW03	Depth to Bottom		Depth to Product		Depth to Water	9.63
Well ID	MW04	Depth to Bottom		Depth to Product		Depth to Water	N/A
Well ID	MW05	Depth to Bottom		Depth to Product		Depth to Water	9.79
Well ID	MW06	Depth to Bottom	15.8	Depth to Product		Depth to Water	9.23
Well ID	MW07	Depth to Bottom		Depth to Product		Depth to Water	9.32
Well ID	MW08	Depth to Bottom		Depth to Product		Depth to Water	9.59
Well ID	MW09	Depth to Bottom	12.0	Depth to Product		Depth to Water	9.69
Well ID	MW10	Depth to Bottom		Depth to Product		Depth to Water	9.12
Well ID	MW11	Depth to Bottom	14.0	Depth to Product		Depth to Water	9.68

December 2005



**ENGINEERING AND
ENVIRONMENT, INC.**

BLD. H-28 Water Levels

Date: 12/13/2005

Well ID	MW01	Depth to Bottom		Depth to Product		Depth to Water	8.80
Well ID	MW02	Depth to Bottom		Depth to Product		Depth to Water	8.96
Well ID	MW03	Depth to Bottom		Depth to Product		Depth to Water	9.15
Well ID	MW04	Depth to Bottom		Depth to Product		Depth to Water	N/A
Well ID	MW05	Depth to Bottom		Depth to Product		Depth to Water	9.34
Well ID	MW06	Depth to Bottom	15.8	Depth to Product		Depth to Water	9.03
Well ID	MW07	Depth to Bottom		Depth to Product	8.72	Depth to Water	8.73
Well ID	MW08	Depth to Bottom		Depth to Product		Depth to Water	9.11
Well ID	MW09	Depth to Bottom	12.0	Depth to Product		Depth to Water	9.22
Well ID	MW10	Depth to Bottom		Depth to Product		Depth to Water	8.61
Well ID	MW11	Depth to Bottom	14.0	Depth to Product		Depth to Water	9.15



**ENGINEERING AND
ENVIRONMENT, INC.**

H28 Field Data

Project #LD04-004

Date Time Weather

Sampler Well/Sample #

Depth To Bottom (ft) Depth To Water (ft) Water Depth (ft)

Well Vol. Purge Vol. Vol. Purged

Sampling Device (pump/Bailer)

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	10:06	10:12	10:18				N/A
Temperature	20.15	20.55	20.65				°C
Spec. Conductivity	163.9	170.7	174.0				(m s/m)
Dissolved Oxygen	0.59	0.84	0.36				mg/L
PH	3.39	3.44	3.42				STD
ORP	-9.6	-30.8	-62.9				(G/L)
Turbidity	387.0	53.9	9.94				(NTU)

Analyte	Size	Preserv.
VOC 602	3 X 40 ml	HCl
SVOC 625	2 X 1L	None

Comments:	

2" well vol.=water depth X 0.1632 4" well vol.=water depth x 0.6528

Pid							
Time							
SWL							
Pump Depth							

**ENGINEERING AND
ENVIRONMENT, INC.****H28 Field Data**

Project #LD04-004

Date **12/13/05** Time **11:10** Weather **cold, cloudy, drizzle**Sampler **JT** Well/Sample # **USTH28- MW08**Depth To Bottom (ft) **12.16** Depth To Water (ft) **9.11** Water Depth (ft) **3.05**Well Vol. **0.50** Purge Vol. **1.50** Vol. Purged Sampling Device (pump/Bailer) **Grundfos pump**

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	10:56	11:00	11:04				N/A
Temperature	18.20	20.37	20.62				°C
Spec. Conductivity	86.08	75.66	75.53				(m s/m)
Dissolved Oxygen	0.92	0.63	0.46				mg/L
PH	3.30	3.08	3.09				STD
ORP	-62.3	-63.7	-51.7				(G/L)
Turbidity	48.7	18.0	8.5				(NTU)

Analyte	Size	Preserv.
VOC 602	3 X 40 ml	HCl
SVOC 625	2 X 1L	None

Comments:	

2" well vol.=water depth X 0.1632 4" well vol.=water depth x 0.6528

Pid							
Time							
SWL							
Pump Depth							



ENGINEERING AND ENVIRONMENT, INC.

H28 Field Data

Project #LD04-004

Date 12/13/05 Time 14:50 Weather cold, cloudy, drizzle

Sampler JT Well/Sample # USTH28- MW09

Depth To Bottom (ft) 11.85 Depth To Water (ft) 9.22 Water Depth (ft) 2.63

Well Vol. 0.43 Purge Vol. 1.30 Vol. Purged

Sampling Device (pump/Bailer) Grundfos pump

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	14:37	14:43	14:47				N/A
Temperature	22.18	22.07	20.17				°C
Spec. Conductivity	166.9	165.4	164.9				(m s/m)
Dissolved Oxygen	0.89	1.15	1.00				mg/L
PH	3.57	3.67	3.69				STD
ORP	-41.0	-43.2	-38.5				(G/L)
Turbidity	1000	804	873				(NTU)

Analyte	Size	Preserv.
VOC 602	3 X 40 ml	HCl
SVOC 625	2 X 1L	None

Comments:
pump operating erratically; collected sample after three well volumes purged

2" well vol.=water depth X 0.1632 4" well vol.=water depth x 0.6528

Pid							
Time							
SWL							
Pump Depth							



ENGINEERING AND ENVIRONMENT, INC.

H28 Field Data

Project #LD04-004

Date Time Weather

Sampler Well/Sample #

Depth To Bottom (ft) Depth To Water (ft) Water Depth (ft)

Well Vol. Purge Vol. Vol. Purged

Sampling Device (pump/Bailer)

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	13:40	13:45	13:50				N/A
Temperature	18.29	20.40	20.69				°C
Spec. Conductivity	70.15	68.02	68.42				(m s/m)
Dissolved Oxygen	1.23	0.88	0.64				mg/L
PH	3.17	2.75	2.67				STD
ORP	-90.6	-94.7	-97.8				(G/L)
Turbidity	31.0	18.0	9.96				(NTU)
Analyte	Size	Preserv.					
VOC 602	3 X 40 ml	HCl					
SVOC 625	2 X 1L	None					
Comments:							

2" well vol.=water depth X 0.1632 4" well vol.=water depth x 0.6528							
Pid							
Time							
SWL							
Pump Depth							

January 2006



**ENGINEERING AND
ENVIRONMENT, INC.**

BLD. H-28 Water Levels

Date: 1/3/2006

Well ID	MW01	Depth to Bottom		Depth to Product		Depth to Water	8.59
Well ID	MW02	Depth to Bottom		Depth to Product		Depth to Water	8.79
Well ID	MW03	Depth to Bottom		Depth to Product		Depth to Water	8.92
Well ID	MW05	Depth to Bottom		Depth to Product		Depth to Water	9.15
Well ID	MW04	Depth to Bottom		Depth to Product		Depth to Water	N/A
Well ID	MW06	Depth to Bottom	15.8	Depth to Product		Depth to Water	8.80
Well ID	MW07	Depth to Bottom		Depth to Product		Depth to Water	8.46
Well ID	MW08	Depth to Bottom		Depth to Product		Depth to Water	8.86
Well ID	MW09	Depth to Bottom	12.0	Depth to Product		Depth to Water	9.00
Well ID	MW10	Depth to Bottom		Depth to Product		Depth to Water	8.42
Well ID	MW11	Depth to Bottom	14.0	Depth to Product		Depth to Water	8.96

APPENDIX B
LABORATORY ANALYTICAL REPORTS

June 2005

Mr. Bill Morris
Engineering & Environment, Inc.
824 Gum Branch Road
Jacksonville NC 28546

Report Number: G546-34

Client Project: H28

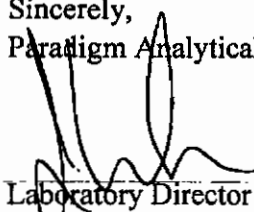
Dear Mr. Morris:

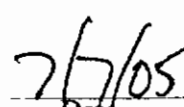
Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period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

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

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

Sincerely,
Paradigm Analytical Laboratories, Inc.


Laboratory Director
J. Patrick Weaver


Date

Results for Volatiles
by GC 602

Client Sample ID: USTH28-MW09

Analyzed By: MJC

Client Project ID: H28

Date Collected: 6/3/2005 13:10

Lab Sample ID: G546-34-1A

Date Received: 6/4/2005

Lab Project ID: G546-34

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.316	1	6/8/2005	
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/8/2005	
Ethylbenzene	BQL	1.00	0.299	1	6/8/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/8/2005	
Toluene	BQL	1.00	0.302	1	6/8/2005	
m/p-Xylene	BQL	2.00	0.608	1	6/8/2005	
o-Xylene	BQL	2.00	0.596	1	6/8/2005	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.5	98.8

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Results for Volatiles
by GC 602

Client Sample ID: USTH28-MW08

Analyzed By: MJC

Client Project ID: H28

Date Collected: 6/3/2005 12:32

Lab Sample ID: G546-34-2A

Date Received: 6/4/2005

Lab Project ID: G546-34

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.316	1	6/8/2005	
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/8/2005	
Ethylbenzene	1.63	1.00	0.299	1	6/8/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/8/2005	
Toluene	BQL	1.00	0.302	1	6/8/2005	
m/p-Xylene	0.908	2.00	0.606	1	6/8/2005	J
o-Xylene	BQL	2.00	0.598	1	6/8/2005	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.3	98.1

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

Results for Volatiles
by GC 602

Client Sample ID: USTH28-MW11

Analyzed By: MJC

Client Project ID: H28

Date Collected: 6/3/2005 11:55

Lab Sample ID: G546-34-3A

Date Received: 6/4/2005

Lab Project ID: G546-34

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.316	1	6/8/2005	
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/8/2005	
Ethylbenzene	29.0	1.00	0.299	1	6/8/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/8/2005	
Toluene	1.66	1.00	0.302	1	6/8/2005	
m/p-Xylene	59.6	2.00	0.608	1	6/8/2005	
o-Xylene	58.5	2.00	0.596	1	6/8/2005	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	38.7	96.9

Comments:

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

Results for Volatiles

by GC 602

Client Sample ID: USTH28-MW06

Client Project ID: H28

Lab Sample ID: G546-34-4A

Lab Project ID: G546-34

Analyzed By: MJC

Date Collected: 6/3/2005 11:20

Date Received: 6/4/2005

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.316	1	6/8/2005	
Dilsopropyl ether (DIPE)	BQL	1.00	0.294	1	6/8/2005	
Ethylbenzene	BQL	1.00	0.299	1	6/8/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/8/2005	
Toluene	BQL	1.00	0.302	1	6/8/2005	
m/p-Xylene	BQL	2.00	0.608	1	6/8/2005	
o-Xylene	BQL	2.00	0.596	1	6/8/2005	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.0	97.8

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Results for Volatiles
by GC 602

Client Sample ID: USTH28-Dup
Client Project ID: H28
Lab Sample ID: G546-34-5A
Lab Project ID: G546-34

Analyzed By: MJC
Date Collected: 6/3/2005 0:00
Date Received: 6/4/2005
Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.316	1	6/9/2005	
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/9/2005	
Ethylbenzene	29.7	1.00	0.299	1	6/9/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/9/2005	
Toluene	1.82	1.00	0.302	1	6/9/2005	
m/p-Xylene	61.0	2.00	0.608	1	6/9/2005	
o-Xylene	58.9	2.00	0.596	1	6/9/2005	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.0	97.5

Comments:

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

Results for Volatiles

by GC 602

Client Sample ID: Trip Blank
Client Project ID: H28
Lab Sample ID: G546-34-6A
Lab Project ID: G546-34

Analyzed By: MJC
Date Collected: 6/3/2005 0:00
Date Received: 6/4/2005
Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.316	1	6/8/2005	
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/8/2005	
Ethylbenzene	BQL	1.00	0.299	1	6/8/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/8/2005	
Toluene	BQL	1.00	0.302	1	6/8/2005	
m/p-Xylene	BQL	2.00	0.608	1	6/8/2005	
o-Xylene	BQL	2.00	0.596	1	6/8/2005	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.5	98.8

Comments:

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

Results for Volatiles

by GC 602

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: VBLK1060805B
Lab Project ID:

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

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.316	1	6/8/2005	
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/8/2005	
Ethylbenzene	BQL	1.00	0.299	1	6/8/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/8/2005	
Toluene	BQL	1.00	0.302	1	6/8/2005	
m/p-Xylene	BQL	2.00	0.608	1	6/8/2005	
o-Xylene	BQL	2.00	0.596	1	6/8/2005	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.9	99.7

Comments:

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

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Engineering & Environment, Inc.

Project Name: H28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW09
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	06/03/05
Date Received	06/04/05
Date Extracted	08/17/05
Date Analyzed	06/17/05
Dry Weight	
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₂ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₀ Aromatics**	< 100 (µg/L)
Surrogate % Recovery - PID	86
Surrogate % Recovery - FID	94

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

** = Excludes any surrogates or internal standards.

Lab Info: g546-34-1e

Reviewed By: lw

VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: H28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW08
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	06/03/05
Date Received	06/04/05
Date Extracted	06/17/05
Date Analyzed	06/17/05
Dry Weight	
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₂ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₀ Aromatics**	< 100 (µg/L)
Surrogate % Recovery - PID	90
Surrogate % Recovery - FID	95

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

** = Excludes any surrogates or internal standards.

Lab Info: g546-34-2e

Reviewed By:

VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: H28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW11
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	06/03/05
Date Received	06/04/05
Date Extracted	06/17/05
Date Analyzed	06/17/05
Dry Weight	
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₂ Aliphatics**	400 (µg/L)
C ₉ -C ₁₀ Aromatics**	540 (µg/L)
Surrogate % Recovery - PID	94
Surrogate % Recovery - FID	100

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

** = Excludes any surrogates or internal standards.

Lab Info: g546-34-3e

Reviewed By: lw

VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: H28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW06
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	06/03/05
Date Received	06/04/05
Date Extracted	06/17/05
Date Analyzed	06/17/05
Dry Weight	
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₂ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₀ Aromatics**	< 100 (µg/L)
Surrogate % Recovery - PID	87
Surrogate % Recovery - FID	97

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

** = Excludes any surrogates or internal standards.

Lab Info: g546-34-4e

Reviewed By: 

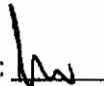
VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: H28

Sample Information and Analytical Results	
Sample Identification	USTH28-Dup
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	06/03/05
Date Received	06/04/05
Date Extracted	06/17/05
Date Analyzed	06/17/05
Dry Weight	
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₂ Aliphatics**	410 (µg/L)
C ₉ -C ₁₀ Aromatics**	540 (µg/L)
Surrogate % Recovery - PID	91
Surrogate % Recovery - FID	100

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

** = Excludes any surrogates or internal standards.

Lab Info: g546-34-5e

Reviewed By: 

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 06/08/05PID Initial Calibration Date: 06/08/05

Calibration Ranges and Limits

Range	MDL (07/15/2004) (µg/L)	ML (µg/L)	RL (µg/L) (mg/Kg)	
C ₅ -C ₈ Aliphatics	4.4	14	100	10
C ₉ -C ₁₂ Aliphatics	3.4	11	100	10
C ₉ -C ₁₀ Aromatics	0.13	0.41	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	%RSD or CCC	Method of Quantitation
C ₅ -C ₈ Aliphatics	40	3.6	Calibration Factor
	1000		
	2000		
	3000		
	4000		
C ₉ -C ₁₂ Aliphatics	10	0.988	Linear Regression
	250		
	500		
	750		
	1000		
C ₉ -C ₁₀ Aromatics	10	12.9	Calibration Factor
	250		
	500		
	750		
	1000		

Calibration Check Date: 06/17/05

Calibration Check

Range	Levels (µg/L) (mg/Kg)		RPD
C ₅ -C ₈ Aliphatics	2000	200	-4.9
C ₉ -C ₁₂ Aliphatics	500	50	-14.7
C ₉ -C ₁₀ Aromatics	500	50	-2.7

MDL = Method Detection Limit

ML = Minimum Limit

RL = Reportable Limit

RPD = Relative Percent Difference

%RSD = Percent Relative Standard Deviation

CCC = Correlation Coefficient of Curve

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

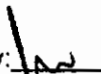
Client Name: Engineering & Environment, Inc.Project Name: H28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW09
Sample Matrix	Water
Date Collected	06/03/05
Date Received	06/04/05
Date Extracted	06/16/05
Date Analyzed	06/24/05
Dry Weight	
Dilution Factor	1
C ₉ -C ₁₈ Aliphatics*	< 100 (ug/L)
C ₁₉ -C ₃₈ Aliphatics*	< 100 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	< 100 (ug/L)
Aliphatic Surrogate % Recovery	78
Aromatic Surrogate % Recovery	75

Comments:

- * = Excludes any surrogates or internal standards.
Sample did not require fractionation.

Lab info: G546-34-1i

Reviewed By: 

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: H28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW08
Sample Matrix	Water
Date Collected	06/03/05
Date Received	06/04/05
Date Extracted	06/16/05
Date Analyzed	07/01/05
Dry Weight	
Dilution Factor	1:1
C ₉ -C ₁₈ Aliphatics*	< 100 (ug/L)
C ₁₉ -C ₃₆ Aliphatics*	< 100 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	220 (ug/L)
Aliphatic Surrogate % Recovery	76
Aromatic Surrogate % Recovery	76
Fractionation Surrogate 1 % Recovery	50

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G546-34-2I

Reviewed By: *hds*

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: H28

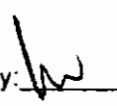
Sample Information and Analytical Results	
Sample Identification	USTH28-MW11
Sample Matrix	Water
Date Collected	06/03/05
Date Received	06/04/05
Date Extracted	06/16/05
Date Analyzed	06/29/05
Dry Weight	
Dilution Factor	1:1
C ₉ -C ₁₈ Aliphatics*	< 100 (ug/L)
C ₁₉ -C ₃₆ Aliphatics*	< 100 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	1100 (ug/L)
Aliphatic Surrogate % Recovery	82
Aromatic Surrogate % Recovery	76
Fractionation Surrogate 1 % Recovery	45

Comments:

* = Excludes any surrogates or internal standards.

Insufficient sample volume to confirm low surrogates.

Lab info: G546-34-31

Reviewed By: 

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: H28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW06
Sample Matrix	Water
Date Collected	06/03/05
Date Received	06/04/05
Date Extracted	06/16/05
Date Analyzed	06/24/05
Dry Weight	
Dilution Factor	1
C ₉ -C ₁₈ Aliphatics*	< 100 (ug/L)
C ₁₉ -C ₃₆ Aliphatics*	< 100 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	< 100 (ug/L)
Aliphatic Surrogate % Recovery	91
Aromatic Surrogate % Recovery	87

Comments:

* = Excludes any surrogates or internal standards.

Sample did not require fractionation.

Lab info: G546-34-4i

Reviewed By: lw

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: H28

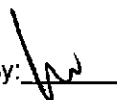
Sample Information and Analytical Results	
Sample Identification	USTH28-Dup
Sample Matrix	Water
Date Collected	06/03/05
Date Received	06/04/05
Date Extracted	06/17/05
Date Analyzed	06/29/05
Dry Weight	
Dilution Factor	1:1
C ₉ -C ₁₈ Aliphatics*	< 100 (ug/L)
C ₁₉ -C ₃₆ Aliphatics*	< 100 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	1000 (ug/L)
Aliphatic Surrogate % Recovery	81
Aromatic Surrogate % Recovery	75
Fractionation Surrogate 1 % Recovery	47

Comments:

* = Excludes any surrogates or internal standards.

Insufficient sample volume to confirm low surrogates.

Lab info: G546-34-51

Reviewed By: 

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 03/14/05

Calibration Ranges and Limits

Range	MDL (2/2004) ($\mu\text{g/L}$)	ML ($\mu\text{g/L}$)	RL ($\mu\text{g/L}$) (mg/Kg)	
C ₉ -C ₁₈ Aliphatics	3.84	12.2	100	10
C ₁₉ -C ₃₆ Aliphatics	0.57	1.8	100	10
C ₁₁ -C ₂₂ Aromatics	4.54	14.4	100	10

Calibration Concentration Levels

Range	Levels ($\mu\text{g/mL}$)	%RSD or CCC	Method of Quantitation
C ₉ -C ₁₈ Aliphatics	6	8.10	Calibration Factor
	30		
	60		
	120		
	240		
C ₁₉ -C ₃₆ Aliphatics	8	5.1	Calibration Factor
	40		
	80		
	160		
	320		
C ₁₁ -C ₂₂ Aromatics	17	14.7	Calibration Factor
	85		
	170		
	340		
	680		

Calibration Check Date: 06/24/05

Calibration Check

Range	Levels ($\mu\text{g/mL}$)	RPD
C ₉ -C ₁₈ Aliphatics	120	7.6
C ₁₉ -C ₃₆ Aliphatics	160	-5.3
C ₁₁ -C ₂₂ Aromatics	340	9.4

MDL = Method Detection Limit

ML = Minimum Limit

RL = Reportable Limit

RPD = Relative Percent Difference

%RSD = Percent Relative Standard Deviation

CCC = Correlation Coefficient of Curve

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 03/14/05

Calibration Ranges and Limits

Range	MDL (2/2004) ($\mu\text{g/L}$)	ML ($\mu\text{g/L}$)	RL ($\mu\text{g/L}$) (mg/Kg)	
C ₉ -C ₁₈ Aliphatics	3.84	12.2	100	10
C ₁₉ -C ₃₆ Aliphatics	0.57	1.8	100	10
C ₁₁ -C ₂₂ Aromatics	4.54	14.4	100	10

Calibration Concentration Levels

Range	Levels ($\mu\text{g/mL}$)	%RSD or CCC	Method of Quantitation
C ₉ -C ₁₈ Aliphatics	6	8.10	Calibration Factor
	30		
	60		
	120		
	240		
C ₁₉ -C ₃₆ Aliphatics	8	5.1	Calibration Factor
	40		
	80		
	160		
	320		
C ₁₁ -C ₂₂ Aromatics	17	14.7	Calibration Factor
	85		
	170		
	340		
	680		

Calibration Check Date: 06/29/05

Calibration Check

Range	Levels ($\mu\text{g/mL}$)	RPD
C ₉ -C ₁₈ Aliphatics	120	11.3
C ₁₉ -C ₃₆ Aliphatics	160	-17.1
C ₁₁ -C ₂₂ Aromatics	340	7.7

MDL = Method Detection Limit

ML = Minimum Limit

RL = Reportable Limit

RPD = Relative Percent Difference

%RSD = Percent Relative Standard Deviation

CCC = Correlation Coefficient of Curve

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 03/14/05

Calibration Ranges and Limits

Range	MDL (2/2004) ($\mu\text{g/L}$)	ML ($\mu\text{g/L}$)	RL ($\mu\text{g/L}$)	RL (mg/Kg)
C ₉ -C ₁₈ Aliphatics	3.84	12.2	100	10
C ₁₉ -C ₃₆ Aliphatics	0.57	1.8	100	10
C ₁₁ -C ₂₂ Aromatics	4.54	14.4	100	10

Calibration Concentration Levels

Range	Levels ($\mu\text{g/mL}$)	%RSD or CCC	Method of Quantitation
C ₉ -C ₁₈ Aliphatics	6	8.10	Calibration Factor
	30		
	60		
	120		
	240		
C ₁₉ -C ₃₆ Aliphatics	8	5.1	Calibration Factor
	40		
	80		
	160		
	320		
C ₁₁ -C ₂₂ Aromatics	17	14.7	Calibration Factor
	85		
	170		
	340		
	680		

Calibration Check Date: 07/01/05

Calibration Check

Range	Levels ($\mu\text{g/mL}$)	RPD
C ₉ -C ₁₈ Aliphatics	120	11.1
C ₁₉ -C ₃₆ Aliphatics	160	-1.1
C ₁₁ -C ₂₂ Aromatics	340	3.1

MDL = Method Detection Limit

ML = Minimum Limit

RL = Reportable Limit

RPD = Relative Percent Difference

%RSD = Percent Relative Standard Deviation

CCC = Correlation Coefficient of Curve

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTH28-MW09
Client Project ID: H28
Lab Sample ID: G546-34-1H
Lab Project ID: G546-34

Analyzed By: MRC
Date Collected: 6/3/2005 13:10
Date Received: 6/4/2005
Date Extracted: 6/7/2005
Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	10.0	1.22	1	6/8/2005	
Acenaphthylene	BQL	10.0	1.12	1	6/8/2005	
Anthracene	BQL	10.0	1.75	1	6/8/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/8/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/8/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/8/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/8/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/8/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/8/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/8/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/8/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	6/8/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/8/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/8/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/8/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/8/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/8/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/8/2005	
Chrysene	BQL	10.0	1.11	1	6/8/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	6/8/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/8/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/8/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/8/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/8/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/8/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/8/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/8/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/8/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/8/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/8/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/8/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/8/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/8/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/8/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/8/2005	
Fluoranthene	BQL	10.0	1.41	1	6/8/2005	
Fluorene	BQL	10.0	1.22	1	6/8/2005	
Hexachlorobenzene	BQL	10.0	1.22	1	6/8/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/8/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/8/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/8/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/8/2005	

Results for Semivolatiles by GCMS 625

Client Sample ID: USTH28-MW09
 Client Project ID: H28
 Lab Sample ID: G546-34-1H
 Lab Project ID: G546-34

Analyzed By: MRC
 Date Collected: 6/3/2005 13:10
 Date Received: 6/4/2005
 Date Extracted: 6/7/2005
 Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	10.0	1.27	1	6/8/2005	
Naphthalene	BQL	10.0	1.08	1	6/8/2005	
Nitrobenzene	BQL	10.0	1.32	1	6/8/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/8/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/8/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/8/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/8/2005	
Phenanthrene	BQL	10.0	1.38	1	6/8/2005	
Phenol	BQL	10.0	3.38	1	6/8/2005	
Pyrene	BQL	10.0	2.08	1	6/8/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/8/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/8/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.1	81
2-Fluorophenol	10	7.7	77
Nitrobenzene-d5	10	8.2	82
Phenol-d6	10	8.3	83
2,4,6-Tribromophenol	10	7.2	72
4-Terphenyl-d14	10	10.7	107

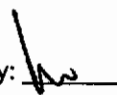
Comments:

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

Flags:

BQL = Below Quantitation Limits.

J = Detected below the quantitation limit.

Reviewed By: 

Results of Library Search for Semivolatile Compounds
by GCMS

Client Sample ID: USTH28-MW09
Client Project ID: H28
Lab Sample ID: G546-34-1H
Lab Project ID: G546-34
Sample Wt/Vol: 500 ML
Dilution: 1

Analyzed By: MRC
Date Collected: 6/3/2005 13:10
Date Received: 6/4/2005
Date Extracted: 6/7/2005
Date Analyzed: 6/8/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	No library search compounds detected.				
2					
3					
4					
5					
6					
7					
8					
9					
10					

Comment:

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

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

Reviewed by: 

Results for Semivolatiles by GCMS 625

Client Sample ID: USTH28-MW08
Client Project ID: H28
Lab Sample ID: G546-34-2H
Lab Project ID: G546-34

Analyzed By: MRC
Date Collected: 6/3/2005 12:32
Date Received: 6/4/2005
Date Extracted: 6/7/2005
Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	2.40	10.0	1.22	1	6/8/2005	J
Acenaphthylene	BQL	10.0	1.12	1	6/8/2005	
Anthracene	BQL	10.0	1.75	1	6/8/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/8/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/8/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/8/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/8/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/8/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/8/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/8/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/8/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	6/8/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/8/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/8/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/8/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/8/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/8/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/8/2005	
Chrysene	BQL	10.0	1.11	1	6/8/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	6/8/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/8/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/8/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/8/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/8/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/8/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/8/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/8/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/8/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/8/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/8/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/8/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/8/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/8/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/8/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/8/2005	
Fluoranthene	BQL	10.0	1.41	1	6/8/2005	
Fluorene	3.60	10.0	1.22	1	6/8/2005	J
Hexachlorobenzene	BQL	10.0	1.22	1	6/8/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/8/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/8/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/8/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/8/2005	

Results for Semivolatiles by GCMS 625

Client Sample ID: USTH28-MW08
 Client Project ID: H28
 Lab Sample ID: G546-34-2H
 Lab Project ID: G546-34

Analyzed By: MRC
 Date Collected: 6/3/2005 12:32
 Date Received: 6/4/2005
 Date Extracted: 6/7/2005
 Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	10.0	1.27	1	6/8/2005	
Naphthalene	2.50	10.0	1.08	1	6/8/2005	J
Nitrobenzene	BQL	10.0	1.32	1	6/8/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/8/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/8/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/8/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/8/2005	
Phenanthrene	1.40	10.0	1.38	1	6/8/2005	J
Phenol	BQL	10.0	3.38	1	6/8/2005	
Pyrene	BQL	10.0	2.08	1	6/8/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/8/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/8/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.8	78
2-Fluorophenol	10	7.8	78
Nitrobenzene-d5	10	8.4	84
Phenol-d6	10	8.3	83
2,4,6-Tribromophenol	10	8.2	82
4-Terphenyl-d14	10	10.6	106

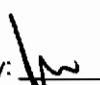
Comments:

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

Flags:

BQL = Below Quantitation Limits.

J = Detected below the quantitation limit.

Reviewed By: 

Results of Library Search for Semivolatile Compounds
by GCMS

Client Sample ID: USTH28-MW08
Client Project ID: H28
Lab Sample ID: G546-34-2H
Lab Project ID: G546-34
Sample Wt/Vol: 500 ML
Dilution: 1

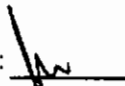
Analyzed By: MRC
Date Collected: 6/3/2005 12:32
Date Received: 6/4/2005
Date Extracted: 6/7/2005
Date Analyzed: 6/8/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Ethylmethylbenzene, Isomer of	8.05			28.5
2	Dimethylnaphthalene, Isomer of	10.68			9.71
3	Tetramethylbenzene, Isomer of	7.72			9.7
4	Propenylbenzene, Isomer of	6.78			9.58
5	Methyltetrahydronaphthalene, Isomer of	9.49			8.81
6	Methyltetrahydronaphthalene, Isomer of	8.53			8.12
7	Dimethylnaphthalene, Isomer of	10.86			7.11
8	Tetrahydronaphthalene, Isomer of	8.19			5.76
9	1-Methylnaphthalene	9.70	000090-12-0	99	5.7
10	Methylpropenylbenzene, Isomer of	7.95			5.27

Comment:

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

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

Reviewed by: 

Results for Semivolatiles by GCMS 625

Client Sample ID: USTH28-MW11
Client Project ID: H28
Lab Sample ID: G546-34-3H
Lab Project ID: G546-34

Analyzed By: MRC
Date Collected: 6/3/2005 11:55
Date Received: 6/4/2005
Date Extracted: 6/7/2005
Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	5.20	10.0	1.22	1	6/8/2005	J
Acenaphthylene	BQL	10.0	1.12	1	6/8/2005	
Anthracene	BQL	10.0	1.75	1	6/8/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/8/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/8/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/8/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/8/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/8/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/8/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/8/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/8/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	6/8/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/8/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/8/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/8/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/8/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/8/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/8/2005	
Chrysene	BQL	10.0	1.11	1	6/8/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	6/8/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/8/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/8/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/8/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/8/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/8/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/8/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/8/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/8/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/8/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/8/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/8/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/8/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/8/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/8/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/8/2005	
Fluoranthene	BQL	10.0	1.41	1	6/8/2005	
Fluorene	7.50	10.0	1.22	1	6/8/2005	J
Hexachlorobenzene	BQL	10.0	1.22	1	6/8/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/8/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/8/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/8/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/8/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTH28-MW11
Client Project ID: H28
Lab Sample ID: G546-34-3H
Lab Project ID: G546-34

Analyzed By: MRC
Date Collected: 6/3/2005 11:55
Date Received: 6/4/2005
Date Extracted: 6/7/2005
Matrix: Water

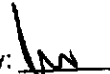
Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	10.0	1.27	1	6/8/2005	
Naphthalene	112	10.0	1.08	1	6/8/2005	
Nitrobenzene	BQL	10.0	1.32	1	6/8/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/8/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/8/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/8/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/8/2005	
Phenanthrene	6.80	10.0	1.38	1	6/8/2005	J
Phenol	BQL	10.0	3.38	1	6/8/2005	
Pyrene	BQL	10.0	2.08	1	6/8/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/8/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/8/2005	
		Spike Added	Spike Result	Percent Recovered		
2-Fluorobiphenyl		10	7.6	76		
2-Fluorophenol		10	7.6	76		
Nitrobenzene-d5		10	8.6	86		
Phenol-d6		10	8.3	83		
2,4,6-Tribromophenol		10	8.3	83		
4-Terphenyl-d14		10	9.6	96		

Comments:

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

Flags:

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

Reviewed By: 

Results of Library Search for Semivolatile Compounds
by GCMS

Client Sample ID: USTH28-MW11
Client Project ID: H28
Lab Sample ID: G546-34-3H
Lab Project ID: G546-34
Sample Wt/Vol: 500 ML
Dilution: 1

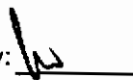
Analyzed By: MRC
Date Collected: 6/3/2005 11:55
Date Received: 6/4/2005
Date Extracted: 6/7/2005
Date Analyzed: 6/8/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	2-Methylnaphthalene	9.56	000091-57-6	100	135
2	Trimethylbenzene, Isomer of	6.29			112
3	1-Methylnaphthalene	9.70	000090-12-0	97	102
4	Dimethylnaphthalene, Isomer of	10.68			66.7
5	Ethyl dimethylbenzene, Isomer of	8.04			60
6	Dimethylnaphthalene, Isomer of	10.57			59.4
7	Dimethylbenzene, Isomer of	5.02			54.3
8	Trimethylbenzene, Isomer of	6.61			49.4
9	Ethyl dimethylbenzene, Isomer of	7.01			47.2
10	Aromatic, Unknown	6.78			44.2

Comment:

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

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

Reviewed by: 

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTH28-MW06
Client Project ID: H28
Lab Sample ID: G546-34-4H
Lab Project ID: G546-34

Analyzed By: MRC
Date Collected: 6/3/2005 11:20
Date Received: 6/4/2005
Date Extracted: 6/7/2005
Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	10.0	1.22	1	6/8/2005	
Acenaphthylene	BQL	10.0	1.12	1	6/8/2005	
Anthracene	BQL	10.0	1.75	1	6/8/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/8/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/8/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/8/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/8/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/8/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/8/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/8/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/8/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	6/8/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/8/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/8/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/8/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/8/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/8/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/8/2005	
Chrysene	BQL	10.0	1.11	1	6/8/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	6/8/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/8/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/8/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/8/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/8/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/8/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/8/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/8/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/8/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/8/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/8/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/8/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/8/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/8/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/8/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/8/2005	
Fluoranthene	BQL	10.0	1.41	1	6/8/2005	
Fluorene	BQL	10.0	1.22	1	6/8/2005	
Hexachlorobenzene	BQL	10.0	1.22	1	6/8/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/8/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/8/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/8/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/8/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTH28-MW06
 Client Project ID: H28
 Lab Sample ID: G546-34-4H
 Lab Project ID: G546-34

Analyzed By: MRC
 Date Collected: 6/3/2005 11:20
 Date Received: 6/4/2005
 Date Extracted: 6/7/2005
 Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	10.0	1.27	1	6/8/2005	
Naphthalene	BQL	10.0	1.08	1	6/8/2005	
Nitrobenzene	BQL	10.0	1.32	1	6/8/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/8/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/8/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/8/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/8/2005	
Phenanthrene	BQL	10.0	1.38	1	6/8/2005	
Phenol	BQL	10.0	3.38	1	6/8/2005	
Pyrene	BQL	10.0	2.08	1	6/8/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/8/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/8/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.5	75
2-Fluorophenol	10	7.2	72
Nitrobenzene-d5	10	7.7	77
Phenol-d6	10	7.8	78
2,4,6-Tribromophenol	10	7.5	75
4-Terphenyl-d14	10	10.7	107

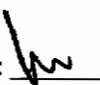
Comments:

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

Flags:

BQL = Below Quantitation Limits.

J = Detected below the quantitation limit.

Reviewed By: 

Results of Library Search for Semivolatile Compounds
by GCMS

Client Sample ID: USTH28-MW06
Client Project ID: H28
Lab Sample ID: G546-34-4H
Lab Project ID: G546-34
Sample Wt/Vol: 500 ML
Dilution: 1

Analyzed By: MRC
Date Collected: 6/3/2005 11:20
Date Received: 6/4/2005
Date Extracted: 6/7/2005
Date Analyzed: 6/8/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	No library search compounds detected.				
2					
3					
4					
5					
6					
7					
8					
9					
10					

Comment:

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

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

Reviewed by: 

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTH28-Dup
Client Project ID: H28
Lab Sample ID: G546-34-5H
Lab Project ID: G546-34

Analyzed By: MRC
Date Collected: 6/3/2005 0:00
Date Received: 6/4/2005
Date Extracted: 6/7/2005
Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	4.80	10.0	1.22	1	6/8/2005	J
Acenaphthylene	BQL	10.0	1.12	1	6/8/2005	
Anthracene	BQL	10.0	1.75	1	6/8/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/8/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/8/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/8/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/8/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/8/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/8/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/8/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/8/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	6/8/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/8/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/8/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/8/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/8/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/8/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/8/2005	
Chrysene	BQL	10.0	1.11	1	6/8/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	6/8/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/8/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/8/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/8/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/8/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/8/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/8/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/8/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/8/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/8/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/8/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/8/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/8/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/8/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/8/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/8/2005	
Fluoranthene	BQL	10.0	1.41	1	6/8/2005	
Fluorene	7.10	10.0	1.22	1	6/8/2005	J
Hexachlorobenzene	BQL	10.0	1.22	1	6/8/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/8/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/8/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/8/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/8/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTH28-Dup
 Client Project ID: H28
 Lab Sample ID: G546-34-5H
 Lab Project ID: G546-34

Analyzed By: MRC
 Date Collected: 6/3/2005 0:00
 Date Received: 6/4/2005
 Date Extracted: 6/7/2005
 Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	10.0	1.27	1	6/8/2005	
Naphthalene	109	10.0	1.08	1	6/8/2005	
Nitrobenzene	BQL	10.0	1.32	1	6/8/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/8/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/8/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/8/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/8/2005	
Phenanthrene	6.80	10.0	1.38	1	6/8/2005	J
Phenol	BQL	10.0	3.38	1	6/8/2005	
Pyrene	BQL	10.0	2.08	1	6/8/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/8/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/8/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.4	74
2-Fluorophenol	10	7.6	76
Nitrobenzene-d5	10	8.3	83
Phenol-d6	10	8	80
2,4,6-Tribromophenol	10	8	80
4-Terphenyl-d14	10	9.1	91

Comments:

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

Flags:

BQL = Below Quantitation Limits.

J = Detected below the quantitation limit.

Reviewed By: 

Results of Library Search for Semivolatile Compounds
by GCMS

Client Sample ID: USTH28-Dup
Client Project ID: H28
Lab Sample ID: G546-34-5H
Lab Project ID: G546-34
Sample Wt/Vol: 500 ML
Dilution: 1

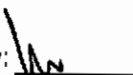
Analyzed By: MRC
Date Collected: 6/3/2005 0:00
Date Received: 6/4/2005
Date Extracted: 6/7/2005
Date Analyzed: 6/8/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	2-Methylnaphthalene	9.56	000091-57-6	100	132
2	Trimethylbenzene, Isomer of	6.29			115
3	1-Methylnaphthalene	9.71	000090-12-0	98	99.6
4	Dimethylnaphthalene, Isomer of	10.68			64.2
5	Dimethylbenzene, Isomer of	5.01			59.7
6	Ethyl dimethylbenzene, Isomer of	8.05			58.4
7	Dimethylnaphthalene, Isomer of	10.58			57.6
8	Trimethylbenzene, Isomer of	6.61			51.2
9	Ethyl dimethylbenzene, Isomer of	7.01			47.3
10	Aromatic, Unknown	6.78			44.1

Comment:

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

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

Reviewed by: 

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: PB2961
Lab Project ID:

Analyzed By: MRC
Date Collected:
Date Received:
Date Extracted: 6/7/2005
Matrix: WATER

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	10.0	1.22	1	6/7/2005	
Acenaphthylene	BQL	10.0	1.12	1	6/7/2005	
Anthracene	BQL	10.0	1.75	1	6/7/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/7/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/7/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/7/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/7/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/7/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/7/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/7/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/7/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	6/7/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/7/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/7/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/7/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/7/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/7/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/7/2005	
Chrysene	BQL	10.0	1.11	1	6/7/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	6/7/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/7/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/7/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/7/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/7/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/7/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/7/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/7/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/7/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/7/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/7/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/7/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/7/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/7/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/7/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/7/2005	
Fluoranthene	BQL	10.0	1.41	1	6/7/2005	
Fluorene	BQL	10.0	1.22	1	6/7/2005	
Hexachlorobenzene	BQL	10.0	1.22	1	6/7/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/7/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/7/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/7/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/7/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: Method Blank

Client Project ID:

Lab Sample ID: PB2961

Lab Project ID:

Analyzed By: MRC

Date Collected:

Date Received:

Date Extracted: 6/7/2005

Matrix: WATER

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	10.0	1.27	1	6/7/2005	
Naphthalene	BQL	10.0	1.08	1	6/7/2005	
Nitrobenzene	BQL	10.0	1.32	1	6/7/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/7/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/7/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/7/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/7/2005	
Phenanthrene	BQL	10.0	1.38	1	6/7/2005	
Phenol	BQL	10.0	3.38	1	6/7/2005	
Pyrene	BQL	10.0	2.08	1	6/7/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/7/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/7/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7	70
2-Fluorophenol	10	6.7	67
Nitrobenzene-d5	10	7.2	72
Phenol-d6	10	7.4	74
2,4,6-Tribromophenol	10	7.6	76
4-Terphenyl-d14	10	9.9	99

Comments:

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

Flags:

BQL = Below Quantitation Limits.

J = Detected below the quantitation limit.

Reviewed By: 

Results of Library Search for Semivolatile Compounds
by GCMS

Client Sample ID: Method Blank
Client Project ID: H28
Lab Sample ID: PB2961
Lab Project ID: G546-34
Sample Wt/Vol: 500 ML
Dilution: 1

Analyzed By: MRC
Date Collected:
Date Received:
Date Extracted: 6/7/2005
Date Analyzed: 6/8/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	No library search compounds detected.				
2					
3					
4					
5					
6					
7					
8					
9					
10					

Comment:

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

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

Reviewed by: 

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

Client Sample ID: Batch QC

Date Collected:

Client Sample ID:

Date Received:

Lab Sample ID: Batch-2961-MS/MSD/LCS

Date Extracted: 06/07/05

Lab Project ID:

Date Analyzed: 06/08/05

Matrix: WATER

Analyzed By: MRC

Prep Method: 3520

Dilution: 1

	Sample Amount (µg/L)	MS Spike (µg/L)	MS Conc. (µg/L)	MS Spike % Rec.	MSD Spike (µg/L)	MSD Conc. (µg/L)	MSD Conc. % Rec.	RPD	QC Limits	
									RPD	% Rec.
Acenaphthylene	BQL	100	107	107	100	97.5	97.5	9.66	30	62.0-119
4-Chloro-3-methylphenol	BQL	100	94.4	94.4	100	84.3	84.3	11.3	30	67.0-98.0
2-Chlorophenol	BQL	100	87.7	87.7	100	82.7	82.7	5.87	30	53.0-111
1,4-Dichlorobenzene	BQL	100	65.0	65.0	100	57.7	57.7	11.9	30	29.0-86.0
2,4-Dinitrotoluene	BQL	100	106	106*	100	96.2	96.2	9.32	30	63.0-103
N-Nitrosodi-n-propylamine	BQL	100	101	101	100	95.5	95.5	5.20	30	67.0-107
4-Nitrophenol	BQL	100	90.4	90.4	100	80.8	80.8	11.2	30	49.0-146
Pentachlorophenol	BQL	100	56.7	56.7	100	50.4	50.4	11.8	30	43.0-106
Phenol	BQL	100	90.1	90.1	100	85.2	85.2	5.59	30	61.0-100
Pyrene	BQL	100	102	102	100	96.7	96.7	5.43	30	41.0-123
1,2,4-Trichlorobenzene	BQL	100	85.0	85.0	100	77.4	77.4	9.36	30	41.0-96.0

	Spiked Amount (µg/L)	LCS Conc. (µg/L)	LCS Spike %	QC Limits
				% Rec.
Acenaphthylene	100	103	103	66.1-116
4-Chloro-3-methylphenol	100	87.5	87.5	64.3-97.6
2-Chlorophenol	100	86.8	86.8	56.9-93.4
1,4-Dichlorobenzene	100	62.4	62.4	20.6-82.8
2,4-Dinitrotoluene	100	98.7	98.7	63.7-101
N-Nitrosodi-n-propylamine	100	97.5	97.5	62.6-108
4-Nitrophenol	100	82.1	82.1	53.7-125
Pentachlorophenol	100	54.6	54.6	37.0-102
Phenol	100	87.8	87.8	57.4-99.5
Pyrene	100	102	102	44.1-124
1,2,4-Trichlorobenzene	100	82.3	82.3	37.6-97.9

Comments:

Concentrations reflect the spiked sample amounts.

Flags:

* = Out of limits.

NA = Not applicable.

Reviewed By: 

List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit

DF = Dilution Factor

Dup = Duplicate

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL = Reporting Limit

RPD = Relative Percent Difference

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

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

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

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

% Rec = Percent Recovery

% solids = Percent Solids

Special Notes:

- 1) Metals and mercury samples are digested with a hot block, see the standard operating procedure document for details.
- 2) Uncertainty for all reported data is less than or equal to 30 percent.

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

Chain-of Custody Record & Analytical Request

COC# 47227

Page ____ of ____

Client: Engineering + Environment Project ID: H28
 Address: 8446 Burnham Rd Site 5 Contact: Bill Morris
 Address: Jacksonville NC 28540 Phone: 910-994-3219
 Quote #: _____ Fax: 910-984-8841

Date: 6/3/05
 Turnaround: Standard
 Job Number: _____
 P.O. Number: _____

Report To: _____
 Invoice To: _____

Sample ID	Date	Time	Matrix	Preservatives		Analytes				Comments: Please specify any special reporting requirements
				HCl	None	60h V/xylene	VPH	EPH	625 V/10 Tics	
~~AST H29-MW09~~										
AST H29-MW09	6/3/05	1310	GW	6	1	3	2	1	1	
AST H29-MW08	6/3/05	1232	GW	6	1	3	2	1	1	
AST H28-MV11	6/3/05	1155	GW	6	1	3	2	1	1	
AST H28-MW06	6/3/05	1120	GW	6	1	3	2	1	1	
AST H28-Dug	6/3/05	-	GW	6	1	3	2	1	1	
Trig Blank	6/3/05	1435								
Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested			
Bob Sellers	6/3/05	1440	Jake Schum	6/9/05	1006	58°C, 23°C	NC	SC	Other	



December 2005



PARADIGM ANALYTICAL LABORATORIES, INC.

Mr. Bill Morris
Engineering & Environment, Inc.
824 Gum Branch Road
Jacksonville NC 28546

Report Number: G546-68

Client Project: USTH28

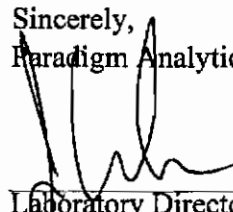
Dear Mr. Morris:

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

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

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

Sincerely,
Paradigm Analytical Laboratories, Inc.



Laboratory Director
J. Patrick Weaver

12/22/05

Date

Results for Volatiles

by GC 602

Client Sample ID: USTH28-MW6

Analyzed By: MJC

Client Project ID: USTH28

Date Collected: 12/13/05 10:20

Lab Sample ID: G546-68-1A

Date Received: 12/14/05

Lab Project ID: G546-68

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.316	1	12/16/05	
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	12/16/05	
Ethylbenzene	BQL	1.00	0.299	1	12/16/05	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	12/16/05	
Toluene	BQL	1.00	0.302	1	12/16/05	
m/p-Xylene	BQL	2.00	0.608	1	12/16/05	
o-Xylene	BQL	2.00	0.596	1	12/16/05	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.8	99.4

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Results for Volatiles

by GC 602

Client Sample ID: USTH28-MW8

Analyzed By: MJC

Client Project ID: USTH28

Date Collected: 12/13/05 11:10

Lab Sample ID: G546-68-2A

Date Received: 12/14/05

Lab Project ID: G546-68

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.316	1	12/16/05	
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	12/16/05	
Ethylbenzene	BQL	1.00	0.299	1	12/16/05	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	12/16/05	
Toluene	BQL	1.00	0.302	1	12/16/05	
m/p-Xylene	BQL	2.00	0.608	1	12/16/05	
o-Xylene	BQL	2.00	0.596	1	12/16/05	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.8	99.5

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Reviewed By: 

GC_LIMS_v2.0.XLS

Results for Volatiles

by GC 602

Client Sample ID: USTH28-MW11

Analyzed By: MJC

Client Project ID: USTH28

Date Collected: 12/13/05 13:55

Lab Sample ID: G546-68-3A

Date Received: 12/14/05

Lab Project ID: G546-68

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.316	1	12/17/05	
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	12/17/05	
Ethylbenzene	35.4	1.00	0.299	1	12/17/05	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	12/17/05	
Toluene	2.00	1.00	0.302	1	12/17/05	
m/p-Xylene	87.8	2.00	0.608	1	12/17/05	
o-Xylene	77.9	2.00	0.596	1	12/17/05	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.9	99.6

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Reviewed By: 

GC_LIMS_v2.0.XLS

Results for Volatiles

by GC 602

Client Sample ID: USTH28-MW9

Analyzed By: MJC

Client Project ID: USTH28

Date Collected: 12/13/05 14:50

Lab Sample ID: G546-68-4A

Date Received: 12/14/05

Lab Project ID: G546-68

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.316	1	12/17/05	
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	12/17/05	
Ethylbenzene	3.13	1.00	0.299	1	12/17/05	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	12/17/05	
Toluene	1.37	1.00	0.302	1	12/17/05	
m/p-Xylene	2.41	2.00	0.608	1	12/17/05	
o-Xylene	1.25	2.00	0.596	1	12/17/05	J

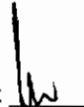
Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.5	98.8

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Reviewed By: 

GC_LIMS_v2.0.XLS

Results for Volatiles

by GC 602

Client Sample ID: Method Blank

Analyzed By: MJC

Client Project ID:

Date Collected:

Lab Sample ID: VBLK3121605B

Date Received:

Lab Project ID:

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.316	1	12/16/05	
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	12/16/05	
Ethylbenzene	BQL	1.00	0.299	1	12/16/05	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	12/16/05	
Toluene	BQL	1.00	0.302	1	12/16/05	
m/p-Xylene	BQL	2.00	0.608	1	12/16/05	
o-Xylene	BQL	2.00	0.596	1	12/16/05	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.7	99.2

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Control Limits for QC Check / Laboratory Control Spike

Method: 602 Spike[ppb]: 10
 Instrument: gc3
 Filename: 121605\023r0101.txt

Compound	ppb	Q(%)	QC Limits		P _s (%)	LCS Limits	
			Lower	Upper		Lower	Upper
Benzene	10.3	103.3	77.0	123.0	103	39	160
Chlorobenzene	10.0	100.2	80.5	119.5	100	66	138
1,2-Dichlorobenzene	10.2	101.5	68.0	132.0	102	37	164
1,3-Dichlorobenzene	10.0	99.6	72.5	127.5	100	60	141
1,4-Dichlorobenzene	10.2	101.9	69.5	130.5	102	42	143
• Diisopropyl ether	10.0	99.9	43.1	156.9	100	30	170
• Ethylbenzene	10.3	103.4	63.0	137.0	103	32	160
• MTBE	10.2	101.7	46.8	153.2	102	36	186
• Toluene	10.2	102.3	77.5	127.0	102	46	148
• m,p-Xylene	20.7	103.5	11.2	188.8	104	D	239
• o-Xylene	10.2	102.2	47.6	152.4	102	38	184

Flags:

- = out of QC limits.
- = lab generated limits.
- D = Detected

Reviewed by: 

Control Limits for MS-MSD

Method: 602 Spike[ppb]: 10
 Instrument: gc3
 Sample: 121605\038r0101.txt
 MS: 121605\039r0101.txt
 MSD: 121605\040r0101.txt

Compound	µg/L			P(%)		P Limits	
	Sam.	MS	MSD	MS	MSD	Lower	Upper
Benzene	ND	10.6	10.4	106	104	38	160
Chlorobenzene	ND	10.3	10.1	103	101	66	136
1,2-Dichlorobenzene	ND	10.2	10.1	102	101	37	164
1,3-Dichlorobenzene	ND	10.2	10.1	102	101	60	141
1,4-Dichlorobenzene	ND	10.4	10.2	104	102	42	143
• Diisopropyl ether	ND	10.3	10.1	103	101	30	170
Ethylbenzene	ND	10.6	10.4	106	104	32	160
• MTBE	ND	10.4	10.3	104	103	35	166
Toluene	ND	10.4	10.2	104	102	48	148
• m,p-Xylene	ND	21.1	20.7	106	103	D	239
• o-Xylene	ND	10.3	10.0	103	100	36	164

Flags :

- + = out of QC limits.
- = lab generated limits.
- D = Detected
- ND = None Detected

Reviewed by: 

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTH28-MW6

Client Project ID: USTH28

Lab Sample ID: G546-68-1H

Lab Project ID: G546-68

Analyzed By: MRC

Date Collected: 12/13/2005 10:20

Date Received: 12/14/2005

Date Extracted: 12/15/2005

Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	10.0	1.22	1	12/17/2005	
Acenaphthylene	BQL	10.0	1.12	1	12/17/2005	
Anthracene	BQL	10.0	1.75	1	12/17/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	12/17/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	12/17/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	12/17/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	12/17/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	12/17/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	12/17/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	12/17/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	12/17/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	12/17/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	12/17/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	12/17/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	12/17/2005	
2-Chlorophenol	BQL	10.0	4.22	1	12/17/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	12/17/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	12/17/2005	
Chrysene	BQL	10.0	1.11	1	12/17/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	12/17/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	12/17/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	12/17/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	12/17/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	12/17/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	12/17/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	12/17/2005	
Diethylphthalate	BQL	10.0	1.48	1	12/17/2005	
Dimethylphthalate	BQL	10.0	1.04	1	12/17/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	12/17/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	12/17/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	12/17/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	12/17/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	12/17/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	12/17/2005	
Diphenylamine *	BQL	10.0	1.53	1	12/17/2005	
Fluoranthene	BQL	10.0	1.41	1	12/17/2005	
Fluorene	BQL	10.0	1.22	1	12/17/2005	
Hexachlorobenzene	BQL	10.0	1.22	1	12/17/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	12/17/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	12/17/2005	
Hexachloroethane	BQL	10.0	1.58	1	12/17/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	12/17/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTH28-MW6
 Client Project ID: USTH28
 Lab Sample ID: G546-68-1H
 Lab Project ID: G546-68

Analyzed By: MRC
 Date Collected: 12/13/2005 10:20
 Date Received: 12/14/2005
 Date Extracted: 12/15/2005
 Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	10.0	1.27	1	12/17/2005	
Naphthalene	BQL	10.0	1.08	1	12/17/2005	
Nitrobenzene	BQL	10.0	1.32	1	12/17/2005	
2-Nitrophenol	BQL	10.0	3.52	1	12/17/2005	
4-Nitrophenol	BQL	50.0	3.17	1	12/17/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	12/17/2005	
Pentachlorophenol	BQL	50.0	2.83	1	12/17/2005	
Phenanthrene	BQL	10.0	1.38	1	12/17/2005	
Phenol	BQL	10.0	3.38	1	12/17/2005	
Pyrene	BQL	10.0	2.08	1	12/17/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	12/17/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	12/17/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8	80
2-Fluorophenol	10	7.5	75
Nitrobenzene-d5	10	7.3	73
Phenol-d6	10	7.3	73
2,4,6-Tribromophenol	10	7.9	79
4-Terphenyl-d14	10	10.1	101

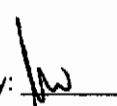
Comments:

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

Flags:

BQL = Below Quantitation Limits.

J = Detected below the quantitation limit.

Reviewed By: 

Results of Library Search for Semivolatile Compounds*by GCMS*

Client Sample ID: USTH28-MW6

Client Project ID: USTH28

Lab Sample ID: G546-68-1H

Lab Project ID: G546-68

Sample Wt/Vol: 500 ML

Dilution: 1

Analyzed By: MRC

Date Collected: 12/13/2005 10:20

Date Received: 12/14/2005

Date Extracted: 12/15/2005

Date Analyzed: 12/17/2005

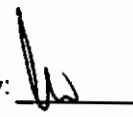
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	No library search compounds detected.				
2					
3					
4					
5					
6					
7					
8					
9					
10					

Comment:

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

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

Reviewed by: 

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTH28-MW8
Client Project ID: USTH28
Lab Sample ID: G546-68-2H
Lab Project ID: G546-68

Analyzed By: MRC
Date Collected: 12/13/2005 11:10
Date Received: 12/14/2005
Date Extracted: 12/15/2005
Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	10.0	1.22	1	12/17/2005	
Acenaphthylene	BQL	10.0	1.12	1	12/17/2005	
Anthracene	BQL	10.0	1.75	1	12/17/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	12/17/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	12/17/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	12/17/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	12/17/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	12/17/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	12/17/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	12/17/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	12/17/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	12/17/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	12/17/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	12/17/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	12/17/2005	
2-Chlorophenol	BQL	10.0	4.22	1	12/17/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	12/17/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	12/17/2005	
Chrysene	BQL	10.0	1.11	1	12/17/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	12/17/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	12/17/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	12/17/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	12/17/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	12/17/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	12/17/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	12/17/2005	
Diethylphthalate	BQL	10.0	1.48	1	12/17/2005	
Dimethylphthalate	BQL	10.0	1.04	1	12/17/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	12/17/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	12/17/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	12/17/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	12/17/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	12/17/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	12/17/2005	
Diphenylamine *	BQL	10.0	1.53	1	12/17/2005	
Fluoranthene	BQL	10.0	1.41	1	12/17/2005	
Fluorene	1.40	10.0	1.22	1	12/17/2005	J
Hexachlorobenzene	BQL	10.0	1.22	1	12/17/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	12/17/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	12/17/2005	
Hexachloroethane	BQL	10.0	1.58	1	12/17/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	12/17/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTH28-MW8
 Client Project ID: USTH28
 Lab Sample ID: G546-68-2H
 Lab Project ID: G546-68

Analyzed By: MRC
 Date Collected: 12/13/2005 11:10
 Date Received: 12/14/2005
 Date Extracted: 12/15/2005
 Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	10.0	1.27	1	12/17/2005	
Naphthalene	BQL	10.0	1.08	1	12/17/2005	
Nitrobenzene	BQL	10.0	1.32	1	12/17/2005	
2-Nitrophenol	BQL	10.0	3.52	1	12/17/2005	
4-Nitrophenol	BQL	50.0	3.17	1	12/17/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	12/17/2005	
Pentachlorophenol	BQL	50.0	2.83	1	12/17/2005	
Phenanthrene	BQL	10.0	1.38	1	12/17/2005	
Phenol	BQL	10.0	3.38	1	12/17/2005	
Pyrene	BQL	10.0	2.08	1	12/17/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	12/17/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	12/17/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.4	84
2-Fluorophenol	10	7.9	79
Nitrobenzene-d5	10	7.9	79
Phenol-d6	10	7.6	76
2,4,6-Tribromophenol	10	8.6	86
4-Terphenyl-d14	10	10.6	106

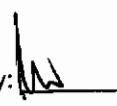
Comments:

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

Flags:

BQL = Below Quantitation Limits.

J = Detected below the quantitation limit.

Reviewed By: 

Results of Library Search for Semivolatile Compounds
by GCMS

Client Sample ID: USTH28-MW8
Client Project ID: USTH28
Lab Sample ID: G546-68-2H
Lab Project ID: G546-68
Sample Wt/Vol: 500 ML
Dilution: 1

Analyzed By: MRC
Date Collected: 12/13/2005 11:10
Date Received: 12/14/2005
Date Extracted: 12/15/2005
Date Analyzed: 12/17/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Alkane, Unknown	13.38			38.9
2	Unknown	12.95			17.5
3	Unknown	8.60			14.7
4	Alkane, Unknown	14.09			14
5	Alkane, Unknown	13.36			13.9
6	Alkane, Unknown	11.44			12.3
7	Alkane, Unknown	9.73			11.9
8	Alkane, Unknown	12.59			11.3
9	Alkane, Unknown	16.68			10.2
10	Alkane, Unknown	14.78			10

Comment:

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

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

Reviewed by: 

Results for Semivolatiles by GCMS 625

Client Sample ID: USTH28-MW11

Client Project ID: USTH28

Lab Sample ID: G546-68-3H

Lab Project ID: G546-68

Analyzed By: MRC

Date Collected: 12/13/2005 13:55

Date Received: 12/14/2005

Date Extracted: 12/15/2005

Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	5.90	10.0	1.22	1	12/17/2005	J
Acenaphthylene	BQL	10.0	1.12	1	12/17/2005	
Anthracene	BQL	10.0	1.75	1	12/17/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	12/17/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	12/17/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	12/17/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	12/17/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	12/17/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	12/17/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	12/17/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	12/17/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	12/17/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	12/17/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	12/17/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	12/17/2005	
2-Chlorophenol	BQL	10.0	4.22	1	12/17/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	12/17/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	12/17/2005	
Chrysene	BQL	10.0	1.11	1	12/17/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	12/17/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	12/17/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	12/17/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	12/17/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	12/17/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	12/17/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	12/17/2005	
Diethylphthalate	BQL	10.0	1.48	1	12/17/2005	
Dimethylphthalate	BQL	10.0	1.04	1	12/17/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	12/17/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	12/17/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	12/17/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	12/17/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	12/17/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	12/17/2005	
Diphenylamine *	BQL	10.0	1.53	1	12/17/2005	
Fluoranthene	BQL	10.0	1.41	1	12/17/2005	
Fluorene	8.60	10.0	1.22	1	12/17/2005	J
Hexachlorobenzene	BQL	10.0	1.22	1	12/17/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	12/17/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	12/17/2005	
Hexachloroethane	BQL	10.0	1.58	1	12/17/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	12/17/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTH28-MW11
 Client Project ID: USTH28
 Lab Sample ID: G546-68-3H
 Lab Project ID: G546-68

Analyzed By: MRC
 Date Collected: 12/13/2005 13:55
 Date Received: 12/14/2005
 Date Extracted: 12/15/2005
 Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	10.0	1.27	1	12/17/2005	
Naphthalene	142	10.0	1.08	1	12/17/2005	
Nitrobenzene	BQL	10.0	1.32	1	12/17/2005	
2-Nitrophenol	BQL	10.0	3.52	1	12/17/2005	
4-Nitrophenol	BQL	50.0	3.17	1	12/17/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	12/17/2005	
Pentachlorophenol	BQL	50.0	2.83	1	12/17/2005	
Phenanthrene	7.40	10.0	1.38	1	12/17/2005	J
Phenol	BQL	10.0	3.38	1	12/17/2005	
Pyrene	BQL	10.0	2.08	1	12/17/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	12/17/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	12/17/2005	
		Spike Added	Spike Result	Percent Recovered		
2-Fluorobiphenyl		10	8.2	82		
2-Fluorophenol		10	7.7	77		
Nitrobenzene-d5		10	8.4	84		
Phenol-d6		10	7.6	76		
2,4,6-Tribromophenol		10	8.9	89		
4-Terphenyl-d14		10	9.7	97		

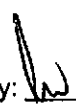
Comments:

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

Flags:

BQL = Below Quantitation Limits.

J = Detected below the quantitation limit.

Reviewed By: 

Results of Library Search for Semivolatile Compounds
by GCMS

Client Sample ID: USTH28-MW11
Client Project ID: USTH28
Lab Sample ID: G546-68-3H
Lab Project ID: G546-68
Sample Wt/Vol: 500 ML
Dilution: 1

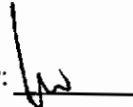
Analyzed By: MRC
Date Collected: 12/13/2005 13:55
Date Received: 12/14/2005
Date Extracted: 12/15/2005
Date Analyzed: 12/17/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	2-Methylnaphthalene	10.12	000091-57-6	99	142
2	Trimethylbenzene, Isomer of	6.82			134
3	1-Methylnaphthalene	10.28	000090-12-0	99	113
4	Trimethylbenzene, Isomer of	7.15			95.6
5	Ethylmethylbenzene, Isomer of	8.60			60.8
6	Dimethylnaphthalene, Isomer of	11.26			58.6
7	Ethylmethylbenzene, Isomer of	6.63			55.8
8	Aromatic, Unknown	7.32			48.5
9	Dimethylnaphthalene, Isomer of	11.14			46.4
10	Dimethylbenzene, Isomer of	5.54			43.2

Comment:

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

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

Reviewed by: 

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTH28-MW9
Client Project ID: USTH28
Lab Sample ID: G546-68-4H
Lab Project ID: G546-68

Analyzed By: MRC
Date Collected: 12/13/2005 14:50
Date Received: 12/14/2005
Date Extracted: 12/15/2005
Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	10.0	1.22	1	12/17/2005	
Acenaphthylene	BQL	10.0	1.12	1	12/17/2005	
Anthracene	BQL	10.0	1.75	1	12/17/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	12/17/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	12/17/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	12/17/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	12/17/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	12/17/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	12/17/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	12/17/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	12/17/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	12/17/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	12/17/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	12/17/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	12/17/2005	
2-Chlorophenol	BQL	10.0	4.22	1	12/17/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	12/17/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	12/17/2005	
Chrysene	BQL	10.0	1.11	1	12/17/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	12/17/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	12/17/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	12/17/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	12/17/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	12/17/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	12/17/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	12/17/2005	
Diethylphthalate	BQL	10.0	1.48	1	12/17/2005	
Dimethylphthalate	BQL	10.0	1.04	1	12/17/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	12/17/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	12/17/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	12/17/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	12/17/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	12/17/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	12/17/2005	
Diphenylamine *	BQL	10.0	1.53	1	12/17/2005	
Fluoranthene	BQL	10.0	1.41	1	12/17/2005	
Fluorene	BQL	10.0	1.22	1	12/17/2005	
Hexachlorobenzene	BQL	10.0	1.22	1	12/17/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	12/17/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	12/17/2005	
Hexachloroethane	BQL	10.0	1.58	1	12/17/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	12/17/2005	

Results for Semivolatiles by GCMS 625

Client Sample ID: USTH28-MW9
 Client Project ID: USTH28
 Lab Sample ID: G546-68-4H
 Lab Project ID: G546-68

Analyzed By: MRC
 Date Collected: 12/13/2005 14:50
 Date Received: 12/14/2005
 Date Extracted: 12/15/2005
 Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	10.0	1.27	1	12/17/2005	
Naphthalene	BQL	10.0	1.08	1	12/17/2005	
Nitrobenzene	BQL	10.0	1.32	1	12/17/2005	
2-Nitrophenol	BQL	10.0	3.52	1	12/17/2005	
4-Nitrophenol	BQL	50.0	3.17	1	12/17/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	12/17/2005	
Pentachlorophenol	BQL	50.0	2.83	1	12/17/2005	
Phenanthrene	BQL	10.0	1.38	1	12/17/2005	
Phenol	BQL	10.0	3.38	1	12/17/2005	
Pyrene	BQL	10.0	2.08	1	12/17/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	12/17/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	12/17/2005	
		Spike Added	Spike Result	Percent Recovered		
2-Fluorobiphenyl		10	7.5	75		
2-Fluorophenol		10	6.7	67		
Nitrobenzene-d5		10	6.7	67		
Phenol-d6		10	6.6	66		
2,4,6-Tribromophenol		10	7.2	72		
4-Terphenyl-d14		10	8.5	85		

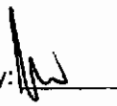
Comments:

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

Flags:

BQL = Below Quantitation Limits.

J = Detected below the quantitation limit.

Reviewed By: 

Results of Library Search for Semivolatile Compounds
by GCMS

Client Sample ID: USTH28-MW9
Client Project ID: USTH28
Lab Sample ID: G546-68-4H
Lab Project ID: G546-68
Sample Wt/Vol: 500 ML
Dilution: 1

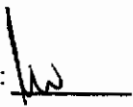
Analyzed By: MRC
Date Collected: 12/13/2005 14:50
Date Received: 12/14/2005
Date Extracted: 12/15/2005
Date Analyzed: 12/17/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	No library search compounds detected.				
2					
3					
4					
5					
6					
7					
8					
9					
10					

Comment:

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

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

Reviewed by: 

Results for Semivolatiles by GCMS 625

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: PB4184
Lab Project ID:
Report Basis: Dry Weight

Analyzed By: MRC
Date Collected:
Date Received:
Date Extracted: 12/15/2005
Matrix: SOIL
% Solids: 100

Compound	Result ug/Kg	Quantitation Limit ug/Kg	MDL ug/Kg	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	313	44.7	1	12/16/2005	
Acenaphthylene	BQL	313	41.6	1	12/16/2005	
Anthracene	BQL	313	45.3	1	12/16/2005	
Benzo[a]anthracene	BQL	313	54.1	1	12/16/2005	
Benzo[a]pyrene	BQL	313	47.8	1	12/16/2005	
Benzo[b]fluoranthene	BQL	313	54.7	1	12/16/2005	
Benzo[g,h,i]perylene	BQL	313	85.0	1	12/16/2005	
Benzo[k]fluoranthene	BQL	313	60.3	1	12/16/2005	
Bis(2-chloroethoxy)methane	BQL	313	46.6	1	12/16/2005	
Bis(2-chloroethyl)ether	BQL	313	37.8	1	12/16/2005	
Bis(2-chloroisopropyl)ether	BQL	313	39.1	1	12/16/2005	
Bis(2-ethylhexyl)phthalate	BQL	313	41.9	1	12/16/2005	
4-bromophenyl phenyl ether	BQL	313	52.8	1	12/16/2005	
Butylbenzylphthalate	BQL	313	48.1	1	12/16/2005	
2-Chloronaphthalene	BQL	313	49.1	1	12/16/2005	
2-Chlorophenol	BQL	313	97.8	1	12/16/2005	
4-Chloro-3-methylphenol	BQL	313	97.5	1	12/16/2005	
4-Chlorophenyl phenyl ether	BQL	313	45.9	1	12/16/2005	
Chrysene	BQL	313	33.8	1	12/16/2005	
Dibenzo[a,h]anthracene	BQL	313	87.5	1	12/16/2005	
Di-n-Butylphthalate	BQL	313	37.2	1	12/16/2005	
1,2-Dichlorobenzene	BQL	313	34.7	1	12/16/2005	
1,3-Dichlorobenzene	BQL	313	34.1	1	12/16/2005	
1,4-Dichlorobenzene	BQL	313	35.3	1	12/16/2005	
3,3'-Dichlorobenzidine	BQL	625	78.8	1	12/16/2005	
2,4-Dichlorophenol	BQL	313	113	1	12/16/2005	
Diethylphthalate	BQL	313	40.3	1	12/16/2005	
Dimethylphthalate	BQL	313	37.8	1	12/16/2005	
2,4-Dimethylphenol	BQL	313	223	1	12/16/2005	
Di-n-octylphthalate	BQL	313	51.6	1	12/16/2005	
4,6-Dinitro-2-methylphenol	BQL	1560	184	1	12/16/2005	
2,4-Dinitrophenol	BQL	1560	688	1	12/16/2005	
2,4-Dinitrotoluene	BQL	313	40.6	1	12/16/2005	
2,6-Dinitrotoluene	BQL	313	56.9	1	12/16/2005	
Diphenylamine *	BQL	313	30.6	1	12/16/2005	
Fluoranthene	BQL	313	43.7	1	12/16/2005	
Fluorene	BQL	313	38.8	1	12/16/2005	
Hexachlorobenzene	BQL	313	48.1	1	12/16/2005	
Hexachlorobutadiene	BQL	313	50.0	1	12/16/2005	
Hexachlorocyclopentadiene	BQL	625	32.2	1	12/16/2005	
Hexachloroethane	BQL	313	28.1	1	12/16/2005	
Indeno(1,2,3-c,d)pyrene	BQL	313	80.0	1	12/16/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: Method Blank
 Client Project ID:
 Lab Sample ID: PB4184
 Lab Project ID:
 Report Basis: Dry Weight

Analyzed By: MRC
 Date Collected:
 Date Received:
 Date Extracted: 12/15/2005
 Matrix: SOIL
 % Solids: 100

Compound	Result ug/Kg	Quantitation Limit ug/Kg	MDL ug/Kg	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	313	45.9	1	12/16/2005	
Naphthalene	BQL	313	25.3	1	12/16/2005	
Nitrobenzene	BQL	313	42.2	1	12/16/2005	
2-Nitrophenol	BQL	313	96.9	1	12/16/2005	
4-Nitrophenol	BQL	1560	86.6	1	12/16/2005	
N-Nitrosodi-n-propylamine	BQL	313	39.7	1	12/16/2005	
Pentachlorophenol	BQL	1560	81.6	1	12/16/2005	
Phenanthrene	BQL	313	35.6	1	12/16/2005	
Phenol	BQL	313	85.6	1	12/16/2005	
Pyrene	BQL	313	60.0	1	12/16/2005	
1,2,4-Trichlorobenzene	BQL	313	39.1	1	12/16/2005	
2,4,6-Trichlorophenol	BQL	313	111	1	12/16/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.8	98
2-Fluorophenol	10	9.2	92
Nitrobenzene-d5	10	9.2	92
Phenol-d6	10	9.2	92
2,4,6-Tribromophenol	10	9.5	95
4-Terphenyl-d14	10	10.5	105

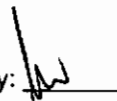
Comments:

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

Flags:

BQL = Below Quantitation Limits.

J = Detected below the quantitation limit.

Reviewed By: 

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

Client Sample ID: Batch QC

Date Collected:

Client Sample ID:

Date Received:

Lab Sample ID: Batch-4181-MS/MSD/LCS

Date Extracted: 12/15/05

Lab Project ID:

Date Analyzed: 12/17/05

Matrix: WATER

Analyzed By: MRC

Prep Method: 3520

Dilution: 1

	Sample Amount (µg/L)	MS Spike (µg/L)	MS Conc. (µg/L)	MS Spike % Rec.	MSD Spike (µg/L)	MSD Conc. (µg/L)	MSD Conc. % Rec.	RPD	QC Limits	
									RPD	% Rec.
Acenaphthylene	BQL	222	198	89.0	200	176	88.2	0.903	30	62.0-119
4-Chloro-3-methylphenol	BQL	222	188	84.8	200	163	81.5	3.97	30	67.0-109
2-Chlorophenol	BQL	222	160	72.0	200	136	68.3	5.27	30	59.0-95.0
1,4-Dichlorobenzene	BQL	222	127	57.1	200	102	51.2	10.9	30	29.0-86.0
2,4-Dinitrotoluene	BQL	222	182	81.8	200	155	77.3	5.66	30	63.0-103
N-Nitrosodi-n-propylamine	BQL	222	171	77.0	200	142	71.1	7.97	30	67.0-107
4-Nitrophenol	BQL	222	203	91.2	200	171	85.4	6.57	30	49.0-146
Pentachlorophenol	BQL	222	166	74.7	200	149	74.4	0.402	30	43.0-106
Phenol	BQL	222	161	72.6	200	137	68.4	5.96	30	61.0-100
Pyrene	BQL	222	196	88.2	200	179	89.4	1.35	30	41.0-123
1,2,4-Trichlorobenzene	BQL	222	154	69.4	200	137	68.4	1.45	30	41.0-96.0

	Spiked Amount (µg/L)	LCS Conc. (µg/L)	LCS Spike %	QC Limits
				% Rec.
Acenaphthylene	100	89.4	89.4	66.1-116
4-Chloro-3-methylphenol	100	81.6	81.6	64.3-128
2-Chlorophenol	100	70.9	70.9	56.9-93.4
1,4-Dichlorobenzene	100	56.7	56.7	20.6-82.8
2,4-Dinitrotoluene	100	83.0	83.0	63.7-116
N-Nitrosodi-n-propylamine	100	75.1	75.1	62.6-108
4-Nitrophenol	100	84.2	84.2	53.7-143
Pentachlorophenol	100	71.3	71.3	31.0-102
Phenol	100	71.0	71.0	57.4-99.5
Pyrene	100	92.8	92.8	44.1-124
1,2,4-Trichlorobenzene	100	70.9	70.9	37.6-97.9

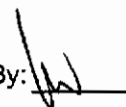
Comments:

Concentrations reflect the spiked sample amounts.

Flags:

* = Out of limits.

NA = Not applicable.

Reviewed By: 

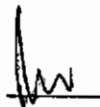
VPH (Allphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: USTH28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW6
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	12/13/05
Date Received	12/14/05
Date Extracted	12/15/05
Date Analyzed	12/15/05
Dry Weight	
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₂ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₀ Aromatics**	< 100 (µg/L)
Surrogate % Recovery - PID	110
Surrogate % Recovery - FID	100

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

** = Excludes any surrogates or internal standards.

Lab Info: g546-68-1d

Reviewed By: 

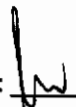
VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: USTH28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW8
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	12/13/05
Date Received	12/14/05
Date Extracted	12/15/05
Date Analyzed	12/15/05
Dry Weight	
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₂ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₀ Aromatics**	< 100 (µg/L)
Surrogate % Recovery - PID	110
Surrogate % Recovery - FID	110

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

** = Excludes any surrogates or internal standards.

Lab Info: g546-68-2d

Reviewed By: 

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Engineering & Environment, Inc.

Project Name: USTH28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW11
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	12/13/05
Date Received	12/14/05
Date Extracted	12/15/05
Date Analyzed	12/15/05
Dry Weight	
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₂ Aliphatics**	840 (µg/L)
C ₉ -C ₁₀ Aromatics**	640 (µg/L)
Surrogate % Recovery - PID	110
Surrogate % Recovery - FID	110

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

** = Excludes any surrogates or internal standards.

Lab Info: g546-68-3d

Reviewed By: 

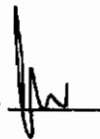
VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: USTH28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW9
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	12/13/05
Date Received	12/14/05
Date Extracted	12/15/05
Date Analyzed	12/15/05
Dry Weight	
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₂ Aliphatics**	< 100 (µg/L)
C ₈ -C ₁₀ Aromatics**	< 100 (µg/L)
Surrogate % Recovery - PID	100
Surrogate % Recovery - FID	100

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

** = Excludes any surrogates or internal standards.

Lab Info: g546-68-4d

Reviewed By: 

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

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

Calibration Ranges and Limits

Range	MDL (07/15/2004) (µg/L)	ML (µg/L)	RL (µg/L) (mg/Kg)
C ₅ -C ₈ Aliphatics	4.4	14	100 10
C ₉ -C ₁₂ Aliphatics	3.4	11	100 10
C ₉ -C ₁₀ Aromatics	0.13	0.41	100 10

Calibration Concentration Levels

Range	Levels (µg/L)	%RSD or CCC	Method of Quantitation
C ₅ -C ₈ Aliphatics	40	7.9	Calibration Factor
	1000		
	2000		
	3000		
	4000		
C ₉ -C ₁₂ Aliphatics	10	1.00	Linear Regression
	250		
	500		
	750		
	1000		
C ₉ -C ₁₀ Aromatics	10	16.20	Calibration Factor
	250		
	500		
	750		
	1000		

Calibration Check Date: 12/15/05

Calibration Check

Range	Levels (µg/L) (mg/Kg)	RPD
C ₅ -C ₈ Aliphatics	2000 200	5.1
C ₉ -C ₁₂ Aliphatics	500 50	-9.3
C ₉ -C ₁₀ Aromatics	500 50	5.3

MDL = Method Detection Limit

ML = Minimum Limit

RL = Reportable Limit

RPD = Relative Percent Difference

%RSD = Percent Relative Standard Deviation

CCC = Correlation Coefficient of Curve

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

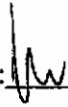
Client Name: Engineering & Environment, Inc.Project Name: USTH28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW6
Sample Matrix	Water
Date Collected	12/13/05
Date Received	12/14/05
Date Extracted	12/15/05
Date Analyzed	12/19/05
Dry Weight	
Dilution Factor	1
C ₉ -C ₁₈ Aliphatics*	< 100 (ug/L)
C ₁₉ -C ₃₈ Aliphatics*	< 100 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	< 100 (ug/L)
Aliphatic Surrogate % Recovery	86
Aromatic Surrogate % Recovery	86

Comments:

* = Excludes any surrogates or internal standards.
Sample did not require fractionation.

Lab info: G546-68-11

Reviewed By: 

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: USTH28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW8
Sample Matrix	Water
Date Collected	12/13/05
Date Received	12/14/05
Date Extracted	12/15/05
Date Analyzed	12/21/05
Dry Weight	
Dilution Factor	1:1
C ₉ -C ₁₈ Aliphatics*	970 (ug/L)
C ₁₉ -C ₃₆ Aliphatics*	330 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	< 100 (ug/L)
Aliphatic Surrogate % Recovery	87
Aromatic Surrogate % Recovery	77
Fractionation Surrogate 1 % Recovery	86

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G546-68-21

Reviewed By: 

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: USTH28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW11
Sample Matrix	Water
Date Collected	12/13/05
Date Received	12/14/05
Date Extracted	12/15/05
Date Analyzed	12/21/05
Dry Weight	
Dilution Factor	1:1
C ₉ -C ₁₈ Aliphatics*	< 100 (ug/L)
C ₁₉ -C ₃₆ Aliphatics*	< 100 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	670 (ug/L)
Aliphatic Surrogate % Recovery	78
Aromatic Surrogate % Recovery	69
Fractionation Surrogate 1 % Recovery	75

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G546-68-3K

Reviewed By: lw

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: USTH28

Sample Information and Analytical Results	
Sample Identification	USTH28-MW9
Sample Matrix	Water
Date Collected	12/13/05
Date Received	12/14/05
Date Extracted	12/15/05
Date Analyzed	12/19/05
Dry Weight	
Dilution Factor	1
C ₉ -C ₁₈ Aliphatics*	< 100 (ug/L)
C ₁₉ -C ₃₈ Aliphatics*	< 100 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	< 100 (ug/L)
Aliphatic Surrogate % Recovery	52
Aromatic Surrogate % Recovery	67

Comments:

- * = Excludes any surrogates or internal standards.
Sample did not require fractionation.

Lab info: G546-68-4I

Reviewed By: 

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 09/13/05

Calibration Ranges and Limits

Range	MDL (2/2004) (µg/L)	ML (µg/L)	RL (µg/L) (mg/Kg)	
C ₉ -C ₁₈ Aliphatics	3.84	12.2	100	10
C ₁₉ -C ₃₈ Aliphatics	0.57	1.8	100	10
C ₁₁ -C ₂₂ Aromatics	4.54	14.4	100	10

Calibration Concentration Levels

Range	Levels (µg/mL)	%RSD or CCC	Method of Quantitation
C ₉ -C ₁₈ Aliphatics	6	3.80	Calibration Factor
	30		
	60		
	120		
	240		
C ₁₉ -C ₃₈ Aliphatics	8	3.8	Calibration Factor
	40		
	80		
	160		
	320		
C ₁₁ -C ₂₂ Aromatics	17	7.9	Calibration Factor
	85		
	170		
	340		
	680		

Calibration Check Date: 12/21/05

Calibration Check

Range	Levels (µg/mL)	RPD
C ₉ -C ₁₈ Aliphatics	120	1.3
C ₁₉ -C ₃₈ Aliphatics	160	0.0
C ₁₁ -C ₂₂ Aromatics	340	8.6

MDL = Method Detection Limit

ML = Minimum Limit

RL = Reportable Limit

RPD = Relative Percent Difference

%RSD = Percent Relative Standard Deviation

CCC = Correlation Coefficient of Curve

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 09/13/05

Calibration Ranges and Limits

Range	MDL (2/2004) ($\mu\text{g/L}$)	ML ($\mu\text{g/L}$)	RL ($\mu\text{g/L}$)	RL (mg/Kg)
C ₉ -C ₁₈ Aliphatics	3.84	12.2	100	10
C ₁₉ -C ₃₆ Aliphatics	0.57	1.8	100	10
C ₁₁ -C ₂₂ Aromatics	4.54	14.4	100	10

Calibration Concentration Levels

Range	Levels ($\mu\text{g/mL}$)	%RSD or CCC	Method of Quantitation
C ₉ -C ₁₈ Aliphatics	6	3.80	Calibration Factor
	30		
	60		
	120		
	240		
C ₁₉ -C ₃₆ Aliphatics	8	3.8	Calibration Factor
	40		
	80		
	160		
	320		
C ₁₁ -C ₂₂ Aromatics	17	7.9	Calibration Factor
	85		
	170		
	340		
	680		

Calibration Check Date: 12/18/05

Calibration Check

Range	Levels ($\mu\text{g/mL}$)	RPD
C ₉ -C ₁₈ Aliphatics	120	-0.6
C ₁₉ -C ₃₆ Aliphatics	160	-2.9
C ₁₁ -C ₂₂ Aromatics	340	2.6

MDL = Method Detection Limit

ML = Minimum Limit

RL = Reportable Limit

RPD = Relative Percent Difference

%RSD = Percent Relative Standard Deviation

CCC = Correlation Coefficient of Curve

List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit

DF = Dilution Factor

Dup = Duplicate

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

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL = Reporting Limit

RPD = Relative Percent Difference

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

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

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

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

% Rec = Percent Recovery

% solids = Percent Solids

Special Notes:

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

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

PARADIGM ANALYTICAL LABORATORIES, INC.

5500 Business Drive, Wilmington, NC 28405
Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 52949

Page 1 of 1

Client: Engineering/Environment Project ID: 05TH28 Date: 12/13/05 Report To: _____
Address: 824 Gum Branch Rd contact: Bill Morris Turnaround: 1 week
Address: Suite 5 Phone: 910-989-3214 Job Number: _____
Quote #: _____ Fax: _____ P.O. Number: _____ Invoice To: _____

PARADIGM ANALYTICAL LABORATORIES, INC.

Sample ID	Date	Time	Matrix	Preservatives			Analyses			Temperature	State Certification Requested	Comments: Please specify any special reporting requirements
				HC	SC	W	HC	SC	W			
05TH28-MW 6	12/13/05	10:20	ground water	6	3	1	2	1				
05TH28-MW 8		11:10		6	3	1	2	1				
05TH28-MW 11		13:55		6	3	1	2	1				
05TH28-MW 9		14:50		6	3	1	2	1				
GS46-18												
NC SC Other												
SEE REVERSE FOR TERMS AND CONDITIONS												
Relinquished By: <u>James J. Tortolero</u>	Date: <u>12/13/05</u>	Time: <u>16:10</u>	Received By: <u>John J. Plummer</u>	Date: <u>12/14/05</u>	Time: <u>10:00</u>	Temperature: <u>44°C</u>						