

ANNUAL GROUNDWATER MONITORING REPORT 2005-2006
SITE M232-236
MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA
Revision 0

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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.

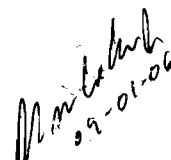


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LIST OF ACRONYMS/ABBREVIATIONS

AVOC	Aromatic Volatile Organic Compound
bgs	below ground surface
DI	Deionized Water
DWM	Division of Waste Management
EEI	Engineering and Environment, Inc.
GCL	Gross Contamination Level
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
OBG	O'Brien & Gere Engineers, Inc.
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 M232-236, Marine Corps Base Camp Lejeune, North Carolina. The report presents the findings of groundwater monitoring activities conducted from June 2005 through January 2006.

Buildings M232 through M236 are located in the Camp Johnson area of Camp Lejeune and are used as bachelors' quarters for military personnel. In May 1990, five heating oil Underground Storage Tanks (USTs) ranging in capacity from 530 gallons to 550 gallons were excavated and removed from the site. Soil samples collected at the time the USTs were 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, and petroleum constituents were not detected in groundwater at concentrations above North Carolina Groundwater Quality Standards (NCGWQS). Removal of petroleum-impacted soil in the immediate vicinity of the former USTs was recommended.

Additional site characterization activities were conducted in 1992. No petroleum constituents were detected in groundwater above NCGWQSs, although measurable free product was observed in one well (well MW-3, at a thickness of 0.12 foot). It was recommended to remove petroleum-impacted soil in the immediate vicinity of the former USTs, conduct free product removal from well MW-3, and monitor groundwater quality biannually.

Five additional monitoring wells subsequently were installed in the immediate vicinity of each of the former USTs. Gauging data indicated free product was present only in well MW-19, located near the former UST associated with Building M235; free product was not identified in well MW-3. Based on the presence of measurable free product at well MW-19, it was considered that the site warranted an Intermediate Risk classification.

Further groundwater monitoring activities were conducted in 2000 and 2001. Quarterly gauging data indicated free product was present at well MW-19 only, at thicknesses of 0.12 foot to 0.61 foot, and free product recovery was conducted. Few compounds were present in groundwater at concentrations above NCGWQSs, of which none were 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-19. Continued recovery of free product from this well was recommended.

Gauging events were conducted in 2002 and 2003 at seven site wells, including well MW-19. The data indicated free product was no longer present at site wells. For some of the events, sorbent socks that had been removed from well MW-19 in advance of the gauging event had been reinstalled by an unknown party, and the gauging data for those events was compromised. However, the remaining 2003 gauging events that indicated 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 22 site wells, and semi-annual groundwater sampling was conducted at wells MW-5, MW-7, MW-18, MW-20, MW-21, and MW-22. During this period, free product was observed only in well MW-19, located in the immediate vicinity of the former UST associated with Building M235. Product thicknesses at this well ranged from 0.10 foot to 0.49 foot. Product recovery via hand bailing was conducted after each event. Analysis of groundwater samples from the two semi-annual groundwater sampling events conducted in 2004 indicated no aromatic volatile organic compounds or target analyte semi-volatile organic compounds were present at concentrations above NCGWQSs. The C₉-C₂₂ Aromatics were present at concentrations slightly above NCGWQSs in wells MW-18, MW-20, and/or MW-21. These wells are located in the immediate vicinity of the three former USTs associated with Buildings M236, M233, and M232. It was recommended to continue monitoring at the site.

For the current monitoring period, quarterly gauging at 22 site wells was conducted in June 2005, September 2005, December 2005, and January 2006. Semi-annual groundwater sampling at wells MW-5, MW-7, MW-18, MW-20, MW-21, and MW-22 was conducted in June and December 2004.

For the four gauging events conducted for the current monitoring period, measurable free product was observed only at well MW-19, with a thickness of 0.45 foot and 0.02 foot for the June and December 2005 events; measurable free product was not observed at this well during the September 2005 or January 2006 events. Free product recovery via hand bailing subsequently was conducted during the June and December 2005 events, with product recovery volumes of approximately two-to-three ounces.

For the two-semi-annual sampling events, no aromatic volatile organic compounds or petroleum-related target analyte semi-volatile organic compounds were present at concentrations above NCGWQSs. The C₉-C₂₂ Aromatics were detected at concentrations slightly above NCGWQSs at wells MW-18, MW-21, and/or MW-22, all located in the immediate vicinity of some of the former USTs. The quarterly well gauging data indicate groundwater flow direction vary over time, resulting in limited net movement of groundwater across the site. The potential for migration of dissolved-phase constituents is low given the groundwater flow conditions present at the site.

It is recommended to continue groundwater monitoring over the next year, to include quarterly gauging, semi-annual groundwater monitoring, and annual reporting. The site should be accessed in advanced of field events to remove any sorbent socks; 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 M232-236, 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; NCDENR, 2003) and the site specific work prepared for this site by EEI (EEI, 2004).

The site has not been assigned an incident number by NCDENR. Previous site investigations have indicated the site meets criteria associated with NCDENR's Intermediate Risk classification (Law, 2000b).

1.1 Site Description

The site is located on MCB Camp Lejeune in Onslow County, North Carolina (34°, 43', 13" N, 77°, 24', 52" W) (Figure 1-1). Within Camp Lejeune, the site is located along Hayes Street in the Camp Johnson area (Figure 1-2). Buildings M232 through M236 are used as bachelors' quarters for military personnel.

No permanent surface water bodies are present at the site. A shallow drainage ditch is present between the eastern wall of Buildings M232 through M236 and Hayes Street. The nearest mapped surface water bodies are the New River, located approximately 650 feet west of the site, and Northeast Creek, located approximately 850 feet southeast of the site. No potable water supply wells are located within 1,200 feet of the site, and the potable water supply wells throughout Camp Lejeune draw water from the Castle Hayne aquifer at depths typically of at least 150 feet (OBG, 1993).

1.2 Site History

In May 1990, five USTs (one each associated with Buildings M232 through 236) were excavated and removed from the site (OBG, 1992). Four of the USTs had a capacity of 550-gallons and the fifth had a capacity of 530-gallons; all were used to store heating oil (Law, 2000a). The USTs had been in service from 1942 to the late 1980's (Law, 2000b). At the time the USTs were removed, soil samples were collected; analysis of the soil samples indicated Total Petroleum Hydrocarbons (TPH) were present at concentrations above State standards then in effect (OBG, 1992).

A site assessment was conducted in 1991 which included in part advancement of soil borings and installation of 14 surficial aquifer monitoring wells (seven with total depths of approximately 15 feet below ground surface [bgs], and seven with total depths of approximately 30 feet bgs, with the wells installed in pairs). Analysis of soil and groundwater samples collected during the

investigation indicated petroleum constituents were not present at significant concentrations in areas surrounding the former USTs, and no free product was observed in site monitoring wells. However, the assessment concluded that concentrations of petroleum constituents in soils in the immediate vicinity of the former USTs (as reported from the UST removal effort) could present a future exposure risk. The assessment recommended these soils be removed (OBG, 1992).

Further investigation was conducted in 1992. This investigation included in part installation of three surficial aquifer monitoring wells, each to total depths of approximately 15 feet bgs. No constituents were detected in groundwater samples collected from the three newly installed wells. However, free product was observed in well MW-3 at a thickness of 0.12 foot; measurable free product was not identified in any other site well. It was recommended to excavate petroleum-impacted soils in the immediate vicinity of the former USTs, conduct free product removal from well MW-3 using passive mechanisms, and monitor groundwater quality biannually.

Between July 1993 and November 1999, five monitoring wells were installed at locations adjacent to the former UST locations (Law, 2000a). EEI has been unable to locate well construction records for these wells, and well-specific data (e.g., top-of-casing elevations, screen parameters, etc.) are unavailable. (Additionally, at some point during this period, well identifications were changed, as follows: well MW-3 was re-identified as well MW-7; well MW-4 was re-identified as well MW-8; well MW-7 was re-identified as well MW4; and well MW-8 was re-identified as well MW-3. EEI is not aware of the reason for the well re-identification; the re-assignment of well identifications listed above is based on review of a site drawing presented in a Law Engineering and Environmental Services, Inc. (Law) work plan from 2000 [Law, 2000a] and comparison of well top-of-casing elevations presented in O'Brien and Gere Engineers, Inc. (OBG) reports from 1992/1993 [OBG, 1992; OBG, 1993] and Law reports from 2000/2001 [Law, 2000b; Law, 2001]. For this report and in EEI's work plan for this program [EEI, 2004a], well identifications follow that obtained from MCB Camp Lejeune's environmental database, which is consistent with the well identifications presented in the OBG reports [OBG, 1992; OBG, 1993]. All references to site data, including discussions in the report text, figures, and tables, consistently adhere to the database identifications. Footnotes are presented in tables as necessary.)

Based on citations in Law documents, natural attenuation monitoring was conducted at the site after July 1993 and prior to May 1998, and a risk characterization was conducted by Law in November 1999 (Law, 1999; Law, 2000b; Law, 2001). EEI was unable to locate these reports for review, although groundwater quality data apparently from the risk characterization assessment and summarized in later monitoring reports prepared by Law (Law, 2000b; Law, 2001) has been incorporated in this report. The risk characterization assessment reportedly indicated the site warranted classification as an Intermediate Risk based on the presence of measurable free product at well MW-19 (Law, 2000b; Law, 2001).

Further groundwater monitoring activities were conducted in 2000 and continued into 2001 (Law, 2000b, Law, 2001). The monitoring program included quarterly well gauging at all site wells and semi-annual groundwater sampling at wells MW-3 (identified as MW-7), MW-5, MW-18, MW-20, MW-21, and MW-22. The gauging data over this period identified the presence of

measurable free product only in well MW-19, at thicknesses ranging from 0.12 foot to 0.61 foot, and free product recovery was conducted. 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-19, and it was recommended to continue free product recovery from this well (Law, 2000b, Law, 2001).

A program of quarterly gauging of seven wells, including well MW-19, was initiated in October 2002 and was completed in August 2003 (EEI, 2003a, b, c, d). The program included accessing well MW-19 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. However, 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 22 site wells, and semi-annual groundwater sampling was conducted at wells MW-5, MW-7, MW-18, MW-20, MW-21, and MW-22. During this period, free product was observed only in well MW-19, located in the immediate vicinity of the former UST associated with Building M235. Product thicknesses at this well ranged from 0.10 foot to 0.49 foot. Product recovery via hand bailing was conducted after each event. Analysis of groundwater samples from the two semi-annual groundwater sampling events conducted in 2004 indicated no aromatic volatile organic compounds or target analyte semi-volatile organic compounds were present at concentrations above NCGWQSs. The C₉-C₂₂ Aromatics were present at concentrations slightly above NCGWQSs in wells MW-18, MW-20, and/or MW-21. These wells are located in the immediate vicinity of the three former USTs associated with Buildings M236, M233, and M232. The gauging data indicate groundwater flow direction vary over time, resulting in limited net movement of groundwater across the site. The potential for migration of dissolved-phase constituents away from the former USTs was limited given the groundwater flow conditions present at the site. It was recommended to continue monitoring at the site (EEI, 2005).

The current monitoring period included quarterly gauging at 22 site wells, with events conducted in June 2005, September 2005, December 2005, and January 2006. Semi-annual groundwater sampling was conducted at wells MW-5, MW-7, MW-18, MW-20, MW-21, and MW-22, with sampling events conducted in June and December 2004.

Data for the current monitoring program are discussed in the following sections. Section 2 describes field methods used at the site. Section 3 discusses hydrogeologic characteristics of the site. Laboratory analytical results and their significance are presented in Section 4. 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) 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 once per quarter, on 16 June, 29 September, and 12 December 2005, and 3 January 2006. For the first three gauging events, 22 site monitoring wells (MW-1 through MW-22) were gauged; during the final event, wells MW-11 and MW-12 were inaccessible as to deep standing water from recent rains surrounded the wells. 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.

During the gauging events, measurable free product was observed only at well MW-19, with a thickness of 0.45 foot and 0.02 foot for the June and December 2005 events; measurable free product was not observed at this well during the September 2005 or January 2006 events. Free product recovery via hand bailing subsequently was conducted during the June and December 2005 events, with product recovery volumes of approximately two-to-three ounces. All material was processed through the treatment plant located at Lot 203 on MCB Camp Lejeune.

2.2 Groundwater Sampling

Groundwater samples were collected on 16 June and 12 December 2004 from monitoring wells MW-5, MW-7, MW-18, MW-20, MW-21, and MW-22. Additionally, for each event, one duplicate sample was collected, and one laboratory-prepared trip blank was included with the laboratory-supplied sample bottles for June 2005 event. The trip blank was stored with the samples once sampling activities began. Field data sampling sheets for both events are presented in Appendix A.

Monitoring well groundwater samples were collected using low-flow purging techniques. For the two-inch diameter wells (wells MW-5 and MW-7), 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 a given 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. None of the two-inch wells purged dry during the June or December 2005 events. 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.

At the one-inch diameter wells (wells MW-18 and MW-20 through MW-22), the submersible pump was too large to be placed into the wells. Therefore, purging and sampling was conducted using a peristaltic pump with polyethylene tubing lowered into the water column of the well. The polyethylene tubing was connected to a short length of silicone tubing that was threaded over the pump's rotor. Because of the small diameter of the wells, the interface probe could not be placed in the well while the polyethylene discharge tubing was in place. Therefore, water levels in these wells were not monitored during the purge. However, water quality indicator parameters as identified above were repeatedly measured and recorded while purging. Purging, sampling, and sample handling were conducted as described above. During the June 2005 event, one one-inch well (MW-21) purged dry; none of the one-inch wells purged dry during the December 2005 event.

Groundwater samples collected during the monitoring period 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.

2.3 Equipment Decontamination and Waste Handling Procedures

The submersible 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. For the peristaltic pump, the pump did not contact groundwater and decontamination of the pump was not required; new polyethylene and silicone tubing were 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 the sampling 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 generally appeared to be undamaged and in serviceable condition, although rusting of the hinges on some of the well standards was observed.

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 shallow drainage ditch is present between the Buildings M232 through M236 and Hayes Street. No permanent surface water bodies intersect the site. The nearest mapped surface water bodies are the New River, located approximately 650 feet west of the site, and Northeast Creek, located approximately 850 feet southeast of the site.

Shallow soil at the site includes a mixture of sands, silts, and clays. The uppermost nine feet of soils are described as silts and clays with variable amounts of very fine to medium sand. From approximately nine feet bgs to about 19 feet bgs, very fine sands coarsening downwards to very coarse sands are encountered. Below 19 feet bgs to 30 feet bgs (the maximum depth of borings advanced during previous site investigations), medium to very coarse sands are described (OBG, 1992; OBG, 1993). First saturated soils of the surficial aquifer typically were encountered at depths of nine to 11 feet bgs (OBG, 1992; OBG, 1993).

All of the monitoring wells installed at the site are screened in the surficial aquifer (Law, 1999). Ten of the wells (MW-1, MW-3, MW-5, MW-7, MW-9, MW-11, MW-13, MW-15, MW-16, and MW-17) are screened from about 5 feet bgs to 15 feet bgs, in the shallow silts/clays and the upper sands of the surficial aquifer. (These wells are designated in this report as surficial aquifer shallow wells.) Seven wells (MW-2, MW-4, MW-6, MW-8, MW-10, MW-12, and MW-14) are screened from approximately 20 feet bgs to 30 feet bgs in the medium to very coarse sands of the surficial aquifer (OBG, 1992; OBG, 1993). (These wells are designated in this report as surficial aquifer intermediate wells.) Each of the intermediate depth wells is paired with an odd numbered shallow depth well of next lowest number (e.g., intermediate well MW-2 is paired with shallow well MW-1). Construction records for wells MW-18 through MW-22 could not be located by EEI. Field measurements by EEI indicate these wells have total depths of approximately 14 to 15 feet bgs, and therefore are designated as shallow wells. Other information, such as screened intervals and filter pack intervals, are not known to EEI.

Using the top-of-casing elevation data and gauging data recorded during the quarterly events, groundwater elevations for the site monitoring wells were calculated. Table 3-1 presents gauging data for all 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.)

From Table 3-1, groundwater elevations calculated for the individual members of the shallow/intermediate depth well pairs are not identical. Variations in groundwater elevations at the well pairs are inconsistent across the site and over time, with lower elevations observed in shallow well MW-9 relative to the paired intermediate well MW-10, higher elevations observed at shallow wells MW-1 and MW-11 relative to the respective paired intermediate wells MW-2 and MW-12, and the remaining well pairs not exhibiting consistent elevation variations over time. The lateral inconsistencies suggest the groundwater elevation differences arise from lateral heterogeneities in subsurface soils and are not indicative of restricted vertical hydraulic flow (i.e., an aquitard or aquiclude is not present between the screen zones of the wells, and all wells intercept the surficial aquifer). Temporal variations may be indicative of differences in recharge rates from precipitation events which could occur if the vertical permeability in the vadose zone and/or sediments of the surficial aquifer varied across the site.

The elevation data for the shallow and intermediate wells were used to construct surficial aquifer groundwater elevation maps for each gauging event, from which groundwater flow directions can be estimated. Figures 3-1 and 3-2 respectively present groundwater elevation maps for shallow and intermediate wells for June 2005; Figures 3-3 and 3-4, Figures 3-5 and 3-6, and Figures 3-7 and 3-8 similarly present the September 2005, December 2005, and January 2006 groundwater elevation maps. From a review of the shallow well maps, groundwater flow appears to be variable over time, although a south-southeasterly flow component across the central portion of the site consistently is present. For the June 2005 shallow well map, groundwater flows into the site from the northeast and south, then flows away from the site to the east-southeast; the northernmost shallow well MW-13 exhibits a slightly lower groundwater elevation than observed at the other northern wells (MW-1, MW-16, MW-17, and MW-22) (Figure 3-1). The September 2005 map exhibits flow into the site from the northeast, northwest,

and south, then flows away from the site to the southeast. A westerly flow component is observed in the western portion of the site, in the vicinity of shallow well MW-5 (Figure 3-3). The December 2005 and January 2006 maps are similar to the September 2005 map, although the westerly flow component observed for the September 2005 data is not present in either map (Figure 3-5 and 3-7)

As with the shallow well groundwater flow maps, a review of the intermediate well groundwater elevation maps indicate flow directions vary over time. For the June 2005 map, groundwater flows into the site from the west, and flows radially away from the center of the site to the northwest, northeast, and southeast (Figure 3-2). The September 2005 map generally is similar to that observed in June 2005, although there is limited vertical relief in the central portion of the site, and flow away from the site primarily is to the northeast and south (Figure 3-4). In December 2005, groundwater flows across the site to the southwest under a minor gradient (Figure 3-6). The January 2006 map indicates groundwater flows into the site from the south, and flows away from the central portion of the site to east and west (Figure 3-8).

Data from the initial year of the monitoring program also indicate variable flow directions (EEL, 2005). Additionally, previous investigations have identified variable flow directions at the site (OBG, 1992; OBG, 1993; Law, 2000b, Law, 2001). Given the generally flat topography and absence of nearby significant 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 (Law, 2000b) 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:

Shallow		Shallow		Direction	Δh	ΔL	i
Event	Well/ GW Elev	Well / GW Elev					
June 2005	MW-19 / 1.89	MW-9 / 1.70		ESE	0.19	353	0.0005
September 2005	MW-3 / 3.95	MW-9 / 2.15		SE	1.80	368	0.0049
December 2005	MW-19 / 3.30	MW-9 / 1.99		ESE	1.31	353	0.0037
January 2006	MW-3 / 3.79	MW-9 / 2.79		SE	1.00	368	0.0027
Intermediate		Intermediate		Direction	Δh	ΔL	i
Event	Well/ GW Elev	Well / GW Elev					
June 2005	MW-6 / 4.19	MW-4 / 3.07		NE	1.12	266	0.0042
September 2005	MW-6 / 4.82	MW-4 / 3.20		NE	1.62	266	0.0061
December 2005	MW-4 / 3.03	MW-12 / 2.15		SW	0.88	396	0.0022
January 2006	MW-4 / 5.63	MW-2 / 3.93		ENE	1.70	288	0.0059

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

Δh : head differential, expressed in feet

ΔL : horizontal separation

i : horizontal gradient, dimensionless

From the above, horizontal gradients vary over time, both in magnitude and direction. Additionally, gradients calculated for shallow wells differ from those calculated for the intermediate wells.

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 , respectively based on aquifer testing and examination of subsurface soil samples. The investigations identified a K of 1.47 feet/day and a n_e of 0.40 (dimensionless) for shallow wells (OBG, 1993). For intermediate wells, the investigations identified a K of 2.67 feet/day (OBG, 1993). Based on a review of the lithologic logs for the intermediate wells, these wells are screened in medium to very coarse sands (OBG, 1992; OBG, 1993); for this soil type, EEI estimates a n_e of 0.35 (dimensionless). 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 (Shallow)</u>	<u>V (Shallow)</u>	<u>Direction</u>
June 2005	0.0005	0.7 foot/year	ESE
September 2005	0.0062	3.6 feet/year	SE
December 2005	0.0043	5.0 feet/year	ESE
January 2006	0.0024	3.6 feet/year	SE

<u>Event</u>	<u>i (Intermediate)</u>	<u>V (Intermediate)</u>	<u>Direction</u>
June 2005	0.027	12 feet/year	NE
September 2005	0.0079	17 feet/year	NE
December 2005	0.0013	6.2 feet/year	SW
January 2006	0.012	16 feet/year	ENE

Notes:

i : horizontal gradient, dimensionless

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. The calculated velocities 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-5, MW-7, MW-18, MW-20, MW-21, and MW-22. One duplicate groundwater sample was collected from well MW-7 for both events. 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 events.

4.1 Groundwater Analytical Results

Tables 4-1 and 4-2 respectively summarize the laboratory data for the June and December 2005 sampling events. (For the SVOCs, only compounds detected at one or more locations during the current or previous sampling events and included in the current analytic suite are listed.) From a review of Tables 4-1 and 4-2, only two target analytes were detected in samples collected from well MW-5 (xylenes at an estimated concentration 0.726 ug/L in June 2005 and toluene at 1.13 ug/L in December 2005); these concentrations are substantially below the NCGWQSs and GCLs for these compounds. Two TICs, both identified only as "unknown," were reported at a total estimated concentration of 19.53 ug/L at this well for the June 2004 sampling event; no TICs were reported for the sample collected during the December 2005 event. (TICs are substances not on the target compound list, and not all TICs are identified and quantitated using individual standards. All TIC quantitations are estimated. Total TICs reported in Tables 4-1 and 4-2 are the sum of all reported TICs, excluding those TICs identified as having been added by the laboratory.)

At well MW-7, no target analytes were reported for the samples collected during the June or December 2005 event; "unknown" TICs were reported in the primary and duplicate samples collected during the June 2005 event, at estimated total concentrations of 4.12 ug/L and 20.48 ug/L, respectively for the primary and duplicate samples; no TICs were reported at well MW-7 (primary and duplicate samples) during the December 2005 event.

Various target analyte AVOCs and SVOCs were reported for the samples collected from wells MW-18, MW-20, MW-21, and MW-22 during both the June and December 2005 sampling events. Each of these wells is located in the immediate vicinity of USTs formerly present at the site (Figure 1-3). All of the detected AVOCs (ethylbenzene, toluene, and/or xylenes) were reported at low (typically estimated) concentrations, and all were substantially below NCGWQSs and GCLs. Detected target analyte SVOCs included acenaphthene, acenaphthylene, bis(2-ethylhexylthiophosphate) (DHEP), fluorene, naphthalene, and phenanthrene reported at low, estimated concentrations, and, with the exception of DHEP, all were substantially below NCGWQSs and GCLs. DHEP was reported at well MW-21 during the June 2005 event only, at an estimated concentration of 4.90 ug/L, slightly above the NCGWQS of 3 ug/L and substantially below the GCL of 3,000 ug/L. DHEP is not a constituent of petroleum fuels, but it is a component of many plastics, and this compound frequently occurs as an artifact of the sampling and/or laboratory process due to incidental contact with plastics. Consequently, the reported presence of DHEP at this well is not considered significant.

Some TICs were reported at wells MW-18, MW-20, MW-21, and/or MW-22 for both sampling events; most of the TICs were not identified as specific compounds. Those TICs that were reported as specific compounds included 1-methylnaphthalene and 2-methylnaphthalene, reported only at wells MW-21 and MW-22 only during the December 2005 event. For this event, 1-Methylnaphthalene was reported at estimated concentrations of 52.2 ug/L and 22.3 ug/L at wells MW-21 and MW-22, respectively. A NCGWQS has not been established for 1-methylnaphthalene; therefore, as noted above, any detection of the compound is above the standard. A GCL has not been established for 1-methylnaphthalene. 2-Methylnaphthalene was reported during the December 2005 event at estimated concentrations of 26.3 ug/L and 52.1 ug/L, respectively at wells MW-21 and MW-22, above the NCGWQS for 2-methylnaphthalene of 14 ug/L and substantially below the GCL of 12,500 ug/L. Given the uncertainties associated with TIC quantitation, a reduced level of confidence in the reported concentration is warranted, and the significance of the data is limited.

Various aliphatic and aromatic hydrocarbon fractions, quantitated by MADEP VPH and EPH, were detected in the June and December 2005 sampling events, at wells MW-18, MW-21, and/or MW-22. Of the detected hydrocarbon fractions, only the C₉-C₂₂ Aromatic Hydrocarbon fraction concentrations were present above the NCGWQS of 210 ug/L; a GCL has not been established for the C₉-C₂₂ Aromatic Hydrocarbon fraction. (In Tables 4-1 and 4-2, C₉-C₂₂ Aromatics are presented as the sum of the C₉-C₁₀ Aromatics, quantitated by MADEP VPH, and the C₁₁-C₂₂ Aromatics, quantitated by MADEP EPH.) At well MW-18, C₉-C₂₂ Aromatics were reported at concentrations of 430 ug/L and 420 ug/L for the June and December 2005 events, respectively, both above the NCGWQS. The C₉-C₂₂ Aromatics were reported at well MW-21 at concentrations of 160 ug/L (June 2005, concentration below the NCGWQS) and 300 ug/L (December 2005, concentration above the NCGWQS). At well MW-22, the C₉-C₂₂ Aromatics were not detected during the June 2005 event (reporting limit of 200 ug/L); in December, the C₉-C₂₂ Aromatics were reported at 250 ug/L, slightly above the NCGWQS.

Figures 4-1 and 4-2 present the surficial aquifer shallow well concentrations of the C₉-C₂₂ Aromatics for June and December 2005, respectively. The figures illustrate the extent of the C₉-C₂₂ Aromatics above the NCGWQS is limited to the immediate vicinity of the former USTs associated with Building M232 (monitored by well MW-22), Building M233 (monitored by well MW-21), and/or Building M-236 (monitored by well MW-18).

Groundwater quality data from the current monitoring period and from previous sampling events are summarized in Table 4-3. From Table 4-3, few compounds have been detected at concentrations above NCGWQSs at any site wells, and wells that have exhibited groundwater concentrations above NCGWQSs are limited to MW-3, MW-12, MW-18, MW-21, and MW-22. One compound, phenanthrene, was reported above GCLs at well MW-3 during the November 1991 sampling event. However, phenanthrene has not been detected at this well in any subsequent sampling event, nor has this compound been detected in any other site well during the November 1991 event or during any other sampling event. No other compounds have been detected at concentrations above GCLs during any sampling event.

From Table 4-3, the only constituent that has been detected above NCGWQSs with any consistency is the C₉-C₂₂ Aromatics hydrocarbon fraction. Of the wells included in the current

monitoring program, this hydrocarbon fraction has been detected above the NCGWQS at wells MW-18, MW-21, and MW-22. Concentrations of the C₉-C₂₂ Aromatics fraction at these wells have varied somewhat over time, but typically have been less than twice the NCGWQS.

Measurable free product was detected during the current monitoring period only at well MW-19, at thicknesses of 0.45 foot and 0.02 foot during the June and December 2005 events only. Measurable free product was not observed at this well during the September 2005 or January 2006 events, and measurable free product was not observed at any other well during any of the four events conducted during the current monitoring period. Figures 4-2 and 4-3 present the estimated extent of measurable free product for the June and December 2005 gauging events. The maps illustrate the lateral extent of free product is restricted to the area in the immediate vicinity of well MW-19 and the former UST associated with the adjacent Building M235.

During the previous monitoring period (June 2004 through March 2005), measurable free product was observed at well MW-19 during each of the four quarterly gauging event, ranging in thickness from 0.10 foot (September 2004) to 0.49 foot (June 2004). No other well exhibited measurable free product during the previous monitoring period (EEI, 2005).

Gauging data collected from previous investigations also have identified measurable free product at well MW-19. Four gauging events conducted from July 2000 to April 2001 identified measurable free product at this well, ranging in thickness from 0.61 foot (January 2001) to 0.12 foot (July 2001) (Law, 2000b; Law, 2001). More recently, four gauging events conducted between October 2002 and August 2003 indicated measurable free product was not present at this well, although two for events, a sorbent sock was present in the well immediately prior to gauging, reducing the reliability of the data (EEI, 2003a; 2003b; 2003c; 2003d).

The only well other than MW-19 where measurable free product has been observed is well MW-3. Free product was reported at this well in December 1992 at a thickness of 0.12 foot (OBG, 1993). Measurable free product was not detected during gauging events conducted at this well in November 1991, July and October 2002, and January and April 2001 (OBG, 1992; Law, 2000b; Law, 2001). As indicated above, measurable free product was not observed at well MW-3 during the current monitoring program.

In summary, a review of site groundwater quality data indicate few AVOCs or SVOCs have been present at concentrations above NCGWQSs, and the current data indicate no AVOCs or petroleum-related target analyte SVOCs are present above NCGWQSs. The C₉-C₂₂ Aromatics have been reported at concentrations slightly above NCGWQSs at wells MW-3, MW-18, MW-21, and MW-22. During the current monitoring program, which included sampling at wells MW-18, MW21, and MW-22 but not MW-3, the C₉-C₂₂ Aromatics exceeded the NCGWQS only at well MW-18 during both semi-annual sampling events; wells MW-21 and MW-22 exceeded the C₉-C₂₂ Aromatics NCGWQS for only one semi-annual event. Other than a single gauging event conducted in December 1992 that reported measurable free product in well MW-3, well MW-19 is the only well to exhibit measurable free product, and the free product measured in this well has not occurred consistently over time.

4.2 Quality Assurance/Quality Control and Data Verification

Quality control (QC) samples consisting of field duplicate samples were collected from well MW-7 during the June and December 2005 events. The primary and QC samples were submitted to Paradigm Analytical Laboratories for the same analyses. Results for the two samples were consistent for each event (Tables 4-1 and 4-2). A trip blank was supplied by the laboratory for the June 2005 event and analyzed for AVOCs. Toluene was reported in the trip blank at an estimated concentration of 0.370 ug/L; no other constituents were detected in the trip blank (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 an evaluation 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, possibly in response to seasonal water table fluctuations and/or variable local recharge from precipitation; given the variable flow direction, net movement of groundwater across the site appears to be limited.
- No water supply wells have been identified within 1,200 feet of the site, and supply wells at the base do not draw water from the surficial aquifer but from the deeper Castle Hayne aquifer.
- There are no mapped surface water bodies present at the site. The closest mapped surface water bodies are more than 600 feet from the site.
- Previous investigations indicate petroleum-impacted soils exhibiting TPH concentrations above State standards in effect at the time of sampling are limited to the immediate vicinity of the former USTs.
- Gauging data suggest that a limited thickness of free product is present inconsistently at well MW-19, located near the former UST associated with Building M235.
- Historical groundwater quality data indicate few constituents have been present above NCGWQs, and, with the exception of phenanthrene detected once in 1991 at one well, all constituents have been substantially below GCLs.
- No AVOCs or petroleum-related target analyte SVOCs were present at concentrations above NCGWQs during the current monitoring program.
- Historical and current groundwater quality data indicate that the C₉-C₂₂ Aromatics are present at concentrations above slightly NCGWQs, primarily in wells located in the immediate vicinity of some of the former USTs; the potential for migration of dissolved-phase constituents is low given the groundwater flow conditions present at the site.

5.2 Recommendations

The following recommendations are made based on site data:

- Over the next year, conduct quarterly groundwater gauging and semi-annual groundwater sampling, to include wells identified for gauging and sampling in the current program.
- Conduct product recovery via hand bailing or installation of sorbent socks on a quarterly basis, as indicated by the gauging data.
- Remove any sorbent socks from site monitoring wells approximately two weeks prior to each scheduled gauging event, and reinstall socks as needed following the event.
- Report findings in an annual report prepared after completion of the fourth quarter monitoring event.

SECTION 6 REFERENCES

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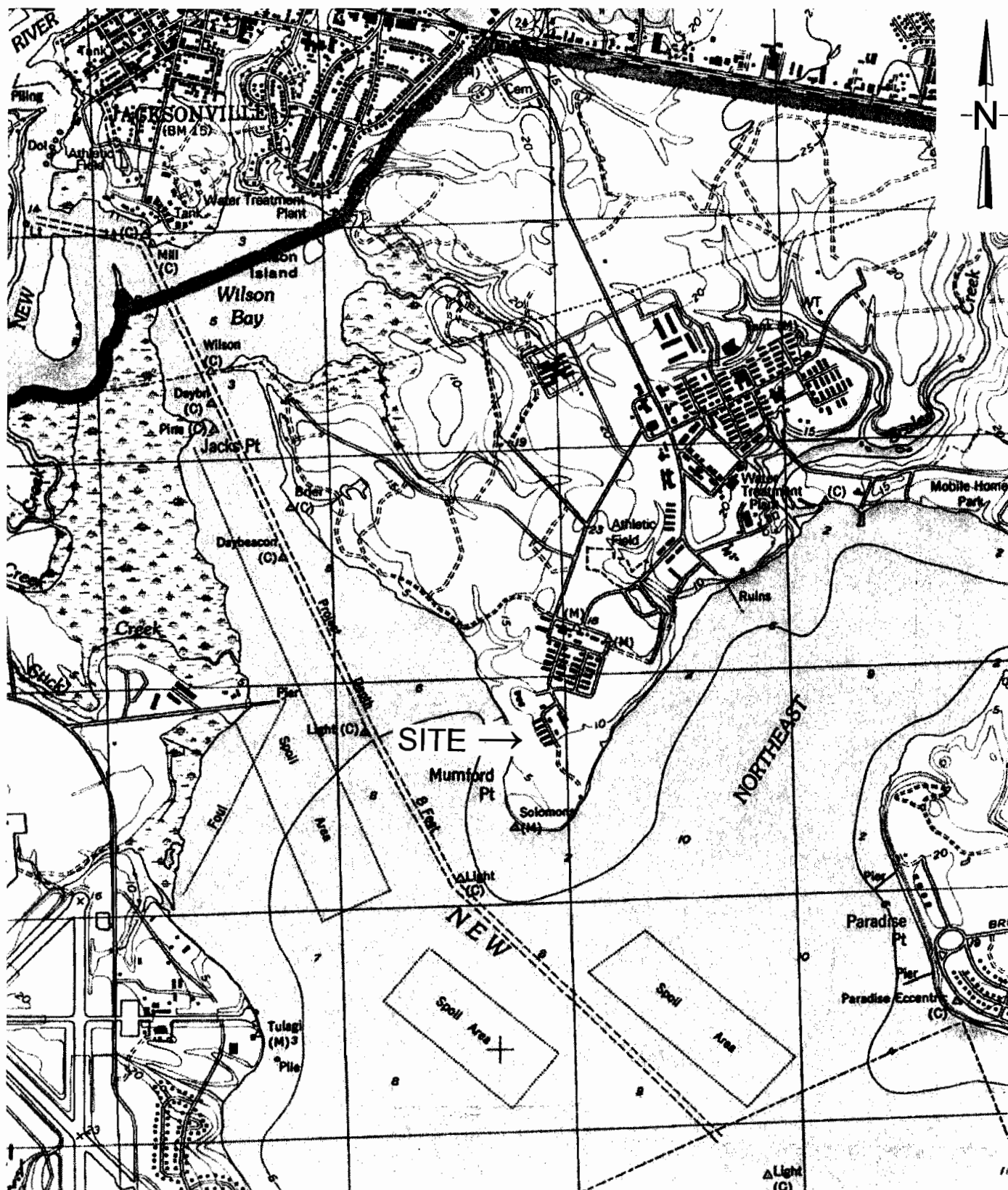
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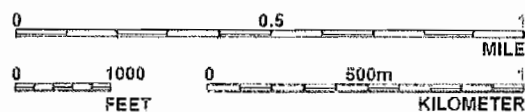
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FIGURES



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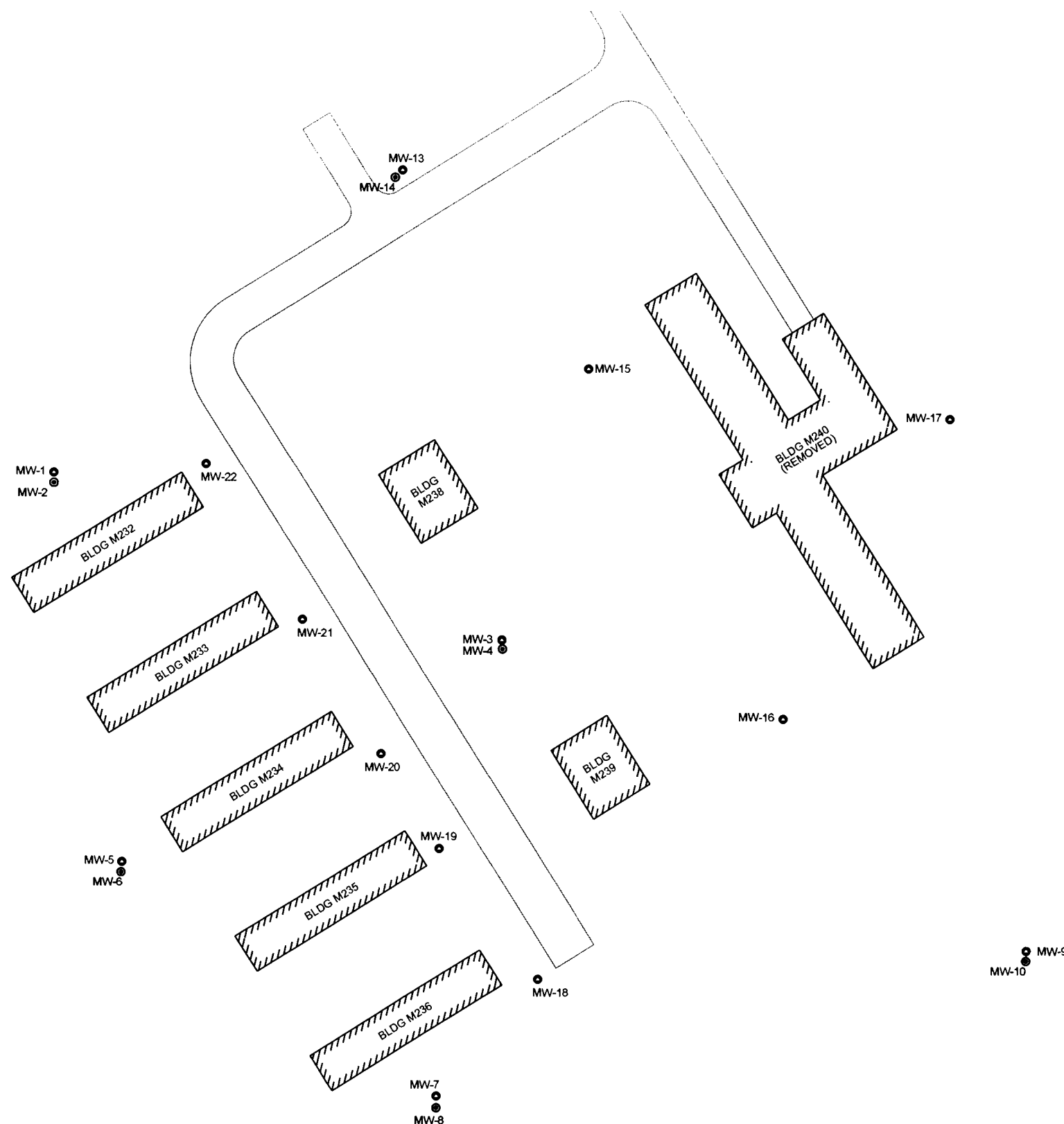
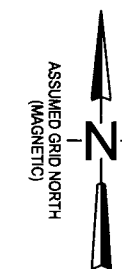
MAP LOCATION
IN NORTH CAROLINA

U.S.G.S TOPOGRAPHIC MAP:
JACKSONVILLE SOUTH, N.C.
1952
PHOTOINSPECTED 1988

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	FILE	M232 TOPO

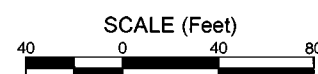
SITE LOCATION

SITE M232-236
ANNUAL MONITORING REPORT
MCB CAMP LEJEUNE, NC

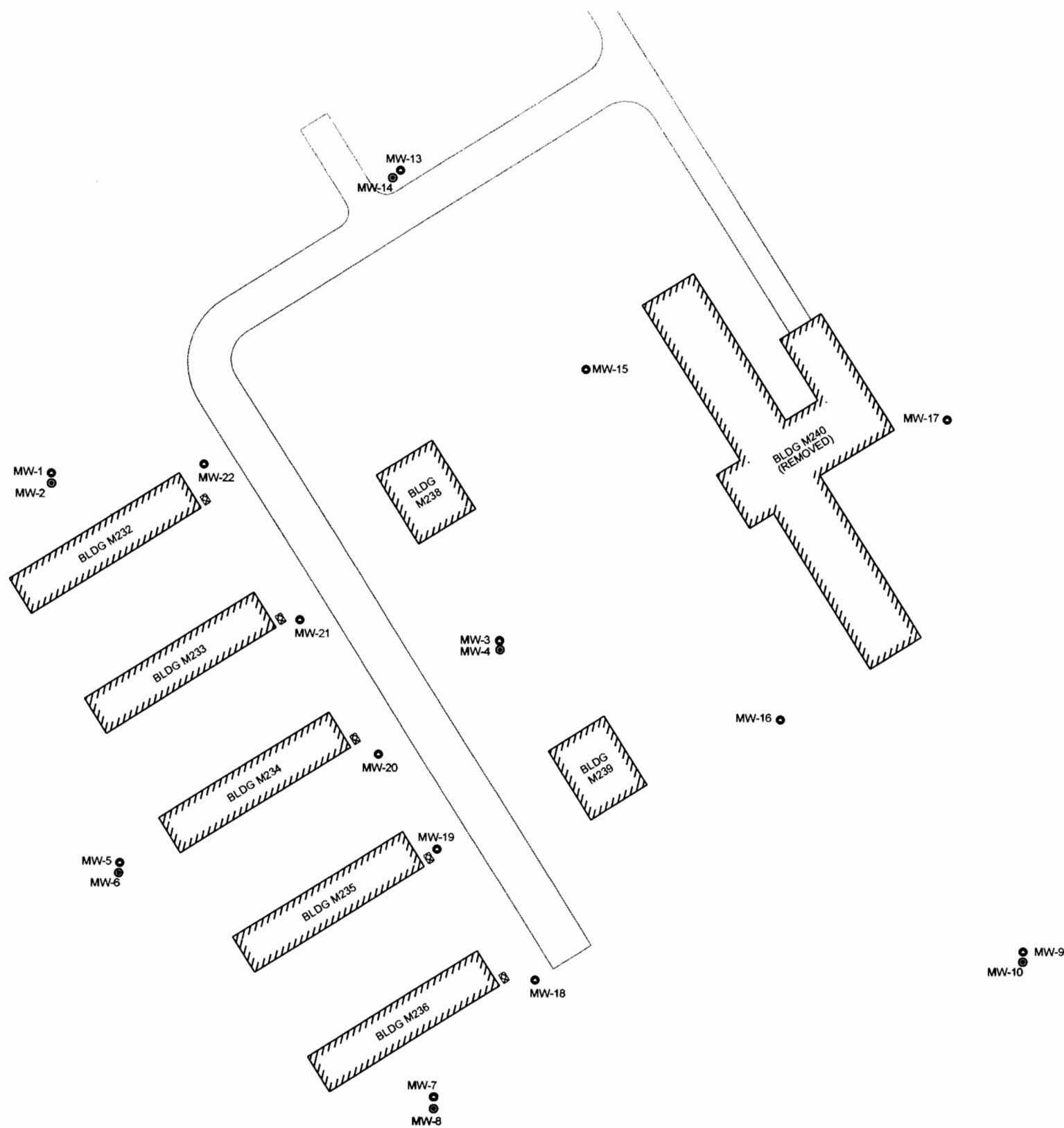


LEGEND

- SHALLOW MONITORING WELL
- INTERMEDIATE MONITORING WELL

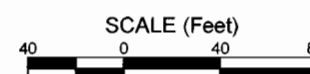


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	REVISION	0	
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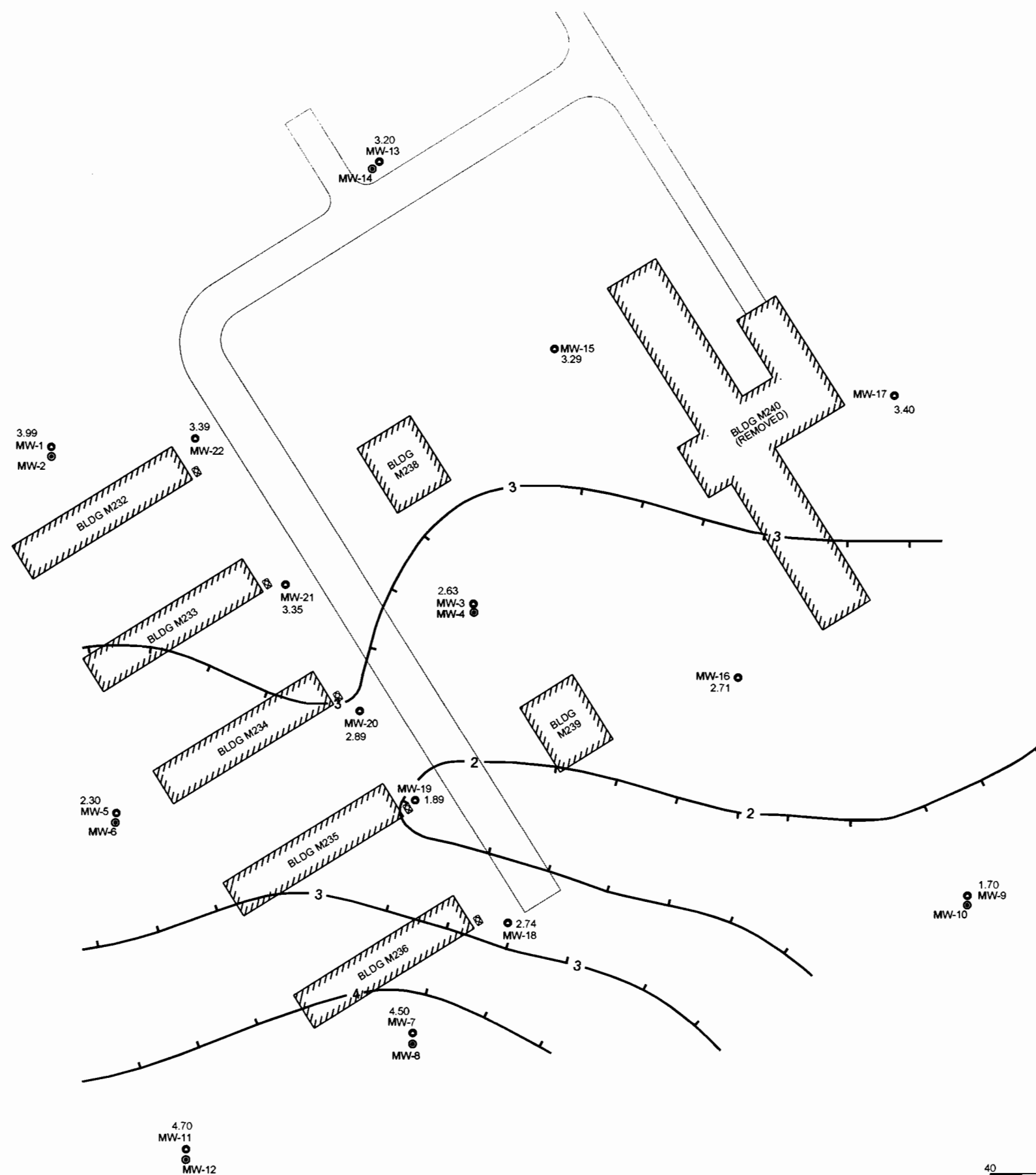
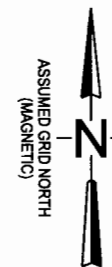


LEGEND

- SHALLOW MONITORING WELL
- INTERMEDIATE MONITORING WELL
- ▨ FORMER UST



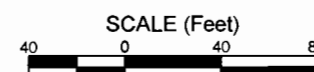
 Engineering & Environment, Inc.	FIGURE	1-3	FORMER UST LOCATIONS
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	REVISION	0	
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			SITE M232-236
			ANNUAL MONITORING REPORT
			MCB CAMP LEJEUNE, NC



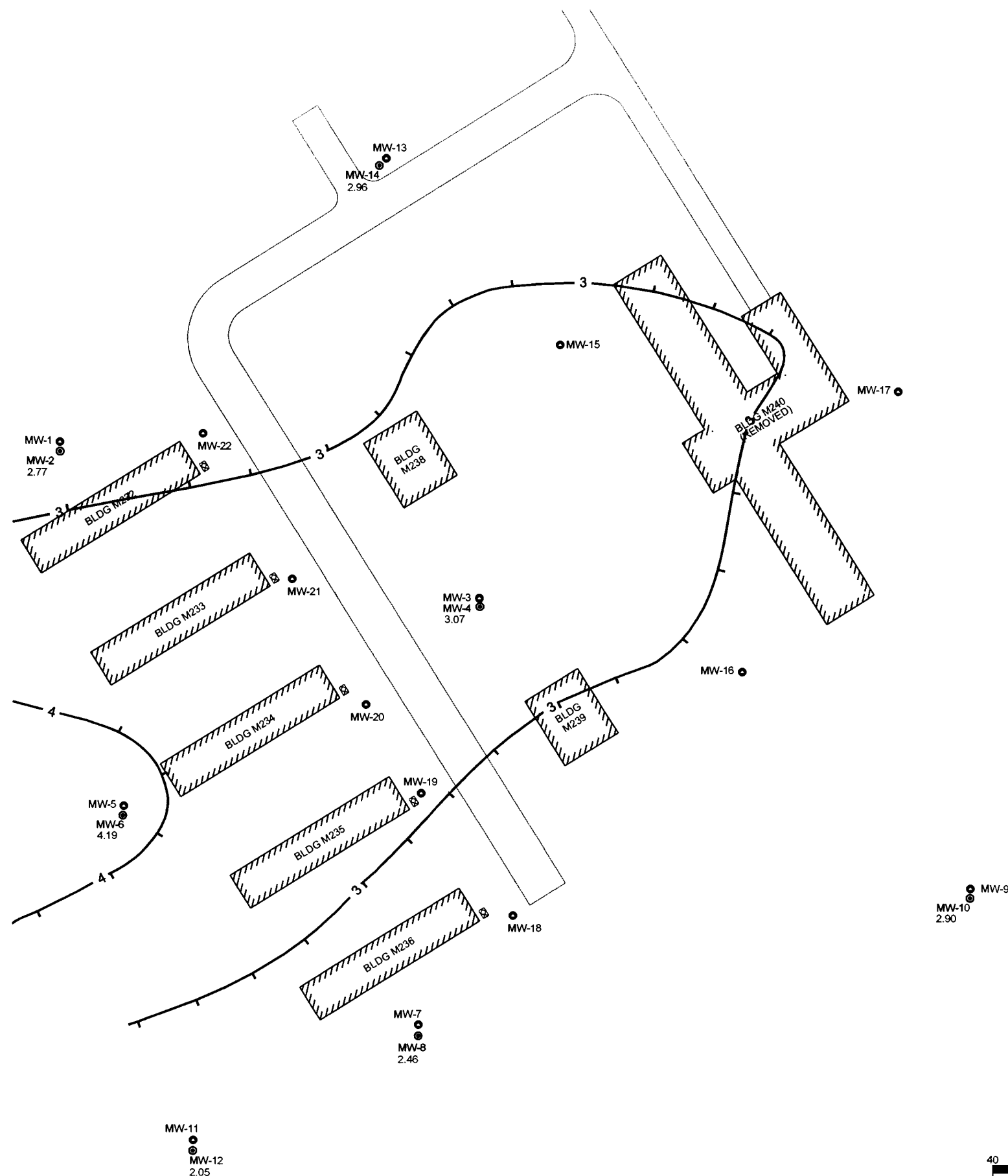
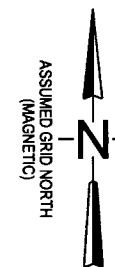
LEGEND

- SHALLOW MONITORING WELL
- INTERMEDIATE MONITORING WELL
- ▨ FORMER UST
- 1.51 ● SURFICIAL AQUIFER SHALLOW WELL GROUNDWATER ELEVATION
- 3 — SURFICIAL AQUIFER SHALLOW WELL GROUNDWATER ELEVATION CONTOUR (HACHURES POINT IN DIRECTION OF GROUNDWATER FLOW)

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



 Engineering & Environment, Inc.	FIGURE	3-1	SURFICIAL AQUIFER SHALLOW WELL GROUNDWATER ELEVATIONS FOR 16 JUNE 2005 SITE M232-236 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
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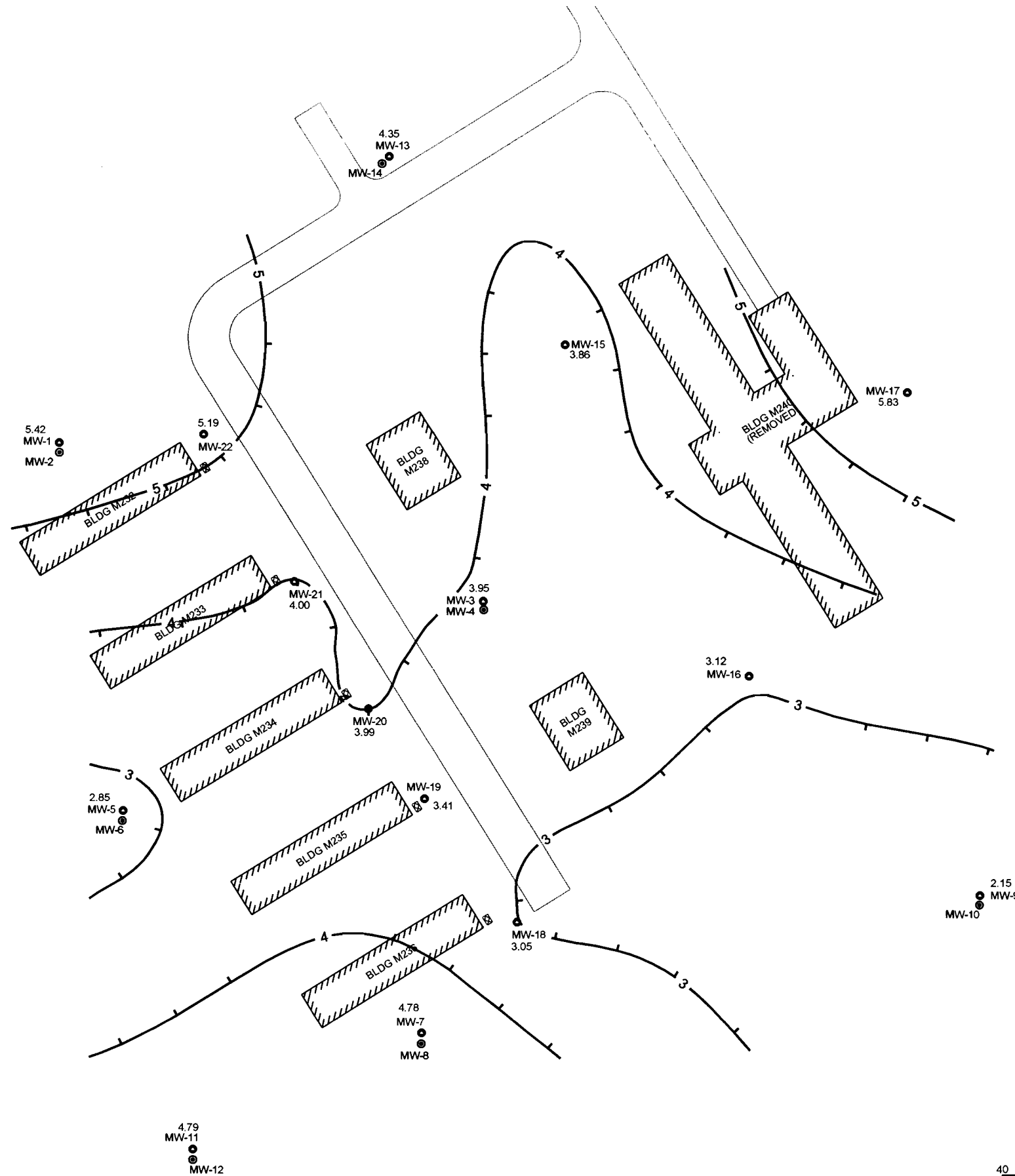
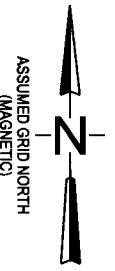
LEGEND

- SHALLOW MONITORING WELL
- INTERMEDIATE MONITORING WELL
- ▨ FORMER UST
- 1.51 ● SURFICIAL AQUIFER INTERMEDIATE WELL GROUNDWATER ELEVATION
- 3 — SURFICIAL AQUIFER INTERMEDIATE WELL GROUNDWATER ELEVATION CONTOUR (HACHURES POINT IN DIRECTION OF GROUNDWATER FLOW)

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

SCALE (Feet)
40 0 40 80

	FIGURE	3-2	SURFICIAL AQUIFER INTERMEDIATE WELL GROUNDWATER ELEVATIONS FOR 16 JUNE 2005 SITE M232-236 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	1/3/06	
	REVISION	0	
	DRAWN BY	WCM/AER	
	FILE	M232_MAP	



LEGEND

- SHALLOW MONITORING WELL
- ⊙ INTERMEDIATE MONITORING WELL
- ⊠ FORMER UST
- 1.51 ● SURFICIAL AQUIFER SHALLOW WELL GROUNDWATER ELEVATION
- 3 — SURFICIAL AQUIFER SHALLOW WELL GROUNDWATER ELEVATION CONTOUR (HACHURES POINT IN DIRECTION OF GROUNDWATER FLOW)

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

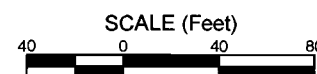
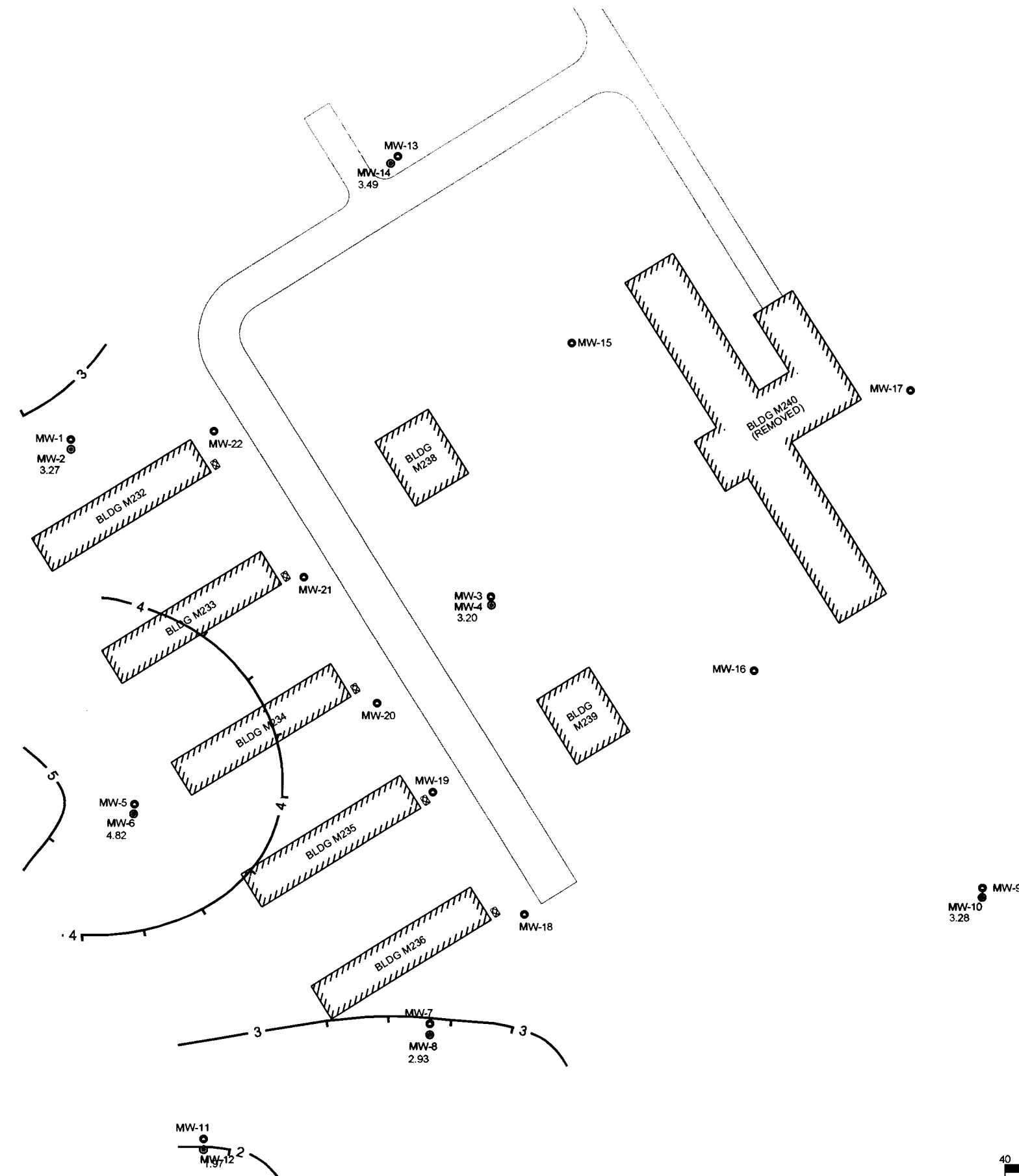
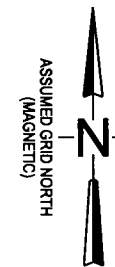


	FIGURE	3-3	SURFICIAL AQUIFER SHALLOW WELL GROUNDWATER ELEVATIONS FOR 29 SEPTEMBER 2005 SITE M232-236 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
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LEGEND

- SHALLOW MONITORING WELL
- INTERMEDIATE MONITORING WELL
- ⊠ FORMER UST
- 1.51 ● SURFICIAL AQUIFER INTERMEDIATE WELL GROUNDWATER ELEVATION
- 3 — SURFICIAL AQUIFER INTERMEDIATE WELL GROUNDWATER ELEVATION CONTOUR (HACHURES POINT IN DIRECTION OF GROUNDWATER FLOW)

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

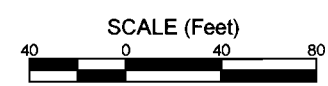
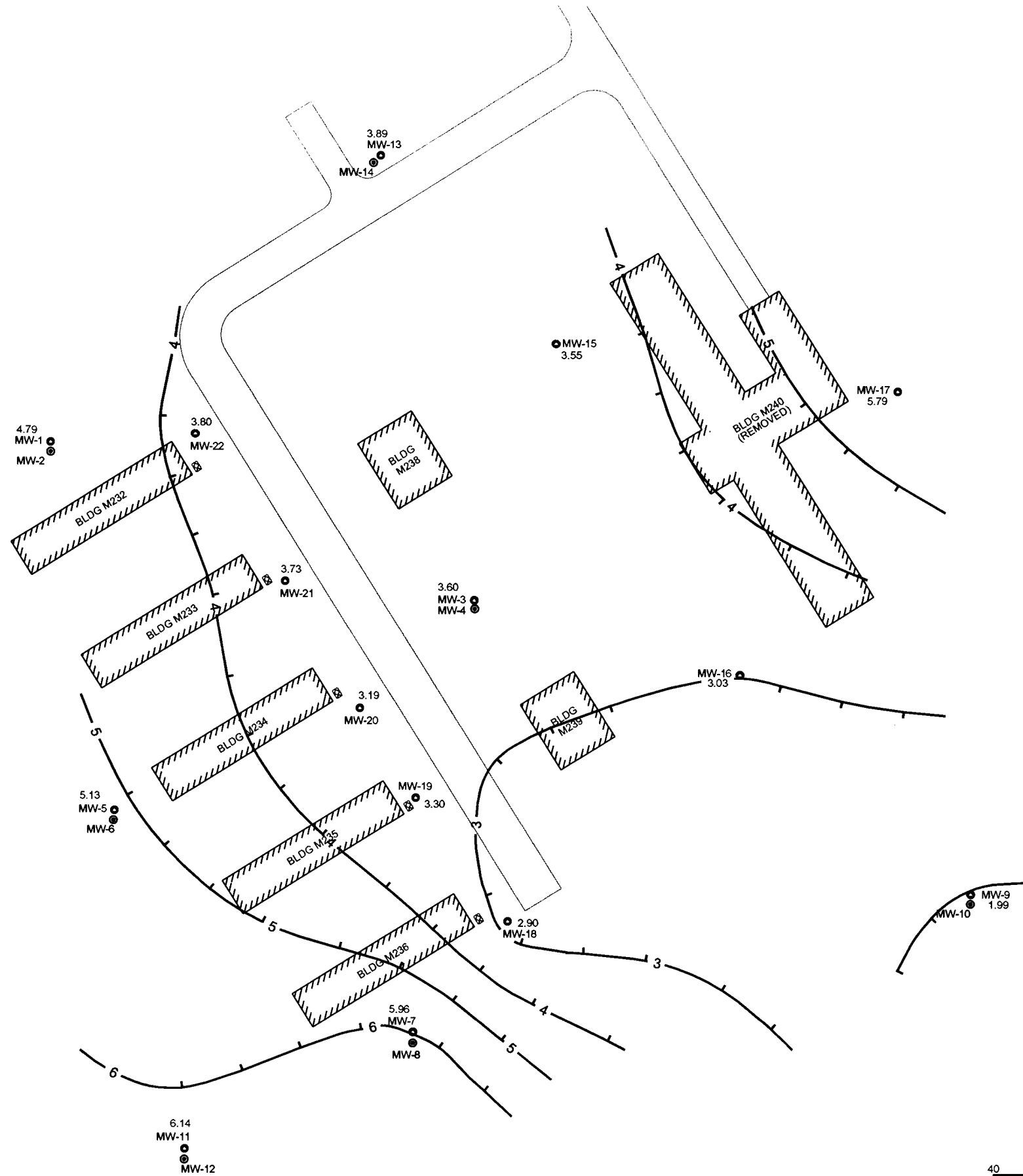
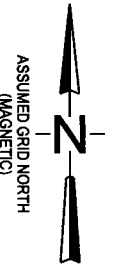


	FIGURE	3-4	SURFICIAL AQUIFER INTERMEDIATE WELL GROUNDWATER ELEVATIONS FOR 29 SEPTEMBER 2005 SITE M232-236 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	1/3/06	
	REVISION	0	
	DRAWN BY	WCM/AER	
	FILE	M232_MAP	



LEGEND

- SHALLOW MONITORING WELL
- INTERMEDIATE MONITORING WELL
- ⊠ FORMER UST
- 1.51 ● SURFICIAL AQUIFER SHALLOW WELL GROUNDWATER ELEVATION
- 3 — SURFICIAL AQUIFER SHALLOW WELL GROUNDWATER ELEVATION CONTOUR (HACHURES POINT IN DIRECTION OF GROUNDWATER FLOW)

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

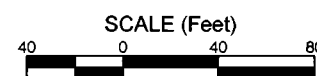
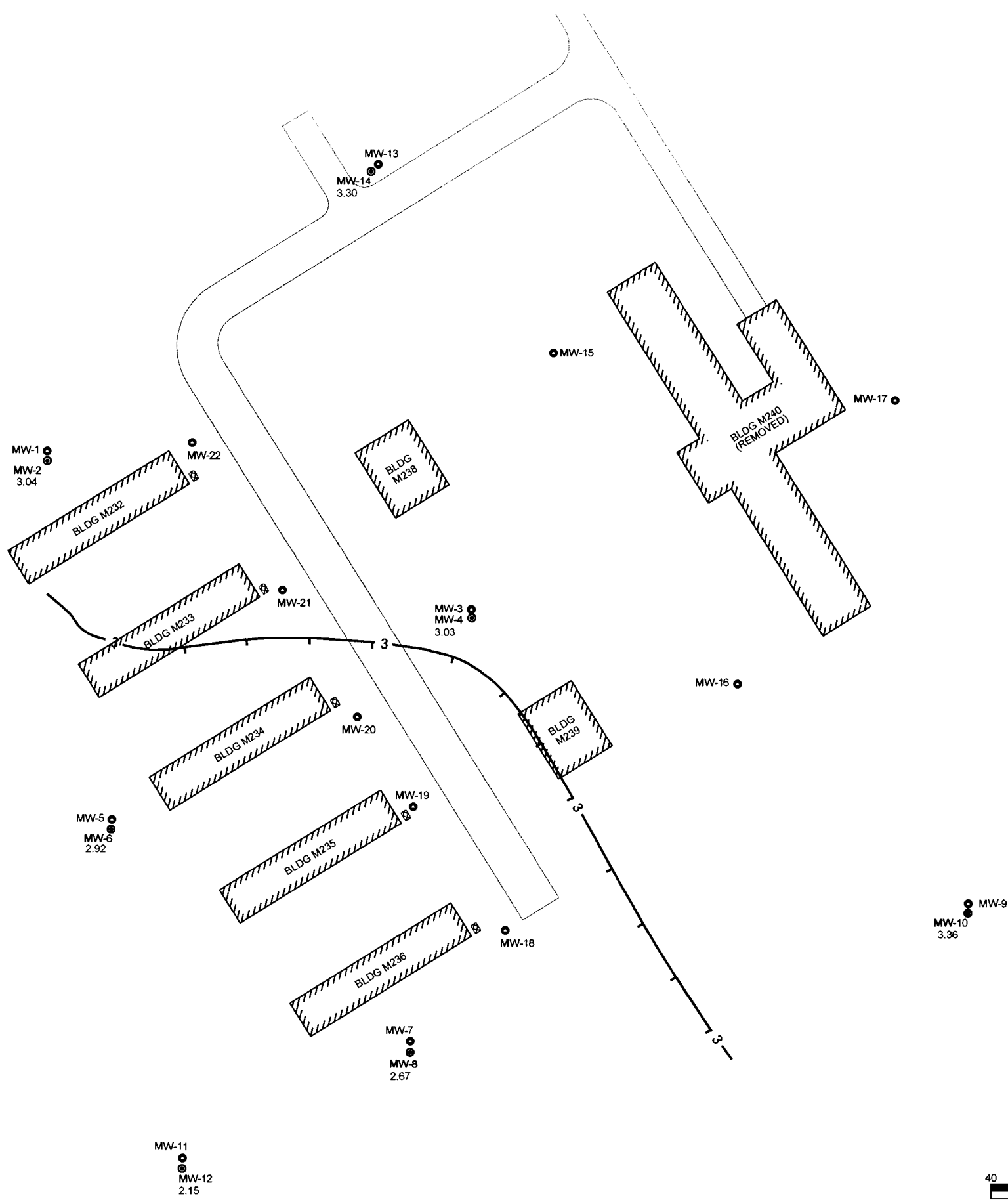
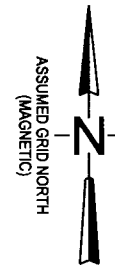


	FIGURE	3-5	SURFICIAL AQUIFER SHALLOW WELL GROUNDWATER ELEVATIONS FOR 12 DECEMBER 2005 SITE M232-236 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	1/3/06	
	REVISION	0	
	DRAWN BY	WCM/AER	
	FILE	M232_MAP	



LEGEND

- SHALLOW MONITORING WELL
- INTERMEDIATE MONITORING WELL
- ▨ FORMER UST
- 1.51 ● SURFICIAL AQUIFER INTERMEDIATE WELL GROUNDWATER ELEVATION
- 3 — SURFICIAL AQUIFER INTERMEDIATE WELL GROUNDWATER ELEVATION CONTOUR (HACHURES POINT IN DIRECTION OF GROUNDWATER FLOW)

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

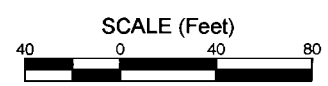
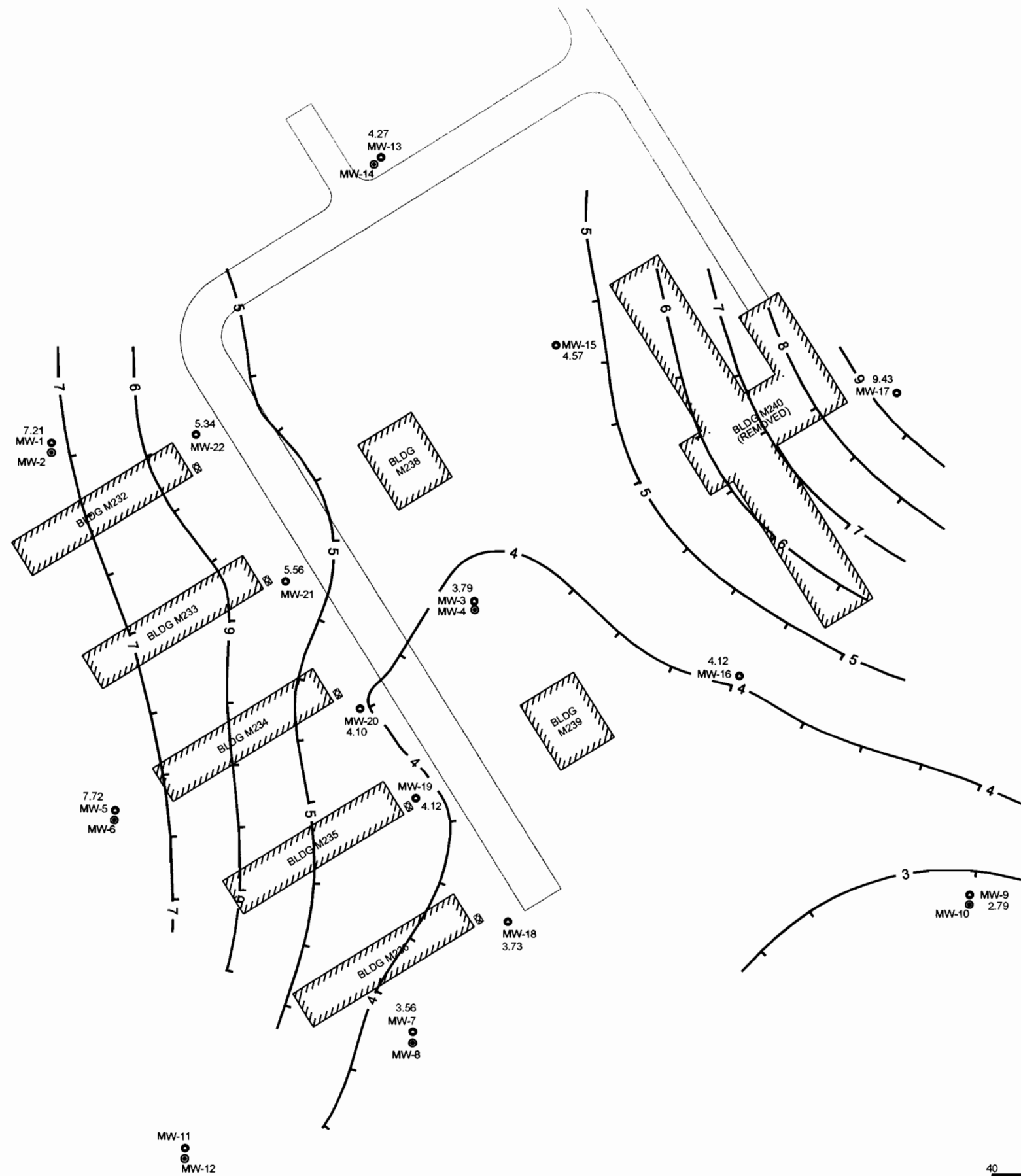


	FIGURE	3-6	SURFICIAL AQUIFER INTERMEDIATE WELL GROUNDWATER ELEVATIONS FOR 12 DECEMBER 2005 SITE M232-236 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	1/3/06	
	REVISION	0	
	DRAWN BY	WCM/AER	
	FILE	M232_MAP	



LEGEND

- SHALLOW MONITORING WELL
- INTERMEDIATE MONITORING WELL
- ▨ FORMER UST
- 1.51 ● SURFICIAL AQUIFER SHALLOW WELL GROUNDWATER ELEVATION
- 3 — SURFICIAL AQUIFER SHALLOW WELL GROUNDWATER ELEVATION CONTOUR (HACHURES POINT IN DIRECTION OF GROUNDWATER FLOW)

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

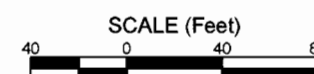
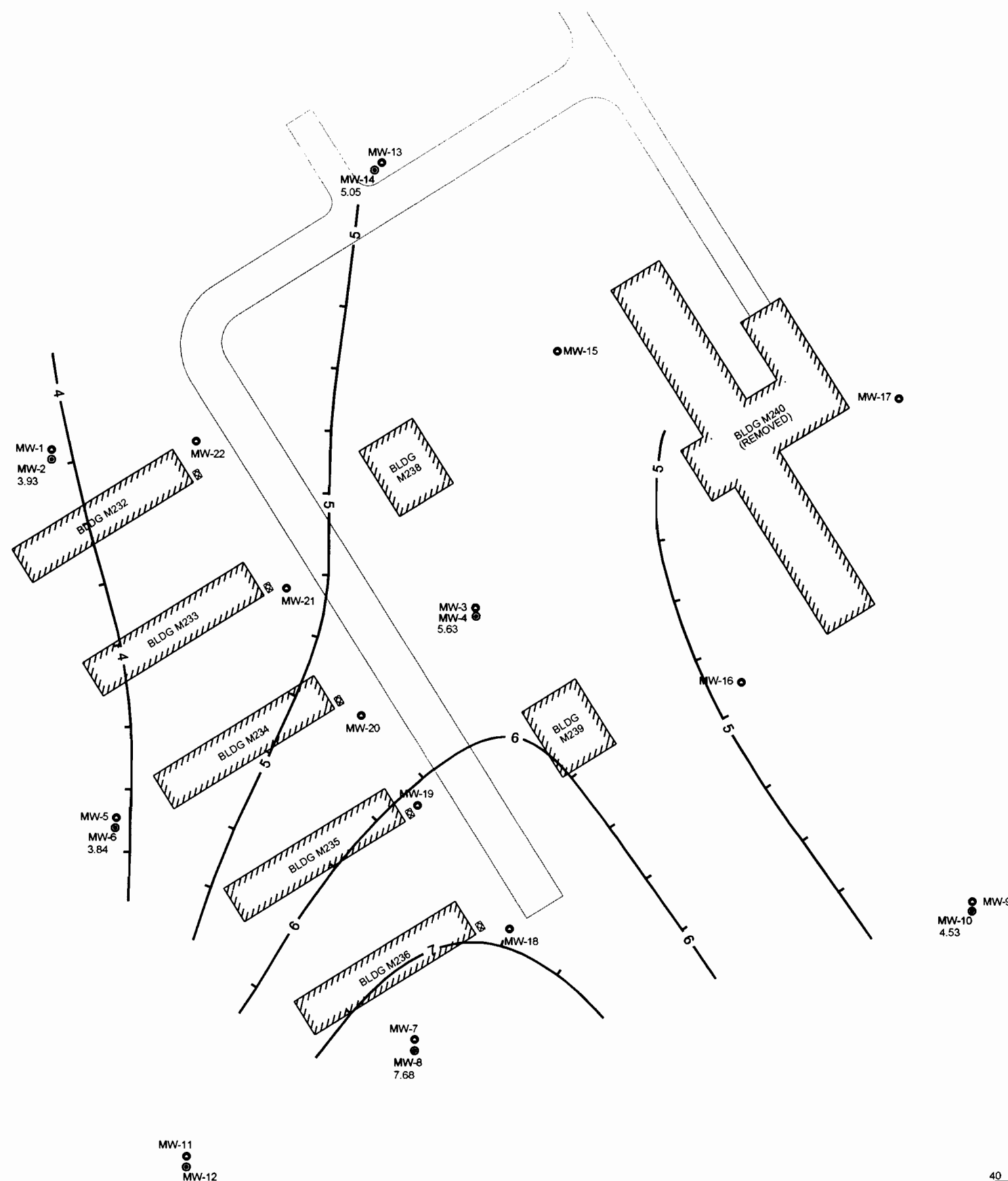


	FIGURE	3-7	SURFICIAL AQUIFER SHALLOW WELL GROUNDWATER ELEVATIONS FOR 3 JANUARY 2006 SITE M232-236 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	1/3/06	
	REVISION	0	
	DRAWN BY	WCM/AER	
	FILE	M232_MAP	



LEGEND

- SHALLOW MONITORING WELL
- INTERMEDIATE MONITORING WELL
- ▣ FORMER UST
- 1.51 ● SURFICIAL AQUIFER INTERMEDIATE WELL GROUNDWATER ELEVATION
- 3 — SURFICIAL AQUIFER INTERMEDIATE WELL GROUNDWATER ELEVATION CONTOUR (HACHURES POINT IN DIRECTION OF GROUNDWATER FLOW)

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

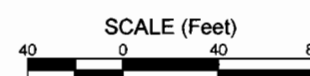
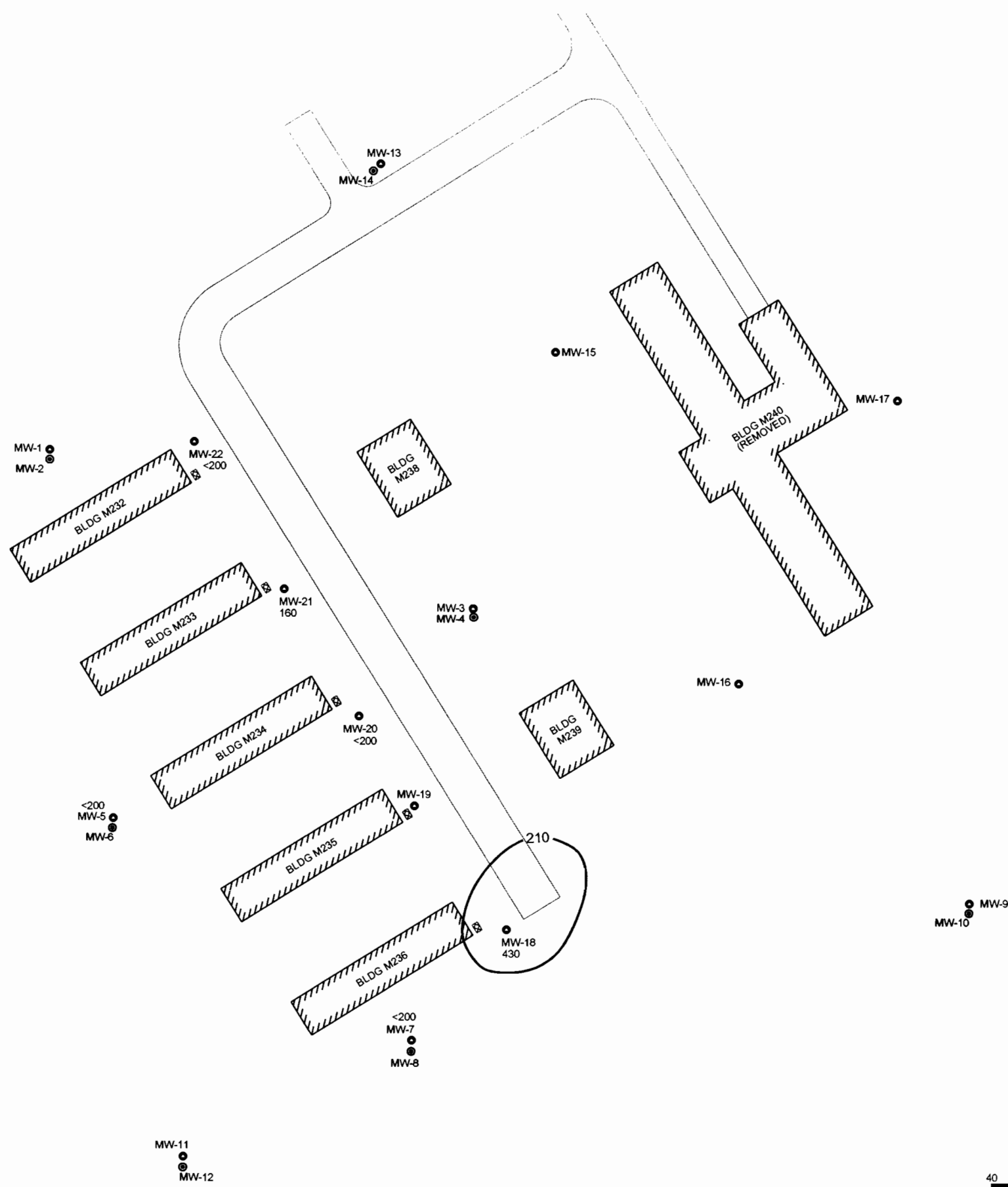
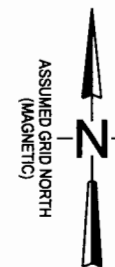


	FIGURE	3-8	SURFICIAL AQUIFER INTERMEDIATE WELL GROUNDWATER ELEVATIONS FOR 3 JANUARY 2006 SITE M232-236 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	1/3/06	
	REVISION	0	
	DRAWN BY	WCM/AER	
	FILE	M232_MAP	



LEGEND

- SHALLOW MONITORING WELL
- INTERMEDIATE MONITORING WELL
- ▨ FORMER UST
- 360 ● SURFICIAL AQUIFER SHALLOW WELL C9-C22 AROMATICS CONCENTRATION
- 210 ● SURFICIAL AQUIFER SHALLOW WELL 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)

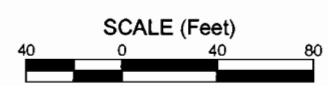
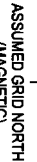


	FIGURE	4-1	SURFICIAL AQUIFER SHALLOW WELL C9-C22 AROMATICS CONCENTRATIONS FOR JUNE 2004 SITE M232-236 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	1/3/06	
	REVISION	0	
	DRAWN BY	WCM/AER	
	FILE	M232_MAP	

(Base map adapted from OBG, 1992; OBG, 1993; Law, 2000a)



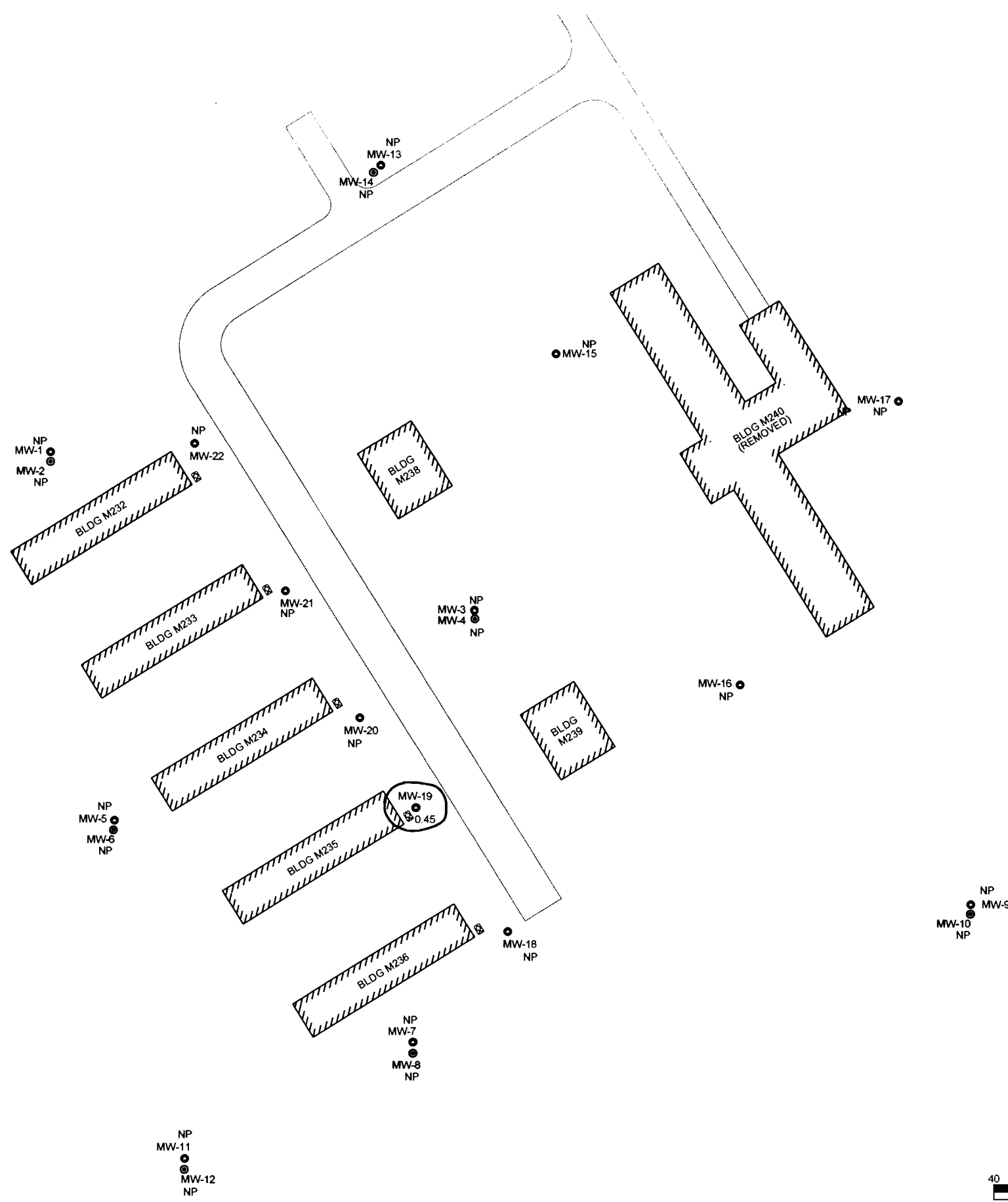
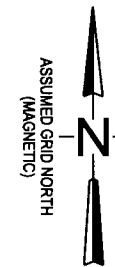
● SHALLOW MONITORING WELL
 ● INTERMEDIATE MONITORING WELL
 □ FORMER UST
 ○ SURFICIAL AQUIFER SHALLOW WELL C9-C22 AROMATICS CONCENTRATION
 ○ SURFICIAL AQUIFER SHALLOW WELL C9-C22 AROMATICS ISOCONCENTRATION CONTOUR

(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)



**Engineering &
Environment, Inc.**

(Base map adapted from OBG, 1992; OBG, 1993, Law, 2000a)



LEGEND

- SHALLOW MONITORING WELL
 - INTERMEDIATE MONITORING WELL
 - ⊠ FORMER UST
 - 0.49 ● SURFICIAL AQUIFER FREE PRODUCT THICKNESS
 - ESTIMATED EXTENT OF FREE PRODUCT
- (THICKNESS EXPRESSED IN FEET)
(NP: MEASURABLE FREE PRODUCT NOT PRESENT)

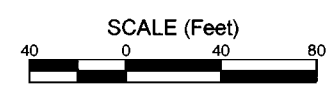
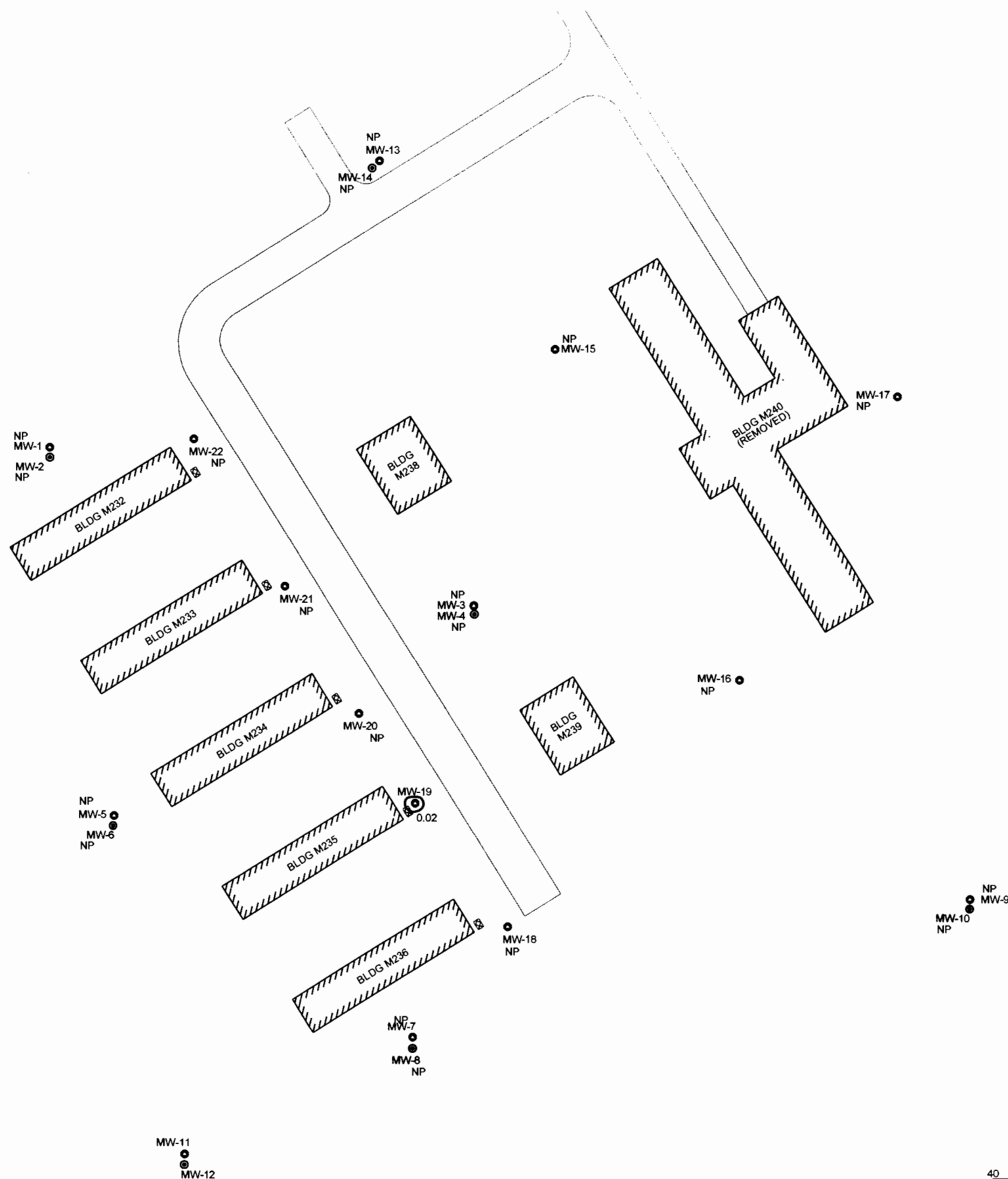


	FIGURE	4-3	ESTIMATED EXTENT OF FREE PRODUCT FOR JUNE 2005 SITE M232-236 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	1/3/06	
	REVISION	0	
	DRAWN BY	WCM/AER	
	FILE	M232_MAP	

(Base map adapted from OBG, 1992; OBG, 1993, Law, 2000a)



LEGEND

- SHALLOW MONITORING WELL
 - INTERMEDIATE MONITORING WELL
 - ⊠ FORMER UST
 - 0.49 ● SURFICIAL AQUIFER FREE PRODUCT THICKNESS
 - ESTIMATED EXTENT OF FREE PRODUCT
- (THICKNESS EXPRESSED IN FEET)
(NP: MEASURABLE FREE PRODUCT NOT PRESENT)

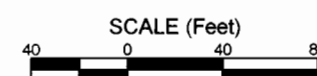


	FIGURE	4-4	ESTIMATED EXTENT OF FREE PRODUCT FOR DECEMBER 2005 SITE M232-236 ANNUAL MONITORING REPORT MCB CAMP LEJEUNE, NC
	DATE	1/3/06	
	REVISION	0	
	DRAWN BY	WCM/AER	
	FILE	M232_MAP	

TABLES

Table 3-1
Quarterly Gauging Data from June 2005 to January 2006
Site M232-236

Location	Top of Casing Elevation (feet msl)	Depth to Water (feet btoc)				Depth To Product (feet btoc)			
		06/16/05	09/29/05	12/12/05	01/03/06	06/16/05	09/29/05	12/12/05	01/03/06
MW-1	14.20	10.21	8.78	9.41	6.99	NP	NP	NP	NP
MW-2	13.96	11.19	10.69	10.92	10.03	NP	NP	NP	NP
MW-3	16.33	13.70	12.38	12.73	12.54	NP	NP	NP	NP
MW-4	16.48	13.41	13.28	13.45	10.85	NP	NP	NP	NP
MW-5	12.80	10.50	9.95	7.67	5.08	NP	NP	NP	NP
MW-6	13.07	8.88	8.25	10.15	9.23	NP	NP	NP	NP
MW-7	12.90	8.40	8.12	6.94	9.34	NP	NP	NP	NP
MW-8	12.91	10.45	9.98	10.24	5.23	NP	NP	NP	NP
MW-9	13.88	12.18	11.73	11.89	11.09	NP	NP	NP	NP
MW-10	14.43	11.53	11.15	11.07	9.90	NP	NP	NP	NP
MW-11	10.87	6.17	6.08	4.73	NM	NP	NP	NP	NP
MW-12	10.89	8.84	8.92	8.74	NM	NP	NP	NP	NP
MW-13	16.10	12.90	11.75	12.21	11.83	NP	NP	NP	NP
MW-14	15.97	13.01	12.48	12.67	10.92	NP	NP	NP	NP
MW-15	15.28	11.99	11.42	11.73	10.71	NP	NP	NP	NP
MW-16	15.14	12.43	12.02	12.11	11.02	NP	NP	NP	NP
MW-17	14.52	11.12	8.69	8.73	5.09	NP	NP	NP	NP
MW-18	11.34	8.60	8.29	8.44	7.61	NP	NP	NP	NP
MW-19	11.45	9.92	8.04	8.17	7.33	9.47	NP	8.15	NP
MW-20	11.39	8.50	7.40	8.20	7.29	NP	NP	NP	NP
MW-21	11.75	8.40	7.75	8.02	6.19	NP	NP	NP	NP
MW-22	11.73	8.34	6.54	7.93	6.39	NP	NP	NP	NP
		Product Thickness (feet)				Corrected Groundwater Elevation ⁽¹⁾ (feet msl)			
		06/16/05	09/29/05	12/12/05	01/03/06	06/16/05	09/29/05	12/12/05	01/03/06
MW-1	14.20	NP	NP	NP	NP	3.99	5.42	4.79	7.21
MW-2	13.96	NP	NP	NP	NP	2.77	3.27	3.04	3.93
MW-3	16.33	NP	NP	NP	NP	2.63	3.95	3.60	3.79
MW-4	16.48	NP	NP	NP	NP	3.07	3.20	3.03	5.63
MW-5	12.80	NP	NP	NP	NP	2.30	2.85	5.13	7.72
MW-6	13.07	NP	NP	NP	NP	4.19	4.82	2.92	3.84
MW-7	12.90	NP	NP	NP	NP	4.50	4.78	5.96	3.56
MW-8	12.91	NP	NP	NP	NP	2.46	2.93	2.67	7.68
MW-9	13.88	NP	NP	NP	NP	1.70	2.15	1.99	2.79
MW-10	14.43	NP	NP	NP	NP	2.90	3.28	3.36	4.53
MW-11	10.87	NP	NP	NP	NP	4.70	4.79	6.14	NM
MW-12	10.89	NP	NP	NP	NP	2.05	1.97	2.15	NM
MW-13	16.10	NP	NP	NP	NP	3.20	4.35	3.89	4.27
MW-14	15.97	NP	NP	NP	NP	2.96	3.49	3.30	5.05
MW-15	15.28	NP	NP	NP	NP	3.29	3.86	3.55	4.57
MW-16	15.14	NP	NP	NP	NP	2.71	3.12	3.03	4.12
MW-17	14.52	NP	NP	NP	NP	3.40	5.83	5.79	9.43
MW-18	11.34	NP	NP	NP	NP	2.74	3.05	2.90	3.73
MW-19	11.45	0.45	NP	0.02	NP	1.89	3.41	3.30	4.12
MW-20	11.39	NP	NP	NP	NP	2.89	3.99	3.19	4.10
MW-21	11.75	NP	NP	NP	NP	3.35	4.00	3.73	5.56
MW-22	11.73	NP	NP	NP	NP	3.39	5.19	3.80	5.34

⁽¹⁾ Corrected Groundwater Elevation = Top of Casing Elevation - Depth to Water + 0.8 x Product Thickness
Well identifications shown in *italics* indicate wells screened from approximately 20 feet bgs to 30 feet bgs; all
feet msl - feet above/below mean sea level
feet btoc - feet below top of casing
NP - Not Present - no measurable product detected
NM - Not Measured - well inaccessible due to deep standing water surrounding well

Table 4-1
Summary of Groundwater Quality Analytical Data for June 2005
Site M232-236

EPA Method 602 (ug/L)	NCGWQS	GCL	MW-5	MW-7	DUP ⁽¹⁾	MW-18	MW-20	MW-21	MW-22	Trip Blank
			06/16/05	06/16/05	06/16/05	06/16/05	06/16/05	12/19/04	06/16/05	06/16/05
Benzene	1	5000	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Diisopropyl ether	70	70,000	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ethylbenzene	29	29,000	<1.00	<1.00	<1.00	<1.00	<1.00	0.470 J	<1.00	<1.00
Methyl-tert butyl ether	200	200,000	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Toluene	1000	257,500	<1.00	<1.00	<1.00	<1.00	<1.00	0.992 J	0.465 J	0.370 J
m,p-Xylene ⁽²⁾			<2.00	<2.00	<2.00	<2.00	<2.00	0.690 J	<2.00	<2.00
o-Xylene ⁽²⁾			0.726 J	<2.00	<2.00	<2.00	<2.00	0.774 J	<2.00	<2.00
Total Xylenes ⁽²⁾	530	87,500	0.726 J	<4.00	<4.00	<4.00	<4.00	2.364 J	<4.00	<4.00
EPA Method 625 (ug/L)										
Acenaphthene	80	2120	<10.0	<10.0	<10.0	8.40 J	1.70 J	5.00 J	1.30 J	NA
Acenaphthylene	210	1965	<10.0	<10.0	<10.0	<10.0	<10.0	1.20 J	<10.0	NA
Bis(2-ethylhexyl)phthalate	3	3000	<10.0	<10.0	<10.0	<10.0	<10.0	4.90 J	<10.0	NA
Diethylphthalate	5000	NE	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	NA
Fluorene	280	950	<10.0	<10.0	<10.0	9.70 J	1.80 J	6.30 J	1.40 J	NA
Naphthalene	21	15,500	<10.0	<10.0	<10.0	2.20 J	<10.0	6.70 J	2.60 J	NA
Phenanthrene	210	410	<10.0	<10.0	<10.0	8.90 J	<10.0	5.20 J	<10.0	NA
TICs (total)			19.53 J	4.12 J	20.48 J	126.51 J	12.17 J	150.3 J	12.2 J	NA
1-Methylnaphthalene (TIC)	RL	NE	NR	NR	NR	NR	NR	NR	NR	
2-Methylnaphthalene (TIC)	14	12,500	NR	NR	NR	NR	NR	NR	NR	
MADEP VPH (ug/L)										
C ₅ -C ₈ Aliphatics	420	NE	<100	<100	<100	<100	<100	<100	<100	NA
C ₉ -C ₁₂ Aliphatics ⁽³⁾			<100	<100	<100	<100	<100	<100	<100	NA
C ₉ -C ₁₀ Aromatics ⁽³⁾			<100	<100	<100	140	<100	<100	<100	NA
MADEP EPH (ug/L)										
C ₉ -C ₁₈ Aliphatics ⁽³⁾			<100	<100	<100	<100	<100	<100	<100	NA
C ₁₉ -C ₃₆ Aliphatics	42,000	NE	<100	<100	<100	<100	<100	<100	<100	NA
C ₁₁ -C ₂₂ Aromatics ⁽³⁾			<100	<100	<100	290	<100	160	<100	NA
MADEP VPH + EPH (ug/L)										
C ₉ -C ₁₂ + C ₉ -C ₁₈ Aliphatics ⁽³⁾	4200	NE	<200	<200	<200	<200	<200	<200	<200	
C ₉ -C ₁₀ + C ₁₁ -C ₂₂ Aromatics ⁽³⁾	210	NE	<200	<200	<200	430	<200	160	<200	

⁽¹⁾ DUP is a duplicate sample collected from well MW-7

⁽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⁾ 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

NA: Not Analyzed; the sample was not analyzed for the indicated compound

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

<#: Analyte not detected at the indicated detection limit

GCL: Gross Contamination Level

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

NCGWQS: North Carolina Groundwater Quality Standard

RL: Reporting Limit; a NCGWQS has not been established for the compound; therefore, the NCGWQS is set at the reporting limit

TICs: Tentatively Identified Compound; "total" indicates sum of all TICs; discrete compounds if identified are listed separately; 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 M232-236

EPA Method 602 (ug/L)	NCGWQS	GCL	MW-5	MW-7	DUP ⁽¹⁾	MW-18	MW-20	MW-21	MW-22
			12/12/05	12/12/05	06/16/05	12/12/05	12/12/05	12/12/05	12/12/05
Benzene	1	5000	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Diisopropyl ether	70	70,000	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ethylbenzene	29	29,000	<1.00	<1.00	<1.00	<1.00	<1.00	1.62	<1.00
Methyl-tert butyl ether	200	200,000	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Toluene	1000	257,500	1.13	<1.00	<1.00	1.43	1.01	1.64	1.20
m,p-Xylene ⁽²⁾			<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
o-Xylene ⁽²⁾			<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Total Xylenes ⁽²⁾	530	87,500	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00
EPA Method 625 (ug/L)									
Acenaphthene	80	2120	<10.0	<10.0	<10.0	5.50 J	<10.0	3.20 J	2.20 J
Acenaphthylene	210	1965	<10.0	<10.0	<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	<10.0	<10.0
Diethylphthalate	5000	NE	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Fluorene	280	950	<10.0	<10.0	<10.0	7.40 J	1.40 J	5.70 J	3.30 J
Naphthalene	21	15,500	<10.0	<10.0	<10.0	<10.0	<10.0	5.50 J	4.90 J
Phenanthrene	210	410	<10.0	<10.0	<10.0	7.00 J	<10.0	3.60 J	3.00 J
TICs (total)			NR	NR	NR	114.21 J	NR	228.11 J	189.48 J
1-Methylnaphthalene (TIC)	RL	NE	NR	NR	NR	NR	NR	52.2 J	22.3 J
2-Methylnaphthalene (TIC)	14	12,500	NR	NR	NR	NR	NR	26.3 J	52.1 J
MADEP VPH (ug/L)									
C ₅ -C ₈ Aliphatics	420	NE	<100	<100	<100	<100	<100	<100	<100
C ₉ -C ₁₂ Aliphatics ⁽³⁾			<100	<100	<100	130	<100	100	<100
C ₉ -C ₁₀ Aromatics ⁽³⁾			<100	<100	<100	100	<100	<100	<100
MADEP EPH (ug/L)									
C ₉ -C ₁₈ Aliphatics ⁽³⁾			<100	<100	<100	<100	<100	<100	<100
C ₁₉ -C ₃₆ Aliphatics	42,000	NE	<100	<100	<100	<100	<100	<100	<100
C ₁₁ -C ₂₂ Aromatics ⁽³⁾			<100	<100	<100	320	<100	300	250
MADEP VPH + EPH (ug/L)									
C ₉ -C ₁₂ + C ₉ -C ₁₈ Aliphatics ⁽³⁾	4200	NE	<200	<200	<200	130	<200	100	<200
C ₉ -C ₁₀ + C ₁₁ -C ₂₂ Aromatics ⁽³⁾	210	NE	<200	<200	<200	420	<200	300	250

⁽¹⁾ DUP is a duplicate sample collected from well MW-7

⁽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⁾ 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

NA: Not Analyzed; the sample was not analyzed for the indicated compound

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

<#: Analyte not detected at the indicated detection limit

GCL: Gross Contamination Level

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

NCGWQS: North Carolina Groundwater Quality Standard

RL: Reporting Limit; a NCGWQS has not be established for the compound; therefore, the NCGWQS is set at the reporting limit

TICs: Tentatively Identified Compound; "total" indicates sum of all TICs; discrete compounds if identified are listed separately; 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 M232-236

Volatile Organic Compounds (ug/L)	NCGWQS	GCL	MW-1	MW-2	MW-3		MW-4	MW-5							MW-6	MW-7								MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15		
			Nov 1991	Nov 1991	Nov 1991	Oct 2000 ⁽¹⁾	Apr 2001 ⁽¹⁾	Nov 1991	Nov 1991	Oct 2000	Apr 2001	Jun 2004	Dec 2004	Jun 2005	Dec 2005	Nov 1991	Nov 1991	Jun 2004		Dec 2004		Jun 2005		Dec 2005		Nov 1991	Nov 1991	Nov 1991	Nov 1991	Nov 1991	Nov 1991	Nov 1991	Dec 1992
			(8010/8020)	(8010/8020)	(8010/8020)	(6210D)	(6210D)	(8010/8020)	(8010/8020)	(6210D)	(6210D)	(602)	(602)	(602)	(602)	(8010/8020)	(8010/8020)	(602)	(602)	(602)	(602)	(602)	(602)	(602)	(602)	(8010/8020)	(8010/8020)	(8010/8020)	(8010/8020)	(8010/8020)	(8010/8020)	(601/602)	
n-Butylbenzene	70	6900	na	na	na	ND	ND	na	na	ND	ND	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na		
sec-Butylbenzene	70	8500	na	na	na	ND	ND	na	na	ND	ND	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na		
tert-Butylbenzene	70	15,000	na	na	na	ND	ND	na	na	ND	ND	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na		
Chloroform	0.19	190	ND	ND	ND	ND	ND	ND	ND	ND	ND	na	na	na	na	ND	ND	na	na	na	na	na	na	na	ND	ND	ND	ND	4.0	ND	ND	ND	
Ethylbenzene	29	29,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	<1.00	<1.00	<1.00	<1.00	ND	ND	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	ND	2.0	ND	ND	ND	ND	
Isopropylbenzene	70	25,000	na	na	na	ND	ND	na	na	ND	ND	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	
4-Isopropyltoluene	RL	NE	na	na	na	ND	ND	na	na	ND	ND	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	
Naphthalene	21	15,500	na	na	na	ND	ND	na	na	ND	ND	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	
n-Propyl benzene	70	30,000	na	na	na	ND	ND	na	na	ND	ND	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	
Tetrachloroethene	0.7	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	na	na	na	na	ND	ND	na	na	na	na	na	na	na	ND	ND	ND	ND	ND	ND	ND	ND	
Toluene	1000	257,500	ND	ND	ND	ND	ND	ND	ND	ND	ND	<1.00	<1.00	<1.00	1.13	1.0	ND	<1.00	<1.00	0.808 J	<1.00	<1.00	<1.00	<1.00	<1.00	ND	ND	8.0	2.0	6.0	ND	ND	ND
1,2,4-Trimethylbenzene	350	28,500	na	na	na	ND	ND	na	na	ND	ND	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	
1,3,5-Trimethylbenzene	350	25,000	na	na	na	ND	ND	na	na	ND	ND	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	
Total Xylenes	530	87,500	ND	ND	ND	ND	ND	ND	ND	ND	ND	<4.00	<4.00	0.726 J	<4.00	ND	ND	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00	ND	ND	15.0	ND	ND	4.0	ND	
Semi-Volatile Organic Compounds (ug/L)			(8100)	na	(8100)	(625)	(625)	na	(8100)	(625)	(625)	(625)	(625)	(625)	(625)	na	na	(625)	(625)	(625)	(625)	(625)	(625)	(625)	na	na	na	na	na	na	na	na	
Acenaphthene	80	2120	ND	na	ND	ND	ND	na	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	na	na	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	na	na	na	na	na	na	na	
Acenaphthylene	210	1965	ND	na	ND	na	na	na	ND	na	na	<10.0	<10.0	<10.0	<10.0	na	na	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	na	na	na	na	na	na	na	
Bis(2-ethylhexyl)phthalate	3	3000	na	na	na	ND	ND	na	na	ND	ND	<10.0	<10.0	<10.0	<10.0	na	na	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	na	na	na	na	na	na	na	
Diethylphthalate	5000	NE	na	na	na	na	ND	na	na	na	ND	<10.0	<10.0	<10.0	<10.0	na	na	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	na	na	na	na	na	na	na	
Fluorene	280	950	ND	na	ND	ND	ND	na	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	na	na	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	na	na	na	na	na	na	na	
Naphthalene	21	15,500	ND	na	ND	ND	ND	na	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	na	na	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	na	na	na	na	na	na	na	
Phenanthrene	210	410	ND	na	2900	ND	ND	na	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	na	na	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	na	na	na	na	na	na	na	
TICs (total)			na	na	na	1024 J	585 J	na	na	ND	ND	10 J	NR	19.53 J	NR	na	na	20 J	13 J	NR	NR	4.12 J	20.48 J	NR	NR	na	na	na	na	na	na	na	
MADEP VPH+EPH (ug/L)																																	
C ₉ -C ₁₈ Aliphatics	4200	NE	na	na	na	760	690	na	na	ND	ND	<200	<200	<200	<200	na	na	<200	<200	<200	<200	<200	<200	<200	<200	na	na	na	na	na	na	na	
C ₁₉ -C ₃₆ Aliphatics	42,000	NE	na	na	na	200	140	na	na	ND	ND	<100	<100	<100	<100	na	na	<100	<100	600	<100	<100	<100	600	<100	na	na	na	na	na	na	na	
C ₉ -C ₂₂ Aromatics	210	NE	na	na	na	440	430	na	na	ND	ND	<200	<200	<200	<200	na	na	<200	<200	<200	<200	<200	<200	<200	<200	na	na	na	na	na	na	na	

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, or not reported in source document summary tables

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

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

<#: Analyte not detected at the indicated detection limit

GCL:Gross Contamination Level

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

NCGWQS: North Carolina Groundwater Quality Standard

RL: Reporting Limit; a NCGWQS has not be established for the compound; therefore, the NCGWQS is set at the reporting limit

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

ug/L: micrograms per liter

⁽¹⁾ Identified as MW-7 in source document

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 M232-236

Volatile Organic Compounds (ug/L)	NCGWQS	GCL	MW-16	MW-17	MW-18							MW-20							MW-21							MW-22						
			Dec 1992	Dec 1992	Aug 1999	Oct 2000	Apr 2001	Jun 2004	Dec 2004	Jan 2005	Dec 2005	Aug 1999	Oct 2000	Apr 2001	Jun 2004	Dec 2004	Jun 2005	Dec 2005	Aug 1999	Oct 2000	Apr 2001	Jun 2004	Dec 2004	Jun 2005	Dec 2005	Aug 1999	Oct 2000	Apr 2001	Jun 2004	Dec 2004	Jun 2005	Dec 2005
			(601/ 602)	(601/ 602)	(602)	(6210D)	(6210D)	(602)	(602)	(602)	(602)	(602)	(6210D)	(6210D)	(602)	(602)	(602)	(602)	(602)	(6210D)	(6210D)	(602)	(602)	(602)	(602)	(602)	(6210D)	(6210D)	(602)	(602)	(602)	(602)
n-Butylbenzene	70	6900	na	na	na	ND	10	na	na	na	na	na	2	2	na	na	na	na	na	4	4	na	na	na	na	na	ND	1	na	na	na	na
sec-Butylbenzene	70	8500	na	na	na	4	6	na	na	na	na	na	ND	ND	na	na	na	na	na	6	6	na	na	na	na	na	3	1	na	na	na	na
tert-Butylbenzene	70	15,000	na	na	na	0.7	0.7	na	na	na	na	na	ND	ND	na	na	na	na	na	ND	0.6	na	na	na	na	na	0.8	ND	na	na	na	na
Chloroform	0.19	190	ND	ND	na	ND	ND	na	na	na	na	na	ND	ND	na	na	na	na	na	ND	ND	na	na	na	na	na	ND	ND	na	na	na	na
Ethylbenzene	29	29,000	ND	ND	ND	ND	0.8	<1.00	<1.00	<1.00	<1.00	7	ND	ND	<1.00	<1.00	<1.00	<1.00	ND	0.7	1	0.720 J	0.845 J	0.470 J	1.62	ND	1	ND	0.617 J	<1.00	<1.00	<1.00
Isopropylbenzene	70	25,000	na	na	na	ND	2	na	na	na	na	na	ND	ND	na	na	na	na	na	2	3	na	na	na	na	na	3	1	na	na	na	na
4-Isopropyltoluene	RL	NE	na	na	na	ND	0.5	na	na	na	na	na	ND	ND	na	na	na	na	na	2	3	na	na	na	na	na	2	0.8	na	na	na	na
Naphthalene	21	15,500	na	na	na	3	5	na	na	na	na	na	1	1	na	na	na	na	na	8	7	na	na	na	na	na	24	11	na	na	na	na
n-Propyl benzene	70	30,000	na	na	na	ND	1	na	na	na	na	na	0.7	0.6	na	na	na	na	na	5	6	na	na	na	na	na	5	2	na	na	na	na
Tetrachloroethene	0.7	700	ND	ND	na	ND	ND	na	na	na	na	na	ND	ND	na	na	na	na	na	ND	0.6	na	na	na	na	na	ND	ND	na	na	na	na
Toluene	1000	257,500	ND	ND	ND	ND	ND	0.443 J	<1.00	<1.00	1.43	ND	ND	ND	0.497 J	0.498 J	<1.00	1.01	ND	ND	ND	0.655 J	0.869 J	0.992 J	1.64	ND	ND	ND	<1.00	0.396 J	0.465 J	1.20
1,2,4-Trimethylbenzene	350	28,500	na	na	na	ND	ND	na	na	na	na	na	ND	ND	na	na	na	na	na	11	14	na	na	na	na	na	22	9	na	na	na	na
1,3,5-Trimethylbenzene	350	25,000	na	na	na	0.5	ND	na	na	na	na	na	ND	ND	na	na	na	na	na	3	5	na	na	na	na	na	4	1	na	na	na	na
Total Xylenes	530	87,500	ND	ND	ND	ND	ND	1.458 J	0.826 J	<4.00	<4.00	ND	ND	ND	<4.00	0.622 J	<4.00	<4.00	ND	ND	ND	1.514 J	2.364 J	2.364 J	<4.00	ND	ND	ND	<4.00	0.638 J	<4.00	<4.00
Semi-Volatile Organic Compounds (ug/L)			na	na	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)	(625)
Acenaphthene	80	2120	na	na	ND	ND	ND	6.50 J	2.80 J	8.40 J	5.50 J	3	ND	ND	1.80 J	<10.0	1.70 J	<10.0	ND	ND	ND	2.20 J	2.20 J	5.00 J	3.20 J	2	ND	ND	3.20 J	<10.0	1.30 J	2
Acenaphthylene	210	1965	na	na	na	na	na	<10.0	<10.0	<10.0	<10.0	na	na	na	<10.0	<10.0	<10.0	<10.0	na	na	na	<10.0	<10.0	1.20 J	<10.0	nq	na	na	<10.0	<10.0	<10.0	<10.0
Bis(2-ethylhexyl)phthalate	3	3000	na	na	159	ND	ND	<10.0	<10.0	<10.0	<10.0	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	6	ND	ND	<10.0	<10.0	4.90 J	<10.0	283	ND	ND	<10.0	<10.0	<10.0	<10.0
Diethylphthalate	5000	NE	na	na	na	na	ND	<10.0	<10.0	<10.0	<10.0	na	na	ND	<10.0	2.90 J	<10.0	<10.0	na	na	ND	<10.0	15.5	<10.0	<10.0	na	na	ND	<10.0	4.60 J	<10.0	<10.0
Fluorene	280	950	na	na	ND	12	12	9.40 J	4.70 J	9.70 J	7.40 J	4	ND	ND	2.10 J	1.30 J	1.80 J	1.40 J	2	ND	ND	3.40 J	3.50 J	6.30 J	5.70 J	3	ND	ND	4.50 J	1.60 J	1.40 J	3.30 J
Naphthalene	21	15,500	na	na	6	ND	ND	2.70 J	<10.0	2.20 J	<10.0	ND	ND	ND	<10.0	<10.0	<10.0	<10.0	ND	ND	ND	4.60 J	3.10 J	6.70 J	5.50 J	8	14	13	7.80 J	2.30 J	2.60 J	4.90 J
Phenanthrene	210	410	na	na	ND	11	ND	8.80 J	4.90 J	8.90 J	7.00 J	5	ND	ND	<10.0	<10.0	<10.0	<10.0	2	ND	ND	2.60 J	3.10 J	5.20 J	3.60 J	1	ND	ND	3.30 J	<10.0	<10.0	3.00 J
TICs (total)			na	na	19 J	222 J	203 J	109.6 J	72.47 J	126.51 J	114.21 J	92 J	5.4 J	3.8 J	11 J	NR	12.17 J	NR	84 J	5170 J	430 J	100 J	116.69 J	150.3 J	228.11 J	118 J	380 J	369 J	117 J	32.8 J	12.2 J	189.48 J
MADEP VPH+EPH (ug/L)																																
C ₉ -C ₁₈ Aliphatics	4200	NE	na	na	21	630	430	200	210	<200	130	260	120	ND	<200	<200	<200	<200	110	460	520	130	300	<200	100	150	420	340	120	<200	<200	<200
C ₁₉ -C ₃₆ Aliphatics	42,000	NE	na	na	ND	ND	ND	<100	<100	<100	<100	ND	ND	ND	<100	<100	<100	<100	ND	ND	ND	<100	<100	<100	<100	ND	ND	ND	<100	<100	<100	<100
C ₉ -C ₂₂ Aromatics	210	NE	na	na	15	280	270	570	310	430	420	170	ND	ND	<200	<200	<200	<200	72	250	440	360	200	160	300	96	340	310	<200	240	<200	250

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, or not reported in source document summary tables

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

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

<#: Analyte not detected at the indicated detection limit

GCL: Gross Contamination Level

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

NCGWQS: North Carolina Groundwater Quality Standard

RL: Reporting Limit; a NCGWQS has not be established for the compound; therefore, the NCGWQS is set at the reporting limit

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

APPENDIX A
FIELD DATA SHEETS

June 2005



**ENGINEERING AND
ENVIRONMENT, INC.**

BLD. M232-236 Water Levels

Date: 6/16/2005

Well ID	MW01	Depth to Bottom		Depth to Product		Depth to Water	10.21
Well ID	MW02	Depth to Bottom		Depth to Product		Depth to Water	11.17
Well ID	MW03	Depth to Bottom		Depth to Product		Depth to Water	13.70
Well ID	MW04	Depth to Bottom		Depth to Product		Depth to Water	13.41
Well ID	MW05	Depth to Bottom		Depth to Product		Depth to Water	10.50
Well ID	MW06	Depth to Bottom		Depth to Product		Depth to Water	8.88
Well ID	MW07	Depth to Bottom		Depth to Product		Depth to Water	8.40
Well ID	MW08	Depth to Bottom		Depth to Product		Depth to Water	10.45
Well ID	MW09	Depth to Bottom		Depth to Product		Depth to Water	12.18
Well ID	MW10	Depth to Bottom		Depth to Product		Depth to Water	11.53
Well ID	MW11	Depth to Bottom		Depth to Product		Depth to Water	6.17
Well ID	MW12	Depth to Bottom		Depth to Product		Depth to Water	8.84
Well ID	MW13	Depth to Bottom		Depth to Product		Depth to Water	12.90
Well ID	MW14	Depth to Bottom		Depth to Product		Depth to Water	13.01
Well ID	MW15	Depth to Bottom		Depth to Product		Depth to Water	11.99
Well ID	MW16	Depth to Bottom		Depth to Product		Depth to Water	12.43
Well ID	MW17	Depth to Bottom		Depth to Product		Depth to Water	11.12
Well ID	MW18	Depth to Bottom		Depth to Product		Depth to Water	8.60
Well ID	MW19	Depth to Bottom		Depth to Product	9.47	Depth to Water	9.92
Well ID	MW20	Depth to Bottom		Depth to Product		Depth to Water	8.50
Well ID	MW21	Depth to Bottom		Depth to Product		Depth to Water	8.40
Well ID	MW22	Depth to Bottom		Depth to Product		Depth to Water	8.34

**ENGINEERING AND
ENVIRONMENT, INC.****M232 field data**

Project #LD04-004

Date **6/16/2005** Time **13:30** Weather **sunny**Sampler **BS** Well/Sample # **USTM232-MW05**Depth To Bottom (ft) **17.3** Depth To Water (ft) **10.50** Water Depth (ft) **6.80**Well Vol. **1.11** Purge Vol. Vol. Purged Sampling Device (pump/Bailer)

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	13:03	13:08	13:15	13:21	13:28		N/A
Temperature	18.00	18.17	18.16	18.17	18.11		°
Spec. Conductivity	0.058	0.058	0.058	0.058	0.058		(m s/m)
Dissolved Oxygen	0.98	0.70	0.64	0.60	0.60		ms/L
PH	5.95	6.08	6.29	6.49	6.52		STD
ORP	32.2	12.3	7.6	0.3	-0.5		(G/L)
Turbidity	o/l	230	93.1	37.8	23.9		(NTU)

Analyte	Size	Preserv.
602	3 X 40 ml	HCl
625	1 X 1L	none
VPH	2 X 40 ml	HCl

Comments s:	

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

PID							
Time		12:56	13:01	13:05	13:12		
SWL		10.52	10.85	10.92	10.91		
Pump Depth		3.0	3.0	3.0			

**ENGINEERING AND
ENVIRONMENT, INC.****M232 Field Data**

Project #LD04-004

Date **6/16/2005** Time **12:40** Weather **sunny**Sampler **BS** Well/Sample # **USTM232- MW07**Depth To Bottom (ft) **17.5** Depth To 1 Water (ft) **8.40** Water Depth (ft) **9.10**Well Vol. **1.49** Purge Vol. Vol. Purged Sampling Device (pump/Bailer)

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	12:23	12:26	12:29	12:32	12:35		N/A
Temperature	16.01	16.04	16.04	16.09	16.03		°C
Spec. Conductivity	0.096	0.097	0.096	0.096	0.095		(m s/m)
Dissolved Oxygen	1.23	1.10	0.97	0.73	0.64		ms/L
PH	6.63	6.50	6.48	6.62	6.71		STD
ORP	-11.6	-21.7	-27.0	-34.9	38.7		(G/L)
Turbidity	18.4	12.5	10.2	5.86	4.40		(NTU)

Analyte	Size	Preserv.
602	3 X 40 ml	HCl
625	1 X 1L	none
VPH	2 X 40 ml	HCl

Comments s:	DUP

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

Pid							
Time	12:16	12:24	12:28				
SWL	8.38	8.80	8.95				
Pump Depth	1.5	1.5					



ENGINEERING AND ENVIRONMENT, INC.

M232 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	11:40	11:42	11:44	11:46		N/A
Temperature	17.50	17.30	17.30	17.27	17.26		°
Spec. Conductivity	0.174	0.198	0.200	0.199	0.201		(m s/m)
Dissolved Oxygen	1.22	0.90	0.90	0.85	0.81		ms/L
PH	7.08	6.64	6.68	6.73	6.79		STD
ORP	-143.8	-120.7	-122.7	-123.0	-123.1		(G/L)
Turbidity	222	43.1	26.6	20.1			(NTU)

Analyte	Size	Preserv.
602	3 X 40 ml	HCl
625	1 X 1L	none
VPH	2 X 40 ml	HCl

Comments s:

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.

M232 field data

Project #LD04-004

Date **6/16/2005** Time **11:25** Weather **sunny**

Sampler **BS** Well/Sample # **USTM232-MW20**

Depth To Bottom (ft) **14.7** Depth To Water (ft) **8.50** Water Depth (ft) **6.20**

Well Vol. **0.62** Purge Vol. **0.78** Vol. Purged **5.91**

Sampling Device (pump/Bailer)

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	11:13	11:16	11:18	11:20	11:22		N/A
Temperature	19.34	18.94	18.91	18.90	18.88		°C
Spec. Conductivity	0.078	0.078	0.078	0.078	0.079		(m s/m)
Dissolved Oxygen	2.39	1.31	1.25	1.20	1.04		ms/L
PH	6.70	6.52	6.17	5.98	5.95		STD
ORP	-140.0	-129.6	-114.9	-109.6	-113.9		(G/L)
Turbidity	36.9	19.4	13.6	9.93	6.00		(NTU)

Analyte	Size	Preserv.
602	3 X 40 ml	HCl
625	1 X 1L	none
VPH	2 X 40 ml	HCl

Comments s:	

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.

M232 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	10:27						N/A
Temperature	20.44						°C
Spec. Conductivity	0.092						(m s/m)
Dissolved Oxygen	3.46						ms/L
PH	6.43						STD
ORP	-135.2						(G/L)
Turbidity	40						(NTU)

Analyte	Size	Preserv.
602	3 X 40 ml	HCl
625	1 X 1L	none
VPH	2 X 40 ml	HCl

Comments s: dry at first volume; waited 20 minutes and collected sample

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.

M232 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	09:50	09:54	09:58	10:02	10:06		N/A
Temperature	19.41	19.31	19.30	19.27	19.28		°C
Spec. Conductivity	0.150	0.125	0.113	0.107	0.104		(m s/m)
Dissolved Oxygen	2.49	5.14	4.65	4.51	4.39		ms/L
PH	7.26	6.59	6.54	6.56	6.46		STD
ORP	-125.2	-88.5	-96.2	-99.6	-98.5		(G/L)
Turbidity	35.9	35.4	32.3	22.6	43.4		(NTU)

Analyte	Size	Preserv.
602	3 X 40 ml	HCl
625	1 X 1L	none
VPH	2 X 40 ml	HCl

Comments s:	

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

Pid							
Time							
SWL							
Pump Depth							

September 2005



**ENGINEERING AND
ENVIRONMENT, INC.**

BLD. M232-236 Water Levels

Date: 9/29/2005

Well ID	MW01	Depth to Bottom		Depth to Product		Depth to Water	8.78
Well ID	MW02	Depth to Bottom		Depth to Product		Depth to Water	10.69
Well ID	MW03	Depth to Bottom		Depth to Product		Depth to Water	12.38
Well ID	MW04	Depth to Bottom		Depth to Product		Depth to Water	13.28
Well ID	MW05	Depth to Bottom		Depth to Product		Depth to Water	9.95
Well ID	MW06	Depth to Bottom		Depth to Product		Depth to Water	8.25
Well ID	MW07	Depth to Bottom		Depth to Product		Depth to Water	8.12
Well ID	MW08	Depth to Bottom		Depth to Product		Depth to Water	9.98
Well ID	MW09	Depth to Bottom		Depth to Product		Depth to Water	11.73
Well ID	MW10	Depth to Bottom		Depth to Product		Depth to Water	11.15
Well ID	MW11	Depth to Bottom		Depth to Product		Depth to Water	6.08
Well ID	MW12	Depth to Bottom		Depth to Product		Depth to Water	8.92
Well ID	MW13	Depth to Bottom		Depth to Product		Depth to Water	11.75
Well ID	MW14	Depth to Bottom		Depth to Product		Depth to Water	12.48
Well ID	MW15	Depth to Bottom		Depth to Product		Depth to Water	11.42
Well ID	MW16	Depth to Bottom		Depth to Product		Depth to Water	12.02
Well ID	MW17	Depth to Bottom		Depth to Product		Depth to Water	8.69
Well ID	MW18	Depth to Bottom		Depth to Product		Depth to Water	8.29
Well ID	MW19	Depth to Bottom		Depth to Product		Depth to Water	8.04
Well ID	MW20	Depth to Bottom		Depth to Product		Depth to Water	7.40
Well ID	MW21	Depth to Bottom		Depth to Product		Depth to Water	7.75
Well ID	MW22	Depth to Bottom		Depth to Product		Depth to Water	6.54

December 2005



**ENGINEERING AND
ENVIRONMENT, INC.**

BLD. M232-236 Water Levels

Date: 12/12/2005

Well ID	MW01	Depth to Bottom		Depth to Product		Depth to Water	9.41
Well ID	MW02	Depth to Bottom		Depth to Product		Depth to Water	10.92
Well ID	MW03	Depth to Bottom		Depth to Product		Depth to Water	12.73
Well ID	MW04	Depth to Bottom		Depth to Product		Depth to Water	13.45
Well ID	MW05	Depth to Bottom		Depth to Product		Depth to Water	7.67
Well ID	MW06	Depth to Bottom		Depth to Product		Depth to Water	10.15
Well ID	MW07	Depth to Bottom		Depth to Product		Depth to Water	6.94
Well ID	MW08	Depth to Bottom		Depth to Product		Depth to Water	10.24
Well ID	MW09	Depth to Bottom		Depth to Product		Depth to Water	11.89
Well ID	MW10	Depth to Bottom		Depth to Product		Depth to Water	11.07
Well ID	MW11	Depth to Bottom		Depth to Product		Depth to Water	4.73
Well ID	MW12	Depth to Bottom		Depth to Product		Depth to Water	8.74
Well ID	MW13	Depth to Bottom		Depth to Product		Depth to Water	12.21
Well ID	MW14	Depth to Bottom		Depth to Product		Depth to Water	12.67
Well ID	MW15	Depth to Bottom		Depth to Product		Depth to Water	11.73
Well ID	MW16	Depth to Bottom		Depth to Product		Depth to Water	12.11
Well ID	MW17	Depth to Bottom		Depth to Product		Depth to Water	8.73
Well ID	MW18	Depth to Bottom		Depth to Product		Depth to Water	8.44
Well ID	MW19	Depth to Bottom		Depth to Product	8.15	Depth to Water	8.17
Well ID	MW20	Depth to Bottom		Depth to Product		Depth to Water	8.20
Well ID	MW21	Depth to Bottom		Depth to Product		Depth to Water	8.02
Well ID	MW22	Depth to Bottom		Depth to Product		Depth to Water	7.93

Bailed approximately 2 oz. of product from MW-19



ENGINEERING AND ENVIRONMENT, INC.

M232 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	15:34	15:41	15:50	16:02	16:12		N/A
Temperature	17.31	17.18	17.40	17.44	17.47		°
Spec. Conductivity	104.0	115.4	109.0	91.0	87.1		(u s/m)
Dissolved Oxygen	1.73	1.55	1.68	1.89	2.20		ms/L
PH	3.59	3.52	3.22	2.76	2.67		STD
ORP	-26.7	-25.0	-22.0	-19.9	-19.6		(G/L)
Turbidity	166	146	1000	739	902		(NTU)

Analyte	Size	Preserv.
602	3 X 40 ml	HCl
625	1 X 1L	none
VPH	2 X 40 ml	HCl
Comments s:		

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.****M232 Field Data**

Project #LD04-004

Date **12/12/2005** Time **14:50** Weather **sunny, cool, 40's**Sampler **JT** Well/Sample # **USTM232- MW07**Depth To Bottom (ft) **17.5** Depth To Water (ft) **6.94** Water Depth (ft) **10.51**Well Vol. **1.72** Purge Vol. Vol. Purged Sampling Device (pump/Bailer)

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	14:35	14:40	14:45				N/A
Temperature	18.85	18.63	18.94				°C
Spec. Conductivity	1116.1	115.2	116.2				(u s/m)
Dissolved Oxygen	1.11	0.75	0.62				mg/L
PH	3.41	3.25	3.15				STD
ORP	-17.6	-18.1	-18.6				(G/L)
Turbidity	8.73	7.64	5.85				(NTU)

Analyte	Size	Preserv.
602	3 X 40 ml	HCl
625	1 X 1L	none
VPH	2 X 40 ml	HCl

Comments s: DUP

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.

M232 Field Data

Project #LD04-004

Date 12/12/2005 Time 13:45 Weather sunny, cool, 40's

Sampler JT Well/Sample # USTM232- MW18

Depth To Bottom (ft) 14.7 Depth To Water (ft) 8.44 Water Depth (ft) 6.26

Well Vol. 0.26 Purge Vol. 0.77 Vol. Purged 1.50

Sampling Device (pump/Bailer)

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	13:35	13:38	13:41				N/A
Temperature	18.92	19.07	19.15				°C
Spec. Conductivity	227.0	228.6	228.8				(u s/m)
Dissolved Oxygen	0.74	0.72	0.72				mg/L
PH	4.85	4.72	4.53				STD
ORP	-68.2	-69.5	-71.2				(G/L)
Turbidity	7.78	6.99	7.64				(NTU)

Analyte	Size	Preserv.
602	3 X 40 ml	HCl
625	1 X 1L	none
VPH	2 X 40 ml	HCl

Comments s:	

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.**

M232 field data

Project #LD04-004

Date **12/12/2005** Time **13:02** Weather **sunny, cool, 40's**

Sampler **JT** Well/Sample # **USTM232-MW20**

Depth To Bottom (ft) **14.7** Depth To Water (ft) **8.20** Water Depth (ft) **6.49**

Well Vol. **0.27** Purge Vol. **0.80** Vol. Purged **2.50**

Sampling Device (pump/Bailer)

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	12:49	12:53	16:48				N/A
Temperature	21.11	21.12	21.08				°C
Spec. Conductivity	84.9	85.0	84.7				(u s/m)
Dissolved Oxygen	0.65	0.61	0.61				mg/L
PH	3.88	3.91	3.91				STD
ORP	-106.2	-108.9	-107.5				(G/L)
Turbidity	9.49	5.35	4.61				(NTU)

Analyte	Size	Preserv.
602	3 X 40 ml	HCl
625	1 X 1L	none
VPH	2 X 40 ml	HCl

Comments s:

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.****M232 Field Data**

Project #LD04-004

Date **12/12/2005** Time **12:15** Weather **sunny, cool, 40's**Sampler **JT** Well/Sample # **USTM232- MW21**Depth To Bottom (ft) **14.5** Depth To Water (ft) **8.02** Water Depth (ft) **6.49**Well Vol. **0.27** Purge Vol. **0.80** Vol. Purged **1.50**

Sampling Device (pump/Bailer)

	ONE	TWO	THREE	FOUR	FIVE	SIX	UNIT
Time	12:06	12:09	12:12				N/A
Temperature	20.94	20.93	20.84				°C
Spec. Conductivity	75.4	74.5	72.9				(u s/m)
Dissolved Oxygen	2.88	1.81	1.30				ms/L
PH	4.26	4.36	4.48				STD
ORP	-125.2	-124.9	-124.6				(G/L)
Turbidity	9.38	6.53	4.80				(NTU)

Analyte	Size	Preserv.
602	3 X 40 ml	HCl
625	1 X 1L	none
VPH	2 X 40 ml	HCl

Comments s:	

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.

M232 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	11:20	11:23	11:26				N/A
Temperature	20.64	20.68	20.69				°C
Spec. Conductivity	116.8	100.1	78.3				(u s/m)
Dissolved Oxygen	0.87	1.03	1.17				ms/L
PH	5.50	5.29	5.01				STD
ORP	-41.4	-40.8	-41.5				(G/L)
Turbidity	50.3	14.6	8.16				(NTU)

Analyte	Size	Preserv.
602	3 X 40 ml	HCl
625	1 X 1L	none
VPH	2 X 40 ml	HCl

Comments s:	

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. M232-236 Water Levels

Date: 1/3/2006

Well ID	MW01	Depth to Bottom		Depth to Product		Depth to Water	6.99
Well ID	MW02	Depth to Bottom		Depth to Product		Depth to Water	10.03
Well ID	MW03	Depth to Bottom		Depth to Product		Depth to Water	12.54
Well ID	MW04	Depth to Bottom		Depth to Product		Depth to Water	10.85
Well ID	MW05	Depth to Bottom		Depth to Product		Depth to Water	5.08
Well ID	MW06	Depth to Bottom		Depth to Product		Depth to Water	9.23
Well ID	MW07	Depth to Bottom		Depth to Product		Depth to Water	9.34
Well ID	MW08	Depth to Bottom		Depth to Product		Depth to Water	5.23
Well ID	MW09	Depth to Bottom		Depth to Product		Depth to Water	11.09
Well ID	MW10	Depth to Bottom		Depth to Product		Depth to Water	9.90
Well ID	MW11	Depth to Bottom		Depth to Product		Depth to Water	NM
Well ID	MW12	Depth to Bottom		Depth to Product		Depth to Water	NM
Well ID	MW13	Depth to Bottom		Depth to Product		Depth to Water	11.83
Well ID	MW14	Depth to Bottom		Depth to Product		Depth to Water	10.92
Well ID	MW15	Depth to Bottom		Depth to Product		Depth to Water	10.71
Well ID	MW16	Depth to Bottom		Depth to Product		Depth to Water	11.02
Well ID	MW17	Depth to Bottom		Depth to Product		Depth to Water	5.09
Well ID	MW18	Depth to Bottom		Depth to Product		Depth to Water	7.61
Well ID	MW19	Depth to Bottom		Depth to Product		Depth to Water	7.33
Well ID	MW20	Depth to Bottom		Depth to Product		Depth to Water	7.29
Well ID	MW21	Depth to Bottom		Depth to Product		Depth to Water	6.19
Well ID	MW22	Depth to Bottom		Depth to Product		Depth to Water	6.39

NM: Not measured; well inaccessible due to deep standing water surrounding well

APPENDIX B

LABORATORY ANALYTICAL REPORTS

June 2005

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

Report Number: G546-37

Client Project: M232-M236

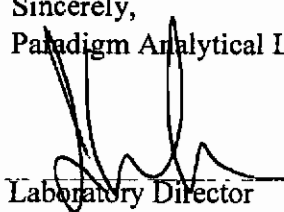
Dear Mr. Morris:

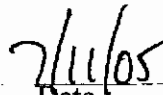
Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period 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: USTM232-MW05

Analyzed By: MJC

Client Project ID: M232-M236

Date Collected: 6/16/2005 13:30

Lab Sample ID: G546-37-1A

Date Received: 6/17/2005

Lab Project ID: G546-37

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/25/2005	
Ethylbenzene	BQL	1.00	0.299	1	6/25/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/25/2005	
Toluene	BQL	1.00	0.302	1	6/25/2005	
m/p-Xylene	BQL	2.00	0.608	1	6/25/2005	
o-Xylene	0.726	2.00	0.596	1	6/25/2005	J

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.7	102

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Results for Volatiles

by GC 602

Client Sample ID: USTM232-MW7

Client Project ID: M232-M236

Lab Sample ID: G546-37-2A

Lab Project ID: G546-37

Analyzed By: MJC

Date Collected: 6/16/2005 12:40

Date Received: 6/17/2005

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/25/2005	
Ethylbenzene	BQL	1.00	0.299	1	6/25/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/25/2005	
Toluene	BQL	1.00	0.302	1	6/25/2005	
m/p-Xylene	BQL	2.00	0.608	1	6/25/2005	
o-Xylene	BQL	2.00	0.596	1	6/25/2005	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.6	102

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Results for Volatiles

by GC 602

Client Sample ID: USTM232-MW20

Analyzed By: MJC

Client Project ID: M232-M236

Date Collected: 6/16/2005 11:25

Lab Sample ID: G546-37-3A

Date Received: 6/17/2005

Lab Project ID: G546-37

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/25/2005	
Ethylbenzene	BQL	1.00	0.299	1	6/25/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/25/2005	
Toluene	BQL	1.00	0.302	1	6/25/2005	
m/p-Xylene	BQL	2.00	0.608	1	6/25/2005	
o-Xylene	BQL	2.00	0.596	1	6/25/2005	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.2	100

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Results for Volatiles

by GC 602

Client Sample ID: USTM232-MW18

Analyzed By: MJC

Client Project ID: M232-M236

Date Collected: 6/16/2005 11:50

Lab Sample ID: G546-37-4A

Date Received: 6/17/2005

Lab Project ID: G546-37

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/25/2005	
Ethylbenzene	BQL	1.00	0.299	1	6/25/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/25/2005	
Toluene	BQL	1.00	0.302	1	6/25/2005	
m/p-Xylene	BQL	2.00	0.608	1	6/25/2005	
o-Xylene	BQL	2.00	0.596	1	6/25/2005	

Surrogate Spike Recoveries**Spike
Added****Spike
Result****Percent
Recovery**

Trifluorotoluene

40

41.0

103

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Results for Volatiles
by GC 602

Client Sample ID: USTM232-MW21

Analyzed By: MJC

Client Project ID: M232-M236

Date Collected: 6/16/2005 10:48

Lab Sample ID: G546-37-5A

Date Received: 6/17/2005

Lab Project ID: G546-37

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/25/2005	
Ethylbenzene	0.470	1.00	0.299	1	6/25/2005	J
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/25/2005	
Toluene	0.992	1.00	0.302	1	6/25/2005	J
m/p-Xylene	0.690	2.00	0.608	1	6/25/2005	J
o-Xylene	0.774	2.00	0.596	1	6/25/2005	J

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.7	102

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Results for Volatiles
by GC 602

Client Sample ID: USTM232-MW22

Analyzed By: MJC

Client Project ID: M232-M236

Date Collected: 6/16/2005 10:08

Lab Sample ID: G546-37-6A

Date Received: 6/17/2005

Lab Project ID: G546-37

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/25/2005	
Ethylbenzene	BQL	1.00	0.299	1	6/25/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/25/2005	
Toluene	0.465	1.00	0.302	1	6/25/2005	J
m/p-Xylene	BQL	2.00	0.608	1	6/25/2005	
o-Xylene	BQL	2.00	0.596	1	6/25/2005	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.6	102

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Results for Volatiles

by GC 602

Client Sample ID: USTM232-Dup

Analyzed By: MJC

Client Project ID: M232-M236

Date Collected: 6/16/2005 0:00

Lab Sample ID: G546-37-7A

Date Received: 6/17/2005

Lab Project ID: G546-37

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/25/2005	
Ethylbenzene	BQL	1.00	0.299	1	6/25/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/25/2005	
Toluene	BQL	1.00	0.302	1	6/25/2005	
m/p-Xylene	BQL	2.00	0.608	1	6/25/2005	
o-Xylene	BQL	2.00	0.598	1	6/25/2005	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.7	102

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Results for Volatiles

by GC 602

Client Sample ID: Trip Blank
Client Project ID: M232-M236
Lab Sample ID: G546-37-8A
Lab Project ID: G546-37

Analyzed By: MJC
Date Collected: 6/16/2005 0:00
Date Received: 6/17/2005
Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Diisopropyl ether (DIPE)	BQL	1.00	0.294	1	6/25/2005	
Ethylbenzene	BQL	1.00	0.299	1	6/25/2005	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.588	1	6/25/2005	
Toluene	0.370	1.00	0.302	1	6/25/2005	J
m/p-Xylene	BQL	2.00	0.608	1	6/25/2005	
o-Xylene	BQL	2.00	0.596	1	6/25/2005	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.4	101

Comments:

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

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Engineering & Environment, Inc.

Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-MW05
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/21/05
Date Analyzed	06/21/05
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: g546-37-1d

Reviewed By:

VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-MW7
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/21/05
Date Analyzed	06/21/05
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	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: g546-37-2d

Reviewed By: 

VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-MW20
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/21/05
Date Analyzed	06/21/05
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: g546-37-3d

Reviewed By: 

VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-MW18
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/21/05
Date Analyzed	06/21/05
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**	140 (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: g546-37-4d

Reviewed By: lw

VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-MW21
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/21/05
Date Analyzed	06/21/05
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	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: g546-37-5d

Reviewed By: 

VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-MW22
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/21/05
Date Analyzed	06/21/05
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	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: g546-37-6d

Reviewed By: *WA*

VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-Dup
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/21/05
Date Analyzed	06/21/05
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	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: g546-37-7d

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: 06/21/05

Calibration Check

Range	Levels (mg/Kg) (µg/L)	RPD
C ₅ -C ₈ Aliphatics	2000 200	14.8
C ₉ -C ₁₂ Aliphatics	500 50	-13.7
C ₉ -C ₁₀ Aromatics	500 50	-1.4

MDL = Method Detection Limit

ML = Minimum Limit

RL = Reportable Limit

RPD = Relative Percent Difference

%RSD = Percent Relative Standard Deviation

CCC = Correlation Coefficient of Curve

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-MW05
Sample Matrix	Water
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/28/05
Date Analyzed	06/29/05
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	81
Aromatic Surrogate % Recovery	79

Comments:

* = Excludes any surrogates or internal standards.

Sample did not require fractionation.

Lab info: G546-37-11

Reviewed By: hw

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-MW7
Sample Matrix	Water
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/28/05
Date Analyzed	06/29/05
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	86
Aromatic Surrogate % Recovery	85

Comments:

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

Lab info: G546-37-2I

Reviewed By: 

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

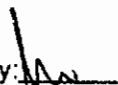
Client Name: Engineering & Environment, Inc.Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-MW20
Sample Matrix	Water
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/28/05
Date Analyzed	07/06/05
Dry Weight	
Dilution Factor	1:1
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	96
Aromatic Surrogate % Recovery	92
Fractionation Surrogate 1 % Recovery	51

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G546-37-3I

Reviewed By: 

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

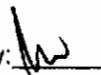
Client Name: Engineering & Environment, Inc.Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-MW18
Sample Matrix	Water
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/28/05
Date Analyzed	07/06/05
Dry Weight	
Dilution Factor	1:1
C ₈ -C ₁₈ Aliphatics*	< 100 (ug/L)
C ₁₉ -C ₃₆ Aliphatics*	< 100 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	290 (ug/L)
Aliphatic Surrogate % Recovery	98
Aromatic Surrogate % Recovery	92
Fractionation Surrogate 1 % Recovery	51

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G546-37-4I

Reviewed By: 

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-MW21
Sample Matrix	Water
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/28/05
Date Analyzed	07/06/05
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*	160 (ug/L)
Aliphatic Surrogate % Recovery	94
Aromatic Surrogate % Recovery	85
Fractionation Surrogate 1 % Recovery	51

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G546-37-5I

Reviewed By: 

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-MW22
Sample Matrix	Water
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/28/05
Date Analyzed	07/06/05
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*	< 100 (ug/L)
Aliphatic Surrogate % Recovery	98
Aromatic Surrogate % Recovery	89
Fractionation Surrogate 1 % Recovery	50

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G546-37-6I

Reviewed By: 

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

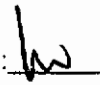
Client Name: Engineering & Environment, Inc.Project Name: M232-M236

Sample Information and Analytical Results	
Sample Identification	USTM232-Dup
Sample Matrix	Water
Date Collected	06/16/05
Date Received	06/17/05
Date Extracted	06/28/05
Date Analyzed	07/01/05
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	85

Comments:

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

Lab info: G546-37-71

Reviewed By: 

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 07/05/05

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 ₃₆ Aliphatics	0.57	1.8	100 10
C ₁₁ -C ₂₂ Aromatics	4.54	14.4	100 10

Calibration Concentration Levels

Range	Levels (µg/mL)	%RSD or CCC	Method of Quantitation
C ₉ -C ₁₈ Aliphatics	6	16.80	Calibration Factor
	30		
	60		
	120		
	240		
C ₁₉ -C ₃₆ Aliphatics	8	9.4	Calibration Factor
	40		
	80		
	160		
	320		
C ₁₁ -C ₂₂ Aromatics	17	16.4	Calibration Factor
	85		
	170		
	340		
	680		

Calibration Check Date: 07/06/05

Calibration Check

Range	Levels (µg/mL)	RPD
C ₉ -C ₁₈ Aliphatics	120	21.8
C ₁₉ -C ₃₆ Aliphatics	160	-16.2
C ₁₁ -C ₂₂ Aromatics	340	-5.5

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) (µg/L)	ML (µg/L)	RL (µg/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 (µg/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 (µg/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

Results for Semivolatiles by GCMS 625

Client Sample ID: USTM232-MW05
Client Project ID: M232-M236
Lab Sample ID: G546-37-1H
Lab Project ID: G546-37

Analyzed By: MRC
Date Collected: 6/16/2005 13:30
Date Received: 6/17/2005
Date Extracted: 6/24/2005
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	6/27/2005	
Acenaphthylene	BQL	10.0	1.12	1	6/27/2005	
Anthracene	BQL	10.0	1.75	1	6/27/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/27/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/27/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/27/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/27/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/27/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/27/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/27/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/27/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	6/27/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/27/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/27/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/27/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/27/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/27/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/27/2005	
Chrysene	BQL	10.0	1.11	1	6/27/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.67	1	6/27/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/27/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/27/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/27/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/27/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/27/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/27/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/27/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/27/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/27/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/27/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/27/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/27/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/27/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/27/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/27/2005	
Fluoranthene	BQL	10.0	1.41	1	6/27/2005	
Fluorene	BQL	10.0	1.22	1	6/27/2005	
Hexachlorobenzene	BQL	10.0	1.22	1	6/27/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/27/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/27/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/27/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/27/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTM232-MW05
 Client Project ID: M232-M236
 Lab Sample ID: G546-37-1H
 Lab Project ID: G546-37

Analyzed By: MRC
 Date Collected: 6/16/2005 13:30
 Date Received: 6/17/2005
 Date Extracted: 6/24/2005
 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	6/27/2005	
Naphthalene	BQL	10.0	1.08	1	6/27/2005	
Nitrobenzene	BQL	10.0	1.32	1	6/27/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/27/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/27/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/27/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/27/2005	
Phenanthrene	BQL	10.0	1.38	1	6/27/2005	
Phenol	BQL	10.0	3.38	1	6/27/2005	
Pyrene	BQL	10.0	2.08	1	6/27/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/27/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/27/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.4	94
2-Fluorophenol	10	9.6	96
Nitrobenzene-d5	10	9.5	95
Phenol-d6	10	9.3	93
2,4,6-Tribromophenol	10	8.4	84
4-Terphenyl-d14	10	12.3	123

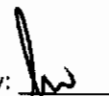
Comments:

* 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: USTM232-MW05
Client Project ID: M232-M236
Lab Sample ID: G546-37-1H
Lab Project ID: G546-37
Sample Wt/Vol: 500 ML
Dilution: 1

Analyzed By: MRC
Date Collected: 6/16/2005 13:30
Date Received: 6/17/2005
Date Extracted: 6/24/2005
Date Analyzed: 6/27/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Know Solvent peak (added by lab)	3.23			138
2	Know Compound peak (added by lab)	11.16			136
3	Unknown	5.51			12.7
4	Unknown	4.39			6.83
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: hw

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTM232-MW7
 Client Project ID: M232-M236
 Lab Sample ID: G546-37-2H
 Lab Project ID: G546-37

Analyzed By: MRC
 Date Collected: 6/16/2005 12:40
 Date Received: 6/17/2005
 Date Extracted: 6/24/2005
 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	6/25/2005	
Acenaphthylene	BQL	10.0	1.12	1	6/25/2005	
Anthracene	BQL	10.0	1.75	1	6/25/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/25/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/25/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/25/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/25/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/25/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/25/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/25/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/25/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	6/25/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/25/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/25/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/25/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/25/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/25/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/25/2005	
Chrysene	BQL	10.0	1.11	1	6/25/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	6/25/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/25/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/25/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/25/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/25/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/25/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/25/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/25/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/25/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/25/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/25/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/25/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/25/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/25/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/25/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/25/2005	
Fluoranthene	BQL	10.0	1.41	1	6/25/2005	
Fluorene	BQL	10.0	1.22	1	6/25/2005	
Hexachlorobenzene	BQL	10.0	1.22	1	6/25/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/25/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/25/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/25/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/25/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTM232-MW7
 Client Project ID: M232-M236
 Lab Sample ID: G546-37-2H
 Lab Project ID: G546-37

Analyzed By: MRC
 Date Collected: 6/16/2005 12:40
 Date Received: 6/17/2005
 Date Extracted: 6/24/2005
 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	6/25/2005	
Naphthalene	BQL	10.0	1.08	1	6/25/2005	
Nitrobenzene	BQL	10.0	1.32	1	6/25/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/25/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/25/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/25/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/25/2005	
Phenanthrene	BQL	10.0	1.38	1	6/25/2005	
Phenol	BQL	10.0	3.38	1	6/25/2005	
Pyrene	BQL	10.0	2.08	1	6/25/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/25/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/25/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.2	72
2-Fluorophenol	10	6.5	65
Nitrobenzene-d5	10	6.8	68
Phenol-d6	10	7.4	74
2,4,6-Tribromophenol	10	7.6	76
4-Terphenyl-d14	10	11.3	113

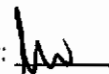
Comments:

* 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: USTM232-MW7

Client Project ID: M232-M236

Lab Sample ID: G546-37-2H

Lab Project ID: G546-37

Sample Wt/Vol: 500 ML

Dilution: 1

Analyzed By: MRC

Date Collected: 6/16/2005 12:40

Date Received: 6/17/2005

Date Extracted: 6/24/2005

Date Analyzed: 6/25/2005

Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Know Solvent peak (added by lab)	11.17			135
2	Know Compound peak (added by lab)	3.22			81.5
3	Unknown	5.51			4.12
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: hw

Results for Semivolatiles by GCMS 625

Client Sample ID: USTM232-MW20

Client Project ID: M232-M236

Lab Sample ID: G546-37-3H

Lab Project ID: G546-37

Analyzed By: MRC

Date Collected: 6/16/2005 11:25

Date Received: 6/17/2005

Date Extracted: 6/24/2005

Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	1.70	10.0	1.22	1	6/25/2005	J
Acenaphthylene	BQL	10.0	1.12	1	6/25/2005	
Anthracene	BQL	10.0	1.75	1	6/25/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/25/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/25/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/25/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/25/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/25/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/25/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/25/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/25/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	6/25/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/25/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/25/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/25/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/25/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/25/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/25/2005	
Chrysene	BQL	10.0	1.11	1	6/25/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	6/25/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/25/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/25/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/25/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/25/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/25/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/25/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/25/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/25/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/25/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/25/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/25/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/25/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/25/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/25/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/25/2005	
Fluoranthene	BQL	10.0	1.41	1	6/25/2005	
Fluorene	1.80	10.0	1.22	1	6/25/2005	J
Hexachlorobenzene	BQL	10.0	1.22	1	6/25/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/25/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/25/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/25/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/25/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTM232-MW20
 Client Project ID: M232-M236
 Lab Sample ID: G546-37-3H
 Lab Project ID: G546-37

Analyzed By: MRC
 Date Collected: 6/16/2005 11:25
 Date Received: 6/17/2005
 Date Extracted: 6/24/2005
 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	6/25/2005	
Naphthalene	BQL	10.0	1.08	1	6/25/2005	
Nitrobenzene	BQL	10.0	1.32	1	6/25/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/25/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/25/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/25/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/25/2005	
Phenanthrene	BQL	10.0	1.38	1	6/25/2005	
Phenol	BQL	10.0	3.38	1	6/25/2005	
Pyrene	BQL	10.0	2.08	1	6/25/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/25/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/25/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.6	86
2-Fluorophenol	10	9	90
Nitrobenzene-d5	10	9	90
Phenol-d6	10	9	90
2,4,6-Tribromophenol	10	8.4	84
4-Terphenyl-d14	10	11.6	116

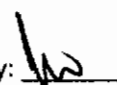
Comments:

* 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: USTM232-MW20
Client Project ID: M232-M236
Lab Sample ID: G546-37-3H
Lab Project ID: G546-37
Sample Wt/Vol: 500 ML
Dilution: 1

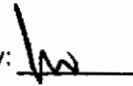
Analyzed By: MRC
Date Collected: 6/16/2005 11:25
Date Received: 6/17/2005
Date Extracted: 6/24/2005
Date Analyzed: 6/25/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Know Solvent peak (added by lab)	11.17			135
2	Know Compound peak (added by lab)	3.23			125
3	Unknown	5.51			7.12
4	Unknown	4.39			5.05
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: USTM232-MW18
Client Project ID: M232-M236
Lab Sample ID: G546-37-4H
Lab Project ID: G546-37

Analyzed By: MRC
Date Collected: 6/16/2005 11:50
Date Received: 6/17/2005
Date Extracted: 6/24/2005
Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	8.40	10.0	1.22	1	6/25/2005	J
Acenaphthylene	BQL	10.0	1.12	1	6/25/2005	
Anthracene	BQL	10.0	1.75	1	6/25/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/25/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/25/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/25/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/25/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/25/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/25/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/25/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/25/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	6/25/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/25/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/25/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/25/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/25/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/25/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/25/2005	
Chrysene	BQL	10.0	1.11	1	6/25/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	6/25/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/25/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/25/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/25/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/25/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/25/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/25/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/25/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/25/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/25/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/25/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/25/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/25/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/25/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/25/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/25/2005	
Fluoranthene	BQL	10.0	1.41	1	6/25/2005	
Fluorene	9.70	10.0	1.22	1	6/25/2005	J
Hexachlorobenzene	BQL	10.0	1.22	1	6/25/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/25/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/25/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/25/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/25/2005	

Results for Semivolatiles by GCMS 625

Client Sample ID: USTM232-MW18
Client Project ID: M232-M236
Lab Sample ID: G546-37-4H
Lab Project ID: G546-37

Analyzed By: MRC
Date Collected: 6/16/2005 11:50
Date Received: 6/17/2005
Date Extracted: 6/24/2005
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	6/25/2005	
Naphthalene	2.20	10.0	1.08	1	6/25/2005	J
Nitrobenzene	BQL	10.0	1.32	1	6/25/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/25/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/25/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/25/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/25/2005	
Phenanthrene	8.90	10.0	1.38	1	6/25/2005	J
Phenol	BQL	10.0	3.38	1	6/25/2005	
Pyrene	BQL	10.0	2.08	1	6/25/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/25/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/25/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.1	81
2-Fluorophenol	10	8.7	87
Nitrobenzene-d5	10	9.2	92
Phenol-d6	10	8.9	89
2,4,6-Tribromophenol	10	8.7	87
4-Terphenyl-d14	10	11.9	119

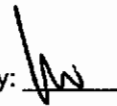
Comments:

* 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: USTM232-MW18
Client Project ID: M232-M236
Lab Sample ID: G546-37-4H
Lab Project ID: G546-37
Sample Wt/Vol: 500 ML
Dilution: 1

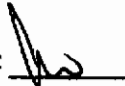
Analyzed By: MRC
Date Collected: 6/16/2005 11:50
Date Received: 6/17/2005
Date Extracted: 6/24/2005
Date Analyzed: 6/25/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Know Solvent peak (added by lab)	11.17			116
2	Know Compound peak (added by lab)	3.23			108
3	Aromatic, Unknown	6.59			37.4
4	Aromatic, Unknown	7.85			23.4
5	Tetrahydromethylnaphthalene, Isomer of	9.28			17.4
6	Aromatic, Unknown	8.34			13.1
7	Aromatic, Unknown	10.11			10.5
8	Diethylbenzene, Isomer of	6.72			9.31
9	Unknown	11.97			8.58
10	Tetrahydromethylnaphthalene, Isomer of	8.56			6.82

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: USTM232-MW21

Client Project ID: M232-M236

Lab Sample ID: G546-37-5H

Lab Project ID: G546-37

Analyzed By: MRC

Date Collected: 6/16/2005 10:48

Date Received: 6/17/2005

Date Extracted: 6/24/2005

Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	5.00	10.0	1.22	1	6/25/2005	J
Acenaphthylene	1.20	10.0	1.12	1	6/25/2005	J
Anthracene	BQL	10.0	1.75	1	6/25/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/25/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/25/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/25/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/25/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/25/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/25/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/25/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/25/2005	
Bis(2-ethylhexyl)phthalate	4.90	10.0	1.33	1	6/25/2005	J
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/25/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/25/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/25/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/25/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/25/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/25/2005	
Chrysene	BQL	10.0	1.11	1	6/25/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	6/25/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/25/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/25/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/25/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/25/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/25/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/25/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/25/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/25/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/25/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/25/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/25/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/25/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/25/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/25/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/25/2005	
Fluoranthene	BQL	10.0	1.41	1	6/25/2005	
Fluorene	6.30	10.0	1.22	1	6/25/2005	J
Hexachlorobenzene	BQL	10.0	1.22	1	6/25/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/25/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/25/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/25/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/25/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTM232-MW21

Client Project ID: M232-M236

Lab Sample ID: G546-37-5H

Lab Project ID: G546-37

Analyzed By: MRC

Date Collected: 6/16/2005 10:48

Date Received: 6/17/2005

Date Extracted: 6/24/2005

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	6/25/2005	
Naphthalene	6.70	10.0	1.08	1	6/25/2005	J
Nitrobenzene	BQL	10.0	1.32	1	6/25/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/25/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/25/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/25/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/25/2005	
Phenanthrene	5.20	10.0	1.38	1	6/25/2005	J
Phenol	BQL	10.0	3.38	1	6/25/2005	
Pyrene	BQL	10.0	2.08	1	6/25/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/25/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/25/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.5	85
2-Fluorophenol	10	9.1	91
Nitrobenzene-d5	10	9.3	93
Phenol-d6	10	9	90
2,4,6-Tribromophenol	10	8.9	89
4-Terphenyl-d14	10	11.2	112

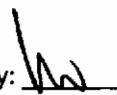
Comments:

* 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: USTM232-MW21
Client Project ID: M232-M236
Lab Sample ID: G546-37-5H
Lab Project ID: G546-37
Sample Wt/Vol: 500 ML
Dilution: 1

Analyzed By: MRC
Date Collected: 6/16/2005 10:48
Date Received: 6/17/2005
Date Extracted: 6/24/2005
Date Analyzed: 6/25/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Know Solvent peak (added by lab)	11.17			135
2	Know Compound peak (added by lab)	3.23			125
3	Dimethylnaphthalene, Isomer of	10.48			39.8
4	Dimethylnaphthalene, Isomer of	10.52			23.4
5	Dimethylnaphthalene, Isomer of	10.66			21
6	Dimethylnaphthalene, Isomer of	10.35			14.7
7	Tetramethylbenzene, Isomer of	7.87			14.4
8	Alkane, Unknown	12.64			13.3
9	Ethylnaphthalene, Isomer of	10.25			12.1
10	Aromatic, Unknown	8.34			11.6

Comment:

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

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

Reviewed by: 

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTM232-MW22
Client Project ID: M232-M236
Lab Sample ID: G546-37-6H
Lab Project ID: G546-37

Analyzed By: MRC
Date Collected: 6/16/2005 10:08
Date Received: 6/17/2005
Date Extracted: 6/24/2005
Matrix: Water

Compound	Result ug/L	Quantitation Limit ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	1.30	10.0	1.22	1	6/25/2005	J
Acenaphthylene	BQL	10.0	1.12	1	6/25/2005	
Anthracene	BQL	10.0	1.75	1	6/25/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/25/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/25/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/25/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/25/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/25/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/25/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/25/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/25/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	6/25/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/25/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/25/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/25/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/25/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/25/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/25/2005	
Chrysene	BQL	10.0	1.11	1	6/25/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	6/25/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/25/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/25/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/25/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/25/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/25/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/25/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/25/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/25/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/25/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/25/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/25/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/25/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/25/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/25/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/25/2005	
Fluoranthene	BQL	10.0	1.41	1	6/25/2005	
Fluorene	1.40	10.0	1.22	1	6/25/2005	J
Hexachlorobenzene	BQL	10.0	1.22	1	6/25/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/25/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/25/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/25/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/25/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTM232-MW22
 Client Project ID: M232-M236
 Lab Sample ID: G546-37-6H
 Lab Project ID: G546-37

Analyzed By: MRC
 Date Collected: 6/16/2005 10:08
 Date Received: 6/17/2005
 Date Extracted: 6/24/2005
 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	6/25/2005	
Naphthalene	2.60	10.0	1.08	1	6/25/2005	J
Nitrobenzene	BQL	10.0	1.32	1	6/25/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/25/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/25/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/25/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/25/2005	
Phenanthrene	BQL	10.0	1.38	1	6/25/2005	
Phenol	BQL	10.0	3.38	1	6/25/2005	
Pyrene	BQL	10.0	2.08	1	6/25/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/25/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/25/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.5	85
2-Fluorophenol	10	8.3	83
Nitrobenzene-d5	10	8.5	85
Phenol-d6	10	8.9	88
2,4,6-Tribromophenol	10	8.2	82
4-Terphenyl-d14	10	11.7	117

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: USTM232-MW22
Client Project ID: M232-M236
Lab Sample ID: G546-37-6H
Lab Project ID: G546-37
Sample Wt/Vol: 500 ML
Dilution: 1

Analyzed By: MRC
Date Collected: 6/16/2005 10:08
Date Received: 6/17/2005
Date Extracted: 6/24/2005
Date Analyzed: 6/25/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Know Solvent peak (added by lab)	11.17			147
2	Know Compound peak (added by lab)	3.23			116
3	Dimethylnaphthalene, Isomer of	10.47			7.76
4	Dimethylnaphthalene, Isomer of	10.37			4.44
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: USTM232-Dup
Client Project ID: M232-M236
Lab Sample ID: G546-37-7H
Lab Project ID: G546-37

Analyzed By: MRC
Date Collected: 6/16/2005 0:00
Date Received: 6/17/2005
Date Extracted: 6/24/2005
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	6/25/2005	
Acenaphthylene	BQL	10.0	1.12	1	6/25/2005	
Anthracene	BQL	10.0	1.75	1	6/25/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/25/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/25/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/25/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/25/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/25/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/25/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/25/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/25/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	6/25/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/25/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/25/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/25/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/25/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/25/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/25/2005	
Chrysene	BQL	10.0	1.11	1	6/25/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	6/25/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/25/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/25/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/25/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/25/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/25/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/25/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/25/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/25/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/25/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/25/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/25/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/25/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/25/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/25/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/25/2005	
Fluoranthene	BQL	10.0	1.41	1	6/25/2005	
Fluorene	BQL	10.0	1.22	1	6/25/2005	
Hexachlorobenzene	BQL	10.0	1.22	1	6/25/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/25/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/25/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/25/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/25/2005	

Results for Semivolatiles by GCMS 625

Client Sample ID: USTM232-Dup
 Client Project ID: M232-M236
 Lab Sample ID: G546-37-7H
 Lab Project ID: G546-37

Analyzed By: MRC
 Date Collected: 6/16/2005 0:00
 Date Received: 6/17/2005
 Date Extracted: 6/24/2005
 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	6/25/2005	
Naphthalene	BQL	10.0	1.08	1	6/25/2005	
Nitrobenzene	BQL	10.0	1.32	1	6/25/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/25/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/25/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/25/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/25/2005	
Phenanthrene	BQL	10.0	1.38	1	6/25/2005	
Phenol	BQL	10.0	3.38	1	6/25/2005	
Pyrene	BQL	10.0	2.08	1	6/25/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/25/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/25/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.2	92
2-Fluorophenol	10	9.7	97
Nitrobenzene-d5	10	9.3	93
Phenol-d6	10	9.6	96
2,4,6-Tribromophenol	10	8.7	87
4-Terphenyl-d14	10	12.1	121

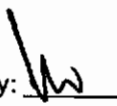
Comments:

* 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: USTM232-Dup
Client Project ID: M232-M236
Lab Sample ID: G546-37-7H
Lab Project ID: G546-37
Sample Wt/Vol: 500 ML
Dilution: 1

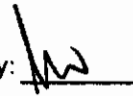
Analyzed By: MRC
Date Collected: 6/16/2005 0:00
Date Received: 6/17/2005
Date Extracted: 6/24/2005
Date Analyzed: 6/25/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Know Solvent peak (added by lab)	11.17			142
2	Know Compound peak (added by lab)	3.22			111
3	Unknown	5.51			14.7
4	Unknown	4.39			5.78
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: PB3113
Lab Project ID:

Analyzed By: MRC
Date Collected:
Date Received:
Date Extracted: 6/24/2005
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	6/27/2005	
Acenaphthylene	BQL	10.0	1.12	1	6/27/2005	
Anthracene	BQL	10.0	1.75	1	6/27/2005	
Benzo[a]anthracene	BQL	10.0	1.36	1	6/27/2005	
Benzo[a]pyrene	BQL	10.0	1.27	1	6/27/2005	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	6/27/2005	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	6/27/2005	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	6/27/2005	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	6/27/2005	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	6/27/2005	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	6/27/2005	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	6/27/2005	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	6/27/2005	
Butylbenzylphthalate	BQL	10.0	1.53	1	6/27/2005	
2-Chloronaphthalene	BQL	10.0	1.25	1	6/27/2005	
2-Chlorophenol	BQL	10.0	4.22	1	6/27/2005	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	6/27/2005	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	6/27/2005	
Chrysene	BQL	10.0	1.11	1	6/27/2005	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	6/27/2005	
Di-n-Butylphthalate	BQL	10.0	1.65	1	6/27/2005	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	6/27/2005	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	6/27/2005	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	6/27/2005	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	6/27/2005	
2,4-Dichlorophenol	BQL	10.0	3.75	1	6/27/2005	
Diethylphthalate	BQL	10.0	1.48	1	6/27/2005	
Dimethylphthalate	BQL	10.0	1.04	1	6/27/2005	
2,4-Dimethylphenol	BQL	10.0	9.25	1	6/27/2005	
Di-n-octylphthalate	BQL	10.0	1.16	1	6/27/2005	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	6/27/2005	
2,4-Dinitrophenol	BQL	50.0	4.20	1	6/27/2005	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	6/27/2005	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	6/27/2005	
Diphenylamine *	BQL	10.0	1.53	1	6/27/2005	
Fluoranthene	BQL	10.0	1.41	1	6/27/2005	
Fluorene	BQL	10.0	1.22	1	6/27/2005	
Hexachlorobenzene	BQL	10.0	1.22	1	6/27/2005	
Hexachlorobutadiene	BQL	10.0	1.58	1	6/27/2005	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	6/27/2005	
Hexachloroethane	BQL	10.0	1.58	1	6/27/2005	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	6/27/2005	

**Results for Semivolatiles
by GCMS 625**

Client Sample ID: Method Blank
 Client Project ID:
 Lab Sample ID: PB3113
 Lab Project ID:

Analyzed By: MRC
 Date Collected:
 Date Received:
 Date Extracted: 6/24/2005
 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	6/27/2005	
Naphthalene	BQL	10.0	1.08	1	6/27/2005	
Nitrobenzene	BQL	10.0	1.32	1	6/27/2005	
2-Nitrophenol	BQL	10.0	3.52	1	6/27/2005	
4-Nitrophenol	BQL	50.0	3.17	1	6/27/2005	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	6/27/2005	
Pentachlorophenol	BQL	50.0	2.83	1	6/27/2005	
Phenanthrene	BQL	10.0	1.38	1	6/27/2005	
Phenol	BQL	10.0	3.38	1	6/27/2005	
Pyrene	BQL	10.0	2.08	1	6/27/2005	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	6/27/2005	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	6/27/2005	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9	90
2-Fluorophenol	10	8.9	89
Nitrobenzene-d5	10	8.8	88
Phenol-d6	10	8.8	88
2,4,6-Tribromophenol	10	8.1	81
4-Terphenyl-d14	10	11.7	117

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:
Lab Sample ID: PB3113
Lab Project ID:
Sample Wt/Vol: 500 ML
Dilution: 1

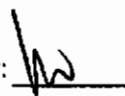
Analyzed By: MRC
Date Collected:
Date Received:
Date Extracted: 6/24/2005
Date Analyzed: 6/27/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Know Solvent peak (added by lab)	11.17			142
2	Know Compound peak (added by lab)	3.23			111
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-3113-MS/MSD/LCS

Date Extracted: 06/24/05

Lab Project ID:

Date Analyzed: 06/25/05

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	236	106	222	216	97.2	8.76	30	62.0-119
4-Chloro-3-methylphenol	BQL	222	204	91.7	222	183	82.3	10.8	30	67.0-98.0
2-Chlorophenol	BQL	222	187	84.1	222	166	74.6	12.0	30	53.0-111
1,4-Dichlorobenzene	BQL	222	165	74.2	222	138	62.2	17.6	30	29.0-86.0
2,4-Dinitrotoluene	BQL	222	230	104*	222	210	94.4	9.39	30	63.0-103
N-Nitrosodi-n-propylamine	BQL	222	237	106	222	214	96.2	10.2	30	67.0-107
4-Nitrophenol	BQL	222	226	102	222	198	88.9	13.2	30	49.0-146
Pentachlorophenol	BQL	222	202	90.8	222	177	79.7	13.0	30	43.0-106
Phenol	BQL	222	190	85.3	222	171	76.8	10.5	30	61.0-100
Pyrene	BQL	222	236	106	222	215	96.9	9.25	30	41.0-123
1,2,4-Trichlorobenzene	BQL	222	201	90.3	222	174	78.2	14.4	30	41.0-96.0

	Spiked Amount (µg/L)	LCS Conc. (µg/L)	LCS Spike %	QC Limits % Rec.
Acenaphthylene	100	106	106	66.1-116
4-Chloro-3-methylphenol	100	88.0	88.0	64.3-97.6
2-Chlorophenol	100	83.3	83.3	56.9-93.4
1,4-Dichlorobenzene	100	56.3	56.3	20.6-82.8
2,4-Dinitrotoluene	100	102	102*	63.7-101
N-Nitrosodi-n-propylamine	100	105	105	62.6-108
4-Nitrophenol	100	70.1	70.1	53.7-125
Pentachlorophenol	100	73.3	73.3	37.0-102
Phenol	100	84.4	84.4	57.4-99.5
Pyrene	100	105	105	44.1-124
1,2,4-Trichlorobenzene	100	81.1	81.1	37.6-97.9

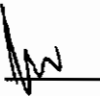
Comments:

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.



December 2005



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

Report Number: G546-67

Client Project: USTM232

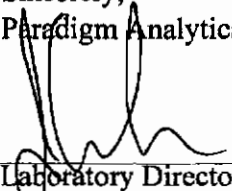
Dear Mr. Morris:

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: USTM232-22

Client Project ID: USTM232

Lab Sample ID: G546-67-1A

Lab Project ID: G546-67

Analyzed By: MJC

Date Collected: 12/12/05 11:29

Date Received: 12/14/05

Matrix: Water

Analyte	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.00	1	12/19/05
Diisopropyl ether (DIPE)	BQL	1.00	1	12/19/05
Ethylbenzene	BQL	1.00	1	12/19/05
Methyl-tert butyl ether (MTBE)	BQL	2.00	1	12/19/05
Toluene	1.20	1.00	1	12/19/05
m/p-Xylene	BQL	2.00	1	12/19/05
o-Xylene	BQL	2.00	1	12/19/05

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.5	101

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Results for Volatiles

by GC 602

Client Sample ID: USTM230-21

Analyzed By: MJC

Client Project ID: USTM232

Date Collected: 12/12/05 12:15

Lab Sample ID: G546-67-2A

Date Received: 12/14/05

Lab Project ID: G546-67

Matrix: Water

Analyte	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.00	1	12/19/05
Diisopropyl ether (DIPE)	BQL	1.00	1	12/19/05
Ethylbenzene	1.62	1.00	1	12/19/05
Methyl-tert butyl ether (MTBE)	BQL	2.00	1	12/19/05
Toluene	1.64	1.00	1	12/19/05
m/p-Xylene	BQL	2.00	1	12/19/05
o-Xylene	BQL	2.00	1	12/19/05

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.2	101

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Results for Volatiles

by GC 602

Client Sample ID: USTM230-20

Analyzed By: MJC

Client Project ID: USTM232

Date Collected: 12/12/05 13:02

Lab Sample ID: G546-67-3A

Date Received: 12/14/05

Lab Project ID: G546-67

Matrix: Water

Analyte	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.00	1	12/19/05
Diisopropyl ether (DIPE)	BQL	1.00	1	12/19/05
Ethylbenzene	BQL	1.00	1	12/19/05
Methyl-tert butyl ether (MTBE)	BQL	2.00	1	12/19/05
Toluene	1.01	1.00	1	12/19/05
m/p-Xylene	BQL	2.00	1	12/19/05
o-Xylene	BQL	2.00	1	12/19/05

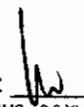
Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.5	101

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Reviewed By: 
GC_LIMS_V2.0.XLS

Results for Volatiles

by GC 602

Client Sample ID: USTM230-18

Analyzed By: MJC

Client Project ID: USTM232

Date Collected: 12/12/05 13:45

Lab Sample ID: G546-67-4A

Date Received: 12/14/05

Lab Project ID: G546-67

Matrix: Water

Analyte	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.00	1	12/19/05
Diisopropyl ether (DIPE)	BQL	1.00	1	12/19/05
Ethylbenzene	BQL	1.00	1	12/19/05
Methyl-tert butyl ether (MTBE)	BQL	2.00	1	12/19/05
Toluene	1.43	1.00	1	12/19/05
m/p-Xylene	BQL	2.00	1	12/19/05
o-Xylene	BQL	2.00	1	12/19/05

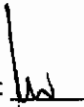
Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.1	100

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: USTM232-7

Analyzed By: MJC

Client Project ID: USTM232

Date Collected: 12/12/05 14:50

Lab Sample ID: G546-67-5A

Date Received: 12/14/05

Lab Project ID: G546-67

Matrix: Water

Analyte	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.00	1	12/19/05
Diisopropyl ether (DIPE)	BQL	1.00	1	12/19/05
Ethylbenzene	BQL	1.00	1	12/19/05
Methyl-tert butyl ether (MTBE)	BQL	2.00	1	12/19/05
Toluene	BQL	1.00	1	12/19/05
m/p-Xylene	BQL	2.00	1	12/19/05
o-Xylene	BQL	2.00	1	12/19/05

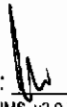
Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.3	101

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: USTM232-5

Analyzed By: MJC

Client Project ID: USTM232

Date Collected: 12/12/05 16:15

Lab Sample ID: G546-67-6A

Date Received: 12/14/05

Lab Project ID: G546-67

Matrix: Water

Analyte	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.00	1	12/19/05
Diisopropyl ether (DIPE)	BQL	1.00	1	12/19/05
Ethylbenzene	BQL	1.00	1	12/19/05
Methyl-tert butyl ether (MTBE)	BQL	2.00	1	12/19/05
Toluene	1.13	1.00	1	12/19/05
m/p-Xylene	BQL	2.00	1	12/19/05
o-Xylene	BQL	2.00	1	12/19/05

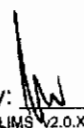
Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.3	101

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: USTM232-7DUP

Analyzed By: MJC

Client Project ID: USTM232

Date Collected: 12/12/05 14:50

Lab Sample ID: G546-67-7A

Date Received: 12/14/05

Lab Project ID: G546-67

Matrix: Water

Analyte	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.00	1	12/19/05
Diisopropyl ether (DIPE)	BQL	1.00	1	12/19/05
Ethylbenzene	BQL	1.00	1	12/19/05
Methyl-tert butyl ether (MTBE)	BQL	2.00	1	12/19/05
Toluene	BQL	1.00	1	12/19/05
m/p-Xylene	BQL	2.00	1	12/19/05
o-Xylene	BQL	2.00	1	12/19/05

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.3	101

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: VBLK3121905A

Date Received:

Lab Project ID:

Matrix: Water

Analyte	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.00	1	12/19/05
Diisopropyl ether (DIPE)	BQL	1.00	1	12/19/05
Ethylbenzene	BQL	1.00	1	12/19/05
Methyl-tert butyl ether (MTBE)	BQL	2.00	1	12/19/05
Toluene	BQL	1.00	1	12/19/05
m/p-Xylene	BQL	2.00	1	12/19/05
o-Xylene	BQL	2.00	1	12/19/05

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.6	102

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Reviewed By: 

GC_LIMS_v2.0.XLS

Control Limits for QC Check / Laboratory Control Spike

Method: 602 Spike[ppb]: 10
 Instrument : gc3
 Filename : 121905\004r0101.txt

Compound	ppb	Q(%)	QC Limits		P _s (%)	LCS Limits	
			Lower	Upper		Lower	Upper
Benzene	10.0	99.9	77.0	123.0	100	39	150
Chlorobenzene	9.6	96.0	80.5	119.5	96	66	136
1,2-Dichlorobenzene	9.6	96.2	88.0	132.0	96	37	164
1,3-Dichlorobenzene	9.6	94.7	72.5	127.5	95	60	141
1,4-Dichlorobenzene	9.7	96.5	89.5	130.5	97	42	143
• Diisopropyl ether	9.6	96.3	43.1	156.9	96	30	170
Ethylbenzene	9.9	99.4	63.0	137.0	99	32	160
• MTBE	9.9	98.7	46.8	153.2	99	35	166
Toluene	9.8	98.4	77.5	127.0	98	46	148
• m,p-Xylene	19.9	99.4	11.2	188.8	99	D	239
• o-Xylene	9.7	97.0	47.6	152.4	97	36	164

Flags :

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

Reviewed by: 

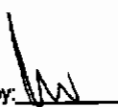
Control Limits for MS-MSD

Method: 602 Spike[ppb]: 10
 Instrument: gc3
 Sample: 121905\019r0101.txt
 MS: 121905\020r0101.txt
 MSD: 121905\021r0101.txt

Compound	$\mu\text{g/L}$			P(%)		P Limits	
	Sam.	MS	MSD	MS	MSD	Lower	Upper
Benzene	ND	10.6	10.7	106	107	39	160
Chlorobenzene	ND	10.3	10.4	103	104	55	135
1,2-Dichlorobenzene	ND	10.0	10.5	100	105	37	184
1,3-Dichlorobenzene	ND	10.1	10.3	101	103	50	141
1,4-Dichlorobenzene	ND	10.3	10.5	103	105	42	143
Diisopropyl ether	ND	10.4	10.5	104	105	30	170
Ethylbenzene	ND	10.5	10.6	105	106	32	160
MTBE	ND	10.6	10.7	106	107	35	165
Toluene	ND	10.4	10.4	104	104	46	148
m,p-Xylene	ND	20.9	21.1	105	106	D	239
o-Xylene	ND	9.9	10.1	99	101	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: USTM232-22
Client Project ID: USTM232
Lab Sample ID: G546-67-1H
Lab Project ID: G546-67

Analyzed By: MRC
Date Collected: 12/12/2005 11:29
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	2.20	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	3.30	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: USTM232-22
 Client Project ID: USTM232
 Lab Sample ID: G546-67-1H
 Lab Project ID: G546-67

Analyzed By: MRC
 Date Collected: 12/12/2005 11:29
 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	4.90	10.0	1.08	1	12/17/2005	J
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	3.00	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	7.9	79
2-Fluorophenol	10	7.4	74
Nitrobenzene-d5	10	7.4	74
Phenol-d6	10	7.1	71
2,4,6-Tribromophenol	10	7.6	76
4-Terphenyl-d14	10	9.9	99

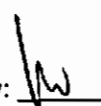
Comments:

* 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: USTM232-22
Client Project ID: USTM232
Lab Sample ID: G546-67-1H
Lab Project ID: G546-67
Sample Wt/Vol: 500 ML
Dilution: 1

Analyzed By: MRC
Date Collected: 12/12/2005 11:29
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	10.21	000091-57-6	97	52.1
2	Dimethylnaphthalene, Isomer of	11.25			30.6
3	Dimethylnaphthalene, Isomer of	11.14			23.6
4	1-Methylnaphthalene	10.28	000090-12-0	98	22.3
5	Dimethylnaphthalene, Isomer of	11.29			16.4
6	Dimethylnaphthalene, Isomer of	11.43			12.6
7	Unknown	8.60			12.1
8	Unknown	6.82			8.12
9	Aromatic, Unknown	10.88			6.2
10	Dimethylnaphthalene, Isomer of	11.57			5.46

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: USTM230-21

Client Project ID: USTM232

Lab Sample ID: G546-67-2H

Lab Project ID: G546-67

Analyzed By: MRC

Date Collected: 12/12/2005 12:15

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	3.20	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	5.70	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: USTM230-21
Client Project ID: USTM232
Lab Sample ID: G546-67-2H
Lab Project ID: G546-67

Analyzed By: MRC
Date Collected: 12/12/2005 12:15
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	5.50	10.0	1.08	1	12/17/2005	J
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	3.60	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	7.9	79
2-Fluorophenol	10	7	70
Nitrobenzene-d5	10	7.2	72
Phenol-d6	10	6.8	68
2,4,6-Tribromophenol	10	7.7	77
4-Terphenyl-d14	10	9.7	97

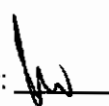
Comments:

* 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: USTM230-21
Client Project ID: USTM232
Lab Sample ID: G546-67-2H
Lab Project ID: G546-67
Sample Wt/Vol: 500 ML
Dilution: 1

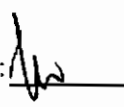
Analyzed By: MRC
Date Collected: 12/12/2005 12:15
Date Received: 12/14/2005
Date Extracted: 12/15/2005
Date Analyzed: 12/17/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	1-Methylnaphthalene	10.28	000090-12-0	99	52.2
2	Dimethylnaphthalene, Isomer of	11.25			42.1
3	Dimethylnaphthalene, Isomer of	11.13			31.7
4	2-Methylnaphthalene	10.12	000091-57-6	99	26.3
5	Dimethylnaphthalene, Isomer of	11.29			21.9
6	Dimethylnaphthalene, Isomer of	11.43			19.9
7	Unknown	8.60			12.5
8	Aromatic, Unknown	10.88			8.68
9	Tetramethylnaphthalene, Isomer of	8.26			7.07
10	Unknown	8.74			5.76

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: USTM230-20
Client Project ID: USTM232
Lab Sample ID: G546-67-3H
Lab Project ID: G546-67

Analyzed By: MRC
Date Collected: 12/12/2005 13:02
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: USTM230-20
 Client Project ID: USTM232
 Lab Sample ID: G546-67-3H
 Lab Project ID: G546-67

Analyzed By: MRC
 Date Collected: 12/12/2005 13:02
 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	8.1	81
2-Fluorophenol	10	7.3	74
Nitrobenzene-d5	10	7	70
Phenol-d6	10	6.8	68
2,4,6-Tribromophenol	10	7.5	75
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: USTM230-20
Client Project ID: USTM232
Lab Sample ID: G546-67-3H
Lab Project ID: G546-67
Sample Wt/Vol: 500 ML
Dilution: 1

Analyzed By: MRC
Date Collected: 12/12/2005 13:02
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: USTM230-18
Client Project ID: USTM232
Lab Sample ID: G546-67-4H
Lab Project ID: G546-67

Analyzed By: MRC
Date Collected: 12/12/2005 13:45
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	5.50	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	7.40	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: USTM230-18
Client Project ID: USTM232
Lab Sample ID: G546-67-4H
Lab Project ID: G546-67

Analyzed By: MRC
Date Collected: 12/12/2005 13:45
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	7.00	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	7.9	79
2-Fluorophenol	10	7.1	71
Nitrobenzene-d5	10	7.1	71
Phenol-d6	10	6.7	67
2,4,6-Tribromophenol	10	7.1	71
4-Terphenyl-d14	10	10.1	101

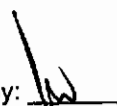
Comments:

* 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: USTM230-18
Client Project ID: USTM232
Lab Sample ID: G546-67-4H
Lab Project ID: G546-67
Sample Wt/Vol: 500 ML
Dilution: 1

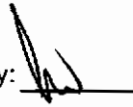
Analyzed By: MRC
Date Collected: 12/12/2005 13:45
Date Received: 12/14/2005
Date Extracted: 12/15/2005
Date Analyzed: 12/17/2005
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Unknown	7.32			29.7
2	Aromatic, Unknown	8.59			22.4
3	Methyltetrahydronaphthalene, Isomer of	10.04			13.2
4	Aromatic, Unknown	10.88			11.9
5	Aromatic, Unknown	9.08			9.7
6	Unknown	12.77			6.06
7	Unknown	9.74			5.93
8	Unknown	7.44			5.41
9	Aromatic, Unknown	9.62			4.96
10	Unknown	9.31			4.95

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: USTM232-7
Client Project ID: USTM232
Lab Sample ID: G546-67-5H
Lab Project ID: G546-67

Analyzed By: MRC
Date Collected: 12/12/2005 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: USTM232-7
 Client Project ID: USTM232
 Lab Sample ID: G546-67-5H
 Lab Project ID: G546-67

Analyzed By: MRC
 Date Collected: 12/12/2005 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	7.6	76
2-Fluorophenol	10	6.8	68
Nitrobenzene-d5	10	6.8	68
Phenol-d6	10	6.4	64
2,4,6-Tribromophenol	10	7.1	71
4-Terphenyl-d14	10	9.7	97

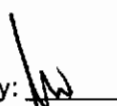
Comments:

* 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: USTM232-7
Client Project ID: USTM232
Lab Sample ID: G546-67-5H
Lab Project ID: G546-67
Sample Wt/Vol: 500 ML
Dilution: 1

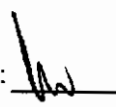
Analyzed By: MRC
Date Collected: 12/12/2005 14:50
Date Received: 12/14/2005
Date Extracted: 12/15/2005
Date Analyzed: 12/17/2005
Matrix: Water

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: USTM232-5
Client Project ID: USTM232
Lab Sample ID: G546-67-6H
Lab Project ID: G546-67

Analyzed By: MRC
Date Collected: 12/12/2005 16:15
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: USTM232-5
 Client Project ID: USTM232
 Lab Sample ID: G546-67-6H
 Lab Project ID: G546-67

Analyzed By: MRC
 Date Collected: 12/12/2005 16:15
 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	7.7	77		
2-Fluorophenol		10	7.2	72		
Nitrobenzene-d5		10	7.1	71		
Phenol-d6		10	7.1	71		
2,4,6-Tribromophenol		10	7.6	76		
4-Terphenyl-d14		10	9.3	93		

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: USTM232-5
Client Project ID: USTM232
Lab Sample ID: G546-67-6H
Lab Project ID: G546-67
Sample Wt/Vol: 500 ML
Dilution: 1

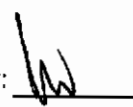
Analyzed By: MRC
Date Collected: 12/12/2005 16:15
Date Received: 12/14/2005
Date Extracted: 12/15/2005
Date Analyzed: 12/17/2005
Matrix: Water

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: USTM232-7DUP
Client Project ID: USTM232
Lab Sample ID: G546-67-7G
Lab Project ID: G546-67

Analyzed By: MRC
Date Collected: 12/12/2005 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: USTM232-7DUP
 Client Project ID: USTM232
 Lab Sample ID: G546-67-7G
 Lab Project ID: G546-67

Analyzed By: MRC
 Date Collected: 12/12/2005 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	8	80
2-Fluorophenol	10	7.3	73
Nitrobenzene-d5	10	7.2	72
Phenol-d6	10	7	70
2,4,6-Tribromophenol	10	7.2	72
4-Terphenyl-d14	10	10.1	101

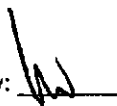
Comments:

* 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: USTM232-7DUP
Client Project ID: USTM232
Lab Sample ID: G546-67-7G
Lab Project ID: G546-67
Sample Wt/Vol: 500 ML
Dilution: 1

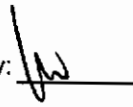
Analyzed By: MRC
Date Collected: 12/12/2005 14:50
Date Received: 12/14/2005
Date Extracted: 12/15/2005
Date Analyzed: 12/17/2005
Matrix: Water

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

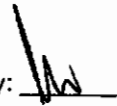
Comments:

* 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

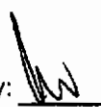
Comments:

Concentrations reflect the spiked sample amounts.

Flags:

* = Out of limits.

NA = Not applicable.

Reviewed By: 

VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM232-22
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	12/12/05
Date Received	12/14/05
Date Extracted	12/17/05
Date Analyzed	12/17/05
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	96
Surrogate % Recovery - FID	98

* = 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: g546-67-1d

Reviewed By: hw

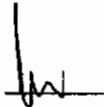
VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM230-21
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	12/12/05
Date Received	12/14/05
Date Extracted	12/17/05
Date Analyzed	12/17/05
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	95
Surrogate % Recovery - FID	98

* = 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: g546-67-2d

Reviewed By: 

VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM230-20
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	12/12/05
Date Received	12/14/05
Date Extracted	12/17/05
Date Analyzed	12/17/05
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	97
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: g546-67-3d

Reviewed By: 

VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM230-18
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	12/12/05
Date Received	12/14/05
Date Extracted	12/17/05
Date Analyzed	12/17/05
Dry Weight	
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₂ Aliphatics**	130 (µg/L)
C ₉ -C ₁₀ Aromatics**	100 (µg/L)
Surrogate % Recovery - PID	97
Surrogate % Recovery - FID	99

* = 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: g546-67-4d

Reviewed By: 

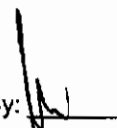
VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM232-7
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	12/12/05
Date Received	12/14/05
Date Extracted	12/17/05
Date Analyzed	12/17/05
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	97
Surrogate % Recovery - FID	98

* = 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: g546-67-5d

Reviewed By: 

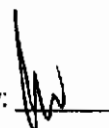
VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM232-5
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	12/12/05
Date Received	12/14/05
Date Extracted	12/17/05
Date Analyzed	12/17/05
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	97
Surrogate % Recovery - FID	96

* = 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: g546-67-6d

Reviewed By: 

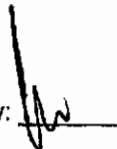
VPH (Aliphatics/Aromatics) Laboratory Reporting FormClient Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM232-7DUP
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	12/12/05
Date Received	12/14/05
Date Extracted	12/17/05
Date Analyzed	12/17/05
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	100
Surrogate % Recovery - FID	99

* = 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: g546-67-7d

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) ($\mu\text{g/L}$)	ML ($\mu\text{g/L}$)	RL ($\mu\text{g/L}$) (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 ($\mu\text{g/L}$)	%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: 12/16/05

Calibration Check

Range	Levels ($\mu\text{g/L}$) (mg/Kg)		RPD
C ₅ -C ₈ Aliphatics	2000	200	6.9
C ₉ -C ₁₂ Aliphatics	500	50	-7.7
C ₉ -C ₁₀ Aromatics	500	50	7.6

MDL = Method Detection Limit

ML = Minimum Limit

RL = Reportable Limit

RPD = Relative Percent Difference

%RSD = Percent Relative Standard Deviation

CCC = Correlation Coefficient of Curve

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM232-22
Sample Matrix	Water
Date Collected	12/12/05
Date Received	12/14/05
Date Extracted	12/15/05
Date Analyzed	12/22/05
Dry Weight	
Dilution Factor	1:1
C ₉ -C ₁₈ Aliphatics*	< 100 (ug/L)
C ₁₉ -C ₃₈ Aliphatics*	< 100 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	250 (ug/L)
Aliphatic Surrogate % Recovery	83
Aromatic Surrogate % Recovery	76
Fractionation Surrogate 1 % Recovery	78

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G546-67-11

Reviewed By: W

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM230-21
Sample Matrix	Water
Date Collected	12/12/05
Date Received	12/14/05
Date Extracted	12/15/05
Date Analyzed	12/22/05
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*	300 (ug/L)
Aliphatic Surrogate % Recovery	82
Aromatic Surrogate % Recovery	74
Fractionation Surrogate 1 % Recovery	86

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G546-67-21

Reviewed By: 

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

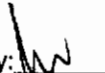
Client Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM230-20
Sample Matrix	Water
Date Collected	12/12/05
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	83
Aromatic Surrogate % Recovery	81

Comments:

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

Lab Info: G546-67-31

Reviewed By: 

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM230-18
Sample Matrix	Water
Date Collected	12/12/05
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*	320 (ug/L)
Aliphatic Surrogate % Recovery	78
Aromatic Surrogate % Recovery	78
Fractionation Surrogate 1 % Recovery	84

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G546-67-4I

Reviewed By: W

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM232-7
Sample Matrix	Water
Date Collected	12/12/05
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 ₃₆ Aliphatics*	< 100 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	< 100 (ug/L)
Aliphatic Surrogate % Recovery	81
Aromatic Surrogate % Recovery	78

Comments:

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

Lab Info: G546-67-51

Reviewed By: 

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM232-5
Sample Matrix	Water
Date Collected	12/12/05
Date Received	12/14/05
Date Extracted	12/15/05
Date Analyzed	12/20/05
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	61
Aromatic Surrogate % Recovery	82

Comments:

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

Lab Info: G546-67-6J

Reviewed By: 

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Engineering & Environment, Inc.Project Name: USTM232

Sample Information and Analytical Results	
Sample Identification	USTM232-7DUP
Sample Matrix	Water
Date Collected	12/12/05
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 ₃₆ Aliphatics*	< 100 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	< 100 (ug/L)
Aliphatic Surrogate % Recovery	83
Aromatic Surrogate % Recovery	80

Comments:

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

Lab info: G546-67-7H

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)	RL (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: 12/18/05

Calibration Check

Range	Levels (µg/mL)	RPD
C ₉ -C ₁₈ Aliphatics	120	-0.6
C ₁₉ -C ₃₈ 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

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 ₃₆ Aliphatics	0.57	1.8	100 10
C ₁₁ -C ₂₂ Aromatics	4.54	14.4	100 10

Calibration Concentration Levels

Range	Levels (µg/mL)	%RSD or CCC	Method of Quantitation
C ₉ -C ₁₈ Aliphatics	6	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: 12/19/05

Calibration Check

Range	Levels (µg/mL)	RPD
C ₉ -C ₁₈ Aliphatics	120	10.4
C ₁₉ -C ₃₆ Aliphatics	160	9.0
C ₁₁ -C ₂₂ Aromatics	340	15.2

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) (µg/L)	ML (µg/L)	RL (µg/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 (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 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: 12/21/05

Calibration Check

Range	Levels (µg/mL)	RPD
C ₉ -C ₁₈ Aliphatics	120	1.3
C ₁₉ -C ₃₆ 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

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# 52948

Page 1 of 1

55 of 55

Client: Engineering, Environment Project ID: USTM232

Date: 12/13/05

Report To: _____

Address: 884 Gum Branch Rd

Contact: Bill Morris

Turnaround: 1 week

Address: Suite S

Phone: 910-989-3814

Job Number: _____

Quote #: _____

Fax: _____

P.O. Number: _____

Invoice To: _____

Sample ID	Date	Time	Matrix	Preservatives			Analysis			Comments
				CH	625 ^{ml} -TICS	PH	ED	Temperature		
USTM232-22	12/11/05	11:29	Ground water	6	3	1	2	1		6546-67
USTM232-21		12:15		6	3	1	2	1		
USTM232-20		13:02		6	3	1	2	1		
USTM232-18		13:45		6	3	1	2	1		
USTM232-7		14:50		6	3	1	2	1		
USTM232-5	12/15/05			6	3	1	2	1		2 vials of 100% sample could not achieve no headspace
USTM232-4										
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