

***Final***

**Secondary Investigation Addendum Report  
OMS #28 – Pit 2  
Alabama National Guard OMS  
1622 South Broad Street  
Mobile, Alabama**

**Facility ID#: 14587-097-012257  
UST Incident #93-02-15**

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## List of Acronyms

ACFM	Actual cubic feet per minute
ADEM	Alabama Department of Environmental Management
ALARNG	Alabama Army National Guard
ARBCA	Alabama Risk Based Corrective Action
ASTM	American Society for Testing and Materials
BGS	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and xylene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Chain-of-custody or Chemical of concern
DOD	Department of Defense
DPT	Direct-push technology
EPA	Environmental Protection Agency
ft	Feet
GC/MS	Gas chromatography/mass spectrometry
HSA	Hollow-stem auger
ICPES	Inductively coupled plasma emission spectroscopy
IDW	Investigation-derived waste
ISL	Initial screening level
LNAPL	Light non-aqueous phase liquids
MCL	Maximum contaminant level
MS/MSD	Matrix spike/matrix spike duplicate
MSL	Mean sea level
MTBE	Methyl-tert-butyl ether
NA	Not available
OD	Outer diameter
OSHA	Occupational Safety and Health Administration
PAHs	Polynuclear aromatic hydrocarbons
PI	Preliminary investigation
POC	Point of compliance or point of contact
PM	Project manager
ppm <sub>v</sub>	Parts per million by volume
PSL	Preliminary screening level
PRG	Preliminary remediation goal
QA/QC	Quality assurance/quality control
QAPP	Quality assurance project plan
QCSR	Quality control summary report
RBSL	Risk based screening level
RI	Remedial investigation
RPD	Relative percent difference
SI	Secondary investigation
SOP	Standard operating procedure

## **List of Acronyms, cont.**

SPH	Separated –phase hydrocarbons
SSHP	Site safety and health plan
SSTLs	Site-specific tolerance levels
TPH	Total petroleum hydrocarbons
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UST	Underground storage tank
VOA	Volatile organic analysis
VOCs	Volatile organic compounds

## 1.0 Introduction

This report describes the Secondary Investigation (SI) Addendum at Organizational Maintenance Shop (OMS) #28 – Pit 2, at 1622 South Broad St., Mobile, AL [UTM 16 398184E 3391744N (WGS84/NAD83)] conducted by Bechtel-S Corporation. Bechtel-S Corporation was contracted by the US Army Corps of Engineers, Mobile District (USACE-Mobile) to characterize the nature and extent of groundwater contamination at the site, prior to completing a risk-based corrective action evaluation of OMS #28 – Pit 2. This additional site characterization was required because recent groundwater sampling indicated that contamination extended beyond the network of monitoring wells installed during the original SI, and that traces of free-phase hydrocarbons remain in the source area. Activities discussed in this report were performed under USACE Contract No. DACA01-01-D-0027, Delivery Order Number 14, Modification 001. A draft of this report was reviewed by ADEM in July 2005 and accepted with no comments.

The remainder of this section includes a discussion of the previous investigation activities at the site, a brief summary of background data on the environmental setting; and the results from recent activities. These materials were also included in the September 2004 Secondary Investigation Addendum Work Plan for OMS #28 (Bechtel-S, 2004) and are reproduced here for completeness. Section 2 describes the activities conducted during the SI Addendum. Section 3 presents the results of these activities. Section 4 includes conclusions and recommendations for further activities at the site.

### 1.1 Background

The Alabama Army National Guard OMS is located in the city of Mobile, in Mobile County, Alabama. The facility is located near downtown Mobile, between Interstate 10 and Mobile Bay. Figure 1-1 shows the general vicinity of the OMS. The area is relatively flat with an elevation of 20-30 feet above mean sea level (MSL). Four underground storage tanks have been removed from three separate locations at the facility. Figure 1-2 shows a location map.

A single 2000 gallon gas/diesel underground storage tank (UST) was removed from Pit 2 in October 1992. A ½ to ¾ inch hole was noted in the east end of the tank when it was removed. A preliminary investigation for Pit 2 was performed in October 1993, but did not fully determine the extent of soil or groundwater contamination. A secondary investigation of Pit 2 was completed in December 1994, establishing the extent of soil and groundwater contamination at the site. The 1994 Secondary Investigation was followed by quarterly groundwater monitoring in 1995. Groundwater monitoring continued on a roughly semi-annual basis through 1997.

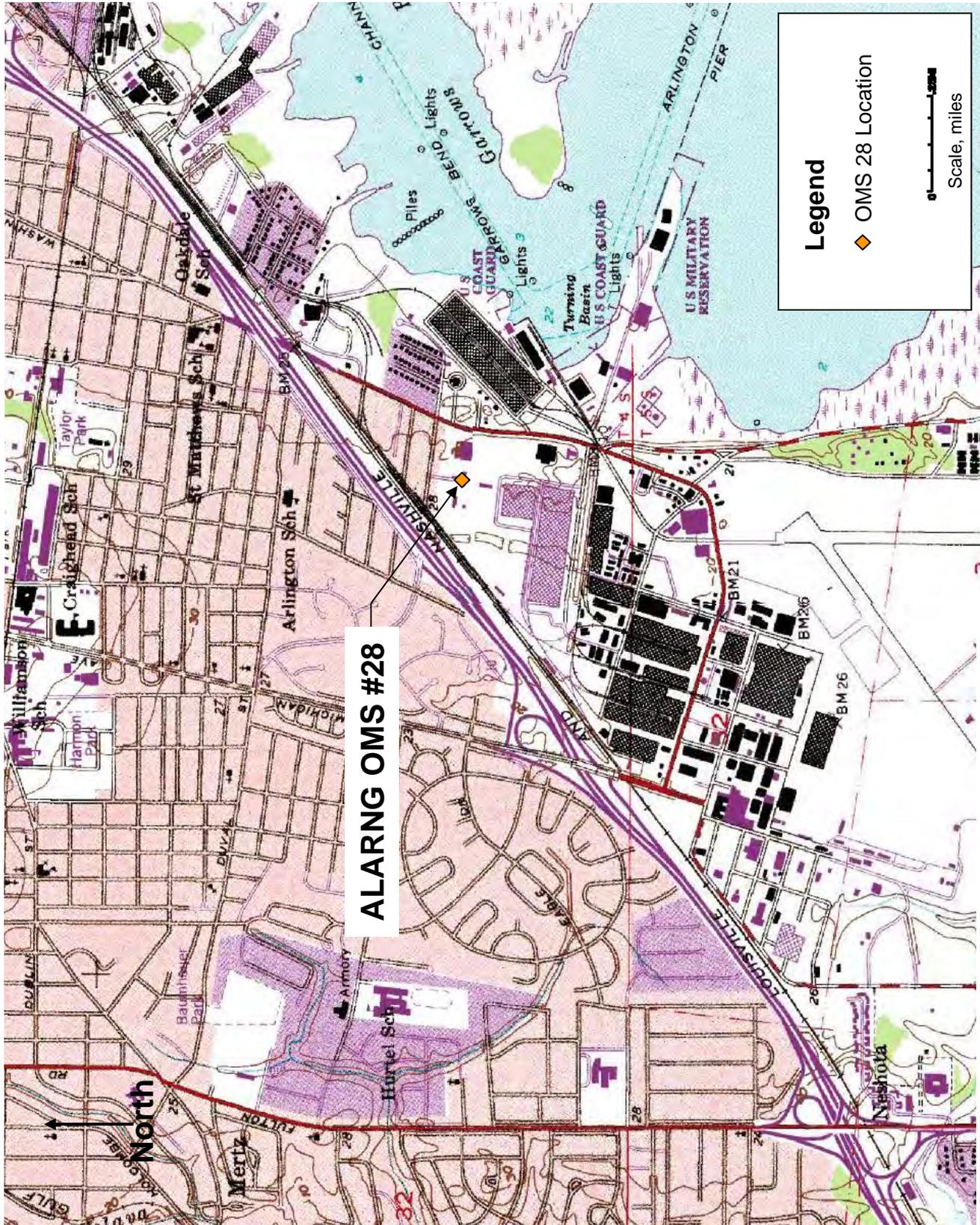


Figure 1-1. OMS #28 Vicinity Map



Figure 1-2. OMS #28 Location Map

An additional set of groundwater samples was collected in October 2001. Bechtel-S was contracted to complete a risk-based assessment of the site in 2003 and sampled existing wells on site in March 2004.

## **1.2 Geology and Hydrogeology**

The regional geology and hydrogeology in the vicinity of ALARNG OMS are described in the *Final Data Acquisition Plan* for OMS #28 (Bechtel-S, 2004). Geologic units outcropping near the OMS range from Tertiary to Quaternary Age. Quaternary alluvial and terrace deposits overlie Tertiary deposits adjacent to the floodplains of the larger streams and rivers, and along Mobile Bay.

The major aquifers in the vicinity of the OMS include the Miocene, Pliocene-Pleistocene (also known as the Citronelle), and the alluvial-coastal aquifers. Although these aquifers represent different lithological units, they generally respond as a single hydrogeologic unit to large or long-term stresses (BCM, 1999). However, at a smaller scale there may be little hydraulic connection between units.

Groundwater at OMS #28 is found 2 to 5 feet below ground surface. Locally, the aquifer consists of fine sand. Groundwater flow is to the west to northwest across the site. All wells on site are completed across the water table. No site-specific data on deeper hydrogeological units are available.

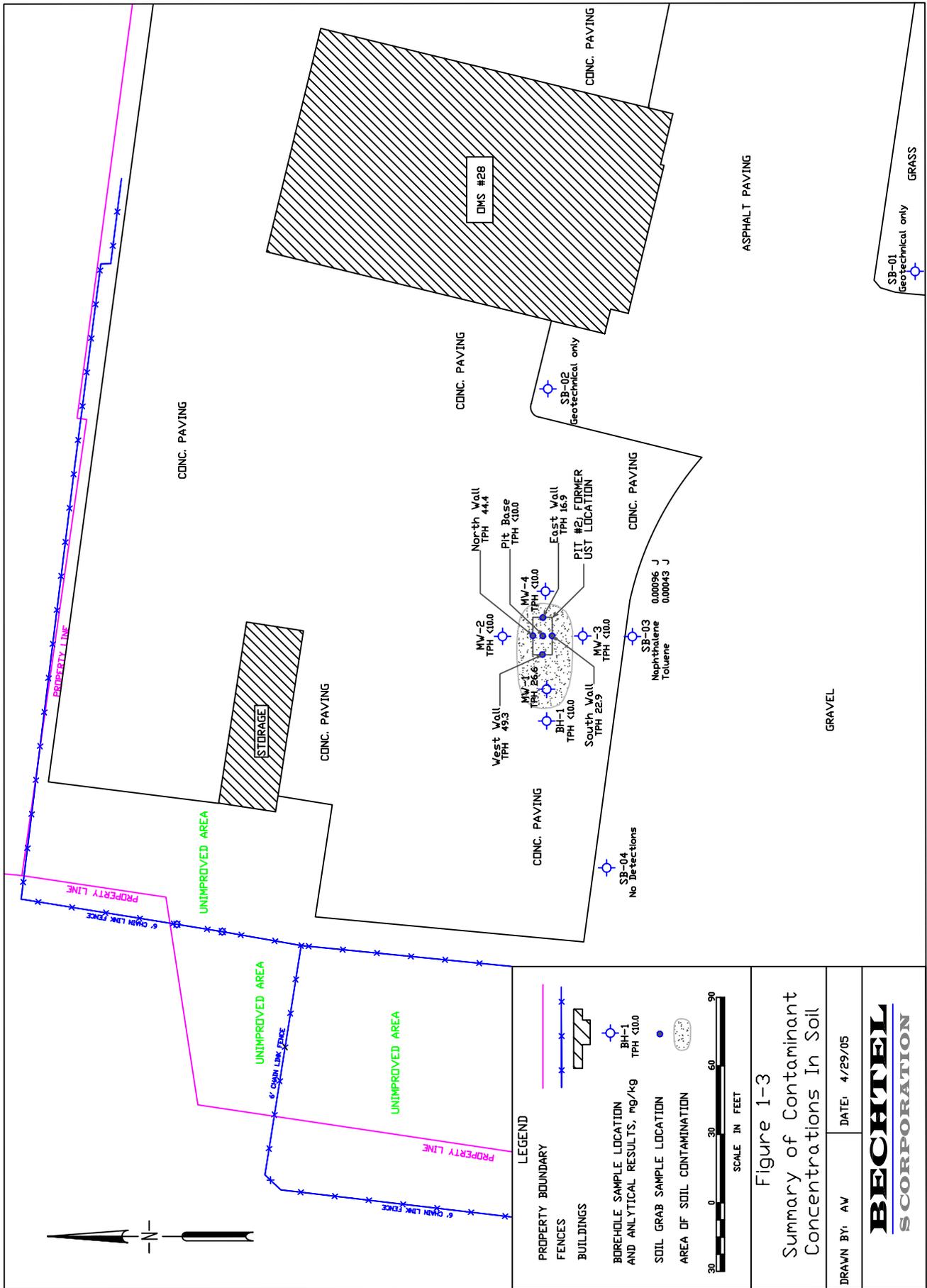
## **1.3 Previous Investigations at OMS 28 Pit #2**

Site investigation activities and results are summarized in Table 1-1. A more detailed presentation of investigations at OMS #28 Pit 2 is presented in the ARBCA Data Acquisition Plan (Bechtel-S, 2004). Only the most recent results from the Bechtel-S sampling effort are presented in detail in this document to support the need for additional site characterization work, which is described in Section 2.

Soil contamination is restricted to the area immediately adjacent to the former UST. Figure 1-3 summarizes soil analytical data from the original SI and from ARBCA samples collected by Bechtel-S in March 2004. The most recent soil samples, collected just outside the concrete-covered area, contain only trace concentrations of fuel constituents, consistent with contamination by storm water runoff from the vehicle parking area rather than the former UST.

**Table 1-1. Summary of Previous Investigations: OMS 28 Pit #2**

Source	Primary Activities	Major Findings
UST Closure Report (CWA, Nov. 1992)	<ul style="list-style-type: none"> <li>• Tank, piping, and 50 yd<sup>3</sup> soil excavated</li> <li>• Subsurface soil samples collected while installing 4 monitoring wells</li> <li>• Excavated soil spread in thin layer on ground surface</li> </ul>	<ul style="list-style-type: none"> <li>• Sidewall and bottom samples indicate TPH concentrations between &lt;10 and 49 mg/kg</li> <li>• Composite samples of excavated soil contain up to 427 mg/kg TPH</li> <li>• Soil boring samples indicate 26.6 mg/kg TPH at 5 ft bgs in MW-1 and &lt;10 mg/kg in all other borings</li> </ul>
Preliminary Investigation Report (PELA, Dec. 1993)	<ul style="list-style-type: none"> <li>• 4 monitoring wells sampled for benzene, toluene, ethylbenzene, and xylene (BTEX) and poly-cyclic aromatic hydrocarbons (PAHs)</li> </ul>	<ul style="list-style-type: none"> <li>• MW-1 groundwater contains 10,300 ug/L BTEX and 537 ug/L PAHs</li> <li>• MW-3 groundwater contains 24 ug/L BTEX and 9 ug/L PAHs</li> <li>• Extent of soil contamination not defined</li> </ul>
Secondary Investigation Report (PELA, Dec. 1994)	<ul style="list-style-type: none"> <li>• One hand auger soil boring sampled for TPH</li> <li>• 4 existing and 2 new monitoring wells sampled for benzene, toluene, ethylbenzene, and xylene (BTEX), PAHs, and lead</li> <li>• Water level surveys to determine groundwater flow direction</li> </ul>	<ul style="list-style-type: none"> <li>• TPH &lt; 10 mg/kg in soil; extent of soil contamination defined</li> <li>• BTEX at 27,840 and naphthalene at 353 ug/L in MW-1</li> <li>• Trace levels of BTEX in MW-3</li> <li>• Lead concentrations exceeding MCL in 5 of 6 wells</li> <li>• No organic contaminants detected in new wells; extent of groundwater contamination defined.</li> <li>• Groundwater gradient 0.006 ft/ft to west</li> </ul>
Groundwater Monitoring Report (ACT, Jan 1996)	<ul style="list-style-type: none"> <li>• Four quarters of groundwater sampling and analysis for BTEX, with PAHs and lead for fourth quarter samples only.</li> </ul>	<ul style="list-style-type: none"> <li>• Reported concentrations of BTEX in MW-1 are substantially lower than previous results and generally increase over the course of the monitoring period. Naphthalene detected in MW-1 and MW-3. Lead exceeds MCL in all wells.</li> </ul>
Groundwater Monitoring Reports, PELA, 1997	<ul style="list-style-type: none"> <li>• Two rounds of sampling at all wells for BTEX, and dissolved oxygen. MTBE included in July analyses.</li> </ul>	<ul style="list-style-type: none"> <li>• BTEX concentrations in MW-1 much higher than measured by ACT, but lower than results from Secondary Investigation and declining over time.</li> </ul>
Fax from STL Pensacola to Mr. Craig Holloway, dated 11/6/01	<ul style="list-style-type: none"> <li>• BTEX analyses reported for six wells sampled on 10/03/03</li> </ul>	<ul style="list-style-type: none"> <li>• Results indicate a gradual decline in concentrations of all contaminants in MW-1 except ethylbenzene since 1997 sampling. Benzene and ethylbenzene exceed MCLs.</li> </ul>
ARBCA Data Acquisition, Bechtel-S Corp., March 2004	<ul style="list-style-type: none"> <li>• Groundwater sampling from existing wells for BTEX, PAH and lead; aquifer tests</li> <li>• Soil sampling for BTEX and geotechnical data</li> </ul>	<ul style="list-style-type: none"> <li>• Benzene detected &gt; MCLs in MW-1 and 6</li> <li>• Trace amounts of LNAPL detected in MW-1</li> <li>• Declining BTEX concentrations in MW-1; benzene and ethylbenzene still above MCLs.</li> <li>• Only trace BTEX in soil samples.</li> </ul>



Groundwater monitoring at OMS #28 between 1992 and 2001 has consistently documented BTEX contamination in MW-1 in excess of ADEM Initial Screening Levels (ISLs), trace levels of contamination in MW-3, and no detectable contamination in downgradient wells MW-5 and -6. However, site conditions changed considerably between the 2001 sampling event and March 2004. A 1992 drawing of the site indicates an asphalt parking area immediately around OMS #28 with 'stone and grass parking' and grass covered areas around Pit #2. By 2004, the entire area west of OMS #28 to the fence line west of Pit #2 had been paved in concrete. OMS #28 personnel indicated that the concrete was placed shortly after the 2001 groundwater sampling.

The March 2004 sampling results indicated that the area of groundwater contamination exceeding ISLs has expanded to include MW-1 and the downgradient well MW-6. Soil and groundwater samples were collected at OMS# 28 by Bechtel-S personnel on March 9 -11, 2004 using a bladder pump and low-stress groundwater sampling techniques. Samples were collected from wells MW-1, -2, -3, -5, and -6 (MW-4 was apparently destroyed during paving operations). The March 2004 data indicate that the area of groundwater contamination exceeding ISLs now extends beyond the furthest downgradient monitoring locations. Aquifer slug tests were also conducted on MW-1, -2, -3, and -6. Results are summarized in Table 1-2.

**Table 1-2. OMS #28 Groundwater Monitoring Results, March 2004**

(All results in ug/L, except as noted)

Analyte	MW-1	MW-2	MW-3	MW-5	MW-6
Benzene	<b>200</b>	ND	ND	ND	<b>23</b>
Ethylbenzene	<b>750</b>	ND	1.2 J	ND	1.4 J
Toluene	140	ND	0.21 J	ND	0.55 J
Xylenes	1121	ND	1.8 J	ND	1.4 J
Napthalene	<b>76</b>	ND	0.60 JP	0.40 JP	<b>28</b>
Lead	2.0 JB	3.0 JB	4.0 JB	2.0 JB	ND
Hydraulic Conductivity, ft/day	0.2	0.4	0.1	NA	0.1

J = Estimated result

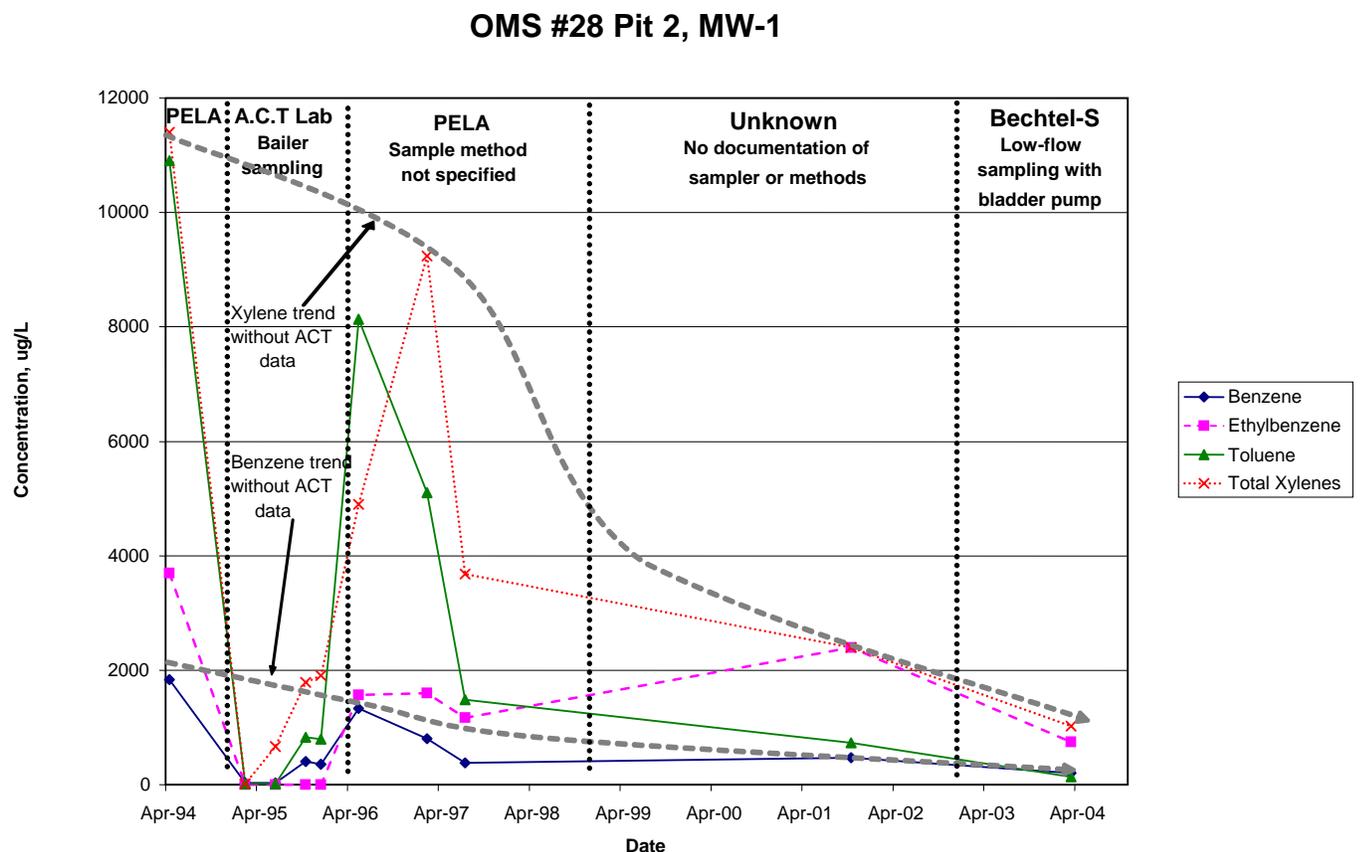
P = Second column result exceeds method criteria

B = Analyte detected in method blank at concentration similar to sample

ND = Not detected

NA = Not analyzed

BTEX concentrations in groundwater at MW-1 have gradually declined over the last ten years (Figure 1-4); but the contaminants benzene, ethylbenzene and naphthalene remain above ISLs. In addition, the purge water collected from MW-1 during the March 2004 groundwater sampling contained trace quantities of light non-aqueous phase liquid (LNAPL) hydrocarbons, present as red-orange globules. While the total volume of non-aqueous phase hydrocarbons recovered was less than 5 ml, the presence of even a small volume of mobile LNAPL suggests that a residual saturation of LNAPL is present in the aquifer around MW-1. This residual (i.e. non-mobile) LNAPL could amount to as much as 2% to 3% by volume, representing a significant continuing source of dissolved-phase hydrocarbons. The presence of such a hydrocarbon source is consistent with the long-term persistence of groundwater contamination at the site.



**Figure 1-4. Trends in Contaminant Concentrations in MW-1, 1994 - 2004**

The concrete covering the site appears to have reduced gas exchange between the atmosphere and the groundwater, limiting degradation of dissolved hydrocarbons, and allowing the plume to spread further downgradient. Dissolved oxygen concentrations in groundwater measured in February and July 1997 ranged from 6.0 to 9.0 mg/L. Dissolved oxygen concentrations were marginally lower in wells MW-1 and MW-3, the two wells in which organic contaminants have been detected at levels exceeding regulatory thresholds, although dissolved oxygen concentrations appear to have been sufficient to sustain oxidative metabolism of petroleum hydrocarbons by aerobic micro-organisms in the subsurface before the concrete was placed. The 2004 dissolved oxygen concentrations indicate very limited biodegradation capacity downgradient of the former tank location after the site was covered by concrete. The 2004 dissolved oxygen concentrations ranged from 0.37 mg/L to 2.04 mg/L after purging standing water from the wells. These measurements suggest that dissolved oxygen levels in the groundwater have been reduced following concrete placement, although without documentation of monitor well purging procedures during the previous sampling events it is not known whether the 1997 data represents dissolved oxygen measurements on standing water in the monitor wells or in fresh formation water.

## **2.0 SI Addendum Activities**

This SI Addendum is intended to define the current extent of groundwater contamination, assess the presence or absence of LNAPL in the source area before and after vacuum extraction, and evaluate the potential for natural attenuation of the groundwater contaminants. After completing these activities, the site will be evaluated using the ARBCA process to determine site-specific tolerance levels (SSTLs) for contaminants of concern, which will provide the basis for determining whether remedial action is required and, if so, what remedy is most appropriate.

### **2.1 SI Addendum Field Activities**

Bechtel-S Corp. performed Secondary Investigation activities OMS #28 Pit 2 to define the nature and extent of contamination in accordance with the ADEM rules. Key components of the SI Addendum investigation included:

- 1) Collecting groundwater grab samples downgradient of the concrete covered area west of Pit #2 on 6 October, 2004 to define the extent of the plume.
- 2) Installing new monitoring wells upgradient and downgradient of the plume on 7 October 2004.
- 3) Sampling all new and existing monitoring wells for BTEX, MTBE, naphthalene, PAHs, and lead on 9 – 10 November 2004 to verify the extent of groundwater contamination.
- 4) Evaluating the presence of LNAPL in MW-1 using standard low-flow purging techniques and, following sample collection, using higher flow rates to induce greater stress on the aquifer. All LNAPL produced from the well was documented with digital photographs.
- 5) Evaluating groundwater chemistry to determine if natural attenuation processes are active, especially in the area downgradient of the concrete cover.
- 6) Surveying all new and existing wells and piezometers to confirm elevation and location data following the placement of concrete paving at the site.
- 7) Measuring water levels at all new and existing wells and piezometers on site to calculate flow rates and directions based on the site-specific groundwater gradient and hydraulic conductivity.

In addition to these SI activities, Bechtel-S was scoped to perform additional services. These include 1) a multi-phase vacuum extraction event to remove LNAPL, if its presence is confirmed; and 2) a second round of groundwater monitoring in March 2005 for BTEX/MTBE,

PAHs, and lead at all monitoring wells on site. Although these activities are not part of the Secondary Investigation *per se*, they are included in this report to provide a complete and up-to-date record of site conditions.

## 2.2 Deviations from Plan

All field work and data evaluation was conducted by a professional geologist licensed in the State of Alabama according to procedures specified in the project work plan with the following exceptions:

1) Groundwater grab samples were analyzed using Method SW8021B for purgeable organics instead of Method SW8260B. Method SW8021B provides equivalent detection limits for the target analytes.

2) Turbidity was not measured during the November 2004 groundwater sampling event. All monitor wells were purged until other water quality parameters were stable and the water was visibly clear and free from sediment. Numerical values of turbidity were estimated visually.

3) Equipment blank samples were collected and analyzed only during the March 2004 sampling event; the equipment blank sample contained trace levels of benzene, naphthalene, toluene, and xylene rinsed from the equipment after decontamination following sampling from MW-1. Because MW-1 was known to be contaminated it was sampled last. Consequently, the at least 100-fold reduction in contaminant concentrations provided by the decontamination procedures is sufficient to reduce concentrations in other wells on site below detectable levels.

### 3.0 Investigation Results

This Section presents the results of the investigation activities described in Section 2, including the vacuum extraction event and follow-up groundwater sampling.

#### 3.1 Groundwater Grab Sampling and Analysis

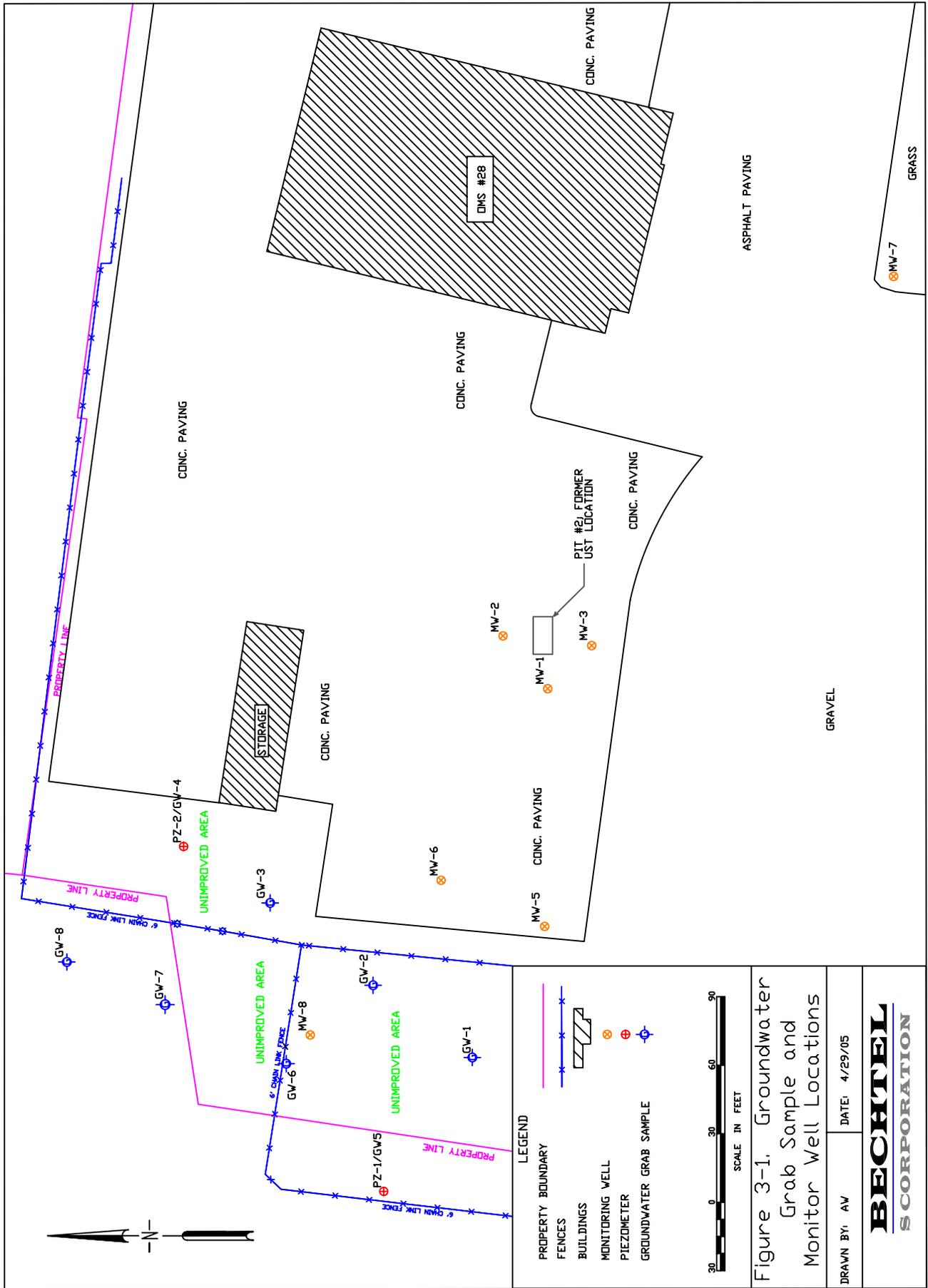
Groundwater grab samples indicate that contaminants associated with Pit #2 have not migrated off-site. Groundwater grab samples were collected from eight locations west and northwest of the concrete parking area. Grab sample locations are shown on the site map (Figure 3-1). The grab samples were collected using direct-push techniques. A pilot hole was hand augered to just above the water table. A screen-point sampler was then manually driven approximately four feet into the saturated zone. The drive rod was retracted to expose the screen, and a tubing check-valve pump was used to collect groundwater samples from the screen sampler. Groundwater grab samples were analyzed for BTEX and MTBE by Method 8021B at Severn Trent Laboratory in Mobile, AL with a next-day turn-around time. The only detection of target analyte was a trace detection of xylenes in sample 28GW2. Analytical results are summarized in Table 3-1. Complete analytical results are presented in Attachment A.

**Table 3-1. Groundwater Grab Sample Analytical Results, µg/L**

Sample ID	Benzene	Ethylbenzene	Toluene	Xylenes	MTBE
28GW1	<1.0	<1.0	<1.0	<2.0	<10.0
28GW2	<1.0	<1.0	<1.0	3.1	<10.0
28GW3	<1.0	<1.0	<1.0	<2.0	<10.0
28GW4	<1.0	<1.0	<1.0	<2.0	<10.0
28GW5	<1.0	<1.0	<1.0	<2.0	<10.0
28GW6	<1.0	<1.0	<1.0	<2.0	<10.0
28GW7	<1.0	<1.0	<1.0	<2.0	<10.0
28GW8	<1.0	<1.0	<1.0	<2.0	<10.0

#### 3.2 Monitor Well Installation and Development

Shallow monitoring wells were installed in one upgradient and one downgradient location using a hollow-stem auger drill rig. The locations of the new wells are also shown on the site map (Figure 3-1). The upgradient monitor well was installed in the grassy area in the front of the OMS #28 main entrance. The downgradient well location was determined from the



results of the groundwater grab samples, and is located downgradient of the BTEX plume and west of the concrete-paved area. Both new monitoring wells have a 10 ft screen interval intercepting the water table and have a total depth of approximately 14 feet. Both wells were completed with a flush-mount surface protection. The wells were developed by surging with a bailer and pumping with a large-diameter tubing check-valve pump until the development water was visibly clear and free of sediment. Soil boring, monitoring well construction, and well development forms are included as Attachment B.

### **3.3 Monitor Well Sampling and Groundwater Analysis**

The five existing and two new monitoring wells were sampled once as part of the SI in November 2004 and a second time in March 2005 to assess plume movement and any changes in contaminant concentrations following multi-phase vacuum extraction. Monitor well purging and sampling was conducted in accordance with the low-stress procedure to minimize sample turbidity and prevent loss of volatiles. Groundwater sampling log forms for both events are included as Attachment C.

All groundwater samples collected from the monitoring wells were analyzed by Severn Trent Laboratories, Pensacola (STL-Pensacola) for VOCs using Method SW8260B, for PAHs by Method SW8310, and for lead by Method SW6010B. Only analytes listed in the *Alabama Underground Storage Tank Release Investigation and Corrective Action Guidance Manual*. (ADEM, 1995) were reported for the November 2004 samples, while the full list of 8260B and 8310 analytes were reported for the March 2005 samples. Table 3-2 summarizes the results for all target analytes detected in the November and March sampling events. Complete analytical results and a quality control summary for each sampling event are included in Attachment D.

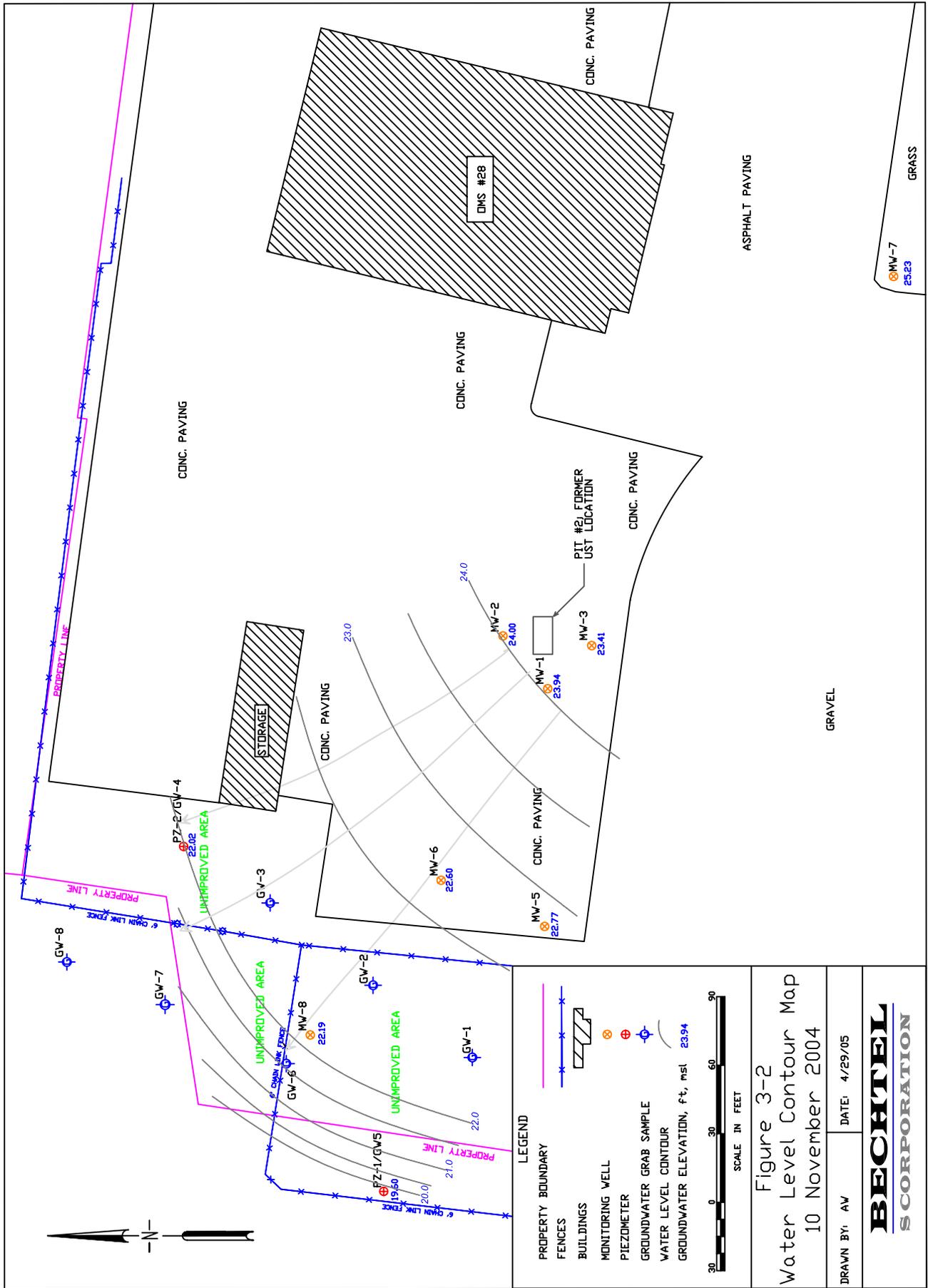
#### **3.3.1 Groundwater Flow**

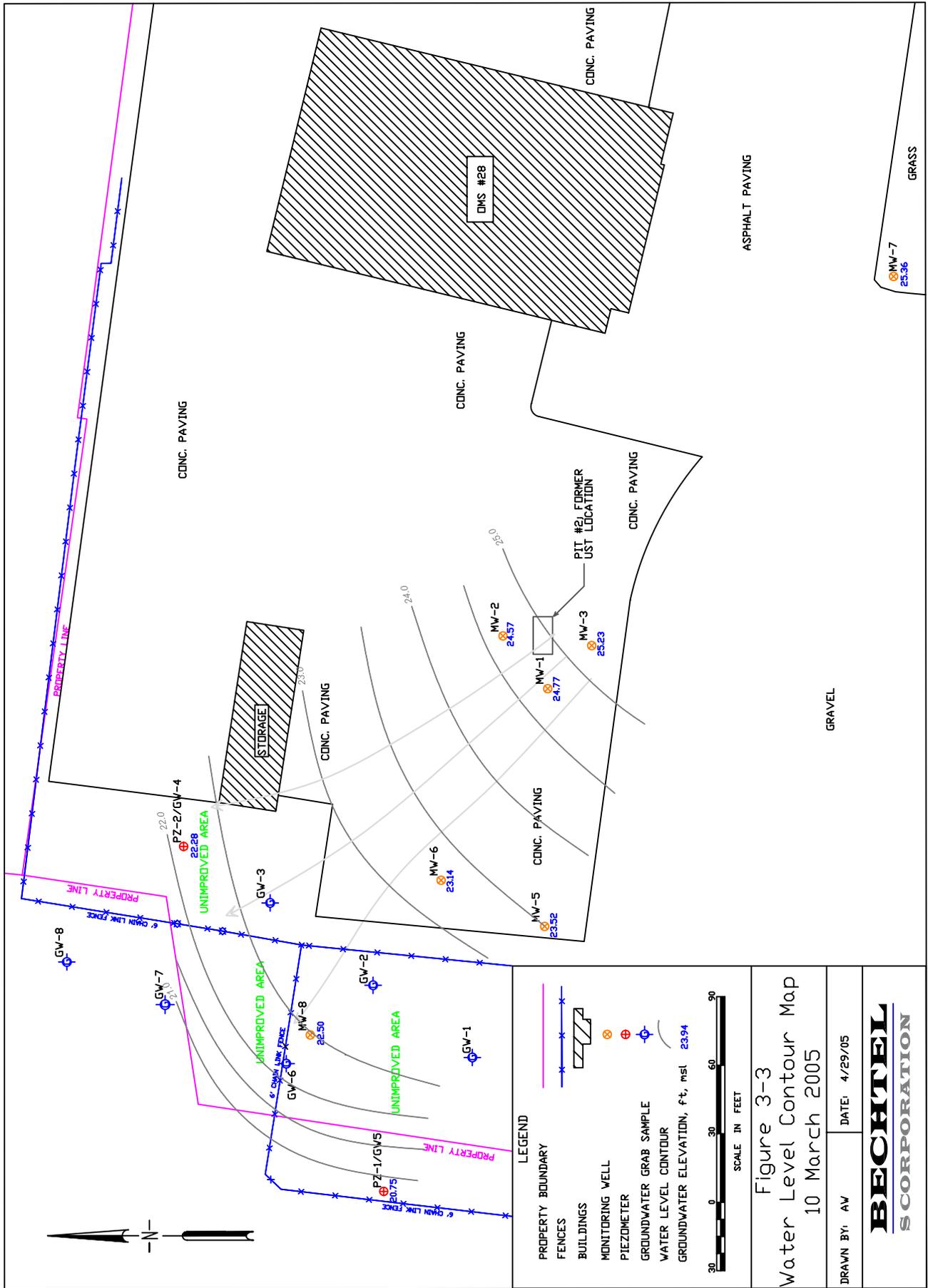
Two piezometers were installed at groundwater grab samples locations GW-4 and GW-5 to better define groundwater gradients across the site (see Figure 3-1). The piezometers are constructed of five feet of 1 inch PVC screen with a 1-inch PVC riser. The piezometer screen was driven approximately 2 to 3 feet below the water table. The top of the piezometer casing elevations were surveyed and all existing monitor wells were resurveyed to allow accurate measurement of groundwater elevations. Table 3-3 lists survey and water level data for all wells and piezometers at the site. Figures 3-2 and 3-3 show water table contour maps for November 2004 and March 2005, respectively. The figures show a slightly higher in water table elevation

**Table 3-2. Summary of Analytes Detected in Groundwater**  
(All values in µg/L)

Analyte	PSL	MW-1	MW-2	MW-3	MW-5	MW-6	MW-7	MW-8
<b>November 2004</b>								
Benzene	5	<b>140</b>	<0.25	<0.25	<0.25	<b>60</b>	<0.25	<5.0
Ethylbenzene	700	580	<0.25	<0.25	<0.25	<1.2	<0.25	<5.0
Toluene	1000	7.6	<0.25	<0.25	<0.25	<1.2	<0.25	<5.0
Xylenes	10000	400	<0.75	<0.75	<0.75	10.5	<0.75	<15.0
Naphthalene	20	<b>260</b>	<0.25	<0.25	<0.25	<b>88</b>	<0.25	<5.0
Lead	15	<5.0	3.0 JB	5.0 B	4.0 JB	3.0 JB	6.0 B	<5.0
Benzo(b)fluoranthene	0.8	0.19 JP	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Fluoranthene	20	0.2 JP	<1.0	<1.0	<1.0	0.076 JP	<1.0	<1.0
Phenanthrene	1000	0.38 JP	<1.0	<1.0	<1.0	0.20 JP	<1.0	<1.0
<b>March 2005</b>								
Benzene	5	<b>77</b>	<0.25	<0.25	<0.25	<b>41</b>	<0.25	<6.3
Ethylbenzene	700	400	<0.25	<0.25	<0.25	1.5	<0.25	<6.3
Isopropylbenzene	660 <sup>1</sup>	16	<0.25	<0.25	<0.25	15	<0.25	<6.3
Naphthalene	20	<b>140</b>	<0.25	<0.25	<0.25	<b>59</b>	<0.25	<6.3
n-Butylbenzene	240 <sup>1</sup>	<0.25	<0.25	<0.25	<0.25	4.7	<0.25	<6.3
n-Propylbenzene	240 <sup>1</sup>	<0.25	<0.25	<0.25	<0.25	2.3	<0.25	<6.3
sec-Butylbenzene	240 <sup>1</sup>	<0.25	<0.25	<0.25	<0.25	2.6	<0.25	<6.3
Toluene	1000	570	<0.25	<0.25	<0.25	0.71	<0.25	<6.3
1,2,3 Trimethylbenzene	12 <sup>1</sup>	<b>350</b>	<0.25	<0.25	<0.25	6.8	<0.25	<6.3
1,2,4 Trimethylbenzene	12 <sup>1</sup>	<b>100</b>	<0.25	<0.25	<0.25	<b>42</b>	<0.25	<6.3
o-Xylene	10000	270	<0.25	<0.25	<0.25	1.4	<0.25	<6.3
m & p Xylene	10000	960	<0.50	<0.50	<0.50	5.1	<0.50	<13
Lead	15	2.6 J	3.0 J	5.4	4.4 J	2.7 J	3.7 J	2.2 J
Acenaphthalene	370	12	<1.0	<1.0	<1.0	<1.0	<1.2	<1.0
1-Methylnaphthalene	NA	29	<1.0	<1.0	<1.0	21	<1.2	<1.0
2-Methylnaphthalene	NA	56	<1.0	<1.0	<1.0	29	<1.2	<1.0

Notes: PSL = Preliminary Screening Level,; ADEM ISL (if available) or EPA Region 9 PRG  
**Bold** = values exceed PSL <sup>1</sup>EPA Region 9 PRG for Tap Water  
 J = Estimated result NA = Not available  
 P = Second column result exceeds method criteria B = Detected at similar concentration in blank





in March than in November. Both figures also show a northwesterly flow direction, rather than the westerly flow determined by the 1994 SI; this apparent change is most likely an artifact of the improved control provided by the additional wells and piezometers installed in 2004. Both figures indicate that the groundwater gradient steepens markedly at the western edge of the area of investigation near PZ-1.

**Table 3-3. Monitor Well and Piezometer Survey Data**

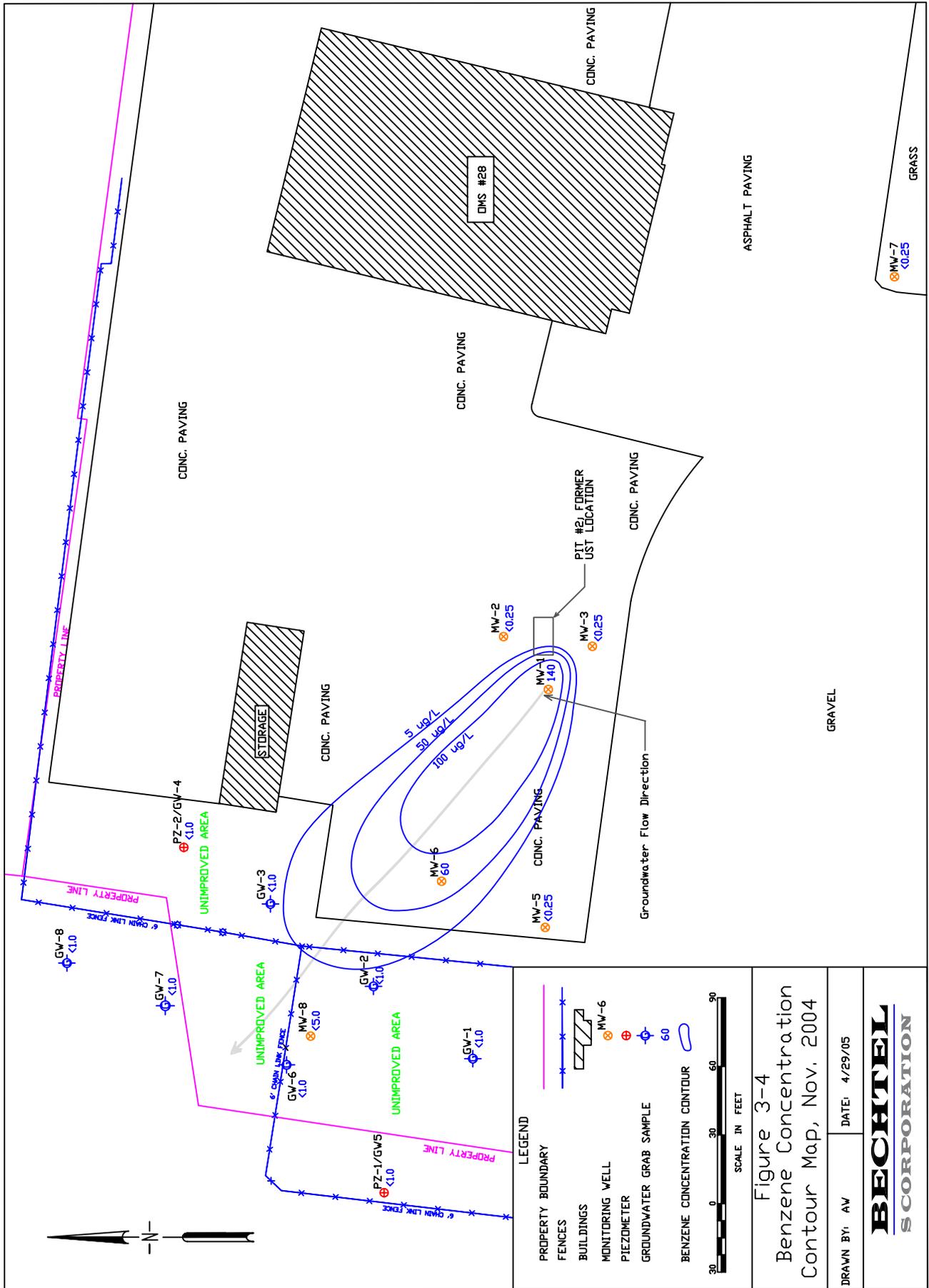
Well ID	Northing	Easting	Top of Casing Elevation	Groundwater Elevation 3/10/04	Groundwater Elevation 11/10/04	Groundwater Elevation 3/10/05
MW-1	238316.1	1791029	28.82	24.39	23.94	24.77
MW-2	238335.5	1791052	28.53	24.52	24	24.57
MW-3	238296.7	1791048	28.99	24.84	24.41	25.23
MW-5	238317.5	1790925	28.14	23.21	22.77	23.52
MW-6	238362.4	1790945	28.15	22.90	22.6	23.14
MW-7	238164.7	1791210	27.55		25.23	25.36
MW-8	238419.9	1790877	28.17		22.19	22.5
PZ-1	238387.8	1790809	27.55		19.6	20.75
PZ-2	238475.2	1790960	28.15		22.02	22.28

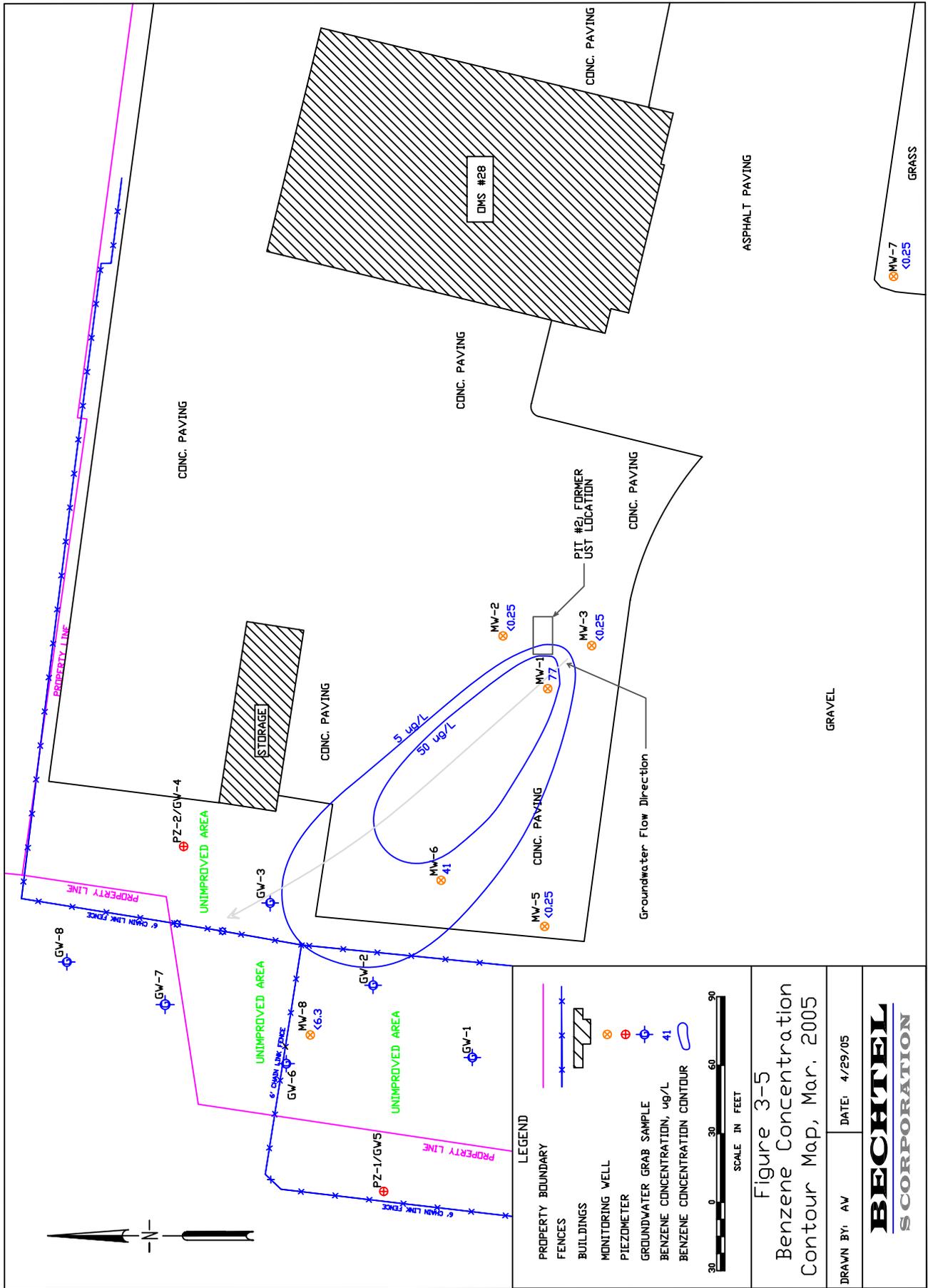
NOTE: Survey coordinates based on AL State Plane Coordinate System, West Zone, NAD 83. Vertical elevations based on NGVD 1989.

### 3.3.2 Contaminant Distribution

A plume of dissolved hydrocarbons extends downgradient from the former tank location near MW-1 to MW-6. No other wells currently contain detectable concentrations of target analytes. The distributions of benzene in OMS #28 groundwater in November 2004 and March 2005 are shown in Figures 3-4 and 3-5, respectively. Other site contaminants have a distribution similar to that shown for benzene, with recent detections confined to MW-1 and MW-6.

Groundwater analytical results confirm that contaminants associated with the former Pit #2 UST have not migrated off site. No target analytes were detected in the new downgradient well west of the concrete covered area, MW-8; except for a low-level lead detection in March 2005 that is consistent with lead concentrations in the upgradient (background) location.





The concentrations of several contaminants appear to vary as a function of water level. Source area (MW-1) concentrations of benzene, ethylbenzene, and naphthalene declined between November 2004 and March 2005, however toluene and xylene concentrations increased during the same time period.

The more extensive analyte list reported for March 2005 samples indicates the presence of additional fuel constituents in source area and downgradient groundwater, including butylbenzenes, trimethylbenzenes, and methylnaphthalenes in addition to the previously reported BTEX and naphthalene. Of these compounds, only 1,2,3 - trimethylbenzene and 1,2,4 - trimethylbenzene exceed preliminary screening levels (PSLs), in this case the EPA Region IX Preliminary Remediation Goals (PRGs) for tap water. None of the PAHs listed in the ADEM UST closure guidance exceed PSLs in either set of samples. All lead detections are below the PSL and are consistent with the concentrations reported in the upgradient well.

### **3.4 Source Area LNAPL**

Trace amounts of LNAPL were produced with groundwater from MW-1 during sampling in 2004, especially at higher pumping rates (< 1000 mL/min). LNAPL was produced as small droplets that coalesced to form small floating blobs and a ring around the plastic bucket used to contain purge water. The total volume of LNAPL produced during purging was less than 5 mL in 5 gallons of water. Figure 3-6 shows the appearance of LNAPL in the MW-1 purge water from November 2004. In March 2005, following multi-phase extraction from MW-1, even smaller amounts of LNAPL were produced; only a faint ring of orange-colored hydrocarbons on the side of the bucket and a slight sheen was visible, as shown in Figure 3-7. Because of the small amounts of LNAPL present and the relatively tight formation, the prospects for further LNAPL recovery are limited.

### **3.5 Multi-Phase Vacuum Extraction**

EcoVac Services was contracted to perform an 8-hour multi-phase vacuum extraction event at OMS #28 on December 10, 2004. The vacuum truck was connected to MW-1 and pumped an 8-hour period with a vacuum of approximately 25 inches of mercury. Flow rates ranged from 54 to 68 actual cubic feet per minute (ACFM) during this event. Vacuum readings recorded at extraction well MW-1 ranged from 20 to 21 inches of mercury. No measurable vacuum was recorded at any other well, indicating a very limited radius of influence for the vacuum extraction.

**Figure 3-6. Non-Aqueous Phase Liquids in MW-1 Purge Water, Nov. 2004**



**Figure 3-7. Non-Aqueous Phase Liquids in MW-1 Purge Water, March 2005**



A calculated total of 5.6 pounds of petroleum hydrocarbons (approximately 0.9 equivalent gallon of gasoline) was removed as hydrocarbon vapors. Vapor concentrations ranged from 500 to 800 parts per million by volume (PPM<sub>V</sub>) during the event. The hydrocarbon removal rate ranged from 0.4 to 0.8 pounds per hour during the event. Removal rates increased from 0.4 to 0.8 pound per hour during the initial two hours of extraction, as the water level around the extraction well was drawn down, and decreased to 0.7 pound per during the final six hours of this event. Vapors were treated with a dual internal combustion engine unit and analyzed for hydrocarbon content. A calculated total of 0.07 pound of hydrocarbons was released to the atmosphere. The vapor treatment achieved a destruction efficiency of 98.85%.

No measurable layer of LNAPL was detected in the extraction well prior to or upon completion of this event. The complete EcoVac report is included as Attachment E.

### **3.6 Contaminant Transport and Attenuation**

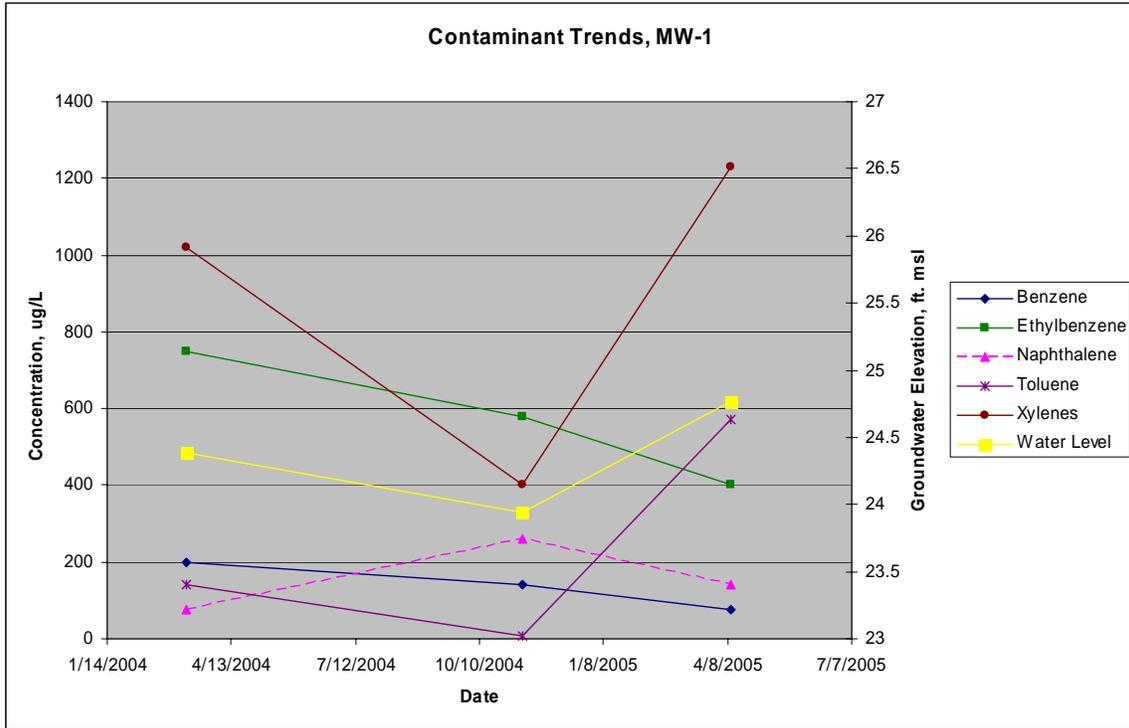
Contaminant distribution in groundwater is controlled by source area conditions and the balance between migration and attenuation rates. This section evaluates results from the three most recent monitoring events and considers the potential for further contaminant migration.

#### **3.6.1 Contaminant Transport**

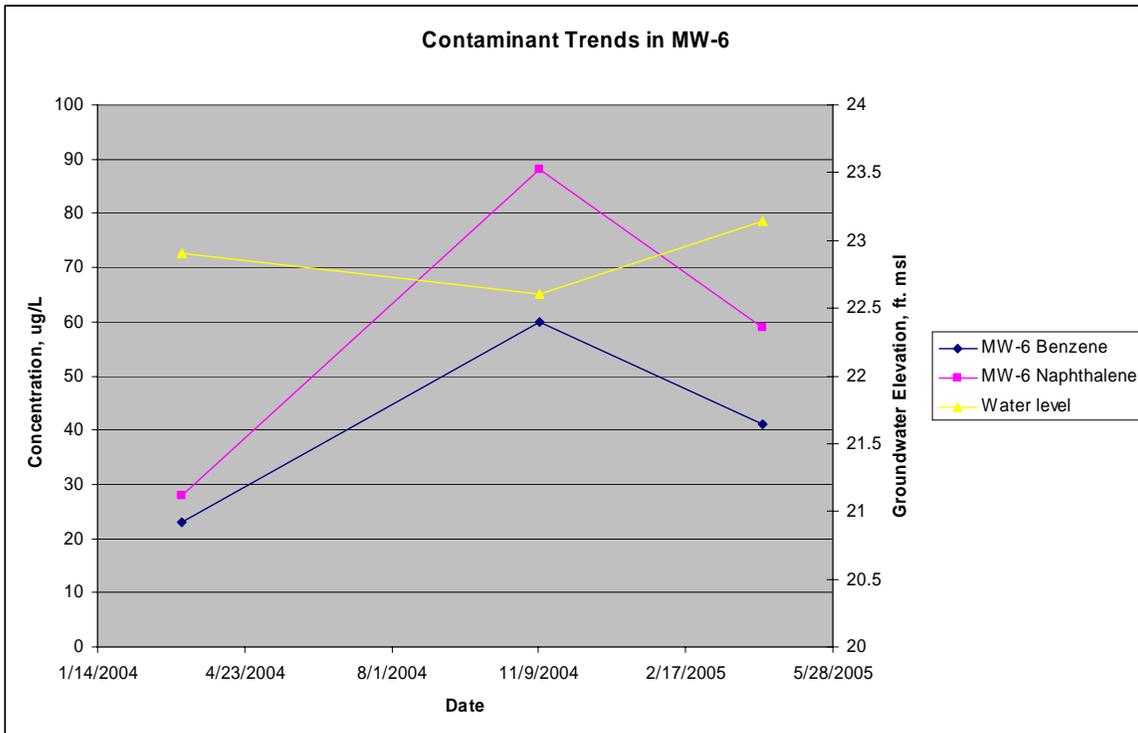
Results from the three most recent sampling events show no clear source area reduction in dissolved contaminants concentrations following vacuum extraction. Benzene and ethylbenzene concentrations in MW-1 have consistently decreased over time, but concentrations of toluene, xylene, and naphthalene in MW-1 have fluctuated but have generally increased. The fluctuations in contaminant concentrations may be correlated with changes in water level, as shown in Figure 3-8. The lower water level in November 2004 is correlated with decreased concentrations of toluene and xylenes. This correlation may be the result of groundwater interaction with a thin layer of soil near the maximum water table elevation that contains residual LNAPL; when the water table elevation drops below the level of the zone containing residual LNAPL dissolved contaminant concentrations also drop. It is unclear why benzene and ethylbenzene concentrations react differently to changes in water table elevation; additional monitoring data is needed to verify any correlation between water level and source area contaminant concentrations.

Downgradient concentrations of benzene and other contaminants have also fluctuated, but are generally increasing over time, as shown in Figure 3-9. The higher November 2004

**Figure 3-8. Contaminant Concentration Trends, MW-1**



**Figure 3-9. Contaminant Concentration Trends, MW-6**



concentrations of benzene and naphthalene correlate with a lower water level, in contrast to the decrease in contaminant concentrations with decreasing water level in MW-1. Once again, additional monitoring is needed to determine if changes in contaminant concentration are the result of water level changes, changes in plume distribution or groundwater flow direction, or random variability in sampling and analytical procedures.

### **3.6.2 Natural Attenuation Potential**

Data obtained during monitor well purging in March 2005 indicate that moderate levels of oxygen enter the source area from upgradient but are depleted in the source area and downgradient plume, limiting the attenuation of dissolved hydrocarbons. Downgradient of the concrete-paved area dissolved oxygen levels rebound slightly, allowing attenuation of the remaining dissolved hydrocarbons before the plume leaves ALARNG property.

The availability of adequate dissolved oxygen concentrations is the primary requirement for effective natural attenuation of fuel hydrocarbons. The availability of nutrients such as nitrate, near-neutral pH, and moderate temperature also affect the metabolic rates of the bacteria that degrade fuel hydrocarbons. At OMS #28 groundwater temperatures and pH are conducive to natural attenuation. No data on nitrate concentrations are available. Approximately 1.3 mg/L dissolved oxygen is present in wells MW-2 and MW-3, on either side of the source area. The upgradient well, MW-7 has a lower dissolved oxygen concentration, 0.58 mg/L, perhaps because groundwater in this area is locally confined below clayey sediments near the surface. The downgradient wells MW-5 and MW-8, outside the plume, had 0.41 and 0.39 mg/L dissolved oxygen respectively, suggesting that dissolved oxygen levels decline as groundwater moves under the concrete paving, even without the effects of fuel hydrocarbons. In the source area and within the downgradient plume dissolved oxygen concentrations are even lower; MW-1 and MW-6 contained 0.25 and 0.20 mg/L dissolved oxygen, respectively. Figure 3-10 shows approximate dissolved oxygen concentration contours for March 2005.

Dissolved oxygen data from November 2004 are considered unreliable. Several small bubbles were noted in the dissolved oxygen probe during sampling at MW-1, which was the last well sampled. The presence of bubbles causes dissolved oxygen readings to be biased high. It is not known how many readings were affected by the bubbles.

The increase in dissolved oxygen concentrations between MW-6 and MW-8, together with the shallow depth to groundwater and the relatively high groundwater recharge rates at the



site suggest that sufficient oxygen is available downgradient of the concrete-paved area to degrade dissolved hydrocarbons before the plume leaves the OMS #28 site. However, groundwater dissolved oxygen concentrations are significantly below saturation at all locations sampled at OMS #28. The availability of additional dissolved oxygen would increase the natural attenuation rate for dissolved hydrocarbons, although nutrient additions might also be required to optimize attenuation rates.

### **3.7 Disposal of Investigation-Derived Waste**

Monitoring well purge water and fluid produced during the multi-phase vacuum extraction was disposed as a non-hazardous, non-regulated waste at Industrial Water Services of Mobile, Alabama. Waste disposal manifests are included as Attachment F.

## **4.0 Conclusions and Recommendations**

This section presents the conclusions of the SI Addendum and makes recommendations for further activities to support closure of OMS #28, Pit #2.

### **4.1 Conclusions**

This SI Addendum has determined the current extent of groundwater contamination at OMS #28, Pit #2. Small amounts of residual LNAPL is present at MW-1. Vacuum extraction from MW-1 removed approximately 5.6 lbs of hydrocarbons from the immediate vicinity of MW-1, but had no effect on neighboring wells and removed only a small fraction of the total amount of hydrocarbons believed to be present. The vacuum extraction had no apparent effect on dissolved hydrocarbon concentrations, but a reduced the amount of LNAPL was produced in March 2005. The remaining LNAPL is effectively immobile under normal conditions, although it remains a source of dissolved hydrocarbons. The relatively tight formation conditions indicate that additional short-term vacuum extraction events from MW-1 will be of limited value.

Groundwater contamination does not extend off-site. Groundwater contamination with fuel hydrocarbons extends downgradient of the former UST location to MW-6; but only trace concentrations of fuel hydrocarbons were detected in grab samples downgradient of the concrete-paved area of the site and no target analytes were detected in the new downgradient monitoring well, MW-8. Contaminant concentrations in MW-6 have increased since the original SI, and appear to still be increasing, although more monitoring data is needed to establish clear trends.

Dissolved oxygen is depleted in the source area and as far downgradient as MW-6, however dissolved oxygen concentrations rebound downgradient of the concrete-paved area. Sufficient dissolved oxygen is present at MW-8 to degrade any hydrocarbons that might migrate that far downgradient, preventing any off-site migration.

### **4.2 Recommendations**

Continued groundwater monitoring is recommended for OM #28. Semiannual monitoring of wells MW-1, 6, 7, and 8 for BTEX plus naphthalene is recommended to evaluate trends in contaminant concentrations and verify that no off-site migration occurs. Water level measurements at all wells and piezometers should be measured semiannually to evaluate the

groundwater flow direction and confirm the apparent correlations between water levels and contaminant concentrations.

No further LNAPL removal efforts are recommended. The trace amounts of LNAPL present in the formation are immobile and have largely been depleted of aromatic constituents in the decades since fuels were leaked from the former UST. The short-term vacuum extraction performed as part of this investigation indicates that 1) substantial effort would be needed to recover any additional hydrocarbons; 2) the LNAPL removal process would likely not achieve complete removal; and 3) any extraction efforts would likely have little if any immediate impact on dissolved hydrocarbon concentrations.

If continued monitoring detects any site contaminants at MW-8, additional oxygen should be supplied to the shallow groundwater along the western edge of the concrete paving using Regenesys' Oxygen-Releasing Compound (ORC), or an equivalent product. ORC injection provides an inexpensive and effective means to prevent any future off-site contaminant migration. Analysis for additional natural attenuation parameters, including groundwater alkalinity, iron, nitrate/nitrite, and total organic carbon would be useful at this point to assess ORC application rates and the need for any nutrient application.

The ARBCA for OMS #28, Pit #2, submitted concurrently with this SI Addendum, indicates no current or likely future risk from this site because no off-site migration has occurred and there is no current or likely future receptor exposed to the shallow groundwater. Consequently, the site is recommended for Tier 1 closure with monitored natural attenuation.

## 5.0 References

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Bechtel-S Corp, 2003. *Final Work Plan and Site Safety and Health Plan For Investigation Activities, Sites 22 and 27, Brookley Field AFB, AL*. January 2003.

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P.E. LaMoreaux and Associates, Inc, 1994. *Underground Storage Tank Secondary Investigation Report, Alabama National Guard Armory OMS #28 and 29 - Pit #2*. Report dated Dec. 7 1994.

P.E. LaMoreaux and Associates, Inc, 1996. Letter to Mr. Tim Young, ADEM, “RE: OMS 28 and 29, Pit #2” dated July 3, 1997.

P.E. LaMoreaux and Associates, Inc, 1997a. Letter to Mr. Tim Young, ADEM, “RE: OMS 28 and 29, Pit #2” dated March 6, 1997.

P.E. LaMoreaux and Associates, Inc, 1997b. Letter to Ms. Stephanie Carter, ADEM, “RE: OMS 28 and 29, Pit #2” dated Sept. 5, 1997.

**Attachment A**  
**Data Quality Evaluation and Analytical Results for Groundwater Grab**  
**Samples, October 2004**

## Data Quality Evaluation

Eight groundwater grab samples were collected from OMS #28 on 6 October 2004 and delivered to Severn-Trent Laboratories in Mobile, Alabama on that same day for analysis of benzene, ethylbenzene, toluene, xylenes (BETX) and methyl-t-butyl ether (MTBE) by Method SW 8021B. One trip blank sample was also included. All samples were prepared and analyzed on 6 October 2004; all analytical work was completed within required hold times. Results were reported by STL-Mobile on 8 October 2004 as Order Number M437725.

The sample detection limits ( 1 µg/L for benzene, ethylbenzene, and toluene, 2 µg/L for xylenes, and 10 µg/L for MTBE) met the project requirements for screening-level analyses. The trip blank indicated no sample contamination at these detection limits. The method blank sample likewise demonstrates no detectable laboratory contamination of the analytical system. The laboratory control sample recoveries ranged from 75% for MTBE to 94% for toluene, with a relative percent difference (RPD) ranging from 0% for benzene to 13% for MTBE. All analytical recovery and RPD percentages are within project data quality limits.

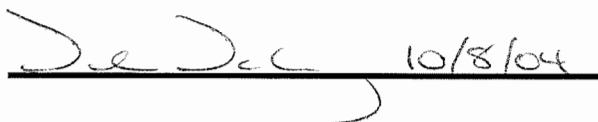
No other analytical quality control procedures were performed for these screening-level analyses.

## Analytical Report

**For:** Mr. Andy Weinberg  
Bechtel S Corporation  
8817 Mosquero Circle  
Austin, TX 78748

**CC:**

Order Number: M437725  
SDG Number:  
Client Project ID:  
Project: ALARNG OMS 28  
Report Date: 10/08/2004  
Sampled By: Client  
Sample Received Date: 10/06/2004  
Requisition Number:  
Purchase Order:

 10/8/04

Dale Darley, Project Manager  
ddarley@stl-inc.com

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

## Sample Summary

Order: M437725  
Date Received: 10/06/2004

Client: Bechtel S Corporation  
Project: ALARNG OMS 28

Client Sample ID	Lab Sample ID	Matrix	Date Sampled
28GW1	M437725*1	Liquid	10/06/2004 12:45
28GW2	M437725*2	Liquid	10/06/2004 13:10
28GW6	M437725*3	Liquid	10/06/2004 13:40
28GW5	M437725*4	Liquid	10/06/2004 14:00
28GW03	M437725*5	Liquid	10/06/2004 14:40
28GW04	M437725*6	Liquid	10/06/2004 15:00
28GW7	M437725*7	Liquid	10/06/2004 15:20
28GW8	M437725*8	Liquid	10/06/2004 15:45
Trip Blank	M437725*9	Liquid	10/06/2004 08:00

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37725-1	28GW1	Liquid	10/06/04	10/06/04 12:45	
37725-2	28GW2	Liquid	10/06/04	10/06/04 13:10	
37725-3	28GW6	Liquid	10/06/04	10/06/04 13:40	
37725-4	28GW5	Liquid	10/06/04	10/06/04 14:00	
37725-5	28GW03	Liquid	10/06/04	10/06/04 14:40	

Parameter	Units	Lab Sample IDs				
		37725-1	37725-2	37725-3	37725-4	37725-5
Purgeables (8021B)						
Benzene	ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Ethyl Benzene	ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes	ug/l	<2.0	3.1	<2.0	<2.0	<2.0
Methyl t-butyl ether (MTBE)	ug/l	<10	<10	<10	<10	<10
Prep Date		10/06/04	10/06/04	10/06/04	10/06/04	10/06/04
Analysis Date		10/06/04	10/06/04	10/06/04	10/06/04	10/06/04
Analysis Time		19:03	19:33	21:33	21:03	20:03
Analyst		JB	JB	JB	JB	JB

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37725-6	28GW04	Liquid	10/06/04	10/06/04 15:00	
37725-7	28GW7	Liquid	10/06/04	10/06/04 15:20	
37725-8	28GW8	Liquid	10/06/04	10/06/04 15:45	
37725-9	Trip Blank	Liquid	10/06/04	10/06/04 08:00	

Parameter	Units	Lab Sample IDs			
		37725-6	37725-7	37725-8	37725-9
Purgeables (8021B)					
Benzene	ug/l	<1.0	<1.0	<1.0	<1.0
Ethyl Benzene	ug/l	<1.0	<1.0	<1.0	<1.0
Toluene	ug/l	<1.0	<1.0	<1.0	<1.0
Xylenes	ug/l	<2.0	<2.0	<2.0	<2.0
Methyl t-butyl ether (MTBE)	ug/l	<10	<10	<10	<10
Prep Date		10/06/04	10/06/04	10/06/04	10/06/04
Analysis Date		10/06/04	10/06/04	10/06/04	10/06/04
Analysis Time		20:33	22:03	22:32	17:33
Analyst		JB	JB	JB	JB

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37725-10	Method Blank	Liquid	10/06/04		
37725-11	Lab Control Standard % Recovery	Liquid	10/06/04		
37725-12	Precision (%RPD) of LCS/LCSD	Liquid	10/06/04		

Parameter	Units	Lab Sample IDs		
		37725-10	37725-11	37725-12

Purgeables (8021B)				
Parameter	Units	37725-10	37725-11	37725-12
Benzene	ug/l	<1.0	85 %	0 %
Ethyl Benzene	ug/l	<1.0	88 %	5.7 %
Toluene	ug/l	<1.0	94 %	5.3 %
Xylenes	ug/l	<2.0	91 %	2.2 %
Methyl t-butyl ether (MTBE)	ug/l	<10	75 %	13 %
Prep Date		10/06/04	10/06/04	
Analysis Date		10/06/04	10/06/04	
Analysis Time		14:28	13:28	
Analyst		JB	JB	

Serial Number 17671

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

STL Mobile  
900 Lakeside Drive  
Mobile, AL 36693  
Website: www.stl-inc.com  
Phone: (251) 666-6633  
Fax: (251) 666-6696



Alternate Laboratory Name/Location

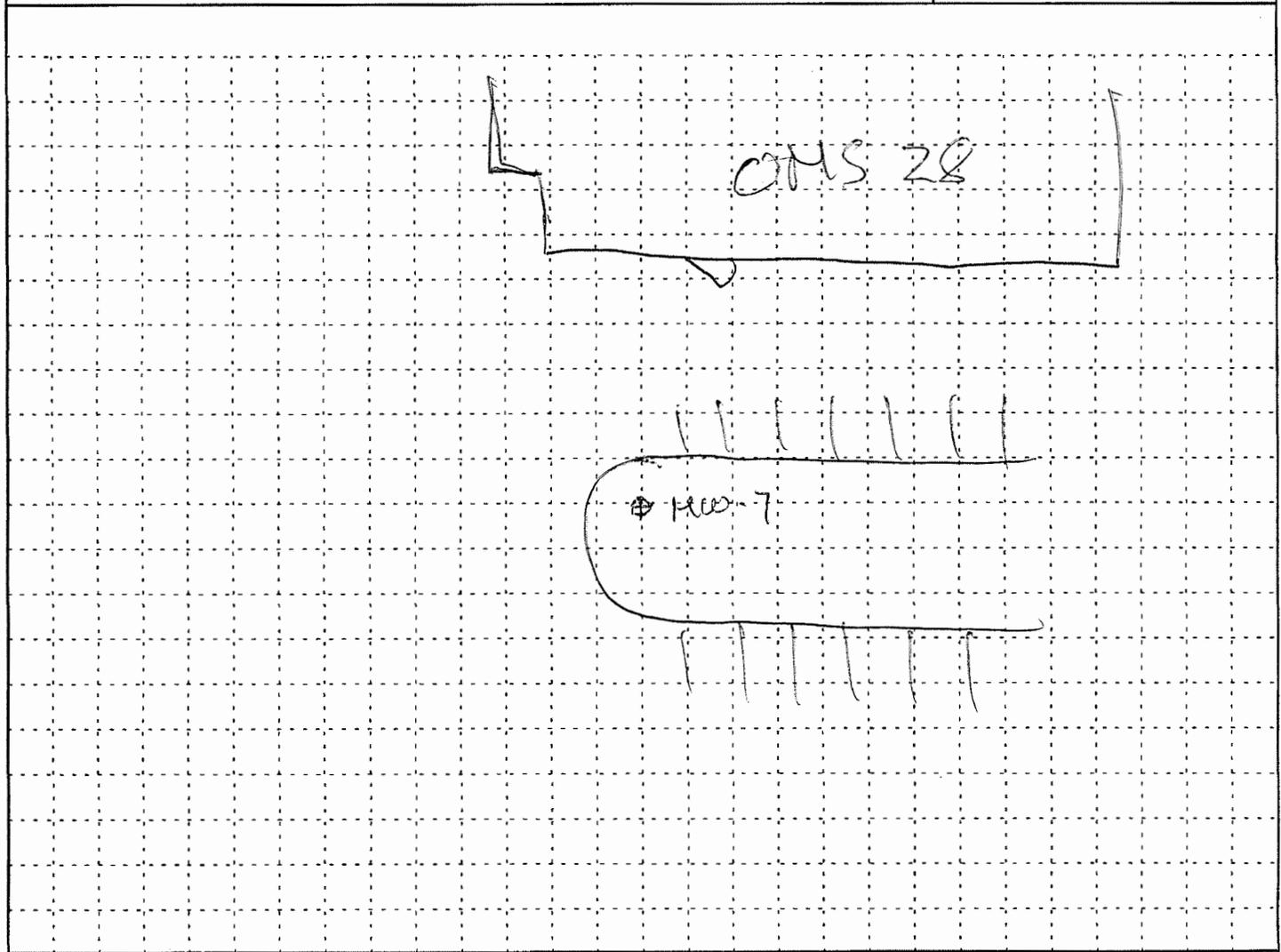
Phone:  
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)	MATRIX TYPE	REQUIRED ANALYSIS	PAGE	OF
ALARG OMS 28		AL	COMPOSITE (C) OR GRAB (G) INDICATE		1	1
SAMPLER'S SIGNATURE <i>Andrew Weinberg</i>	P.O. NUMBER	CONTRACT NO.	AQUEOUS (WATER)		STANDARD REPORT DELIVERY	0
CLIENT (SITE) PM <i>Andrew Weinberg</i>	CLIENT PHONE	CLIENT FAX	SOLID OR SEMISOLID		DATE DUE	
CLIENT NAME <i>Bechtel - S</i>	CLIENT E-MAIL		NONAQUEOUS LIQUID (OIL, SOLVENT,...)		EXPEDITED REPORT DELIVERY (SURCHARGE)	<input checked="" type="checkbox"/>
CLIENT ADDRESS <i>203 E. M. Tom St, Austin TX 78704</i>					DATE DUE	10-7
COMPANY CONTRACTING THIS WORK (if applicable)						
SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED		REMARKS		
DATE	TIME	DATE	TIME			
10-6	1245	286604		no preservative		
	1310	286602				
	1340	286606	*			
	1400	286605				
	1410	286603	*			
	1500	286604	*			
	1530	286607	*			
	1545	286608				
	1600	286609				
	0500	TBO1		* priority samples		
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
<i>Andrew Weinberg</i>		10-6-04	1700			
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
<i>Andrew Weinberg</i>		10-6-04	1645			

LABORATORY USE ONLY		LABORATORY REMARKS	
RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	LABORATORY LOG NO.
<i>Andrew Weinberg</i>	10/6/04	1645	1037725
			2.90C

**Attachment B**  
**Soil Boring and Monitor Well Construction Logs**

<b>HTRW DRILLING LOG</b>		DISTRICT <i>Mobile</i>		HOLE NUMBER <i>OMS-28 MW7</i>	
1. COMPANY NAME <i>Bechtel-S</i>		2. DRILL SUBCONTRACTOR <i>Southern Earth Sciences</i>		SHEET OF SHEETS <i>1 OF 3</i>	
3. PROJECT <i>OMS 28 Add'l ST</i>		4. LOCATION <i>OMS-28</i>			
5. NAME OF DRILLER <i>Mike White / Mike Cuff</i>		6. MANUFACTURER'S DESIGNATION OF DRILL <i>Longyear</i>			
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT <i>6" ID HSA</i>		8. HOLE LOCATION			
		9. SURFACE ELEVATION			
		10. DATE STARTED <i>10-7-04</i>		11. DATE COMPLETED <i>10-7-04</i>	
12. OVERBURDEN THICKNESS		15. DEPTH GROUNDWATER ENCOUNTERED			
13. DEPTH DRILLED INTO ROCK		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED			
14. TOTAL DEPTH OF HOLE <i>15'</i>		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)			
18. GEOTECHNICAL SAMPLES		DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES	
20. SAMPLES FOR CHEMICAL ANALYSIS		VOC <i>none</i>	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)
22. DISPOSITION OF HOLE		BACKFILLED	MONITORING WELL <i>X</i>	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
25. SIGNATURE OF INSPECTOR <i>Andrew W. [Signature]</i>					
LOCATION SKETCH/COMMENTS				SCALE	



PROJECT	HOLE NO. <i>OMS 28 MW07</i>
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# HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER

PROJECT

INSPECTOR

SHEET OF SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	1	Silty Sand, fine to fine sand, tan to yellow, moist soft, slightly plastic w/10% fines					casing
	2						
	3						
	4						
	5	As above, becoming wetter					
	6	Silty sand, increasing fines 5-7'					
	7	reddish brown, moist to dry					
	8	Silty sand, as <sup>at surf</sup> above <del>tan</del> yellow to tan, moist					
8	9						

PROJECT

HOLE NO.

# HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER  
28-BW07

PROJECT  
OHS 28 Addn'l SI

INSPECTOR  
*Andrew Montee*

SHEET 3 OF 3 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	10	Silty sand, as above					 <p>Sandy + Sand pack</p> <p>6" Sump</p>
	11						
	12						
	13						
	14	Sand, tan to white, cleaner sand w 5% fines, more water coming in to hole					
	15						

PROJECT

HOLE NO.

Facility/Project Name <u>015-28</u>	Local Grid Location of Well m. <input type="checkbox"/> N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Number <u>015 28 MW07</u>
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or St. Plane _____ m. N. _____ m. E.	Date Well Installed (Start) <u>10-7-04</u>
Type of Protective Cover: Above-Ground <input type="checkbox"/> Flush-To-Ground <input checked="" type="checkbox"/>	Section Location of Waste/Source 1/4 of _____ 1/4 of Sec. _____ T. _____ R. _____ <input type="checkbox"/> E. <input type="checkbox"/> W.	Date Well Installed (Completed) <u>10-7-04</u>
Well Distance From Waste/Source Boundary <u>~200'</u>	Location of Well Relative to Waste/Source <input checked="" type="checkbox"/> Upgradient <input type="checkbox"/> Sidogradient <input type="checkbox"/> Downgradient <input type="checkbox"/> Not Known	Well Installed By: (Person's Name & Firm) <u>Andrew Weirbeop</u>
Maximum Depth of Frost Penetration (estimated) <u>na</u>		<u>Rehiter-S Coop</u>

Note: Use top of casing (TOC) for all depth measurements.

- A. Protective casing, top elevation 0 m. MSL  
 B. Well casing, top elevation 0 m. MSL  
 C. Land surface elevation \_\_\_\_\_ m. MSL  
 D. Surface seal, bottom 3' m. TOC or \_\_\_\_\_ m. MSL

16. USCS classification of soil near screen:  
 GP  GM  GC  GW  SW  SP   
 SM  SC  ML  MH  CL  CH   
 Bedrock

17. Sieve analysis attached?  Yes  No

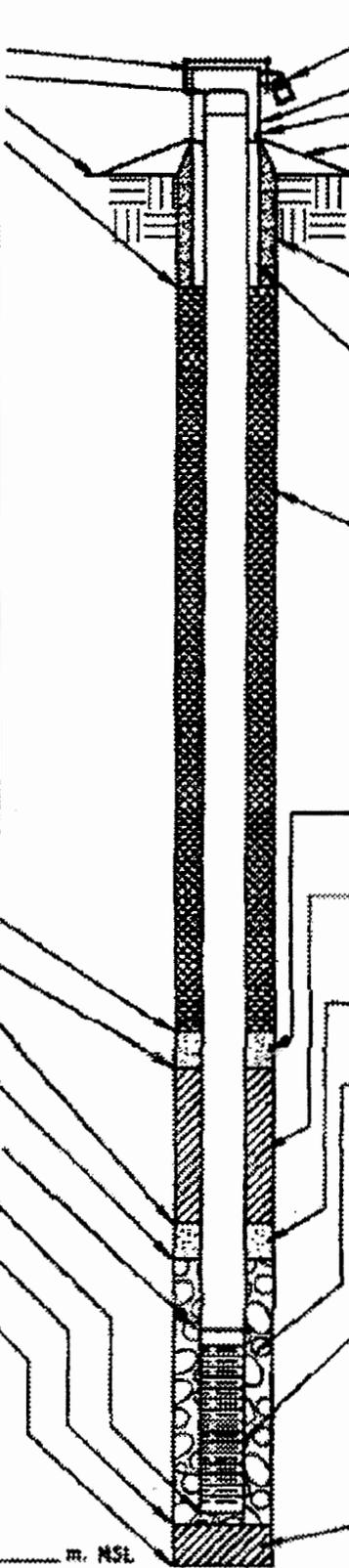
18. Drilling method used:  
 Rotary   
 Hollow Stem Auger   
 Other

19. Drilling fluid used: Water  Air   
 Drilling Mud  None

20. Drilling additives used?  Yes  No  
 Describe \_\_\_\_\_

21. Source of water (attach analysis):  
 \_\_\_\_\_

- E. Secondary filter, top \_\_\_\_\_ m. TOC or \_\_\_\_\_ m. MSL  
 F. Bentonite seal, top 1' m. TOC or \_\_\_\_\_ m. MSL  
 G. Secondary filter, top \_\_\_\_\_ m. TOC or \_\_\_\_\_ m. MSL  
 H. Primary filter, top 3' m. TOC or \_\_\_\_\_ m. MSL  
 I. Screen joint, top 5' m. TOC or \_\_\_\_\_ m. MSL  
 J. Well bottom 15' m. TOC or \_\_\_\_\_ m. MSL  
 K. Filter pack, bottom 155 m. TOC or \_\_\_\_\_ m. MSL  
 L. Borehole, bottom 155 m. TOC or \_\_\_\_\_ m. MSL  
 M. Borehole, diameter \_\_\_\_\_ mm.  
 N. O.D. well casing 2.25 in.  
 O. I.D. well casing 2" mm.  
 P. 24-hr water level after completion \_\_\_\_\_ m. TOC or \_\_\_\_\_ m. MSL



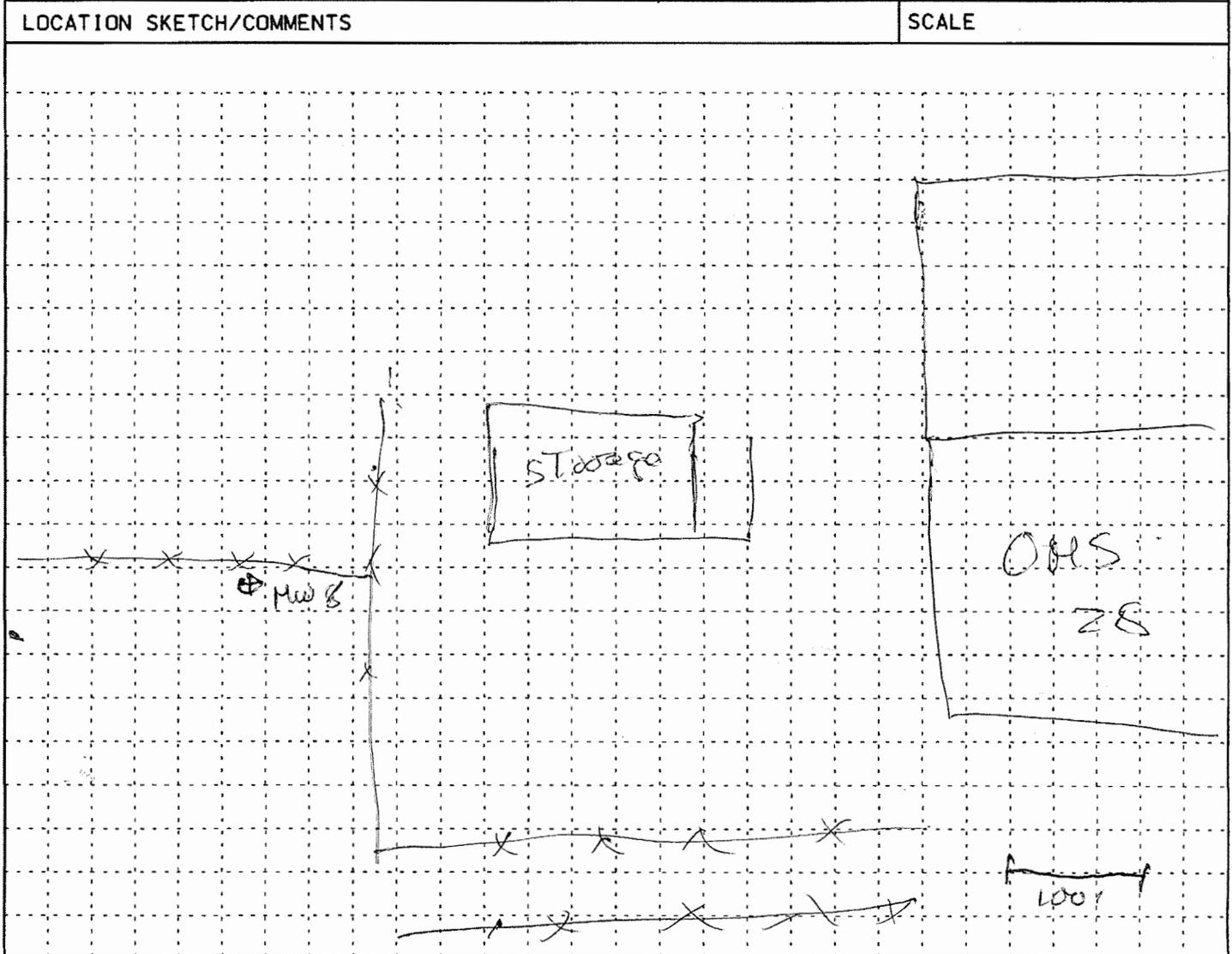
1. Cap and lock?  Yes  No  
 2. Protective posts?  Yes  No  
 3. Protective casing:  
 a. Inside diameter: 10" mm.  
 b. Length: 18' m.  
 4. Drainage port(s)  Yes  No  
 5. Surface seal:  
 a. Cap \_\_\_\_\_ Gravel blanket   
 Bentonite   
 Concrete   
 Other   
 b. Annular space seal: Bentonite   
 Cement   
 Other   
 6. Material between well casing and protective casing:  
 Bentonite   
 Cement   
 Other   
 7. Annular space seal:  
 a. Granular Bentonite   
 b. \_\_\_\_\_ lbs/gal mud weight... Bentonite-sand slurry   
 c. \_\_\_\_\_ lbs/gal mud weight... Bentonite slurry   
 d. \_\_\_\_\_ Bentonite... Bentonite-cement grout   
 e. \_\_\_\_\_ m<sup>3</sup> volume added for any of the above  
 f. How installed: Tremie   
 Tressie pumped   
 Gravity   
 8. Centralizers  Yes  No  
 9. Secondary Filter  Yes  No  
 a. Volume added \_\_\_\_\_ m<sup>3</sup> \_\_\_\_\_ Bags/Size  
 10. Bentonite seal:  
 a. Bentonite granules   
 b.  1/4 in.  1/2 in.  3/4 in. Bentonite pellets   
 c. \_\_\_\_\_ Other   
 11. Secondary Filter  Yes  No  
 a. Volume added \_\_\_\_\_ m<sup>3</sup> \_\_\_\_\_ Bags/Size  
 12. Filter pack material: Manufacturer, product name & mesh size  
 a. Southern Filter Media 20/40  
 b. Volume added \_\_\_\_\_ m<sup>3</sup> 7 / #50 Bags/Size  
 13. Well casing: Flush threaded PVC schedule 40   
 Flush threaded PVC schedule 80   
 Other   
 14. Screen material: 0.10 slot sch 40 PVC  
 a. Screen type: Factory cut   
 Continuous slot   
 Other   
 b. Manufacturer: Johnson  
 c. Slot size: 0.010 in.  
 d. Slotted length: 10' m.  
 15. Backfill material (below filter pack): None   
 Other

# WELL DEVELOPMENT LOG

Sheet 1 of 1

<b>PROJECT:</b> OMS-28 Addn '1 SI						<b>WELL ID:</b> OMS 28 MW-7			
<b>Performed By:</b> BSC			<b>Signature:</b> <i>A. [Signature]</i>			<b>Completion Date:</b>		<b>Development Date:</b> 10-8-04	
<b>Water Level Initial:</b> 4.5 <b>Final:</b>						<b>Develop Method:</b> Waterfall		<b>Total Vol. Dev. Water:</b>	
<b>Total Depth:</b> 15		<b>Screen Interval Top:</b> 5				<b>Bottom:</b> 15			
<b>Wetted Volume:</b> (0.16 gal/ft 2" casing + 0.87 gal/ft sand pack for 8" borehole)						10 gal			
Time	Cum. Volume (Liters)	Water Quality Parameters						Water Level (feet)	Comments
		Temp. (°C)	pH	Cond. (mS/cm)	Turb. (NTU)	D.O. (mg/L)	Redox (mV)		
1230	1							4.5	thick fine silt
1232	5							9	tan silt/sand
1236	10							15	pumped dry
1356	15				800			13	tan sand
1358	16				700			14.5	pumped dry
1410	20				500			12	clearing slowly
1418	25				500			11	surged well
1422	27				400			15	dry
1435	30				300			12.5	
1445	35				1			15	surged, pumped dry
1500	40				200			13	surge + pump
1510	42.5				100			10	
1532	45				100			10	clearing
1545	50				50			11	
1555	52				20			11	
Remarks									

HTRW DRILLING LOG			DISTRICT			HOLE NUMBER 28-MW08			
1. COMPANY NAME			2. DRILL SUBCONTRACTOR Southern Earth Sciences			SHEET 1 OF 3 SHEETS			
3. PROJECT			4. LOCATION						
5. NAME OF DRILLER Mike White / Mike C			6. MANUFACTURER'S DESIGNATION OF DRILL Longyear						
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT 8" OD HSA			8. HOLE LOCATION						
			9. SURFACE ELEVATION						
			10. DATE STARTED 10-7-01			11. DATE COMPLETED 10-7-01			
12. OVERBURDEN THICKNESS			15. DEPTH GROUNDWATER ENCOUNTERED 8'						
13. DEPTH DRILLED INTO ROCK			16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED						
14. TOTAL DEPTH OF HOLE			17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)						
18. GEOTECHNICAL SAMPLES			DISTURBED		UNDISTURBED		19. TOTAL NUMBER OF CORE BOXES		
20. SAMPLES FOR CHEMICAL ANALYSIS			VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %	
22. DISPOSITION OF HOLE			BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR			



PROJECT	HOLE NO.
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# HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER

PROJECT

INSPECTOR

SHEET OF SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	1	Topsoil + sandy gravel					
	2	Silty sand tan, fine to v. fine sand w trace silt					
	3						
	4	As above, less silt					
	5						
	6						
	7	sandy silt, moist yellow brown, plastic					
	8	Silty sand, tan moist to wet,					
$\nabla$	9						
	10	Silty sand as above saturated					

PROJECT

HOLE NO.

# HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER  
~~28-FW08~~  
 SHEET 3 OF 3 SHEETS

PROJECT

INSPECTOR

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	BLOW COUNT (g)	REMARKS (h)
	11	As above, silty sand					
	12						
	13	sand, SP. clean tan to white v fine sand					
	14						
	15	Base of hole					

PROJECT

HOLE NO.

Facility/Project Name <u>DMS-28</u>	Local Grid Location of Well m. <input type="checkbox"/> N. <input type="checkbox"/> S. m. <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Number <u>DMS 28 HW08</u>
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or St. Plane _____ m. N. _____ m. E.	Date Well installed (Start) <u>10-7-04</u>
Type of Protective Cover: Above-Ground <input type="checkbox"/> Flush-To-Ground <input type="checkbox"/>	Section Location of Waste/Source 1/4 of _____ 1/4 of Sec. _____ T. _____ R. _____ E. <input type="checkbox"/> W. <input type="checkbox"/>	Date Well installed (Completed) <u>10-7-04</u>
Well Distance From Waste/Source Boundary <u>250'</u>	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidgradient d <input checked="" type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	Well installed By: (Person's Name & Firm) <u>Andrew Weisberg</u>
Maximum Depth of Frost Penetration (estimated) <u>NA</u>		<u>Bechtel-S Coors</u>

Note: Use top of casing (TOC) for all depth measurements.

- A. Protective casing, top elevation \_\_\_\_\_ m. MSL  
 B. Well casing, top elevation \_\_\_\_\_ m. MSL  
 C. Land surface elevation \_\_\_\_\_ m. MSL  
 D. Surface seal, bottom \_\_\_\_\_ m. TOC or \_\_\_\_\_ m. MSL

16. USCS classification of soil near screen:

- GP  GM  GC  GW  SW  SP   
 SM  SC  ML  MH  CL  CH   
 Bedrock

17. Sieve analysis attached?  Yes  No

18. Drilling method used: Rotary   
 Hollow Stem Auger   
 Other

19. Drilling fluid used: Water  Air   
 Drilling Mud  None

20. Drilling additives used?  Yes  No  
 Describe \_\_\_\_\_

21. Source of water (attach analysis):  
 \_\_\_\_\_

- E. Secondary filter, top \_\_\_\_\_ m. TOC or \_\_\_\_\_ m. MSL

- F. Bentonite seal, top 1' m. TOC or \_\_\_\_\_ m. MSL

- G. Secondary filter, top \_\_\_\_\_ m. TOC or \_\_\_\_\_ m. MSL

- H. Primary filter, top 3' m. TOC or \_\_\_\_\_ m. MSL

- I. Screen joint, top 5' m. TOC or \_\_\_\_\_ m. MSL

- J. Well bottom 15' m. TOC or \_\_\_\_\_ m. MSL

- K. Filter pack, bottom 15' m. TOC or \_\_\_\_\_ m. MSL

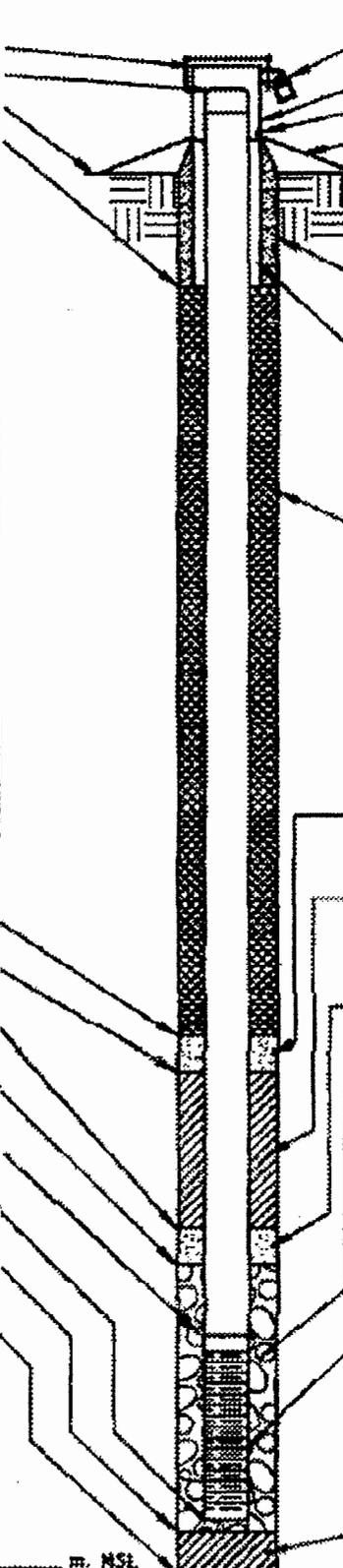
- L. Borehole, bottom 15.5' m. TOC or \_\_\_\_\_ m. MSL

- M. Borehole, diameter 8" mm.

- H. O.D. well casing 2.25 mm.

- O. I.D. well casing 2.0 mm.

- P. 24-hr water level after completion \_\_\_\_\_ m. TOC or \_\_\_\_\_ m. MSL



1. Cap and lock?  Yes  No  
 2. Protective posts?  Yes  No  
 3. Protective casing:  
 a. Inside diameter: 10" mm.  
 b. Length: 18" m.  
 4. Drainage port(s)  Yes  No  
 5. Surface seal:  
 a. Cap Gravel blanket   
 Bentonite   
 Concrete   
 Other   
 b. Annular space seal: Bentonite   
 Cement   
 Other   
 6. Material between well casing and protective casing:  
 Bentonite   
 Cement   
 Other   
 7. Annular space seal:  
 a. Granular Bentonite   
 b. \_\_\_\_\_ Lbs/gal mud weight .. Bentonite-sand slurry   
 c. \_\_\_\_\_ Lbs/gal mud weight .. Bentonite slurry   
 d. \_\_\_\_\_ Bentonite .. Bentonite-cement grout   
 e. \_\_\_\_\_ m.<sup>3</sup> volume added for any of the above  
 F. How installed: Tremie   
 Tremie pumped   
 Gravity   
 8. Centralizers  Yes  No  
 9. Secondary Filter  Yes  No  
 a. Volume added \_\_\_\_\_ m.<sup>3</sup> \_\_\_\_\_ Bags/Size  
 10. Bentonite seal:  
 a. Bentonite granules   
 b.  1/4 in.  3/8 in.  1/2 in. Bentonite pellets   
 c. \_\_\_\_\_ Other   
 11. Secondary Filter  Yes  No  
 a. Volume added \_\_\_\_\_ m.<sup>3</sup> \_\_\_\_\_ Bags/Size  
 12. Filter pack material: Manufacturer, product name & mesh size  
 a. Southern Filter Media 20/40  
 b. Volume added \_\_\_\_\_ m.<sup>3</sup> #50 Bags/Size  
 13. Well casing: Flush threaded PVC schedule 40   
 Flush threaded PVC schedule 80   
 Other   
 14. Screen material:  
 a. Screen type: Factory cut   
 Continuous slot   
 Other   
 b. Manufacturer: Johnson  
 c. Slot size: 0.010 in.  
 d. Slotted length: 10' m.  
 15. Backfill material (below filter pack): None   
Some gravel Other

# WELL DEVELOPMENT LOG

Sheet 1 of 1

<b>PROJECT:</b> OHS-28 Addon 1 SI				<b>WELL ID:</b> OHS-28 MW 8					
<b>Performed By:</b> BSC		<b>Signature:</b> <i>A. W. [unclear]</i>		<b>Completion Date:</b>		<b>Development Date:</b> 10-08-04			
<b>Water Level</b> Initial: 7.0 Final:				<b>Develop Method:</b> Waterlog		<b>Total Vol. Dev. Water:</b>			
<b>Total Depth:</b> 15'		<b>Screen Interval</b>		<b>Top:</b> 5		<b>Bottom:</b> 15			
<b>Wetted Volume:</b> (0.16 gal/ft 2" casing + 0.87 gal/ft sand pack for 8" borehole)				~ 8 gal					
Time	Cum. Volume (Liters)	Water Quality Parameters						Water Level (feet)	Comments
		Temp. (°C)	pH	Cond. (mS/cm)	Turb. (NTU)	D.O. (mg/L)	Redox (mV)		
1210	0.5							grey silty	
1220	7.5							clearing, well	
<del>1242</del>	<del>7.5</del>						7.0	pumped dry	
1242							7.5	recovered almost all the way	
1248	12.5						14	clearing slowly	
1254	16.5				~400		15	continued clearing	
1305	21.5				~300		12	maintain w/ w slow pump	
1317	26.5				"		12	v fine sand + silt	
1328	31.5				200		"		
1338	36.5				100		13	slightly cloudy	
1343	39				~20		"	clear	
<b>Remarks</b>									

**Attachment C**  
**Groundwater Sampling Logs**

GROUNDWATER SAMPLING LOG

Sheet \_\_\_ of \_\_\_

PROJECT: ALARNG OMS #28			WELL ID: MW-01	
PERFORMED BY: Bechtel-S Corp.		SAMPLER: A. W. [Signature]	LOG DATE: 11-10-04	SAMPLE TIME: 1450
WATER LEVEL Initial: 4.98 Final: 5.38		TOTAL DEPTH: 15	PURGE METHOD: Bladder pump	FLOW RATE: 300 ml/min

Time	Cum. Volume (Liters)	Water Quality Parameters						Water Level (feet)	Pump Setting F/D (HZ)	Comments
		Temp. (°C)	pH	Cond. (mS/cm)	Turb. (NTU)	D.O. (mg/L)	Redox (mV)			
1353	0	25.50	5.76	0.105	20	9.55	-4.4	5.12	12/3	~300ml/min
1357	1.2	26.01	5.72	0.089	15	12.91	-16.8	5.22	12/3	DO reading bad
1412	5.0	26.15	5.83	0.360	20	4.43	24	5.35	13/2.8	replaced DO membrane
1416	7.0	26.18	5.83	0.280	10	3.13	-21	5.37	"	~300ml/min
1423	8.0	26.32	5.83	0.253	10	2.78	-23.8	5.36	"	"
1428	9.5	26.37	5.82	0.247	"	2.67	-34.3	5.36	"	"
1432	11	26.34	5.82	0.246	"	2.64	-40.7	"	"	"
1438	13	26.34	5.82	0.247	"	2.61	-45.6	"	"	"
1442	14.5	26.36	5.82	0.247	"	2.60	-47.2	"	"	"
1446	16	26.36	5.82	0.247	"	2.59	-49.5	"	"	"
1515	18							5.65	12.1/4.2	small droplets of product in water

Sample ID	Matrix	Preservative	Analyses	Sample Type Code	Comments

Remarks Fuel odor Pump @ 10' Still small bubbles in DO membrane, readings may be biased high



GROUNDWATER SAMPLING LOG

Sheet 1 of 1

PROJECT: ALARNG OMS #28								WELL ID: MW-3		
PERFORMED BY: Bechtel-S Corp.			SAMPLER: A. W. Langberg		LOG DATE: 11.10.04		SAMPLE TIME: 1010			
WATER LEVEL Initial: 4.58 Final: 4.79			TOTAL DEPTH: 15'		PURGE METHOD: Bladder pump		FLOW RATE: 250 ml/min			
Time	Cum. Volume (Liters)	Water Quality Parameters						Water Level (feet)	Pump Setting F/D (Hz)	Comments
		Temp. (°C)	pH	Cond. (mS/cm)	Turb. (NTU)	D.O. (mg/L)	Redox (mV)			
0940	0.1	25.73	3.96	0.188	50	2.59	280	5.04	8/3	2350 ml/min
0944	1.5	26.32	3.94	0.199	30	2.05	310	5.15	10/3	350 ml/min
0948	2.5	26.23	3.92	0.216	20	1.77	329	5.15	10/3.5	300 ml/min
0952	4.0	26.20	3.91	0.223	15	1.71	342	5.12	10/3.5	250 ml/min
0955	5.0	26.25	3.91	0.229	10	1.66	353	5.11	12/2.5	"
1000	6.0	26.28	3.91	0.233	10	1.66	357	5.10	"	"
1004	7.0	26.50	3.91	0.235	10	1.67	367	"	"	"
1008	8.0	26.52	3.91	0.235	10	1.62	372	"	"	"
Sample ID		Matrix	Preservative	Analyses		Sample Type Code		Comments		
Remarks Pump @ 9.5										







GROUNDWATER SAMPLING LOG

Sheet 1 of 11

PROJECT: ALARNG OMS #28								WELL ID: MW-8		
PERFORMED BY: Bechtel-S Corp.				SAMPLER: A. C. [Signature]		LOG DATE: 11.9.04		SAMPLE TIME: 1640		
WATER LEVEL Initial: 5.98 Final: 6.08				TOTAL DEPTH: 15		PURGE METHOD: Bladder Pump		FLOW RATE: 500 L/min		
Time	Cum. Volume (Liters)	Water Quality Parameters						Water Level (feet)	Pump Setting (HZ)	Comments
		Temp. (°C)	pH	Cond. (mS/cm)	Turb. (NTU)	D.O. (mg/L)	Redox (mV)			
1600	1.5	24.20	5.77	0.430	200	1.19	163	6.30	3.9/3.1	grey silt
1603	3.0	24.23	5.83	0.473	50	1.12	162	6.30	4.0/4.0	clearing
1606	5.0	24.21	5.77	0.450	10	0.88	160	"	"	500 ml/min
1609	7.0	24.22	5.70	0.433	<5	0.73	164	6.32	"	"
1612	9.0	24.20	5.66	0.415	<5	0.62	168	6.31	"	"
1615	11.0	24.20	5.63	0.404	<5	0.56	174	"	"	"
1619	14.0	24.19	5.61	0.398	<5	0.51	176	"	"	"
1622	16.0	24.18	5.62	0.397	<5	0.53	174	"	"	"
Sample ID		Matrix	Preservative	Analyses		Sample Type Code		Comments		
				BTEX, Pb, SW8310						
Remarks Pump @ 12.5' BTOC										

# GROUNDWATER SAMPLING LOG

Sheet 1 of 1

PROJECT: OMS #28 Monitoring										WELL ID: MW-1	
PERFORMED BY: Bechtel-S				SAMPLER: A. Weinberg			LOG DATE: 03/10/2005			SAMPLE TIME: 1245	
WATER LEVEL Initial: 4.05 Final: 5.39				TOTAL DEPTH: 15			PURGE METHOD: bladder pump			FLOW RATE: 200 ml/min	
Time	Cum. Volume (Liters)	Water Quality Parameters						Water Level (feet)	Pump Setting (HZ)	Comments	
		Temp. (°C)	pH	Cond. (mS/cm)	Turb. (NTU)	D.O. (mg/L)	Redox (mV)				
1217	0.5	XX	6.10	0.213	4.18	1.00	-110	4.29	12.5/2.5	~250 mL/min	
1224	1.5	XX	6.03	0.210	3.98	0.37	-114	4.45	"	~200	
1229	3.0	XX	6.02	0.208	3.30	0.29	-114	4.56	"	"	
1234	4.0	XX	5.99	0.205	1.35	0.27	-110	4.68	"	"	
1239	5.0	XX	5.99	0.205	0.76	0.26	-109	4.74	"	"	
1242	5.5	XX	5.99	0.205	0.55	0.25	-105	4.77	"	"	
Sample ID		Matrix	Preservative	Analyses		Sample Type Code		Comments			
			varies	SW8021B, SW8310, Pb							
Remarks: increased pump rate after sample to check for product - slight orange ring on bucket after ~5 gal pumped											













**Attachment D**

**Data Quality Evaluation and Analytical Reports for Groundwater  
Monitoring, Nov. 2004 and March 2005**

## Data Quality Evaluation: November 2004 Groundwater Samples

Groundwater samples were collected from seven monitor wells at OMS #28 on 9 - 10 November 2004 and delivered to STL Pensacola on 11 November for analysis of volatile organic compounds (VOCs) including benzene, ethylbenzene, toluene, xylenes (BETX), methyl-t-butyl ether (MTBE), and naphthalene by Method SW 8260B; polynuclear aromatic hydrocarbons (PAHs) by method SW8310; and lead by Method SW6010B. One field duplicate sample and one trip blank sample were also included. All samples were received in good condition, and were prepared and analyzed within required hold times. Results were reported by STL on 30 November 2004 as Order Number C411300.

All measures of laboratory quality control meet project requirements. No VOCs or PAHs were detected in the method blank sample; lead was reported at a concentration of 0.002 JB  $\mu\text{L}$  in the method blank. All reported lead concentrations in field samples are less than 5X this method blank concentration. The trip blank indicates no sample contamination at analytical detection limits. The laboratory control sample recoveries are within required limits, with most analytes within 95% to 105% recovery. All analytical recovery and RPD percentages are within project data quality limits. All surrogate recoveries are within required limits. Surrogate recoveries for SW8260 analyses range from 83% to 98%; for SW8310 analyses recoveries range from 78% to 97%.

Method detection and reporting limits meet or exceed project requirements for all analytes except benzo(a)pyrene. The MDL for benzo(a)pyrene is 0/076  $\mu\text{L}$ , which is less than three times the required reporting limit of 0.2  $\mu\text{L}$ ; however the reported MDL for this analyte meets the requirement for the best practically achievable value. The sample detection limits meet or exceed the project target levels as specified in the work plan for all samples except SW8260B analysis of OMS28-MW08-1104. This sample required 20-fold dilution for VOC analysis because of interference from non-target analytes. Samples OMS28-MW01-1104 and OMS28-MW06-1104 required dilution for SW8260B analysis because of relatively high concentrations of target analytes.

All matrix spike/matrix spike duplicate (MS/MSD) sample results are within project quality specifications, as summarized below:

Method	% Recovery	RPD
SW6010B	100%	0%
SW8260B	81 -107%	0 – 10%
SW8310	76 – 98%	0 – 8%

A field duplicate sample was collected from MW-6. Field duplicate results indicate excellent reproducibility across all sources of sampling and analytical variability for all samples detected at concentrations above the reporting limits (i.e. not J-flagged), as summarized in the table below. Naphthalene results from SW8260B analysis appear more consistent than SW8310 results for this analyte.

### Field Duplicate Results, November 2004

(all results in µg/L, except as noted)

Method	Analyte	OMS28-MW06-1104	OMS28-MW06-1104 FD	RPD, %
SW6010B	Lead	0.0030 JB	0.0050 JB	25
SW8260B	Benzene	60	59	0.8
	Ethylbenzene	1.2 U	1.2 U	NC
	MTBE	1.2 U	1.2 U	NC
	Toluene	1.2 U	1.2 U	NC
	o-Xylene	2.7	2.7	0
	mp-Xylene	7.8	7.8	0
	Naphthalene	88	90	1.1
SW8310	Anthracene	1.0U	1.0U	NC
	Benzo(a)anthracene	0.20U	0.20U	NC
	Benzo(a)pyrene	0.20U	0.20U	NC
	Benzo(b)fluoranthene	0.20U	0.20U	NC
	Benzo(g,h,i)perylene	1.0U	1.0U	NC
	Benzo(k)fluoranthene	0.50U	0.50U	NC
	Chrysene	1.0U	1.0U	NC

SW8310, cont.	Fluoranthene	0.076JP	1.0U	NC
	Fluorene	1.0U	1.0U	NC
	Naphthalene	73	51	17.7
	Phenanthrene	0.20JP	0.10JP	33
	Pyrene	1.0U	1.0U	NC

J = estimated result less than reporting limit

B = analyte detected at similar concentration in method blank

U = not detected

NC = not calculated

## Analytical Report

For: Mr. Andy Weinberg  
Bechtel S Corporation  
8817 Mosquero Circle  
Austin, TX 78748

CC:

Order Number: C411300  
SDG Number:  
Client Project ID: ALARNG OMS #28  
Project: BROOKLEY AFB-MOBILE, AL  
Report Date: 11/30/2004  
Sampled By: Client  
Sample Received Date: 11/11/2004  
Requisition Number:  
Purchase Order: 14.005.02



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Stephanie Akers, Project Manager

SAkers@stl-inc.com

12/02/2004

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

## Sample Summary

Order: C411300  
Date Received: 11/11/2004

Client: Bechtel S Corporation  
Project: BROOKLEY AFB-MOBILE, AL

Client Sample ID	Lab Sample ID	Matrix	Date Sampled
OMS28-MMO1-1104	C411300*1	Li qui d	11/10/2004 14: 50
OMS28-MMO2-1104	C411300*2	Li qui d	11/10/2004 11: 40
OMS28-MMO3-1104	C411300*3	Li qui d	11/10/2004 10: 10
OMS28-MMO5-1104	C411300*4	Li qui d	11/10/2004 08: 35
OMS28-MMO6-1104	C411300*5	Li qui d	11/10/2004 13: 00
OMS28-MMO7-1104	C411300*6	Li qui d	11/09/2004 17: 40
OMS28-MMO8-1104	C411300*7	Li qui d	11/09/2004 16: 40
OMS28-MMO6-1104FD	C411300*8	Li qui d	11/10/2004 13: 00
TB-1104	C411300*9	Li qui d	11/09/2004 15: 00

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-1	OMS28-MM01-1104	Liquid	11/11/04	11/10/04 14:50	
11300-2	OMS28-MM02-1104	Liquid	11/11/04	11/10/04 11:40	
11300-3	OMS28-MM03-1104	Liquid	11/11/04	11/10/04 10:10	
11300-4	OMS28-MM05-1104	Liquid	11/11/04	11/10/04 08:35	
11300-5	OMS28-MM06-1104	Liquid	11/11/04	11/10/04 13:00	

Parameter	Units	Sample ID				
		11300-1 OMS28-MM01-1104	11300-2 OMS28-MM02-1104	11300-3 OMS28-MM03-1104	11300-4 OMS28-MM05-1104	11300-5 OMS28-MM06-1104

Lead (SW6010B)

	mg/l	0.0050U	0.0030JB	0.0050B	0.0040JB	0.0030JB
Lead						
Dilution Factor		1	1	1	1	1
Prep Date		11/15/04	11/15/04	11/15/04	11/15/04	11/15/04
Prep Time		00:59	00:59	00:59	00:59	00:59
Analysis Date		11/18/04	11/18/04	11/18/04	11/18/04	11/18/04
Analysis Time		17:26	17:42	17:48	16:58	17:53
Batch ID		PW443	PW443	PW443	PW443	PW443
Prep Method		3010A	3010A	3010A	3010A	3010A
Analyst		GSP	GSP	GSP	GSP	GSP
Quantitation Factor		1.000	1.000	1.000	1.000	1.000

Polynuclear Aromatic Hydrocarbons (SW8310)

	ug/l	1.0U	1.0U	1.0U	1.0U	1.0U
Anthracene						
Benzo(a)anthracene		0.20U	0.20U	0.20U	0.20U	0.20U
Benzo(a)pyrene		0.20U	0.20U	0.20U	0.20U	0.20U
Benzo(b)fluoranthene		0.19JP	0.20U	0.20U	0.20U	0.20U
Benzo(g,h,i)perylene		1.0U	1.0U	1.0U	1.0U	1.0U
Benzo(k)fluoranthene		0.50U	0.50U	0.50U	0.50U	0.50U
Chrysene		1.0U	1.0U	1.0U	1.0U	1.0U
Fluoranthene		0.20JP	1.0U	1.0U	1.0U	0.076JP
Fluorene		1.0U	1.0U	1.0U	1.0U	1.0U
Naphthalene		180	1.0U	1.0U	0.20JP	73
Phenanthrene		0.38JP	1.0U	1.0U	1.0U	0.20JP
Pyrene		1.0U	1.0U	1.0U	1.0U	1.0U

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-1	OMS28-MW01-1104	Liquid	11/11/04	11/10/04 14:50	
11300-2	OMS28-MW02-1104	Liquid	11/11/04	11/10/04 11:40	
11300-3	OMS28-MW03-1104	Liquid	11/11/04	11/10/04 10:10	
11300-4	OMS28-MW05-1104	Liquid	11/11/04	11/10/04 08:35	
11300-5	OMS28-MW06-1104	Liquid	11/11/04	11/10/04 13:00	

Parameter	Units	Sample ID				
		11300-1 OMS28-MW01-1104	11300-2 OMS28-MW02-1104	11300-3 OMS28-MW03-1104	11300-4 OMS28-MW05-1104	11300-5 OMS28-MW06-1104

Polynuclear Aromatic Hydrocarbons (SW8310)

Surrogate -						
2-Chloroanthracene *	%	97 %	86 %	91 %	92 %	94 %
Dilution Factor		1.0	1.0	1.0	1.0	1.0
Prep Date		11/15/04	11/15/04	11/15/04	11/15/04	11/15/04
Prep Time		16:00	16:00	16:00	16:00	16:00
Analysis Date		11/17/04	11/17/04	11/17/04	11/17/04	11/17/04
Analysis Time		10:31	11:04	11:38	12:12	12:46
Batch ID		PAW949	PAW949	PAW949	PAW949	PAW949
Prep Method		3520C	3520C	3520C	3520C	3520C
Analyst		SGB	SGB	SGB	SGB	SGB
Quantitation Factor		1.0	1.0	1.0	1.0	1.0

Volatile Organic Compounds (SW8260B)

Benzene	ug/l	140	0.25U	0.25U	0.25U	60
Ethyl benzene	ug/l	580	0.25U	0.25U	0.25U	1.2U
Methyl t-butyl ether (MTBE)	ug/l	5.0U	0.25U	0.25U	0.25U	1.2U
Toluene	ug/l	7.6	0.25U	0.25U	0.25U	1.2U
o-Xylene	ug/l	5.0U	0.25U	0.25U	0.25U	2.7
m-Xylene	ug/l	400	0.50U	0.50U	0.50U	7.8
Surrogate -						
Di bromofluoromethane *	%	91 %	86 %	85 %	83 %	83 %
Surrogate - Toluene-d8 *	%	96 %	95 %	95 %	95 %	96 %
Surrogate -						
4-Bromofluorobenzene *	%	98 %	91 %	90 %	91 %	95 %

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-1	OMS28-MM01-1104	Liquid	11/11/04	11/10/04 14:50	
11300-2	OMS28-MM02-1104	Liquid	11/11/04	11/10/04 11:40	
11300-3	OMS28-MM03-1104	Liquid	11/11/04	11/10/04 10:10	
11300-4	OMS28-MM05-1104	Liquid	11/11/04	11/10/04 08:35	
11300-5	OMS28-MM06-1104	Liquid	11/11/04	11/10/04 13:00	

Parameter	Units	Sample ID				
		11300-1	11300-2	11300-3	11300-4	11300-5
		OMS28-MM01-1104	OMS28-MM02-1104	OMS28-MM03-1104	OMS28-MM05-1104	OMS28-MM06-1104

Volatile Organic Compounds (SW8260B)

Naphthalene	ug/l	260	0.25U	0.25U	0.25U	88
Dilution Factor		20	1	1	1	5
Prep Date		11/23/04	11/22/04	11/22/04	11/22/04	11/22/04
Prep Time		17:54	13:31	14:04	11:45	14:38
Analysis Date		11/23/04	11/22/04	11/22/04	11/22/04	11/22/04
Analysis Time		17:54	13:31	14:04	11:45	14:38
Batch ID		COW347	COW343	COW343	COW343	COW343
Prep Method		5030B	5030B	5030B	5030B	5030B
Analyst		GRH	GRH	GRH	GRH	GRH
Quantitation Factor		20	1	1	1	5

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-6	OMS28-MM07-1104	Liquid	11/11/04	11/09/04 17:40	
11300-7	OMS28-MM08-1104	Liquid	11/11/04	11/09/04 16:40	
11300-8	OMS28-MM06-1104FD	Liquid	11/11/04	11/10/04 13:00	

Parameter	Units	Sample ID		
		11300-6 OMS28-MM07-1104	11300-7 OMS28-MM08-1104	11300-8 OMS28-MM06-1104F

Lead (SW6010B)

Lead	mg/l	0.0060B	0.0050U	0.0050B
Dilution Factor		1	1	1
Prep Date		11/15/04	11/15/04	11/15/04
Prep Time		00:59	00:59	00:59
Analysis Date		11/18/04	11/18/04	11/18/04
Analysis Time		17:59	18:04	18:10
Batch ID		PW443	PW443	PW443
Prep Method		3010A	3010A	3010A
Analyst		GSP	GSP	GSP
Quantitation Factor		1.000	1.000	1.000

Polynuclear Aromatic Hydrocarbons (SW8310)

Anthracene	ug/l	1.0U	1.0U	1.0U
Benzo(a)anthracene	ug/l	0.20U	0.20U	0.20U
Benzo(a)pyrene	ug/l	0.20U	0.20U	0.20U
Benzo(b)fluoranthene	ug/l	0.20U	0.20U	0.20U
Benzo(g,h,i)perylene	ug/l	1.0U	1.0U	1.0U
Benzo(k)fluoranthene	ug/l	0.50U	0.50U	0.50U
Chrysene	ug/l	1.0U	1.0U	1.0U
Fluoranthene	ug/l	1.0U	1.0U	1.0U
Fluorene	ug/l	1.0U	1.0U	1.0U
Naphthalene	ug/l	1.0U	1.0U	51
Phenanthrene	ug/l	1.0U	1.0U	0.10JP
Pyrene	ug/l	1.0U	1.0U	1.0U
Surrogate -				
2-Chloroanthracene *	%	78 %	86 %	79 %
Dilution Factor		1.0	1.0	1.0
Prep Date		11/15/04	11/15/04	11/15/04
Prep Time		16:00	16:00	16:00
Analysis Date		11/17/04	11/17/04	11/17/04
Analysis Time		13:20	14:27	15:01
Batch ID		PAW949	PAW949	PAW949
Prep Method		3520C	3520C	3520C
Analyst		SGB	SGB	SGB
Quantitation Factor		1.0	1.0	1.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-6	OMS28-MM07-1104	Liquid	11/11/04	11/09/04 17:40	
11300-7	OMS28-MM08-1104	Liquid	11/11/04	11/09/04 16:40	
11300-8	OMS28-MM06-1104FD	Liquid	11/11/04	11/10/04 13:00	

Parameter	Units	Sample ID		
		11300-6 OMS28-MM07-1104	11300-7 OMS28-MM08-1104	11300-8 OMS28-MM06-1104F

Volatile Organic Compounds (SW8260B)

Benzene	ug/l	0.25U	5.0U	59
Ethyl benzene	ug/l	0.25U	5.0U	1.2U
Methyl t-butyl ether (MTBE)	ug/l	0.25U	5.0U	1.2U
Toluene	ug/l	0.25U	5.0U	1.2U
o-Xylene	ug/l	0.25U	5.0U	2.7
m-p-Xylene	ug/l	0.50U	10U	7.8
Surrogate - Di bromofluoromethane *	%	87 %	85 %	83 %
Surrogate - Toluene-d8 *	%	95 %	95 %	96 %
Surrogate - 4-Bromofluorobenzene *	%	90 %	90 %	95 %
Naphthalene	ug/l	0.25U	5.0U	90
Dilution Factor		1	20	5
Prep Date		11/22/04	11/22/04	11/22/04
Prep Time		15:11	15:45	16:18
Analysis Date		11/22/04	11/22/04	11/22/04
Analysis Time		15:11	15:45	16:18
Batch ID		COW343	COW343	COW343
Prep Method		5030B	5030B	5030B
Analyst		GRH	GRH	GRH
Quantitation Factor		1	20	5

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-9	TB-1104	Liquid	11/11/04	11/09/04 15:00	
Sample ID					
Parameter	Units	11300-9 TB-1104			

Volatile Organic Compounds (SW8260B)

Benzene	ug/l	0.25U
Ethyl benzene	ug/l	0.25U
Methyl t-butyl ether (MTBE)	ug/l	0.25U
Toluene	ug/l	0.25U
o-Xylene	ug/l	0.25U
m-Xylene	ug/l	0.50U
Surrogate -		
Di bromofluoromethane *	%	82 %
Surrogate - Toluene-d8 *	%	95 %
Surrogate -		
4-Bromofluorobenzene *	%	90 %
Naphthalene	ug/l	0.25U
Dilution Factor		1
Prep Date		11/22/04
Prep Time		16:52
Analysis Date		11/22/04
Analysis Time		16:52
Batch ID		COW343
Prep Method		5030B
Analyst		GRH
Quantitation Factor		1

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-10	Method Blank	Liquid	11/11/04		
11300-11	LCS True Value	Liquid	11/11/04		
11300-12	LCS Result	Liquid	11/11/04		
11300-13	LCS % Recovery	Liquid	11/11/04		
11300-14	LCS Accuracy Control Limit (%R)	Liquid	11/11/04		

Parameter	Units	Sample ID				
		11300-10 Method Blank	11300-11 LCS True Value	11300-12 LCS Result	11300-13 LCS % Recovery	11300-14 LCS Accuracy Co

Lead (SW6010B)

Lead	mg/l	0.0020J	1.0	1.0	101 %	80-120
Dilution Factor		1		1		
Prep Date		11/15/04		11/15/04		
Prep Time		00:59		00:59		
Analysis Date		11/18/04		11/18/04		
Analysis Time		16:47		16:53		
Batch ID		PW443	PW443	PW443	PW443	
Prep Method		3010A		3010A		
Analyst		GSP		GSP		
Quantitation Factor		1.000		1.000		

Polynuclear Aromatic Hydrocarbons (SW8310)

Anthracene	ug/l	1.0U	10.0	10.4	104 %	43-143
Benzo(a)anthracene	ug/l	0.20U	10.0	9.2	92 %	42-128
Benzo(a)pyrene	ug/l	0.20U	10.0	9.5	95 %	33-114
Benzo(b)fluoranthene	ug/l	0.20U	10.0	9.3	93 %	44-132
Benzo(g,h,i)perylene	ug/l	1.0U	10.0	9.5	95 %	21-140
Benzo(k)fluoranthene	ug/l	0.50U	10.0	9.4	94 %	41-136
Chrysene	ug/l	1.0U	10.0	9.4	94 %	47-135
Fluoranthene	ug/l	1.0U	10.0	8.9	89 %	40-119
Fluorene	ug/l	1.0U	10.0	8.2	82 %	26-115
Naphthalene	ug/l	1.0U	10.0	7.9	79 %	19-102
Phenanthrene	ug/l	1.0U	10.0	8.6	86 %	35-132
Pyrene	ug/l	1.0U	10.0	9.0	90 %	40-130

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-10	Method Blank	Liquid	11/11/04		
11300-11	LCS True Value	Liquid	11/11/04		
11300-12	LCS Result	Liquid	11/11/04		
11300-13	LCS % Recovery	Liquid	11/11/04		
11300-14	LCS Accuracy Control Limit (%R)	Liquid	11/11/04		

Parameter	Units	Sample ID				
		11300-10 Method Blank	11300-11 LCS True Value	11300-12 LCS Result	11300-13 LCS % Recovery	11300-14 LCS Accuracy Co

Polynuclear Aromatic Hydrocarbons (SW8310)

Surrogate -						
2-Chloroanthracene *	%	91 %	1.00	0.89	89 %	28-138
Dilution Factor		1.0		1.0		
Prep Date		11/15/04		11/15/04		
Prep Time		16:00		16:00		
Analysis Date		11/17/04		11/17/04		
Analysis Time		08:49		08:15		
Batch ID		PAW949	PAW949	PAW949	PAW949	
Prep Method		3520C		3520C		
Analyst		SGB		SGB		
Quantitation Factor		1.0		1.0		

Volatile Organic Compounds (SW8260B)

Benzene	ug/l	0.25U	5.00	4.89	98 %	83-110
Ethyl benzene	ug/l	0.25U	5.00	5.16	103 %	76-123
Methyl t-butyl ether (MTBE)	ug/l	0.25U	5.00	4.67	93 %	71-123
Toluene	ug/l	0.25U	5.00	4.97	99 %	82-117
o-Xylene	ug/l	0.25U	5.00	5.12	102 %	76-126
m-p-Xylene	ug/l	0.50U	10.00	10.52	105 %	69-130
Surrogate -						
Di bromofluoromethane *	%	83 %	25.00	21.33	85 %	69-130
Surrogate - Toluene-d8 *	%	96 %	25.00	24.24	97 %	86-116
Surrogate -						
4-Bromofluorobenzene *	%	92 %	25.00	23.86	95 %	83-126

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-10	Method Blank	Liquid	11/11/04		
11300-11	LCS True Value	Liquid	11/11/04		
11300-12	LCS Result	Liquid	11/11/04		
11300-13	LCS % Recovery	Liquid	11/11/04		
11300-14	LCS Accuracy Control Limit (%R)	Liquid	11/11/04		

Parameter	Units	Sample ID				
		11300-10 Method Blank	11300-11 LCS True Value	11300-12 LCS Result	11300-13 LCS % Recovery	11300-14 LCS Accuracy Co

Volatile Organic Compounds (SW8260B)

Naphthalene	ug/l	0.25U	5.00	4.00	80 %	64-138
Dilution Factor		1		1		
Prep Date		11/22/04		11/22/04		
Prep Time		08:55		09:29		
Analysis Date		11/22/04		11/22/04		
Analysis Time		08:55		09:29		
Batch ID		COW343	COW343	COW343	COW343	
Prep Method		5030B		5030B		
Analyst		GRH		GRH		
Quantitation Factor		1		1		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-15	MS True Value	Liquid	11/11/04		
11300-16	Matrix Spike Result	Liquid	11/11/04		
11300-17	Matrix Spike % Recovery	Liquid	11/11/04		
11300-18	MSD True Value	Liquid	11/11/04		
11300-19	MSD Result	Liquid	11/11/04		

Parameter	Units	Sample ID				
		11300-15 MS True Value	11300-16 Matrix Spike Res	11300-17 Matrix Spike %	11300-18 MSD True Value	11300-19 MSD Result

Lead (SW6010B)

Lead	mg/l	1.0	1.0	100 %	1.0	1.0
Dilution Factor			1			1
Prep Date			11/15/04			11/15/04
Prep Time			00: 59			00: 59
Analysis Date			11/18/04			11/18/04
Analysis Time			17: 09			17: 15
Batch ID		PW443	PW443	PW443	PW443	PW443
Prep Method			3010A			3010A
Analyst			GSP			GSP
Quantitation Factor			1.000			1.000

Polynuclear Aromatic Hydrocarbons (SW8310)

Anthracene	ug/l	10.0	9.8	98 %	10.0	9.7
Benzo(a)anthracene	ug/l	10.0	9.2	92 %	10.0	9.0
Benzo(a)pyrene	ug/l	10.0	9.2	92 %	10.0	9.2
Benzo(b)fluoranthene	ug/l	10.0	9.1	91 %	10.0	9.1
Benzo(g,h,i)perylene	ug/l	10.0	9.2	92 %	10.0	9.3
Benzo(k)fluoranthene	ug/l	10.0	9.2	92 %	10.0	9.2
Chrysene	ug/l	10.0	9.4	94 %	10.0	9.3
Fluoranthene	ug/l	10.0	9.3	93 %	10.0	9.0
Fluorene	ug/l	10.0	7.7	77 %	10.0	7.9
Naphthalene	ug/l	10.0	7.6	76 %	10.0	8.3
Phenanthrene	ug/l	10.0	8.6	86 %	10.0	8.5
Pyrene	ug/l	10.0	9.3	93 %	10.0	9.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-15	MS True Value	Liquid	11/11/04		
11300-16	Matrix Spike Result	Liquid	11/11/04		
11300-17	Matrix Spike % Recovery	Liquid	11/11/04		
11300-18	MSD True Value	Liquid	11/11/04		
11300-19	MSD Result	Liquid	11/11/04		

Parameter	Units	Sample ID				
		11300-15 MS True Value	11300-16 Matrix Spike Res	11300-17 Matrix Spike %	11300-18 MSD True Value	11300-19 MSD Result

Polynuclear Aromatic Hydrocarbons (SW8310)

Surrogate -						
2-Chloroanthracene *	ug/l	1.00	0.87	87 %	1.00	0.86
Dilution Factor			1.0			1.0
Prep Date			11/15/04			11/15/04
Prep Time			16:00			16:00
Analysis Date			11/17/04			11/17/04
Analysis Time			09:23			09:57
Batch ID		PAW949	PAW949	PAW949	PAW949	PAW949
Prep Method			3520C			3520C
Analyst			SGB			SGB
Quantitation Factor			1.0			1.0

Volatile Organic Compounds (SW8260B)

Benzene	ug/l	10.00	9.80	98 %	10.00	9.90
Ethyl benzene	ug/l	10.00	10.69	107 %	10.00	10.67
Methyl t-butyl ether (MTBE)	ug/l	10.00	8.94	89 %	10.00	9.91
Toluene	ug/l	10.00	9.92	99 %	10.00	9.96
o-Xylene	ug/l	10.00	10.69	107 %	10.00	10.66
m-p-Xylene	ug/l	20.00	21.42	107 %	20.00	21.02
Surrogate -						
Di bromofluoromethane *	ug/l	25.00	20.35	81 %	25.00	20.93
Surrogate - Toluene-d8 *	ug/l	25.00	24.04	96 %	25.00	23.99
Surrogate -						
4-Bromofluorobenzene *	ug/l	25.00	24.06	96 %	25.00	24.16

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-15	MS True Value	Liquid	11/11/04		
11300-16	Matrix Spike Result	Liquid	11/11/04		
11300-17	Matrix Spike % Recovery	Liquid	11/11/04		
11300-18	MSD True Value	Liquid	11/11/04		
11300-19	MSD Result	Liquid	11/11/04		

Parameter	Units	Sample ID				
		11300-15 MS True Value	11300-16 Matrix Spike Res	11300-17 Matrix Spike %	11300-18 MSD True Value	11300-19 MSD Result

Volatile Organic Compounds (SW8260B)

Naphthalene	ug/l	10.00	8.52	85 %	10.00	9.28
Dilution Factor			1			1
Prep Date			11/22/04			11/22/04
Prep Time			10:02			10:38
Analysis Date			11/22/04			11/22/04
Analysis Time			10:02			10:38
Batch ID		COW343	COW343	COW343	COW343	COW343
Prep Method			5030B			5030B
Analyst			GRH			GRH
Quantitation Factor			1			1

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-20	MSD % Recovery	Liquid	11/11/04		
11300-21	MS Accuracy Advisory Limit (%R)	Liquid	11/11/04		
11300-22	Precision (%RPD) MS/MSD	Liquid	11/11/04		
11300-23	MS Precision Advisory Limit (%RPD)	Liquid	11/11/04		

Parameter	Units	Sample ID			
		11300-20	11300-21	11300-22	11300-23
		MSD % Recovery	MS Accuracy Adv	Precision (%RPD)MS	Precision Adv

Lead (SW6010B)

Lead	%	101 %	75-125	0 %	20
Batch ID		PW443		PW443	

Polynuclear Aromatic Hydrocarbons (SW8310)

Anthracene	%	97 %	33-145	1	68
Benzo(a)anthracene	%	90 %	34-139	1	52
Benzo(a)pyrene	%	92 %	27-117	0	47
Benzo(b)fluoranthene	%	91 %	30-140	0	59
Benzo(g,h,i)perylene	%	93 %	19-141	1	51
Benzo(k)fluoranthene	%	92 %	31-142	0	47
Chrysene	%	93 %	31-144	1	61
Fluoranthene	%	90 %	22-139	3	73
Fluorene	%	79 %	19-113	3	79
Naphthalene	%	83 %	2-108	8	93
Phenanthrene	%	85 %	26-136	1	70
Pyrene	%	90 %	26-142	3	68
Surrogate -					
2-Chloroanthracene *	%	86 %	28-138		
Batch ID		PAW949		PAW949	

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-20	MSD % Recovery	Liquid	11/11/04		
11300-21	MS Accuracy Advisory Limit (%R)	Liquid	11/11/04		
11300-22	Precision (%RPD) MS/MSD	Liquid	11/11/04		
11300-23	MS Precision Advisory Limit (%RPD)	Liquid	11/11/04		

Parameter	Units	Sample ID			
		11300-20	11300-21	11300-22	11300-23
		MSD % Recovery	MS Accuracy Adv	Precision (%RPD)	MS Precision Adv

Volatile Organic Compounds (SW8260B)

Benzene	%	99 %	85-116	1	11
Ethyl benzene	%	107 %	83-121	0	18
Methyl t-butyl ether (MTBE)	%	99 %	51-152	10	20
Toluene	%	100 %	84-119	0	14
o-Xylene	%	107 %	83-126	0	15
m-p-Xylene	%	105 %	82-126	2	18
Surrogate -					
Di bromofluoromethane *	%	84 %	69-130		
Surrogate - Toluene-d8 *	%	96 %	86-116		
Surrogate -					
4-Bromofluorobenzene *	%	97 %	83-126		
Naphthalene	%	93 %	62-153	9	23
Batch ID		COW343		COW343	



Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
11300-26	Method Blank 2	Liquid	11/11/04		
11300-27	LCS True Value 2	Liquid	11/11/04		
11300-28	Lab Control Standard Result 2	Liquid	11/11/04		
11300-29	Lab Control Standard % Recovery 2	Liquid	11/11/04		
11300-30	LCS Accuracy Control Limit (%R) 2	Liquid	11/11/04		

Parameter	Units	Sample ID				
		11300-26 Method Blank 2	11300-27 LCS True Value 2	11300-28 Lab Control Stan	11300-29 Lab Control Stan	11300-30 LCS Accuracy Co

Volatile Organic Compounds (SW8260B)

Benzene	ug/l	0.25U	5.00	4.57	91 %	83-110
Ethyl benzene	ug/l	0.25U	5.00	4.91	98 %	76-123
Methyl t-butyl ether (MTBE)	ug/l	0.25U	5.00	4.72	94 %	71-123
Toluene	ug/l	0.25U	5.00	4.60	92 %	82-117
o-Xylene	ug/l	0.25U	5.00	4.89	98 %	76-126
m-Xylene	ug/l	0.50U	10.00	9.82	98 %	69-130
Surrogate - Di bromofluoromethane *	%	87 %	25.00	21.93	88 %	69-130
Surrogate - Toluene-d8 *	%	95 %	25.00	24.12	96 %	86-116
Surrogate - 4-Bromofluorobenzene *	%	91 %	25.00	24.31	97 %	83-126
Naphthalene	ug/l	0.25U	5.00	3.83	77 %	64-138
Dilution Factor		1		1		
Prep Date		11/23/04		11/23/04		
Prep Time		12:20		12:53		
Analysis Date		11/23/04		11/23/04		
Analysis Time		12:20		12:53		
Batch ID		COW347	COW347	COW347	COW347	
Prep Method		5030B		5030B		
Analyst		GRH		GRH		
Quantitation Factor		1		1		

Order Number: C411300

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

## Data Quality Evaluation: March 2005 Groundwater Samples

Groundwater samples were collected from seven monitor wells at OMS #28 on 9 - 10 March 2005 and delivered to STL Pensacola on 11 March for analysis of volatile organic compounds (VOCs) by Method SW 8260B; polynuclear aromatic hydrocarbons (PAHs) by method SW8310; and lead by Method SW6010B. One field duplicate sample and one trip blank sample were also included. All samples were received in good condition, with a temperature between 0.5 and 1.0 °C and were prepared and analyzed within required hold times. Results were reported by STL on 14 May 2005 as Job Number 400-785.1. SW8260B analyses were conducted in two batches, 400-2376 and 400-2555.

All measures of laboratory quality control meet project requirements. No VOCs or PAHs were detected in the method blank sample except for one detection of methylene chloride at 0.3 µg/L in the method blank for analytical batch 400-2555. Lead was reported at a concentration of 0.0029 J µ/L in the method blank for Method SW6010B. All reported lead concentrations in field samples are less than 5X this method blank concentration. The trip blank indicates no sample contamination at analytical detection limits. The laboratory control sample (LCS) recoveries for target analytes in all analytical batches are within required limits, with most VOCs within 95% to 100% recovery. Naphthalene recoveries in Method 8260B were somewhat lower, at 75% in both analytical batches. LCS recoveries for Method 8310 are within acceptance criteria, ranging from 64% to 101%. All analytical recovery and RPD percentages are within project data quality limits. All surrogate recoveries are within required limits. Surrogate recoveries for SW8260 analyses range from 89% to 98%; for SW8310 analyses recoveries range from 68% to 81%.

Method detection and reporting limits meet or exceed project requirements for all analytes except benzo(a)pyrene. The MDL for benzo(a)pyrene is 0/076 µ/L, which is less than three times the required reporting limit of 0.2 µ/L; however the reported MDL for this analyte meets the requirement for the best practically achievable value. The sample detection limits meet or exceed the project target levels as specified in the work plan for all samples except SW8260B analysis of OMS28-MW08-1104. This sample required 25-fold dilution for SW8260B analysis because of interference from non-target analytes. Samples OMS28-MW01-1104 and OMS28-MW06-1104 required dilution for SW8260B analysis because of relatively high concentrations of target analytes.

All matrix spike/matrix spike duplicate (MS/MSD) sample results for target analytes are within project quality specifications, as summarized below:

Method	Analyte	MS % Recovery	RPD
SW6010B	Lead	97	1
SW8260B	Benzene	95	0
	Ethylbenzene	100	0
	Naphthalene	90	7
	Toluene	95	1
	o-Xylene	97	0
	m & p Xylene	95	3
SW8310	Anthracene	99	12
	Benzo(a)anthracene	83	14
	Benzo(a)pyrene	76	18
	Benzo(b)fluoranthene	77	13
	Benzo(g,h,i)perylene	69	14
	Benzo(k)fluoranthene	71	14
	Chrysene	83	14
	Fluoranthene	99	17
	Fluorene	95	11
	Naphthalene	82	8
	Phenanthrene	96	12
	Pyrene	101	14

A field duplicate sample was collected from MW-8. MW-8 was selected as the site for the field duplicate to help confirm the detection of non-target analytes noted in the November 2004 samples; however this well does not have detectable concentrations of any SW8310 target analytes. Consequently, the sampling variability cannot be assessed for this method. Field duplicate results indicate excellent reproducibility for VOCs analyzed by Method SW8260B and lead analyzed by Method SW6010, as summarized in the table below.

#### Field Duplicate Results, March 2005

(all results in µg/L, except as noted)

Method	Analyte	OMS28- MW08-0305	OMS28- MW08-0305B	RPD, %
SW6010B	Lead	0.0022 JB	0.0030 JB	15
SW8260B	cis-1,2 Dichloroethylene	11	10	4.8
	Trichloroethylene	460	430	3.4

J = estimated result < reporting limit

B = detected at similar concentration in method blank

# ANALYTICAL REPORT

Job Number: 400-785.1

Job Description: OMS #28 Brookley

For:

Bechtel S Corporation  
8817 Mosquero Circle  
Austin, TX 78748

Attention: Andy Weinberg

---

Stephanie Akers  
Project Manager I  
sakers@stl-inc.com  
05/14/2005

cc: Ann Behl

The test results in this report meet all NELAP requirements for accredited parameters. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced except in full with written approval from the laboratory.

**Severn Trent Laboratories, Inc.**

STL Pensacola 3355 McLemore Drive, Pensacola, FL 32514

Tel 850-4741001 Fax 850-4782671 www.stl-inc.com

## CASE NARRATIVE

STL Pensacola Job 400-785.1

Client Project Name: ALARNG OMS #28, Brookley AFB

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The following samples were received at STL Pensacola on March 11, 2005. The sample cooler temperatures were 0.5 °C, 0.8 °C, and 1.0 °C and sample bottles were intact upon arrival. No problems were found upon sample receipt and inspection.

STL Pensacola Sample ID	Client Sample Description	Sample Matrix	STL Pensacola Sample ID	Client Sample Description	Sample Matrix
400-785-1	OMS28-MW1-0305	Aqueous	400-785-6	OMS28-MW7-0305	Aqueous
400-785-2	OMS28-MW2-0305	Aqueous	400-785-7	OMS28-MW8-0305	Aqueous
400-785-3	OMS28-MW3-0305	Aqueous	400-785-8	OMS28-MW8-0305B	Aqueous
400-785-4	OMS28-MW5-0305	Aqueous	400-785-9	TB	Aqueous
400-785-5	OMS28-MW6-0305	Aqueous			

Matrix spike/matrix spike parent sample IDs are identified in the LIMS report.

An explanation of data qualifiers is provided in the LIMS report immediately following sample results.

Stephanie C. Akers  
Project Manager/QA  
STL Pensacola

May 14, 2005

## EXECUTIVE SUMMARY - Detections

Client: Bechtel S Corporation

Job Number: 400-785.1

Lab Sample ID	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
<b>400-785-1</b>	<b>OMS28-MW1-0305</b>				
Benzene		77	13	ug/L	8260B
Ethylbenzene		400	13	ug/L	8260B
Isopropylbenzene		16	13	ug/L	8260B
Naphthalene		140	13	ug/L	8260B
Toluene		570	13	ug/L	8260B
1,2,4-Trimethylbenzene		350	13	ug/L	8260B
1,3,5-Trimethylbenzene		100	13	ug/L	8260B
N-Propylbenzene		40	13	ug/L	8260B
o-Xylene		270	13	ug/L	8260B
m-Xylene & p-Xylene		960	25	ug/L	8260B
Naphthalene		130	1.0	ug/L	8310
Acenaphthylene		12	1.0	ug/L	8310
1-Methylnaphthalene		29	1.0	ug/L	8310
2-Methylnaphthalene		56	1.0	ug/L	8310
Lead		0.0026 J	0.0050	mg/L	6010B
<b>400-785-2</b>	<b>OMS28-MW2-0305</b>				
Lead		0.0030 J	0.0050	mg/L	6010B
<b>400-785-3</b>	<b>OMS28-MW3-0305</b>				
Lead		0.0054	0.0050	mg/L	6010B
<b>400-785-4</b>	<b>OMS28-MW5-0305</b>				
Lead		0.0044 J	0.0050	mg/L	6010B
<b>400-785-5</b>	<b>OMS28-MW6-0305</b>				
Acetone		24 B	10	ug/L	8260B
Benzene		41	0.63	ug/L	8260B
Benzene		34	2.5	ug/L	8260B
4-Chlorotoluene		2.4 J	2.5	ug/L	8260B
Ethylbenzene		1.5	0.63	ug/L	8260B
Isopropylbenzene		15	0.63	ug/L	8260B
Isopropylbenzene		6.9	2.5	ug/L	8260B
p-Cymene		0.80	0.63	ug/L	8260B
Methylene Chloride		2.5 J B	2.5	ug/L	8260B
Naphthalene		79 E	0.63	ug/L	8260B
Naphthalene		59	2.5	ug/L	8260B
n-Butylbenzene		4.7	0.63	ug/L	8260B
n-Butylbenzene		1.8 J	2.5	ug/L	8260B
sec-Butylbenzene		2.6	0.63	ug/L	8260B
Toluene		0.71	0.63	ug/L	8260B
Toluene		2.6	2.5	ug/L	8260B
1,2,4-Trimethylbenzene		6.8	0.63	ug/L	8260B

STL Pensacola

## EXECUTIVE SUMMARY - Detections

Client: Bechtel S Corporation

Job Number: 400-785.1

Lab Sample ID	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
<b>400-785-5</b>	<b>OMS28-MW6-0305</b>				
1,2,4-Trimethylbenzene		4.0	2.5	ug/L	8260B
1,3,5-Trimethylbenzene		42	0.63	ug/L	8260B
1,3,5-Trimethylbenzene		21	2.5	ug/L	8260B
N-Propylbenzene		2.3	0.63	ug/L	8260B
o-Xylene		1.4	0.63	ug/L	8260B
m-Xylene & p-Xylene		5.1	1.3	ug/L	8260B
m-Xylene & p-Xylene		4.1	5.0	ug/L	8260B
Naphthalene		45	1.0	ug/L	8310
1-Methylnaphthalene		21	1.0	ug/L	8310
2-Methylnaphthalene		29	1.0	ug/L	8310
Lead		0.0027	0.0050	mg/L	6010B
<b>400-785-6</b>	<b>OMS28-MW7-0305</b>				
Lead		0.0037	0.0050	mg/L	6010B
<b>400-785-7</b>	<b>OMS28-MW8-0305</b>				
cis-1,2-Dichloroethene		11	6.3	ug/L	8260B
Trichloroethene		460	6.3	ug/L	8260B
Lead		0.0022	0.0050	mg/L	6010B
<b>400-785-8</b>	<b>OMS28-MW8-0305B</b>				
cis-1,2-Dichloroethene		10	6.3	ug/L	8260B
Trichloroethene		430	6.3	ug/L	8260B
Lead		0.0030	0.0050	mg/L	6010B

## METHOD SUMMARY

Client: Bechtel S Corporation

Job Number: 400-785.1

<b>Description</b>	<b>Method</b>	<b>Preparation Method</b>
<b>Matrix: Water</b>		
Volatile Organic Compounds by GC/MS Purge-and-Trap Low Level	SW846 8260B	SW846 5030B
Polynuclear Aromatic Hydrocarbons Continuous Liquid-Liquid Extraction	SW846 8310	SW846 3520C
Inductively Coupled Plasma - Atomic Emission Spectrometry Acid Digestion of Aqueous Samples and Extracts for Total Metals	SW846 6010B	SW846 3010A

### REFERENCES

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986  
And Its Updates.

## METHOD / ANALYST SUMMARY

Client: Bechtel S Corporation

Job Number: 400-785.1

<b>Method</b>	<b>Analyst</b>	<b>Analyst ID</b>
SW846 8260B	Akers, Stephanie	SA
SW846 8260B	Dilmore, Larry	LD
SW846 8310	Bubien, Stephanie	SB
SW846 6010B	Reed, John	JR

## SAMPLE SUMMARY

Client: Bechtel S Corporation

Job Number: 400-785.1

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Client Matrix</b>	<b>Date/Time Sampled</b>	<b>Date/Time Received</b>
400-785-1	OMS28-MW1-0305	Water	03/10/2005 1245	03/11/2005 0925
400-785-2	OMS28-MW2-0305	Water	03/09/2005 1645	03/11/2005 0925
400-785-3	OMS28-MW3-0305	Water	03/09/2005 1740	03/11/2005 0925
400-785-3MS	OMS28-MW3-0305	Water	03/09/2005 1740	03/11/2005 0925
400-785-3MSD	OMS28-MW3-0305	Water	03/09/2005 1740	03/11/2005 0925
400-785-4	OMS28-MW5-0305	Water	03/10/2005 0925	03/11/2005 0925
400-785-5	OMS28-MW6-0305	Water	03/10/2005 1020	03/11/2005 0925
400-785-6	OMS28-MW7-0305	Water	03/10/2005 0800	03/11/2005 0925
400-785-7	OMS28-MW8-0305	Water	03/10/2005 1130	03/11/2005 0925
400-785-8	OMS28-MW8-0305B	Water	03/10/2005 1130	03/11/2005 0925
400-785-9	TB	Water	03/10/2005 1530	03/11/2005 0925

cooler 1  
 8310 90.00  
 8207X 75.00  
 8207X 10.00

SERIAL NUMBER: 22062

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**SEVERN**  
**TRENT**  
**STL**

STL Pensacola  
 3355 McLemore Drive  
 Pensacola, FL 32514  
 Phone: 850-474-1001  
 Fax: 850-478-2671  
 Website: www.stl-inc.com

QUOTE NO.  
 BOTTLE ORDER NO. **30A**  
**030213103**

ORDER - LOG-IN NO.  
**C400-5785**

CLIENT: **Bechtel-S** ADDRESS: **2319 Westcoak Dr, Austin TX 78701**

PROJECT NAME: **OHS# 28** PROJECT NO.: **14.05** CLIENT PROJECT MANAGER: **Andy Wemberg**

SAMPLED BY: **A. Wemberg** CONTRACT / P.O. NO.: **14.005**

CLIENT PHONE: **512-693-9353** CLIENT E-MAIL OR FAX: **14.005**

TAT REQUESTED: RUSH NEEDS LAB PREAPPROVAL  NORMAL - 10 BUSINESS DAYS

1 DAY  2 DAYS  3 DAYS  5 DAYS  20 DAYS (Package)  OTHER:

SAMPLE DISPOSAL:  RETURN TO CLIENT  DISPOSAL BY LAB

SEE CONTRACT  OTHER:

LAB USE ONLY - SAMPLE NUMBER

DATE: **3-10-05** TIME: **12:45** SAMPLE IDENTIFICATION: **OHS28-MW1-0305**

DATE: **3-9-05** TIME: **16:45** SAMPLE IDENTIFICATION: **OHS28-MW2-0305**

DATE: **3-9-05** TIME: **17:40** SAMPLE IDENTIFICATION: **OHS28-MW3-0305**

DATE: **3-10-05** TIME: **09:25** SAMPLE IDENTIFICATION: **OHS28-MW5-0305**

DATE: **"** TIME: **10:20** SAMPLE IDENTIFICATION: **OHS28-MW6-0305**

DATE: **"** TIME: **08:00** SAMPLE IDENTIFICATION: **OHS28-MW7-0305**

DATE: **"** TIME: **11:30** SAMPLE IDENTIFICATION: **OHS28-MW8-0305**

DATE: **3-9-05** TIME: **15:30** SAMPLE IDENTIFICATION: **OHS28-MW8-0305 B**

DATE: **"** TIME: **TR** SAMPLE IDENTIFICATION: **TR**

DATE: **"** TIME: **"** SAMPLE IDENTIFICATION: **"**

PROJECT LOC. (STATE): **AL**

MATRIX: **Drinking Water**

Other: **NonAqueous (Oil, Solvent, etc.)**

Aqueous GW, SW, WW

Solid, Semisolid, Sediment

Air

Other:

HCL - Hydrochloric Acid

HNO3 - Nitric Acid

H2SO4 - Sulfuric Acid or H3PO4

NaOH - Sodium Hydroxide

CH3OH - Methanol

NAHSO4 - Sodium Bisulfate

NA2S2O3 - Sodium Thiosulfate

Other:

Drinking Water

Aqueous GW, SW, WW

Solid, Semisolid, Sediment

Air

NonAqueous (Oil, Solvent, etc.)

Other:

HCL - Hydrochloric Acid

HNO3 - Nitric Acid

H2SO4 - Sulfuric Acid or H3PO4

NaOH - Sodium Hydroxide

CH3OH - Methanol

NAHSO4 - Sodium Bisulfate

NA2S2O3 - Sodium Thiosulfate

Other:

Drinking Water

NO PRESERVATIVE

RELINQUISHED BY: (SIGNATURE) **AD Wemberg** DATE: **3-10-05** TIME: **16:30**

RECEIVED BY: (SIGNATURE) **AD Wemberg** DATE: **3-10-05** TIME: **16:30**

RELINQUISHED BY: (SIGNATURE) DATE: TIME:

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SERIAL NUMBER: 22063

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SEVERN  
TRENT

STL

STL Pensacola  
3355 McLemore Drive  
Pensacola, FL 32514  
Phone: 850-474-1001  
Fax: 850-478-2671  
Website: www.stl-inc.com

BOTTLE ORDER NO. ORDER LOGGING NO.

QUOTE NO.

CLIENT

Bechtel-S

ADDRESS

2319 Westoak Dr, Austin TX

PROJECT NO.

14.005

CLIENT PROJECT MANAGER

Andy Weinberg

SAMPLED BY

Andy Weinberg

CONTRACT / P.O. NO.

14.005

CLIENT PHONE

512-693-9353

CLIENT E-MAIL OR FAX

TAT REQUESTED: RUSH NEEDS LAB PRE-APPROVAL

NORMAL - 10 BUSINESS DAYS

1 DAY  2 DAYS  3 DAYS  5 DAYS  20 DAYS (Package)  OTHER:

SAMPLE DISPOSAL:  RETURN TO CLIENT  DISPOSAL BY LAB

SEE CONTRACT  OTHER:

SAMPLE DATE

3.9.05

SAMPLE IDENTIFICATION

0MS28-MW3-0305

DATE

3.10.05

0MS28-MW8-0305

3.10.05

0MS28-MW8-0305B

PROJECT LOC. (STATE)	FL
MATRIX	Drinking Water
	Aqueous GW, SW, WW
	Solid, Semisolid, Sediment
	Air
	NonAqueous (Oil, Solvent, etc.)

PRESERVATIVE	No Preservative
	HCl - Hydrochloric Acid
	HNO3 - Nitric Acid
	H2SO4 - Sulfuric Acid or H3PO4
	NaOH - Sodium Hydroxide
	CH3OH - Methanol
	NAHSO4 - Sodium Bisulfate
	NA2S2O3 - Sodium Thiosulfate
	Other:

NUMBER OF CONTAINERS SUBMITTED

2

2

2

MS/MSD

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Andy Weinberg	3/10/05	1630			

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LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY:

Andy Weinberg

DATE

3/11/05

0925

CUSTODY SEAL NO.

1.0

REMARKS:

CUSTODY INTACT? YES  NO

LABORATORY USE ONLY

RECEIVED BY: (SIGNATURE)

EMPTY CONTAINERS

RECEIVED BY: (SIGNATURE)

EMPTY CONTAINERS

RECEIVED BY: (SIGNATURE)

DATE

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RELINQUISHED BY: (SIGNATURE)

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# **SAMPLE RESULTS**

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW1-0305**

Lab Sample ID: 400-785-1  
 Client Matrix: Water

Date Sampled: 03/10/2005 1245  
 Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3488019.D
Dilution:	50			Initial Weight/Volume:	10 mL
Date Analyzed:	03/15/2005 1600			Final Weight/Volume:	10 mL
Date Prepared:	03/15/2005 1600				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	50	U	32	50
Benzene	77		7.5	13
Bromobenzene	13	U	7.5	13
Bromochloromethane	13	U	7.5	13
Bromodichloromethane	13	U	7.5	13
Bromoform	13	U	7.5	13
2-Butanone (MEK)	50	U	7.5	50
Carbon disulfide	13	U	7.5	13
Bromomethane	13	U	7.5	13
Carbon tetrachloride	13	U	7.5	13
Chlorobenzene	13	U	7.5	13
Chloroethane	13	U	7.5	13
Chloroform	13	U	1.1	13
Chloromethane	13	U	7.5	13
2-Chlorotoluene	13	U	7.5	13
4-Chlorotoluene	13	U	7.5	13
Dibromochloromethane	13	U	2.0	13
Dibromomethane	13	U	7.5	13
1,2-Dibromo-3-Chloropropane	25	U	12	25
Ethylene Dibromide	13	U	7.5	13
1,2-Dichlorobenzene	13	U	7.5	13
1,3-Dichlorobenzene	13	U	7.5	13
Dichlorodifluoromethane	13	U	7.5	13
1,1-Dichloroethane	13	U	7.5	13
1,1-Dichloroethene	13	U	7.5	13
1,2-Dichloroethane	13	U	1.3	13
cis-1,2-Dichloroethene	13	U	7.5	13
trans-1,2-Dichloroethene	13	U	7.5	13
1,2-Dichloropropane	13	U	7.5	13
1,3-Dichloropropane	13	U	7.5	13
2,2-Dichloropropane	13	U	7.5	13
1,1-Dichloropropene	13	U	7.5	13
cis-1,3-Dichloropropene	13	U	7.5	13
trans-1,3-Dichloropropene	13	U	7.5	13
Ethylbenzene	400		7.5	13
Hexachlorobutadiene	13	U	7.5	13
2-Hexanone	50	U	7.5	50
Iodomethane	13	U *	7.5	13
Isopropylbenzene	16		7.5	13
Isopropyl ether	13	U	7.5	13
p-Cymene	13	U	7.5	13
Methylene Chloride	13	U *	7.5	13
Methyl tert-butyl ether	13	U	7.5	13

STL Pensacola

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW1-0305**

Lab Sample ID: 400-785-1  
 Client Matrix: Water

Date Sampled: 03/10/2005 1245  
 Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS (Continued)

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3488019.D
Dilution:	50			Initial Weight/Volume:	10 mL
Date Analyzed:	03/15/2005 1600			Final Weight/Volume:	10 mL
Date Prepared:	03/15/2005 1600				

Analyte	Result (ug/L)	Qualifier	MDL	RL
4-Methyl-2-pentanone (MIBK)	50	U	7.5	50
Naphthalene	140		7.5	13
n-Butylbenzene	13	U	7.5	13
sec-Butylbenzene	13	U	7.5	13
Styrene	13	U	7.5	13
tert-Butylbenzene	13	U	7.5	13
1,1,1,2-Tetrachloroethane	13	U	7.5	13
1,1,2,2-Tetrachloroethane	13	U	1.9	13
Tetrachloroethene	13	U	7.5	13
Toluene	570		7.5	13
1,1,1-Trichloroethane	13	U	7.5	13
1,1,2-Trichloroethane	13	U	7.5	13
1,2,3-Trichlorobenzene	13	U	7.5	13
1,2,4-Trichlorobenzene	13	U	7.5	13
Trichloroethene	13	U	7.5	13
Trichlorofluoromethane	13	U	7.5	13
1,2,3-Trichloropropane	13	U	1.1	13
1,2,4-Trimethylbenzene	350		7.5	13
1,3,5-Trimethylbenzene	100		7.5	13
Vinyl acetate	25	U	7.5	25
Vinyl chloride	13	U	7.5	13
N-Propylbenzene	40		7.5	13
o-Xylene	270		7.5	13
m-Xylene & p-Xylene	960		13	25
1,4-Dichlorobenzene	13	U	7.5	13
<hr/>				
Surrogate	%Rec		Acceptance Limits	
4-Bromofluorobenzene	92		83 - 126	
Dibromofluoromethane	97		69 - 130	
Toluene-d8	95		86 - 116	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW2-0305**

Lab Sample ID: 400-785-2  
 Client Matrix: Water

Date Sampled: 03/09/2005 1645  
 Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3488021.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	03/15/2005 1634			Final Weight/Volume:	10 mL
Date Prepared:	03/15/2005 1634				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.0	U	0.64	1.0
Benzene	0.25	U	0.15	0.25
Bromobenzene	0.25	U	0.15	0.25
Bromochloromethane	0.25	U	0.15	0.25
Bromodichloromethane	0.25	U	0.15	0.25
Bromoform	0.25	U	0.15	0.25
2-Butanone (MEK)	1.0	U	0.15	1.0
Carbon disulfide	0.25	U	0.15	0.25
Bromomethane	0.25	U	0.15	0.25
Carbon tetrachloride	0.25	U	0.15	0.25
Chlorobenzene	0.25	U	0.15	0.25
Chloroethane	0.25	U	0.15	0.25
Chloroform	0.25	U	0.021	0.25
Chloromethane	0.25	U	0.15	0.25
2-Chlorotoluene	0.25	U	0.15	0.25
4-Chlorotoluene	0.25	U	0.15	0.25
Dibromochloromethane	0.25	U	0.039	0.25
Dibromomethane	0.25	U	0.15	0.25
1,2-Dibromo-3-Chloropropane	0.50	U	0.23	0.50
Ethylene Dibromide	0.25	U	0.15	0.25
1,2-Dichlorobenzene	0.25	U	0.15	0.25
1,3-Dichlorobenzene	0.25	U	0.15	0.25
Dichlorodifluoromethane	0.25	U	0.15	0.25
1,1-Dichloroethane	0.25	U	0.15	0.25
1,1-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloroethane	0.25	U	0.025	0.25
cis-1,2-Dichloroethene	0.25	U	0.15	0.25
trans-1,2-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloropropane	0.25	U	0.15	0.25
1,3-Dichloropropane	0.25	U	0.15	0.25
2,2-Dichloropropane	0.25	U	0.15	0.25
1,1-Dichloropropene	0.25	U	0.15	0.25
cis-1,3-Dichloropropene	0.25	U	0.15	0.25
trans-1,3-Dichloropropene	0.25	U	0.15	0.25
Ethylbenzene	0.25	U	0.15	0.25
Hexachlorobutadiene	0.25	U	0.15	0.25
2-Hexanone	1.0	U	0.15	1.0
Iodomethane	0.25	U *	0.15	0.25
Isopropylbenzene	0.25	U	0.15	0.25
Isopropyl ether	0.25	U	0.15	0.25
p-Cymene	0.25	U	0.15	0.25
Methylene Chloride	0.25	U *	0.15	0.25
Methyl tert-butyl ether	0.25	U	0.15	0.25

STL Pensacola

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW2-0305**

Lab Sample ID: 400-785-2  
Client Matrix: Water

Date Sampled: 03/09/2005 1645  
Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS (Continued)

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3488021.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	03/15/2005 1634			Final Weight/Volume:	10 mL
Date Prepared:	03/15/2005 1634				

Analyte	Result (ug/L)	Qualifier	MDL	RL
4-Methyl-2-pentanone (MIBK)	1.0	U	0.15	1.0
Naphthalene	0.25	U	0.15	0.25
n-Butylbenzene	0.25	U	0.15	0.25
sec-Butylbenzene	0.25	U	0.15	0.25
Styrene	0.25	U	0.15	0.25
tert-Butylbenzene	0.25	U	0.15	0.25
1,1,1,2-Tetrachloroethane	0.25	U	0.15	0.25
1,1,2,2-Tetrachloroethane	0.25	U	0.037	0.25
Tetrachloroethene	0.25	U	0.15	0.25
Toluene	0.25	U	0.15	0.25
1,1,1-Trichloroethane	0.25	U	0.15	0.25
1,1,2-Trichloroethane	0.25	U	0.15	0.25
1,2,3-Trichlorobenzene	0.25	U	0.15	0.25
1,2,4-Trichlorobenzene	0.25	U	0.15	0.25
Trichloroethene	0.25	U	0.15	0.25
Trichlorofluoromethane	0.25	U	0.15	0.25
1,2,3-Trichloropropane	0.25	U	0.022	0.25
1,2,4-Trimethylbenzene	0.25	U	0.15	0.25
1,3,5-Trimethylbenzene	0.25	U	0.15	0.25
Vinyl acetate	0.50	U	0.15	0.50
Vinyl chloride	0.25	U	0.15	0.25
N-Propylbenzene	0.25	U	0.15	0.25
o-Xylene	0.25	U	0.15	0.25
m-Xylene & p-Xylene	0.50	U	0.25	0.50
1,4-Dichlorobenzene	0.25	U	0.15	0.25
Surrogate	%Rec		Acceptance Limits	
4-Bromofluorobenzene	90		83 - 126	
Dibromofluoromethane	98		69 - 130	
Toluene-d8	95		86 - 116	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW3-0305**

Lab Sample ID: 400-785-3

Date Sampled: 03/09/2005 1740

Client Matrix: Water

Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Analysis Batch: 400-2376

Instrument ID: GC/MS

Preparation:

Lab File ID: 3488017.D

Dilution: 1.0

Initial Weight/Volume: 10 mL

Date Analyzed: 03/15/2005 1527

Final Weight/Volume: 10 mL

Date Prepared: 03/15/2005 1527

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.0	U	0.64	1.0
Benzene	0.25	U	0.15	0.25
Bromobenzene	0.25	U	0.15	0.25
Bromochloromethane	0.25	U	0.15	0.25
Bromodichloromethane	0.25	U	0.15	0.25
Bromoform	0.25	U	0.15	0.25
2-Butanone (MEK)	1.0	U	0.15	1.0
Carbon disulfide	0.25	U	0.15	0.25
Bromomethane	0.25	U	0.15	0.25
Carbon tetrachloride	0.25	U	0.15	0.25
Chlorobenzene	0.25	U	0.15	0.25
Chloroethane	0.25	U	0.15	0.25
Chloroform	0.25	U	0.021	0.25
Chloromethane	0.25	U	0.15	0.25
2-Chlorotoluene	0.25	U	0.15	0.25
4-Chlorotoluene	0.25	U	0.15	0.25
Dibromochloromethane	0.25	U	0.039	0.25
Dibromomethane	0.25	U	0.15	0.25
1,2-Dibromo-3-Chloropropane	0.50	U	0.23	0.50
Ethylene Dibromide	0.25	U	0.15	0.25
1,2-Dichlorobenzene	0.25	U	0.15	0.25
1,3-Dichlorobenzene	0.25	U	0.15	0.25
Dichlorodifluoromethane	0.25	U	0.15	0.25
1,1-Dichloroethane	0.25	U	0.15	0.25
1,1-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloroethane	0.25	U	0.025	0.25
cis-1,2-Dichloroethene	0.25	U	0.15	0.25
trans-1,2-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloropropane	0.25	U	0.15	0.25
1,3-Dichloropropane	0.25	U	0.15	0.25
2,2-Dichloropropane	0.25	U	0.15	0.25
1,1-Dichloropropene	0.25	U	0.15	0.25
cis-1,3-Dichloropropene	0.25	U	0.15	0.25
trans-1,3-Dichloropropene	0.25	U	0.15	0.25
Ethylbenzene	0.25	U	0.15	0.25
Hexachlorobutadiene	0.25	U	0.15	0.25
2-Hexanone	1.0	U	0.15	1.0
Iodomethane	0.25	U *	0.15	0.25
Isopropylbenzene	0.25	U	0.15	0.25
Isopropyl ether	0.25	U	0.15	0.25
p-Cymene	0.25	U	0.15	0.25
Methylene Chloride	0.25	U *	0.15	0.25
Methyl tert-butyl ether	0.25	U	0.15	0.25

STL Pensacola



## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW5-0305**

Lab Sample ID: 400-785-4  
Client Matrix: Water

Date Sampled: 03/10/2005 0925  
Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3488023.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	03/15/2005 1707			Final Weight/Volume:	10 mL
Date Prepared:	03/15/2005 1707				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.0	U	0.64	1.0
Benzene	0.25	U	0.15	0.25
Bromobenzene	0.25	U	0.15	0.25
Bromochloromethane	0.25	U	0.15	0.25
Bromodichloromethane	0.25	U	0.15	0.25
Bromoform	0.25	U	0.15	0.25
2-Butanone (MEK)	1.0	U	0.15	1.0
Carbon disulfide	0.25	U	0.15	0.25
Bromomethane	0.25	U	0.15	0.25
Carbon tetrachloride	0.25	U	0.15	0.25
Chlorobenzene	0.25	U	0.15	0.25
Chloroethane	0.25	U	0.15	0.25
Chloroform	0.25	U	0.021	0.25
Chloromethane	0.25	U	0.15	0.25
2-Chlorotoluene	0.25	U	0.15	0.25
4-Chlorotoluene	0.25	U	0.15	0.25
Dibromochloromethane	0.25	U	0.039	0.25
Dibromomethane	0.25	U	0.15	0.25
1,2-Dibromo-3-Chloropropane	0.50	U	0.23	0.50
Ethylene Dibromide	0.25	U	0.15	0.25
1,2-Dichlorobenzene	0.25	U	0.15	0.25
1,3-Dichlorobenzene	0.25	U	0.15	0.25
Dichlorodifluoromethane	0.25	U	0.15	0.25
1,1-Dichloroethane	0.25	U	0.15	0.25
1,1-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloroethane	0.25	U	0.025	0.25
cis-1,2-Dichloroethene	0.25	U	0.15	0.25
trans-1,2-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloropropane	0.25	U	0.15	0.25
1,3-Dichloropropane	0.25	U	0.15	0.25
2,2-Dichloropropane	0.25	U	0.15	0.25
1,1-Dichloropropene	0.25	U	0.15	0.25
cis-1,3-Dichloropropene	0.25	U	0.15	0.25
trans-1,3-Dichloropropene	0.25	U	0.15	0.25
Ethylbenzene	0.25	U	0.15	0.25
Hexachlorobutadiene	0.25	U	0.15	0.25
2-Hexanone	1.0	U	0.15	1.0
Iodomethane	0.25	U *	0.15	0.25
Isopropylbenzene	0.25	U	0.15	0.25
Isopropyl ether	0.25	U	0.15	0.25
p-Cymene	0.25	U	0.15	0.25
Methylene Chloride	0.25	U *	0.15	0.25
Methyl tert-butyl ether	0.25	U	0.15	0.25

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW5-0305**

Lab Sample ID: 400-785-4  
 Client Matrix: Water

Date Sampled: 03/10/2005 0925  
 Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS (Continued)

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:		Lab File ID:		3488023.D	
Dilution:	1.0	Initial Weight/Volume:		10 mL	
Date Analyzed:	03/15/2005 1707	Final Weight/Volume:		10 mL	
Date Prepared:	03/15/2005 1707				

Analyte	Result (ug/L)	Qualifier	MDL	RL
4-Methyl-2-pentanone (MIBK)	1.0	U	0.15	1.0
Naphthalene	0.25	U	0.15	0.25
n-Butylbenzene	0.25	U	0.15	0.25
sec-Butylbenzene	0.25	U	0.15	0.25
Styrene	0.25	U	0.15	0.25
tert-Butylbenzene	0.25	U	0.15	0.25
1,1,1,2-Tetrachloroethane	0.25	U	0.15	0.25
1,1,2,2-Tetrachloroethane	0.25	U	0.037	0.25
Tetrachloroethene	0.25	U	0.15	0.25
Toluene	0.25	U	0.15	0.25
1,1,1-Trichloroethane	0.25	U	0.15	0.25
1,1,2-Trichloroethane	0.25	U	0.15	0.25
1,2,3-Trichlorobenzene	0.25	U	0.15	0.25
1,2,4-Trichlorobenzene	0.25	U	0.15	0.25
Trichloroethene	0.25	U	0.15	0.25
Trichlorofluoromethane	0.25	U	0.15	0.25
1,2,3-Trichloropropane	0.25	U	0.022	0.25
1,2,4-Trimethylbenzene	0.25	U	0.15	0.25
1,3,5-Trimethylbenzene	0.25	U	0.15	0.25
Vinyl acetate	0.50	U	0.15	0.50
Vinyl chloride	0.25	U	0.15	0.25
N-Propylbenzene	0.25	U	0.15	0.25
o-Xylene	0.25	U	0.15	0.25
m-Xylene & p-Xylene	0.50	U	0.25	0.50
1,4-Dichlorobenzene	0.25	U	0.15	0.25
Surrogate	%Rec		Acceptance Limits	
4-Bromofluorobenzene	90		83 - 126	
Dibromofluoromethane	96		69 - 130	
Toluene-d8	95		86 - 116	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW6-0305**

Lab Sample ID: 400-785-5  
Client Matrix: Water

Date Sampled: 03/10/2005 1020  
Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3488025.D
Dilution:	2.5			Initial Weight/Volume:	10 mL
Date Analyzed:	03/15/2005 1741			Final Weight/Volume:	10 mL
Date Prepared:	03/15/2005 1741				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	2.5	U	1.6	2.5
Benzene	41		0.38	0.63
Bromobenzene	0.63	U	0.38	0.63
Bromochloromethane	0.63	U	0.38	0.63
Bromodichloromethane	0.63	U	0.38	0.63
Bromoform	0.63	U	0.38	0.63
2-Butanone (MEK)	2.5	U	0.38	2.5
Carbon disulfide	0.63	U	0.38	0.63
Bromomethane	0.63	U	0.38	0.63
Carbon tetrachloride	0.63	U	0.38	0.63
Chlorobenzene	0.63	U	0.38	0.63
Chloroethane	0.63	U	0.38	0.63
Chloroform	0.63	U	0.053	0.63
Chloromethane	0.63	U	0.38	0.63
2-Chlorotoluene	0.63	U	0.38	0.63
4-Chlorotoluene	0.63	U	0.38	0.63
Dibromochloromethane	0.63	U	0.098	0.63
Dibromomethane	0.63	U	0.38	0.63
1,2-Dibromo-3-Chloropropane	1.3	U	0.58	1.3
Ethylene Dibromide	0.63	U	0.38	0.63
1,2-Dichlorobenzene	0.63	U	0.38	0.63
1,3-Dichlorobenzene	0.63	U	0.38	0.63
Dichlorodifluoromethane	0.63	U	0.38	0.63
1,1-Dichloroethane	0.63	U	0.38	0.63
1,1-Dichloroethene	0.63	U	0.38	0.63
1,2-Dichloroethane	0.63	U	0.063	0.63
cis-1,2-Dichloroethene	0.63	U	0.38	0.63
trans-1,2-Dichloroethene	0.63	U	0.38	0.63
1,2-Dichloropropane	0.63	U	0.38	0.63
1,3-Dichloropropane	0.63	U	0.38	0.63
2,2-Dichloropropane	0.63	U	0.38	0.63
1,1-Dichloropropene	0.63	U	0.38	0.63
cis-1,3-Dichloropropene	0.63	U	0.38	0.63
trans-1,3-Dichloropropene	0.63	U	0.38	0.63
Ethylbenzene	1.5		0.38	0.63
Hexachlorobutadiene	0.63	U	0.38	0.63
2-Hexanone	2.5	U	0.38	2.5
Iodomethane	0.63	U *	0.38	0.63
Isopropylbenzene	15		0.38	0.63
Isopropyl ether	0.63	U	0.38	0.63
p-Cymene	0.80		0.38	0.63
Methylene Chloride	0.63	U *	0.38	0.63
Methyl tert-butyl ether	0.63	U	0.38	0.63

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# Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW6-0305**

Lab Sample ID: 400-785-5

Date Sampled: 03/10/2005 1020

Client Matrix: Water

Date Received: 03/11/2005 0925

## 8260B Volatile Organic Compounds by GC/MS (Continued)

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3488025.D
Dilution:	2.5			Initial Weight/Volume:	10 mL
Date Analyzed:	03/15/2005 1741			Final Weight/Volume:	10 mL
Date Prepared:	03/15/2005 1741				

Analyte	Result (ug/L)	Qualifier	MDL	RL
4-Methyl-2-pentanone (MIBK)	2.5	U	0.38	2.5
Naphthalene	79	E	0.38	0.63
n-Butylbenzene	4.7		0.38	0.63
sec-Butylbenzene	2.6		0.38	0.63
Styrene	0.63	U	0.38	0.63
tert-Butylbenzene	0.63	U	0.38	0.63
1,1,1,2-Tetrachloroethane	0.63	U	0.38	0.63
1,1,2,2-Tetrachloroethane	0.63	U	0.093	0.63
Tetrachloroethene	0.63	U	0.38	0.63
Toluene	0.71		0.38	0.63
1,1,1-Trichloroethane	0.63	U	0.38	0.63
1,1,2-Trichloroethane	0.63	U	0.38	0.63
1,2,3-Trichlorobenzene	0.63	U	0.38	0.63
1,2,4-Trichlorobenzene	0.63	U	0.38	0.63
Trichloroethene	0.63	U	0.38	0.63
Trichlorofluoromethane	0.63	U	0.38	0.63
1,2,3-Trichloropropane	0.63	U	0.055	0.63
1,2,4-Trimethylbenzene	6.8		0.38	0.63
1,3,5-Trimethylbenzene	42		0.38	0.63
Vinyl acetate	1.3	U	0.38	1.3
Vinyl chloride	0.63	U	0.38	0.63
N-Propylbenzene	2.3		0.38	0.63
o-Xylene	1.4		0.38	0.63
m-Xylene & p-Xylene	5.1		0.63	1.3
1,4-Dichlorobenzene	0.63	U	0.38	0.63
<b>Surrogate</b>	<b>%Rec</b>		<b>Acceptance Limits</b>	
4-Bromofluorobenzene	92		83 - 126	
Dibromofluoromethane	91		69 - 130	
Toluene-d8	96		86 - 116	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW6-0305**

Lab Sample ID: 400-785-5  
 Client Matrix: Water

Date Sampled: 03/10/2005 1020  
 Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS

Method:	8260B	Analysis Batch:	400-2555	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3492033.D
Dilution:	10			Initial Weight/Volume:	10 mL
Date Analyzed:	03/21/2005 2341			Final Weight/Volume:	10 mL
Date Prepared:	03/21/2005 2341				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	24	B	6.4	10
Benzene	34		1.5	2.5
Bromobenzene	2.5	U	1.5	2.5
Bromochloromethane	2.5	U	1.5	2.5
Bromodichloromethane	2.5	U	1.5	2.5
Bromoform	2.5	U	1.5	2.5
2-Butanone (MEK)	10	U	1.5	10
Carbon disulfide	2.5	U	1.5	2.5
Bromomethane	2.5	U	1.5	2.5
Carbon tetrachloride	2.5	U	1.5	2.5
Chlorobenzene	2.5	U	1.5	2.5
Chloroethane	2.5	U	1.5	2.5
Chloroform	2.5	U	0.21	2.5
Chloromethane	2.5	U	1.5	2.5
2-Chlorotoluene	2.5	U	1.5	2.5
4-Chlorotoluene	2.4	J	1.5	2.5
Dibromochloromethane	2.5	U	0.39	2.5
Dibromomethane	2.5	U	1.5	2.5
1,2-Dibromo-3-Chloropropane	5.0	U	2.3	5.0
Ethylene Dibromide	2.5	U	1.5	2.5
1,2-Dichlorobenzene	2.5	U	1.5	2.5
1,3-Dichlorobenzene	2.5	U	1.5	2.5
Dichlorodifluoromethane	2.5	U	1.5	2.5
1,1-Dichloroethane	2.5	U	1.5	2.5
1,1-Dichloroethene	2.5	U	1.5	2.5
1,2-Dichloroethane	2.5	U	0.25	2.5
cis-1,2-Dichloroethene	2.5	U	1.5	2.5
trans-1,2-Dichloroethene	2.5	U	1.5	2.5
1,2-Dichloropropane	2.5	U	1.5	2.5
1,3-Dichloropropane	2.5	U	1.5	2.5
2,2-Dichloropropane	2.5	U	1.5	2.5
1,1-Dichloropropene	2.5	U	1.5	2.5
cis-1,3-Dichloropropene	2.5	U	1.5	2.5
trans-1,3-Dichloropropene	2.5	U	1.5	2.5
Ethylbenzene	2.5	U	1.5	2.5
Hexachlorobutadiene	2.5	U	1.5	2.5
2-Hexanone	10	U	1.5	10
Iodomethane	2.5	U	1.5	2.5
Isopropylbenzene	6.9		1.5	2.5
Isopropyl ether	2.5	U	1.5	2.5
p-Cymene	2.5	U	1.5	2.5
Methylene Chloride	2.5	J B	1.5	2.5
Methyl tert-butyl ether	2.5	U	1.5	2.5

STL Pensacola

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW6-0305**

Lab Sample ID: 400-785-5  
 Client Matrix: Water

Date Sampled: 03/10/2005 1020  
 Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS (Continued)

Method:	8260B	Analysis Batch:	400-2555	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3492033.D
Dilution:	10			Initial Weight/Volume:	10 mL
Date Analyzed:	03/21/2005 2341			Final Weight/Volume:	10 mL
Date Prepared:	03/21/2005 2341				

Analyte	Result (ug/L)	Qualifier	MDL	RL
4-Methyl-2-pentanone (MIBK)	10	U	1.5	10
Naphthalene	59		1.5	2.5
n-Butylbenzene	1.8	J	1.5	2.5
sec-Butylbenzene	2.5	U	1.5	2.5
Styrene	2.5	U	1.5	2.5
tert-Butylbenzene	2.5	U	1.5	2.5
1,1,1,2-Tetrachloroethane	2.5	U	1.5	2.5
1,1,2,2-Tetrachloroethane	2.5	U	0.37	2.5
Tetrachloroethene	2.5	U	1.5	2.5
Toluene	2.6		1.5	2.5
1,1,1-Trichloroethane	2.5	U	1.5	2.5
1,1,2-Trichloroethane	2.5	U	1.5	2.5
1,2,3-Trichlorobenzene	2.5	U	1.5	2.5
1,2,4-Trichlorobenzene	2.5	U	1.5	2.5
Trichloroethene	2.5	U	1.5	2.5
Trichlorofluoromethane	2.5	U	1.5	2.5
1,2,3-Trichloropropane	2.5	U	0.22	2.5
1,2,4-Trimethylbenzene	4.0		1.5	2.5
1,3,5-Trimethylbenzene	21		1.5	2.5
Vinyl acetate	5.0	U	1.5	5.0
Vinyl chloride	2.5	U	1.5	2.5
N-Propylbenzene	2.5	U	1.5	2.5
o-Xylene	2.5	U	1.5	2.5
m-Xylene & p-Xylene	4.1	J	2.5	5.0
1,4-Dichlorobenzene	2.5	U	1.5	2.5
Surrogate	%Rec		Acceptance Limits	
4-Bromofluorobenzene	89		83 - 126	
Dibromofluoromethane	97		69 - 130	
Toluene-d8	95		86 - 116	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW7-0305**

Lab Sample ID: 400-785-6  
Client Matrix: Water

Date Sampled: 03/10/2005 0800  
Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3488027.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	03/15/2005 1814			Final Weight/Volume:	10 mL
Date Prepared:	03/15/2005 1814				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.0	U	0.64	1.0
Benzene	0.25	U	0.15	0.25
Bromobenzene	0.25	U	0.15	0.25
Bromochloromethane	0.25	U	0.15	0.25
Bromodichloromethane	0.25	U	0.15	0.25
Bromoform	0.25	U	0.15	0.25
2-Butanone (MEK)	1.0	U	0.15	1.0
Carbon disulfide	0.25	U	0.15	0.25
Bromomethane	0.25	U	0.15	0.25
Carbon tetrachloride	0.25	U	0.15	0.25
Chlorobenzene	0.25	U	0.15	0.25
Chloroethane	0.25	U	0.15	0.25
Chloroform	0.25	U	0.021	0.25
Chloromethane	0.25	U	0.15	0.25
2-Chlorotoluene	0.25	U	0.15	0.25
4-Chlorotoluene	0.25	U	0.15	0.25
Dibromochloromethane	0.25	U	0.039	0.25
Dibromomethane	0.25	U	0.15	0.25
1,2-Dibromo-3-Chloropropane	0.50	U	0.23	0.50
Ethylene Dibromide	0.25	U	0.15	0.25
1,2-Dichlorobenzene	0.25	U	0.15	0.25
1,3-Dichlorobenzene	0.25	U	0.15	0.25
Dichlorodifluoromethane	0.25	U	0.15	0.25
1,1-Dichloroethane	0.25	U	0.15	0.25
1,1-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloroethane	0.25	U	0.025	0.25
cis-1,2-Dichloroethene	0.25	U	0.15	0.25
trans-1,2-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloropropane	0.25	U	0.15	0.25
1,3-Dichloropropane	0.25	U	0.15	0.25
2,2-Dichloropropane	0.25	U	0.15	0.25
1,1-Dichloropropene	0.25	U	0.15	0.25
cis-1,3-Dichloropropene	0.25	U	0.15	0.25
trans-1,3-Dichloropropene	0.25	U	0.15	0.25
Ethylbenzene	0.25	U	0.15	0.25
Hexachlorobutadiene	0.25	U	0.15	0.25
2-Hexanone	1.0	U	0.15	1.0
Iodomethane	0.25	U *	0.15	0.25
Isopropylbenzene	0.25	U	0.15	0.25
Isopropyl ether	0.25	U	0.15	0.25
p-Cymene	0.25	U	0.15	0.25
Methylene Chloride	0.25	U *	0.15	0.25
Methyl tert-butyl ether	0.25	U	0.15	0.25

STL Pensacola

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW7-0305**

Lab Sample ID: 400-785-6  
Client Matrix: Water

Date Sampled: 03/10/2005 0800  
Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS (Continued)

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3488027.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	03/15/2005 1814			Final Weight/Volume:	10 mL
Date Prepared:	03/15/2005 1814				

Analyte	Result (ug/L)	Qualifier	MDL	RL
4-Methyl-2-pentanone (MIBK)	1.0	U	0.15	1.0
Naphthalene	0.25	U	0.15	0.25
n-Butylbenzene	0.25	U	0.15	0.25
sec-Butylbenzene	0.25	U	0.15	0.25
Styrene	0.25	U	0.15	0.25
tert-Butylbenzene	0.25	U	0.15	0.25
1,1,1,2-Tetrachloroethane	0.25	U	0.15	0.25
1,1,2,2-Tetrachloroethane	0.25	U	0.037	0.25
Tetrachloroethene	0.25	U	0.15	0.25
Toluene	0.25	U	0.15	0.25
1,1,1-Trichloroethane	0.25	U	0.15	0.25
1,1,2-Trichloroethane	0.25	U	0.15	0.25
1,2,3-Trichlorobenzene	0.25	U	0.15	0.25
1,2,4-Trichlorobenzene	0.25	U	0.15	0.25
Trichloroethene	0.25	U	0.15	0.25
Trichlorofluoromethane	0.25	U	0.15	0.25
1,2,3-Trichloropropane	0.25	U	0.022	0.25
1,2,4-Trimethylbenzene	0.25	U	0.15	0.25
1,3,5-Trimethylbenzene	0.25	U	0.15	0.25
Vinyl acetate	0.50	U	0.15	0.50
Vinyl chloride	0.25	U	0.15	0.25
N-Propylbenzene	0.25	U	0.15	0.25
o-Xylene	0.25	U	0.15	0.25
m-Xylene & p-Xylene	0.50	U	0.25	0.50
1,4-Dichlorobenzene	0.25	U	0.15	0.25
Surrogate	%Rec		Acceptance Limits	
4-Bromofluorobenzene	90		83 - 126	
Dibromofluoromethane	96		69 - 130	
Toluene-d8	94		86 - 116	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW8-0305**

Lab Sample ID: 400-785-7  
 Client Matrix: Water

Date Sampled: 03/10/2005 1130  
 Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3488029.D
Dilution:	25			Initial Weight/Volume:	10 mL
Date Analyzed:	03/15/2005 1848			Final Weight/Volume:	10 mL
Date Prepared:	03/15/2005 1848				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	25	U	16	25
Benzene	6.3	U	3.8	6.3
Bromobenzene	6.3	U	3.8	6.3
Bromochloromethane	6.3	U	3.8	6.3
Bromodichloromethane	6.3	U	3.8	6.3
Bromoform	6.3	U	3.8	6.3
2-Butanone (MEK)	25	U	3.8	25
Carbon disulfide	6.3	U	3.8	6.3
Bromomethane	6.3	U	3.8	6.3
Carbon tetrachloride	6.3	U	3.8	6.3
Chlorobenzene	6.3	U	3.8	6.3
Chloroethane	6.3	U	3.8	6.3
Chloroform	6.3	U	0.53	6.3
Chloromethane	6.3	U	3.8	6.3
2-Chlorotoluene	6.3	U	3.8	6.3
4-Chlorotoluene	6.3	U	3.8	6.3
Dibromochloromethane	6.3	U	0.98	6.3
Dibromomethane	6.3	U	3.8	6.3
1,2-Dibromo-3-Chloropropane	13	U	5.8	13
Ethylene Dibromide	6.3	U	3.8	6.3
1,2-Dichlorobenzene	6.3	U	3.8	6.3
1,3-Dichlorobenzene	6.3	U	3.8	6.3
Dichlorodifluoromethane	6.3	U	3.8	6.3
1,1-Dichloroethane	6.3	U	3.8	6.3
1,1-Dichloroethene	6.3	U	3.8	6.3
1,2-Dichloroethane	6.3	U	0.63	6.3
cis-1,2-Dichloroethene	11	U	3.8	6.3
trans-1,2-Dichloroethene	6.3	U	3.8	6.3
1,2-Dichloropropane	6.3	U	3.8	6.3
1,3-Dichloropropane	6.3	U	3.8	6.3
2,2-Dichloropropane	6.3	U	3.8	6.3
1,1-Dichloropropene	6.3	U	3.8	6.3
cis-1,3-Dichloropropene	6.3	U	3.8	6.3
trans-1,3-Dichloropropene	6.3	U	3.8	6.3
Ethylbenzene	6.3	U	3.8	6.3
Hexachlorobutadiene	6.3	U	3.8	6.3
2-Hexanone	25	U	3.8	25
Iodomethane	6.3	U *	3.8	6.3
Isopropylbenzene	6.3	U	3.8	6.3
Isopropyl ether	6.3	U	3.8	6.3
p-Cymene	6.3	U	3.8	6.3
Methylene Chloride	6.3	U *	3.8	6.3
Methyl tert-butyl ether	6.3	U	3.8	6.3

STL Pensacola

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW8-0305**

Lab Sample ID: 400-785-7

Date Sampled: 03/10/2005 1130

Client Matrix: Water

Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS (Continued)

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3488029.D
Dilution:	25			Initial Weight/Volume:	10 mL
Date Analyzed:	03/15/2005 1848			Final Weight/Volume:	10 mL
Date Prepared:	03/15/2005 1848				

Analyte	Result (ug/L)	Qualifier	MDL	RL
4-Methyl-2-pentanone (MIBK)	25	U	3.8	25
Naphthalene	6.3	U	3.8	6.3
n-Butylbenzene	6.3	U	3.8	6.3
sec-Butylbenzene	6.3	U	3.8	6.3
Styrene	6.3	U	3.8	6.3
tert-Butylbenzene	6.3	U	3.8	6.3
1,1,1,2-Tetrachloroethane	6.3	U	3.8	6.3
1,1,2,2-Tetrachloroethane	6.3	U	0.93	6.3
Tetrachloroethene	6.3	U	3.8	6.3
Toluene	6.3	U	3.8	6.3
1,1,1-Trichloroethane	6.3	U	3.8	6.3
1,1,2-Trichloroethane	6.3	U	3.8	6.3
1,2,3-Trichlorobenzene	6.3	U	3.8	6.3
1,2,4-Trichlorobenzene	6.3	U	3.8	6.3
Trichloroethene	460		3.8	6.3
Trichlorofluoromethane	6.3	U	3.8	6.3
1,2,3-Trichloropropane	6.3	U	0.55	6.3
1,2,4-Trimethylbenzene	6.3	U	3.8	6.3
1,3,5-Trimethylbenzene	6.3	U	3.8	6.3
Vinyl acetate	13	U	3.8	13
Vinyl chloride	6.3	U	3.8	6.3
N-Propylbenzene	6.3	U	3.8	6.3
o-Xylene	6.3	U	3.8	6.3
m-Xylene & p-Xylene	13	U	6.3	13
1,4-Dichlorobenzene	6.3	U	3.8	6.3
Surrogate	%Rec		Acceptance Limits	
4-Bromofluorobenzene	89		83 - 126	
Dibromofluoromethane	97		69 - 130	
Toluene-d8	95		86 - 116	



## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW8-0305B**

Lab Sample ID: 400-785-8  
 Client Matrix: Water

Date Sampled: 03/10/2005 1130  
 Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS (Continued)

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3488031.D
Dilution:	25			Initial Weight/Volume:	10 mL
Date Analyzed:	03/15/2005 1921			Final Weight/Volume:	10 mL
Date Prepared:	03/15/2005 1921				

Analyte	Result (ug/L)	Qualifier	MDL	RL
4-Methyl-2-pentanone (MIBK)	25	U	3.8	25
Naphthalene	6.3	U	3.8	6.3
n-Butylbenzene	6.3	U	3.8	6.3
sec-Butylbenzene	6.3	U	3.8	6.3
Styrene	6.3	U	3.8	6.3
tert-Butylbenzene	6.3	U	3.8	6.3
1,1,1,2-Tetrachloroethane	6.3	U	3.8	6.3
1,1,2,2-Tetrachloroethane	6.3	U	0.93	6.3
Tetrachloroethene	6.3	U	3.8	6.3
Toluene	6.3	U	3.8	6.3
1,1,1-Trichloroethane	6.3	U	3.8	6.3
1,1,2-Trichloroethane	6.3	U	3.8	6.3
1,2,3-Trichlorobenzene	6.3	U	3.8	6.3
1,2,4-Trichlorobenzene	6.3	U	3.8	6.3
Trichloroethene	430		3.8	6.3
Trichlorofluoromethane	6.3	U	3.8	6.3
1,2,3-Trichloropropane	6.3	U	0.55	6.3
1,2,4-Trimethylbenzene	6.3	U	3.8	6.3
1,3,5-Trimethylbenzene	6.3	U	3.8	6.3
Vinyl acetate	13	U	3.8	13
Vinyl chloride	6.3	U	3.8	6.3
N-Propylbenzene	6.3	U	3.8	6.3
o-Xylene	6.3	U	3.8	6.3
m-Xylene & p-Xylene	13	U	6.3	13
1,4-Dichlorobenzene	6.3	U	3.8	6.3
<hr/>				
Surrogate	%Rec		Acceptance Limits	
4-Bromofluorobenzene	90		83 - 126	
Dibromofluoromethane	98		69 - 130	
Toluene-d8	95		86 - 116	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: TB**

Lab Sample ID: 400-785-9

Date Sampled: 03/10/2005 1530

Client Matrix: Water

Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS

Method: 8260B

Analysis Batch: 400-2376

Instrument ID: GC/MS

Preparation:

Lab File ID: 3488033.D

Dilution: 1.0

Initial Weight/Volume: 10 mL

Date Analyzed: 03/15/2005 1954

Final Weight/Volume: 10 mL

Date Prepared: 03/15/2005 1954

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	1.0	U	0.64	1.0
Benzene	0.25	U	0.15	0.25
Bromobenzene	0.25	U	0.15	0.25
Bromochloromethane	0.25	U	0.15	0.25
Bromodichloromethane	0.25	U	0.15	0.25
Bromoform	0.25	U	0.15	0.25
2-Butanone (MEK)	1.0	U	0.15	1.0
Carbon disulfide	0.25	U	0.15	0.25
Bromomethane	0.25	U	0.15	0.25
Carbon tetrachloride	0.25	U	0.15	0.25
Chlorobenzene	0.25	U	0.15	0.25
Chloroethane	0.25	U	0.15	0.25
Chloroform	0.25	U	0.021	0.25
Chloromethane	0.25	U	0.15	0.25
2-Chlorotoluene	0.25	U	0.15	0.25
4-Chlorotoluene	0.25	U	0.15	0.25
Dibromochloromethane	0.25	U	0.039	0.25
Dibromomethane	0.25	U	0.15	0.25
1,2-Dibromo-3-Chloropropane	0.50	U	0.23	0.50
Ethylene Dibromide	0.25	U	0.15	0.25
1,2-Dichlorobenzene	0.25	U	0.15	0.25
1,3-Dichlorobenzene	0.25	U	0.15	0.25
Dichlorodifluoromethane	0.25	U	0.15	0.25
1,1-Dichloroethane	0.25	U	0.15	0.25
1,1-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloroethane	0.25	U	0.025	0.25
cis-1,2-Dichloroethene	0.25	U	0.15	0.25
trans-1,2-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloropropane	0.25	U	0.15	0.25
1,3-Dichloropropane	0.25	U	0.15	0.25
2,2-Dichloropropane	0.25	U	0.15	0.25
1,1-Dichloropropene	0.25	U	0.15	0.25
cis-1,3-Dichloropropene	0.25	U	0.15	0.25
trans-1,3-Dichloropropene	0.25	U	0.15	0.25
Ethylbenzene	0.25	U	0.15	0.25
Hexachlorobutadiene	0.25	U	0.15	0.25
2-Hexanone	1.0	U	0.15	1.0
Iodomethane	0.25	U *	0.15	0.25
Isopropylbenzene	0.25	U	0.15	0.25
Isopropyl ether	0.25	U	0.15	0.25
p-Cymene	0.25	U	0.15	0.25
Methylene Chloride	0.25	U *	0.15	0.25
Methyl tert-butyl ether	0.25	U	0.15	0.25

STL Pensacola

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: TB**

Lab Sample ID: 400-785-9

Date Sampled: 03/10/2005 1530

Client Matrix: Water

Date Received: 03/11/2005 0925

### 8260B Volatile Organic Compounds by GC/MS (Continued)

Method:	8260B	Analysis Batch:	400-2376	Instrument ID:	GC/MS
Preparation:				Lab File ID:	3488033.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	03/15/2005 1954			Final Weight/Volume:	10 mL
Date Prepared:	03/15/2005 1954				

Analyte	Result (ug/L)	Qualifier	MDL	RL
4-Methyl-2-pentanone (MIBK)	1.0	U	0.15	1.0
Naphthalene	0.25	U	0.15	0.25
n-Butylbenzene	0.25	U	0.15	0.25
sec-Butylbenzene	0.25	U	0.15	0.25
Styrene	0.25	U	0.15	0.25
tert-Butylbenzene	0.25	U	0.15	0.25
1,1,1,2-Tetrachloroethane	0.25	U	0.15	0.25
1,1,2,2-Tetrachloroethane	0.25	U	0.037	0.25
Tetrachloroethene	0.25	U	0.15	0.25
Toluene	0.25	U	0.15	0.25
1,1,1-Trichloroethane	0.25	U	0.15	0.25
1,1,2-Trichloroethane	0.25	U	0.15	0.25
1,2,3-Trichlorobenzene	0.25	U	0.15	0.25
1,2,4-Trichlorobenzene	0.25	U	0.15	0.25
Trichloroethene	0.25	U	0.15	0.25
Trichlorofluoromethane	0.25	U	0.15	0.25
1,2,3-Trichloropropane	0.25	U	0.022	0.25
1,2,4-Trimethylbenzene	0.25	U	0.15	0.25
1,3,5-Trimethylbenzene	0.25	U	0.15	0.25
Vinyl acetate	0.50	U	0.15	0.50
Vinyl chloride	0.25	U	0.15	0.25
N-Propylbenzene	0.25	U	0.15	0.25
o-Xylene	0.25	U	0.15	0.25
m-Xylene & p-Xylene	0.50	U	0.25	0.50
1,4-Dichlorobenzene	0.25	U	0.15	0.25
Surrogate	%Rec		Acceptance Limits	
4-Bromofluorobenzene	90		83 - 126	
Dibromofluoromethane	97		69 - 130	
Toluene-d8	96		86 - 116	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW1-0305**

Lab Sample ID: 400-785-1  
 Client Matrix: Water

Date Sampled: 03/10/2005 1245  
 Date Received: 03/11/2005 0925

### 8310 Polynuclear Aromatic Hydrocarbons

Method:	8310	Analysis Batch:	400-2556	Instrument ID:	HPLC/UV/FLUOR
Preparation:	3520C	Prep Batch:	400-2196	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1000 mL
Date Analyzed:	03/22/2005 1028			Final Weight/Volume:	1.0 mL
Date Prepared:	03/16/2005 1416			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	130		0.089	1.0
Acenaphthylene	12		0.098	1.0
1-Methylnaphthalene	29		0.11	1.0
2-Methylnaphthalene	56		0.076	1.0
Acenaphthene	1.0	U	0.075	1.0
Fluorene	1.0	U	0.072	1.0
Phenanthrene	1.0	U	0.069	1.0
Anthracene	1.0	U	0.063	1.0
Fluoranthene	1.0	U	0.070	1.0
Pyrene	1.0	U	0.059	1.0
Benzo[a]anthracene	0.20	U	0.057	0.20
Chrysene	1.0	U	0.065	1.0
Benzo[b]fluoranthene	0.20	U	0.064	0.20
Benzo[k]fluoranthene	0.50	U	0.079	0.50
Benzo[a]pyrene	0.20	U	0.076	0.20
Dibenz(a,h)anthracene	0.20	U	0.14	0.20
Benzo[g,h,i]perylene	1.0	U	0.088	1.0
Indeno[1,2,3-cd]pyrene	0.20	U	0.083	0.20
Surrogate	%Rec		Acceptance Limits	
2-Chloroanthracene	70		28 - 138	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW2-0305**

Lab Sample ID: 400-785-2  
 Client Matrix: Water

Date Sampled: 03/09/2005 1645  
 Date Received: 03/11/2005 0925

### 8310 Polynuclear Aromatic Hydrocarbons (Continued)

Method:	8310	Analysis Batch:	400-2556	Instrument ID:	HPLC/UV/FLUOR
Preparation:	3520C	Prep Batch:	400-2196	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1000 mL
Date Analyzed:	03/22/2005 1028			Final Weight/Volume:	1.0 mL
Date Prepared:	03/16/2005 1416			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	1.0	U	0.089	1.0
Acenaphthylene	1.0	U	0.098	1.0
1-Methylnaphthalene	1.0	U	0.11	1.0
2-Methylnaphthalene	1.0	U	0.076	1.0
Acenaphthene	1.0	U	0.075	1.0
Fluorene	1.0	U	0.072	1.0
Phenanthrene	1.0	U	0.069	1.0
Anthracene	1.0	U	0.063	1.0
Fluoranthene	1.0	U	0.070	1.0
Pyrene	1.0	U	0.059	1.0
Benzo[a]anthracene	0.20	U	0.057	0.20
Chrysene	1.0	U	0.065	1.0
Benzo[b]fluoranthene	0.20	U	0.064	0.20
Benzo[k]fluoranthene	0.50	U	0.079	0.50
Benzo[a]pyrene	0.20	U	0.076	0.20
Dibenz(a,h)anthracene	0.20	U	0.14	0.20
Benzo[g,h,i]perylene	1.0	U	0.088	1.0
Indeno[1,2,3-cd]pyrene	0.20	U	0.083	0.20
Surrogate	%Rec		Acceptance Limits	
2-Chloroanthracene	68		28 - 138	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW3-0305**

Lab Sample ID: 400-785-3  
Client Matrix: Water

Date Sampled: 03/09/2005 1740  
Date Received: 03/11/2005 0925

### 8310 Polynuclear Aromatic Hydrocarbons (Continued)

Method:	8310	Analysis Batch:	400-2556	Instrument ID:	HPLC/UV/FLUOR
Preparation:	3520C	Prep Batch:	400-2196	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1000 mL
Date Analyzed:	03/22/2005 1028			Final Weight/Volume:	1.0 mL
Date Prepared:	03/16/2005 1416			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	1.0	U	0.089	1.0
Acenaphthylene	1.0	U	0.098	1.0
1-Methylnaphthalene	1.0	U	0.11	1.0
2-Methylnaphthalene	1.0	U	0.076	1.0
Acenaphthene	1.0	U	0.075	1.0
Fluorene	1.0	U	0.072	1.0
Phenanthrene	1.0	U	0.069	1.0
Anthracene	1.0	U	0.063	1.0
Fluoranthene	1.0	U	0.070	1.0
Pyrene	1.0	U	0.059	1.0
Benzo[a]anthracene	0.20	U	0.057	0.20
Chrysene	1.0	U	0.065	1.0
Benzo[b]fluoranthene	0.20	U	0.064	0.20
Benzo[k]fluoranthene	0.50	U	0.079	0.50
Benzo[a]pyrene	0.20	U	0.076	0.20
Dibenz(a,h)anthracene	0.20	U	0.14	0.20
Benzo[g,h,i]perylene	1.0	U	0.088	1.0
Indeno[1,2,3-cd]pyrene	0.20	U	0.083	0.20
Surrogate	%Rec		Acceptance Limits	
2-Chloroanthracene	68		28 - 138	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW5-0305**

Lab Sample ID: 400-785-4  
Client Matrix: Water

Date Sampled: 03/10/2005 0925  
Date Received: 03/11/2005 0925

### 8310 Polynuclear Aromatic Hydrocarbons (Continued)

Method:	8310	Analysis Batch:	400-2556	Instrument ID:	HPLC/UV/FLUOR
Preparation:	3520C	Prep Batch:	400-2196	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1000 mL
Date Analyzed:	03/22/2005 1028			Final Weight/Volume:	1.0 mL
Date Prepared:	03/16/2005 1416			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	1.0	U	0.089	1.0
Acenaphthylene	1.0	U	0.098	1.0
1-Methylnaphthalene	1.0	U	0.11	1.0
2-Methylnaphthalene	1.0	U	0.076	1.0
Acenaphthene	1.0	U	0.075	1.0
Fluorene	1.0	U	0.072	1.0
Phenanthrene	1.0	U	0.069	1.0
Anthracene	1.0	U	0.063	1.0
Fluoranthene	1.0	U	0.070	1.0
Pyrene	1.0	U	0.059	1.0
Benzo[a]anthracene	0.20	U	0.057	0.20
Chrysene	1.0	U	0.065	1.0
Benzo[b]fluoranthene	0.20	U	0.064	0.20
Benzo[k]fluoranthene	0.50	U	0.079	0.50
Benzo[a]pyrene	0.20	U	0.076	0.20
Dibenz(a,h)anthracene	0.20	U	0.14	0.20
Benzo[g,h,i]perylene	1.0	U	0.088	1.0
Indeno[1,2,3-cd]pyrene	0.20	U	0.083	0.20
Surrogate	%Rec		Acceptance Limits	
2-Chloroanthracene	72		28 - 138	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW6-0305**

Lab Sample ID: 400-785-5  
Client Matrix: Water

Date Sampled: 03/10/2005 1020  
Date Received: 03/11/2005 0925

### 8310 Polynuclear Aromatic Hydrocarbons (Continued)

Method:	8310	Analysis Batch:	400-2556	Instrument ID:	HPLC/UV/FLUOR
Preparation:	3520C	Prep Batch:	400-2196	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1000 mL
Date Analyzed:	03/22/2005 1028			Final Weight/Volume:	1.0 mL
Date Prepared:	03/16/2005 1416			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	45		0.089	1.0
Acenaphthylene	1.0	U	0.098	1.0
1-Methylnaphthalene	21		0.11	1.0
2-Methylnaphthalene	29		0.076	1.0
Acenaphthene	1.0	U	0.075	1.0
Fluorene	1.0	U	0.072	1.0
Phenanthrene	1.0	U	0.069	1.0
Anthracene	1.0	U	0.063	1.0
Fluoranthene	1.0	U	0.070	1.0
Pyrene	1.0	U	0.059	1.0
Benzo[a]anthracene	0.20	U	0.057	0.20
Chrysene	1.0	U	0.065	1.0
Benzo[b]fluoranthene	0.20	U	0.064	0.20
Benzo[k]fluoranthene	0.50	U	0.079	0.50
Benzo[a]pyrene	0.20	U	0.076	0.20
Dibenz(a,h)anthracene	0.20	U	0.14	0.20
Benzo[g,h,i]perylene	1.0	U	0.088	1.0
Indeno[1,2,3-cd]pyrene	0.20	U	0.083	0.20
Surrogate	%Rec		Acceptance Limits	
2-Chloroanthracene	80		28 - 138	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW7-0305**

Lab Sample ID: 400-785-6  
Client Matrix: Water

Date Sampled: 03/10/2005 0800  
Date Received: 03/11/2005 0925

### 8310 Polynuclear Aromatic Hydrocarbons (Continued)

Method:	8310	Analysis Batch:	400-2556	Instrument ID:	HPLC/UV/FLUOR
Preparation:	3520C	Prep Batch:	400-2196	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	850 mL
Date Analyzed:	03/22/2005 1028			Final Weight/Volume:	1.0 mL
Date Prepared:	03/16/2005 1416			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	1.2	U	0.10	1.2
Acenaphthylene	1.2	U	0.12	1.2
1-Methylnaphthalene	1.2	U	0.13	1.2
2-Methylnaphthalene	1.2	U	0.089	1.2
Acenaphthene	1.2	U	0.088	1.2
Fluorene	1.2	U	0.085	1.2
Phenanthrene	1.2	U	0.081	1.2
Anthracene	1.2	U	0.074	1.2
Fluoranthene	1.2	U	0.082	1.2
Pyrene	1.2	U	0.069	1.2
Benzo[a]anthracene	0.24	U	0.067	0.24
Chrysene	1.2	U	0.076	1.2
Benzo[b]fluoranthene	0.24	U	0.075	0.24
Benzo[k]fluoranthene	0.59	U	0.093	0.59
Benzo[a]pyrene	0.24	U	0.089	0.24
Dibenz(a,h)anthracene	0.24	U	0.16	0.24
Benzo[g,h,i]perylene	1.2	U	0.10	1.2
Indeno[1,2,3-cd]pyrene	0.24	U	0.098	0.24
Surrogate	%Rec		Acceptance Limits	
2-Chloroanthracene	80		28 - 138	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW8-0305**

Lab Sample ID: 400-785-7  
 Client Matrix: Water

Date Sampled: 03/10/2005 1130  
 Date Received: 03/11/2005 0925

### 8310 Polynuclear Aromatic Hydrocarbons (Continued)

Method:	8310	Analysis Batch:	400-2556	Instrument ID:	HPLC/UV/FLUOR
Preparation:	3520C	Prep Batch:	400-2196	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1000 mL
Date Analyzed:	03/22/2005 1028			Final Weight/Volume:	1.0 mL
Date Prepared:	03/16/2005 1416			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	1.0	U	0.089	1.0
Acenaphthylene	1.0	U	0.098	1.0
1-Methylnaphthalene	1.0	U	0.11	1.0
2-Methylnaphthalene	1.0	U	0.076	1.0
Acenaphthene	1.0	U	0.075	1.0
Fluorene	1.0	U	0.072	1.0
Phenanthrene	1.0	U	0.069	1.0
Anthracene	1.0	U	0.063	1.0
Fluoranthene	1.0	U	0.070	1.0
Pyrene	1.0	U	0.059	1.0
Benzo[a]anthracene	0.20	U	0.057	0.20
Chrysene	1.0	U	0.065	1.0
Benzo[b]fluoranthene	0.20	U	0.064	0.20
Benzo[k]fluoranthene	0.50	U	0.079	0.50
Benzo[a]pyrene	0.20	U	0.076	0.20
Dibenz(a,h)anthracene	0.20	U	0.14	0.20
Benzo[g,h,i]perylene	1.0	U	0.088	1.0
Indeno[1,2,3-cd]pyrene	0.20	U	0.083	0.20
Surrogate	%Rec		Acceptance Limits	
2-Chloroanthracene	81		28 - 138	

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW8-0305B**

Lab Sample ID: 400-785-8  
Client Matrix: Water

Date Sampled: 03/10/2005 1130  
Date Received: 03/11/2005 0925

### 8310 Polynuclear Aromatic Hydrocarbons (Continued)

Method: 8310	Analysis Batch: 400-2556	Instrument ID: HPLC/UV/FLUOR
Preparation: 3520C	Prep Batch: 400-2196	Lab File ID: N/A
Dilution: 1.0		Initial Weight/Volume: 1000 mL
Date Analyzed: 03/22/2005 1028		Final Weight/Volume: 1.0 mL
Date Prepared: 03/16/2005 1416		Injection Volume:

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	1.0	U	0.089	1.0
Acenaphthylene	1.0	U	0.098	1.0
1-Methylnaphthalene	1.0	U	0.11	1.0
2-Methylnaphthalene	1.0	U	0.076	1.0
Acenaphthene	1.0	U	0.075	1.0
Fluorene	1.0	U	0.072	1.0
Phenanthrene	1.0	U	0.069	1.0
Anthracene	1.0	U	0.063	1.0
Fluoranthene	1.0	U	0.070	1.0
Pyrene	1.0	U	0.059	1.0
Benzo[a]anthracene	0.20	U	0.057	0.20
Chrysene	1.0	U	0.065	1.0
Benzo[b]fluoranthene	0.20	U	0.064	0.20
Benzo[k]fluoranthene	0.50	U	0.079	0.50
Benzo[a]pyrene	0.20	U	0.076	0.20
Dibenz(a,h)anthracene	0.20	U	0.14	0.20
Benzo[g,h,i]perylene	1.0	U	0.088	1.0
Indeno[1,2,3-cd]pyrene	0.20	U	0.083	0.20
Surrogate	%Rec		Acceptance Limits	
2-Chloroanthracene	76		28 - 138	

# Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW1-0305**

Lab Sample ID: 400-785-1

Date Sampled: 03/10/2005 1245

Client Matrix: Water

Date Received: 03/11/2005 0925

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## 6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B

Analysis Batch: 400-2533

Instrument ID: ICP-AES

Preparation: 3010A

Prep Batch: 400-2412

Lab File ID: MAR21A

Dilution: 1.0

Initial Weight/Volume: 50 mL

Date Analyzed: 03/21/2005 1949

Final Weight/Volume: 50 mL

Date Prepared: 03/18/2005 1424

---

Analyte	Result (mg/L)	Qualifier	MDL	RL
Lead	0.0026	J	0.0020	0.0050

# Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW2-0305**

Lab Sample ID: 400-785-2

Date Sampled: 03/09/2005 1645

Client Matrix: Water

Date Received: 03/11/2005 0925

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## 6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B

Analysis Batch: 400-2533

Instrument ID: ICP-AES

Preparation: 3010A

Prep Batch: 400-2412

Lab File ID: MAR21A

Dilution: 1.0

Initial Weight/Volume: 50 mL

Date Analyzed: 03/21/2005 1955

Final Weight/Volume: 50 mL

Date Prepared: 03/18/2005 1424

---

Analyte	Result (mg/L)	Qualifier	MDL	RL
Lead	0.0030	J	0.0020	0.0050

# Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW3-0305**

Lab Sample ID: 400-785-3

Date Sampled: 03/09/2005 1740

Client Matrix: Water

Date Received: 03/11/2005 0925

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## 6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B

Analysis Batch: 400-2533

Instrument ID: ICP-AES

Preparation: 3010A

Prep Batch: 400-2412

Lab File ID: MAR21A

Dilution: 1.0

Initial Weight/Volume: 50 mL

Date Analyzed: 03/21/2005 1926

Final Weight/Volume: 50 mL

Date Prepared: 03/18/2005 1424

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Analyte	Result (mg/L)	Qualifier	MDL	RL
Lead	0.0054		0.0020	0.0050

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW5-0305**

Lab Sample ID: 400-785-4

Date Sampled: 03/10/2005 0925

Client Matrix: Water

Date Received: 03/11/2005 0925

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### 6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B

Analysis Batch: 400-2533

Instrument ID: ICP-AES

Preparation: 3010A

Prep Batch: 400-2412

Lab File ID: MAR21A

Dilution: 1.0

Initial Weight/Volume: 50 mL

Date Analyzed: 03/21/2005 2000

Final Weight/Volume: 50 mL

Date Prepared: 03/18/2005 1424

---

Analyte	Result (mg/L)	Qualifier	MDL	RL
Lead	0.0044	J	0.0020	0.0050

# Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW6-0305**

Lab Sample ID: 400-785-5

Date Sampled: 03/10/2005 1020

Client Matrix: Water

Date Received: 03/11/2005 0925

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## 6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B

Analysis Batch: 400-2533

Instrument ID: ICP-AES

Preparation: 3010A

Prep Batch: 400-2412

Lab File ID: MAR21A

Dilution: 1.0

Initial Weight/Volume: 50 mL

Date Analyzed: 03/21/2005 2006

Final Weight/Volume: 50 mL

Date Prepared: 03/18/2005 1424

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Analyte	Result (mg/L)	Qualifier	MDL	RL
Lead	0.0027	J	0.0020	0.0050

# Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW7-0305**

Lab Sample ID: 400-785-6

Date Sampled: 03/10/2005 0800

Client Matrix: Water

Date Received: 03/11/2005 0925

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## 6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B

Analysis Batch: 400-2533

Instrument ID: ICP-AES

Preparation: 3010A

Prep Batch: 400-2412

Lab File ID: MAR21A

Dilution: 1.0

Initial Weight/Volume: 50 mL

Date Analyzed: 03/21/2005 2026

Final Weight/Volume: 50 mL

Date Prepared: 03/18/2005 1424

---

Analyte	Result (mg/L)	Qualifier	MDL	RL
Lead	0.0037	J	0.0020	0.0050

## Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW8-0305**

Lab Sample ID: 400-785-7

Date Sampled: 03/10/2005 1130

Client Matrix: Water

Date Received: 03/11/2005 0925

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### 6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B

Analysis Batch: 400-2533

Instrument ID: ICP-AES

Preparation: 3010A

Prep Batch: 400-2412

Lab File ID: MAR21A

Dilution: 1.0

Initial Weight/Volume: 50 mL

Date Analyzed: 03/21/2005 2031

Final Weight/Volume: 50 mL

Date Prepared: 03/18/2005 1424

---

Analyte	Result (mg/L)	Qualifier	MDL	RL
Lead	0.0022	J	0.0020	0.0050

# Analytical Data

Client: Bechtel S Corporation

Job Number: 400-785.1

**Client Sample ID: OMS28-MW8-0305B**

Lab Sample ID: 400-785-8

Date Sampled: 03/10/2005 1130

Client Matrix: Water

Date Received: 03/11/2005 0925

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## 6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B

Analysis Batch: 400-2533

Instrument ID: ICP-AES

Preparation: 3010A

Prep Batch: 400-2412

Lab File ID: MAR21A

Dilution: 1.0

Initial Weight/Volume: 50 mL

Date Analyzed: 03/21/2005 2037

Final Weight/Volume: 50 mL

Date Prepared: 03/18/2005 1424

---

Analyte	Result (mg/L)	Qualifier	MDL	RL
Lead	0.0030	J	0.0020	0.0050

## DATA REPORTING QUALIFIERS

Client: Bechtel S Corporation

Job Number: 400-785.1

<b>Lab Section</b>	<b>Qualifier</b>	<b>Description</b>
GC/MS VOA		
	U	Analyte was not detected at or above the reporting limit.
	B	Compound was found in the blank and sample.
	*	LCS, LCSD, MS, MSD, MD, or Surrogate exceeds the control limits
	E	Result exceeded calibration range, secondary dilution required .
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
HPLC		
	U	Analyte was not detected at or above the reporting limit.
Metals		
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

# QUALITY CONTROL RESULTS

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### QC Association Summary

Lab Sample ID	Client Sample ID	Client Matrix	Method	Prep Batch
<b>GC/MS VOA</b>				
<b>Analysis Batch:400-2376</b>				
LCS 400-2376/13	Lab Control Spike	Water	8260B	
MB 400-2376/12	Method Blank	Water	8260B	
400-785-D-1	OMS28-MW1-0305	Water	8260B	
400-785-F-2	OMS28-MW2-0305	Water	8260B	
400-785-F-3	OMS28-MW3-0305	Water	8260B	
400-785-F-3 MS	Matrix Spike	Water	8260B	
400-785-F-3 MSD	Matrix Spike Duplicate	Water	8260B	
400-785-F-4	OMS28-MW5-0305	Water	8260B	
400-785-F-5	OMS28-MW6-0305	Water	8260B	
400-785-F-6	OMS28-MW7-0305	Water	8260B	
400-785-D-7	OMS28-MW8-0305	Water	8260B	
400-785-D-8	OMS28-MW8-0305B	Water	8260B	
400-785-D-9	TB	Water	8260B	
<b>Analysis Batch:400-2555</b>				
LCS 400-2555/2	Lab Control Spike	Water	8260B	
MB 400-2555/1	Method Blank	Water	8260B	
400-785-F-5	OMS28-MW6-0305	Water	8260B	

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### QC Association Summary

Lab Sample ID	Client Sample ID	Client Matrix	Method	Prep Batch
<b>HPLC</b>				
<b>Prep Batch: 400-2196</b>				
LCS 400-2196/18-B	Lab Control Spike	Water	3520C	
MB 400-2196/17-B	Method Blank	Water	3520C	
400-785-B-1-B	OMS28-MW1-0305	Water	3520C	
400-785-B-2-B	OMS28-MW2-0305	Water	3520C	
400-785-B-3-B	OMS28-MW3-0305	Water	3520C	
400-785-B-3-B MS	Matrix Spike	Water	3520C	
400-785-B-3-B MSD	Matrix Spike Duplicate	Water	3520C	
400-785-B-4-B	OMS28-MW5-0305	Water	3520C	
400-785-B-5-B	OMS28-MW6-0305	Water	3520C	
400-785-B-6-B	OMS28-MW7-0305	Water	3520C	
400-785-B-7-B	OMS28-MW8-0305	Water	3520C	
400-785-B-8-B	OMS28-MW8-0305B	Water	3520C	
<b>Analysis Batch:400-2556</b>				
LCS 400-2196/18-B	Lab Control Spike	Water	8310	400-2196
MB 400-2196/17-B	Method Blank	Water	8310	400-2196
400-785-B-1-B	OMS28-MW1-0305	Water	8310	400-2196
400-785-B-2-B	OMS28-MW2-0305	Water	8310	400-2196
400-785-B-3-B	OMS28-MW3-0305	Water	8310	400-2196
400-785-B-3-B MS	Matrix Spike	Water	8310	400-2196
400-785-B-3-B MSD	Matrix Spike Duplicate	Water	8310	400-2196
400-785-B-4-B	OMS28-MW5-0305	Water	8310	400-2196
400-785-B-5-B	OMS28-MW6-0305	Water	8310	400-2196
400-785-B-6-B	OMS28-MW7-0305	Water	8310	400-2196
400-785-B-7-B	OMS28-MW8-0305	Water	8310	400-2196
400-785-B-8-B	OMS28-MW8-0305B	Water	8310	400-2196

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### QC Association Summary

Lab Sample ID	Client Sample ID	Client Matrix	Method	Prep Batch
<b>Metals</b>				
<b>Prep Batch: 400-2412</b>				
LCS 400-2412/16-A	Lab Control Spike	Water	3010A	
MB 400-2412/15-A	Method Blank	Water	3010A	
400-785-A-1-A	OMS28-MW1-0305	Water	3010A	
400-785-A-2-A	OMS28-MW2-0305	Water	3010A	
400-785-A-3-A	OMS28-MW3-0305	Water	3010A	
400-785-A-3-A MS	Matrix Spike	Water	3010A	
400-785-A-3-A MSD	Matrix Spike Duplicate	Water	3010A	
400-785-A-4-A	OMS28-MW5-0305	Water	3010A	
400-785-A-5-A	OMS28-MW6-0305	Water	3010A	
400-785-A-6-A	OMS28-MW7-0305	Water	3010A	
400-785-A-7-A	OMS28-MW8-0305	Water	3010A	
400-785-A-8-A	OMS28-MW8-0305B	Water	3010A	
<b>Analysis Batch:400-2533</b>				
LCS 400-2412/16-A	Lab Control Spike	Water	6010B	400-2412
MB 400-2412/15-A	Method Blank	Water	6010B	400-2412
400-785-A-1-A	OMS28-MW1-0305	Water	6010B	400-2412
400-785-A-2-A	OMS28-MW2-0305	Water	6010B	400-2412
400-785-A-3-A	OMS28-MW3-0305	Water	6010B	400-2412
400-785-A-3-A MS	Matrix Spike	Water	6010B	400-2412
400-785-A-3-A MSD	Matrix Spike Duplicate	Water	6010B	400-2412
400-785-A-4-A	OMS28-MW5-0305	Water	6010B	400-2412
400-785-A-5-A	OMS28-MW6-0305	Water	6010B	400-2412
400-785-A-6-A	OMS28-MW7-0305	Water	6010B	400-2412
400-785-A-7-A	OMS28-MW8-0305	Water	6010B	400-2412
400-785-A-8-A	OMS28-MW8-0305B	Water	6010B	400-2412

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### Surrogate Recovery Report

#### 8260B Volatile Organic Compounds by GC/MS

##### Client Matrix: Water

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>(BFB) (%Rec)</u>	<u>(DBFM) (%Rec)</u>	<u>(TOL) (%Rec)</u>
400-785-1	OMS28-MW1-0305	92	97	95
400-785-2	OMS28-MW2-0305	90	98	95
400-785-3	OMS28-MW3-0305	90	98	95
400-785-3MS	OMS28-MW3-0305	95	97	96
400-785-3MSD	OMS28-MW3-0305	95	97	96
400-785-4	OMS28-MW5-0305	90	96	95
400-785-5	OMS28-MW6-0305	92	91	96
400-785-5 DIL	OMS28-MW6-0305	89	97	95
400-785-6	OMS28-MW7-0305	90	96	94
400-785-7	OMS28-MW8-0305	89	97	95
400-785-8	OMS28-MW8-0305	90	98	95
400-785-9	TB	90	97	96
LCS 400-2376/13LCS	LCS	94	96	96
LCS 400-2555/2LCS	LCS	94	96	96
MB 400-2376/12MB	MB	89	97	95
MB 400-2555/1MB	MB	89	98	95

##### Surrogate

##### Acceptance Limits

(BFB)	4-Bromofluorobenzene	83 - 126
(DBFM)	Dibromofluoromethane	69 - 130
(TOL)	Toluene-d8	86 - 116

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### Surrogate Recovery Report

#### 8310 Polynuclear Aromatic Hydrocarbons

Client Matrix: Water

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>2-Chloroa</u>
400-785-1	OMS28-MW1-0305	70
400-785-2	OMS28-MW2-0305	68
400-785-3	OMS28-MW3-0305	68
400-785-3MS	OMS28-MW3-0305	79
400-785-3MSD	OMS28-MW3-0305	72
400-785-4	OMS28-MW5-0305	72
400-785-5	OMS28-MW6-0305	80
400-785-6	OMS28-MW7-0305	80
400-785-7	OMS28-MW8-0305	81
400-785-8	OMS28-MW8-0305	76
LCS 400-2196/18-BLCS	LCS	78
MB 400-2196/17-BMB	MB	80

#### Surrogate

#### Acceptance Limits

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2-	2-Chloroanthracene	28 - 138
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## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8260B Volatile Organic Compounds by GC/MS

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Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8260B Volatile Organic Compounds by GC/MS

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Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8260B Volatile Organic Compounds by GC/MS

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#### Method Blank - Batch: 400-2376

Lab ID: MB 400-2376/12

Date Analyzed: 03/15/2005 1239

Dilution: 1.0

Matrix: Water

Units: ug/L

Analyte	Result	Qualifier	MDL	RL
Acetone	1.0	U	0.64	1.0
Benzene	0.25	U	0.15	0.25
Bromobenzene	0.25	U	0.15	0.25
Bromochloromethane	0.25	U	0.15	0.25
Bromodichloromethane	0.25	U	0.15	0.25
Bromoform	0.25	U	0.15	0.25
2-Butanone (MEK)	1.0	U	0.15	1.0
Carbon disulfide	0.25	U	0.15	0.25
Bromomethane	0.25	U	0.15	0.25
Carbon tetrachloride	0.25	U	0.15	0.25
Chlorobenzene	0.25	U	0.15	0.25
Chloroethane	0.25	U	0.15	0.25
Chloroform	0.25	U	0.021	0.25
Chloromethane	0.25	U	0.15	0.25
2-Chlorotoluene	0.25	U	0.15	0.25
4-Chlorotoluene	0.25	U	0.15	0.25
Dibromochloromethane	0.25	U	0.039	0.25
Dibromomethane	0.25	U	0.15	0.25
1,2-Dibromo-3-Chloropropane	0.50	U	0.23	0.50
Ethylene Dibromide	0.25	U	0.15	0.25
1,2-Dichlorobenzene	0.25	U	0.15	0.25
1,3-Dichlorobenzene	0.25	U	0.15	0.25
Dichlorodifluoromethane	0.25	U	0.15	0.25
1,1-Dichloroethane	0.25	U	0.15	0.25
1,1-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloroethane	0.25	U	0.025	0.25
cis-1,2-Dichloroethene	0.25	U	0.15	0.25
trans-1,2-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloropropane	0.25	U	0.15	0.25
1,3-Dichloropropane	0.25	U	0.15	0.25
2,2-Dichloropropane	0.25	U	0.15	0.25
1,1-Dichloropropene	0.25	U	0.15	0.25
cis-1,3-Dichloropropene	0.25	U	0.15	0.25
trans-1,3-Dichloropropene	0.25	U	0.15	0.25
Ethylbenzene	0.25	U	0.15	0.25
Hexachlorobutadiene	0.25	U	0.15	0.25
2-Hexanone	1.0	U	0.15	1.0
Iodomethane	0.25	U	0.15	0.25
Isopropylbenzene	0.25	U	0.15	0.25
Isopropyl ether	0.25	U	0.15	0.25
p-Cymene	0.25	U	0.15	0.25
Methylene Chloride	0.25	U	0.15	0.25
Methyl tert-butyl ether	0.25	U	0.15	0.25
4-Methyl-2-pentanone (MIBK)	1.0	U	0.15	1.0
Naphthalene	0.25	U	0.15	0.25

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8260B Volatile Organic Compounds by GC/MS

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#### Method Blank - Batch: 400-2376

Lab ID: MB 400-2376/12

Date Analyzed: 03/15/2005 1239

Dilution: 1.0

Matrix: Water

Units: ug/L

Analyte	Result	Qualifier	MDL	RL
n-Butylbenzene	0.25	U	0.15	0.25
sec-Butylbenzene	0.25	U	0.15	0.25
Styrene	0.25	U	0.15	0.25
tert-Butylbenzene	0.25	U	0.15	0.25
1,1,1,2-Tetrachloroethane	0.25	U	0.15	0.25
1,1,2,2-Tetrachloroethane	0.25	U	0.037	0.25
Tetrachloroethene	0.25	U	0.15	0.25
Toluene	0.25	U	0.15	0.25
1,1,1-Trichloroethane	0.25	U	0.15	0.25
1,1,2-Trichloroethane	0.25	U	0.15	0.25
1,2,3-Trichlorobenzene	0.25	U	0.15	0.25
1,2,4-Trichlorobenzene	0.25	U	0.15	0.25
Trichloroethene	0.25	U	0.15	0.25
Trichlorofluoromethane	0.25	U	0.15	0.25
1,2,3-Trichloropropane	0.25	U	0.022	0.25
1,2,4-Trimethylbenzene	0.25	U	0.15	0.25
1,3,5-Trimethylbenzene	0.25	U	0.15	0.25
Vinyl acetate	0.50	U	0.15	0.50
Vinyl chloride	0.25	U	0.15	0.25
N-Propylbenzene	0.25	U	0.15	0.25
o-Xylene	0.25	U	0.15	0.25
m-Xylene & p-Xylene	0.50	U	0.25	0.50
1,4-Dichlorobenzene	0.25	U	0.15	0.25

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8260B Volatile Organic Compounds by GC/MS

#### Laboratory Control Sample - Batch: 400-2376

Lab ID: LCS 400-2376/13

Date Analyzed: 03/15/2005 1313

Dilution: 1.0

Matrix: Water

Units: ug/L

Analyte	Spike Amount	Result	% Rec.	Recovery Limits	Qualifier
Acetone	20.0	21	105	21 - 201	
Benzene	5.00	4.7	94	83 - 110	
Bromobenzene	5.00	4.9	98	77 - 124	
Bromochloromethane	5.00	4.9	98	87 - 119	
Bromodichloromethane	5.00	4.7	94	79 - 124	
Bromoform	5.00	5.2	104	80 - 124	
2-Butanone (MEK)	20.0	20	101	1 - 187	
Carbon disulfide	5.00	4.8	97	64 - 139	
Bromomethane	5.00	5.0	100	63 - 119	
Carbon tetrachloride	5.00	4.7	94	62 - 124	
Chlorobenzene	5.00	5.0	99	79 - 122	
Chloroethane	5.00	4.6	93	67 - 127	
Chloroform	5.00	4.7	94	83 - 120	
Chloromethane	5.00	4.5	89	53 - 124	
2-Chlorotoluene	5.00	4.7	95	66 - 136	
4-Chlorotoluene	5.00	4.8	96	62 - 141	
Dibromochloromethane	5.00	4.8	96	82 - 124	
Dibromomethane	5.00	5.0	99	84 - 126	
1,2-Dibromo-3-Chloropropane	5.00	4.1	83	66 - 134	
Ethylene Dibromide	5.00	4.7	94	88 - 124	
1,2-Dichlorobenzene	5.00	5.0	100	66 - 133	
1,3-Dichlorobenzene	5.00	5.0	100	67 - 134	
Dichlorodifluoromethane	5.00	6.1	122	28 - 127	
1,1-Dichloroethane	5.00	4.4	89	81 - 121	
1,1-Dichloroethene	5.00	4.8	96	82 - 113	
1,2-Dichloroethane	5.00	4.7	94	76 - 131	
cis-1,2-Dichloroethene	5.00	4.7	94	85 - 115	
trans-1,2-Dichloroethene	5.00	4.7	94	81 - 111	
1,2-Dichloropropane	5.00	4.5	90	86 - 112	
1,3-Dichloropropane	5.00	4.7	93	88 - 126	
2,2-Dichloropropane	5.00	4.2	85	43 - 139	
1,1-Dichloropropene	5.00	4.8	95	76 - 126	
cis-1,3-Dichloropropene	5.00	4.4	87	83 - 120	
trans-1,3-Dichloropropene	5.00	4.3	86	66 - 136	
Ethylbenzene	5.00	4.9	98	76 - 123	
Hexachlorobutadiene	5.00	4.8	96	1 - 195	
2-Hexanone	20.0	21	103	1 - 191	
Iodomethane	5.00	3.5	70	71 - 129	*
Isopropylbenzene	5.00	5.0	99	61 - 134	
Isopropyl ether	5.00	4.0	80	69 - 132	
p-Cymene	5.00	4.9	98	50 - 140	
Methylene Chloride	5.00	4.2	84	86 - 119	*
Methyl tert-butyl ether	5.00	4.1	82	71 - 123	
4-Methyl-2-pentanone (MIBK)	20.0	17	86	1 - 187	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8260B Volatile Organic Compounds by GC/MS

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Naphthalene	5.00	3.7	75	64 - 138
n-Butylbenzene	5.00	4.9	98	32 - 167
sec-Butylbenzene	5.00	4.8	96	52 - 139
Styrene	5.00	5.2	104	80 - 123
tert-Butylbenzene	5.00	4.6	91	57 - 133
1,1,1,2-Tetrachloroethane	5.00	4.9	98	65 - 132
1,1,2,2-Tetrachloroethane	5.00	4.8	95	85 - 127
Tetrachloroethene	5.00	5.1	102	65 - 126
Toluene	5.00	4.7	94	82 - 117
1,1,1-Trichloroethane	5.00	4.7	93	67 - 142
1,1,2-Trichloroethane	5.00	4.7	95	88 - 123
1,2,3-Trichlorobenzene	5.00	4.3	86	33 - 159
1,2,4-Trichlorobenzene	5.00	4.3	87	36 - 165
Trichloroethene	5.00	4.8	96	77 - 116
Trichlorofluoromethane	5.00	5.0	100	62 - 126
1,2,3-Trichloropropane	5.00	4.4	87	84 - 132
1,2,4-Trimethylbenzene	5.00	4.9	98	63 - 135
1,3,5-Trimethylbenzene	5.00	4.8	96	61 - 134
Vinyl acetate	10.0	8.8	88	24 - 166
Vinyl chloride	5.00	4.7	93	65 - 126
N-Propylbenzene	5.00	4.8	96	53 - 148
o-Xylene	5.00	4.9	99	76 - 126
m-Xylene & p-Xylene	10.0	10	102	69 - 130
1,4-Dichlorobenzene	5.00	5.0	99	65 - 134

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8260B Volatile Organic Compounds by GC/MS

#### Matrix Spike/Spike Duplicate - Batch: 400-2376

MS Lab ID: 400-785-F-3 MS  
 MSD Lab ID: 400-785-F-3 MSD  
 Matrix: Water

Date Analyzed: 03/15/2005 1346  
 Date Analyzed: 03/15/2005 1420

Dilution: 1.0  
 Dilution: 1.0

Analyte	% Recovery		Recovery Limits	RPD	RPD Limit	Qualifier
	MS	MSD				
Acetone	58	57	13 - 221	1	45	
Benzene	95	95	85 - 116	0	11	
Bromobenzene	100	99	82 - 125	1	14	
Bromochloromethane	99	101	76 - 132	2	16	
Bromodichloromethane	98	98	87 - 129	0	13	
Bromoform	113	116	72 - 144	3	18	
2-Butanone (MEK)	78	79	46 - 158	2	31	
Carbon disulfide	95	95	74 - 143	0	17	
Bromomethane	92	93	60 - 134	1	21	
Carbon tetrachloride	96	96	78 - 136	1	12	
Chlorobenzene	102	102	87 - 123	1	11	
Chloroethane	91	91	60 - 147	0	20	
Chloroform	95	96	77 - 134	1	14	
Chloromethane	91	91	41 - 134	1	23	
2-Chlorotoluene	99	98	71 - 139	1	24	
4-Chlorotoluene	97	95	66 - 147	1	22	
Dibromochloromethane	104	105	80 - 137	1	13	
Dibromomethane	100	103	73 - 141	3	16	
1,2-Dibromo-3-Chloropropane	97	98	68 - 155	1	24	
Ethylene Dibromide	103	103	75 - 138	0	18	
1,2-Dichlorobenzene	107	106	84 - 129	1	15	
1,3-Dichlorobenzene	104	103	81 - 128	1	16	
Dichlorodifluoromethane	119	117	28 - 135	1	20	
1,1-Dichloroethane	89	91	66 - 139	2	14	
1,1-Dichloroethene	88	86	71 - 125	3	20	
1,2-Dichloroethane	95	98	73 - 143	2	12	
cis-1,2-Dichloroethene	98	99	77 - 128	1	14	
trans-1,2-Dichloroethene	94	92	78 - 122	2	15	
1,2-Dichloropropane	91	91	83 - 121	0	12	
1,3-Dichloropropane	99	99	83 - 134	0	15	
2,2-Dichloropropane	87	88	40 - 154	1	37	
1,1-Dichloropropene	92	92	82 - 131	1	11	
cis-1,3-Dichloropropene	92	93	87 - 121	0	12	
trans-1,3-Dichloropropene	93	93	70 - 128	0	14	
Ethylbenzene	100	99	83 - 121	0	18	
Hexachlorobutadiene	112	109	36 - 183	3	32	
2-Hexanone	79	80	41 - 158	1	29	
Iodomethane	79	81	70 - 142	2	19	* *
Isopropylbenzene	104	103	82 - 125	1	17	
Isopropyl ether	85	86	61 - 143	1	15	
p-Cymene	100	95	76 - 129	5	23	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8260B Volatile Organic Compounds by GC/MS

#### Matrix Spike/Spike Duplicate - Batch: 400-2376

MS Lab ID: 400-785-F-3 MS  
 MSD Lab ID: 400-785-F-3 MSD  
 Matrix: Water

Date Analyzed: 03/15/2005 1346  
 Date Analyzed: 03/15/2005 1420

Dilution: 1.0  
 Dilution: 1.0

Analyte	% Recovery		Recovery Limits	RPD	RPD Limit	Qualifier	
	MS	MSD					
Methylene Chloride	85	86	67 - 142	1	21	*	*
Methyl tert-butyl ether	89	91	51 - 152	1	20		
4-Methyl-2-pentanone (MIBK)	96	98	35 - 155	2	25		
Naphthalene	90	84	62 - 153	7	23		
n-Butylbenzene	110	106	66 - 145	3	29		
sec-Butylbenzene	101	100	80 - 127	1	21		
Styrene	47	36	77 - 128	26	16	*	*
tert-Butylbenzene	99	98	81 - 123	1	18		
1,1,1,2-Tetrachloroethane	103	104	87 - 130	1	11		
1,1,2,2-Tetrachloroethane	102	101	62 - 147	1	20		
Tetrachloroethene	103	103	83 - 121	0	15		
Toluene	95	94	84 - 119	1	14		
1,1,1-Trichloroethane	93	95	81 - 128	2	11		
1,1,2-Trichloroethane	99	102	81 - 134	2	14		
1,2,3-Trichlorobenzene	103	98	71 - 143	5	19		
1,2,4-Trichlorobenzene	102	99	64 - 150	3	21		
Trichloroethene	97	97	86 - 118	0	12		
Trichlorofluoromethane	98	99	60 - 139	1	21		
1,2,3-Trichloropropane	95	95	54 - 157	0	24		
1,2,4-Trimethylbenzene	65	55	79 - 129	17	20	*	*
1,3,5-Trimethylbenzene	78	72	79 - 128	9	19	*	*
Vinyl acetate	83	81	1 - 165	3	28		
Vinyl chloride	95	94	57 - 144	1	17		
N-Propylbenzene	99	96	74 - 134	3	22		
o-Xylene	97	97	83 - 126	0	15		
m-Xylene & p-Xylene	95	93	82 - 126	3	18		
1,4-Dichlorobenzene	103	102	79 - 129	1	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8260B Volatile Organic Compounds by GC/MS

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Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8260B Volatile Organic Compounds by GC/MS

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#### Method Blank - Batch: 400-2555

Lab ID: MB 400-2555/1

Date Analyzed: 03/21/2005 1627

Dilution: 1.0

Matrix: Water

Units: ug/L

Analyte	Result	Qualifier	MDL	RL
Acetone	2.2		0.64	1.0
Benzene	0.25	U	0.15	0.25
Bromobenzene	0.25	U	0.15	0.25
Bromochloromethane	0.25	U	0.15	0.25
Bromodichloromethane	0.25	U	0.15	0.25
Bromoform	0.25	U	0.15	0.25
2-Butanone (MEK)	1.0	U	0.15	1.0
Carbon disulfide	0.25	U	0.15	0.25
Bromomethane	0.25	U	0.15	0.25
Carbon tetrachloride	0.25	U	0.15	0.25
Chlorobenzene	0.25	U	0.15	0.25
Chloroethane	0.25	U	0.15	0.25
Chloroform	0.25	U	0.021	0.25
Chloromethane	0.25	U	0.15	0.25
2-Chlorotoluene	0.25	U	0.15	0.25
4-Chlorotoluene	0.25	U	0.15	0.25
Dibromochloromethane	0.25	U	0.039	0.25
Dibromomethane	0.25	U	0.15	0.25
1,2-Dibromo-3-Chloropropane	0.50	U	0.23	0.50
Ethylene Dibromide	0.25	U	0.15	0.25
1,2-Dichlorobenzene	0.25	U	0.15	0.25
1,3-Dichlorobenzene	0.25	U	0.15	0.25
Dichlorodifluoromethane	0.25	U	0.15	0.25
1,1-Dichloroethane	0.25	U	0.15	0.25
1,1-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloroethane	0.25	U	0.025	0.25
cis-1,2-Dichloroethene	0.25	U	0.15	0.25
trans-1,2-Dichloroethene	0.25	U	0.15	0.25
1,2-Dichloropropane	0.25	U	0.15	0.25
1,3-Dichloropropane	0.25	U	0.15	0.25
2,2-Dichloropropane	0.25	U	0.15	0.25
1,1-Dichloropropene	0.25	U	0.15	0.25
cis-1,3-Dichloropropene	0.25	U	0.15	0.25
trans-1,3-Dichloropropene	0.25	U	0.15	0.25
Ethylbenzene	0.25	U	0.15	0.25
Hexachlorobutadiene	0.25	U	0.15	0.25
2-Hexanone	1.0	U	0.15	1.0
Iodomethane	0.25	U	0.15	0.25
Isopropylbenzene	0.25	U	0.15	0.25
Isopropyl ether	0.25	U	0.15	0.25
p-Cymene	0.25	U	0.15	0.25
Methylene Chloride	0.30		0.15	0.25
Methyl tert-butyl ether	0.25	U	0.15	0.25
4-Methyl-2-pentanone (MIBK)	1.0	U	0.15	1.0
Naphthalene	0.25	U	0.15	0.25

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8260B Volatile Organic Compounds by GC/MS

---

#### Method Blank - Batch: 400-2555

Lab ID: MB 400-2555/1  
Matrix: Water

Date Analyzed: 03/21/2005 1627  
Units: ug/L

Dilution: 1.0

Analyte	Result	Qualifier	MDL	RL
n-Butylbenzene	0.25	U	0.15	0.25
sec-Butylbenzene	0.25	U	0.15	0.25
Styrene	0.25	U	0.15	0.25
tert-Butylbenzene	0.25	U	0.15	0.25
1,1,1,2-Tetrachloroethane	0.25	U	0.15	0.25
1,1,2,2-Tetrachloroethane	0.25	U	0.037	0.25
Tetrachloroethene	0.25	U	0.15	0.25
Toluene	0.25	U	0.15	0.25
1,1,1-Trichloroethane	0.25	U	0.15	0.25
1,1,2-Trichloroethane	0.25	U	0.15	0.25
1,2,3-Trichlorobenzene	0.25	U	0.15	0.25
1,2,4-Trichlorobenzene	0.25	U	0.15	0.25
Trichloroethene	0.25	U	0.15	0.25
Trichlorofluoromethane	0.25	U	0.15	0.25
1,2,3-Trichloropropane	0.25	U	0.022	0.25
1,2,4-Trimethylbenzene	0.25	U	0.15	0.25
1,3,5-Trimethylbenzene	0.25	U	0.15	0.25
Vinyl acetate	0.50	U	0.15	0.50
Vinyl chloride	0.25	U	0.15	0.25
N-Propylbenzene	0.25	U	0.15	0.25
o-Xylene	0.25	U	0.15	0.25
m-Xylene & p-Xylene	0.50	U	0.25	0.50
1,4-Dichlorobenzene	0.25	U	0.15	0.25

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8260B Volatile Organic Compounds by GC/MS

#### Laboratory Control Sample - Batch: 400-2555

Lab ID: LCS 400-2555/2

Date Analyzed: 03/21/2005 1701

Dilution: 1.0

Matrix: Water

Units: ug/L

Analyte	Spike Amount	Result	% Rec.	Recovery Limits	Qualifier
Acetone	20.0	22	108	21 - 201	
Benzene	5.00	4.7	93	83 - 110	
Bromobenzene	5.00	4.8	96	77 - 124	
Bromochloromethane	5.00	4.9	99	87 - 119	
Bromodichloromethane	5.00	4.8	96	79 - 124	
Bromoform	5.00	5.2	104	80 - 124	
2-Butanone (MEK)	20.0	19	95	1 - 187	
Carbon disulfide	5.00	4.5	90	64 - 139	
Bromomethane	5.00	4.8	96	63 - 119	
Carbon tetrachloride	5.00	4.5	90	62 - 124	
Chlorobenzene	5.00	4.9	99	79 - 122	
Chloroethane	5.00	4.5	89	67 - 127	
Chloroform	5.00	4.7	94	83 - 120	
Chloromethane	5.00	4.3	85	53 - 124	
2-Chlorotoluene	5.00	4.6	92	66 - 136	
4-Chlorotoluene	5.00	4.6	93	62 - 141	
Dibromochloromethane	5.00	4.9	99	82 - 124	
Dibromomethane	5.00	4.9	98	84 - 126	
1,2-Dibromo-3-Chloropropane	5.00	3.9	79	66 - 134	
Ethylene Dibromide	5.00	4.9	97	88 - 124	
1,2-Dichlorobenzene	5.00	5.1	102	66 - 133	
1,3-Dichlorobenzene	5.00	5.0	99	67 - 134	
Dichlorodifluoromethane	5.00	5.8	115	28 - 127	
1,1-Dichloroethane	5.00	4.4	88	81 - 121	
1,1-Dichloroethene	5.00	4.8	95	82 - 113	
1,2-Dichloroethane	5.00	4.8	95	76 - 131	
cis-1,2-Dichloroethene	5.00	4.7	93	85 - 115	
trans-1,2-Dichloroethene	5.00	4.7	94	81 - 111	
1,2-Dichloropropane	5.00	4.4	88	86 - 112	
1,3-Dichloropropane	5.00	4.8	96	88 - 126	
2,2-Dichloropropane	5.00	3.9	79	43 - 139	
1,1-Dichloropropene	5.00	4.7	93	76 - 126	
cis-1,3-Dichloropropene	5.00	4.3	87	83 - 120	
trans-1,3-Dichloropropene	5.00	4.2	84	66 - 136	
Ethylbenzene	5.00	4.8	96	76 - 123	
Hexachlorobutadiene	5.00	4.8	96	1 - 195	
2-Hexanone	20.0	19	94	1 - 191	
Iodomethane	5.00	3.6	71	71 - 129	
Isopropylbenzene	5.00	4.9	98	61 - 134	
Isopropyl ether	5.00	4.0	79	69 - 132	
p-Cymene	5.00	4.7	94	50 - 140	
Methylene Chloride	5.00	4.5	90	86 - 119	
Methyl tert-butyl ether	5.00	4.2	84	71 - 123	
4-Methyl-2-pentanone (MIBK)	20.0	17	87	1 - 187	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8260B Volatile Organic Compounds by GC/MS

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Naphthalene	5.00	3.7	75	64 - 138
n-Butylbenzene	5.00	4.7	94	32 - 167
sec-Butylbenzene	5.00	4.6	92	52 - 139
Styrene	5.00	5.1	103	80 - 123
tert-Butylbenzene	5.00	4.5	89	57 - 133
1,1,1,2-Tetrachloroethane	5.00	4.8	97	65 - 132
1,1,2,2-Tetrachloroethane	5.00	4.8	96	85 - 127
Tetrachloroethene	5.00	5.1	101	65 - 126
Toluene	5.00	4.7	94	82 - 117
1,1,1-Trichloroethane	5.00	4.6	91	67 - 142
1,1,2-Trichloroethane	5.00	4.8	96	88 - 123
1,2,3-Trichlorobenzene	5.00	4.4	87	33 - 159
1,2,4-Trichlorobenzene	5.00	4.4	87	36 - 165
Trichloroethene	5.00	4.8	96	77 - 116
Trichlorofluoromethane	5.00	4.9	98	62 - 126
1,2,3-Trichloropropane	5.00	4.4	89	84 - 132
1,2,4-Trimethylbenzene	5.00	4.7	94	63 - 135
1,3,5-Trimethylbenzene	5.00	4.6	92	61 - 134
Vinyl acetate	10.0	8.5	85	24 - 166
Vinyl chloride	5.00	4.5	89	65 - 126
N-Propylbenzene	5.00	4.5	91	53 - 148
o-Xylene	5.00	4.9	98	76 - 126
m-Xylene & p-Xylene	10.0	9.9	99	69 - 130
1,4-Dichlorobenzene	5.00	4.9	98	65 - 134

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8310 Polynuclear Aromatic Hydrocarbons

---

#### Method Blank - Batch: 400-2196

Lab ID: MB 400-2196/17-B  
Matrix: Water

Date Analyzed: 03/22/2005 1028  
Units: ug/L

Dilution: 1.0

Analyte	Result	Qualifier	MDL	RL
Naphthalene	1.0	U	0.089	1.0
Acenaphthylene	1.0	U	0.098	1.0
1-Methylnaphthalene	1.0	U	0.11	1.0
2-Methylnaphthalene	1.0	U	0.076	1.0
Acenaphthene	1.0	U	0.075	1.0
Fluorene	1.0	U	0.072	1.0
Phenanthrene	1.0	U	0.069	1.0
Anthracene	1.0	U	0.063	1.0
Fluoranthene	1.0	U	0.070	1.0
Pyrene	1.0	U	0.059	1.0
Benzo[a]anthracene	0.20	U	0.057	0.20
Chrysene	1.0	U	0.065	1.0
Benzo[b]fluoranthene	0.20	U	0.064	0.20
Benzo[k]fluoranthene	0.50	U	0.079	0.50
Benzo[a]pyrene	0.20	U	0.076	0.20
Dibenz(a,h)anthracene	0.20	U	0.14	0.20
Benzo[g,h,i]perylene	1.0	U	0.088	1.0
Indeno[1,2,3-cd]pyrene	0.20	U	0.083	0.20

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8310 Polynuclear Aromatic Hydrocarbons

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#### Laboratory Control Sample - Batch: 400-2196

Lab ID: LCS 400-2196/18-B

Date Analyzed: 03/22/2005 1028

Dilution: 1.0

Matrix: Water

Units: ug/L

Analyte	Spike Amount	Result	% Rec.	Recovery Limits	Qualifier
Naphthalene	10.0	8.2	82	19 - 102	
Acenaphthylene	10.0	8.5	85	24 - 108	
1-Methylnaphthalene	10.0	8.6	86	14 - 129	
2-Methylnaphthalene	10.0	8.5	85	19 - 115	
Acenaphthene	10.0	9.0	90	8 - 149	
Fluorene	10.0	8.9	89	26 - 115	
Phenanthrene	10.0	9.0	90	35 - 132	
Anthracene	10.0	9.8	98	43 - 143	
Fluoranthene	10.0	10	101	40 - 119	
Pyrene	10.0	9.9	99	40 - 130	
Benzo[a]anthracene	10.0	8.4	84	42 - 128	
Chrysene	10.0	8.5	85	47 - 135	
Benzo[b]fluoranthene	10.0	7.7	77	44 - 132	
Benzo[k]fluoranthene	10.0	7.0	70	41 - 136	
Benzo[a]pyrene	10.0	7.5	75	33 - 114	
Dibenz(a,h)anthracene	10.0	6.4	64	22 - 147	
Benzo[g,h,i]perylene	10.0	6.6	66	21 - 140	
Indeno[1,2,3-cd]pyrene	10.0	6.5	65	34 - 142	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 8310 Polynuclear Aromatic Hydrocarbons

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#### Matrix Spike/Spike Duplicate - Batch: 400-2196

MS Lab ID: 400-785-B-3-B MS

Date Analyzed: 03/22/2005 1028

Dilution: 1.0

MSD Lab ID: 400-785-B-3-B MSD

Date Analyzed: 03/22/2005 1028

Dilution: 1.0

Matrix: Water

Analyte	% Recovery		Recovery Limits	RPD	RPD Limit	Qualifier
	MS	MSD				
Naphthalene	82	79	2 - 108	8	93	
Acenaphthylene	90	85	1 - 126	10	93	
1-Methylnaphthalene	87	83	1 - 145	10	95	
2-Methylnaphthalene	86	83	3 - 129	9	81	
Acenaphthene	94	88	0 - 142	11	107	
Fluorene	95	89	19 - 113	11	79	
Phenanthrene	96	89	26 - 136	12	70	
Anthracene	99	93	33 - 145	12	68	
Fluoranthene	99	88	22 - 139	17	73	
Pyrene	101	93	26 - 142	14	68	
Benzo[a]anthracene	83	76	34 - 139	14	52	
Chrysene	83	76	31 - 144	14	61	
Benzo[b]fluoranthene	77	71	30 - 140	13	59	
Benzo[k]fluoranthene	71	66	31 - 142	14	47	
Benzo[a]pyrene	76	67	27 - 117	18	47	
Dibenz(a,h)anthracene	66	62	14 - 152	13	54	
Benzo[g,h,i]perylene	69	63	19 - 141	14	51	
Indeno[1,2,3-cd]pyrene	68	62	25 - 148	14	45	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: Bechtel S Corporation

Job Number: 400-785.1

### 6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

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#### Method Blank - Batch: 400-2412

Lab ID: MB 400-2412/15-A  
Matrix: Water

Date Analyzed: 03/21/2005 1914  
Units: mg/L

Dilution: 1.0

Analyte	Result	Qualifier	MDL	RL
Lead	0.0029	J	0.0020	0.0050

#### Laboratory Control Sample - Batch: 400-2412

Lab ID: LCS 400-2412/16-A  
Matrix: Water

Date Analyzed: 03/21/2005 1920  
Units: mg/L

Dilution: 1.0

Analyte	Spike Amount	Result	% Rec.	Recovery Limits	Qualifier
Lead	1.00	0.98	98	80 - 120	

#### Matrix Spike/Spike Duplicate - Batch: 400-2412

MS Lab ID: 400-785-A-3-A MS  
MSD Lab ID: 400-785-A-3-A MSD  
Matrix: Water

Date Analyzed: 03/21/2005 1937  
Date Analyzed: 03/21/2005 1943

Dilution: 1.0  
Dilution: 1.0

Analyte	% Recovery		Recovery Limits	RPD	RPD Limit	Qualifier
	MS	MSD				
Lead	97	98	75 - 125	1	20	

Calculations are performed before rounding to avoid round-off errors in calculated results.

## **STL PENSACOLA Certifications, Memberships & Affiliations**

**Alabama** Department of Environmental Management, Laboratory ID No. 40150 (Drinking Water by Reciprocity with FL), expires 06/30/05

**Arizona** Department of Health Services, Lab ID No. AZ0589 (Hazardous Waste & Wastewater), expires 01/11/05

**Arkansas** Department of Pollution Control and Ecology, (88-0689) (Environmental), expires 07/01/05

**California** Department of Health Services, **ELAP** Laboratory ID No. 2510 (Hazardous Waste and Wastewater), expires 03/31/06

**Connecticut** Department of Health Services, Connecticut Lab Approval No. PH-0697 (D W, H W and Wastewater), expires 09/30/05

**Florida** DOH, **NELAP** Laboratory ID No. E81010 (Drinking Water, Hazardous Waste and Wastewater), expires 06/30/05

**Florida** DEP/DOH CompQAP # 980156

**Illinois** Environmental Laboratory Accreditation Program (ELAP), **NELAP** Laboratory ID No. 200041 (Wastewater and Hazardous Waste), expires 10/09/04

**Iowa** Department of Natural Resources, Laboratory ID No. 367 (Wastewater, UST, Solid Waste, & Contaminated Sites), expires 08/01/04

**Kansas** Department of Health & Environment, **NELAP** Laboratory ID No. E10253 (Wastewater and Hazardous Waste), expires 10/31/04

**Kentucky** NR&EPC, Laboratory ID No. 90043 (Drinking Water), expires 12/31/04

**Kentucky** Petroleum Storage Tank Env Assurance Fund, Laboratory ID No. 0053 (UST), expires 11/7/05.

**Louisiana** DEQ, LELAP, **NELAP** Laboratory ID No. 02075, Agency Interest ID 30748. Environmental, expires 6/30/05

**Maryland** DH&MH Laboratory ID No. 233 (Drinking Water by Reciprocity with Florida), expires 12/31/04

**Massachusetts** DEP, Laboratory ID No. M-FL094 (Wastewater), expires 06/30/05

**Michigan** Bureau of E&Occh, Laboratory ID No. 9912 (Drinking Water by Reciprocity with Florida), expires 06/30/05

**New Hampshire** DES ELAP, **NELAP** Laboratory ID No. 250502 (Drinking Water & Wastewater), expires 08/16/05

**New Jersey** DEP&E, **NELAP** Laboratory ID No. FL006 (Wastewater and Hazardous Waster), expires 06/30/05.

**North Carolina** DENR, Laboratory ID No. 314 (Hazardous Waste and Wastewater), expires 12/31/04.

**North Dakota** DH&Consol Labs, Laboratory ID No. R-108 Wastewater and Hazardous Waste by Reciprocity with Arizona), expires 06/30/04

**Oklahoma** Department of Environmental Quality, Laboratory ID No. 9810 (Hazardous Waste and Wastewater), expires 08/31/05

**Pennsylvania** Department of Environmental Resources, **NELAP** Laboratory ID No. 68-467 (Drinking Water & Wastewater), expires 12/01/04

**South Carolina** DH&EC, Laboratory ID No. 96026 (Wastewater & Solids/Hazardous Waste by Reciprocity with FL), expires 06/30/05

**Tennessee** Department of Health & Environment, Laboratory ID No. 02907 (Drinking Water), expires 08/03/04

**Virginia** Department of General Services, Laboratory ID No. 00008 (Drinking Water by Reciprocity with FL), expires 06/30/05

**West Virginia** DOE, Office of Water Resources, Laboratory ID No. 136 (Haz Waste and Wastewater), expires 04/30/05.

**EPA ICR** (Information Collection Rule) Approved Laboratory, Laboratory ID No. ICRFL031

**NFESC** (Naval Facilities Engineering Services Center), expires September 7, 2004.

**USACE** (United States Army Corps. of Engineers), MRD, expires July 16, 2005.

STL Pensacola also has a foreign soil permit to accept soils from locations other than the continental United States. Permit No. S-37599

certlist\condcert.lst revised 9/29/04

**Attachment E**  
**EcoVac Services Vacuum Extraction Report**

Mr. Andrew Weinberg  
January 7, 2005  
Page 1

January 7, 2005  
Mr. Andrew Weinberg  
Bechtel Corporation  
203 E. Milton Street  
Austin, Texas 78704  
[aweinberg@austin.rr.com](mailto:aweinberg@austin.rr.com)

**Subject: Enhanced Fluid Recovery (EFR<sup>®</sup>) Results  
Event No. 1  
Alabama National Guard OMS Pit #2  
1622 Broad Street  
Mobile, Alabama**

Dear Mr. Weinberg:

Please find attached the data summary for the initial EFR<sup>®</sup> event conducted at the subject site on December 10, 2004. The following summarizes the results of EFR<sup>®</sup> at this site.

### **SUMMARY OF RESULTS**

This EFR<sup>®</sup> event was performed for eight hours at one extraction point, consisting of monitor well MW-1. A measurable layer of separate phase hydrocarbons (SPH) was not detected in the extraction well prior to or upon completion of this event.

A calculated total of 5.6 pounds of petroleum hydrocarbons (approximately 0.9 equivalent gallon of gasoline) was removed during this EFR<sup>®</sup> event. The hydrocarbon removal rate ranged from 0.4 to 0.8 pounds per hour during the event. Removal rates increased from 0.4 to 0.8 pound per hour during the initial two hours of extraction and decreased to 0.7 pound per during the final six hours of this event.

Vapor concentrations ranged from 500 to 800 parts per million by volume (PPM<sub>v</sub>) during this EFR<sup>®</sup> event. Vapors were treated with a dual internal combustion engine unit (DICE) and analyzed for hydrocarbon content. A calculated total of 0.07 pound of hydrocarbons was released to the atmosphere. The DICE achieved a destruction efficiency of 98.85%.

Flow rates ranged from 54 to 68 actual cubic feet per minute (ACFM) during this event. Vacuum readings recorded at extraction well MW-1 ranged from 20 to 21 inches of mercury throughout this EFR<sup>®</sup> event as detailed in the attached EFR<sup>®</sup> Field Data Sheet.

Mr. Andrew Weinberg

January 7, 2005

Page 2

Differential pressures were recorded during this event to assess the vacuum influence induced by EFR<sup>®</sup> in the vadose zone. The differential pressure data are detailed in the attached data table and summarized below:

<u>Monitor Well</u>	<u>Maximum Change</u>	<u>Approximate Distance from MW-1</u>
MW-3	0.00 inch of water	28 feet
MW-2	0.00 inch of water	30 feet
MW-6	0.00 inch of water	96 feet
MW-5	0.00 inch of water	105 feet

Groundwater levels were recorded during the event to assess the groundwater drawdown induced by EFR<sup>®</sup>. The drawdown data are detailed in the attached table and summarized below:

<u>Monitor Well</u>	<u>Maximum Change</u>	<u>Approximate Distance from MW-1</u>
MW-3	-0.80 feet	28 feet
MW-2	-0.62 feet	30 feet
MW-6	+0.78 feet	96 feet
MW-5	+0.02 feet	105 feet

Approximately 547 gallons of liquid were removed during this EFR<sup>®</sup> event and transported to Industrial Water Service's treatment facility (Mobile, Alabama) for disposal. SPH was not detected in the vacuum truck tank upon completion of the event.

Thank you for the opportunity to team with Bechtel Corporation in serving the environmental needs of your clients. We look forward to working with you again in the future to provide innovative and cost effective environmental solutions at this and other sites.

Sincerely,

EcoVac Services



David M. Goodrich, P.G.

**Attachment F. Waste Disposal Manifests**

042884

Please print or type  
(Form designed for use on elite (12-pitch) typewriter.)

**NON-HAZARDOUS  
WASTE MANIFEST**

1. Generator's US EPA ID No.

Manifest Document No.  
42884

2. Page 1 of 1

3. Generator's Name and Mailing Address

X OMS 28 1622 S Broad St

Job # 36150

4. Generator's Phone ( )

5. Transporter 1 Company Name

X ALARUS OMS 28

6. US EPA ID Number

A. Transporter's Phone

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address

IWS, INC.  
1980 AVENUE A  
MOBILE, AL 36615

10. US EPA ID Number

A.L.O.O.O.O.8.5.9.4.2.1

C. Facility's Phone

(334) 694-7500

11. Waste Shipping Name and Description

12. Containers

13. Total Quantity

14. Unit Wt/Vol

a. X Petroleum Contact Water

No. 4

Type Rake

20

GAL

b.

c.

d.

D. Additional Descriptions for Materials Listed Above

(4) 5gallon bucket of water

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name

X Andrew Weinberg

Signature

X [Signature]

Month Day Year

11 10 04

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

X [Signature]

Signature

[Signature]

Month Day Year

11 10 04

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Michael Curtis

Signature

IWS, INC.  
[Signature]

Month Day Year

11 10 04

GENERATOR

TRANSPORTER

FACILITY

042884

Please print or type  
(Form designed for use on elite (12-pitch) typewriter.)

**NON-HAZARDOUS  
WASTE MANIFEST**

1. Generator's US EPA ID No.

Manifest Document No. 42884

2. Page 1 of 1

3. Generator's Name and Mailing Address

OHS 28 1622 S Broad ST

Job # 36150

4. Generator's Phone ( )

5. Transporter 1 Company Name

ALARK OHS 28

6. US EPA ID Number

A. Transporter's Phone

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address

IWS, INC.  
1980 AVENUE A  
MOBILE, AL 36615

10. US EPA ID Number

A.L.O.O.O.O.8.5.9.4.2.1

C. Facility's Phone

(334) 694-7500

11. Waste Shipping Name and Description

12. Containers

13. Total Quantity

14. Unit Wt/Vol

a. Petroleum Contactor Water

4 20

b.

c.

d.

D. Additional Descriptions for Materials Listed Above

(4) 5gallon bucket of water

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name

Andrew Weinberg

Signature

[Signature]

Month Day Year

11 10 04

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

[Signature]

Signature

[Signature]

Month Day Year

11 10 04

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Michael Curtis

Signature

[Signature]

Month Day Year

11 10 04

GENERATOR  
TRANSPORTER  
FACILITY

25 10 31 52

10 4 01 00

20 4 01 02

IN

RECV

TREAT

OUT

FOR DRIVER USE\*\*

Transporter <u>X 1015 28</u>	Manifest No. <u>42981</u>
Truck/Trailer No. <u>X 1</u>	Gallons <u>X 20</u>
Total Miles _____ Site Time _____	Driver <u>X 1015 28</u>
Vac Truck: Depart Yard _____ Arrive Destination _____ Depart Destination _____	
Vac Tanker/Truck: Pump Time On-Site _____ Start _____ Stop _____	
Driver/Customer Comments _____	
Driver does / does not request a washout. Drivers Initials _____	

\*\*Give ticket to rack operator prior to unloading. Return ticket to receiving station prior to departure.

FOR LAB USE

PROFILE # 070289

Generator <u>Alabama Army National Guard</u>	Job No. <u>36150</u>
Destination Tank # <u>T021</u> Oil % <u>50</u> TOH: _____ Classifier? Yes <u>X</u> No _____	
Sample Color: <u>Clear</u> pH <u>7.75</u> Sludge/Solids: _____ Inches	
Special Instructions/Precautions _____	
Comments _____	
Lab Technician <u>mc</u> TS: <u>0.00</u> CWT Category: <u>Metals</u>	

FOR PROCESS USE

Classifier? _____ Gallons directly to hopper/rolloff: _____ (Shoveled, from Classifier, or Strainers)
Unload Tk # _____ Measurement before _____ after _____
Unload Tk # _____ Measurement before _____ after _____
Estimated gallons left in truck before washout _____ after _____
Washout tank # _____ Measurement before _____ after _____
Washout tank # _____ Measurement before _____ after _____
Water used, gallons _____ (if no washout measurement)
Start time _____ Stop time _____
Comments: _____
Operator Initials _____

043298

Please print or type.  
(Form designed for use on elite (12-pitch) typewriter.)

**NON-HAZARDOUS  
WASTE MANIFEST**

1. Generator's US EPA ID No.

Manifest Document No.  
43298

2. Page 1 of 1

3. Generator's Name and Mailing Address

X OMS #28 1622 S. Broad St.  
Mobile AL

Job #  
39294

4. Generator's Phone ( )

5. Transporter 1 Company Name

X Bechtel-S

6. US EPA ID Number

A. Transporter's Phone

X 512-626-6019

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address

IWS, INC.  
1980 AVENUE A  
MOBILE, AL 36615

10. US EPA ID Number

A.L.0.0.0.0.8.5.9.4.2.1

C. Facility's Phone

(334) 694-7500

11. Waste Shipping Name and Description

12. Containers

No. Type

13. Total Quantity

14. Unit Wt/Vol

a. Waste Water

2.0

GAL

b.

c.

d.

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name

X Andrew Weinberg

Signature

X Andrew Weinberg

Month Day Year

3 10 05

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

X Andrew Weinberg

Signature

X Andrew Weinberg

Month Day Year

3 10 05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Michael Curtis

Signature

IWS, INC. Mobile, AL  
Michael Curtis

Month Day Year

3 10 05

GENERATOR

TRANSPORTER

FACILITY

20 10 2 03

20 10 2 03

20 10 2 03

IN

RECV

TREAT

OUT

FOR DRIVER USE\*\*

Transporter <u>X Becktel-S</u>	Manifest No. <u>43298</u>
Truck/Trailer No. <u>X rental van</u>	Gallons <u>X 20</u>
Total Miles _____ Site Time _____	Driver <u>X Andrew Weinberg</u>
Vac Truck: Depart Yard _____ Arrive Destination _____	Depart Destination _____
Vac Tanker/Truck: Pump Time On-Site _____	Start _____ Stop _____
Driver/Customer Comments _____	

Driver does / does not request a washout. Drivers Initials \_\_\_\_\_

\*\*Give ticket to rack operator prior to unloading. Return ticket to receiving station prior to departure.

FOR LAB USE

PROFILE # 074259

Generator <u>OMS # 28</u>	Job No. <u>39294</u>
Destination Tank # <u>TR-21</u> Oil % <u>X</u> TOH: _____	Classifier? Yes <u>X</u> No _____
Sample Color: <u>Clear</u> pH <u>7.74</u>	Sludge/Solids: _____ Inches
Special Instructions/Precautions _____	
Comments _____	
Lab Technician <u>MC TS-</u>	CWT Category: <u>Metals</u>

FOR PROCESS USE

Classifier? _____	Gallons directly to hopper/rolloff: _____	(Shoveled, from Classifier, or Strainers)
Unload Tk # <u>TR-21</u>	Measurement before <u>46"</u>	after <u>46"</u>
Unload Tk # <u>NA</u>	Measurement before <u>NA</u>	after <u>NA</u>
Estimated gallons left in truck before washout	<u>NA</u>	after <u>NA</u>
Washout tank # <u>NA</u>	Measurement before <u>NA</u>	after <u>NA</u>
Washout tank # <u>NA</u>	Measurement before <u>NA</u>	after <u>NA</u>
Water used, gallons <u>NA</u>	(if no washout measurement)	
Start time <u>2:16</u>	Stop time _____	
Comments: _____		
Operator Initials <u>N.P.</u>		