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NCBC GULFPORT
5090.3a

SEVENTH QUARTERLY STATUS REPORT FOR BIOSLURPING IMPLEMENTATION AT SITE
6 NCBC GULFPORT MS
9/24/2003
BATTELLE

39501 - IRP
18.03.06.0010



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September 24, 2003

Naval Facilities Engineering Command
Southern Division
2155 Eagle Drive
P.O. Box 190010
North Charleston, SC 29419-9010

Attention: Mr. Art Conrad

Dear Mr. Conrad:

**CONTRACT NO. N47408-01-D-8207, TASK ORDER 003
7th QUARTERLY STATUS REPORT FOR BIOSLURPER IMPLEMENTATION AT
NAVAL CONSTRUCTION BATTALION CENTER (NCBC) GULFPORT, MS**

7th Quarterly Status Report

1.0 INTRODUCTION

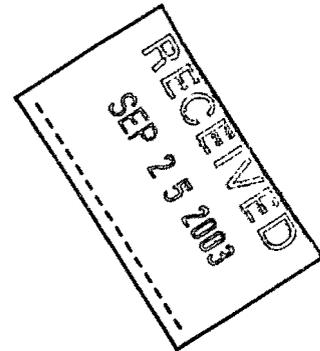
Battelle was contracted to install and operate a full-scale bioslurper system to remediate Site 6, a former fire-fighting training area, located at Naval Construction Battalion Center (NCBC) Gulfport, MS. Startup of the system was performed November 1, 2001. A description of the bioslurper system and the first six quarters of operation are summarized in previous quarterly reports. This 7th Quarterly Status Report describes the activities performed and results between May 16 and August 19. An analysis of the data and appropriate conclusions and recommendations are provided.

2.0 ACTIVITIES PERFORMED

The system had a very low operating time during the seventh quarter of operation due to mechanical problems associated with the liquid ring pump (LRP). Because the system shut down more frequently than normal, more frequent site visits were required from the operation, monitoring, and maintenance (OM&M) contractor to troubleshoot the system. During normal operation, the OM&M contractor performed routine O&M and collected performance data. A discussion of activities is presented below.

2.1 Operation and Monitoring

- Measured system operating parameters. These include various temperatures, pressures, and flowrates. Data sheets are included in Attachment 1. Because of the limited operating time, water and off-gas samples were not collected between late June and early August.



- Collected an off-gas sample from the stack of the liquid ring pump (LRP) on June 2. The sample was collected in a Summa™ canister and sent to Air Toxics, Inc., for total petroleum hydrocarbon (TPH) analysis using method TO-3. Analytical results are included in Attachment 2.
- Collected water samples from the effluent of the oil/water separator (OWS) on June 2. Samples were analyzed for diesel range organics (DRO). Analytical results are included in Attachment 3.
- Collected water samples twice each month from the effluent of the air stripper for analysis of pH (EPA Method 150.1) and BTEX (EPA Method 602). Samples were collected on June 2 and August 19.
- Rotated extraction wells and measured oil thickness and groundwater elevations inside the 23 extraction wells and 8 monitoring wells. Up to 6 wells were extracted from simultaneously. The volume of LNAPL that accumulated in the tank was quantified during each site visit.

2.2 Maintenance

- Made a site visit on June 19 and 20 to troubleshoot the bioslurper system because the liquid ring pump (LRP) was repeatedly shutting down. A variety of tests were performed to try to isolate the problem. The LRP was taken to Bay Motor Rewinders to have the LRP motor rewound. They detected and replaced a bad bearing at the front of the motor. The rebuilt motor was reinstalled in the system on July 25.
- After repairs to the motor, the LRP continued to shut down because of high amperage. Continued to troubleshoot the system. Subcontracted McFarland Electric to determine if there was an electrical short in the system. The system was evaluated on August 11. It was determined that there was not a short or an electrical supply problem in the system.
- The LRP housing, rotor and port cylinder dimensions were measured. Internal measurements of the LRP rotor indicated that the rotor was deformed, which could cause high amperage. A new rotor for the liquid ring pump was purchased and installed, eliminating the problem. The system has been in continuous operation since the rotor was installed.

2.3 Reporting

- Prepared the 6th *Quarterly Status Report for Bioslurper Implementation at Naval Construction Battalion Center (NCBC) Gulfport, MS* (Battelle, 2003a). This letter report, which was submitted to the Navy on June 3, documents the sixth quarter of full-scale operation.
- Submitted the work plan for delineation of the dissolved-phase plume at Site 6 on July 2, 2003 (Battelle, 2003b).

3.0 RESULTS

The primary objective of the bioslurper system is to remove LNAPL to the maximum extent practicable in accordance with Mississippi guidelines. The progress toward meeting this objective was tracked by monitoring the mass of contaminants removed from the subsurface, the LNAPL remaining in site wells, and O&M costs. In addition, system operation was closely monitored to ensure that the system was

operating according to design and in compliance with the permit requirements. The results are discussed in this section.

3.1 Contaminant Removal

Hydrocarbon contamination is removed in the form of LNAPL, emulsified/dissolved oil in the aqueous discharge stream, and in the vapor phase in the off-gas. The mass removed in each stream is summarized in Table 1. The cumulative total is presented graphically in Figure 1.

Table 1. Hydrocarbon Removal

| Process Stream | Hydrocarbons Removed (lb) | | |
|---|---------------------------------|------------------------|---------------------------|
| | Present (May 16 – August 19) | Previous Quarter | Cumulative |
| LNAPL ^(a) | 308 (42 gallons) | 2,304 (317 gallons) | 14,201 (1,907 gallons) |
| Dissolved/Emulsified Hydrocarbons ^(b) | 316 | 189 | 2,955 |
| Off-Gas ^(b) | 17 | 22.6 | 450 |
| Total: | 642 | 2,515 | 17,606 |

(a) A specific gravity of 0.87 was used to estimate the mass of LNAPL recovered.

(b) Estimated value based on analytical results received at the time the quarterly status report was prepared.

The volume of LNAPL recovered was determined by periodically measuring the change in thickness inside the 500-gallon storage tank. Measurements were made using a graduated stick coated with water paste (Kolor Kut or equivalent). The stick was slowly lowered into the tank until it touched the bottom. The portion of the stick exposed to water changes color. The length of the colored portion is measured to determine the thickness of the water layer that has formed at the bottom of the tank. A calibration factor of 1 inch:14.1 gallons liquid was used to convert the thickness to a volume. A specific gravity of 0.87 was used to convert the volume of LNAPL into a mass.

The mass of TPH dissolved and emulsified in the aqueous stream was calculated using the TPH concentration data (based on the DRO concentration measured in the aqueous effluent from the OWS) and process water volume measured using the water totalizer. TPH concentrations measured in the aqueous effluent from the OWS are shown in Figure 2. Water totalizer readings are provided in Attachment 1. The mass recovered in a given time interval (i.e., month) was calculated by averaging the OWS effluent concentrations at the beginning and end of the time interval and multiplying this average concentration by the volume of fluid processed during the data collection period.

The mass of TPH recovered in the vapor phase was calculated using the TPH concentration measured in the off-gas and the average flowrate for the period in which the sample was collected. TPH concentrations measured in the off-gas from the LRP stack are shown in Figure 3. The off-gas flowrates are provided in Attachment 1. The mass recovered in a given time interval (i.e., month) was calculated by

averaging the effluent concentrations at the beginning and end of the time interval and multiplying this average concentration by the volume of off-gas discharged during the data collection period.

The cumulative mass removal as shown in Figure 1 is exhibiting a significant decline in recovery rate (only 42 gallons during the seventh quarter of operation); however the low operating time has limited the capability of the system to recover LNAPL. The dissolved/emulsified phase represents approximately 49 percent of the total mass removed this quarter. TPH concentrations in the process water and the off-gas stream remain below initial concentrations (Figures 2 and 3, respectively).

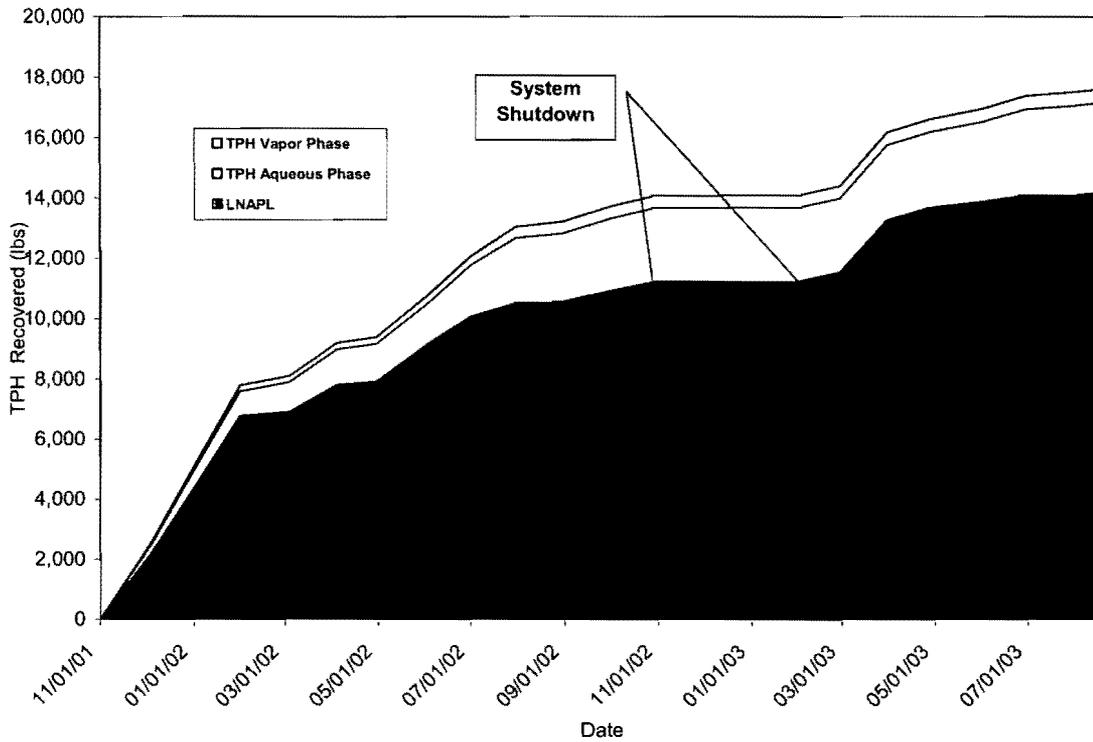


Figure 1. Cumulative Mass of Hydrocarbons Removed

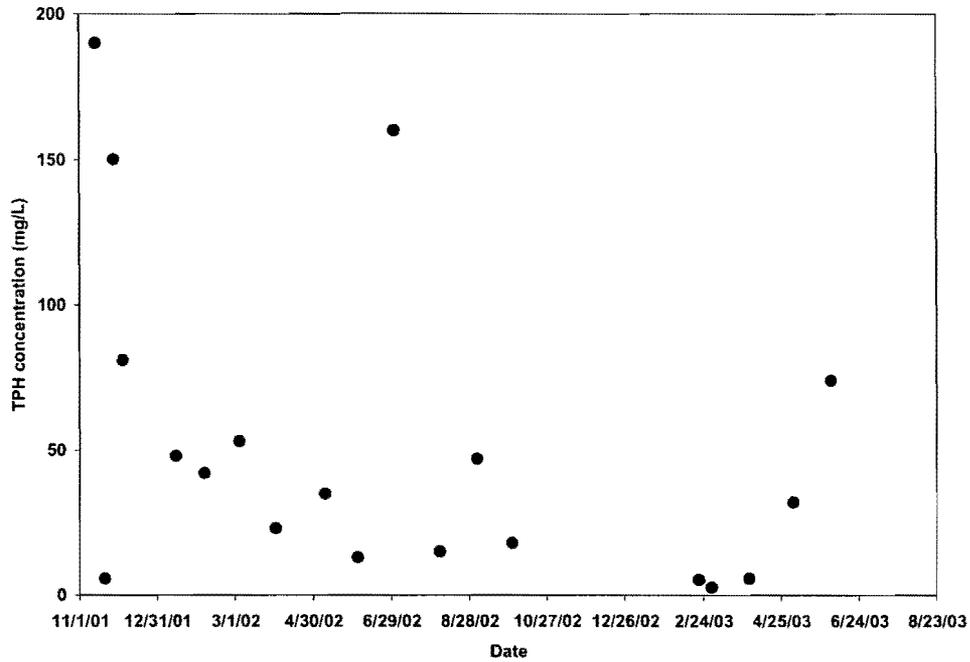


Figure 2. TPH Concentrations in Process Water (OWS Effluent)

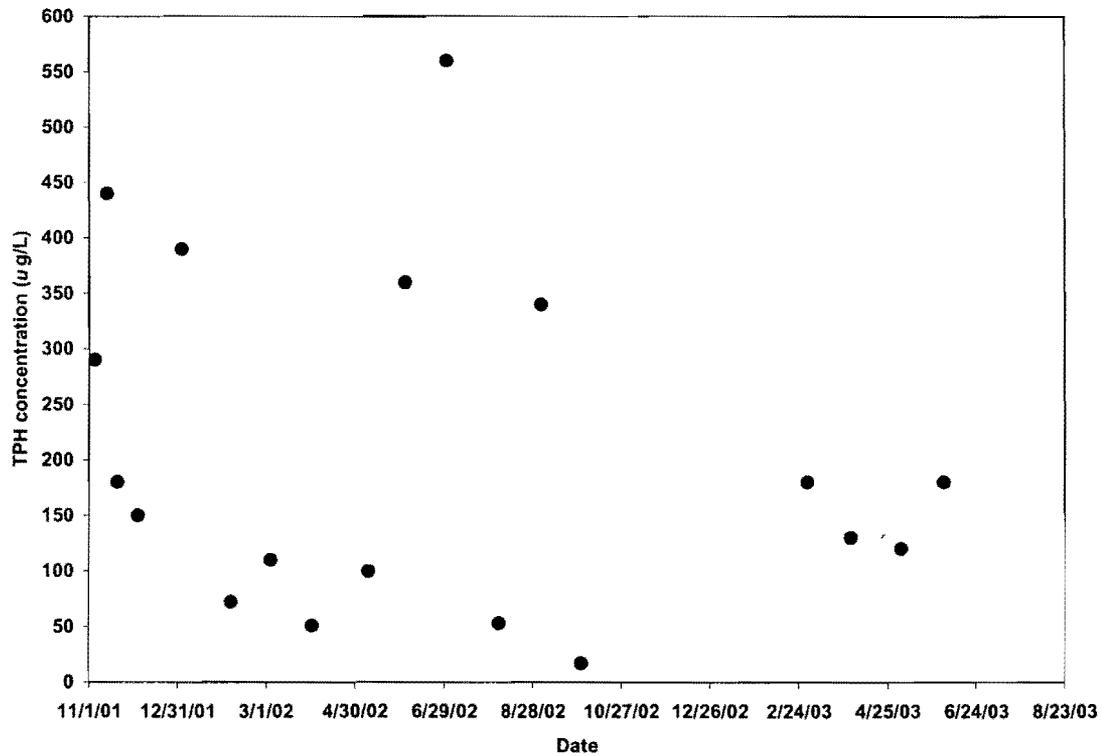


Figure 3. TPH Concentrations in Off-Gas

3.2 Product Thickness

The bioslurper system typically is shut down every quarter for up to 10 days to allow the LNAPL thickness in wells to equilibrate prior to taking measurements. The system was shut down between June 11 and June 17 to collect groundwater measurements. In addition, the product thickness and groundwater table elevation was measured in each well prior to rotating a group of extraction wells. Figure 4 shows the average depth to water and average depth to LNAPL measured in the extraction wells. The plots for individual wells are included as Attachment 4. As can be observed from the graph, the groundwater table elevation has increased substantially during the last quarter.

The most recent LNAPL thickness and groundwater table elevations were measured August 19. The data were plotted using Surfer™ and are presented in Figure 5. For comparison, Figure 6 presents the product thicknesses measured in site wells on June 17 at the conclusion of the quarterly monitoring event. Typically, product thickness decreases during periods of relatively high water table elevations. Although the average water table elevation was relatively higher on August 19, when compared with average water table elevation measured on June 17, the product thickness increased during this quarter of operation. However, the system was only operational a few days between June 17 and August 19. Therefore, it is likely some rebound of LNAPL occurred.

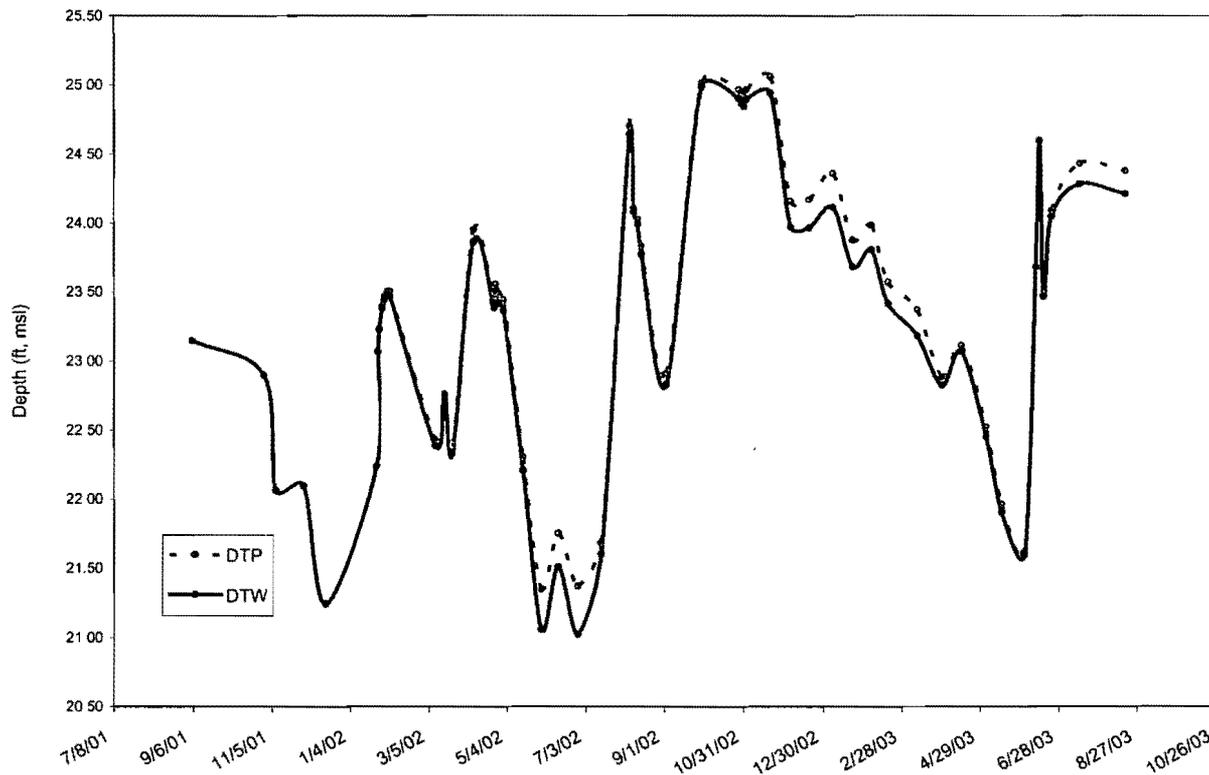


Figure 4. Average LNAPL and Water Elevation Measurements in Site Wells

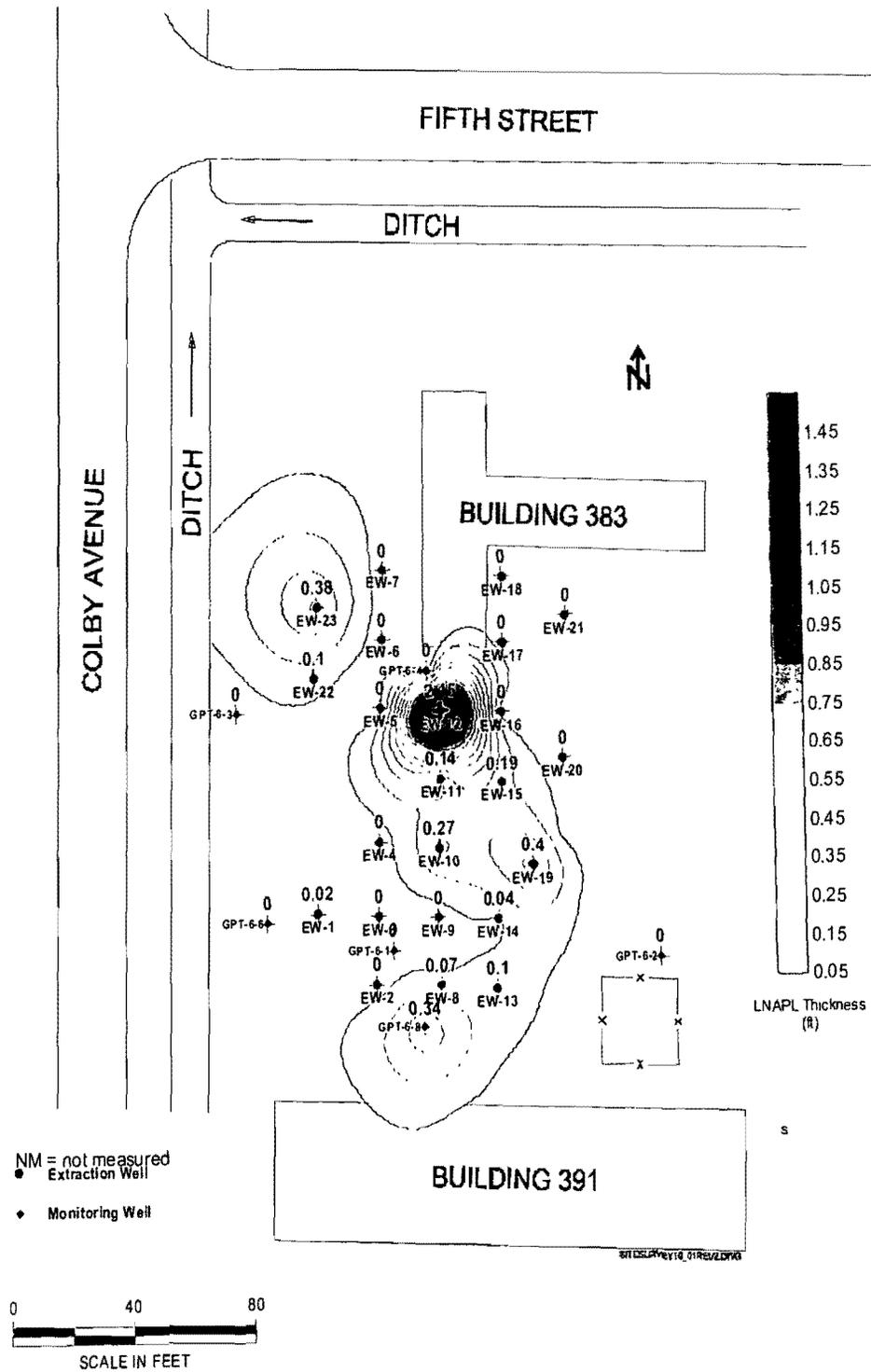


Figure 5. LNAPL Plume (August 19, 2003)

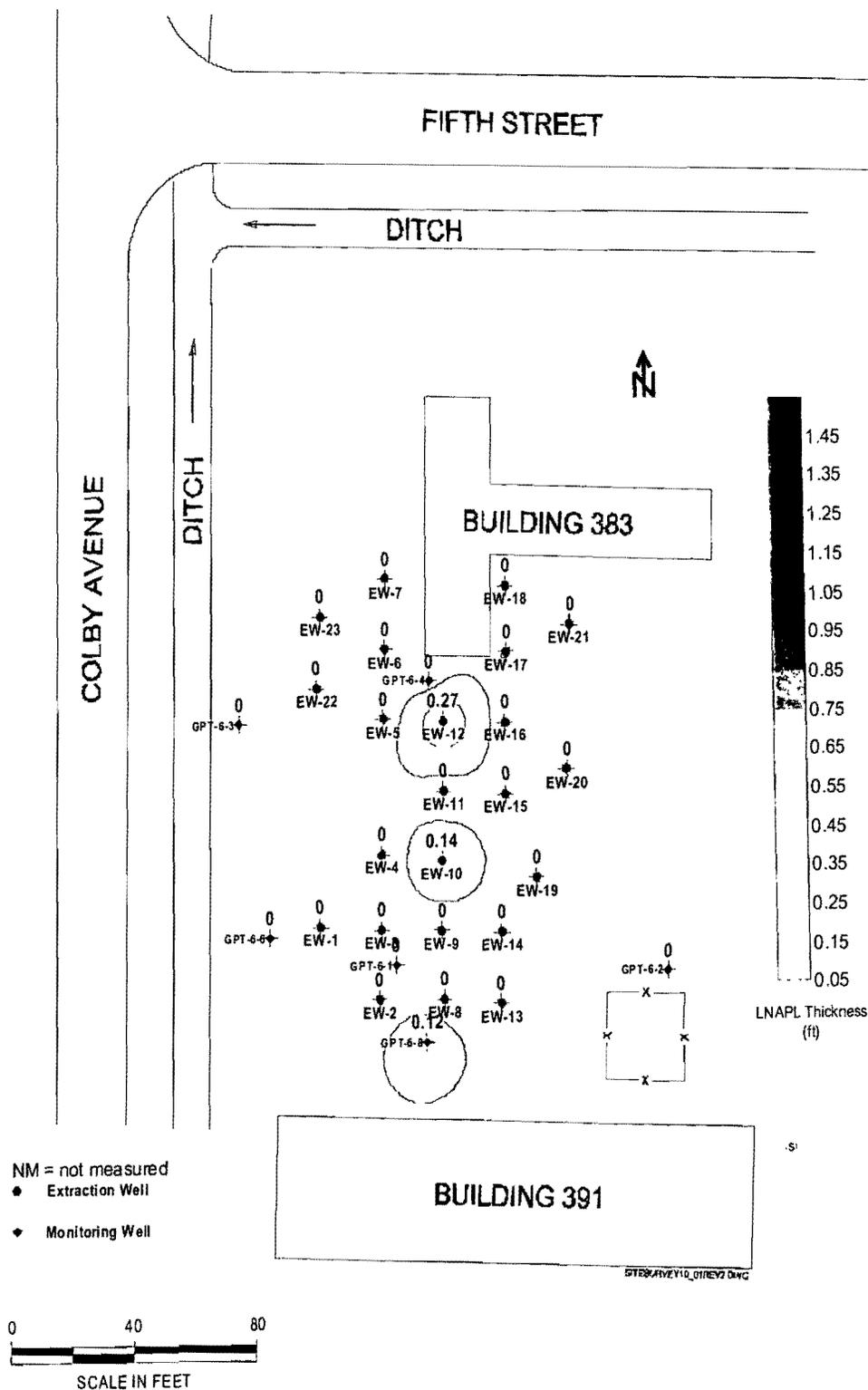


Figure 6. LNAPL Plume (June 17, 2003)

3.3 Operating Cost

The cost to operate the bioslurper system is an important consideration in determining the point at which it is no longer practical to use the system for free product recovery. The average monthly O&M cost to recover LNAPL is shown in Figure 7. These costs include on-site O&M labor, off-site technical support, analytical costs, document preparation, management, travel and per diem. The capital cost to design and install the system is not included. In addition, electrical and waste disposal costs are not included. The cost per gallon of LNAPL recovered increased this quarter compared to when the bioslurper system previously was operating last summer. This primarily was due to higher maintenance costs and lower LNAPL recovery. LNAPL recovery was minimal during this quarter because the system was not operational for a significant time.

3.4 Percent Operating Time

An hour meter on the LRP was used to track operating time. Percent operating time was calculated on a monthly basis by dividing the number of hours recorded on the LRP timer by the number of possible hours during the same period. The time the system was shut down each quarter to monitor LNAPL thickness and groundwater elevations and the time the system was shut down as a precaution during a hurricane was subtracted from the total number of possible hours in order to more accurately reflect downtime stemming from routine O&M activities. Results are plotted in Figure 8. The reasons for shutdown and applicable corrective actions are presented in Table 2. As shown in Figure 8, the operating time was very low (average for the seventh quarter was 15%).

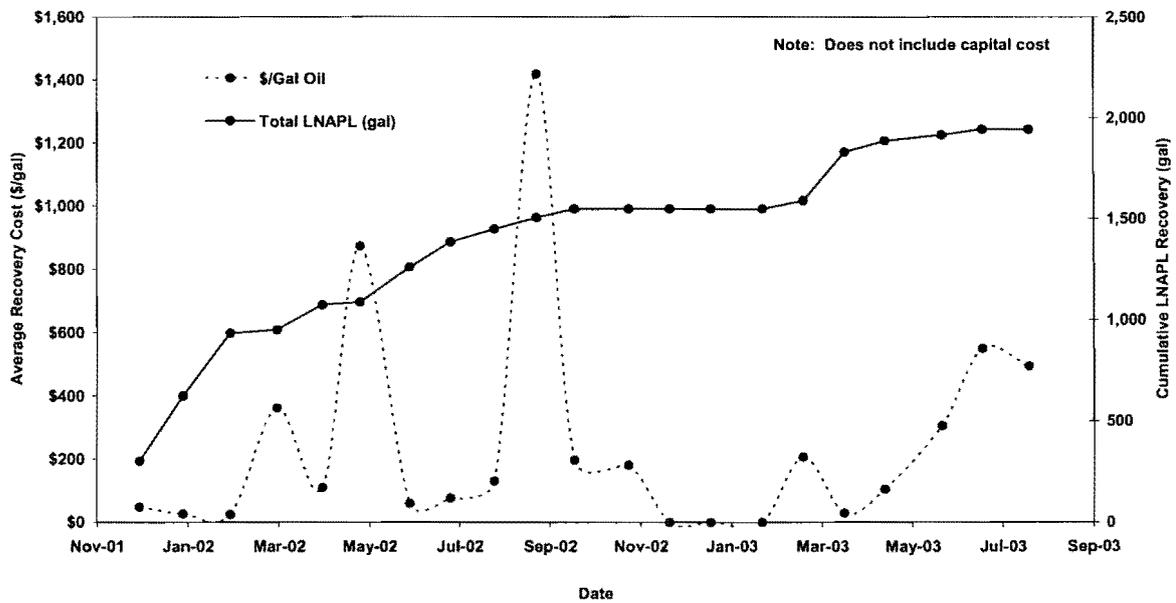


Figure 7. Average Recovery Cost (\$/gal) and Cumulative LNAPL Recovery (gal)

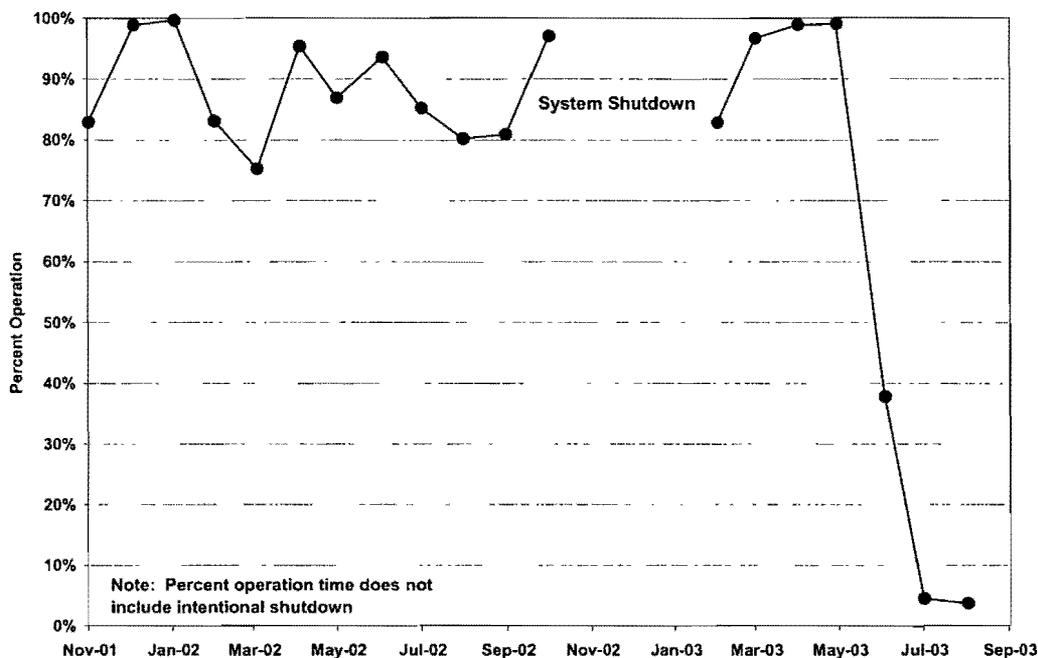


Figure 8. Percent Operation Time

3.5 Water Discharge Permit Compliance

NCBC Gulfport received approval to discharge the treated bioslurper effluent water to the Gulfport POTW on October 22, 2001. Issued by the Mississippi Department of Environmental Quality (MDEQ), Permit No. MSP091208 grants permission to discharge wastewater provided that certain requirements are met. These limitations include:

- A discharge limit of 0.036 million gallons per day (mgd) (equivalent to a continuous 25 gpm flowrate over 24 hours, or 36,000 gpd)
- A pH range between 5.0 and 9.0 standard units
- Benzene concentration limit of 0.05 mg/L
- Total BTEX concentration limit of 1.0 mg/L.

The volumetric flow of aqueous effluent from the bioslurper process was measured using a flow totalizing meter (Niagara Model No. N150-IRN-BR-1E, nutating disc-type meter). The time interval was determined using readings from the LRP timer. Resulting flowrates were calculated and are plotted in Figure 9. Flowrates vary significantly depending on the number and combination of extraction wells as well as changes in the groundwater table elevation resulting from seasonal and/or weather changes. However, in all instances, the process water flowrate remained below 36,000 gallons/day.

Table 2. System Shutdown Log

| Date | Reason for Shutdown | Corrective Action | Approximate Downtime (hrs) |
|-----------|---|--|----------------------------|
| 6/11/2003 | High amperage. | Left system off to conduct quarterly groundwater monitoring while troubleshooting system. | 78 |
| 6/19/2003 | High amperage | Inspected system electrical wiring for problems and appeared fine. De-scaled LRP to reduce load on motor. | 120 |
| 6/24/2003 | High amperage | Replaced wiring from the LRP control to motor. Changed 0.5 amp fuse in motor control. | 48 |
| 6/26/2003 | High amperage | Removed motor for rewinding at Bay Motor Rewinders, which also replaced a bad bearing in front of motor. Installed rebuilt motor and completed connection of piping to LRP. Cleaned particulate filter in cooling water system. Delays resulted from difficulties in disassembling and reassembling the LRP, which required specialized equipment. | 674 |
| 7/28/2003 | Overcurrent conditions | Attempted to run the system at a very low vacuum to break in the newly reassembled system. | 72 |
| 8/1/2003 | Power failure. Attempted to restart and operate system at higher vacuum, but system down after 1.5 hours due to overcurrent conditions. | Electrician evaluated all electrical circuits. Circuits appeared fine. Returned motor to service center for evaluation. Motor tested normal at the service center. | 24 |
| 8/14/2003 | High amperage | Inspected piping leading to and from motor, but no problems were detected. Checked all voltages while motor in operation and all normal. When vacuum is increased, high amperage condition results. Problem still expected from the motor. Adjusted water flow to pump and operated at low vacuum (15 inches of Hg). | 334 |
| 8/22/2003 | High amperage | Removed cover from the LRP to check internal measurements using digital calipers. Measurements indicated that rotor did not meet specifications, which could cause high amperage. Replaced the rotor with a new one. | 516 (through September 8) |

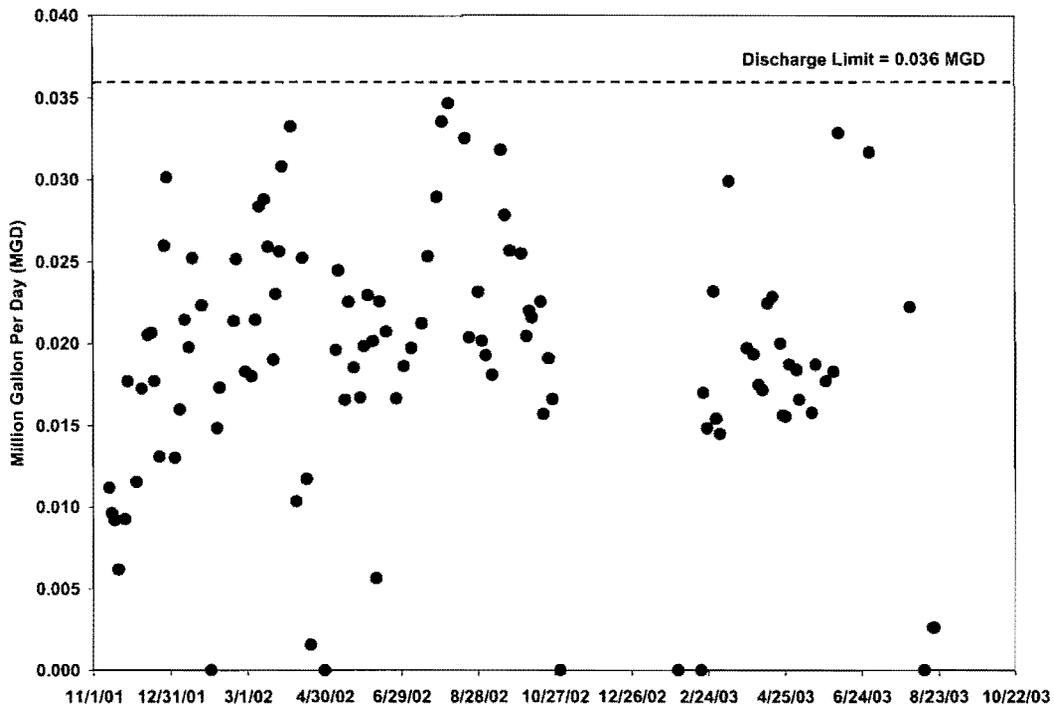


Figure 9. Average Daily Flowrates Discharged to the POTW

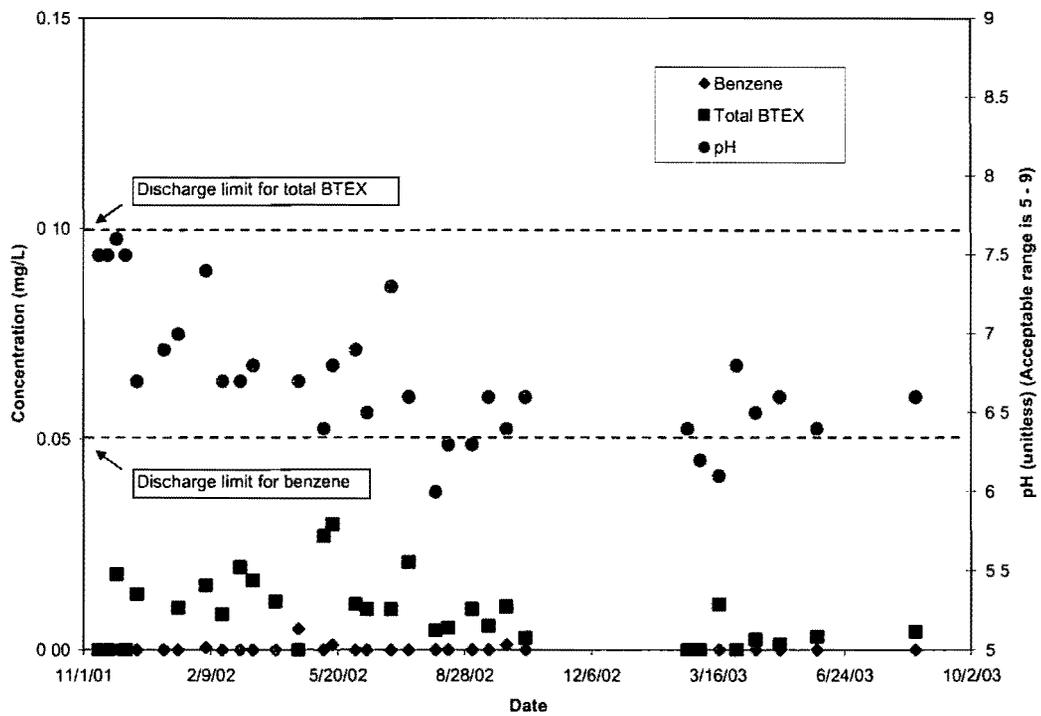


Figure 10. Benzene, Total BTEX, and pH for Samples Collected Prior to Discharge to the POTW

In order to ensure compliance for contaminants of concern, grab samples were collected twice monthly from the treated effluent and sent to a State of Mississippi-certified laboratory (Severn-Trent Laboratories). Samples were analyzed for pH by EPA Method 150.1 and BTEX by EPA Method 602. Results are presented in Figure 10. The dashed lines indicate the maximum allowable discharge concentrations for BTEX components. As can be seen, the concentrations of contaminants of concern consistently remain below these values.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The bioslurper system has been successful at recovering free product. A total of 1,956 gallons of LNAPL has been recovered to date. However, recovery was minimal during this last quarter because the system was not operational for a significant time. It is expected that LNAPL recovery will improve during the next quarter now that the problem has been identified and corrected.

There is a strong correlation between water table elevation and LNAPL recovery. As such, it is recommended to only operate the system during times of low water table elevations to decrease operating costs. The water table is expected to decrease during the next quarter. This should expedite the recovery of remaining LNAPL, which has rebounded during the seventh quarter. LNAPL recovery and the thickness remaining in the extraction wells will continue to be tracked carefully. When the groundwater levels are high and LNAPL thickness data is relatively slow, the operator will shut down the system temporarily until the groundwater levels return to average or below average levels. While the system is shut down, the operator will visit the site weekly to collect groundwater levels and LNAPL thickness data.

In addition to reducing the system operating time, the frequency of the status reports will be reduced to a semiannual basis. The type of data collected and the information reported will remain the same.

5.0 EXIT STRATEGY DEVELOPMENT

A work plan to perform a field investigation to delineate the extent of the dissolved phase plume was submitted to the Navy on July 2 (Battelle, 2003b). Next October, the Navy and Battelle will meet with the MDEQ to discuss the planned field investigation and solicit input into the exit strategy development. Upon approval by the Navy, Battelle will commence with the field investigation. The results of this investigation will be used to develop a long-term monitoring program.

6.0 FUTURE ACTIVITIES

The following activities will be performed during the next quarter:

- Continue monitoring oil/water levels.
- Continue to operate system upon completing repairs to the LRP rotor and evaluate the change in LNAPL recovery.
- Attend meeting with the Navy and the MDEQ to discuss the proposed field investigation and solicit input into the exit strategy development on October 8. Conduct field investigation following approval from the Navy.

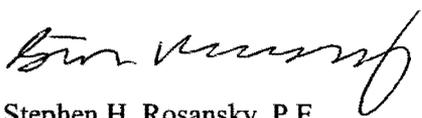
7.0 REFERENCES

Battelle. 2003a. *6th Quarterly Status Report for Bioslurper Implementation at Naval Construction Battalion Center (NCBC) Gulfport, MS.* Letter report. Prepared for Naval Facilities Engineering Command. Contract No: N47408-01-D-8207. June 3.

Battelle. 2003b. *Work Plan for the Delineation of the Dissolved-Phase Plume at Naval Construction Battalion Center (NCBC) Gulfport, MS.* Prepared for Naval Facilities Engineering Command. Contract No: N47408-01-D-8207. July 2.

Please contact me at (614) 424-7289 or rosansky@battelle.org, or Ms. Lydia Cumming at (614) 424-7778 or cummingl@battelle.org with any questions.

Sincerely,



Stephen H. Rosansky, P.E.
Principal Environmental Engineer
Environmental Restoration Dept.

SHR/LC:rsc

cc: Mr. Mike Maughon, NAVFAC Southern Division (1 copy)
Mr. Gordon Crane, NCBC Gulfport (3 copies)
Mr. Josh Fortenberry, NFESC (1 copy) (electronic copy only)
Mr. Dan Wadill (1 copy)

ATTACHMENT 1

BIOSLURPER SYSTEM OPERATING DATA

Process Parameters, Gulfport, Site 6, MS

| Date | 5/19/2003 | 5/27/2003 | 6/2/2003 | 6/6/2003 | 8/12/2003 | 8/19/2003 |
|------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Time | 15:15 | 13:00 | 8:50 | 12:20 | 10:00 | 11:45 |
| LRP Timer | 8481.9 | 8669.2 | 8809.5 | 8824.7 | 8978.95 | 8989.3 |
| LRP Vacuum (in Hg) | 29 | 28 | 25 | 29 | NR | 19 |
| Seal Water Temperature (°F) | 104.3 | 100.7 | 109 | 97.3 | NR | 121 |
| Seal Stack Temperature (°F) | 119.9 | 109.3 | 129.4 | 115.1 | NR | 129 |
| Seal Water Level (ok, +, -) | ok | ok | ok | ok | NR | ok |
| LRP Oriface Plate ("H2O) | 0.6 | 0.03 | 0.1 | 0.1 | NR | 0.1 |
| Off-Gas Flowrate (SCFM) | 89 | 20 | 36 | 36 | NR | 36 |
| ALS Vacuum (in Hg) | 25 | 25 | 18 | 25 | NR | 16 |
| PCP Pressure (psi) | 1.2 | 1.4 | 1.4 | 1.4 | NR | 1.2 |
| PCP Cycles (cycles/hour) | 11 | 11 | 12 | 11 | NR | 6 |
| PCP Flow Control Setting | 1.3 | 1.1 | 1.1 | 1.1 | NR | 1 |
| Stack Gas TPH (ppm) | 90 | 80 | 100 | 90 | NR | 75 |
| Stack Gas O2 (%) | 20.5 | 20.3 | 17 | 19 | NR | 23 |
| Stack Gas CO2 (%) | 0.1 | 0.2 | 4 | 1.5 | NR | 0.5 |
| Water Totalizer (gallons) | 7,035,060 | 7,173,340 | 7,280,250 | 7,301,070 | 7,491,210 | 7,492,340 |
| Average Water Flowrate (gpm) | 13 | 12.3 | 12.7 | 22.82 | NR | 1.82 |
| Discharge pump flowrate (gpm) | 13 | 12.3 | 12.7 | 22.82 | NR | -- |
| Cooling water feed rate (ok, +, -) | ok | ok | ok | ok | NR | -- |
| No. of active extraction wells | 6 | 6 | 6 | 6 | NR | 2 |
| (Oil tank) DTP (in): | 18 | 17.5 | 17.5 | 16.5 | NR | 33.5 |
| DTW (in): | 36 | 36 | 36 | 36 | NR | 36 |
| Volume (gallons): | 254 | 261 | 261 | 275 | 289 | 303 |

Notes:

NR = Not recorded

NA = Not applicable

Calculate volume of fuel in tank = [(Height of tank (36.0 in) - DTP (in)) - (Height of tank (36.0 in)-DTW(in))] X 14.1(gal/in)

Between June 6 and August 19, the system was operational only a few days and field parameter data sheets were not collected.

ATTACHMENT 2
OFF-GAS ANALYTICAL DATA

Air Toxics Ltd. Introduces the Electronic Report

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020

Hours 8:00 A.M to 6:00 P.M. Pacific

E-mail to: samplereceiving@airtoxics.com

WORK ORDER #: 0306032

Work Order Summary

CLIENT: Mr. Mike Valder
Severn-Trent
6712 Benjamin Rd., Suite #100
Tampa, FL 33634

BILL TO: Mr. Mike Valder
Severn-Trent
6712 Benjamin Rd., Suite #100
Tampa, FL 33634

PHONE: 813-885-7427
FAX: 813-885-7049
DATE RECEIVED: 6/3/03
DATE COMPLETED: 6/13/03

P.O. # 167842
PROJECT # 0486003 Site 6
CONTACT: DeDe Dodge

| <u>FRACTION #</u> | <u>NAME</u> | <u>TEST</u> | <u>RECEIPT VAC./PRES.</u> |
|-------------------|-------------|---------------|-------------------------------|
| 01A | LRP STACK | Modified TO-3 | 1.5 "Hg |
| 02A | Lab Blank | Modified TO-3 | NA |
| 03A | LCS | Modified TO-3 | NA |

CERTIFIED BY: *Sinda J. Freeman*

DATE: 06/16/03

Laboratory Director

Certification numbers: AR DEQ, CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/02, Expiration date: 06/30/03

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-3
Severn-Trent
Workorder# 0306032

One 1 Liter Summa Canister sample was received on June 03, 2003. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with photo ionization and flame ionization detection. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. The TPH (Gasoline Range) results are calculated using the response factor of Gasoline and correspond to the range of hydrocarbons from C5 to C10. A molecular weight of 100 is used to convert the TPH (Gasoline Range) ppmv result to ug/L.

See the data sheets for the reporting limits for each compound.

Method modifications taken to run these samples include:

| <i>Requirement</i> | <i>TO-3</i> | <i>ATL Modifications</i> |
|--------------------------------------|---|---|
| Daily Calibration Standard Frequency | Prior to sample analysis and every 4 - 6 hrs | Prior to sample analysis and after the analytical batch \leq 20 samples |
| Initial Calibration Calculation | 4-point calibration using a linear regression model | 5-point calibration using average Response Factor |
| Initial Calibration Frequency | Weekly | When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation |
| Moisture Control | Nafion system | Sorbent system |
| Minimum Detection Limit (MDL) | Calculated using the equation $DL = A + 3.3S$, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard | 40 CFR Pt. 136 App. B |
| Preparation of Standards | Levels achieved through dilution of gas mixture | Levels achieved through loading various volumes of the gas mixture |

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

- B - Compound present in laboratory blank greater than reporting limit
- J - Estimated value.
- E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

AIR TOXICS LTD.

SAMPLE NAME: LRP STACK

ID#: 0306032-01A

MODIFIED EPA METHOD TO-3

| | | | |
|--------------|---------|---------------------|--------|
| File Name: | 6060907 | Date of Collection: | 6/2/03 |
| Dil. Factor: | 17.0 | Date of Analysis: | 6/9/03 |

| Compound | Rpt. Limit (ppmv) | Rpt. Limit (uG/L) | Amount (ppmv) | Amount (uG/L) |
|----------------------|-------------------|-------------------|---------------|---------------|
| Benzene | 0.017 | 0.055 | 0.13 | 0.42 |
| Toluene | 0.017 | 0.065 | 0.23 | 0.87 |
| Ethyl Benzene | 0.017 | 0.075 | 0.16 | 0.71 |
| Total Xylenes | 0.017 | 0.075 | 0.99 | 4.4 |
| TPH (Gasoline Range) | 0.42 | 1.8 | 45 | 180 |

Container Type: 1 Liter Summa Canister

| Surrogates | %Recovery | Method Limits |
|---------------------|-----------|---------------|
| Fluorobenzene (FID) | 98 | 75-150 |
| Fluorobenzene (PID) | 96 | 75-125 |

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 0306032-02A

MODIFIED EPA METHOD TO-3

| | | | |
|--------------|---------|---------------------|--------|
| File Name: | 6060903 | Date of Collection: | NA |
| Dil. Factor: | 1.00 | Date of Analysis: | 6/9/03 |

| Compound | Rpt. Limit (ppmv) | Rpt. Limit (uG/L) | Amount (ppmv) | Amount (uG/L) |
|----------------------|-------------------|-------------------|---------------|---------------|
| Benzene | 0.0010 | 0.0032 | Not Detected | Not Detected |
| Toluene | 0.0010 | 0.0038 | Not Detected | Not Detected |
| Ethyl Benzene | 0.0010 | 0.0044 | Not Detected | Not Detected |
| Total Xylenes | 0.0010 | 0.0044 | Not Detected | Not Detected |
| TPH (Gasoline Range) | 0.025 | 0.10 | Not Detected | Not Detected |

Container Type: NA - Not Applicable

| Surrogates | %Recovery | Method Limits |
|---------------------|-----------|---------------|
| Fluorobenzene (FID) | 97 | 75-150 |
| Fluorobenzene (PID) | 94 | 75-125 |

AIR TOXICS LTD.

SAMPLE NAME: LCS

ID#: 0306032-03A

MODIFIED EPA METHOD TO-3

| | | | |
|--------------|----------|---------------------|--------|
| File Name: | 6060919b | Date of Collection: | NA |
| Dil. Factor: | 1.00 | Date of Analysis: | 6/9/03 |

| Compound | %Recovery |
|----------------------|-----------|
| Benzene | 96 |
| Toluene | 97 |
| Ethyl Benzene | 95 |
| Total Xylenes | 92 |
| TPH (Gasoline Range) | 98 |

Container Type: NA - Not Applicable

| Surrogates | %Recovery | Method Limits |
|---------------------|-----------|---------------|
| Fluorobenzene (FID) | 108 | 75-150 |
| Fluorobenzene (PID) | 99 | 75-125 |



Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, state, federal, and international laws, regulations and orders. Air Toxics Limited assumes no liability with respect to the collection, handling or storage of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action of any kind related to the collection, handling or shipping of samples. D.O.T. Rollins (310) 457-4572

180 BLUE HAVINE ROAD SUITE B
FOLSOM, CA 95630-2719
(916) 435-1000 FAX (916) 985-1020

CHAIN-OF-CUSTODY RECORD

| | | |
|---|---|--|
| Contact Person: <u>Lynn Manning</u> Company: <u>Perkins Masonry Inc</u> Address: <u>505 King Ave</u> City: <u>Chico</u> State: <u>CA</u> Zip: <u>95726</u> Phone: <u>530-924-7770</u> FAX: _____ Collected By: Signature <u>[Signature]</u> | Project Info: P.O. #: <u>167849</u> Project #: <u>0486003</u> Project Name: <u>Site #1</u> | Turn Around Time: <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush Specify: _____ <u>ML 6-5-97</u> |
|---|---|--|

| Lab ID | Field Sample ID | Date & Time | Analyses Requested | Canister Pressure / Vacuum | | |
|------------------|-----------------|-----------------|--------------------|----------------------------|-------|----------|
| | | | | Initial | Final | Residual |
| 01A | LRP Stack | 6/2/97 10:00 AM | TOC (BGA-101) | | | 15.15 |
| _____ | | | | | | |
| _____ | | | | | | |
| _____ | | | | | | |
| _____ | | | | | | |
| _____ | | | | | | |
| _____ | | | | | | |
| _____ | | | | | | |
| _____ | | | | | | |

| | |
|--|--------------|
| Released By: Signature <u>[Signature]</u> Date/Time: <u>6/3/97</u> Relinquished By: Signature <u>[Signature]</u> Date/Time: <u>9:26</u> | Notes: _____ |
|--|--------------|

| | |
|--|------------------------------|
| Shipper Name: <u>FedEx</u> Bill #: <u>934053564880</u> Date/Time: _____ Conditions: <u>Good</u> Custody Seal Intact: <u>Yes</u> No: <u>No</u> | Work Order #: <u>0306032</u> |
|--|------------------------------|

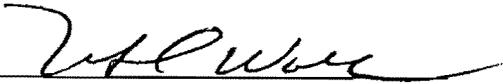
ATTACHMENT 3
PROCESS WATER ANALYTICAL DATA

Analytical Report

Report To: Ms. Lydia Cumming
Battelle
505 King Avenue
Columbus, OH 43201

Project Number: 0486003
Project Name: PH/BTEX/DRO
STL Log Number: B352072
Report Date: June 13, 2003

Results Pages 1 through 9 (excluding cover page)


Michael F. Valder, Project Manager
mvalder@stl-inc.com

Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

LOG NO: B3-52072
Received: 03 JUN 03
Reported: 13 JUN 03

Ms. Lydia Cumming
Battelle
505 King Avenue
Columbus, OH 43201

Project: 0486003
Sampled By: Client
Code: 160130613
Page 1

REPORT OF RESULTS

| LOG NO | SAMPLE DESCRIPTION , LIQUID SAMPLES | DATE/ TIME SAMPLED |
|--------------------------------------|-------------------------------------|-----------------------|
| 52072-1 | DRO-O/W SEPARATOR | 06-02-03/10:15 |
| PARAMETER | 52072-1 | |
| Diesel Range Organics (8100M) (8100) | | |
| Hydrocarbons as DRO, ug/l | | 74000 |
| Surrogate - o-Terphenyl | | *F33 |
| Dilution Factor | | 50 |
| Prep Date | | 06.04.03 |
| Prep Time | | 16:00 |
| Analysis Date | | 06.06.03 |
| Analysis Time | | 14:11 |
| Batch ID | | 0604A |

LOG NO: B3-52072
Received: 03 JUN 03
Reported: 13 JUN 03

Ms. Lydia Cumming
Battelle
505 King Avenue
Columbus, OH 43201

Project: 0486003
Sampled By: Client
Code: 160130613
Page 2

REPORT OF RESULTS

| LOG NO | SAMPLE DESCRIPTION , LIQUID SAMPLES | DATE/ TIME SAMPLED |
|-------------------|-------------------------------------|-----------------------|
| 52072-2 | PH-STRIPPER | 06-02-03/10:15 |
| PARAMETER | 52072-2 | |
| pH (150.1), units | 6.4 | |
| Dilution Factor | 1 | |
| Analysis Date | 06.03.03 | |
| Analysis Time | 10:30 | |
| Batch ID | 0603A | |

LOG NO: B3-52072
Received: 03 JUN 03
Reported: 13 JUN 03

Ms. Lydia Cumming
Battelle
505 King Avenue
Columbus, OH 43201

Project: 0486003
Sampled By: Client
Code: 134330616
Page 3

REPORT OF RESULTS

| LOG NO | SAMPLE DESCRIPTION , LIQUID SAMPLES | DATE/ TIME SAMPLED |
|--|-------------------------------------|-----------------------|
| 52072-3 | BTEX STRIPPER | 06-02-03/10:15 |
| PARAMETER | 52072-3 | |
| Purgeable Aromatics (602) | | |
| Benzene, ug/l | | <1.0 |
| Ethylbenzene, ug/l | | <1.0 |
| Toluene, ug/l | | <1.0 |
| Xylenes, ug/l | | 3.2 |
| Total Volatile Organic Aromatics, ug/l | | 3.2 |
| Methyl Tert Butyl Ether (MTBE), ug/l | | <10 |
| Surrogate - % Recovery | | 90 % |
| Surrogate - Control Limit | | 70-130 % |
| Dilution Factor | | 1 |
| Analysis Date | | 06.12.03 |
| Analysis Time | | 09:35 |
| Batch ID | | 0611C |

LOG NO: B3-52072
Received: 03 JUN 03
Reported: 13 JUN 03

Ms. Lydia Cumming
Battelle
505 King Avenue
Columbus, OH 43201

Project: 0486003
Sampled By: Client
Code: 134330616
Page 4

REPORT OF RESULTS

| LOG NO | SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES | DATE/ TIME SAMPLED | | | | |
|--|---|-----------------------|----------|----------|---------|----------|
| 52072-4 | Method Blank | | | | | |
| 52072-5 | Lab Control Standard Result | | | | | |
| 52072-6 | Lab Control Standard Duplicate Result | | | | | |
| 52072-7 | Spike Amount Added, LCS/LCSD | | | | | |
| 52072-8 | Lab Control Standard % Recovery | | | | | |
| PARAMETER | | 52072-4 | 52072-5 | 52072-6 | 52072-7 | 52072-8 |
| Purgeable Aromatics (602) | | | | | | |
| Benzene, ug/l | | <1.0 | 9.30 | 9.80 | 10 | 93 % |
| Ethylbenzene, ug/l | | <1.0 | --- | --- | --- | --- |
| Toluene, ug/l | | <1.0 | 7.80 | 8.40 | 10 | 78 % |
| Xylenes, ug/l | | <1.0 | --- | --- | --- | --- |
| Total Volatile Organic Aromatics, ug/l | | <1.0 | --- | --- | --- | --- |
| Methyl Tert Butyl Ether (MTBE), ug/l | | <10 | --- | --- | --- | --- |
| Surrogate - % Recovery | | 100 % | 100 % | 100 % | --- | --- |
| Surrogate - Control Limit | | 70-130 % | 70-130 % | 70-130 % | --- | --- |
| Dilution Factor | | 1 | 1 | 1 | --- | 1 |
| Analysis Date | | 06.12.03 | 06.11.03 | 06.12.03 | --- | 06.11.03 |
| Analysis Time | | 08:53 | 11:58 | 07:30 | --- | 11:58 |
| Batch ID | | 0610C | 0611C | 0611C | 0611C | 0611C |
| pH (150.1), units | | 6.1 | 6.01 | 6.01 | 6.0 | 98 % |
| Dilution Factor | | 1 | 1 | 1 | --- | --- |
| Analysis Date | | 06.03.03 | 06.03.03 | 06.03.03 | --- | --- |
| Analysis Time | | 10:30 | 10:30 | 10:30 | --- | --- |
| Batch ID | | 0603A | 0603A | 0603A | 0603A | 0603A |

LOG NO: B3-52072
Received: 03 JUN 03
Reported: 13 JUN 03

Ms. Lydia Cumming
Battelle
505 King Avenue
Columbus, OH 43201

Project: 0486003
Sampled By: Client
Code: 134330616
Page 5

REPORT OF RESULTS

| LOG NO | SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES | DATE/ TIME SAMPLED | | | | |
|--------------------------------------|---|-----------------------|----------|----------|---------|---------|
| 52072-4 | Method Blank | | | | | |
| 52072-5 | Lab Control Standard Result | | | | | |
| 52072-6 | Lab Control Standard Duplicate Result | | | | | |
| 52072-7 | Spike Amount Added, LCS/LCSD | | | | | |
| 52072-8 | Lab Control Standard % Recovery | | | | | |
| PARAMETER | | 52072-4 | 52072-5 | 52072-6 | 52072-7 | 52072-8 |
| Diesel Range Organics (8100M) (8100) | | | | | | |
| Hydrocarbons as DRO, ug/l | | <100 | 820 | 750 | 1000 | 82 % |
| Surrogate - o-Terphenyl | | 104 % | 102 % | 94 % | --- | --- |
| Dilution Factor | | 1 | 1 | 1 | --- | --- |
| Prep Date | | 06.04.03 | 06.04.03 | 06.04.03 | --- | --- |
| Prep Time | | 16:00 | 16:00 | 16:00 | --- | --- |
| Analysis Date | | 06.06.03 | 06.06.03 | 06.06.03 | --- | --- |
| Analysis Time | | 12:45 | 13:13 | 13:42 | --- | --- |
| Batch ID | | 0604A | 0604A | 0604A | 0604A | 0604A |

LOG NO: B3-52072
 Received: 03 JUN 03
 Reported: 13 JUN 03

Ms. Lydia Cumming
 Battelle
 505 King Avenue
 Columbus, OH 43201

Project: 0486003
 Sampled By: Client
 Code: 134330616
 Page 6

REPORT OF RESULTS

| LOG NO | SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES | DATE/ TIME SAMPLED | | | | |
|--------------------------------------|---|-----------------------|----------|----------|----------|----------|
| 52072-9 | Lab Control Standard Duplicate % Recovery | | | | | |
| 52072-10 | LCS Accuracy Control Limit (%R) | | | | | |
| 52072-11 | Precision (%RPD) of LCS/LCSD | | | | | |
| 52072-12 | LCS Precision Control Limit (Advisory) %RPD | | | | | |
| 52072-13 | Spike Sample ID | | | | | |
| PARAMETER | | 52072-9 | 52072-10 | 52072-11 | 52072-12 | 52072-13 |
| Purgeable Aromatics (602) | | | | | | |
| Benzene, % | | 98 % | 39-150 % | 5.2 % | <31 % | 52099-1 |
| Toluene, % | | 84 % | 46-148 % | 7.4 % | <25 % | 52099-1 |
| Surrogate - Control Limit | | --- | 70-130 % | --- | --- | --- |
| Dilution Factor | | 1 | --- | --- | --- | --- |
| Analysis Date | | 06.12.03 | --- | --- | --- | --- |
| Analysis Time | | 07:30 | --- | --- | --- | --- |
| Batch ID | | 0611C | --- | 0611C | --- | 0611C |
| pH (150.1), % | | 98 % | 63-168 % | 0 % | <40 % | NA |
| Batch ID | | 0603A | --- | 0603A | --- | --- |
| Diesel Range Organics (8100M) (8100) | | | | | | |
| Hydrocarbons as DRO, % | | 75 % | 40-140 % | 8.9 % | <40 % | *F82 |
| Surrogate - o-Terphenyl | | --- | 38-156 % | --- | --- | --- |
| Batch ID | | 0604A | --- | 0604A | --- | 0604A |

LOG NO: B3-52072
Received: 03 JUN 03
Reported: 13 JUN 03

Ms. Lydia Cumming
Battelle
505 King Avenue
Columbus, OH 43201

Project: 0486003
Sampled By: Client
Code: 134330616
Page 7

REPORT OF RESULTS

| LOG NO | SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES | DATE/ TIME SAMPLED | | | | |
|--|---|-----------------------|----------|----------|----------|----------|
| 52072-14 | Sample Result | | | | | |
| 52072-15 | Matrix Spike Result | | | | | |
| 52072-16 | Matrix Spike Duplicate Result | | | | | |
| 52072-17 | Spike Amount Added, MS | | | | | |
| 52072-18 | Matrix Spike % Recovery | | | | | |
| PARAMETER | | 52072-14 | 52072-15 | 52072-16 | 52072-17 | 52072-18 |
| Purgeable Aromatics (602) | | | | | | |
| Benzene, ug/l | | <1.0 | 9.30 | 9.20 | 10 | 93 % |
| Ethylbenzene, ug/l | | <1.0 | --- | --- | --- | --- |
| Toluene, ug/l | | <1.0 | 7.70 | 7.80 | 10 | 77 % |
| Xylenes, ug/l | | <1.0 | --- | --- | --- | --- |
| Total Volatile Organic Aromatics, ug/l | | <1.0 | --- | --- | --- | --- |
| Methyl Tert Butyl Ether (MTBE), ug/l | | <10 | --- | --- | --- | --- |
| Surrogate - % Recovery | | 100 % | 100 % | 100 % | --- | --- |
| Surrogate - Control Limit | | 70-130 % | 70-130 % | 70-130 % | --- | --- |
| Dilution Factor | | --- | 1 | 1 | --- | --- |
| Analysis Date | | --- | 06.12.03 | 06.12.03 | --- | --- |
| Analysis Time | | --- | 10:16 | 10:58 | --- | --- |
| Batch ID | | 0611C | 0611C | 0611C | 0611C | 0611C |
| pH (150.1), units | | --- | --- | --- | NA | --- |
| Diesel Range Organics (8100M) (8100) | | | | | | |
| Hydrocarbons as DRO, ug/l | | *F82 | *F82 | *F82 | *F82 | *F82 |
| Batch ID | | 0604A | 0604A | 0604A | 0604A | 0604A |

LOG NO: B3-52072
Received: 03 JUN 03
Reported: 13 JUN 03

Ms. Lydia Cumming
Battelle
505 King Avenue
Columbus, OH 43201

Project: 0486003
Sampled By: Client
Code: 134330616
Page 8

REPORT OF RESULTS

| LOG NO | SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES | DATE/ TIME SAMPLED | | | | |
|--|---|-----------------------|----------|----------|----------|----------|
| 52072-19 | Matrix Spike Duplicate % Recovery | | | | | |
| 52072-20 | MS Accuracy Advisory Limit (%R) | | | | | |
| 52072-21 | Precision (%RPD) MS/MSD | | | | | |
| 52072-22 | MS Precision Advisory Limit (%RPD) | | | | | |
| 52072-23 | Reporting Limit (RL) | | | | | |
| PARAMETER | | 52072-19 | 52072-20 | 52072-21 | 52072-22 | 52072-23 |
| Purgeable Aromatics (602) | | | | | | |
| Benzene, % | | 92 % | 39-150 % | 1.1 % | <31 % | 1.0 |
| Toluene, % | | 78 % | 46-148 % | 1.3 % | <25 % | 1.0 |
| Surrogate - Control Limit | | --- | 70-130 % | --- | --- | --- |
| Ethylbenzene, ug/l | | --- | --- | --- | --- | 1.0 |
| Xylenes, ug/l | | --- | --- | --- | --- | 1.0 |
| Total Volatile Organic Aromatics, ug/l | | --- | --- | --- | --- | 1.0 |
| Methyl Tert Butyl Ether (MTBE), ug/l | | --- | --- | --- | --- | 10 |
| Batch ID | | 0611C | --- | 0611C | --- | --- |
| pH (150.1), units | | --- | NA | --- | NA | NA |
| Diesel Range Organics (8100M) (8100) | | | | | | |
| Hydrocarbons as DRO, % | | *F82 | 40-140 % | *F82 | <40 % | 100 |
| Surrogate - o-Terphenyl | | --- | 38-156 % | --- | --- | --- |
| Batch ID | | 0604A | --- | 0604A | --- | --- |

LOG NO: B3-52072
Received: 03 JUN 03
Reported: 13 JUN 03

Ms. Lydia Cumming
Battelle
505 King Avenue
Columbus, OH 43201

Project: 0486003
Sampled By: Client
Code: 134330616
Page 9

REPORT OF RESULTS

| LOG NO | SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES | DATE/ TIME SAMPLED |
|----------|---|-----------------------|
| 52072-19 | Matrix Spike Duplicate % Recovery | |
| 52072-20 | MS Accuracy Advisory Limit (%R) | |
| 52072-21 | Precision (%RPD) MS/MSD | |
| 52072-22 | MS Precision Advisory Limit (%RPD) | |
| 52072-23 | Reporting Limit (RL) | |

| PARAMETER | 52072-19 | 52072-20 | 52072-21 | 52072-22 | 52072-23 |
|-----------|----------|----------|----------|----------|----------|
|-----------|----------|----------|----------|----------|----------|

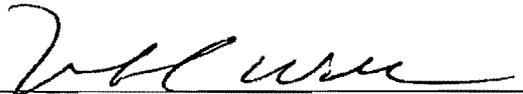
These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

The estimated uncertainty associated with these reported results is available upon request.

Method : 40 CFR Part 136, EPA SW-846
DOH Certification: E84282.

*F33 = Because the sample was diluted prior to analysis, surrogate recoveries are not reported.

*F82 = Insufficient sample volume was available to perform a batch-specific matrix spike. However, an LCS analyzed with the sample batch met control criteria.



Michael F. Valder, Project Manager

**SEVERN
TRENT** **STL**

STL Tampa • 6712 Benjamin Road • Suite 100 • Tampa, FL 33634 • Tel 813 885 7427 • Fax 813 885 7049 • www.stl-inc.com

REMIT TO: SEVERN TRENT LABORATORIES, INC. P.O. Box 7777 W4305, Philadelphia, PA 19175-4305

Project: 0486003

Accounts Payable
Battelle
505 King Avenue
Columbus, OH 43201

Invoice No: 660-11399
Invoice Amount: \$304.00
Invoice Date: 13 JUN 2003

Terms: Net 60 Days
Federal Tax ID NO: 23-2919996
CODE: BATTELLE-OH-B-60MV-10141

LOG NO: B352072

INVOICE

| <u>ITEM</u> | <u>SAMPLE IDENTIFICATION</u> | <u>MTRX</u> | <u>QTY</u> | <u>CAT NO</u> | <u>ANALYSIS</u> | <u>UNIT PRICE</u> | <u>PRICE/SAMP</u> | <u>TOTAL</u> |
|-------------|------------------------------|-------------|------------|---------------|---|-------------------|-------------------|--------------|
| 1 | DRO-O/W SEPARATOR | LI | 1 | | Diesel Range Organics (8100M) (8100) | \$100.00 | \$100.00 | 100.00 |
| 2 | PH-STRIPPER | LI | 1 | | pH (150.1) | \$4.00 | \$4.00 | 4.00 |
| 3 | BTEX STRIPPER | LI | 1 | | Purgeable Aromatics (602) | \$50.00 | \$50.00 | 50.00 |

INVOICE CONTINUED ON PAGE 2

SEVERN
TRENT

STL

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PAGE: 2

REMIT TO: SEVERN TRENT LABORATORIES, INC. P.O. Box 7777 W4305, Philadelphia, PA 19175-4305

Project: 0486003

Accounts Payable
Battelle
505 King Avenue
Columbus, OH 43201

Invoice No: 660-11399
Invoice Amount: \$304.00
Invoice Date: 13 JUN 2003

Terms: Net 60 Days
Federal Tax ID NO: 23-2919996
CODE: BATTELLE-OH-B-60MV-10141

LOG NO: B352072

INVOICE

| ITEM | SAMPLE IDENTIFICATION | MTRX | QTY | CAT NO | ANALYSIS | UNIT PRICE | PRICE/SAMP | TOTAL |
|------|------------------------|------|-----|--------|--------------|------------|------------|-------|
| 4 | Method Blank | QC-L | 20 | | Purgeable | | | |
| | Lab Control Standard | QC-L | | | Aromatics | | | |
| | Result | QC-L | | | (602) | | | |
| | Lab Control Standard | QC-L | | | pH (150.1) | | | |
| | Duplicate Result | QC-L | | | Diesel Range | | | |
| | Spike Amount Added, | QC-L | | | Organics | | | |
| | LCS/LCSD | QC-L | | | (8100M) | | | |
| | Lab Control Standard % | QC-L | | | (8100) | | | |
| | Recovery | QC-L | | | | | | |
| | Lab Control Standard | QC-L | | | | | | |
| | Duplicate % Recovery | QC-L | | | | | | |
| | LCS Accuracy Control | QC-L | | | | | | |
| | Limit (%R) | QC-L | | | | | | |
| | Precision (%RPD) of | QC-L | | | | | | |
| | LCS/LCSD | QC-L | | | | | | |
| | LCS Precision Control | QC-L | | | | | | |
| | Limit (Advisory) %RPD | QC-L | | | | | | |
| | Spike Sample ID | QC-L | | | | | | |
| | Sample Result | QC-L | | | | | | |
| | Matrix Spike Result | QC-L | | | | | | |
| | Matrix Spike | | | | | | | |
| | Duplicate Result | | | | | | | |
| | Spike Amount Added, MS | | | | | | | |
| | Matrix Spike % | | | | | | | |
| | Recovery | | | | | | | |
| | Matrix Spike | | | | | | | |

INVOICE CONTINUED ON PAGE 3

SEVERN
TRENT

STL

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PAGE: 3

REMIT TO: SEVERN TRENT LABORATORIES, INC. P.O. Box 7777 W4305, Philadelphia, PA 19175-4305

Project: 0486003

Accounts Payable
Battelle
505 King Avenue
Columbus, OH 43201

Invoice No: 660-11399
Invoice Amount: \$304.00
Invoice Date: 13 JUN 2003

Terms: Net 60 Days
Federal Tax ID NO: 23-2919996
CODE: BATTELLE-OH-B-60MV-10141

LOG NO: B352072

INVOICE

| <u>ITEM</u> | <u>SAMPLE IDENTIFICATION</u> | <u>MTRX</u> | <u>QTY</u> | <u>CAT</u> | <u>NO</u> | <u>ANALYSIS</u> | <u>UNIT PRICE</u> | <u>PRICE/SAMP</u> | <u>TOTAL</u> |
|-------------|------------------------------|-------------|------------|------------|-----------|------------------------|-------------------|-------------------|--------------|
| | Duplicate % Recovery | | | | | | | | |
| | MS Accuracy Advisory | | | | | | | | |
| | Limit (%R) | | | | | | | | |
| | Precision (%RPD) | | | | | | | | |
| | MS/MSD | | | | | | | | |
| | MS Precision Advisory | | | | | | | | |
| | Limit (%RPD) | | | | | | | | |
| | Reporting Limit (RL) | | | | | | | | |
| | 1 Other Charges | | | | | Subcontract (Non-STL L | \$150.00 | \$150.00 | 150.00 |
| TOTAL | | | | | | | | | \$304.00 |

INVOICE NOTE: One air sample subcontracted to Air Toxics for TO3 analysis.

REPORTED TO Ms. Lydia Cumming/Battelle

CUSTOMER PHONE: (614) 424-7778

For Proper Credit, please show INVOICE NUMBER on your remittance.

After 60 days, service charges of 1.5% per 60 days will be applied to unpaid balance.

**SEVERN
TRENT
SERVICES**

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

STL Tampa

352072

STL Tampa
6712 Benjamin Road, Suite 100
Tampa, FL 33634

Website: www.stl-inc.com
Phone: (813) 885-7427
Fax: (813) 885-7049

Alternate Laboratory Name/Location

Phone:
Fax:

| | | | | | | | | | | | |
|---|---|--------------------------------|---|-------------------|------|-----|-----|--------------|-----------------------------|--|-----------------------|
| PROJECT REFERENCE | PROJECT NO. 0486003 | PROJECT LOCATION (STATE) MS | MATRIX TYPE | REQUIRED ANALYSIS | | | | | | PAGE | OF |
| SAMPLER'S SIGNATURE <i>[Signature]</i> | P.O. NUMBER 167842 | CONTRACT NO. | COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT, ...) | Ph | BTEX | DRD | HCL | DECEADVATIVE | STANDARD REPORT DELIVERY | <input type="radio"/> | |
| CLIENT (SITE) PM <i>Lydia Cumming</i> | CLIENT PHONE 614-424-7770 | CLIENT FAX 614-424-3067 | | | | | | | DATE DUE | EXPEDITED REPORT DELIVERY (SURCHARGE) | <input type="radio"/> |
| CLIENT NAME <i>OTTELLE MEMORIAL</i> | CLIENT E-MAIL | | | | | | | | DATE DUE | NUMBER OF COOLERS SUBMITTED PER SHIPMENT: | |
| CLIENT ADDRESS <i>505 King Ave, Columbus, OH 43201</i> | COMPANY CONTRACTING THIS WORK (if applicable) <i>SPS</i> | | | | | | | | | | |

| SAMPLE | | SAMPLE IDENTIFICATION | COMPOSITE (C) OR GRAB (G) INDICATE | AQUEOUS (WATER) | SOLID OR SEMISOLID | AIR | NONAQUEOUS LIQUID (OIL, SOLVENT, ...) | NUMBER OF CONTAINERS SUBMITTED | | | | | | REMARKS |
|--------|--------|-----------------------|------------------------------------|-----------------|--------------------|-----|---------------------------------------|--------------------------------|---|---|---|---|---|---------|
| DATE | TIME | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | |
| 6-2-03 | 10:15A | Ph - STRIPPER | G | | | | | 1 | | | | | | |
| 6-2-03 | 10:15A | BTEX - STRIPPER | G | | | | | | 3 | | | | | |
| 6-2-03 | 10:15A | DRD - OIL SEPARATOR | G | | | | | | | 2 | | | | |

NOTE: AIR SAMPLE SENT TO AIR TOXICS THIS DATE 45

| | | | | | | | | |
|--|------------------|--------------|--|----------------|---------------|------------------------------|------|------|
| RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i> | DATE 12/16/02 | TIME 1255 | RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i> | DATE 6-2-03 | TIME 1:10P | RELINQUISHED BY: (SIGNATURE) | DATE | TIME |
| RECEIVED BY: (SIGNATURE) EMPTY CONTAINERS | DATE | TIME | RECEIVED BY: (SIGNATURE) <i>[Signature]</i> | DATE 6-3-03 | TIME 0840 | RECEIVED BY: (SIGNATURE) | DATE | TIME |

| | | | | | | |
|--|----------------|--------------|--|-------------------------|------------------------------|--------------------|
| RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>[Signature]</i> | DATE 6-3-03 | TIME 0945 | CUSTODY INTACT YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> | CUSTODY SEAL NO. N/A | STL TAMPA LOG NO. B352072 | LABORATORY REMARKS |
|--|----------------|--------------|--|-------------------------|------------------------------|--------------------|

Analytical Report

For: Ms. Lydia Cumming
Battelle
505 King Avenue
Columbus, OH 43201

CC:

Order Number: B353183
SDG Number:
Client Project ID:
Project: 0486003
Report Date: 08/27/2003
Sampled By: Client
Sample Received Date: 08/20/2003
Requisition Number:
Purchase Order: 167842
Revised Date: 09/16/2003



Michael F. Valder, Project Manager
mvalder@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: B353183
Date Received: 08/20/2003

Client: Battelle
Project: 0486003

| Client Sample ID | Lab Sample ID | Matrix | Date Sampled |
|------------------|---------------|--------|------------------|
| PH-STRIPPER | B353183*1 | Liquid | 08/19/2003 12:00 |
| BTEX-STRIPPER | B353183*2 | Liquid | 08/19/2003 12:00 |
| Trip Blank | B353183*3 | Liquid | 08/19/2003 |
| Spike Sample ID | B353183*13 | Liquid | |
| Sample Result | B353183*14 | Liquid | |

Analytical Data Report

| Sample ID | Description | Matrix | Date Received | Date Sampled | SDG# |
|-----------|-------------|--------|---------------|----------------|------|
| 53183-1 | PH-STRIPPER | Liquid | 08/20/03 | 08/19/03 12:00 | |

| Parameter | Units | 53183-1 |
|-----------|-------|---------|
|-----------|-------|---------|

pH (150.1)
pH units 6.6
Dilution Factor 1
Analysis Date 08/20/03
Analysis Time 11:30
Batch ID 0820A

Analytical Data Report

| Sample ID | Description | Matrix | Date Received | Date Sampled | SDG# |
|-----------|---------------|--------|---------------|----------------|------|
| 53183-2 | BTEX-STRIPPER | Liquid | 08/20/03 | 08/19/03 12:00 | |

Lab Sample IDs

| Parameter | Units | 53183-2 |
|-----------|-------|---------|
|-----------|-------|---------|

Purgeable Aromatics (602)

| | | |
|--------------------------------|------|----------|
| Benzene | ug/l | 0.28J |
| Ethylbenzene | ug/l | 0.22J |
| Toluene | ug/l | 1.7 |
| Xylenes | ug/l | 2.1 |
| Total Volatile Organic | | |
| Aromatics | ug/l | 4.3 |
| Methyl Tert Butyl Ether (MTBE) | ug/l | <10 |
| Surrogate - % Recovery * | % | 85 % |
| Surrogate - Control Limit * | % | 70-130 % |
| Dilution Factor | | 1 |
| Analysis Date | | 08/26/03 |
| Analysis Time | | 09:15 |
| Batch ID | | 0825C |

Analytical Data Report

| Sample ID | Description | Matrix | Date Received | Date Sampled | SDG# |
|-----------|-------------|--------|---------------|--------------|------|
| 53183-3 | Trip Blank | Liquid | 08/20/03 | 08/19/03 | |

| Parameter | Units | 53183-3 | Lab Sample IDs |
|-----------|-------|---------|----------------|
|-----------|-------|---------|----------------|

Purgeable Aromatics (602)

| | | | |
|--------------------------------|------|----------|--|
| Benzene | ug/l | <1.0 | |
| Ethylbenzene | ug/l | <1.0 | |
| Toluene | ug/l | <1.0 | |
| Xylenes | ug/l | <1.0 | |
| Total Volatile Organic | | | |
| Aromatics | ug/l | <1.0 | |
| Methyl Tert Butyl Ether (MTBE) | ug/l | <10 | |
| Surrogate - % Recovery * | % | 80 % | |
| Surrogate - Control Limit * | % | 70-130 % | |
| Dilution Factor | | 1 | |
| Analysis Date | | 08/26/03 | |
| Analysis Time | | 08:34 | |
| Batch ID | | 0825C | |

Analytical Data Report

| Sample ID | Description | Matrix | Date Received | Date Sampled | SDC# |
|-----------|---------------------------------------|--------|---------------|--------------|------|
| 53183-4 | Method Blank | Liquid | 08/20/03 | | |
| 53183-5 | Lab Control Standard Result | Liquid | 08/20/03 | | |
| 53183-6 | Lab Control Standard Duplicate Result | Liquid | 08/20/03 | | |
| 53183-7 | Spike Amount Added, LCS/LCSD | Liquid | 08/20/03 | | |
| 53183-8 | Lab Control Standard % Recovery | Liquid | 08/20/03 | | |

| Parameter | Units | Lab Sample IDs | | | | |
|-----------|-------|----------------|---------|---------|---------|---------|
| | | 53183-4 | 53183-5 | 53183-6 | 53183-7 | 53183-8 |

Purgeable Aromatics (602)

| | | | | | | |
|----------------------------------|------|----------|----------|----------|-------|-------|
| Benzene | ug/l | <1.0 | 8.70 | 8.70 | 10 | 87 % |
| Ethylbenzene | ug/l | <1.0 | | | | |
| Toluene | ug/l | <1.0 | 8.20 | 8.20 | 10 | 82 % |
| Xylenes | ug/l | <1.0 | | | | |
| Total Volatile Organic Aromatics | ug/l | <1.0 | | | | |
| Methyl Tert Butyl Ether (MTBE) | ug/l | <10 | | | | |
| Surrogate - % Recovery * | % | 90 % | 90 % | 90 % | | |
| Surrogate - Control Limit * | % | 70-130 % | 70-130 % | 70-130 % | | |
| Dilution Factor | | 1 | 1 | 1 | | |
| Analysis Date | | 08/26/03 | 08/25/03 | 08/26/03 | | |
| Analysis Time | | 07:53 | 10:22 | 06:32 | | |
| ID | | 0825C | 0825C | 0825C | 0825C | 0825C |

pH (150.1)

| | | | | | | |
|-----------------|-------|----------|----------|----------|-------|-------|
| pH | units | 6.4 | 5.99 | 5.97 | 6.0 | 102 % |
| Dilution Factor | | 1 | 1 | 1 | | |
| Analysis Date | | 08/20/03 | 08/20/03 | 08/20/03 | | |
| Analysis Time | | 11:30 | 11:30 | 11:30 | | |
| Batch ID | | 0820A | 0820A | 0820A | 0820A | 0820A |

Analytical Data Report

| Sample ID | Description | Matrix | Date Received | Date Sampled | SDG# |
|-----------|---|--------|---------------|--------------|------|
| 53183-9 | Lab Control Standard Duplicate % Recovery | Liquid | 08/20/03 | | |
| 53183-10 | LCS Accuracy Control Limit (%R) | Liquid | 08/20/03 | | |
| 53183-11 | Precision (%RPD) of LCS/LCSD | Liquid | 08/20/03 | | |
| 53183-12 | LCS Precision Control Limit (Advisory) %RPD | Liquid | 08/20/03 | | |
| 53183-13 | Spike Sample ID | Liquid | 08/20/03 | | |

| Parameter | Units | Lab Sample IDs | | | | |
|-----------|-------|----------------|----------|----------|----------|----------|
| | | 53183-9 | 53183-10 | 53183-11 | 53183-12 | 53183-13 |

Purgeable Aromatics (602)

| | | | | | | |
|----------------------------------|---|------|----------|-----|-------|---------|
| Benzene | % | 87 % | 39-150 % | 0 % | <31 % | 53252-1 |
| Toluene | % | 82 % | 46-148 % | 0 % | <25 % | 53252-1 |
| Surrogate - Control Limit * | % | | 70-130 % | | | |
| Ethylbenzene | | | | | | 53252-1 |
| Xylenes | | | | | | 53252-1 |
| Total Volatile Organic Aromatics | | | | | | 53252-1 |
| Methyl Tert Butyl Ether (MTBE) | | | | | | 53252-1 |

| | | |
|----------|-------|-------|
| Batch ID | 0825C | 0825C |
|----------|-------|-------|

pH (150.1)

| | | | | | | |
|----------|---|-------|----------|--------|-------|-----|
| | % | 107 % | 63-158 % | 0.33 % | <40 % | --- |
| Batch ID | | 0820A | | 0820A | | |

Analytical Data Report

| Sample ID | Description | Matrix | Date Received | Date Sampled | SDG# |
|-----------|-------------------------------|--------|---------------|--------------|------|
| 53183-14 | Sample Result | Liquid | 08/20/03 | | |
| 53183-15 | Matrix Spike Result | Liquid | 08/20/03 | | |
| 53183-16 | Matrix Spike Duplicate Result | Liquid | 08/20/03 | | |
| 53183-17 | Spike Amount Added, MS | Liquid | 08/20/03 | | |
| 53183-18 | Matrix Spike % Recovery | Liquid | 08/20/03 | | |

| Parameter | Units | Lab Sample IDs | | | | |
|-----------|-------|----------------|----------|----------|----------|----------|
| | | 53183-14 | 53183-15 | 53183-16 | 53183-17 | 53183-18 |

| Purgeable Aromatics (602) | | | | | | |
|----------------------------------|------|----------|----------|----------|-------|-------|
| Benzene | ug/l | <1.0 | 9.60 | 8.60 | 10 | 96 % |
| Ethylbenzene | ug/l | <1.0 | | | | |
| Toluene | ug/l | <1.0 | 9.80 | 8.20 | 10 | 98 % |
| Xylenes | ug/l | <1.0 | | | | |
| Total Volatile Organic Aromatics | ug/l | <1.0 | | | | |
| Methyl Tert Butyl Ether (MTBE) | ug/l | <10 | | | | |
| Surrogate - % Recovery * | % | 90 % | 95 % | 95 % | | |
| Surrogate - Control Limit * | % | 70-130 % | 70-130 % | 70-130 % | | |
| Dilution Factor | | | 1 | 1 | | |
| Analysis Date | | | 08/26/03 | 08/26/03 | | |
| Analysis Time | | | 12:41 | 13:22 | | |
| ID | | 0825C | 0825C | 0825C | 0825C | 0825C |

| pH (150.1) | | | | | | |
|------------|--|-----|-----|-----|--|-----|
| pH | | --- | --- | --- | | --- |

Analytical Data Report

| Sample ID | Description | Matrix | Date Received | Date Sampled | SDG# |
|-----------|------------------------------------|--------|---------------|--------------|------|
| 53183-19 | Matrix Spike Duplicate % Recovery | Liquid | 08/20/03 | | |
| 53183-20 | MS Accuracy Advisory Limit (%R) | Liquid | 08/20/03 | | |
| 53183-21 | Precision (%RPD) MS/MSD | Liquid | 08/20/03 | | |
| 53183-22 | MS Precision Advisory Limit (%RPD) | Liquid | 08/20/03 | | |
| 53183-23 | Reporting Limit (RL) | Liquid | 08/20/03 | | |

| Parameter | Units | Lab Sample IDs | | | | |
|-----------|-------|----------------|----------|----------|----------|----------|
| | | 53183-19 | 53183-20 | 53183-21 | 53183-22 | 53183-23 |

Purgeable Aromatics (602)

| | | | | | | |
|----------------------------------|------|----------|----------|-------|-------|-----|
| Benzene | % | 86 % | 39-150 % | 11 % | <31 % | 1.0 |
| Toluene | % | 82 % | 46-148 % | 18 % | <25 % | 1.0 |
| Surrogate - % Recovery * | % | 95 % | | | | |
| Surrogate - Control Limit * | % | 70-130 % | 70-130 % | | | |
| Ethylbenzene | ug/l | | | | | 1.0 |
| Xylenes | ug/l | | | | | 1.0 |
| Total Volatile Organic Aromatics | ug/l | | | | | 1.0 |
| Methyl Tert Butyl Ether (MTBE) | ug/l | | | | | 10 |
| Batch ID | | 0825C | | 0825C | | |

pH (150.1)
pH

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.

The estimated uncertainty associated with these reported results is available upon request.

Methods: 40 CFR Part 136, EPA SW-846

DOH Certification: E84282.

J = The flag "J" indicates the presence of a compound that meets the identification criteria, but the result is less than the sample RL and greater than the MDL.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**SEVERN
TRENT**

STL

353183

STL Tampa
6712 Benjamin Road, Suite 100
Tampa, FL 33634

Website: www.stl-inc.com
Phone: (813) 885-7427
Fax: (813) 885-7049

Alternate Laboratory Name/Location

Phone:
Fax:

| | | | | | | | | | | | | | | | | | | | |
|--|------------------------------|--------------------------------|---|-------------------|------|----|--------------|---|--|--|--|--|--|------|----|--|--|---|-----------------------|
| PROJECT REFERENCE | PROJECT NO. 0486003 | PROJECT LOCATION (STATE) MS | MATRIX TYPE | REQUIRED ANALYSIS | | | | | | | | | | PAGE | OF | | | | |
| SAMPLER'S SIGNATURE <i>Lydia Cummins</i> | P.O. NUMBER 167812 | CONTRACT NO. | COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT, ...) | STL | BTEX | PH | PRESERVATIVE | 1 | | | | | | | | | | STANDARD REPORT DELIVERY | <input type="radio"/> |
| CLIENT (SITE) PM Lydia Cummins | CLIENT PHONE 614-424-7778 | CLIENT FAX 614-424-3667 | | | | | | | | | | | | | | | | DATE DUE | _____ |
| CLIENT NAME BETHELLE MEMORIAL | CLIENT E-MAIL | | | | | | | | | | | | | | | | | EXPEDITED REPORT DELIVERY (SURCHARGE) | <input type="radio"/> |
| CLIENT ADDRESS 505 10th Ave, Columbus, OH 43201 | | | | | | | | | | | | | | | | | | DATE DUE | _____ |
| COMPANY CONTRACTING THIS WORK (if applicable) SPS | | | | | | | | | | | | | | | | | | NUMBER OF COOLERS SUBMITTED PER SHIPMENT: | |

| SAMPLE | | SAMPLE IDENTIFICATION | COMPOSITE (C) OR GRAB (G) INDICATE | AQUEOUS (WATER) | SOLID OR SEMISOLID | AIR | NONAQUEOUS LIQUID (OIL, SOLVENT, ...) | NUMBER OF CONTAINERS SUBMITTED | | | | | | | | | | REMARKS | |
|------------------|--------|-----------------------|------------------------------------|-----------------|--------------------|-----|---------------------------------------|--------------------------------|--|--|--|--|--|--|--|--|--|---------|--|
| DATE | TIME | | | | | | | | | | | | | | | | | | |
| 8/19/03 | 12:00P | BTEX-STRIPPER | 6 | ✓ | | | 3 | | | | | | | | | | | | |
| 8/14/03 | 12:00P | PH-STRIPPER | 6 | ✓ | | | 1 | | | | | | | | | | | | |
| _____ | | | | | | | | | | | | | | | | | | | |

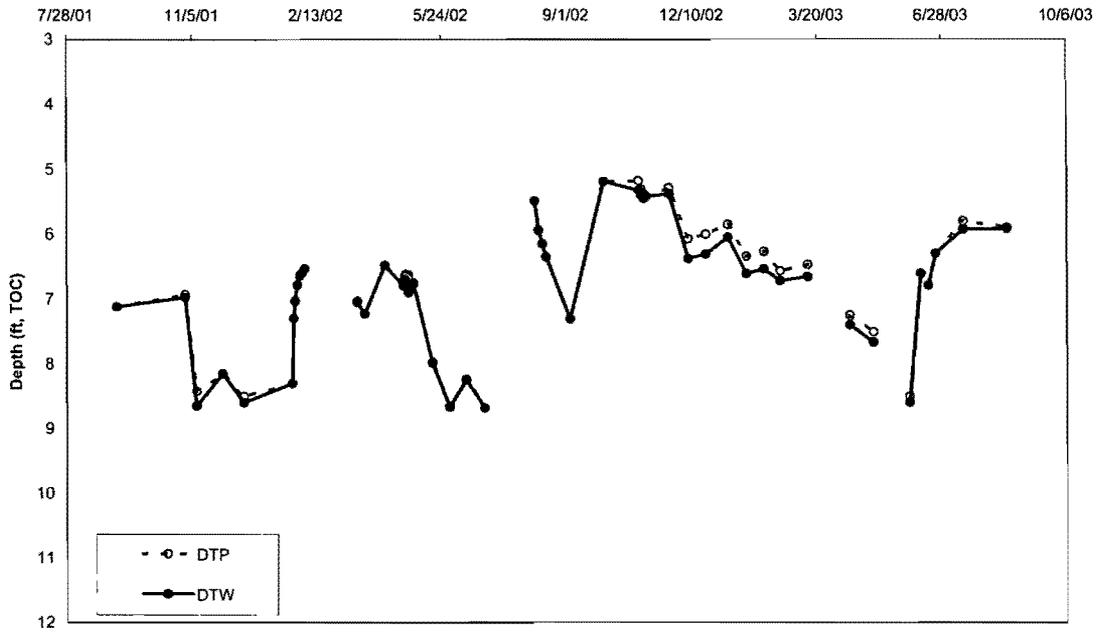
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|--|-----------------|--------------|--|-----------------|---------------|------------------------------|------|------|
| RELINQUISHED BY: (SIGNATURE) <i>W. R. ...</i> | DATE 6-25-03 | TIME 1200 | RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i> | DATE 8/19/03 | TIME 1:00P | RELINQUISHED BY: (SIGNATURE) | DATE | TIME |
| RECEIVED BY: (SIGNATURE) <i>[Signature]</i> | DATE | TIME | RECEIVED BY: (SIGNATURE) <i>Charles E. Vol</i> | DATE 8-20-03 | TIME 0840 | RECEIVED BY: (SIGNATURE) | DATE | TIME |

| | | | | | | |
|--|-----------------|--------------|--|-------------------------|------------------------------|--------------------|
| RECEIVED FOR LABORATORY BY (SIGNATURE) <i>[Signature]</i> | DATE 8-20-03 | TIME 1105 | CUSTODY INTACT YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> | CUSTODY SEAL NO. N/A | STL TAMPA LOG NO. 8353183 | LABORATORY REMARKS |
|--|-----------------|--------------|--|-------------------------|------------------------------|--------------------|

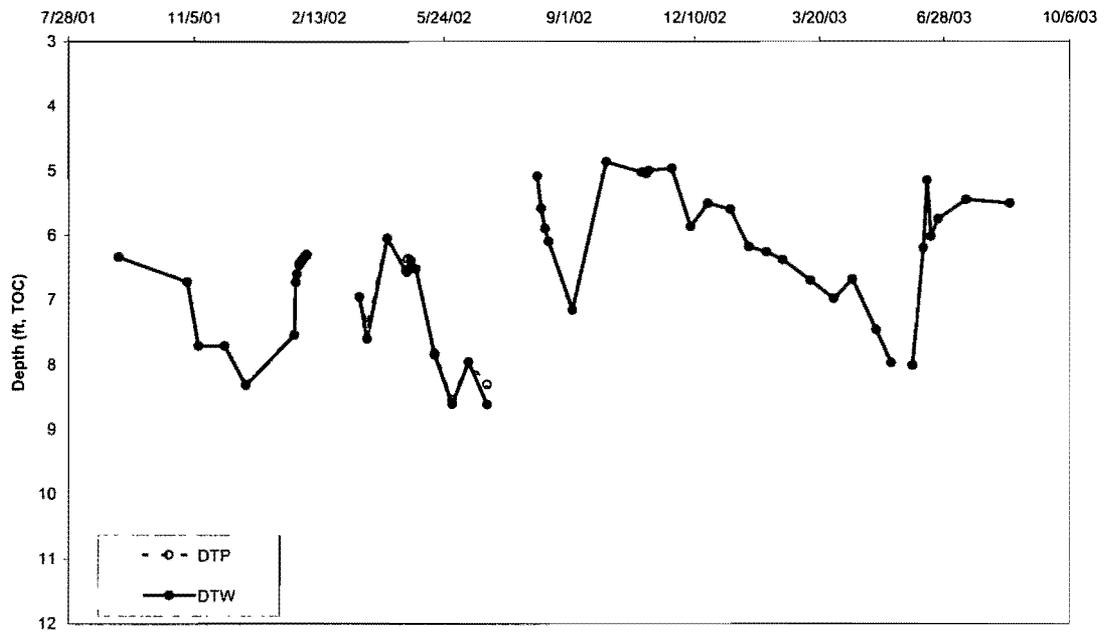
ATTACHMENT 4

OIL THICKNESS/GROUNDWATER ELEVATION PLOTS

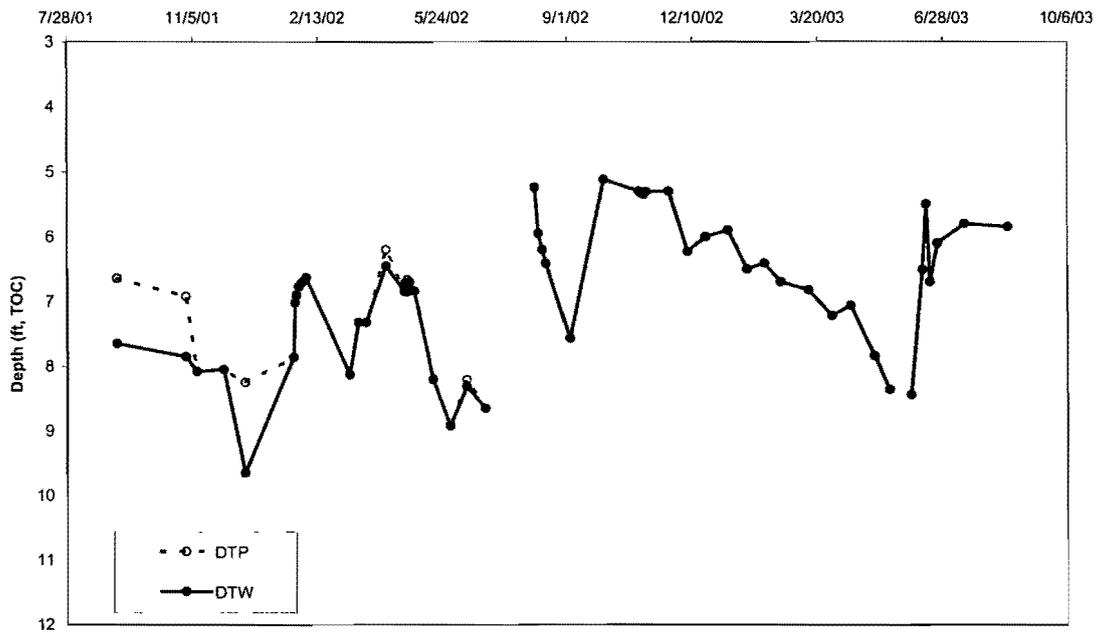
Oil/Water Data, NCBC Gulfport Site 6
EW-01



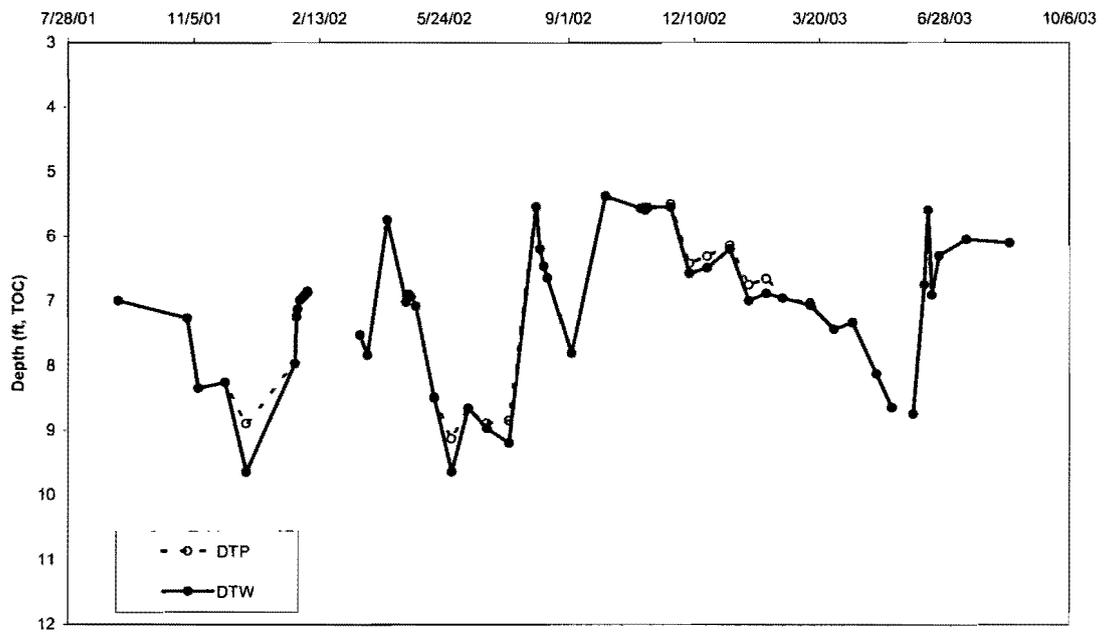
Oil/Water Data, NCBC Gulfport Site 6
EW-02



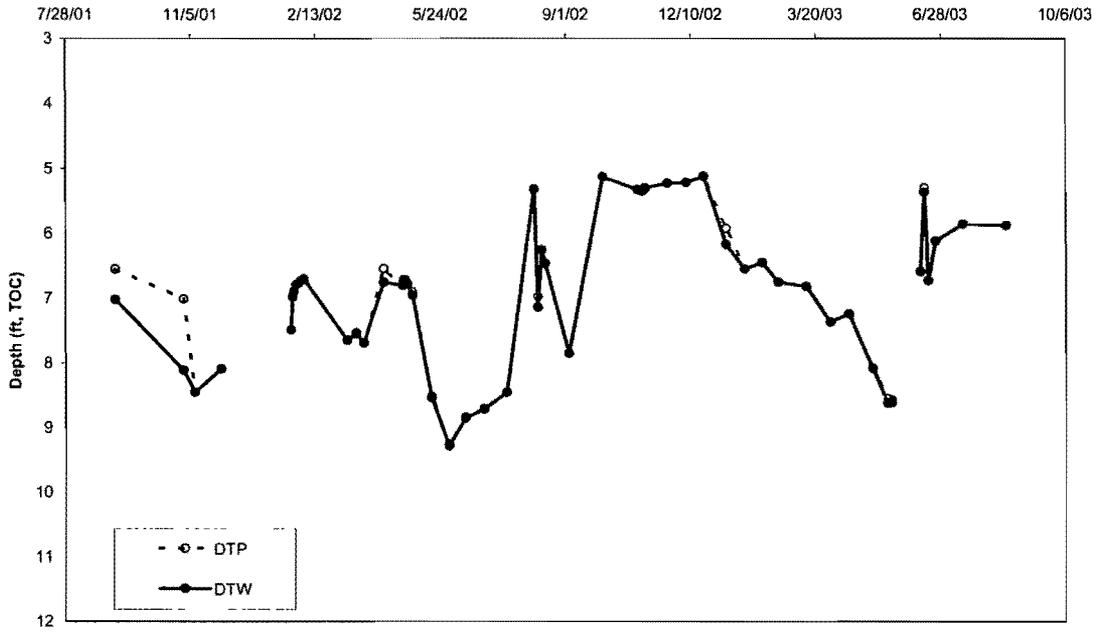
Oil/Water Data, NCBC Gulfport Site 6
EW-03



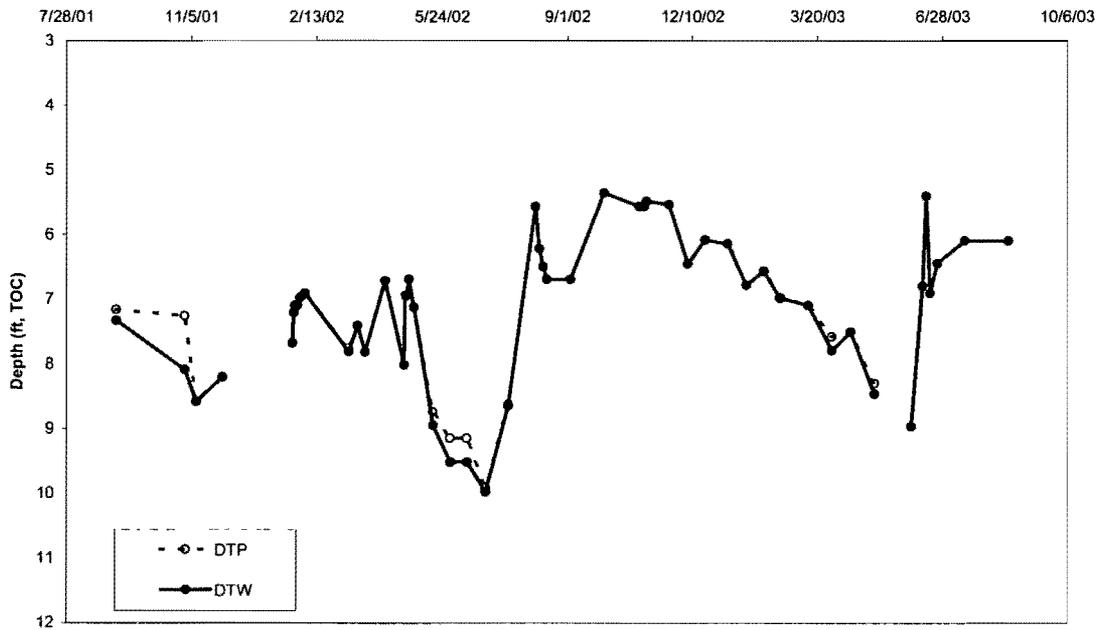
Oil/Water Data, NCBC Gulfport Site 6
EW-04



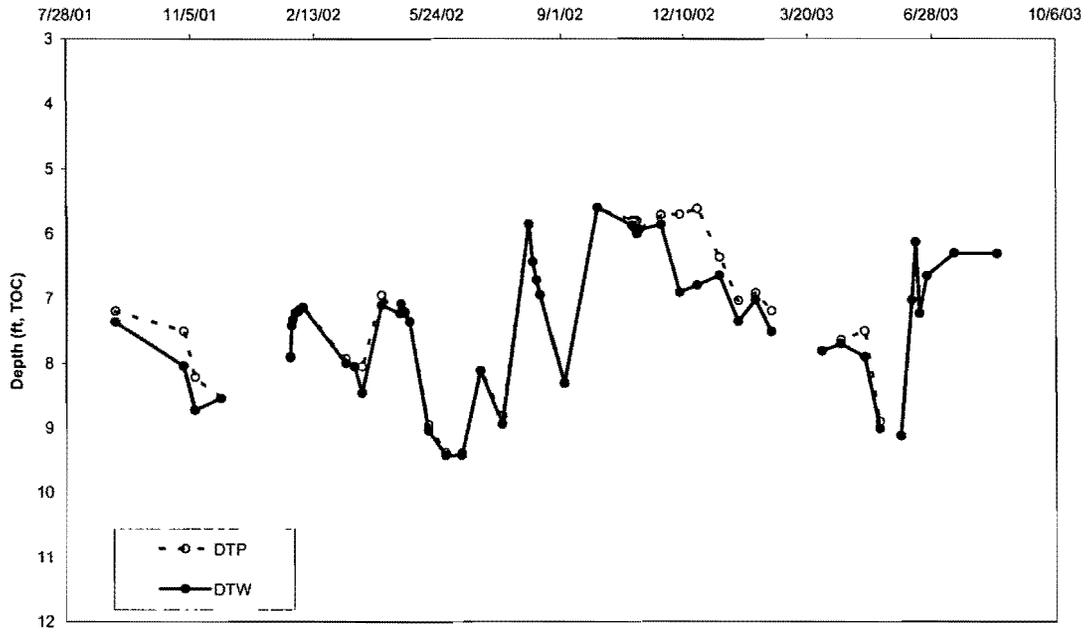
Oil/Water Data, NCBC Gulfport Site 6
EW-05



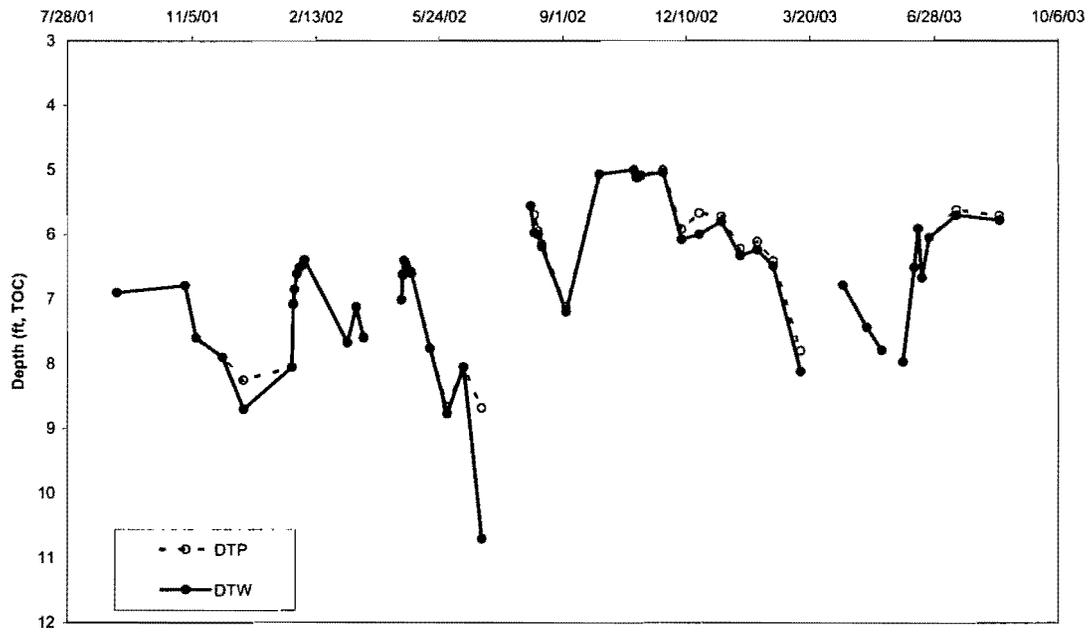
Oil/Water Data, NCBC Gulfport Site 6
EW-06



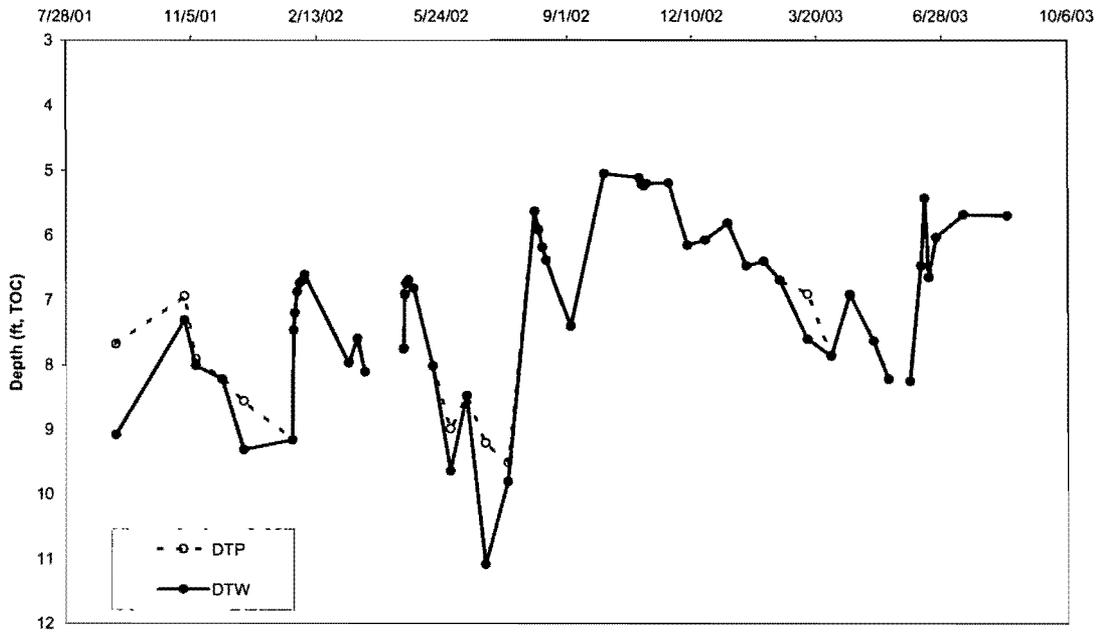
Oil/Water Data, NCBC Gulfport Site 6
EW-07



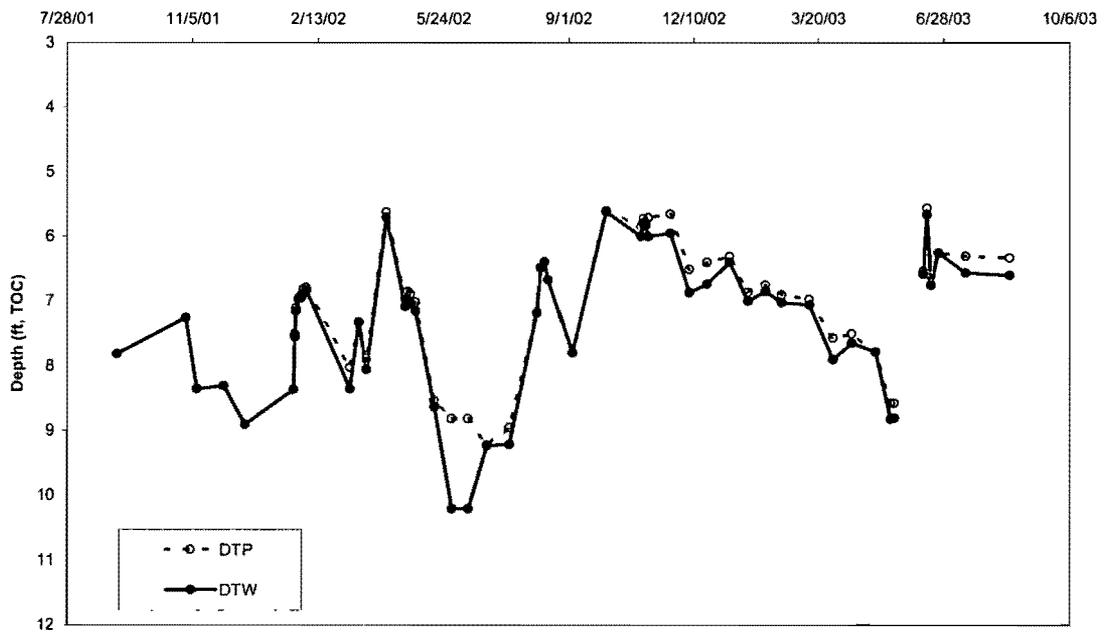
Oil/Water Data, NCBC Gulfport Site 6
EW-08



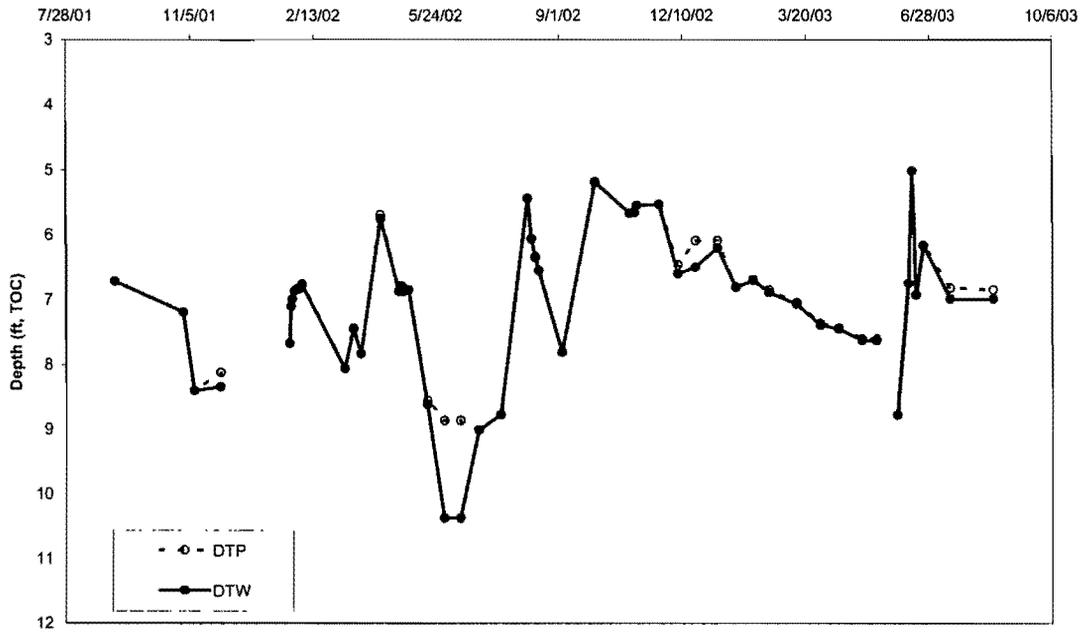
Oil/Water Data, NCBC Gulfport Site 6
EW-09



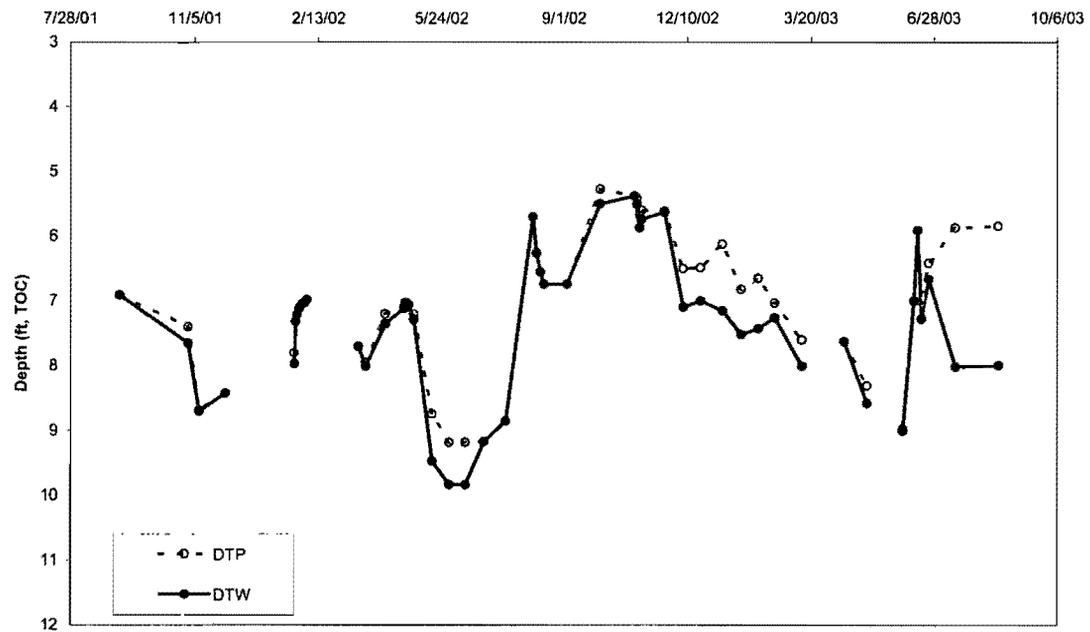
Oil/Water Data, NCBC Gulfport Site 6
EW-10



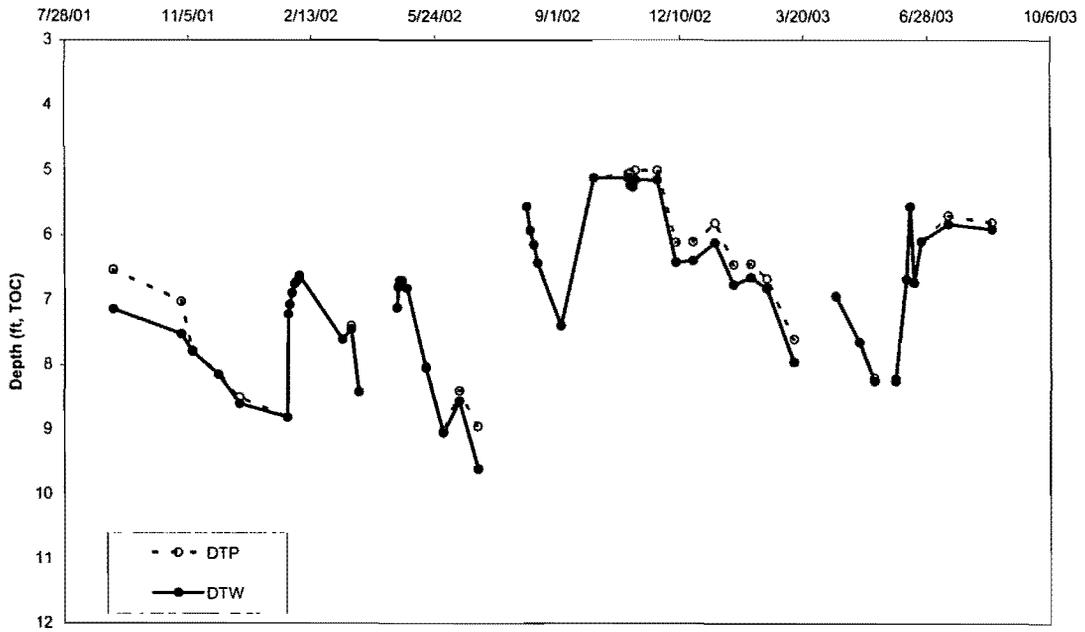
Oil/Water Data, NCBC Gulfport Site 6
EW-11



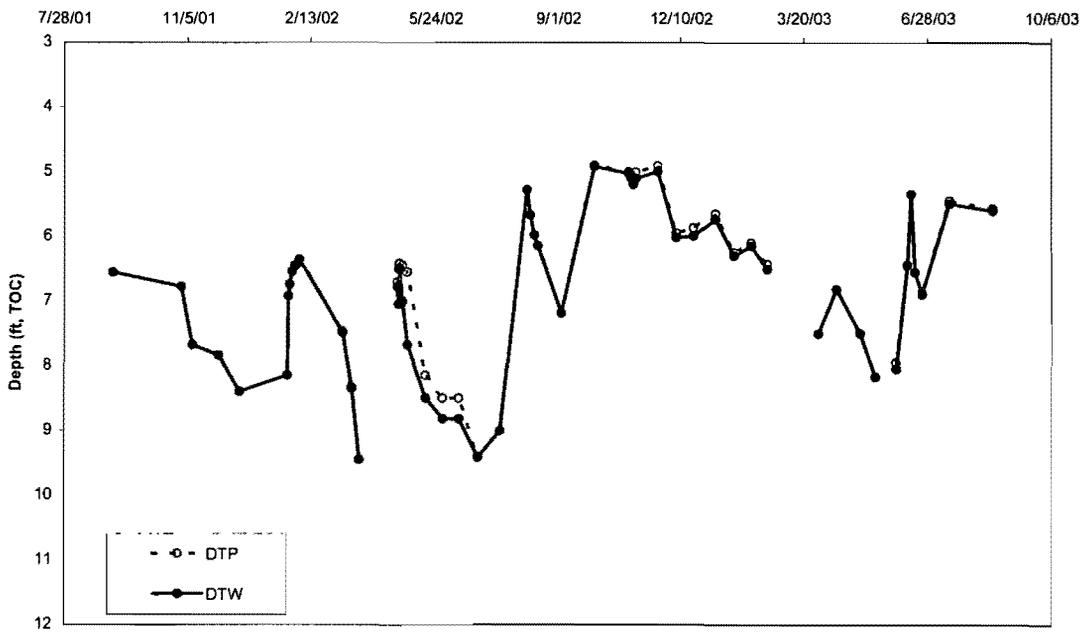
Oil/Water Data, NCBC Gulfport Site 6
EW-12



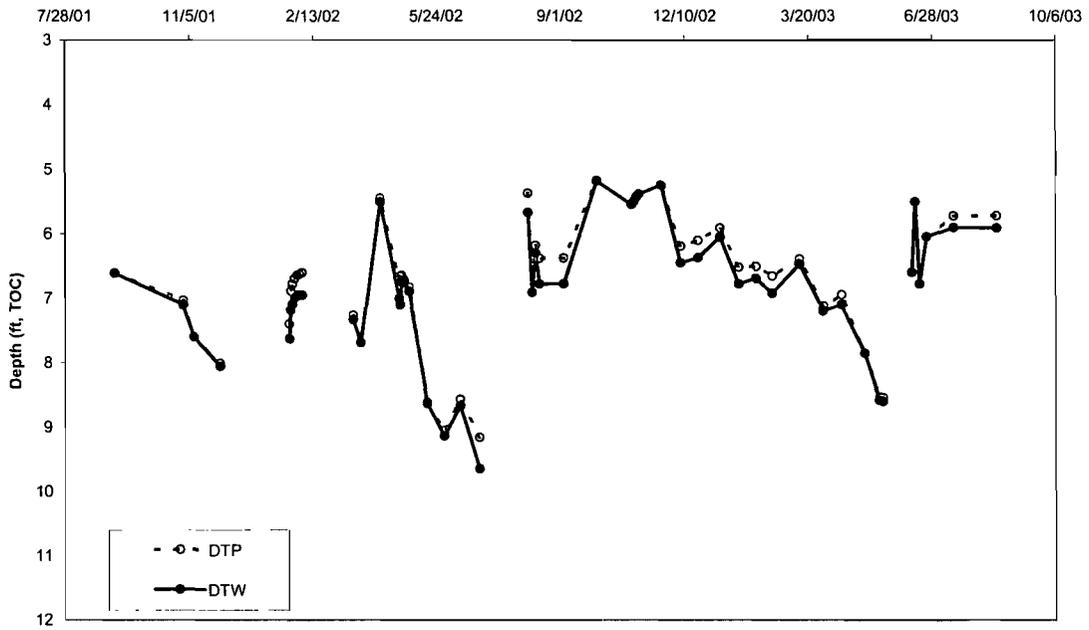
Oil/Water Data, NCBC Gulfport Site 6
EW-13



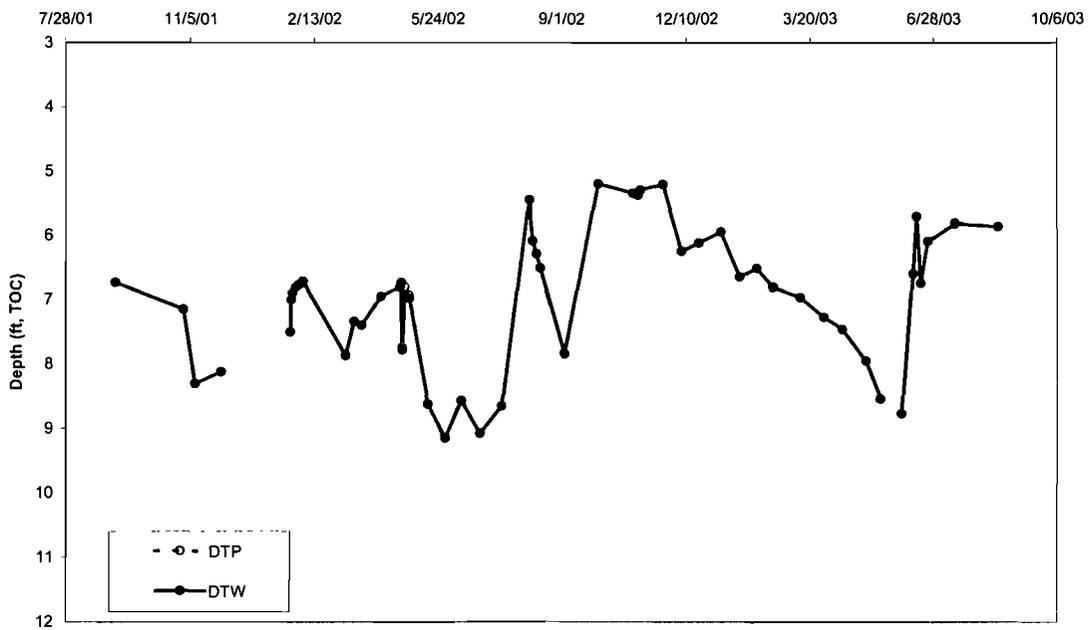
Oil/Water Data, NCBC Gulfport Site 6
EW-14



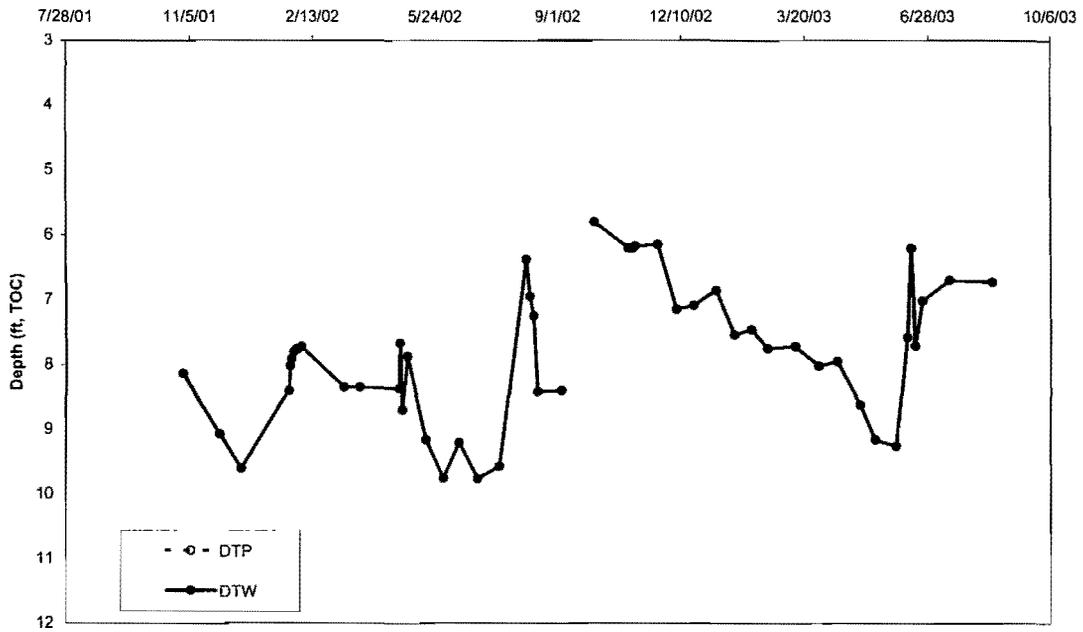
Oil/Water Data, NCBC Gulfport Site 6
EW-15



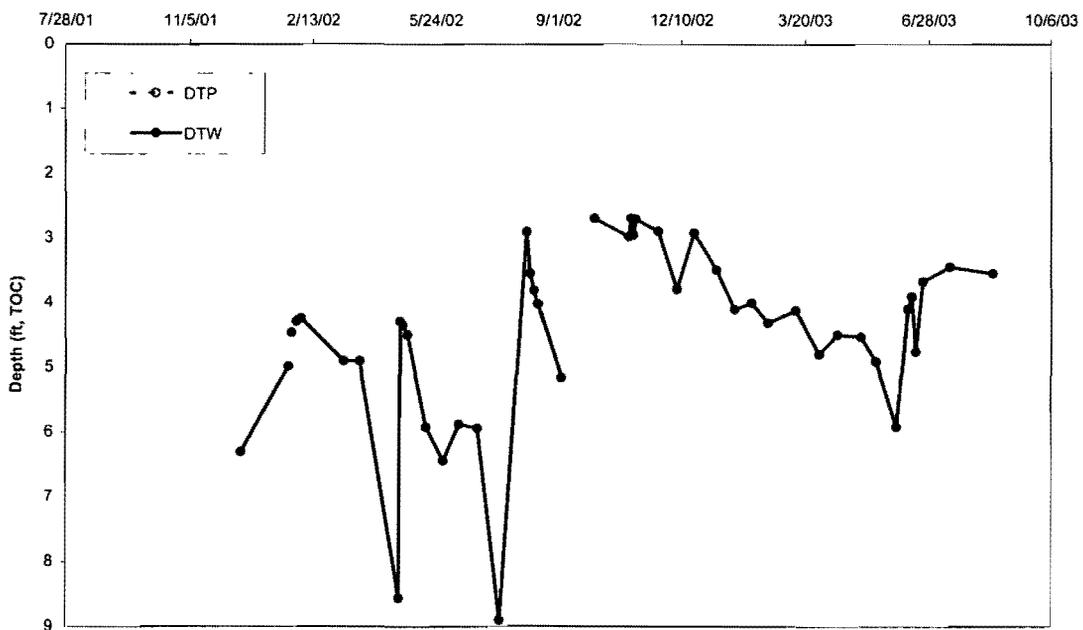
Oil/Water Data, NCBC Gulfport Site 6
EW-16



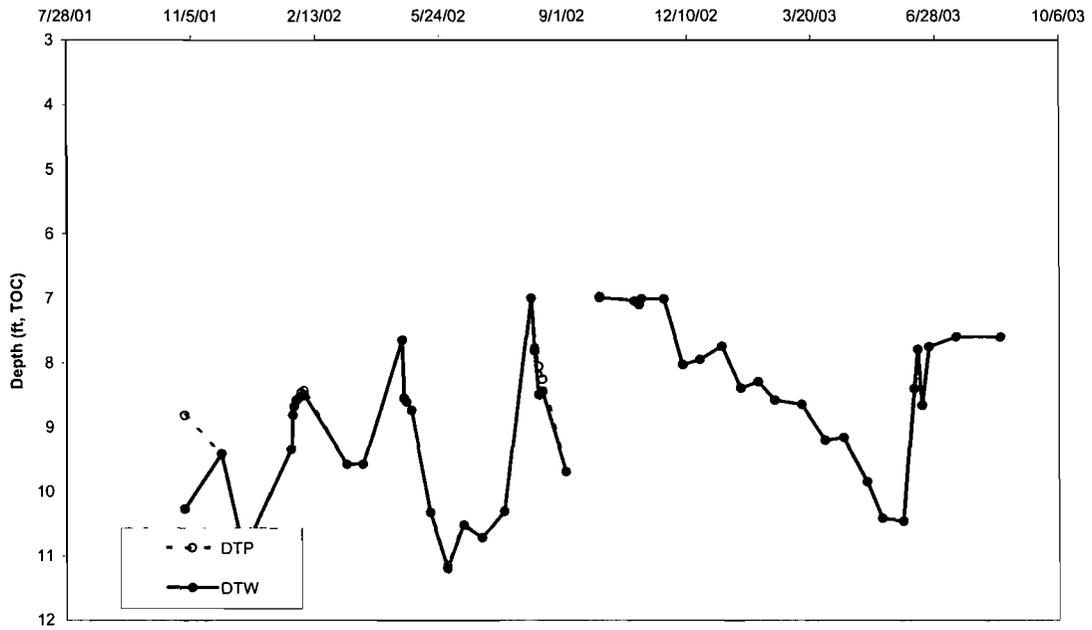
Oil/Water Data, NCBC Gulfport Site 6
GPT-6-2



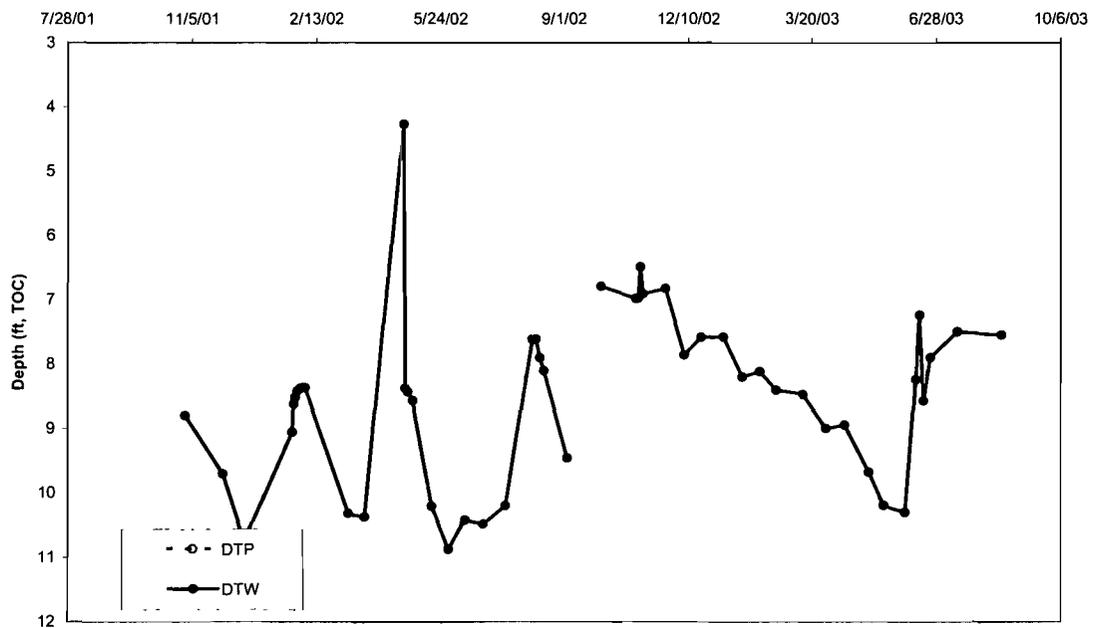
Oil/Water Data, NCBC Gulfport Site 6
GPT-6-3



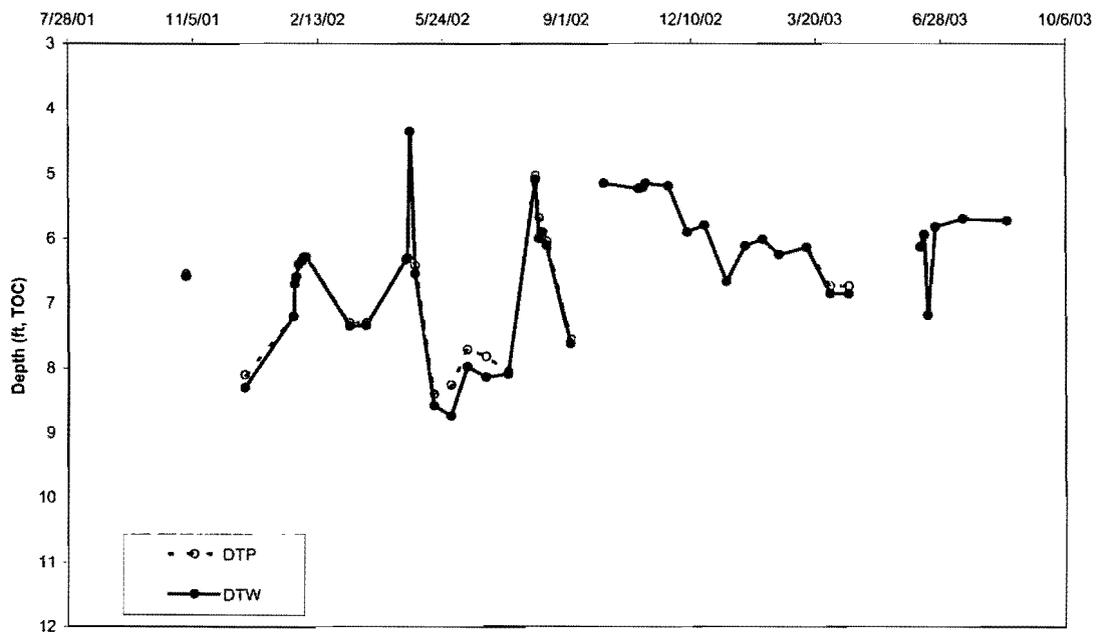
Oil/Water Data, NCBC Gulfport Site 6
GPT-6-4



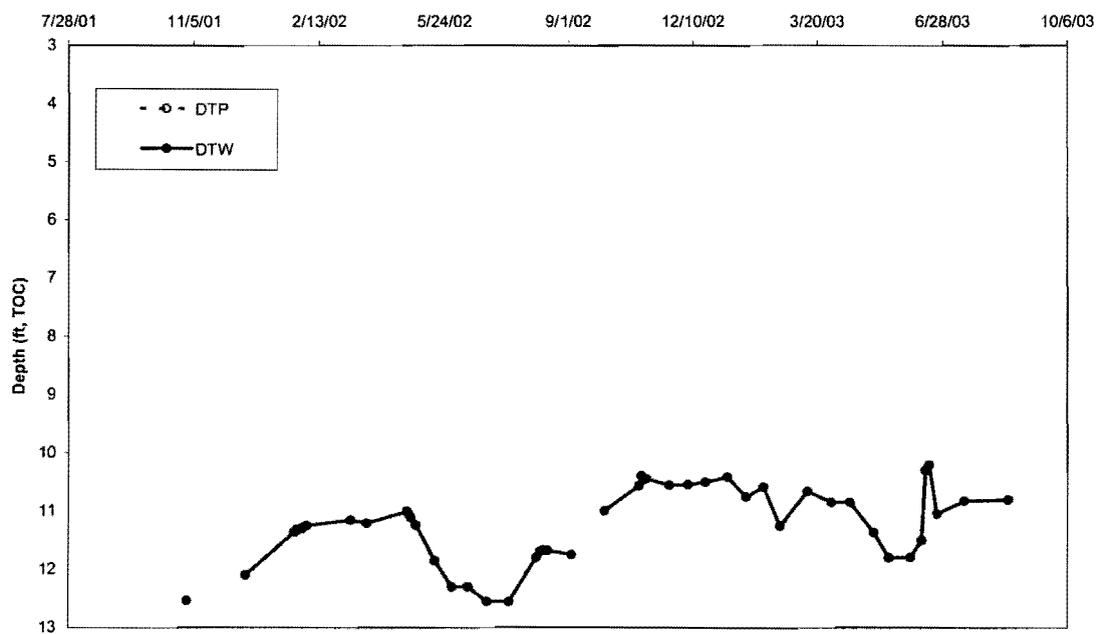
Oil/Water Data, NCBC Gulfport Site 6
GPT-6-5



Oil/Water Data, NCBC Gulfport Site 6
GPT-6-6



Oil/Water Data, NCBC Gulfport Site 6
GPT-6-7 (Deep Well)



Oil/Water Data, NCBC Gulfport Site 6
GPT-6-8

