

**ENSR**

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February 4, 2008

Ms. Susan Bull

Maryland Department of Environment  
Oil Control Program  
1800 Washington Blvd. Suite 620  
Baltimore, Maryland 21230-1719

Project File: 06230-859

**Re:** Bio-Augmentation Pilot Test Work Plan  
7-Eleven Store No.22281  
2400 Pleasantville Road  
Fallston, Maryland  
Facility ID No. 0006365  
MDE Case No. 2005-0120HA

Dear Ms. Bull:

On behalf of 7-Eleven, Inc. (7-Eleven), ENSR Corporation (ENSR), has prepared this Work Plan for subsurface pilot testing for the injection of bio-remediation products to degrade petroleum hydrocarbons including the fuel oxygenate methyl-tertiary butyl ether (MTBE) at the above referenced site. The submittal of this Work Plan was discussed with the Maryland Department of the Environment (MDE) during a project review meeting on August 15, 2007. This Work Plan is a revision to the Work Plan submitted August 27, 2007 and complies with the request made by the MDE in correspondence dated November 16, 2007.

### **Site Background**

The site is located within Harford County, Maryland, which has been classified by the MDE as a High Risk Groundwater Use Area. Currently fifteen monitoring wells exist at the site. Thirteen monitoring wells are located on-site and two monitoring wells are located off-site to the north across State Highway 152. **Figure 1** is a site map showing the locations of the monitoring wells and other site related features.

Groundwater samples were collected on December 14, 2007 from eleven on-site monitoring wells and two off-site monitoring wells. Monitoring wells HW-1 and HW-2 were not sampled due to an insufficient amount of water in the wells. Groundwater samples were analyzed for volatile organic compounds (VOCs) including Fuel Oxygenates by EPA Method 8260 and Total Petroleum Hydrocarbons-Diesel and Gasoline Range Organics (TPH-DRO/GRO) by EPA Method 8015.

Benzene, toluene, ethylbenzene and xylenes (BTEX) concentrations were detected in the monitoring well samples ranging from below the laboratory detection limit in monitoring wells MW-1A, MW-1B, MW-2, MW-3A, MW-3B, MW-4B, MW-5, MW-7, MW-8A and MW-8B to 13 micrograms-per-liter ( $\mu\text{g/l}$ ) in monitoring well MW-4A. MTBE concentrations ranged from below the laboratory detection limits in monitoring wells MW-1A, MW-2, MW-3A, MW-3B and MW-7 and MW-8A to an estimated laboratory value of 7,600  $\mu\text{g/l}$  in monitoring well MW-4A. TBA concentrations ranged from below laboratory detection limits in monitoring wells MW-1A, MW-1B, MW-2, MW-3A, MW-3B, MW-4A, MW-4B, MW-5, MW-7, MW-8A and MW-8B to a laboratory

estimated value of 470 µg/l in monitoring well HW-3. **Figure 2** is a dissolved-phase concentration map (BTEX/MTBE) from the December 14, 2007 groundwater sampling event. Historical results of the laboratory analysis are included in **Table 1**. The laboratory analytical report for the December 14, 2007 sampling event is included as **Appendix A**.

As determined from the historical sampling events, MTBE has consistently been detected in the shallow monitoring wells MW-4A, MW-6 and HW-3 above the MDE guidelines of 20 µg/l. Groundwater in the deeper zone, however, has historically shown MTBE below the laboratory detection limits with the exception of a sample from the December 12, 2006 groundwater sampling event with an MTBE concentration of 21 µg/l detected in monitoring well MW-4B.

The objective of this pilot test is to reduce the concentration of petroleum compounds including MTBE in the shallow groundwater by injecting groundwater amended with nutrients, naturally-occurring microorganisms, enzymes and dissolved oxygen.

The specifications of this remediation program were discussed with the MDE during a project review meeting on August 15, 2007. The following text outlines test implementation details and the associated monitoring plan to determine the overall feasibility of a full-scale application of this technology to reduce dissolved-phase hydrocarbons compounds at this location. Previous field and bench scale studies indicating favorable conditions for application of this technology have been submitted to the MDE in the August 27, 2007 Work Plan and are included as **Appendix B**.

### **Field Pilot Testing**

Based on the results of the bench scale study, submitted to MDE on August 27, 2007, ENSR is proposing to install two shallow injection trenches upgradient of monitoring well MW-4A as part of the limited bio-augmentation pilot test. **Figure 3** is a site plan showing the proposed lay-out of the bio-injection trenches. In addition, monitoring well HW-1 located near the tankfield has consistently had insufficient groundwater to collect an accurate groundwater sample. ENSR is requesting that if monitoring well HW-1 cannot be used as a monitoring point, it be utilized as an additional bio-injection point during the pilot test. As part of the trench system, a 4-inch diameter slotted PVC pipe will be installed within each trench with 4-inch diameter PVC solid risers at each end of the trench.

The injection trenches will be installed with a backhoe approximately 10 feet below ground surface (bgs) and backfilled with pea gravel to approximately 5 feet bgs to enhance permeability and allow for the injection of a combination of enzymes and dissolved oxygen. The estimated storage capacity of each trench was calculated to be approximately 900 gallons; the injection 250 gallons into each trench should not disturb current groundwater flow or equilibrium conditions.

A pilot test of enhanced in-situ bioremediation will be conducted using periodic injections of Petrozyme™, a biological stimulator, to augment and stimulate the naturally occurring population of hydrocarbon degrading bacteria in the areas of residual dissolved-phase petroleum hydrocarbons detected in monitoring well MW-4A. The application of the bio-augmentation technology will involve a program of two site visits per month for a six month period. The first monthly visit will include the addition of the Petrozyme™ products mixed with approximately 250 gallons of oxygenated water extracted from MW-1B and injected into each trench as shown in **Figure 3**. The second visit of the month will include the addition of approximately 250 gallons of water extracted from MW-1B and then oxygenated and injected into each trench to ensure a sufficient mass of oxygen is provided to stimulate the subsurface biologic activity. Oxygen will be supplied to the trenches during the injection process via a mobile water oxygenation system that utilizes an onboard oxygen generator. The oxygen saturated water is dispersed through the water bearing formation with the Petrozyme™ products to aid in the biodegradation of the gasoline-related hydrocarbons. Information including Material Safety Data Sheets for the

Petrozyme™ products have been previously submitted to the MDE in the August 27, 2007 Work Plan. The injectate will support aerobic in-situ microbial degradation of BTEX and MTBE. The end-products of hydrocarbon and BTEX degradation are carbon dioxide (CO<sub>2</sub>) and water (H<sub>2</sub>O). These intermediate degradation products for petroleum hydrocarbon constituents (fatty acids, alcohols, etc.) are inert and easily degradable by indigenous bacteria already in the subsurface. No other reaction products or byproducts will be formed through these natural biological processes.

### **Bio-injection Test Monitoring Program**

#### **Monitoring Objectives**

Subsurface conditions within the pilot test area will be monitored throughout the proposed six month testing period. The objectives of the pilot test monitoring program are:

1. To evaluate the efficiency and effectiveness of the bioremediation program to stimulate the biological degradation of the dissolved-phase petroleum hydrocarbons in the shallow water bearing zone in the area of monitoring well MW-4A.
2. To evaluate the potential area of remedial influence resulting from the addition of the bio-augmentation materials to the subsurface through the injection trenches.
3. To identify any change in the hydraulic gradient of the shallow water bearing zone in the area of monitoring well MW-4A induced by the addition of bio-augmentation materials to the subsurface through the injection trenches.

#### **Monitoring Activity Schedule**

Monitoring activities associated with the implementation of the pilot test program will be conducted prior to, during and following the proposed bio-augmentation activities. An outline of the anticipated scope of monitoring has been prepared based on information obtained from historic site investigation and monitoring activities and is included in the following sections. A summary of the scope of monitoring is provided in **Table 2**. **Table 3** includes an anticipated schedule for the proposed monitoring and pilot test activities. It is anticipated that the monitoring activities will progress as proposed, however, alterations to the prescribed activities and schedule may be necessary based on the evaluation of results by ENSR and 7-Eleven throughout the duration of the test program. MDE will be informed in writing of any changes in the design of the monitoring activities.

#### **Baseline Monitoring Summary**

An assessment of the subsurface conditions with respect to the current level of biological activity and the potential to enhance the biological degradation of petroleum hydrocarbons will be performed prior to the initiation of the proposed bio-augmentation activities. The data obtained from this assessment, as well as information obtained during previous site assessment activities, prior to the initiation of the pilot test program, a routine quarterly groundwater sampling event will serve to establish a baseline to which data gathered throughout the pilot test program will be compared. This sampling event will be performed in accordance with previously established monitoring procedures and include the collection of groundwater samples from each monitoring well associated with the site. The groundwater samples will be analyzed by Phase Separation Science of Baltimore, MD for VOCs including Fuel Oxygenates via EPA method 8260B and TPH-GRO/DRO via EPA method 8015B. Also, field measurements of groundwater elevations and dissolved oxygen concentrations will be collected during the sampling event.

Groundwater samples will also be collected during this sampling event to assess the subsurface characteristics associated with the biological degradation of dissolved-phase petroleum

hydrocarbons. These samples will be collected from monitoring wells MW-4A, MW-4B and MW-7 at the same time as those designated for hydrocarbon analysis. These samples will represent locations central to the area of impact, within the lower water bearing zone and in an area without hydrocarbon impact, respectively. Respiretek, Inc. of Biloxi, MS will conduct laboratory analysis of these samples for Ammonia as Nitrogen, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Manganese, Nitrate, Orthophosphate, Total Phosphorus, Sulfate, Total Kjeldahal Nitrogen (TKN), Total Organic Carbon (TOC), Heterotrophic Plate Count (HPC), and Specific HPC degraders of Benzene and MTBE. In addition to the evaluation of groundwater characteristics, the concentrations of oxygen and carbon dioxide in soil gas will be measured through monitoring wells HW-1, MW-4A, MW-4B, MW-7, MP-1 and MP-2. A portable soil gas monitor, such as the GEM 2000 Landfill Gas Monitor or equivalent, will be used to facilitate this field screening activity. The soil gas monitor will be connected to each monitoring well head using an expandable plug to create an air tight seal. Once connected, the internal air pump of the soil gas monitor will be used to purge approximately one to two well volumes of air as determined by the well diameter, groundwater elevation and monitor manufacturer's specified air flow rate prior to obtaining a reading.

### **Test Implementation Monitoring Summary**

Throughout the proposed pilot test program, monitoring of biological, chemical and physical parameters will be conducted within the test area. Analysis of this site data resulting from these monitoring activities will be performed with respect to baseline conditions be performed to evaluate the effectiveness of the bio-augmentation test and to identify any opportunities to maximize the efficiency of the bio-augmentation process. All site monitoring activities will be performed prior to the initiation of the bio-augmentation activities anticipated for that particular visit.

As indicated in the proposed pilot test monitoring schedule in **Table 2**, biweekly visits to the site are anticipated to facilitate the addition of augmented groundwater to the pilot test treatment area. Field measurement of groundwater elevation and groundwater dissolved oxygen concentration in monitoring wells HW-1, MW-4A, MW-4B, MP-1 and MP-2 will be collected upon arrival at the site during each biweekly visit.

Groundwater samples will be collected on a monthly basis to determine the concentration of nutrients provided for stimulation of the bioremediation process within the test area. Grab samples will be collected from monitoring wells MW-4A and MW-4B to be analyzed by Phase Separation Science for Nitrate and Nitrite via EPA method 353.3 and Orthophosphate via EPA method 365.2. Field measurement of the concentrations of oxygen and carbon dioxide in soil gas from monitoring wells HW-1, MW-4A, MW-4B, MP-1 and MP-2 will also be made on a monthly basis. The measurement of these parameters will be completed as detailed for the collection of baseline site data.

Additionally, routine groundwater sampling of all monitoring wells associated with the site will continue on a quarterly basis to evaluate the distribution of dissolved-phase petroleum hydrocarbons. As the six-month pilot test program is anticipated for implementation immediately following a routine groundwater sampling event, the subsequent sampling event will be due to occur at approximately the half-way point of the pilot test program. This groundwater sampling event will be conducted in an identical manner to the established sampling regiment as described above for baseline sampling. Collection of groundwater samples for evaluation of any changes induced in the biological characteristics within the test area will also be conducted at this time. Groundwater samples will be obtained from the same monitoring wells used for baseline sampling (MW-4A, MW-4B and MW-7) and analyzed by Respiretek, Inc. for the parameters previously identified.

### **Test Follow-up Monitoring Summary**

Upon completion of the prescribed six-month pilot test program, the routine site monitoring schedule associated with the evaluation of the distribution of dissolved-phase petroleum hydrocarbons will continue according to the previously established schedule. Groundwater elevation and dissolved oxygen concentration measurements will be made from all monitoring wells on a monthly basis. Groundwater samples will be collected from all monitoring wells associated with the site on a quarterly basis for laboratory analysis for VOCs fuel oxygenates and TPH-GRO/DRO by Phase Separation Science.

A post-test assessment of the biological characteristics within the test area will be performed via the collection of groundwater samples from the same monitoring wells used for baseline sampling (MW-4A, MW-4B and MW-7). These samples will be collected within one month following the final injection of bio-augmentation materials and again approximately three months later. Additionally, monitoring of soil gas concentrations will continue at monitoring wells MW-1, MW-4A, MW-4B, MP-1 and MP-2 as previously detailed for approximately three months following the completion of the final injection of bio-augmentation materials.

### **Reporting of Monitoring Results**

Data obtained from all prescribed laboratory analysis and field measurements will be provided to MDE as part of the scheduled submittal of quarterly site update reports during the months of January, April, July and October. In addition to the data, an activity summary will be provided and will include the following information pertaining to the specific reporting period:

- A summary of all site activities performed,
- A summary of any past or proposed deviations from the proposed pilot test or monitoring program,
- A preliminary assessment of the efficiency and effectiveness of the bioremediation program to stimulate the biological degradation of the dissolved-phase petroleum hydrocarbons in the shallow water bearing zone in the area of monitoring well MW-4A,
- A preliminary evaluation of the potential area of remedial influence resulting from the addition of the bio-augmentation materials to the subsurface through the injection trenches, and
- A preliminary assessment of any change in the hydraulic gradient of the shallow water bearing zone in the area of monitoring well MW-4A induced by the addition of bio-augmentation materials to the subsurface through the injection trenches.

If you have any questions, please contact the undersigned at (410) 884-9280.

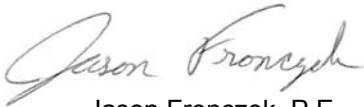
Sincerely,



John J. Canzeri  
Project Manager



Marie Treiber,  
Regional Senior Project Manager



Jason Fronczek, P.E.  
Project Engineer

Cc: Ms. Yolande Norman, MDE  
Mr. Herbert Meade, MDE  
Harford County Health Department  
7-Eleven Project File

## ATTACHMENTS

### FIGURES

FIGURE 1 – Site Plan

FIGURE 2 – Dissolved-Phase Concentration Map (December 14, 2007)

FIGURE 3 – Plan View of Bio-injection Trench Layout

### TABLES

TABLE 1– Monitoring Well Groundwater Analytical Results

TABLE 2– Pilot Test Monitoring Summary

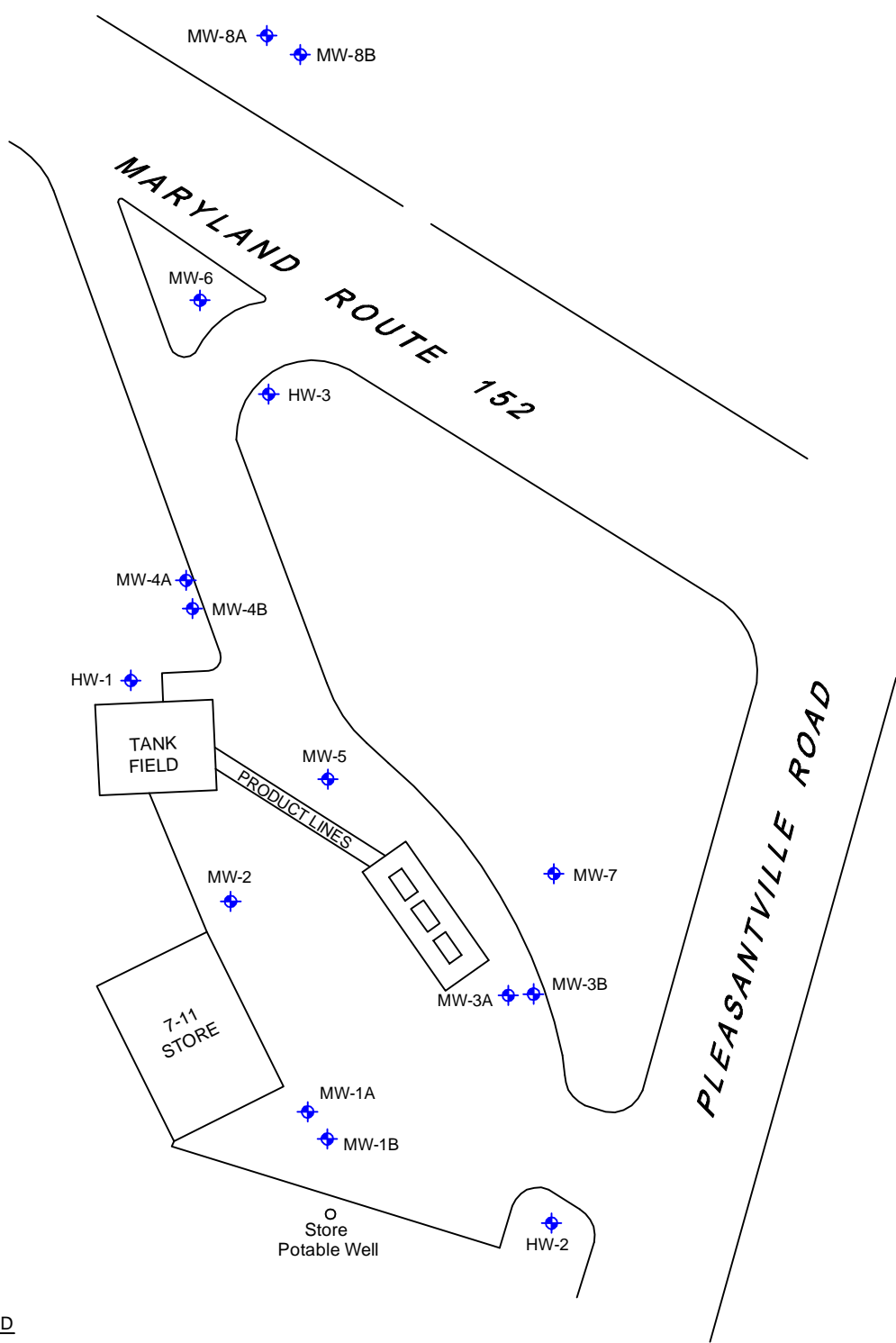
TABLE 3– Pilot Test Monitoring Schedule

APPENDIX A – Laboratory Analytical Report (Groundwater December 14, 2007)

APPENDIX B – MTBE-Impacted Treatability Study Report (September 4, 2006)

## FIGURES

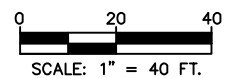




**LEGEND**

MW-1A MONITORING WELL

HW-1 HISTORICAL WELL



**ENSR | AECOM**

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**SITE PLAN**

7-ELEVEN STORE #22281  
2400 PLEASANTVILLE ROAD  
FALLSTON, MARYLAND

FIGURE NUMBER:

**1**

DRAWN BY:

LLM/JF

DATE:

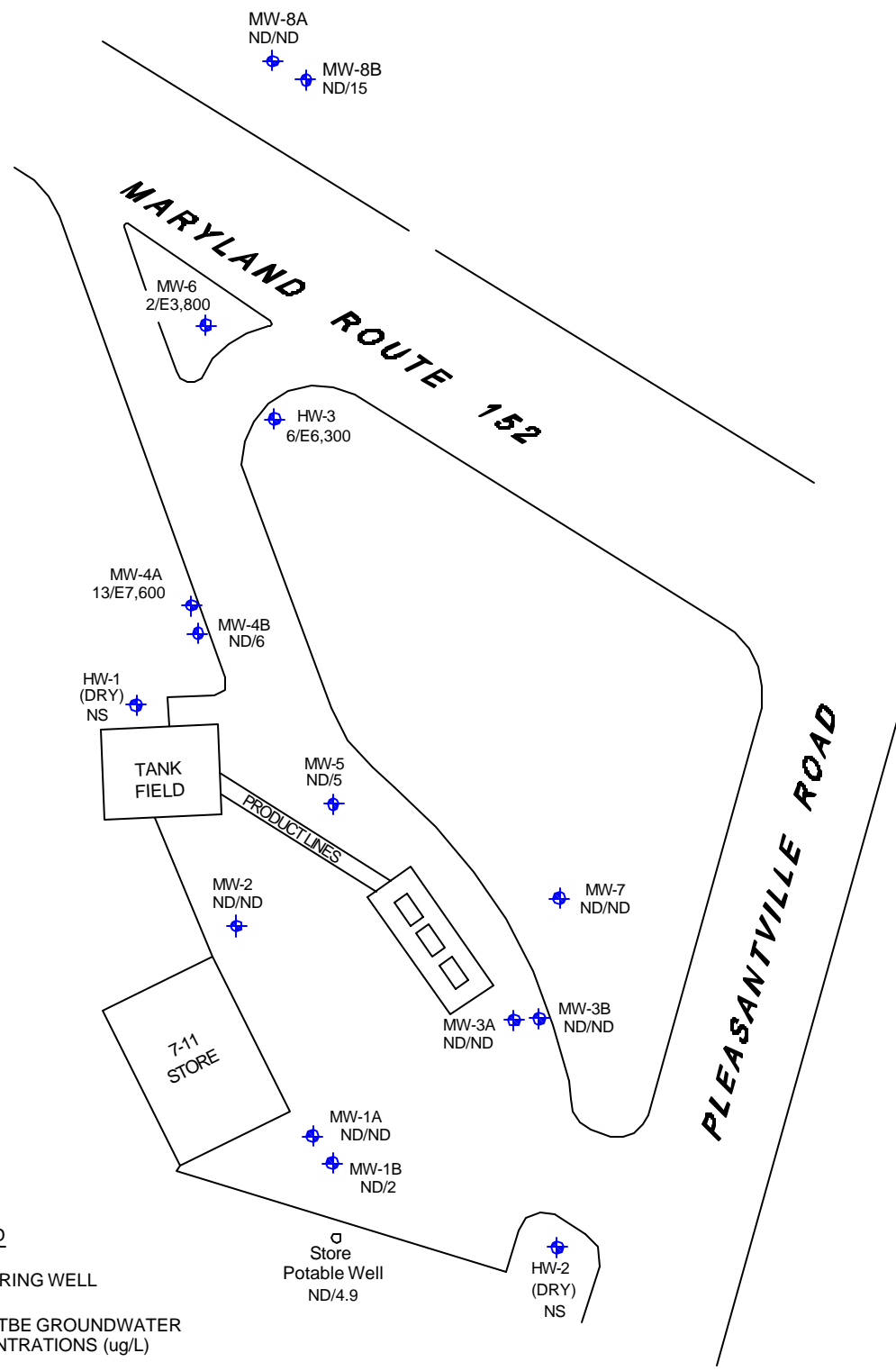
1/31/08

PROJECT NUMBER:

06230-859-000

SHEET NUMBER:

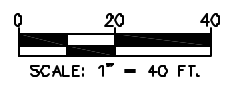
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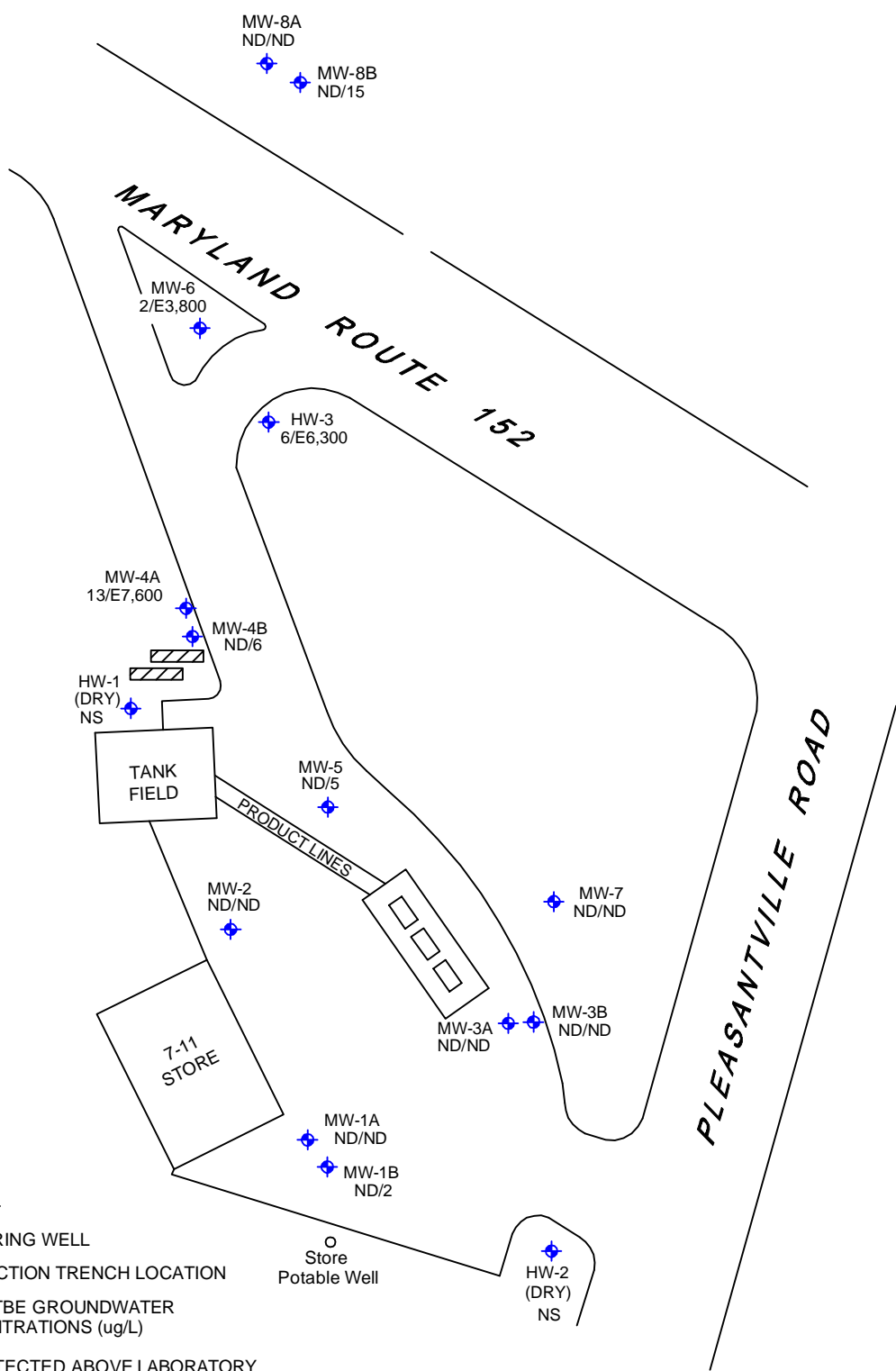
- LEGEND**
- MONITORING WELL
  - ND/2 BTEX/MTBE GROUNDWATER CONCENTRATIONS (ug/L)
  - ND NOT DETECTED ABOVE LABORATORY DETECTION LIMITS
  - NS NOT SAMPLED
  - HW HISTORICAL WELL

Store Potable Well  
ND/4.9

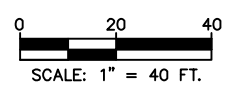
**NOTE:**  
POTABLE WELL SAMPLED ON  
OCTOBER 2, NOVEMBER 6, AND  
DECEMBER 4, 2007



|   |   |                          |   |
|---|---|--------------------------|---|
|   | <b>DISSOLVED-PHASE BTEX/MTBE<br/>ISOCONCENTRATION MAP<br/>DECEMBER 14, 2007</b> |                          | <b>FIGURE NUMBER:</b><br><br><span style="font-size: 2em;">2</span> |
|   | 7-ELEVEN STORE #22281<br>2400 PLEASANTVILLE ROAD<br>FALLSTON, MARYLAND          |                          |   |
| 8320 GUILFORD ROAD, SUITE L<br>COLUMBIA, MARYLAND 21046<br>PHONE: 410.884.9280<br>FAX: 410.884.9271<br>www.ensr.aecom.com | <b>DRAWN BY:</b><br>LLM/JF  | <b>DATE:</b><br>12/27/07 | <b>PROJECT NUMBER:</b><br>06230-859-000                             |
|   |   |                          | <b>SHEET NUMBER:</b><br>1   |



- LEGEND**
- MONITORING WELL
  - BIO-INJECTION TRENCH LOCATION
  - ND/2 BTEX/MTBE GROUNDWATER CONCENTRATIONS (ug/L)
  - ND NOT DETECTED ABOVE LABORATORY DETECTION LIMITS
  - NS NOT SAMPLED
  - HW HISTORICAL WELL
  - E LABORATORY ESTIMATED VALUE
  - Store Potable Well



|   |  |                  |   |
|---|--|------------------|---|
|   | <b>BIO-INJECTION TRENCH LOCATIONS</b>                                  |                  | FIGURE NUMBER:<br><br><h1 style="margin: 0;">3</h1> |
|   | 7-ELEVEN STORE #22281<br>2400 PLEASANTVILLE ROAD<br>FALLSTON, MARYLAND |                  |   |
| 8320 GUILFORD ROAD, SUITE L<br>COLUMBIA, MARYLAND 21046<br>PHONE: 410.884.9280<br>FAX: 410.884.9271<br>www.ensr.aecom.com | DRAWN BY:<br>LLM/JF  | DATE:<br>1/31/08 | PROJECT NUMBER:<br>06230-859-000                    |
|   |  |                  | SHEET NUMBER:<br>1                                  |

## TABLES

**Table 1**  
**Monitoring Well Groundwater Analytical Results**  
 7-Eleven Store No. 22281  
 Fallston, Maryland

| Sample ID | Date       | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Xylenes (µg/L) | BTEX (µg/L) | MTBE (µg/L) | TBA (µg/L) | TAME (µg/L) | TPH-GRO (µg/L) | TPH-DRO (mg/L) |
|-----------|------------|----------------|----------------|---------------------|----------------|-------------|-------------|------------|-------------|----------------|----------------|
| MW-1A     | 7/26/2005  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@25      | ND@25       | ND@100         | ND@0.56        |
|           | 11/22/2005 | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@25      | ND@25       | NA             | NA             |
|           | 3/16/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@25      | ND@25       | ND@100         | ND@0.50        |
|           | 6/30/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 9/12/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 12/7/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 1           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 3/28/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 2           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 6/22/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 1           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 9/25/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 2           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 12/14/2007 | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@10      | ND@10       | ND@100         | ND@0.5         |
| MW-1B     | 7/26/2005  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 11          | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 11/22/2005 | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 12          | ND@25      | ND@25       | NA             | NA             |
|           | 3/16/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 6           | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 6/30/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 3           | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 9/12/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 6           | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 12/7/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 6           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 3/28/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 2           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 6/22/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 2           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 9/25/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 2           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 12/14/2007 | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 2           | ND@10      | ND@10       | ND@100         | ND@0.5         |
| MW-2      | 7/26/2005  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 3           | ND@25      | ND@25       | ND@100         | ND@0.56        |
|           | 11/22/2005 | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 37          | ND@25      | ND@25       | NA             | NA             |
|           | 3/16/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 49          | 28         | ND@25       | ND@100         | ND@0.5         |
|           | 6/30/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 52          | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 9/12/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 31          | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 12/7/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 27          | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 3/28/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 12          | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 6/22/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 9           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 9/25/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 5           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 12/14/2007 | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@10      | ND@10       | ND@100         | ND@0.5         |
| MW-3A     | 7/26/2005  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 2,400       | 1,700      | 110         | 2,700          | ND@0.5         |
|           | 11/22/2005 | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 260         | 120        | ND@25       | NA             | NA             |
|           | 3/16/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 37          | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 6/30/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 3           | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 9/12/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 12/7/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 2           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 3/28/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 6/22/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 9/25/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 12/14/2007 | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@10      | ND@10       | ND@100         | ND@0.5         |
| MW-3B     | 2/16/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 2/22/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 3/16/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 6/30/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 9/12/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 12/7/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@10      | ND@10       | ND@100         | 2.5            |
|           | 3/28/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 6/22/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 9/25/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 12/14/2007 | ND@1           | ND@1           | ND@1                | ND@3           | ND          | ND@1        | ND@10      | ND@10       | ND@100         | ND@0.5         |
| MW-4A     | 7/26/2005  | 11             | ND@1           | ND@1                | 10             | 21          | 31,000      | 25,000     | E 2,200     | 30,000         | ND@0.5         |
|           | 11/22/2005 | 15             | ND@1           | ND@1                | 10             | 25          | 42,000      | 29,000     | 3,200       | NA             | NA             |
|           | 3/16/2006  | ND@5           | ND@5           | ND@5                | ND@10          | ND          | 20,000      | 9,900      | 940         | 2,100          | ND@0.5         |
|           | 6/30/2006  | 14             | 3              | ND@1                | 12             | 29          | E 3,300     | E 3,400    | E 560       | 2,000          | LF 0.52        |
|           | 9/12/2006  | 34             | 9              | ND@1                | 25             | 68          | 20,000      | E 21,000   | E 630       | 2,900          | ND@0.5         |
|           | 12/7/2006  | 30             | ND@5           | ND@5                | 11             | 41          | 27,000      | 32,000     | 780         | 3,000          | LF 0.72        |
|           | 3/28/2007  | 8              | ND@1           | ND@1                | 6              | 14          | E 37,000    | E 41,000   | E 490       | 2,500          | 0.7            |
|           | 6/22/2007  | 8              | ND@1           | ND@1                | 10             | 18          | E 12,000    | E 5,300    | E 480       | 2,500          | ND@0.5         |
|           | 9/25/2007  | 7              | ND@1           | ND@1                | 6              | 13          | E 11,000    | E 4,500    | E 560       | 1,500          | ND@0.5         |
|           | 12/14/2007 | 7              | ND@1           | ND@1                | 6              | 13          | E 7,600     | ND@10      | E 460       | 1,700          | ND@0.5         |
| MW-4B     | 2/16/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 16          | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 2/22/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 16          | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 3/16/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 13          | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 6/30/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 7           | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 9/12/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 6           | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 12/7/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 21          | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 3/28/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 7           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 6/22/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 3           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 9/25/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 8           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 12/14/2007 | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 6           | ND@10      | ND@10       | ND@100         | ND@0.5         |
| MW-5      | 7/26/2005  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 10          | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 11/22/2005 | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 15          | ND@25      | ND@25       | NA             | NA             |
|           | 3/16/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 76          | 44         | ND@25       | ND@100         | ND@0.5         |
|           | 6/30/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 11          | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 9/12/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 27          | ND@25      | ND@25       | ND@100         | ND@0.5         |
|           | 12/7/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 15          | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 3/28/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 3           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 6/22/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 3           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 9/25/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 4           | ND@10      | ND@10       | ND@100         | ND@0.5         |
|           | 12/14/2007 | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 5           | ND@10      | ND@10       | ND@100         | ND@0.5         |
| MW-6      | 7/26/2005  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 760         | 560        | 28          | 840            | ND@0.5         |
|           | 11/22/2005 | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 1,900       | 990        | 77          | NA             | NA             |
|           | 3/16/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 1,300       | 650        | 48          | ND@100         | ND@0.5         |
|           | 6/30/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | E 860       | 59         | 48          | ND@100         | ND@0.5         |
|           | 9/12/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | 1,200       | 78         | 52          | ND@100         | ND@0.5         |
|           | 12/7/2006  | ND@10          | ND@10          | ND@10               | ND@30          | ND          | 2,400       | 140        | 110         | 140            | ND@0.5         |
|           | 3/28/2007  | ND@100         | ND@100         | ND@100              | ND@300         | ND          | 1,100       | ND@1,000   | ND@1,000    | 110            | ND@0.5         |
|           | 6/22/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | E 1,000     | 78         | 62          | 130            | ND@0.5         |
|           | 9/25/2007  | ND@1           | ND@1           | ND@1                | ND@3           | ND          | E 1,200     | 120        | 65          | 150            | ND@0.5         |
|           | 12/14/2007 | 2              | ND@1           | ND@1                | ND@3           | 2           | E 3,800     | E 330      | E 350       | 600            | ND@0.5         |

**Table 1**  
**Monitoring Well Groundwater Analytical Results**  
 7-Eleven Store No. 22281  
 Fallston, Maryland

| Sample ID              | Date       | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Xylenes (µg/L) | BTEX (µg/L)            | MTBE (µg/L)            | TBA (µg/L) | TAME (µg/L) | TPH-GRO (µg/L) | TPH-DRO (mg/L) |  |
|------------------------|------------|----------------|----------------|---------------------|----------------|------------------------|------------------------|------------|-------------|----------------|----------------|--|
| MW-7                   | 7/26/2005  | ND@1           | ND@1           | ND@1                | ND@3           | ND                     | ND@1                   | ND@25      | ND@25       | ND@100         | ND@0.56        |  |
|                        | 11/22/2005 | ND@1           | ND@1           | ND@1                | ND@3           | ND                     | ND@1                   | 34         | ND@25       | NA             | NA             |  |
|                        | 3/16/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND                     | ND@1                   | ND@25      | ND@25       | ND@100         | ND@0.5         |  |
|                        | 6/30/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND                     | ND@1                   | ND@25      | ND@25       | ND@100         | ND@0.5         |  |
|                        | 9/12/2006  | ND@1           | ND@1           | ND@1                | ND@3           | ND                     | ND@1                   | ND@25      | ND@25       | ND@100         | ND@0.5         |  |
|                        | 12/7/2006  | ND@1           | ND@1           | ND@100              | ND@3           | ND                     | ND@1                   | ND@10      | ND@10       | ND@100         | 0.94           |  |
|                        | 3/28/2007  | ND@1           | ND@1           | ND@100              | ND@3           | ND                     | ND@1                   | ND@10      | ND@10       | ND@100         | ND@0.5         |  |
|                        | 6/22/2007  | ND@1           | ND@1           | ND@100              | ND@3           | ND                     | ND@1                   | ND@10      | ND@10       | ND@100         | ND@0.5         |  |
|                        | 9/25/2007  | ND@1           | ND@1           | ND@100              | ND@3           | ND                     | ND@1                   | ND@10      | ND@10       | ND@100         | ND@0.5         |  |
|                        | 12/14/2007 | ND@1           | ND@1           | ND@100              | ND@3           | ND                     | ND@1                   | ND@10      | ND@10       | ND@100         | ND@0.5         |  |
| MW-8A                  | 3/28/2007  | ND@1           | 1              | ND@100              | ND@3           | ND                     | 44                     | ND@10      | ND@10       | ND@100         | ND@0.5         |  |
|                        | 6/22/2007  | ND@1           | ND@1           | ND@100              | ND@3           | ND                     | 9                      | ND@10      | ND@10       | ND@100         | ND@0.5         |  |
|                        | 9/25/2007  | ND@1           | ND@1           | ND@100              | ND@3           | ND                     | 3                      | ND@10      | ND@10       | ND@100         | ND@0.5         |  |
|                        | 12/14/2007 | ND@1           | ND@1           | ND@100              | ND@3           | ND                     | ND@1                   | ND@10      | ND@10       | ND@100         | ND@0.5         |  |
| MW-8B                  | 10/15/2007 | ND@1           | 1              | ND@1                | ND@3           | 1                      | 14                     | ND@10      | ND@10       | ND@100         | ND@0.5         |  |
|                        | 12/14/2007 | ND@1           | ND@1           | ND@100              | ND@3           | ND                     | 15                     | ND@10      | ND@10       | ND@100         | ND@0.5         |  |
| HW-1                   | 3/16/2006  | 100            | 880            | ND@5                | 1,690          | 2,670                  | 3,700                  | 1,800      | ND@130      | 41,000         | 3.6            |  |
|                        | 6/30/2006  | 8              | E 380          | 170                 | E 790          | 968                    | 62                     | 56         | ND@25       | 2,700          | LF/DF 2        |  |
|                        | 9/12/2006  |                |                |                     |                | *Not Sampled, Well Dry |                        |            |             |                |                |  |
|                        | 12/7/2006  |                |                |                     |                | *Not Sampled, Well Dry |                        |            |             |                |                |  |
|                        | 3/28/2007  |                |                |                     |                | *Not Sampled, Well Dry |                        |            |             |                |                |  |
|                        | 6/13/2007  |                |                |                     |                | *Not Sampled, Well Dry |                        |            |             |                |                |  |
|                        | 9/25/2007  |                |                |                     |                | *Not Sampled, Well Dry |                        |            |             |                |                |  |
|                        | 12/14/2007 |                |                |                     |                | *Not Sampled, Well Dry |                        |            |             |                |                |  |
|                        | HW-2       | 3/16/2006      |                |                     |                |                        | *Not Sampled, Well Dry |            |             |                |                |  |
|                        |            | 6/30/2006      |                |                     |                |                        | *Not Sampled, Well Dry |            |             |                |                |  |
| 9/12/2006              |            |                |                |                     |                | *Not Sampled, Well Dry |                        |            |             |                |                |  |
| 12/7/2006              |            |                |                |                     |                | *Not Sampled, Well Dry |                        |            |             |                |                |  |
| 3/28/2007              |            |                |                |                     |                | *Not Sampled, Well Dry |                        |            |             |                |                |  |
| 6/13/2007              |            |                |                |                     |                | *Not Sampled, Well Dry |                        |            |             |                |                |  |
| 9/25/2007              |            |                |                |                     |                | *Not Sampled, Well Dry |                        |            |             |                |                |  |
| 12/14/2007             |            |                |                |                     |                | *Not Sampled, Well Dry |                        |            |             |                |                |  |
| HW-3                   | 1/23/2007  | 2              | ND@1           | ND@1                | ND@3           | 2                      | 6,600                  | 230        | 250         | 510            | ND@0.5         |  |
|                        | 3/28/2007  | NS             | NS             | NS                  | NS             | NS                     | NS                     | NS         | NS          | NS             | NS             |  |
|                        | 6/22/2007  | 4              | ND@1           | ND@1                | 3              | 7                      | 5,800                  | 440        | 380         | 900            | ND@0.5         |  |
|                        | 9/25/2007  | 6              | ND@1           | ND@1                | 4              | 10                     | E 7,200                | E 730      | E 660       | 1,600          | ND@0.5         |  |
|                        | 12/14/2007 | 4              | ND@1           | ND@1                | 2              | 6                      | E 6,300                | E 470      | E 600       | 1,100          | ND@0.5         |  |
| <b>MDE CLEANUP STD</b> |            | <b>5</b>       | <b>1,000</b>   | <b>700</b>          | <b>10,000</b>  | <b>--</b>              | <b>20</b>              | <b>--</b>  | <b>--</b>   | <b>47,000</b>  | <b>47</b>      |  |

BTEX - Total Benzene, Toluene, Ethylbenzene and Xylenes  
 MTBE - methyl tert-butyl ether  
 µg/L - micrograms-per-liter  
 mg/L - milligrams-per-liter  
 ND@x - not detected above laboratory detection level of x  
 ND - not detected  
 NA - not analyzed  
 E - estimated value, exceeds calibration range of laboratory equipment  
 LF - lighter fuel/oil pattern observed in sample  
 \* Well not sampled due to insufficient amount of water

**Table 2**  
**Pilot Test Monitoring Summary**  
 7-Eleven Store #22281  
 Fallston, Maryland

| <b>Monitoring Parameter</b>                  | <b>Media</b>                             | <b>Purpose</b>   | <b>Monitoring Location</b>     | <b>Monitoring Frequency</b>  | <b>Monitoring Method</b>                            |  |                           |  |  |
|--|--|--|--------------------------------|--|---|--|---------------------------|--|--|
| Water Table Elevation                        | Groundwater                              | Evaluate potential for alteration of groundwater gradient                                  | HW-1, MW-4A, MW-4B, MP-1, MP-2 | Biweekly   | Field measurement via electronic interface probe    |  |                           |  |  |
| Dissolved Oxygen                             | Groundwater                              | Evaluate distribution of oxygenated groundwater  | HW-1, MW-4A, MW-4B, MP-1, MP-2 | Biweekly   | Field measurement via water quality meter           |  |                           |  |  |
| Oxygen                                       | Soil Gas                                 | Evaluate oxygen delivery efficiency  | HW-1, MW-4A, MW-4B, MP-1, MP-2 | Monthly  | Field measurement via soil gas detector             |  |                           |  |  |
| Carbon Dioxide                               | Soil Gas                                 | Indicator of bioremediation of petroleum hydrocarbons                                      | HW-1, MW-4A, MW-4B, MP-1, MP-2 | Monthly  | Field measurement via soil gas detector             |  |                           |  |  |
| Nitrate, Nitrite                             | Groundwater                              | Evaluate distribution and consumption of nutrients added for stimulation of bioremediation | MW-4A, MW-4B                   | Monthly  | Laboratory Analysis via EPA method 353.3            |  |                           |  |  |
| Orthophosphate                               | Groundwater                              | Evaluate distribution and consumption of nutrients added for stimulation of bioremediation | MW-4A, MW-4B                   | Monthly  | Laboratory Analysis via EPA method 365.2            |  |                           |  |  |
| Ammonia as Nitrogen                          | Groundwater                              | Evaluate bioremediation activity   | MW-4A, MW-4B                   | Prior to, at the mid point, and after completion of the pilot test program | Laboratory Analysis via EPA method 350.3            |  |                           |  |  |
| Biochemical Oxygen Demand                    |  |  |                                |  | Laboratory Analysis via Standard Method 5210        |  |                           |  |  |
| Chemical Oxygen Demand                       |  |  |                                |  | Laboratory Analysis via EPA method 410.2            |  |                           |  |  |
| Manganese                                    |  |  |                                |  | Flame Atomic Adsorption or ICP                      |  |                           |  |  |
| Nitrate                                      |  |  |                                |  | Laboratory Analysis via Standard Method 4110-B      |  |                           |  |  |
| Orthophosphate                               |  |  |                                |  | Laboratory Analysis via EPA method 365.3            |  |                           |  |  |
| Total Phosphorus                             |  |  |                                |  | Laboratory Analysis via EPA method 365.3            |  |                           |  |  |
| Sulfate                                      |  |  |                                |  | Laboratory Analysis via Standard Method 4500        |  |                           |  |  |
| Total Kjeldahal Nitrogen                     |  |  |                                |  | Laboratory Analysis via Standard Method 4500-NORG.B |  |                           |  |  |
| Total Organic Carbon                         |  |  |                                |  | Laboratory Analysis via EPA method 415.2            |  |                           |  |  |
| Heterotrophic Plate Count (HPC)              |  |  |                                |  | Laboratory Analysis via Standard Method 9215-A      |  |                           |  |  |
| HPC - Specific Degradors                     |  |  |                                |  | Laboratory Analysis via Standard Method 9215-A      |  |                           |  |  |
| Total Volatile Organics plus Fuel Oxygenates |  |  |                                |  | Groundwater   | Evaluate reduction of dissolved phase petroleum hydrocarbons | All site monitoring wells | Prior to, at the mid point, and after completion of the pilot test program | Laboratory Analysis via EPA method 8260B |
| TPH-GRO                                      |  |  |                                |  |   |  |                           |  | Laboratory Analysis via EPA method 8015B |
| TPH-DRO                                      | Laboratory Analysis via EPA method 8015B |  |                                |  |   |  |                           |  |  |





**APPENDIX A**  
**Laboratory Analytical Report**  
**Groundwater (December 14, 2007)**

# Analytical Report for

**ENSR (MD)**

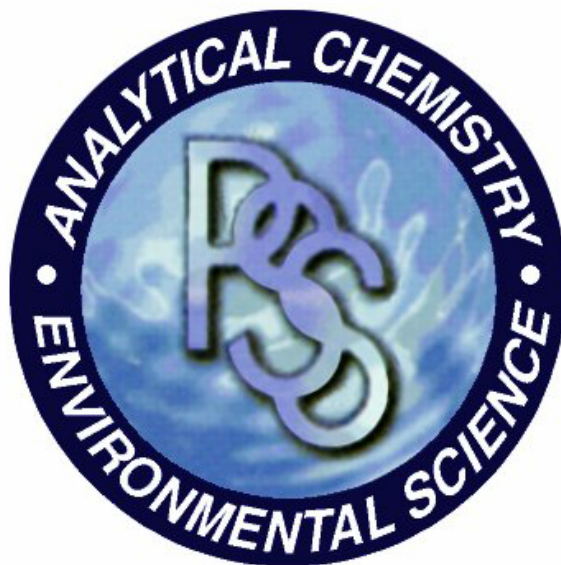
**Certificate of Analysis No.: 7121703**

**Project Manager: John Canzeri**

**Project Name : 7-11 Fallston**

**Project Location : MD**

**Project ID : 06230-859**



**December 24, 2007**

**Phase Separation Science, Inc.**

**6630 Baltimore National Pike**

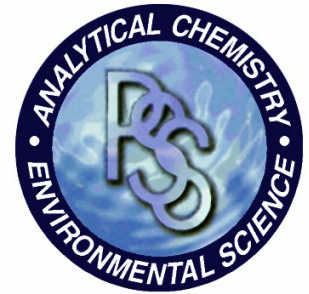
**Baltimore, MD 21228**

**Phone: (410) 747-8770**

**Fax: (410) 788-8723**

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ROUTE 40 WEST  
BALTIMORE, MD 21228  
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# PHASE SEPARATION SCIENCE, INC.



December 24, 2007

**John Canzeri**  
**ENSR (MD)**  
8320 Guilford Road, Ste. L  
Columbia, MD 21046

Reference: PSS Work Order No: **7121703**  
Project Name : 7-11 Fallston  
Project Location: Mid Atlantic  
Project ID.: 06230-859

Dear John Canzeri :

The attached Analytical and QC Summary lists the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order numbered **7121703**.

All work reported herein has been performed in accordance with referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on January 23, 2008. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 10 years, after which time it will be disposed without further notice, unless prior arrangements have been made.

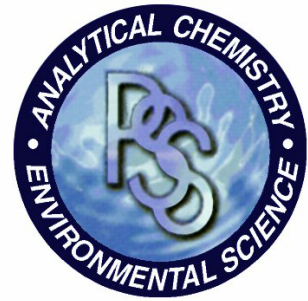
We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or [info@phaseonline.com](mailto:info@phaseonline.com).

A handwritten signature in black ink that reads 'Albert T. Ellis'. The signature is written in a cursive style and is positioned above a horizontal line.

**Albert Ellis**

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

**ENSR (MD), Columbia, MD**

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                        |   |                                   |
|------------------------|---|-----------------------------------|
| <b>Sample ID: HW 3</b> | <b>Date/Time Sampled: 12/14/2007 12:05</b>  | <b>PSS Sample ID: 7121703-001</b> |
| <b>Matrix: WATER</b>   | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

|                                    |                                |                             |
|------------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons - DRO | Analytical Method: SW846 8015B | Preparation Method: SW3510C |
|------------------------------------|--------------------------------|-----------------------------|

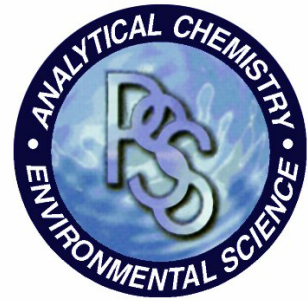
|                                 | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|---------------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| TPH-DRO (Diesel Range Organics) | ND     | mg/L  | 0.5       |      | 1 12/19/07   | 12/19/07 15:34 | 1040    |

|                                  |                                |                             |
|----------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons-GRO | Analytical Method: SW846 8015B | Preparation Method: SW5030B |
|----------------------------------|--------------------------------|-----------------------------|

|                                   | Result       | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------------|--------------|-------|-----------|------|--------------|----------------|---------|
| TPH-GRO (Gasoline Range Organics) | <b>1,100</b> | ug/L  | 100       |      | 1 12/22/07   | 12/22/07 18:09 | 1035    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

Sample ID: HW 3

Date/Time Sampled: 12/14/2007 12:05

PSS Sample ID: 7121703-001

Matrix: WATER

Date/Time Received: 12/17/2007 10:35

TCL Volatiles plus Oxygenates

Analytical Method: SW846 8260B

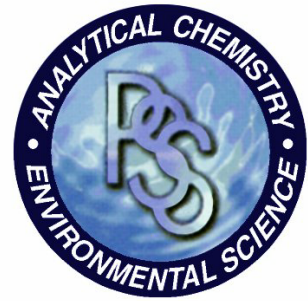
Preparation Method: SW5030B

*E - Exceeds calibration range, no further dilution to be performed.*

|                                       | Result       | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|---------------------------------------|--------------|-------|-----------|------|--------------|----------------|---------|
| Dichlorodifluoromethane               | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Chloromethane                         | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Vinyl Chloride                        | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| tert-Butyl alcohol                    | <b>470</b>   | ug/L  | 10        | E    | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Bromomethane                          | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Chloroethane                          | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Acetone                               | ND           | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Cyclohexane                           | ND           | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Trichlorofluoromethane                | ND           | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,1-Dichloroethene                    | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Methylene Chloride                    | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| trans-1,2-Dichloroethene              | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Methyl-t-butyl ether                  | <b>6,300</b> | ug/L  | 1         | E    | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,1-Dichloroethane                    | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 2-Butanone                            | ND           | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| cis-1,2-Dichloroethene                | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Chloroform                            | <b>22</b>    | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,1,1-Trichloroethane                 | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,2-Dichloroethane                    | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Carbon Tetrachloride                  | <b>3</b>     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Benzene                               | <b>4</b>     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Dibromomethane                        | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,2-Dichloropropane                   | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Trichloroethene                       | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Carbon Disulfide                      | ND           | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Bromodichloromethane                  | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| cis-1,3-Dichloropropene               | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 4-Methyl-2-Pentanone                  | ND           | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                        |   |                                   |
|------------------------|---|-----------------------------------|
| <b>Sample ID: HW 3</b> | <b>Date/Time Sampled: 12/14/2007 12:05</b>  | <b>PSS Sample ID: 7121703-001</b> |
| <b>Matrix: WATER</b>   | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

TCL Volatiles plus Oxygenates

Analytical Method: SW846 8260B

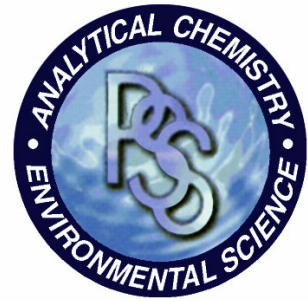
Preparation Method: SW5030B

*E - Exceeds calibration range, no further dilution to be performed.*

|                             | Result     | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------|------------|-------|-----------|------|--------------|----------------|---------|
| trans-1,3-Dichloropropene   | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,1,2-Trichloroethane       | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Toluene                     | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 2-Hexanone                  | ND         | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,2-Dibromoethane           | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Dibromochloromethane        | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| tert-Amyl methyl ether      | <b>600</b> | ug/L  | 10        | E    | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Bromoform                   | ND         | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Tetrachloroethylene         | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Chlorobenzene               | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Ethylbenzene                | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| m,p-Xylenes                 | ND         | ug/L  | 2         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Styrene                     | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,1,2,2-Tetrachloroethane   | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| o-Xylene                    | <b>2</b>   | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Isopropylbenzene            | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,3-Dichlorobenzene         | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,4-Dichlorobenzene         | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,2-Dichlorobenzene         | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,2-Dibromo-3-Chloropropane | ND         | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| 1,2,4-Trichlorobenzene      | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |
| Naphthalene                 | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:23 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| <b>Sample ID: MW 1A</b> | <b>Date/Time Sampled: 12/14/2007 13:50</b>  | <b>PSS Sample ID: 7121703-002</b> |
| <b>Matrix: WATER</b>    | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

|                                    |                                |                             |
|------------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons - DRO | Analytical Method: SW846 8015B | Preparation Method: SW3510C |
|------------------------------------|--------------------------------|-----------------------------|

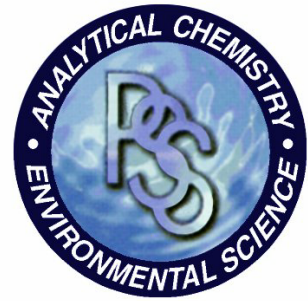
|                                 | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|---------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-DRO (Diesel Range Organics) | ND            | mg/L         | 0.5              |             | 1 12/19/07          | 12/19/07 15:58  | 1040           |

|                                  |                                |                             |
|----------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons-GRO | Analytical Method: SW846 8015B | Preparation Method: SW5030B |
|----------------------------------|--------------------------------|-----------------------------|

|                                   | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|-----------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-GRO (Gasoline Range Organics) | ND            | ug/L         | 100              |             | 1 12/22/07          | 12/22/07 18:37  | 1035           |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| <b>Sample ID: MW 1A</b> | <b>Date/Time Sampled: 12/14/2007 13:50</b>  | <b>PSS Sample ID: 7121703-002</b> |
| <b>Matrix: WATER</b>    | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

TCL Volatiles plus Oxygenates

Analytical Method: SW846 8260B

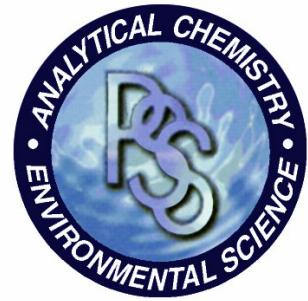
Preparation Method: SW5030B

|                                       | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|---------------------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| Dichlorodifluoromethane               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Chloromethane                         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Vinyl Chloride                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| tert-Butyl alcohol                    | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Bromomethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Chloroethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Acetone                               | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Cyclohexane                           | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Trichlorofluoromethane                | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 1,1-Dichloroethene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Methylene Chloride                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| trans-1,2-Dichloroethene              | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Methyl-t-butyl ether                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 1,1-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 2-Butanone                            | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| cis-1,2-Dichloroethene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Chloroform                            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 1,1,1-Trichloroethane                 | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 1,2-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Carbon Tetrachloride                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Benzene                               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Dibromomethane                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 1,2-Dichloropropane                   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Trichloroethene                       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Carbon Disulfide                      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Bromodichloromethane                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| cis-1,3-Dichloropropene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 4-Methyl-2-Pentanone                  | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| trans-1,3-Dichloropropene             | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |



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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

**Sample ID: MW 1A**

**Date/Time Sampled: 12/14/2007 13:50**

**PSS Sample ID: 7121703-002**

**Matrix: WATER**

**Date/Time Received: 12/17/2007 10:35**

TCL Volatiles plus Oxygenates

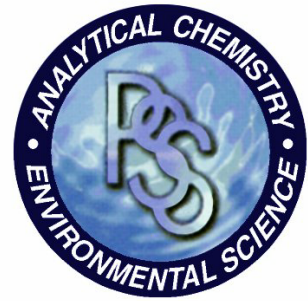
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                             | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| 1,1,2-Trichloroethane       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Toluene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 2-Hexanone                  | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 1,2-Dibromoethane           | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Dibromochloromethane        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| tert-Amyl methyl ether      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Bromoform                   | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Tetrachloroethylene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Chlorobenzene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Ethylbenzene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| m,p-Xylenes                 | ND     | ug/L  | 2         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Styrene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 1,1,2,2-Tetrachloroethane   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| o-Xylene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Isopropylbenzene            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 1,3-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 1,4-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 1,2-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 1,2-Dibromo-3-Chloropropane | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| 1,2,4-Trichlorobenzene      | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |
| Naphthalene                 | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 03:52 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

**ENSR (MD), Columbia, MD**

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| <b>Sample ID: MW 1B</b> | <b>Date/Time Sampled: 12/14/2007 14:00</b>  | <b>PSS Sample ID: 7121703-003</b> |
| <b>Matrix: WATER</b>    | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

|                                    |                                |                             |
|------------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons - DRO | Analytical Method: SW846 8015B | Preparation Method: SW3510C |
|------------------------------------|--------------------------------|-----------------------------|

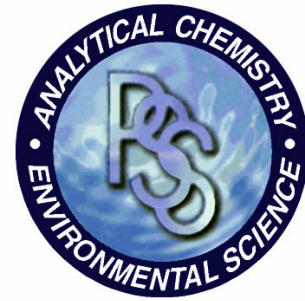
|                                 | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|---------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-DRO (Diesel Range Organics) | ND            | mg/L         | 0.5              |             | 1 12/19/07          | 12/19/07 16:16  | 1040           |

|                                  |                                |                             |
|----------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons-GRO | Analytical Method: SW846 8015B | Preparation Method: SW5030B |
|----------------------------------|--------------------------------|-----------------------------|

|                                   | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|-----------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-GRO (Gasoline Range Organics) | ND            | ug/L         | 100              |             | 1 12/22/07          | 12/22/07 19:05  | 1035           |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

**Sample ID: MW 1B**

**Date/Time Sampled: 12/14/2007 14:00**

**PSS Sample ID: 7121703-003**

**Matrix: WATER**

**Date/Time Received: 12/17/2007 10:35**

TCL Volatiles plus Oxygenates

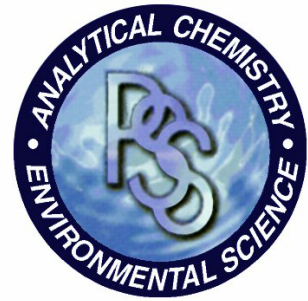
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                                       | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|---------------------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| Dichlorodifluoromethane               | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Chloromethane                         | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Vinyl Chloride                        | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| tert-Butyl alcohol                    | ND     | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Bromomethane                          | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Chloroethane                          | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Acetone                               | ND     | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Cyclohexane                           | ND     | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Trichlorofluoromethane                | ND     | ug/L  | 5         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 1,1-Dichloroethene                    | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Methylene Chloride                    | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| trans-1,2-Dichloroethene              | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Methyl-t-butyl ether                  | 2      | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 1,1-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 2-Butanone                            | ND     | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| cis-1,2-Dichloroethene                | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Chloroform                            | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 1,1,1-Trichloroethane                 | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 1,2-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Carbon Tetrachloride                  | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Benzene                               | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Dibromomethane                        | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 1,2-Dichloropropane                   | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Trichloroethene                       | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Carbon Disulfide                      | ND     | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Bromodichloromethane                  | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| cis-1,3-Dichloropropene               | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 4-Methyl-2-Pentanone                  | ND     | ug/L  | 5         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| trans-1,3-Dichloropropene             | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

**Sample ID: MW 1B**

**Date/Time Sampled: 12/14/2007 14:00**

**PSS Sample ID: 7121703-003**

**Matrix: WATER**

**Date/Time Received: 12/17/2007 10:35**

TCL Volatiles plus Oxygenates

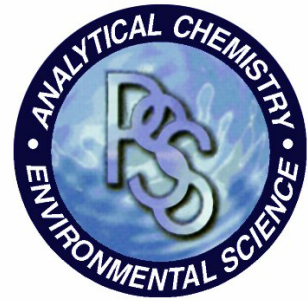
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                             | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| 1,1,2-Trichloroethane       | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Toluene                     | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 2-Hexanone                  | ND     | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 1,2-Dibromoethane           | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Dibromochloromethane        | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| tert-Amyl methyl ether      | ND     | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Bromoform                   | ND     | ug/L  | 5         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Tetrachloroethylene         | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Chlorobenzene               | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Ethylbenzene                | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| m,p-Xylenes                 | ND     | ug/L  | 2         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Styrene                     | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 1,1,2,2-Tetrachloroethane   | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| o-Xylene                    | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Isopropylbenzene            | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 1,3-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 1,4-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 1,2-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 1,2-Dibromo-3-Chloropropane | ND     | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| 1,2,4-Trichlorobenzene      | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |
| Naphthalene                 | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 13:08 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

**ENSR (MD), Columbia, MD**

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                        |   |                                   |
|------------------------|---|-----------------------------------|
| <b>Sample ID: MW 2</b> | <b>Date/Time Sampled: 12/14/2007 13:10</b>  | <b>PSS Sample ID: 7121703-004</b> |
| <b>Matrix: WATER</b>   | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

|                                    |                                |                             |
|------------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons - DRO | Analytical Method: SW846 8015B | Preparation Method: SW3510C |
|------------------------------------|--------------------------------|-----------------------------|

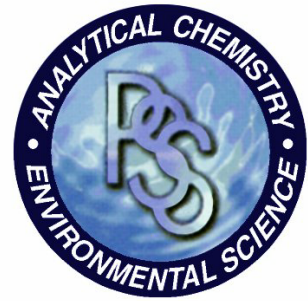
|                                 | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|---------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-DRO (Diesel Range Organics) | ND            | mg/L         | 0.5              |             | 1 12/19/07          | 12/19/07 16:38  | 1040           |

|                                  |                                |                             |
|----------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons-GRO | Analytical Method: SW846 8015B | Preparation Method: SW5030B |
|----------------------------------|--------------------------------|-----------------------------|

|                                   | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|-----------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-GRO (Gasoline Range Organics) | ND            | ug/L         | 100              |             | 1 12/22/07          | 12/22/07 19:34  | 1035           |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                        |   |                                   |
|------------------------|---|-----------------------------------|
| <b>Sample ID: MW 2</b> | <b>Date/Time Sampled: 12/14/2007 13:10</b>  | <b>PSS Sample ID: 7121703-004</b> |
| <b>Matrix: WATER</b>   | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

TCL Volatiles plus Oxygenates

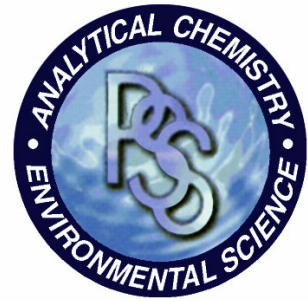
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                                       | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|---------------------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| Dichlorodifluoromethane               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Chloromethane                         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Vinyl Chloride                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| tert-Butyl alcohol                    | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Bromomethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Chloroethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Acetone                               | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Cyclohexane                           | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Trichlorofluoromethane                | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 1,1-Dichloroethene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Methylene Chloride                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| trans-1,2-Dichloroethene              | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Methyl-t-butyl ether                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 1,1-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 2-Butanone                            | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| cis-1,2-Dichloroethene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Chloroform                            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 1,1,1-Trichloroethane                 | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 1,2-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Carbon Tetrachloride                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Benzene                               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Dibromomethane                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 1,2-Dichloropropane                   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Trichloroethene                       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Carbon Disulfide                      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Bromodichloromethane                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| cis-1,3-Dichloropropene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 4-Methyl-2-Pentanone                  | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| trans-1,3-Dichloropropene             | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

Sample ID: MW 2

Date/Time Sampled: 12/14/2007 13:10

PSS Sample ID: 7121703-004

Matrix: WATER

Date/Time Received: 12/17/2007 10:35

TCL Volatiles plus Oxygenates

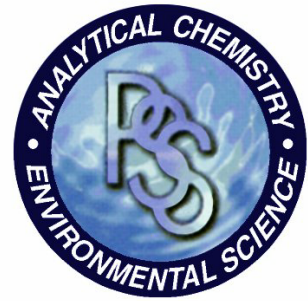
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                             | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| 1,1,2-Trichloroethane       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Toluene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 2-Hexanone                  | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 1,2-Dibromoethane           | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Dibromochloromethane        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| tert-Amyl methyl ether      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Bromoform                   | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Tetrachloroethylene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Chlorobenzene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Ethylbenzene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| m,p-Xylenes                 | ND     | ug/L  | 2         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Styrene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 1,1,2,2-Tetrachloroethane   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| o-Xylene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Isopropylbenzene            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 1,3-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 1,4-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 1,2-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 1,2-Dibromo-3-Chloropropane | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| 1,2,4-Trichlorobenzene      | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |
| Naphthalene                 | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 04:20 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

**ENSR (MD), Columbia, MD**

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| <b>Sample ID: MW 3A</b> | <b>Date/Time Sampled: 12/14/2007 14:30</b>  | <b>PSS Sample ID: 7121703-005</b> |
| <b>Matrix: WATER</b>    | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

|                                    |                                |                             |
|------------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons - DRO | Analytical Method: SW846 8015B | Preparation Method: SW3510C |
|------------------------------------|--------------------------------|-----------------------------|

|                                 | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|---------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-DRO (Diesel Range Organics) | ND            | mg/L         | 0.5              |             | 1 12/19/07          | 12/19/07 16:56  | 1040           |

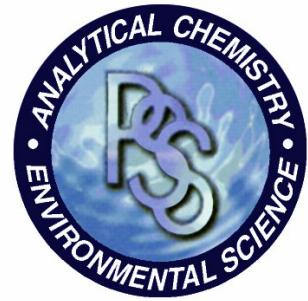
|                                  |                                |                             |
|----------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons-GRO | Analytical Method: SW846 8015B | Preparation Method: SW5030B |
|----------------------------------|--------------------------------|-----------------------------|

|                                   | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|-----------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-GRO (Gasoline Range Organics) | ND            | ug/L         | 100              |             | 1 12/22/07          | 12/22/07 20:01  | 1035           |



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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| <b>Sample ID: MW 3A</b> | <b>Date/Time Sampled: 12/14/2007 14:30</b>  | <b>PSS Sample ID: 7121703-005</b> |
| <b>Matrix: WATER</b>    | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

TCL Volatiles plus Oxygenates

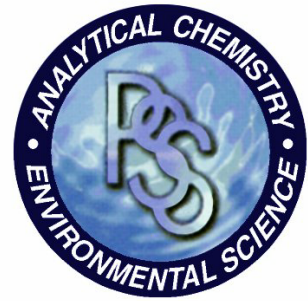
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                                       | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|---------------------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| Dichlorodifluoromethane               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Chloromethane                         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Vinyl Chloride                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| tert-Butyl alcohol                    | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Bromomethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Chloroethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Acetone                               | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Cyclohexane                           | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Trichlorofluoromethane                | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 1,1-Dichloroethene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Methylene Chloride                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| trans-1,2-Dichloroethene              | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Methyl-t-butyl ether                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 1,1-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 2-Butanone                            | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| cis-1,2-Dichloroethene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Chloroform                            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 1,1,1-Trichloroethane                 | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 1,2-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Carbon Tetrachloride                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Benzene                               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Dibromomethane                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 1,2-Dichloropropane                   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Trichloroethene                       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Carbon Disulfide                      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Bromodichloromethane                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| cis-1,3-Dichloropropene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 4-Methyl-2-Pentanone                  | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| trans-1,3-Dichloropropene             | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

Sample ID: MW 3A

Date/Time Sampled: 12/14/2007 14:30

PSS Sample ID: 7121703-005

Matrix: WATER

Date/Time Received: 12/17/2007 10:35

TCL Volatiles plus Oxygenates

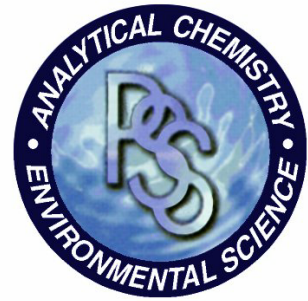
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                             | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| 1,1,2-Trichloroethane       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Toluene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 2-Hexanone                  | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 1,2-Dibromoethane           | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Dibromochloromethane        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| tert-Amyl methyl ether      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Bromoform                   | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Tetrachloroethylene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Chlorobenzene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Ethylbenzene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| m,p-Xylenes                 | ND     | ug/L  | 2         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Styrene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 1,1,2,2-Tetrachloroethane   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| o-Xylene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Isopropylbenzene            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 1,3-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 1,4-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 1,2-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 1,2-Dibromo-3-Chloropropane | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| 1,2,4-Trichlorobenzene      | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |
| Naphthalene                 | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 04:48 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| <b>Sample ID: MW 3B</b> | <b>Date/Time Sampled: 12/14/2007 14:50</b>  | <b>PSS Sample ID: 7121703-006</b> |
| <b>Matrix: WATER</b>    | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

|                                    |                                |                             |
|------------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons - DRO | Analytical Method: SW846 8015B | Preparation Method: SW3510C |
|------------------------------------|--------------------------------|-----------------------------|

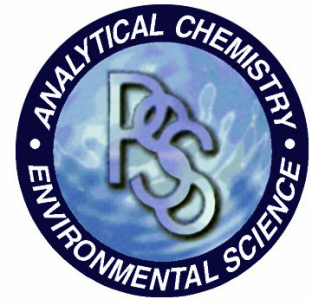
|                                 | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|---------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-DRO (Diesel Range Organics) | ND            | mg/L         | 0.5              |             | 1 12/19/07          | 12/19/07 17:15  | 1040           |

|                                  |                                |                             |
|----------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons-GRO | Analytical Method: SW846 8015B | Preparation Method: SW5030B |
|----------------------------------|--------------------------------|-----------------------------|

|                                   | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|-----------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-GRO (Gasoline Range Organics) | ND            | ug/L         | 100              |             | 1 12/22/07          | 12/23/07 00:42  | 1035           |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

**Sample ID: MW 3B**

**Date/Time Sampled: 12/14/2007 14:50**

**PSS Sample ID: 7121703-006**

**Matrix: WATER**

**Date/Time Received: 12/17/2007 10:35**

TCL Volatiles plus Oxygenates

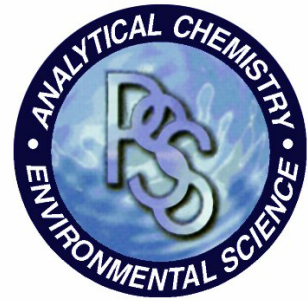
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                                       | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|---------------------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| Dichlorodifluoromethane               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Chloromethane                         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Vinyl Chloride                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| tert-Butyl alcohol                    | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Bromomethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Chloroethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Acetone                               | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Cyclohexane                           | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Trichlorofluoromethane                | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 1,1-Dichloroethene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Methylene Chloride                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| trans-1,2-Dichloroethene              | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Methyl-t-butyl ether                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 1,1-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 2-Butanone                            | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| cis-1,2-Dichloroethene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Chloroform                            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 1,1,1-Trichloroethane                 | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 1,2-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Carbon Tetrachloride                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Benzene                               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Dibromomethane                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 1,2-Dichloropropane                   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Trichloroethene                       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Carbon Disulfide                      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Bromodichloromethane                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| cis-1,3-Dichloropropene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 4-Methyl-2-Pentanone                  | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| trans-1,3-Dichloropropene             | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

**Sample ID: MW 3B**

**Date/Time Sampled: 12/14/2007 14:50**

**PSS Sample ID: 7121703-006**

**Matrix: WATER**

**Date/Time Received: 12/17/2007 10:35**

TCL Volatiles plus Oxygenates

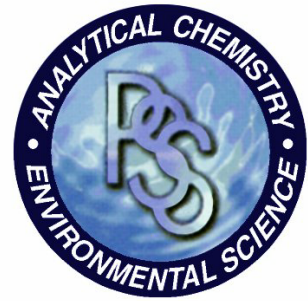
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                             | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| 1,1,2-Trichloroethane       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Toluene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 2-Hexanone                  | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 1,2-Dibromoethane           | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Dibromochloromethane        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| tert-Amyl methyl ether      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Bromoform                   | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Tetrachloroethylene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Chlorobenzene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Ethylbenzene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| m,p-Xylenes                 | ND     | ug/L  | 2         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Styrene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 1,1,2,2-Tetrachloroethane   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| o-Xylene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Isopropylbenzene            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 1,3-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 1,4-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 1,2-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 1,2-Dibromo-3-Chloropropane | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| 1,2,4-Trichlorobenzene      | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |
| Naphthalene                 | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:17 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

**ENSR (MD), Columbia, MD**

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| <b>Sample ID: MW 4A</b> | <b>Date/Time Sampled: 12/14/2007 11:10</b>  | <b>PSS Sample ID: 7121703-007</b> |
| <b>Matrix: WATER</b>    | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

|                                    |                                |                             |
|------------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons - DRO | Analytical Method: SW846 8015B | Preparation Method: SW3510C |
|------------------------------------|--------------------------------|-----------------------------|

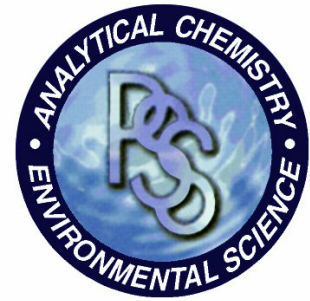
|                                 | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|---------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-DRO (Diesel Range Organics) | ND            | mg/L         | 0.5              |             | 1 12/19/07          | 12/19/07 17:15  | 1040           |

|                                  |                                |                             |
|----------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons-GRO | Analytical Method: SW846 8015B | Preparation Method: SW5030B |
|----------------------------------|--------------------------------|-----------------------------|

|                                   | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|-----------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-GRO (Gasoline Range Organics) | <b>1,700</b>  | ug/L         | 100              |             | 1 12/22/07          | 12/23/07 01:10  | 1035           |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| <b>Sample ID: MW 4A</b> | <b>Date/Time Sampled: 12/14/2007 11:10</b>  | <b>PSS Sample ID: 7121703-007</b> |
| <b>Matrix: WATER</b>    | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

TCL Volatiles plus Oxygenates

Analytical Method: SW846 8260B

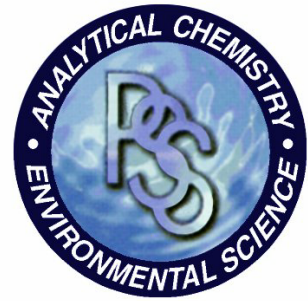
Preparation Method: SW5030B

*E - Exceeds calibration range, no further dilution to be performed.*

|                                       | Result       | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|---------------------------------------|--------------|-------|-----------|------|--------------|----------------|---------|
| Dichlorodifluoromethane               | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Chloromethane                         | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Vinyl Chloride                        | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| tert-Butyl alcohol                    | ND           | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Bromomethane                          | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Chloroethane                          | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Acetone                               | ND           | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Cyclohexane                           | ND           | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Trichlorofluoromethane                | ND           | ug/L  | 5         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,1-Dichloroethene                    | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Methylene Chloride                    | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| trans-1,2-Dichloroethene              | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Methyl-t-butyl ether                  | <b>7,600</b> | ug/L  | 1         | E    | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,1-Dichloroethane                    | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 2-Butanone                            | ND           | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| cis-1,2-Dichloroethene                | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Chloroform                            | <b>100</b>   | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,1,1-Trichloroethane                 | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,2-Dichloroethane                    | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Carbon Tetrachloride                  | <b>8</b>     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Benzene                               | <b>7</b>     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Dibromomethane                        | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,2-Dichloropropane                   | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Trichloroethene                       | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Carbon Disulfide                      | ND           | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Bromodichloromethane                  | <b>2</b>     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| cis-1,3-Dichloropropene               | ND           | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 4-Methyl-2-Pentanone                  | ND           | ug/L  | 5         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| <b>Sample ID: MW 4A</b> | <b>Date/Time Sampled: 12/14/2007 11:10</b>  | <b>PSS Sample ID: 7121703-007</b> |
| <b>Matrix: WATER</b>    | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

TCL Volatiles plus Oxygenates

Analytical Method: SW846 8260B

Preparation Method: SW5030B

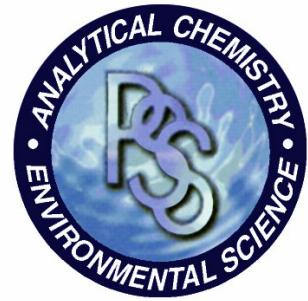
*E - Exceeds calibration range, no further dilution to be performed.*

|                             | Result     | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------|------------|-------|-----------|------|--------------|----------------|---------|
| trans-1,3-Dichloropropene   | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,1,2-Trichloroethane       | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Toluene                     | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 2-Hexanone                  | ND         | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,2-Dibromoethane           | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Dibromochloromethane        | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| tert-Amyl methyl ether      | <b>460</b> | ug/L  | 10        | E    | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Bromoform                   | ND         | ug/L  | 5         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Tetrachloroethylene         | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Chlorobenzene               | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Ethylbenzene                | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| m,p-Xylenes                 | ND         | ug/L  | 2         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Styrene                     | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,1,2,2-Tetrachloroethane   | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| o-Xylene                    | <b>6</b>   | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Isopropylbenzene            | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,3-Dichlorobenzene         | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,4-Dichlorobenzene         | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,2-Dichlorobenzene         | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,2-Dibromo-3-Chloropropane | ND         | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| 1,2,4-Trichlorobenzene      | ND         | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |
| Naphthalene                 | <b>2</b>   | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 14:36 | 1014    |



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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| <b>Sample ID: MW 4B</b> | <b>Date/Time Sampled: 12/14/2007 11:15</b>  | <b>PSS Sample ID: 7121703-008</b> |
| <b>Matrix: WATER</b>    | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

|                                    |                                |                             |
|------------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons - DRO | Analytical Method: SW846 8015B | Preparation Method: SW3510C |
|------------------------------------|--------------------------------|-----------------------------|

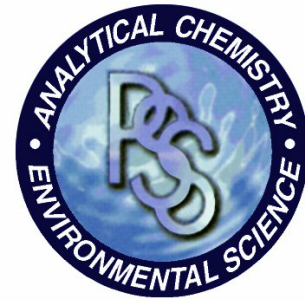
|                                 | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|---------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-DRO (Diesel Range Organics) | ND            | mg/L         | 0.5              |             | 1 12/19/07          | 12/19/07 17:34  | 1040           |

|                                  |                                |                             |
|----------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons-GRO | Analytical Method: SW846 8015B | Preparation Method: SW5030B |
|----------------------------------|--------------------------------|-----------------------------|

|                                   | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|-----------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-GRO (Gasoline Range Organics) | ND            | ug/L         | 100              |             | 1 12/22/07          | 12/23/07 01:38  | 1035           |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

**Sample ID: MW 4B**

**Date/Time Sampled: 12/14/2007 11:15**

**PSS Sample ID: 7121703-008**

**Matrix: WATER**

**Date/Time Received: 12/17/2007 10:35**

TCL Volatiles plus Oxygenates

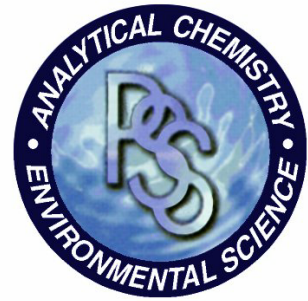
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                                       | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|---------------------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| Dichlorodifluoromethane               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Chloromethane                         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Vinyl Chloride                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| tert-Butyl alcohol                    | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Bromomethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Chloroethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Acetone                               | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Cyclohexane                           | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Trichlorofluoromethane                | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 1,1-Dichloroethene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Methylene Chloride                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| trans-1,2-Dichloroethene              | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Methyl-t-butyl ether                  | 6      | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 1,1-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 2-Butanone                            | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| cis-1,2-Dichloroethene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Chloroform                            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 1,1,1-Trichloroethane                 | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 1,2-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Carbon Tetrachloride                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Benzene                               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Dibromomethane                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 1,2-Dichloropropane                   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Trichloroethene                       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Carbon Disulfide                      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Bromodichloromethane                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| cis-1,3-Dichloropropene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 4-Methyl-2-Pentanone                  | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| trans-1,3-Dichloropropene             | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

**Sample ID: MW 4B**

**Date/Time Sampled: 12/14/2007 11:15**

**PSS Sample ID: 7121703-008**

**Matrix: WATER**

**Date/Time Received: 12/17/2007 10:35**

TCL Volatiles plus Oxygenates

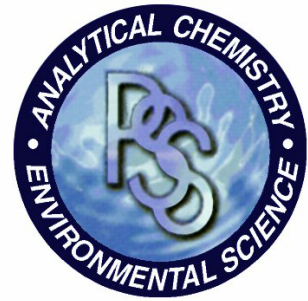
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                             | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| 1,1,2-Trichloroethane       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Toluene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 2-Hexanone                  | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 1,2-Dibromoethane           | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Dibromochloromethane        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| tert-Amyl methyl ether      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Bromoform                   | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Tetrachloroethylene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Chlorobenzene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Ethylbenzene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| m,p-Xylenes                 | ND     | ug/L  | 2         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Styrene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 1,1,2,2-Tetrachloroethane   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| o-Xylene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Isopropylbenzene            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 1,3-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 1,4-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 1,2-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 1,2-Dibromo-3-Chloropropane | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| 1,2,4-Trichlorobenzene      | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |
| Naphthalene                 | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 05:45 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

**ENSR (MD), Columbia, MD**

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                        |   |                                   |
|------------------------|---|-----------------------------------|
| <b>Sample ID: MW 5</b> | <b>Date/Time Sampled: 12/14/2007 12:35</b>  | <b>PSS Sample ID: 7121703-009</b> |
| <b>Matrix: WATER</b>   | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

|                                    |                                |                             |
|------------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons - DRO | Analytical Method: SW846 8015B | Preparation Method: SW3510C |
|------------------------------------|--------------------------------|-----------------------------|

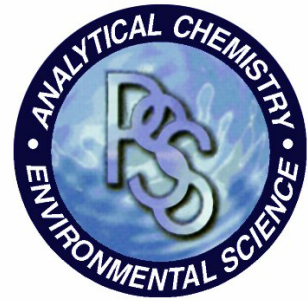
|                                 | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|---------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-DRO (Diesel Range Organics) | ND            | mg/L         | 0.5              |             | 1 12/19/07          | 12/19/07 17:34  | 1040           |

|                                  |                                |                             |
|----------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons-GRO | Analytical Method: SW846 8015B | Preparation Method: SW5030B |
|----------------------------------|--------------------------------|-----------------------------|

|                                   | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|-----------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-GRO (Gasoline Range Organics) | ND            | ug/L         | 100              |             | 1 12/22/07          | 12/23/07 02:06  | 1035           |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

**Sample ID: MW 5**

**Date/Time Sampled: 12/14/2007 12:35**

**PSS Sample ID: 7121703-009**

**Matrix: WATER**

**Date/Time Received: 12/17/2007 10:35**

TCL Volatiles plus Oxygenates

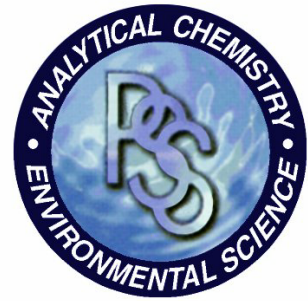
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                                       | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|---------------------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| Dichlorodifluoromethane               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Chloromethane                         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Vinyl Chloride                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| tert-Butyl alcohol                    | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Bromomethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Chloroethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Acetone                               | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Cyclohexane                           | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Trichlorofluoromethane                | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 1,1-Dichloroethene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Methylene Chloride                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| trans-1,2-Dichloroethene              | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Methyl-t-butyl ether                  | 5      | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 1,1-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 2-Butanone                            | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| cis-1,2-Dichloroethene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Chloroform                            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 1,1,1-Trichloroethane                 | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 1,2-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Carbon Tetrachloride                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Benzene                               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Dibromomethane                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 1,2-Dichloropropane                   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Trichloroethene                       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Carbon Disulfide                      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Bromodichloromethane                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| cis-1,3-Dichloropropene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 4-Methyl-2-Pentanone                  | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| trans-1,3-Dichloropropene             | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

Sample ID: MW 5

Date/Time Sampled: 12/14/2007 12:35

PSS Sample ID: 7121703-009

Matrix: WATER

Date/Time Received: 12/17/2007 10:35

TCL Volatiles plus Oxygenates

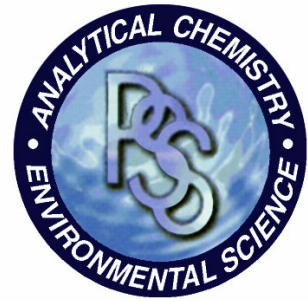
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                             | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| 1,1,2-Trichloroethane       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Toluene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 2-Hexanone                  | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 1,2-Dibromoethane           | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Dibromochloromethane        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| tert-Amyl methyl ether      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Bromoform                   | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Tetrachloroethylene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Chlorobenzene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Ethylbenzene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| m,p-Xylenes                 | ND     | ug/L  | 2         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Styrene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 1,1,2,2-Tetrachloroethane   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| o-Xylene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Isopropylbenzene            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 1,3-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 1,4-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 1,2-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 1,2-Dibromo-3-Chloropropane | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| 1,2,4-Trichlorobenzene      | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |
| Naphthalene                 | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:14 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

**ENSR (MD), Columbia, MD**

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                        |   |                                   |
|------------------------|---|-----------------------------------|
| <b>Sample ID: MW 6</b> | <b>Date/Time Sampled: 12/14/2007 12:50</b>  | <b>PSS Sample ID: 7121703-010</b> |
| <b>Matrix: WATER</b>   | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

|                                    |                                |                             |
|------------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons - DRO | Analytical Method: SW846 8015B | Preparation Method: SW3510C |
|------------------------------------|--------------------------------|-----------------------------|

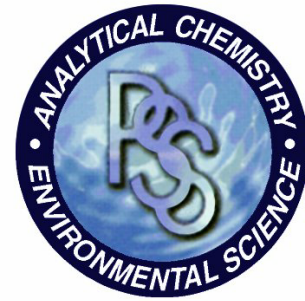
|                                 | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|---------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-DRO (Diesel Range Organics) | ND            | mg/L         | 0.5              |             | 1 12/19/07          | 12/19/07 17:52  | 1040           |

|                                  |                                |                             |
|----------------------------------|--------------------------------|-----------------------------|
| Total Petroleum Hydrocarbons-GRO | Analytical Method: SW846 8015B | Preparation Method: SW5030B |
|----------------------------------|--------------------------------|-----------------------------|

|                                   | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|-----------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-GRO (Gasoline Range Organics) | <b>600</b>    | ug/L         | 100              |             | 1 12/22/07          | 12/23/07 02:34  | 1035           |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

Sample ID: MW 6

Date/Time Sampled: 12/14/2007 12:50

PSS Sample ID: 7121703-010

Matrix: WATER

Date/Time Received: 12/17/2007 10:35

TCL Volatiles plus Oxygenates

Analytical Method: SW846 8260B

Preparation Method: SW5030B

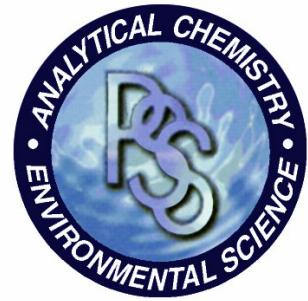
*E - Exceeds calibration range, no further dilution to be performed.*

|                                       | Result       | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|---------------------------------------|--------------|-------|-----------|------|--------------|----------------|---------|
| Dichlorodifluoromethane               | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Chloromethane                         | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Vinyl Chloride                        | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| tert-Butyl alcohol                    | <b>330</b>   | ug/L  | 10        | E    | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Bromomethane                          | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Chloroethane                          | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Acetone                               | ND           | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Cyclohexane                           | ND           | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Trichlorofluoromethane                | ND           | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,1-Dichloroethene                    | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Methylene Chloride                    | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| trans-1,2-Dichloroethene              | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Methyl-t-butyl ether                  | <b>3,800</b> | ug/L  | 1         | E    | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,1-Dichloroethane                    | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 2-Butanone                            | ND           | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| cis-1,2-Dichloroethene                | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Chloroform                            | <b>5</b>     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,1,1-Trichloroethane                 | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,2-Dichloroethane                    | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Carbon Tetrachloride                  | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Benzene                               | <b>2</b>     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Dibromomethane                        | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,2-Dichloropropane                   | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Trichloroethene                       | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Carbon Disulfide                      | ND           | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Bromodichloromethane                  | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| cis-1,3-Dichloropropene               | ND           | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 4-Methyl-2-Pentanone                  | ND           | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |



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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

**Sample ID: MW 6**

**Date/Time Sampled: 12/14/2007 12:50**

**PSS Sample ID: 7121703-010**

**Matrix: WATER**

**Date/Time Received: 12/17/2007 10:35**

TCL Volatiles plus Oxygenates

Analytical Method: SW846 8260B

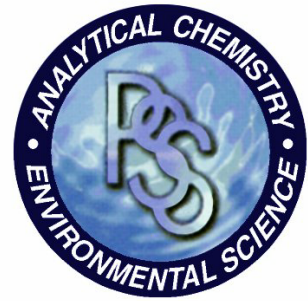
Preparation Method: SW5030B

*E - Exceeds calibration range, no further dilution to be performed.*

|                             | Result     | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------|------------|-------|-----------|------|--------------|----------------|---------|
| trans-1,3-Dichloropropene   | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,1,2-Trichloroethane       | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Toluene                     | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 2-Hexanone                  | ND         | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,2-Dibromoethane           | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Dibromochloromethane        | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| tert-Amyl methyl ether      | <b>350</b> | ug/L  | 10        | E    | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Bromoform                   | ND         | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Tetrachloroethylene         | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Chlorobenzene               | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Ethylbenzene                | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| m,p-Xylenes                 | ND         | ug/L  | 2         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Styrene                     | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,1,2,2-Tetrachloroethane   | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| o-Xylene                    | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Isopropylbenzene            | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,3-Dichlorobenzene         | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,4-Dichlorobenzene         | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,2-Dichlorobenzene         | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,2-Dibromo-3-Chloropropane | ND         | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| 1,2,4-Trichlorobenzene      | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |
| Naphthalene                 | ND         | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 06:43 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                        |   |                                   |
|------------------------|---|-----------------------------------|
| <b>Sample ID: MW 7</b> | <b>Date/Time Sampled: 12/14/2007 15:15</b>  | <b>PSS Sample ID: 7121703-011</b> |
| <b>Matrix: WATER</b>   | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

Total Petroleum Hydrocarbons - DRO      Analytical Method: SW846 8015B      Preparation Method: SW3510C

|                                 | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|---------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-DRO (Diesel Range Organics) | ND            | mg/L         | 0.5              |             | 1 12/19/07          | 12/19/07 17:52  | 1040           |

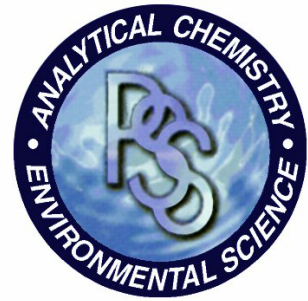
Total Petroleum Hydrocarbons-GRO      Analytical Method: SW846 8015B      Preparation Method: SW5030B

|                                   | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|-----------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-GRO (Gasoline Range Organics) | ND            | ug/L         | 100              |             | 1 12/22/07          | 12/23/07 03:02  | 1035           |



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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

**Sample ID: MW 7**

**Date/Time Sampled: 12/14/2007 15:15**

**PSS Sample ID: 7121703-011**

**Matrix: WATER**

**Date/Time Received: 12/17/2007 10:35**

TCL Volatiles plus Oxygenates

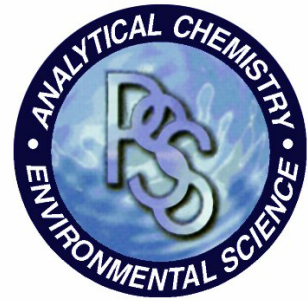
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                             | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| 1,1,2-Trichloroethane       | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| Toluene                     | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| 2-Hexanone                  | ND     | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| 1,2-Dibromoethane           | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| Dibromochloromethane        | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| tert-Amyl methyl ether      | ND     | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| Bromoform                   | ND     | ug/L  | 5         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| Tetrachloroethylene         | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| Chlorobenzene               | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| Ethylbenzene                | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| m,p-Xylenes                 | ND     | ug/L  | 2         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| Styrene                     | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| 1,1,2,2-Tetrachloroethane   | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| o-Xylene                    | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| Isopropylbenzene            | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| 1,3-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| 1,4-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| 1,2-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| 1,2-Dibromo-3-Chloropropane | ND     | ug/L  | 10        |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| 1,2,4-Trichlorobenzene      | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |
| Naphthalene                 | ND     | ug/L  | 1         |      | 1 12/20/07   | 12/20/07 16:33 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| <b>Sample ID: MW 8A</b> | <b>Date/Time Sampled: 12/14/2007 10:25</b>  | <b>PSS Sample ID: 7121703-012</b> |
| <b>Matrix: WATER</b>    | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

Total Petroleum Hydrocarbons - DRO      Analytical Method: SW846 8015B      Preparation Method: SW3510C

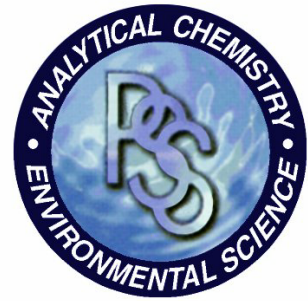
|                                 | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|---------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-DRO (Diesel Range Organics) | ND            | mg/L         | 0.5              |             | 1 12/19/07          | 12/19/07 18:11  | 1040           |

Total Petroleum Hydrocarbons-GRO      Analytical Method: SW846 8015B      Preparation Method: SW5030B

|                                   | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|-----------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-GRO (Gasoline Range Organics) | ND            | ug/L         | 100              |             | 1 12/22/07          | 12/23/07 03:30  | 1035           |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

**Sample ID: MW 8A**

**Date/Time Sampled: 12/14/2007 10:25**

**PSS Sample ID: 7121703-012**

**Matrix: WATER**

**Date/Time Received: 12/17/2007 10:35**

TCL Volatiles plus Oxygenates

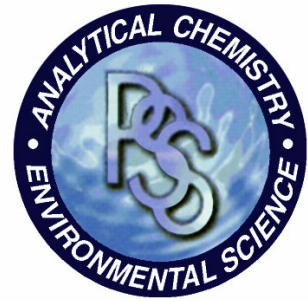
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                                       | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|---------------------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| Dichlorodifluoromethane               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Chloromethane                         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Vinyl Chloride                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| tert-Butyl alcohol                    | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Bromomethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Chloroethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Acetone                               | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Cyclohexane                           | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Trichlorofluoromethane                | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 1,1-Dichloroethene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Methylene Chloride                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| trans-1,2-Dichloroethene              | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Methyl-t-butyl ether                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 1,1-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 2-Butanone                            | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| cis-1,2-Dichloroethene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Chloroform                            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 1,1,1-Trichloroethane                 | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 1,2-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Carbon Tetrachloride                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Benzene                               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Dibromomethane                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 1,2-Dichloropropane                   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Trichloroethene                       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Carbon Disulfide                      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Bromodichloromethane                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| cis-1,3-Dichloropropene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 4-Methyl-2-Pentanone                  | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| trans-1,3-Dichloropropene             | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

Sample ID: MW 8A

Date/Time Sampled: 12/14/2007 10:25

PSS Sample ID: 7121703-012

Matrix: WATER

Date/Time Received: 12/17/2007 10:35

TCL Volatiles plus Oxygenates

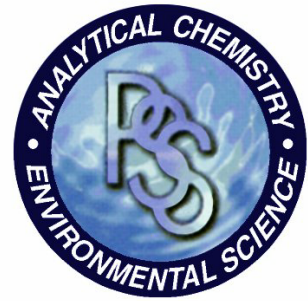
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                             | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| 1,1,2-Trichloroethane       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Toluene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 2-Hexanone                  | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 1,2-Dibromoethane           | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Dibromochloromethane        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| tert-Amyl methyl ether      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Bromoform                   | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Tetrachloroethylene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Chlorobenzene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Ethylbenzene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| m,p-Xylenes                 | ND     | ug/L  | 2         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Styrene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 1,1,2,2-Tetrachloroethane   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| o-Xylene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Isopropylbenzene            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 1,3-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 1,4-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 1,2-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 1,2-Dibromo-3-Chloropropane | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| 1,2,4-Trichlorobenzene      | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |
| Naphthalene                 | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 07:11 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| <b>Sample ID: MW 8B</b> | <b>Date/Time Sampled: 12/14/2007 09:45</b>  | <b>PSS Sample ID: 7121703-013</b> |
| <b>Matrix: WATER</b>    | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

Total Petroleum Hydrocarbons - DRO      Analytical Method: SW846 8015B      Preparation Method: SW3510C

|                                 | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|---------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-DRO (Diesel Range Organics) | ND            | mg/L         | 0.5              |             | 1 12/19/07          | 12/19/07 18:11  | 1040           |

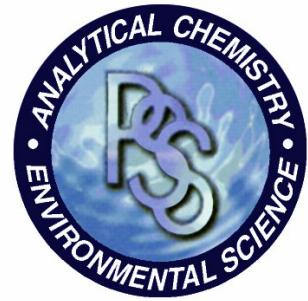
Total Petroleum Hydrocarbons-GRO      Analytical Method: SW846 8015B      Preparation Method: SW5030B

|                                   | <u>Result</u> | <u>Units</u> | <u>Rep Limit</u> | <u>Flag</u> | <u>Dil Prepared</u> | <u>Analyzed</u> | <u>Analyst</u> |
|-----------------------------------|---------------|--------------|------------------|-------------|---------------------|-----------------|----------------|
| TPH-GRO (Gasoline Range Organics) | ND            | ug/L         | 100              |             | 1 12/22/07          | 12/23/07 03:58  | 1035           |



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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

|                         |   |                                   |
|-------------------------|---|-----------------------------------|
| <b>Sample ID: MW 8B</b> | <b>Date/Time Sampled: 12/14/2007 09:45</b>  | <b>PSS Sample ID: 7121703-013</b> |
| <b>Matrix: WATER</b>    | <b>Date/Time Received: 12/17/2007 10:35</b> |                                   |

TCL Volatiles plus Oxygenates

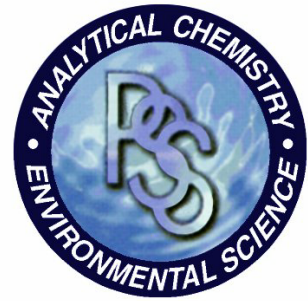
Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                                       | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|---------------------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| Dichlorodifluoromethane               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Chloromethane                         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Vinyl Chloride                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| tert-Butyl alcohol                    | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Bromomethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Chloroethane                          | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Acetone                               | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Cyclohexane                           | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Trichlorofluoromethane                | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 1,1-Dichloroethene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Methylene Chloride                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| trans-1,2-Dichloroethene              | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Methyl-t-butyl ether                  | 15     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 1,1-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 2-Butanone                            | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| cis-1,2-Dichloroethene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Chloroform                            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 1,1,1-Trichloroethane                 | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 1,2-Dichloroethane                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Carbon Tetrachloride                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Benzene                               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Dibromomethane                        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 1,2-Dichloropropane                   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Trichloroethene                       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Carbon Disulfide                      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Bromodichloromethane                  | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| cis-1,3-Dichloropropene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 4-Methyl-2-Pentanone                  | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| trans-1,3-Dichloropropene             | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 7121703

ENSR (MD), Columbia, MD

December 24, 2007

Project Name: 7-11 Fallston

Project Location: MD

Project ID: 06230-859

**Sample ID: MW 8B**

**Date/Time Sampled: 12/14/2007 09:45**

**PSS Sample ID: 7121703-013**

**Matrix: WATER**

**Date/Time Received: 12/17/2007 10:35**

TCL Volatiles plus Oxygenates

Analytical Method: SW846 8260B

Preparation Method: SW5030B

|                             | Result | Units | Rep Limit | Flag | Dil Prepared | Analyzed       | Analyst |
|-----------------------------|--------|-------|-----------|------|--------------|----------------|---------|
| 1,1,2-Trichloroethane       | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Toluene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 2-Hexanone                  | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 1,2-Dibromoethane           | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Dibromochloromethane        | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| tert-Amyl methyl ether      | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Bromoform                   | ND     | ug/L  | 5         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Tetrachloroethylene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Chlorobenzene               | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Ethylbenzene                | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| m,p-Xylenes                 | ND     | ug/L  | 2         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Styrene                     | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 1,1,2,2-Tetrachloroethane   | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| o-Xylene                    | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Isopropylbenzene            | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 1,3-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 1,4-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 1,2-Dichlorobenzene         | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 1,2-Dibromo-3-Chloropropane | ND     | ug/L  | 10        |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| 1,2,4-Trichlorobenzene      | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |
| Naphthalene                 | ND     | ug/L  | 1         |      | 1 12/19/07   | 12/20/07 07:40 | 1014    |



# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

www.phaseonline.com  
email: info@phaseonline.com

## PHASE SEPARATION SCIENCE, INC.

|   |  |                                   |  |  |  |  |  |
|---|--|-----------------------------------|--|--|--|--|--|
| <b>1</b> CLIENT: <u>ENR</u>                                   |  | PHONE NO.: <u>410 884-9280</u>    |  | PSS Project #: <u>7121703</u>                    |  | PAGE <u>1</u> OF <u>2</u>                              |  |
| PROJECT MGR: <u>John Carzici</u>                              |  | FAX NO.: ( )                      |  | Preservatives Used:                              |  | No. CONTAINERS   |  |
| EMATE: <u>Tech: Mike Parsons 413-280-2673</u>                 |  | PROJECT NAME: <u>711 Fallston</u> |  | Analysis Required: <u>3</u>                      |  | SAMPLE TYPE: <u>G</u>                                  |  |
| PROJECT NO.: <u>06230-889</u>                                 |  | P.O. NO.:                         |  | Required Turnaround Time:                        |  | REMARKS  |  |
| SITE LOCATION: <u>MD</u>                                      |  | DATE: <u>12/24/07</u>             |  | <input checked="" type="checkbox"/> 5-Day (Std.) |  | Sample Condition Upon Receipt: <u>COOLER + ICE .40</u> |  |
| TIME: <u>1705</u>   |  | MATRIX: <u>H2O</u>                |  | <input type="checkbox"/> 3-Day                   |  | Shipping Carrier: <u>FXND</u>                          |  |
| TIME: <u>1350</u>   |  | TIME: <u>1400</u>                 |  | <input type="checkbox"/> Next Day                |  | Shipping Ticket No.: <u>N/A</u>                        |  |
| TIME: <u>1310</u>   |  | TIME: <u>1430</u>                 |  | <input type="checkbox"/> Emergency               |  | Special Instructions:                                  |  |
| TIME: <u>1430</u>   |  | TIME: <u>1450</u>                 |  | Data Deliverables Required:                      |  |  |  |
| TIME: <u>1110</u>   |  | TIME: <u>1115</u>                 |  |  |  |  |  |
| TIME: <u>1735</u>   |  | TIME: <u>1250</u>                 |  |  |  |  |  |
| TIME: <u>1250</u>   |  | TIME:                             |  |  |  |  |  |
| <b>5</b> Collected / Relinquished By: (1) <u>Mike Parsons</u> |  | Date: <u>12/24/07</u>             |  | Time: <u>1055</u>                                |  |  |  |
| Relinquished By: (2)  |  | Date:                             |  | Time:  |  |  |  |
| Relinquished By: (3)  |  | Date:                             |  | Time:  |  |  |  |
| Collected / Relinquished By: (4)                              |  | Date:                             |  | Time:  |  |  |  |

6630 Baltimore National Pike • Route 40 West • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047 • Fax (410) 788-8723  
 The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.



# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

www.phaseonline.com  
email: info@phaseonline.com

## PHASE SEPARATION SCIENCE, INC.

| 1 CLIENT: <b>ESR</b> PHONE NO.: (410) 864-0780         |                       | PSS Project #: <b>7121703</b>                      |                    | PAGE <b>2</b> OF <b>2</b>   |
|--|-----------------------|--|--------------------|---|
| PROJECT MGR: <b>John Carzeri</b> FAX NO.: ( )          |                       | Preservatives Used: <b>None</b>                    |                    |   |
| EMAIL: <b>Tech: Mike Parsons</b> <b>410-280-2613</b>   |                       | Analysis Required: <b>Full IBC 8260 + expanded</b> |                    |   |
| PROJECT NAME: <b>7-11 Fallston</b>                     |                       | SAMPLE TYPE: <b>C = COMP</b>                       |                    |   |
| SITE LOCATION: <b>MD</b>                               |                       | G = GRAB   |                    |   |
| PROJECT NO.: <b>06230-459</b> P.O. NO.:                |                       | No. CONTAINERS                                     |                    |   |
| LAB NO.  | SAMPLE IDENTIFICATION | DATE   | TIME               | MATRIX  |
| 11   | NW 7                  | 12/14/01   | 1515               | H2O   |
| 12   | NW 8A                 | }  | 1025               | }   |
| 13   | NW 8B                 |  | 0945               |   |
| 4  |                       |  |                    |   |
| 5 Collected / Relinquished By: (1) <b>Mike Parsons</b> |                       | Time   | Received By:       | Requested Turnaround Time: <input type="checkbox"/> 5-Day (Std.) <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Other |
| Relinquished By: (2) <b>Mike Parsons</b>               |                       | 12/17/01 1055                                      | <b>[Signature]</b> |   |
| Relinquished By: (3)                                   |                       | Date   | Received By:       | Data Deliverables Required:   |
| Collected / Relinquished By: (4)                       |                       | Date   | Received By:       | Shipping Carrier: <b>Hand</b>   |
|  |                       | Date   | Received By:       | Shipping Ticket No.: <b>N/A</b>   |
|  |                       | Date   | Received By:       | Special Instructions:   |

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# Phase Separation Science, Inc

## Sample Receipt Checklist

|                       |               |                      |                        |
|-----------------------|---------------|----------------------|------------------------|
| <b>Wo Number</b>      | 7121703       | <b>Received By</b>   | Rachel Davis           |
| <b>Client Name</b>    | ENSR (MD)     | <b>Date Received</b> | 12/17/2007 10:35:00 AM |
| <b>Project Name</b>   | 7-11 Fallston | <b>Delivered_By</b>  | Delivery By Client     |
| <b>Project Number</b> | 06230-859     | <b>Tracking No</b>   | Not Applicable         |

### Packaging

|                   |        |                    |             |
|-------------------|--------|--------------------|-------------|
| No. of Coolers    | 1      | Ice                | <u>DPES</u> |
| Custody Seals     | Absent | Temp (deg C)       | 4           |
| Seal Signed/Dated | No     | Temp Blank Present | No          |

### Documentation

COC agrees with sample labels?  Yes or  No  
 Chain of Custody (COC)  Yes or  No

### Sample Container

|                                     |   |                              |   |
|-------------------------------------|---|------------------------------|---|
| Appropriate for Specified Analysis? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Custody Seal                 | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| Intact?                             | <input checked="" type="checkbox"/> <input type="checkbox"/>        | Custody Seal Intact?         | <input type="checkbox"/> <input checked="" type="checkbox"/>        |
| Labeled and Labels Legible          | <input checked="" type="checkbox"/> <input type="checkbox"/>        | Signed / Dated               | <input type="checkbox"/> <input checked="" type="checkbox"/>        |
| Total No of Samples Received        | 13  | Total No Containers Received | 65  |

### Preservation (Waters)

|                                      |         | Yes                                 | No                       | N/A   |
|--------------------------------------|---------|-------------------------------------|--------------------------|---|
| Metals                               | (pH<2)  | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/>           |
| Cyanides                             | (pH>12) | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/>           |
| Sulfide                              | (pH>9)  | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/>           |
| TOC, COD, Phenols                    | (pH<2)  | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/>           |
| TOX, TKN, NH3, Total Phos            | (pH<2)  | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/>           |
| VOC, BTEX (VOA Vials Rcvd Preserved) | (pH<2)  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> <u>AD</u> |
| Do VOA vials have zero headspace?    |         | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                      |

### Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling.

EDD: 4 EQUIS edd files: EQUIS Lab Batch, EQUIS LabSMP, EQUIS Lab Test - Test Import F and Equis Lab Results aif 8/24/07

Checklist Completed By: [Signature]

Date: 12/17/07

PM Review and Approval: [Signature]

Date: 12/17/07

**APPENDIX B**  
**MTBE-Impacted Treatability Study Report**  
**September 4, 2006**



503.254.4331  
fax 503.254.1722  
[www.enzymetech.com](http://www.enzymetech.com)  
5228 NE 158th Ave.  
Portland, OR 97230

September 4, 2006

Mr. Jason Fronzcek  
ENSR International, Inc.  
9160 Red Branch Road  
Suite E8  
Columbia, MD 21045

**RE: MTBE-IMPACTED TREATABILITY STUDY REPORT**

Dear Jason:

As requested, Enzyme Technologies, Inc. (ETEC) conducted a groundwater treatability study for ENSR International on a MTBE-impacted groundwater sample from a gas station site. This report summarizes the results of our bench-scale treatability study, which was designed to evaluate the effectiveness of in situ bioremediation as a remedial strategy at this site. Table 1 summarizes the data collected during this study.

**Treatability Test Procedure**

ETEC received eight 1-liter amber-glass containers from ENSR. Upon receiving the containers, they were stored in a refrigeration unit at 40 degrees Fahrenheit until test initiation. Groundwater used for the study was collected from the most impacted monitoring well onsite.

The treatability study consisted of three flasks – flask A (bioaugmented: bacteria and nutrient addition), flask B (live-control: no additions), and flask C (killed-control) to measure contaminant reductions due to microbial degradation and volatilization. Each 1-liter flask contained 800 mL of impacted water. Nutrient salts and 15 mL of a proven TPH-, BTEX-, and MTBE-degrading bacterial consortium were added to the bioaugmented flask (flask A). No additions were made to the live-control flask (flask B). The addition of KOH was made to the killed-control flask (flask C) to raise the pH to higher than 12, eliminating microbial activity. All flasks were sealed with rubber stoppers to minimize volatilization of contaminants and agitated on a shaker table to enhance dissolved oxygen transfer.

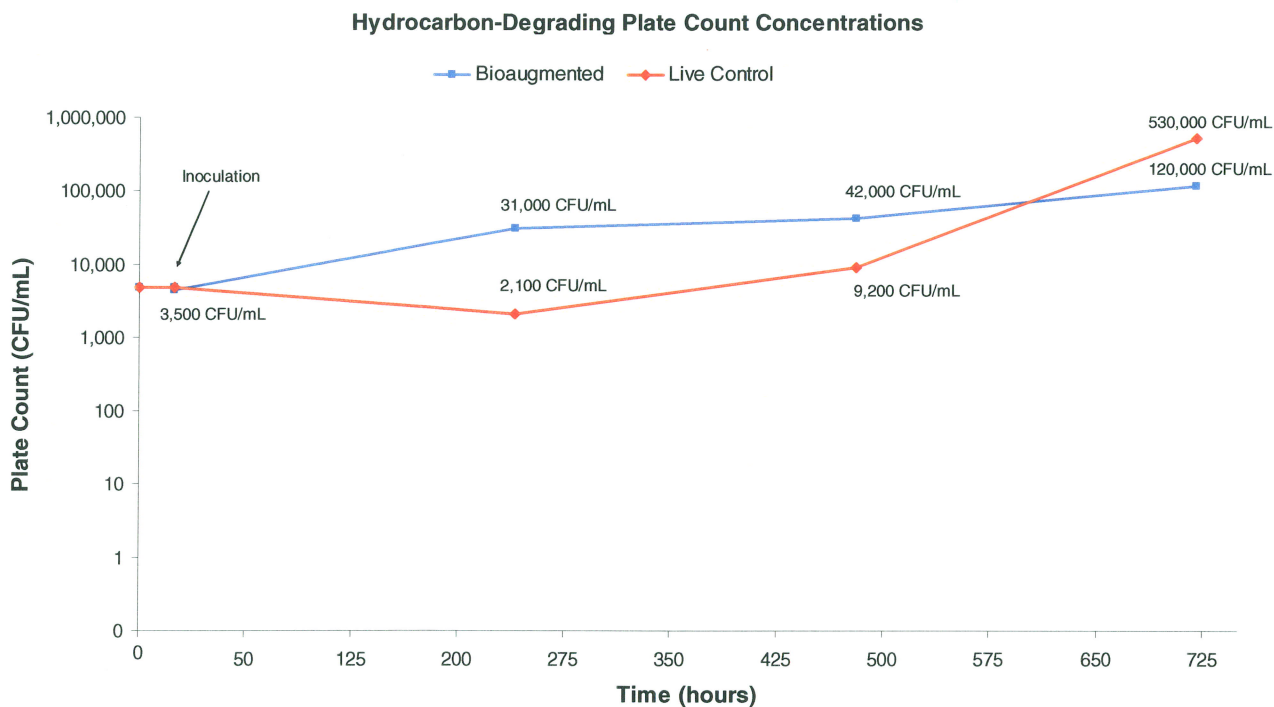
**Sample Collection Details**

ETEC collected baseline, 240-hour (day 10), 420-hour (day 20), and 720-hour (day 30) samples from all flasks. Samples were collected in two 40-mL glass vials and sent to North Creek Analytical, Inc. for BTEX, MTBE, and naphthalene analysis. Live samples were preserved with HCl to a pH ~ 2 to inhibit microbial activity after collection.

Samples were also collected to quantify native bacterial populations in the baseline sample as well as the growth of hydrocarbon-degrading bacteria over the test period. ETEC collected a baseline sample, post-inoculation sample, 240-hour (day 10), 480-hour (day 20), and 720-hour (day 30) samples from the bioaugmented flask (flask A) and the live-control (flask B). Hydrocarbon-degrading bacterial plate count samples were collected in sterile, unpreserved 40-mL vials and delivered to Biologic Resources, LLC for analysis.

### Bacterial Plate Count Results

In order to track biological activity within the bioaugmented flask, plate count concentrations were analyzed during the test. The collected data is shown in the figure below.



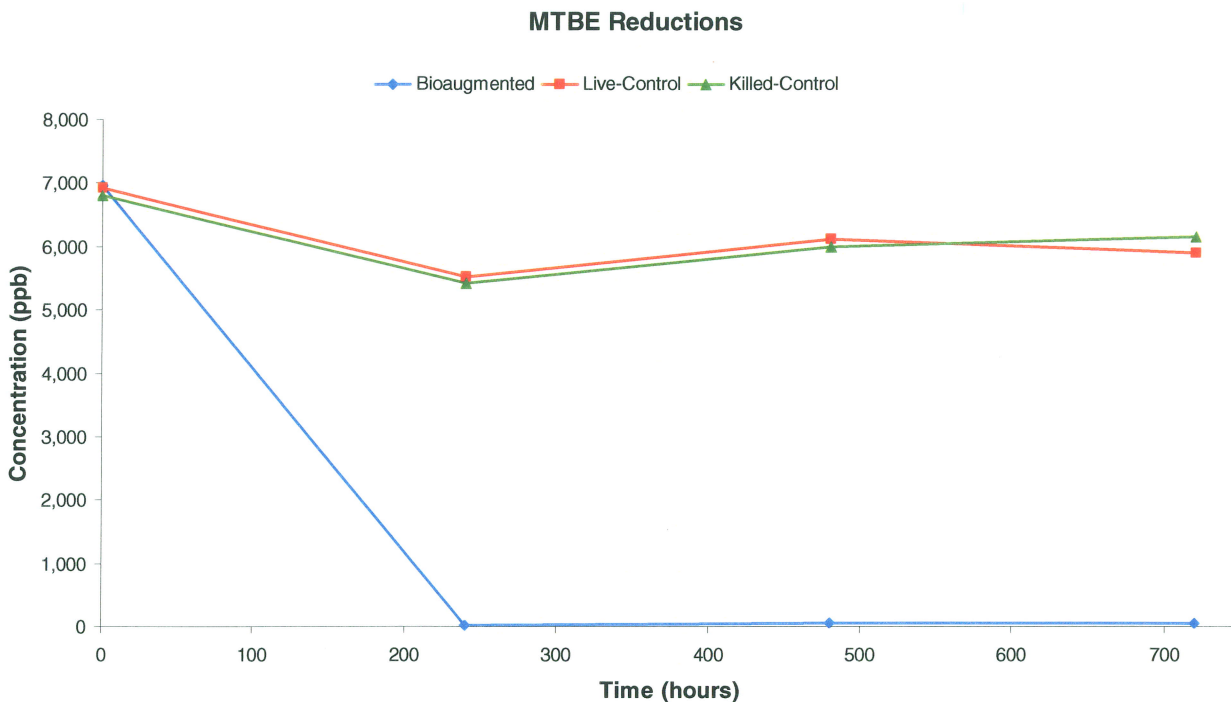
Baseline plate counts revealed a native hydrocarbon-degrading bacterial population of 3,500 CFU/mL. After collecting the baseline sample, 15 mL of ETEC's EZT-A2™ bacterial consortium and nutrients were added to the bioaugmented flask (flask A). The post-inoculation bacterial population within the flask showed a decrease in CFU/mL, which shows that a small and realistic number of hydrocarbon-degrading bacteria were added. After 10 days, the hydrocarbon-degrading bacterial population in the bioaugmented flask (flask A) increased to 31,000 CFU/mL, corresponding with the depletion of the MTBE food source. The hydrocarbon-degrading population eventually decreased to 120,000 CFU/mL at the 720-hour sampling event.

Growth in the live-control flask (flask B) did not show a noticeable increase during the first 10 days of the test, but exhibited growth over the remainder of the testing period. It reached a maximum concentration of 530,000 CFU/mL after 720 hours. When oxygen is applied to a contaminated groundwater sample, a lag phase is common as the native microbes adjust to using the MTBE as their food and carbon source.



## MTBE Reductions

MTBE reduction results for the entire treatability test are included in the following figure.



In the bioaugmented flask (flask A), MTBE concentrations were essentially reduced to less than 100 ppb in 10 days (99% reduction). At hour 480 and hour 720, a slight MTBE rebound was detected (58.2 ppb and 64.7 ppb). The mechanism behind this slight rebound remains unclear at this time, but may be a function of laboratory inaccuracies.

In the live-control flask (flask B) and the killed-control flask (flask C) had identical MTBE reductions at both 240 hours and 480 hours. This indicates that the majority of the MTBE reduction in flask B during this time period was the result of volatilization. This conclusion is validated by the plate count data, which showed no microbial growth in flask B until the 480-hour mark. The MTBE concentrations did, however, decrease disproportionately between hours 480 and 720, with the live-control flask showing a greater decrease. This decrease also corresponds with a period of growth, indicating that some biological degradation may have occurred.

The data from flask B and flask C also indicates that some portion of the MTBE reductions in flask A may be attributable to volatilization. However, the fact that MTBE in flask A was reduced by over 99% in the first 240 hours (while flask B and flask C showed only minimal reductions) indicates that microbial degradation was responsible for the majority of the MTBE reduction exhibited in the bioaugmented flask (flask A).

## Discussion and Conclusions

The following conclusions can be drawn from the treatability data:

1. The bioaugmented flask (flask A) was successful in degrading 99% of MTBE within 240 hours.

Mr. Jason Fronzcek  
ENSR International, Inc.  
September 4, 2006

2. The MTBE reductions in the live-control flask (flask B) were identical to the MTBE reductions in the killed-control (flask C) for the first 480 hours, indicating that MTBE reductions in both flasks until then were the result of abiotic processes (i.e. volatilization).
3. The measured volatilization losses in the killed-control flask (flask C) verify that the MTBE reductions noted in the bioaugmented flask (Flask A) are primarily attributable to microbial degradation.
4. The bacterial inoculum used for the bioaugmented flask (A2™ bacterial consortium) was successful in dramatically increasing the hydrocarbon-degrading plate count concentrations in the bioaugmented flask (flask A) to over 30,000 CFU/mL during the first 10 days of the test, which was a likely factor in the excellent short-term MTBE reductions.

Overall, this treatability study has shown that bioremediation is a viable technology at this site. The bioaugmented flask (flask A), which was inoculated with hydrocarbon-degrading bacteria and nutrients, was able to reduce the MTBE by greater than 99% within 240 hours. The MTBE reduction in the bioaugmented flask (flask A) was much more than the MTBE reduction that was noted in the live-control flask (flask B). It can also be concluded that oxygen additional alone was unable to stimulate significant microbial degradation of MTBE in the live-control flask (flask B), since most of its MTBE reductions are directly attributable to volatilization. It may be possible that significant microbial MTBE degradation did not occur in the live-control flask (flask B) due to the lack of a specific nutrient or bacterial component.

For optimal reductions of the MTBE present at this site, a strategy of consistent site inoculation with a large population of specific MTBE-degrading bacteria, coupled with ongoing oxygenation and nutrient addition, can be successful at reducing the contaminant concentrations to below regulatory limits within a reasonable time period.

If you have any questions or comments regarding the data presented in this report, please call me at (503) 546-3617. We appreciate the opportunity to perform this treatability study for ENSR International, and we look forward to further collaboration on this project.

Respectfully,

**ENZYME TECHNOLOGIES, INC.**



---

Eric Bueltel  
Project Manager  
[eric@enzymetech.com](mailto:eric@enzymetech.com)  
503-546-3617

Table 1. Complete Water Quality Data

| Flask A - Bioaugmented |       | Test     |        |        |        |
|------------------------|-------|----------|--------|--------|--------|
|                        | Units | Baseline | 10-Day | 20-Day | 30-Day |
| Benzene                | ppb   | ND       | ND     | ND     | ND     |
| Toluene                | ppb   | ND       | ND     | ND     | ND     |
| Ethylbenzene           | ppb   | ND       | ND     | ND     | ND     |
| Xylenes (total)        | ppb   | ND       | ND     | ND     | ND     |
| MTBE                   | ppb   | 6,970    | 24.1   | 58.2   | 64.7   |
| Naphthalene            | ppb   | ND       | ND     | ND     | ND     |

| Flask B – Live-control |       | Test     |        |        |        |
|------------------------|-------|----------|--------|--------|--------|
|                        | Units | Baseline | 10-Day | 20-Day | 30-Day |
| Benzene                | ppb   | ND       | ND     | ND     | ND     |
| Toluene                | ppb   | ND       | ND     | ND     | ND     |
| Ethylbenzene           | ppb   | ND       | ND     | ND     | ND     |
| Xylenes (total)        | ppb   | ND       | ND     | ND     | ND     |
| MTBE                   | ppb   | 6,930    | 5,520  | 6,120  | 5,890  |
| Naphthalene            | ppb   | ND       | ND     | ND     | ND     |

| Flask C – Killed-control |       | Test     |        |        |        |
|--------------------------|-------|----------|--------|--------|--------|
|                          | Units | Baseline | 10-Day | 20-Day | 30-Day |
| Benzene                  | ppb   | ND       | ND     | ND     | ND     |
| Toluene                  | ppb   | ND       | ND     | ND     | ND     |
| Ethylbenzene             | ppb   | ND       | ND     | ND     | ND     |
| Xylenes (total)          | ppb   | ND       | ND     | ND     | ND     |
| MTBE                     | ppb   | 6,800    | 5,420  | 5,990  | 6,150  |
| Naphthalene              | ppb   | ND       | ND     | ND     | ND     |

NOTES:

ND: Not detected at specified detection limit

ppb: parts per billion (µg/L)